

# 3769

RO 486

# CAMBRIA

February 8, 2002

FEB 14 2002

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

Re: **Fourth Quarter 2001 Monitoring Report**  
Shell-branded Service Station  
4255 MacArthur Boulevard  
Oakland, California  
Incident #98995758  
Cambria Project #244-0524-002

- Awaiting GW samples of MW-5
- Could / should run tracer test
- Confirming DPE from wells + B.W.



Dear Mr. Chan:

On behalf of Equiva Services LLC (Equiva), Cambria Environmental Technology, Inc. (Cambria) is submitting this groundwater monitoring report in accordance with the reporting requirements of 23 CCR 2652d.

## HYDROCARBON REMOVAL SUMMARY

**Groundwater Extraction (GWE):** Monthly GWE using a vacuum truck has been conducted intermittently at the site since April 1999. Mobile GWE vacuum operations consist of lowering dedicated stingers into selected monitoring wells and extracting fluids using a vacuum truck. The volume of extracted fluid is recorded and used to calculate the quantity of aqueous-phase hydrocarbon removed from the subsurface. To date, an estimated 11.6 pounds of liquid-phase hydrocarbons and 21.4 pounds of liquid-phase methyl tert-butyl ether (MTBE) have been removed from the site.

**Dual Phase Vapor Extraction (DVE):** From November 2000 to June 2001, hydrocarbon removal efforts were augmented by DVE. DVE is the process of applying high vacuum through an airtight well seal to simultaneously extract soil vapors from the vadose zone and enhance GWE from the saturated zone. A vacuum truck is used to create the vacuum and contain extracted fluids. An estimated 2.29 pounds of vapor-phase hydrocarbon were removed by the system.

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

**Separate Phase Hydrocarbons (SPH):** SPH have not been observed at the site since the fourth quarter of 1999. Prior to that time, an estimated total of 21.80 pounds of SPH was removed from monitoring wells by manual bailing.

The table below summarizes the aqueous-, separate-, and vapor-phase hydrocarbon removal data for the site.

Mass Removal	Cumulative MTBE  (lbs)	Cumulative Hydrocarbons  (lbs)
Aqueous-Phase	21.45	11.59
Separate-Phase	0.0	21.80
Vapor-Phase	0.06	1.29
Total	21.51	34.68

**FOURTH QUARTER 2001 ACTIVITIES**

**Groundwater Monitoring:** Blaine Tech Services, Inc. (Blaine) of San Jose, gauged and sampled the site wells, calculated groundwater elevations and compiled the gasoline constituents analytical data. Cambria prepared a vicinity map which includes previously submitted well survey information (Figure 1) and a groundwater elevation contour map (Figure 2). Blaine's report, presenting the laboratory report and supporting field documents, is included as Attachment A.

**Additional Oxygenate Analysis:** In addition to the regular quarterly analysis for total petroleum hydrocarbons as gasoline, benzene, toluene, ethylbenzene, xylenes, and MTBE, groundwater samples from monitoring wells MW-2 and MW-3 were analyzed for five additional oxygenates. Analytical results for MTBE, di-isopropyl ether, ethyl tert-butyl ether, tert-amyl methyl ether, tert-butyl alcohol, and ethanol are presented on Table 1.

**GWE:** During this quarter, Advanced Cleanup Technologies Inc. of Benicia, California conducted five mobile GWE events using monitoring well MW-2 and tank backfill wells TB-1 and TB-2. Mass-removal data for the site is presented in Table 2. Approximately 1.63 pounds of hydrocarbons and approximately 0.97 pounds of MTBE were removed by GWE this quarter. GWE and quarterly monitoring data for MW-2 are depicted graphically in Figure 3.

**Downgradient Monitoring Well Installation:** On November 12, 2001 Cambria supervised the installation of a downgradient monitoring well (MW-5) within the California Department of

Transportation (right-of-way as shown in Figure 2. The well was developed on January 2, 2002 and will be included in the quarterly monitoring regimen beginning in the first quarter of 2002. Cambria's *Offsite Monitoring Well Installation Report* was submitted on January 10, 2002.

## ANTICIPATED FIRST QUARTER 2002 ACTIVITIES

***Groundwater Monitoring:*** Blaine will gauge and sample all wells and tabulate the data. Cambria will prepare a monitoring report.



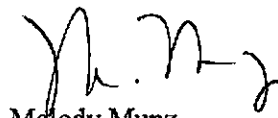
***GWE and DVE:*** Monthly GWE will be performed using monitoring well MW-3 and tank backfill well TB-2. In addition, Cambria will conduct DVE using monitoring well MW-2.

***Oxygen Releasing Compound (ORC) Removal:*** The ORC sock in monitoring well MW-2 will be removed due to interference with extraction operations.

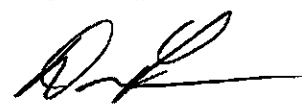
**CLOSING**

We appreciate the opportunity to work with you on this project. Please call Melody Munz at (510) 420-3324 if you have any questions or comments.

Sincerely,  
**Cambria Environmental Technology, Inc**



Melody Munz  
Project Engineer



Diane Lundquist, P.E.  
Principal Engineer



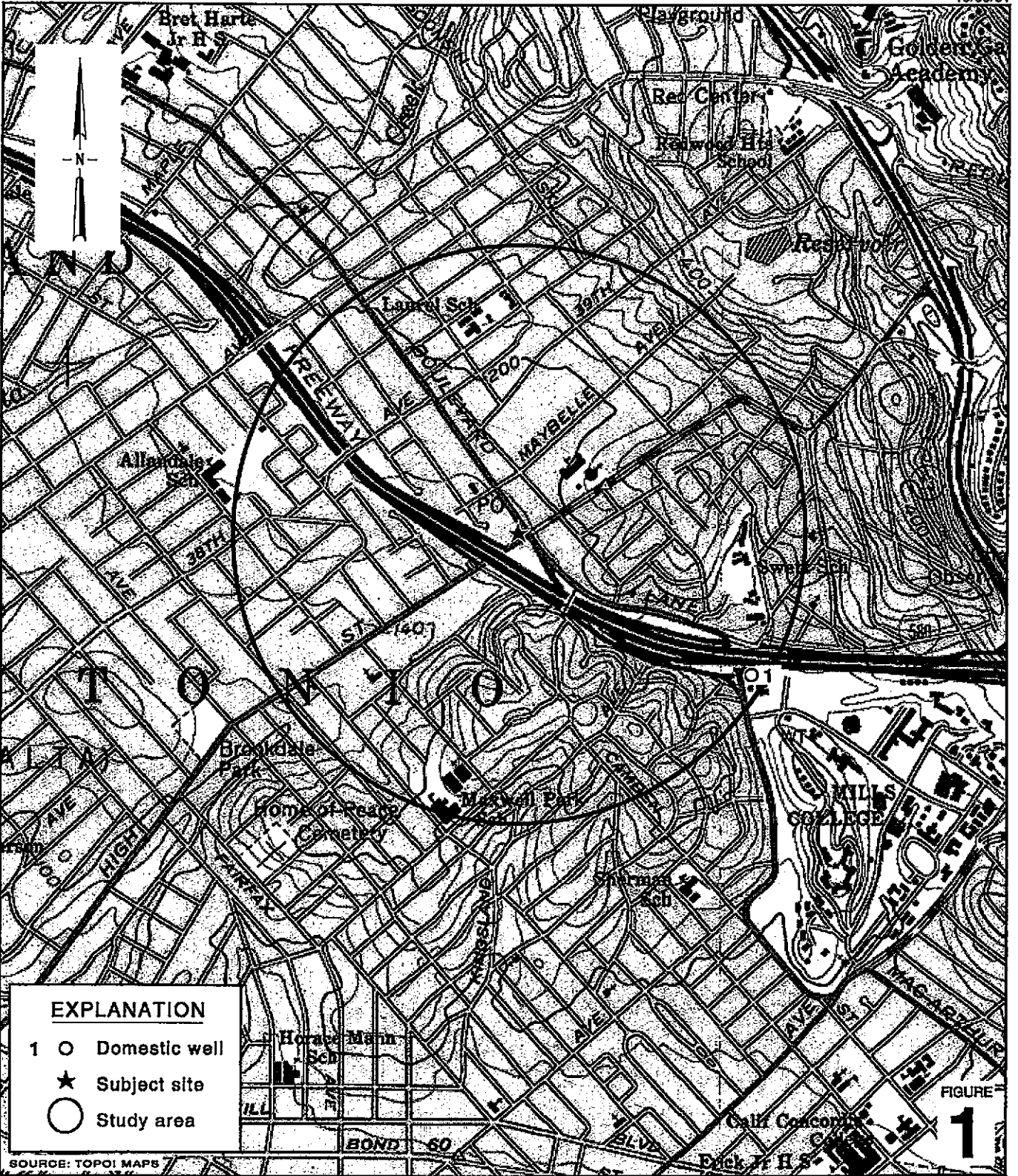
- Figures:     1 - Vicinity/Area Well Survey Map  
              2 - Groundwater Elevation Contour Map  
              3 - VacOps/DVE Effect on MTBE Concentration (MW-2)

- Tables:      1 - Groundwater Analytical Data - Oxygenates  
              2 - Groundwater Extraction - Mass Removal Data  
              3 - Vapor Extraction - Mass Removal Data

Attachments:   A - Blaine Groundwater Monitoring Report and Field Notes

cc:           Karen Petryna, Equiva Services LLC, P.O. Box 7869, Burbank, California 91510-7869  
              Roland C. Malone, Jr., PO Box 2744, Castro Valley, CA 94546

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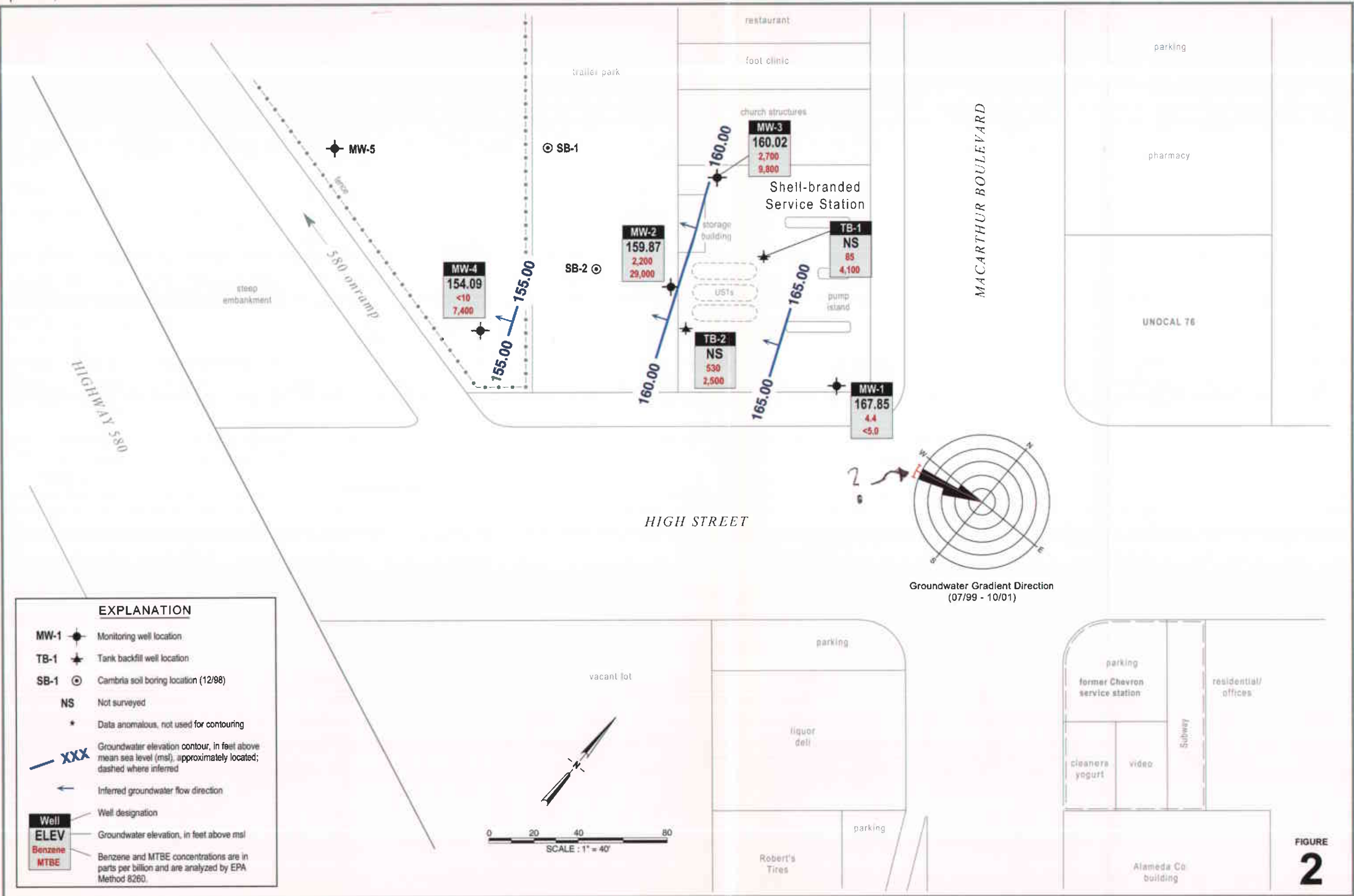
**Shell-branded Service Station**  
 4255 MacArthur Boulevard  
 Oakland, California  
 Incident #98995758



C A M B R I A

**Vicinity / Area Well  
 Survey Map**  
 (1/2 Mile Radius)

12/19/01



**Groundwater Elevation Contour Map**  
October 31, 2001

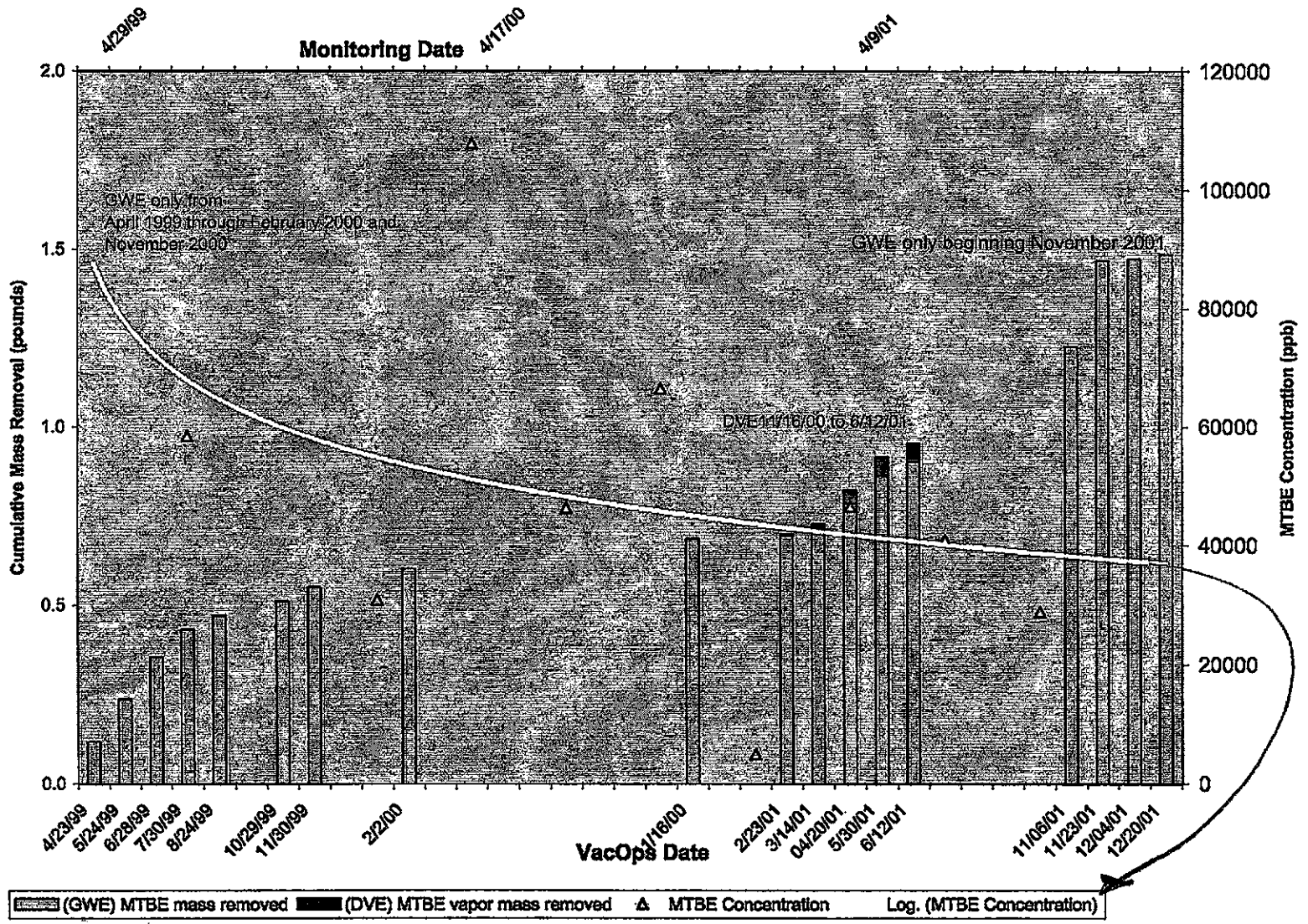
 **C A M B R I A**

**Shell-branded Service Station**  
4255 MacArthur Boulevard  
Oakland, California  
Incident #98995758

**FIGURE 2**

**VacOps/DVE Effect on MTBE Concentration  
4255 MacArthur, Oakland MW-2**

Date	DTW
4/29/99	9.86
7/23/99	14.45
11/01/99	11.84
1/17/00	11.00
4/17/00	11.06
7/28/00	12.82
10/12/00	11.32
1/15/01	10.19
4/09/01	11.15
7/24/01	11.67
10/31/01	11.04





# CAMBRIA

**Table 1. Groundwater Analytical Data - Oxygenates - Shell-branded Service Station, Incident #98995758, 4255 MacArthur, Oakland, California**

Sample ID	Date Sampled	MTBE	DIPE	ETBE (Concentrations in ppb)	TAME	TBA	Ethanol
MW-2	10/31/01	29,000	<50	<50	<50	51,000	<500
MW-3	10/31/01	9,800	<20	<20	<20	5,200	<500

**Abbreviations:**

MTBE = Methyl tert-butyl ether, analyzed by EPA Method 8260

DIPE = Di-isopropyl ether, analyzed by EPA Method 8260

ETBE = Ethyl tert-butyl ether, analyzed by EPA Method 8260

TAME = Tert-amyl methyl ether, analyzed by EPA Method 8260

TBA = Tert-butyl alcohol, analyzed by EPA Method 8260

Ethanol analyzed by EPA Method 8260

ppb = Parts per billion



**Table 2: Groundwater Extraction - Mass Removal Data - Shell-branded Service Station, Incident #98995758, 4255 MacArthur Boulevard, Oakland, CA**

Date Purged	Well ID	Volume Pumped (gal)	Cumulative Volume Pumped (gal)	Date Sampled	TPPH			Benzene			MTBE		
					TPPH Concentration (ppb)	TPPH Removed (lb)	TPPH Removed To Date (lb)	Benzene Concentration (ppb)	Benzene Removed (lb)	Benzene Removed to Date (lb)	MTBE Concentration (ppb)	MTBE Removed (lb)	MTBE Removed To Date (lb)
04/23/99	MW-2	200	200	04/13/98	180,000	0.30040	0.30040	2,800	0.00467	0.00467	71,000	0.11849	0.11849
05/24/99	MW-2	200	400	04/13/98	180,000	0.30040	0.60079	2,800	0.00467	0.00935	71,000	0.11849	0.23698
06/28/99	MW-2	200	600	04/13/98	180,000	0.30040	0.90119	2,800	0.00467	0.01402	71,000	0.11849	0.35547
07/30/99	MW-2	200	800	07/23/99	65,800	0.10981	1.01100	6,500	0.01085	0.02487	46,600	0.07777	0.43324
08/24/99	MW-2	100	900	07/23/99	65,800	0.05491	1.06591	6,500	0.00542	0.03029	46,600	0.03888	0.47212
10/29/99	MW-2	100	1,000	07/23/99	65,800	0.05491	1.12081	6,500	0.00542	0.03571	46,600	0.03888	0.51101
11/30/99	MW-2	100	1,100	07/23/99	65,800	0.05491	1.17572	6,500	0.00542	0.04114	46,600	0.03888	0.54989
02/02/00	MW-2	200	1,300	01/17/00	46,000	0.07677	1.25249	6,000	0.01001	0.05115	31,000	0.05174	0.60163
11/16/00	MW-2	150	1,450	10/12/00	63,200	0.07910	1.33159	5,840	0.00731	0.05846	66,600	0.08336	0.68499
02/23/01	MW-2	200	1,650	01/15/01	59,700	0.09963	1.43122	2,630	0.00439	0.06285	5,080	0.00848	0.69347
03/14/01	MW-2	300	1,950	01/15/01	59,700	0.14945	1.58067	2,630	0.00658	0.06943	5,080	0.01272	0.70618
04/20/01*	MW-2	200	2,150	04/09/01	56,900	0.09496	1.67563	1,860	0.00310	0.07254	46,600	0.07777	0.78395
05/30/01	MW-2	200	2,350	04/09/01	56,900	0.09496	1.77059	1,860	0.00310	0.07564	46,600	0.07777	0.86172
06/12/01	MW-2	100	2,450	04/09/01	56,900	0.04748	1.81807	1,860	0.00155	0.07719	46,600	0.03888	0.90061
11/06/01	MW-2	1,350	3,800	10/31/01	45,000	0.50692	2.32499	2,200	0.02478	0.10198	29,000	0.32668	1.22729
11/23/01	MW-2	1,000	4,800	10/31/01	45,000	0.37550	2.70048	2,200	0.01836	0.12033	29,000	0.24199	1.46927
12/04/01	MW-2	20	4,820	10/31/01	45,000	0.00751	2.70799	2,200	0.00037	0.12070	29,000	0.00484	1.47411
12/20/01	MW-2	50	4,870	10/31/01	45,000	0.01877	2.72677	2,200	0.00092	0.12162	29,000	0.01210	1.48621
05/30/01	MW-3	50	50	04/09/01	33,800	0.01410	0.01410	7,100	0.00296	0.00296	13,000	0.00542	0.00542
06/12/01	MW-3	50	100	04/09/01	33,800	0.01410	0.02820	7,100	0.00296	0.00592	13,000	0.00542	0.01085
09/05/01	TB-1	300	300	10/31/01	1,000	0.00250	0.00250	85	0.00021	0.00021	4,100	0.01026	0.01026
09/19/01	TB-1	1,400	1,700	10/31/01	1,000	0.01168	0.01419	85	0.00099	0.00121	4,100	0.04790	0.05816
10/16/01	TB-1	1,200	2,900	10/31/01	1,000	0.01001	0.02420	85	0.00085	0.00206	4,100	0.04105	0.09921
04/23/99	TB-2	4,800	4,800	08/24/99	6,240	0.24993	0.01602	400	0.01602	0.01602	86,100	3.44856	3.44856
05/24/99	TB-2	4,800	9,600	08/24/99	6,240	0.24993	0.26595	400	0.01602	0.03204	86,100	3.44856	6.89711

**Table 2: Groundwater Extraction - Mass Removal Data - Shell-branded Service Station, Incident #98995758, 4255 MacArthur Boulevard, Oakland, CA**

Date Purged	Well ID	Volume Pumped (gal)	Cumulative Volume Pumped (gal)	Date Sampled	TPPH			Benzene			MTBE		
					TPPH Concentration (ppb)	TPPH Removed (lb)	TPPH Removed To Date (lb)	Benzene Concentration (ppb)	Benzene Removed (lb)	Benzene Removed to Date (lb)	MTBE Concentration (ppb)	MTBE Removed (lb)	MTBE Removed To Date (lb)
06/28/99	TB-2	4,800	14,400	08/24/99	6,240	0.24993	0.51588	400	0.01602	0.04806	86,100	3.44856	10.34567
07/30/99	TB-2	4,800	19,200	08/24/99	6,240	0.24993	0.76581	400	0.01602	0.06408	86,100	3.44856	13.79422
08/24/99	TB-2	2,400	21,600	08/24/99	6,240	0.12497	0.89078	400	0.00801	0.07210	86,100	1.72428	15.51850
10/29/99	TB-2	2,255	23,855	10/29/99	7,460	0.14037	1.03115	656	0.01234	0.08444	442	0.00832	15.52682
11/30/99	TB-2	3,800	27,655	10/29/99	7,460	0.23655	1.26769	656	0.02080	0.10524	442	0.01402	15.54083
02/02/00	TB-2	4,500	32,155	01/31/00	2,070	0.07773	1.34542	108	0.00406	0.10930	6,550	0.24595	15.78678
11/16/00	TB-2	974	33,129	11/16/00	107,000	0.86963	2.21505	3,390	0.02755	0.13685	16,800	0.13654	15.92332
02/23/01	TB-2	2,506	35,635	02/23/01	80,600	1.68542	3.90048	2,410	0.05040	0.18724	38,100	0.79671	16.72003
03/14/01	TB-2	1,075	36,710	02/23/01	80,600	0.72300	4.62347	2,410	0.02162	0.20886	38,100	0.34176	17.06179
04/20/01*	TB-2	1,760	38,470	04/09/01	46,600	0.68437	5.30784	1,240	0.01821	0.22707	31,300	0.45967	17.52147
05/30/01	TB-2	2,100	40,570	04/09/01	46,600	0.81658	6.12442	1,240	0.02173	0.24880	31,300	0.54847	18.06994
06/12/01	TB-2	2,400	42,970	04/09/01	46,600	0.93323	7.05766	1,240	0.02483	0.25190	31,300	0.62683	18.69677
08/07/01	TB-2	2,510	43,080	07/24/01	11,000	0.23039	7.28804	630	0.01319	0.26199	11,000	0.23039	18.92716
08/21/01	TB-2	2,700	45,670	07/24/01	11,000	0.24783	7.53587	630	0.01419	0.26299	11,000	0.24783	19.17499
09/05/01	TB-2	2,100	45,180	07/24/01	11,000	0.19275	7.72863	630	0.01104	0.26294	11,000	0.19275	19.36774
09/19/01	TB-2	1,500	47,170	07/24/01	11,000	0.13768	7.86631	630	0.00789	0.26988	11,000	0.13768	19.50542
10/16/01	TB-2	1,750	46,930	07/24/01	11,000	0.16063	8.02694	630	0.00920	0.27219	11,000	0.16063	19.66605
11/06/01	TB-2	1,500	48,670	10/31/01	7,500	0.09387	8.12081	530	0.00663	0.26958	2,500	0.03129	19.69734
11/23/01	TB-2	1,500	48,430	10/31/01	7,500	0.09387	8.21468	530	0.00663	0.27651	2,500	0.03129	19.72863
12/04/01	TB-2	2,900	51,570	10/31/01	7,500	0.18149	8.39617	530	0.01283	0.28502	2,500	0.06050	19.78913
12/20/01	TB-2	2,950	51,380	10/31/01	7,500	0.18462	8.58079	530	0.01305	0.28262	2,500	0.06154	19.85067
<b>Total Gallons Extracted:</b>			<b>70,250</b>	<b>Total Pounds Removed:</b>			<b>11.59387</b>	<b>Total Gallons Removed:</b>			<b>0.49789</b>	<b>21.44694</b>	
							<b>1.90063</b>				<b>0.06820</b>	<b>3.45918</b>	

**Table 2: Groundwater Extraction - Mass Removal Data - Shell-branded Service Station, Incident #98995758, 4255 MacArthur Boulevard, Oakland, CA**

Date Purged	Well ID	Volume Pumped (gal)	Cumulative Volume Pumped (gal)	Date Sampled	TPPH			Benzene			MTBE		
					TPPH Concentration (ppb)	TPPH Removed (lb)	TPPH Removed To Date (lb)	Benzene Concentration (ppb)	Benzene Removed (lb)	Benzene Removed to Date (lb)	MTBE Concentration (ppb)	MTBE Removed (lb)	MTBE Removed To Date (lb)

**Abbreviations & Notes:**

TPPH = Total purgeable hydrocarbons as gasoline, analyzed by EPA Method 8015

MtBE = Methyl tert-butyl ether by EPA Method 8020; MTBE results in bold are analyzed by EPA Method 8260

ppb = Parts per billion

lb = Pound

gal = Gallon

\* = Purge volume estimated

Mass removed based on the formula: volume extracted (gal) x Concentration (µg/L) x (g/10<sup>6</sup>µg) x (pound/453.6g) x (3.785 L/gal)

Volume removal data based on the formula: density (in gms/cc) x 9.339 (ccxlbs/gmsxgals)

Benzene analyzed by EPA Method 8020

Concentrations for TB-1 not yet available, first sampling event: 10/2001

**Table 3: Vapor Extraction - Mass Removal Data - Shell-branded Service Station, Incident #98995758, 4255 MacArthur Boulevard, Oakland, CA**

Date	Well ID	Interval Hours of Operation (hours)	System Flow Rate (CFM)	Hydrocarbon Concentrations			TPHg		Benzene		MTBE	
				TPHg	Benzene	MTBE	TPHg Removal Rate (#/hour)	Cumulative TPHg Removed (#)	Benzene Removal Rate (#/hour)	Cumulative Benzene Removed (#)	MTBE Removal Rate (#/hour)	Cumulative MTBE Removed (#)
				(Concentrations in ppmv)								
11/16/00	MW-2	0.67	0.5	663.0	7.00	42.0	0.004	0.003	0.000	0.000	0.000	0.000
02/23/01	MW-2	7.00	3.2	24.1	0.93	11.9	0.001	0.010	0.000	0.000	0.001	0.004
03/14/01	MW-2	6.00	4.0	203	4.13	51.9	0.011	0.075	0.000	0.001	0.003	0.021
04/20/01*	MW-2	4.00	6.2	310	4.4	49	0.026	0.178	0.000	0.003	0.004	0.037
05/30/01	MW-2	3.00	7.7	360	4.4	50	0.037	0.289	0.000	0.004	0.005	0.053
06/12/01	MW-2	3.00	5.1	56	0.33	2.0	0.004	0.301	0.000	0.004	0.000	0.054
05/30/01	MW-3	3.00	4.0	4,200	7.1	14	0.225	0.674	0.000	0.001	0.001	0.002
06/12/01	MW-3	3.00	3.3	2,400	5.8	9.8	0.106	0.991	0.000	0.002	0.000	0.004
<b>Total Pounds Removed:</b>							<b>TPHg =</b>	<b>1.292</b>	<b>Benzene =</b>	<b>0.995</b>	<b>MTBE =</b>	<b>0.057</b>

**Abbreviations and Notes:**

CFM = Cubic feet per minute

TPHg = Total petroleum hydrocarbons as gasoline (C6-C12) by modified EPA Method 8015 in 1 liter tedlar bag samples

ppmv = Parts per million by volume

# = Pounds

TPHG, Benzene, and MTBE analyzed by EPA Method 8015/8020 in 1 liter tedlar bag samples

TPHg / Benzene / MTBE removal rate = Rate based on Bay Area Air Quality Management District's Manual of Procedures for Soil Vapor Extraction dated July 17, 1991.

(Rate = Concentration (ppmv) x system flow rate (cfm) x (1lb-mole/386ft3) x molecular weight (86 lb/lb-mole for TPHg, 78 lb/lb-mole for benzene, 88 lb/lb-mole for MTBE) x 60 min/hour x 1/1,000,000)

Cumulative TPHg / Benzene / MTBE removal = Previous removal rate multiplied by the hour-interval of operation plus the previous total

\* = Interval hours of operation estimated.

**ATTACHMENT A**

Blaine Groundwater Monitoring Report  
and Field Notes

**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

November 29, 2001

Karen Petryna  
Equiva Services LLC  
P.O. Box 7869  
Burbank, CA 91510-7869

Fourth Quarter 2001 Groundwater Monitoring at  
Shell-branded Service Station  
4255 MacArthur Boulevard  
Oakland, CA

Monitoring performed on October 31, 2001

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**Groundwater Monitoring Report 011031-C-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.

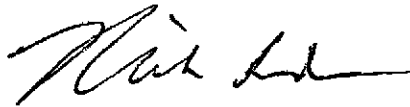
Basic field information is presented alongside analytical values excerpted from the laboratory report in the cumulative table of **WELL CONCENTRATIONS**. The full analytical report for the most recent samples and the field data sheets are attached to this report.

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,

A handwritten signature in black ink, appearing to read "Nick Sudano".

Nick Sudano  
Project Coordinator

NS/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**  
**4255 MacArthur Boulevard**  
**Oakland, CA**  
**Wic #204-5510-0600**

Well ID	Date	TPPH (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.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO Reading (ppm)	ORP Reading (mV)
MW-1	11/17/1993	410	21	11	7.9	47	NA	NA	175.79	8.59	NA	167.20	NA	NA	NA
MW-1	01/20/1994	1,200	180	19	48	47	NA	NA	175.79	8.22	NA	167.57	NA	NA	NA
MW-1	04/25/1994	3,100	610	<10	130	27	NA	NA	175.79	7.63	NA	168.16	NA	NA	NA
MW-1	07/07/1994	2,400	1,000	10	250	20	NA	NA	175.79	8.31	NA	167.48	NA	NA	NA
MW-1	10/27/1994	2,200	500	3.1	72	1.8	NA	NA	175.79	8.84	NA	166.95	NA	NA	NA
MW-1	11/17/1994	NA	NA	NA	NA	NA	NA	NA	175.79	7.60	NA	168.19	NA	NA	NA
MW-1	11/28/1994	NA	NA	NA	NA	NA	NA	NA	175.79	7.56	NA	168.23	NA	NA	NA
MW-1	01/13/1995	570	75	2.5	6.7	11	NA	NA	175.79	7.11	NA	168.68	NA	NA	NA
MW-1	04/12/1995	1,800	480	<5.0	79	<5.0	NA	NA	175.79	7.08	NA	168.71	NA	NA	NA
MW-1	07/25/1995	120	15	1.1	2.1	2.9	NA	NA	175.79	7.73	NA	168.06	NA	NA	NA
MW-1 (D)	07/25/1995	300	88	2.4	11	6.5	NA	NA	175.79	7.73	NA	168.06	NA	NA	NA
MW-1	10/18/1995	130	9.5	0.8	1.3	1.7	NA	NA	175.79	8.42	NA	167.37	NA	NA	NA
MW-1 (D)	10/18/1995	120	11	0.8	1.4	1.8	NA	NA	175.79	8.42	NA	167.37	NA	NA	NA
MW-1	01/17/1996	250	22	0.9	1.6	2.3	NA	NA	175.79	7.83	NA	167.96	NA	NA	NA
MW-1	04/25/1996	<50	4.6	<0.5	<0.5	0.6	500b	NA	175.79	7.35	NA	168.44	NA	NA	NA
MW-1	07/17/1996	<250	15	<2.5	<2.5	<2.5	540	NA	175.79	7.70	NA	168.09	NA	NA	NA
MW-1	10/01/1996	1,200	500	12	57	82	1,900	NA	175.79	8.07	NA	167.72	NA	NA	NA
MW-1	01/22/1997	640	170	4.3	33	33	1,200	NA	175.79	7.21	NA	168.58	NA	NA	NA
MW-1	04/08/1997	<200	34	<2.0	3.3	4.3	950	NA	175.79	7.75	NA	168.04	NA	NA	NA
MW-1 (D)	04/08/1997	<200	66	<2.0	6.4	8	740	NA	175.79	7.75	NA	168.04	NA	NA	NA
MW-1	07/08/1997	190	49	1.2	5.8	8.6	560	NA	175.79	8.01	NA	167.78	NA	NA	NA
MW-1	10/08/1997	<100	7	<1.0	<1.0	<1.0	620	NA	175.79	8.10	NA	167.69	NA	NA	NA
MW-1	01/09/1998	970	390	12	48	71	1,200	NA	175.79	7.14	NA	168.65	NA	NA	NA
MW-1	04/13/1998	<50	136	<0.50	1.5	1.8	170	NA	175.79	6.78	NA	169.01	NA	NA	NA
MW-1	07/17/1998	2,500	750	11	88	67	150	NA	175.79	7.28	NA	168.51	NA	NA	NA
MW-1	10/02/1998	8,000	970	36	270	440	35	NA	175.79	7.77	NA	168.02	NA	NA	NA

**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**4255 MacArthur Boulevard**  
**Oakland, CA**  
**Wic #204-5510-0600**

Well ID	Date	TPPH (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.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO Reading (ppm)	ORP Reading (mV)
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MW-1	02/03/1999	210	56	0.82	<0.50	3.2	220	NA	175.79	7.45	NA	168.34	NA	1.4	NA
MW-1	04/29/1999	<50	4.5	<0.50	0.56	<0.50	140	196	175.79	7.58	NA	168.21	NA	1.2	140
MW-1	07/23/1999	<50.0	<0.500	<0.500	<0.500	<0.500	120	111*	175.79	8.51	NA	167.28	NA	1.0	NA
MW-1	11/01/1999	<50.0	<0.500	<0.500	<0.500	<0.500	2.90	NA	175.79	8.30	NA	167.49	NA	1.4	-71
MW-1	01/17/2000	<50	<0.50	<0.50	<0.50	<0.50	3.30	NA	175.79	8.04	NA	167.75	NA	16.9	64
MW-1	04/17/2000	<50.0	1.08	<0.500	<0.500	<0.500	<2.50	NA	175.79	8.00	NA	167.79	NA	1.8	112
MW-1	07/26/2000	125	54.3	2.16	5.45	9.86	33.1	NA	175.79	7.52	NA	168.27	NA	13.2	-140
MW-1	10/12/2000	101	40.7	2.68	3.00	5.18	25.0	NA	175.79	7.71	NA	168.08	NA	>20	534
MW-1	01/15/2001	<50.0	0.633	<0.500	0.505	1.74	<2.50	NA	175.79	7.33	NA	168.46	NA	16.9	-127
MW-1	04/09/2001	<50.0	<0.500	<0.500	<0.500	0.927	<2.50	NA	175.79	7.68	NA	168.11	NA	12.8	-117
MW-1	07/24/2001	<50	4.0	0.65	0.53	1.3	NA	<5.0	175.79	8.00	NA	167.79	NA	>20	43
MW-1	10/31/2001	<50	4.4	<0.50	<0.50	0.98	NA	<5.0	175.79	7.94	NA	167.85	NA	13.6	123

MW-2	11/17/1993	31,000	9,400	4,600	1,000	3,900	NA	NA	170.91	12.31	NA	158.60	NA	NA	NA
MW-2	01/20/1994	40,000	6,900	5,600	780	4,100	NA	NA	170.91	11.48	NA	159.43	NA	NA	NA
MW-2 (D)	01/20/1994	41,000	7,200	6,200	900	4,800	NA	NA	170.91	11.48	NA	159.43	NA	NA	NA
MW-2	04/25/1994	60,000	9,300	6,100	1,400	6,200	NA	NA	170.91	10.84	NA	160.07	NA	NA	NA
MW-2	07/07/1994	280,000a	40,000	26,000	8,100	32,000	NA	NA	170.91	11.89	NA	159.02	NA	NA	NA
MW-2 (D)	07/07/1994	53,000	13,000	6,600	2,000	8,400	NA	NA	170.91	11.89	NA	159.02	NA	NA	NA
MW-2	10/27/1994	130,000	14,000	12,000	2,400	13,000	NA	NA	170.91	12.89	NA	158.02	NA	NA	NA
MW-2 (D)	10/27/1994	390,000	8,800	7,000	1,700	11,000	NA	NA	170.91	12.89	NA	158.02	NA	NA	NA
MW-2	11/17/1994	NA	NA	NA	NA	NA	NA	NA	170.91	9.11	NA	161.80	NA	NA	NA
MW-2	11/28/1994	NA	NA	NA	NA	NA	NA	NA	170.91	9.22	NA	161.69	NA	NA	NA
MW-2	01/13/1995	75,000	5,900	12,000	3,100	17,000	NA	NA	170.91	8.10	NA	162.81	NA	NA	NA
MW-2	04/12/1995	100,000	8,500	11,000	2,400	12,000	NA	NA	170.91	10.12	NA	160.79	NA	NA	NA
MW-2 (D)	04/12/1995	80,000	4,200	9,300	2,500	12,000	NA	NA	170.91	10.12	NA	160.79	NA	NA	NA

**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**4255 MacArthur Boulevard**  
**Oakland, CA**  
**Wic #204-5510-0600**

Well ID	Date	TPPH (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.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO Reading (ppm)	ORP Reading (mV)
MW-2	07/25/1995	NA	NA	NA	NA	NA	NA	NA	170.91	11.53	NA	159.80	0.52	NA	NA
MW-2	10/18/1995	NA	NA	NA	NA	NA	NA	NA	170.91	14.02	NA	156.99	0.13	NA	NA
MW-2	01/17/1996	NA	NA	NA	NA	NA	NA	NA	170.91	10.27	NA	160.78	0.17	NA	NA
MW-2	04/25/1996	NA	NA	NA	NA	NA	NA	NA	170.91	11.68	NA	159.25	0.03	NA	NA
MW-2	07/17/1996	NA	NA	NA	NA	NA	NA	NA	170.91	12.78	NA	158.81	0.48	NA	NA
MW-2	10/01/1996	NA	NA	NA	NA	NA	NA	NA	170.91	14.21	NA	156.70	0.28	NA	NA
MW-2	01/22/1997	NA	NA	NA	NA	NA	NA	NA	170.91	10.92	NA	160.08	0.11	NA	NA
MW-2	04/08/1997	NA	NA	NA	NA	NA	NA	NA	170.91	14.12	NA	156.95	0.20	NA	NA
MW-2	07/08/1997	NA	NA	NA	NA	NA	NA	NA	170.91	14.98	NA	156.08	0.19	NA	NA
MW-2	10/08/1997	NA	NA	NA	NA	NA	NA	NA	170.91	12.97	NA	157.98	0.05	NA	NA
MW-2	01/08/1998	NA	NA	NA	NA	NA	NA	NA	170.91	12.54	NA	158.43	0.08	NA	NA
MW-2	04/13/1998	180,000	2,800	5,200	2,400	13,000	71,000	NA	170.91	10.05	NA	160.86	NA	NA	NA
MW-2	07/17/1998	NA	NA	NA	NA	NA	NA	NA	170.91	11.75	NA	159.24	0.10	NA	NA
MW-2	10/02/1998	NA	NA	NA	NA	NA	NA	NA	170.91	16.78	NA	154.22	0.11	NA	NA
MW-2	02/03/1999	NA	NA	NA	NA	NA	NA	NA	170.91	9.90	9.82	161.07	0.08	NA	NA
MW-2	04/29/1999	NA	NA	NA	NA	NA	NA	NA	170.91	9.86	9.81	161.09	0.05	NA	NA
MW-2	07/23/1999	65,800	6,500	4,480	1,960	8,960	46,600	58,500*	170.91	14.45	NA	156.46	NA	1.4	NA
MW-2	11/01/1999	NA	NA	NA	NA	NA	NA	NA	170.91	11.84	11.81	159.09	0.03	NA	NA
MW-2	01/17/2000	46,000	6,000	2,400	1,500	5,500	50,000	31,000	170.91	11.00	NA	159.91	NA	1.3	-54
MW-2	04/17/2000	96,300	8,150	10,200	2,820	14,900	112,000	108,000	170.91	11.06	NA	159.85	NA	2.6	125
MW-2	07/26/2000	72,400	8,680	5,620	2,810	13,400	66,200	46,300	170.91	12.82	NA	158.09	NA	2.2	113
MW-2	10/12/2000	63,200	5,840	4,180	2,310	11,100	61,200	66,600	170.91	11.32	NA	159.59	NA	0.4	55
MW-2	01/15/2001	59,700	2,630	4,800	2,050	11,500	44,400	5,080	170.91	10.19	NA	160.72	NA	1.1	-22
MW-2	04/09/2001	56,900	1,860	2,550	1,810	9,720	40,000	46,600	170.91	11.15	NA	159.76	NA	1.0	-55
MW-2	07/24/2001	84,000	3,000	4,600	2,500	13,000	NA	41,000	170.91	11.67	NA	159.24	NA	0.2	53
MW-2	10/31/2001	45,000	2,200	3,000	1,500	7,700	NA	29,000	170.91	11.04	NA	159.87	NA	1.2	-17

**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**4255 MacArthur Boulevard**  
**Oakland, CA**  
**Wic #204-5510-0600**

Well ID	Date	TPPH (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.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO Reading (ppm)	ORP Reading (mV)
MW-3	11/17/1993	18,000	5,400	660	720	2,200	NA	NA	174.61	15.40	NA	159.21	NA	NA	NA
MW-3	01/20/1994	55,000	13,000	2,600	2,200	6,500	NA	NA	174.61	14.61	NA	160.00	NA	NA	NA
MW-3	04/25/1994	96,000	11,000	1,600	3,100	9,900	NA	NA	174.61	13.12	NA	161.49	NA	NA	NA
MW-3 (D)	04/25/1994	78,000	12,000	1,900	2,600	7,300	NA	NA	174.61	13.12	NA	161.49	NA	NA	NA
MW-3	07/07/1994	NA	NA	NA	NA	NA	NA	NA	174.61	14.54	NA	160.07	0.02	NA	NA
MW-3	10/27/1994	NA	NA	NA	NA	NA	NA	NA	174.61	15.62	NA	159.03	0.05	NA	NA
MW-3	11/17/1994	NA	NA	NA	NA	NA	NA	NA	174.61	13.83	NA	160.78	NA	NA	NA
MW-3	11/28/1994	NA	NA	NA	NA	NA	NA	NA	174.61	14.02	NA	160.59	NA	NA	NA
MW-3	01/13/1995	180,000	3,200	2,700	1,700	5,200	NA	NA	174.61	12.13	NA	162.48	NA	NA	NA
MW-3 (D)	01/13/1995	23,000	4,000	690	960	3,000	NA	NA	174.61	12.13	NA	162.48	NA	NA	NA
MW-3	04/12/1995	56,000	8,700	1,500	2,100	6,300	NA	NA	174.61	12.96	NA	161.65	NA	NA	NA
MW-3	07/25/1995	NA	NA	NA	NA	NA	NA	NA	174.61	14.28	NA	160.38	0.06	NA	NA
MW-3	10/18/1995	NA	NA	NA	NA	NA	NA	NA	174.61	15.88	NA	158.77	0.05	NA	NA
MW-3	01/17/1996	NA	NA	NA	NA	NA	NA	NA	174.61	13.86	NA	160.94	0.24	NA	NA
MW-3	04/25/1996	NA	NA	NA	NA	NA	NA	NA	174.61	13.82	NA	160.81	0.02	NA	NA
MW-3	07/17/1996	NA	NA	NA	NA	NA	NA	NA	174.61	16.11	NA	158.52	0.03	NA	NA
MW-3	10/01/1996	46,000	7,300	530	1,700	3,900	3,200	NA	174.61	16.56	NA	158.05	NA	NA	NA
MW-3 (D)	10/01/1996	47,000	7,100	530	1,700	4,000	2,900	NA	174.61	16.56	NA	158.05	NA	NA	NA
MW-3	01/22/1997	82,000	5,200	1,300	2,800	8,900	1,100	NA	174.61	13.07	NA	161.54	NA	NA	NA
MW-3 (D)	01/22/1997	61,000	8,400	1,100	2,300	7,000	2,700	NA	174.61	13.07	NA	161.54	NA	NA	NA
MW-3	04/08/1997	NA	NA	NA	NA	NA	NA	NA	174.61	17.09	NA	157.54	0.03	NA	NA
MW-3	07/08/1997	56,000	8,800	580	2,000	4,900	2,800	NA	174.61	15.85	NA	158.76	NA	NA	NA
MW-3	10/08/1997	48,000	8,000	590	1,700	3,400	5,100	NA	174.61	16.22	NA	158.39	NA	NA	NA
MW-3	01/08/1998	47,000	9,400	810	2,300	4,700	6,300	NA	174.61	13.80	NA	160.81	NA	NA	NA
MW-3 (D)	01/08/1998	48,000	8,100	750	2,000	4,100	5,800	NA	174.61	13.80	NA	160.81	NA	NA	NA

**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
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**Oakland, CA**  
**Wic #204-5510-0600**

Well ID	Date	TPPH (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.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO Reading (ppm)	ORP Reading (mV)
MW-3	04/13/1998	32,000	6,800	540	1,400	3,400	4,000	NA	174.61	12.97	NA	161.64	NA	NA	NA
MW-3 (D)	04/13/1998	36,000	7,300	660	1,600	3,700	4,000	NA	174.61	12.97	NA	161.64	NA	NA	NA
MW-3	07/17/1998	71,000	11,000	590	2,200	6,900	3,900	NA	174.61	11.51	NA	163.10	NA	NA	NA
MW-3 (D)	07/17/1998	76,000	12,000	700	2,600	8,000	3,000	NA	174.61	11.51	NA	163.10	NA	NA	NA
MW-3	10/02/1998	66,000	8,900	510	2,000	4,900	4,600	NA	174.61	16.50	NA	158.11	NA	NA	NA
MW-3 (D)	10/02/1998	59,000	9,400	460	2,000	4,900	4,700	NA	174.61	16.50	NA	158.11	NA	NA	NA
MW-3	02/03/1999	36,000	6,800	300	1,600	2,900	18,000	NA	174.61	15.21	NA	159.40	NA	1.3	NA
MW-3	04/29/1999	45,000	8,100	580	2,200	5,800	4,700	5,150	174.61	15.43	NA	159.18	NA	1.5	-68
MW-3	07/23/1999	29,400	3,540	215	810	3,800	4,720	6,950*	174.61	14.95	NA	159.66	NA	1.3	NA
MW-3	11/01/1999	20,000	4,190	294	1,060	1,740	5,540	8,590	174.61	14.66	NA	159.95	NA	0.6	-110
MW-3	01/17/2000	17,000	3,900	89	1,100	1,200	7,900	NA	174.61	13.94	NA	160.67	NA	1.3	-40
MW-3	04/17/2000	28,100	5,240	247	1,540	2,750	16,600	NA	174.61	14.00	NA	160.61	NA	1.1	-86
MW-3	07/26/2000	24,300	6,680	159	1,610	1,640	17,100	NA	174.61	13.72	NA	160.89	NA	0.9	-70
MW-3	10/12/2000	14,300	2,630	86.7	241	1,360	16,300	NA	174.61	14.15	NA	160.46	NA	0.9	50
MW-3	01/15/2001	22,100	4,400	266	977	2,990	13,200	NA	174.61	13.05	NA	161.56	NA	1.3	-40
MW-3	04/09/2001	33,800	7,100	147	1,700	2,660	13,000	NA	174.61	13.59	NA	161.02	NA	0.6	-56
MW-3	07/24/2001	220,000	5,600	1,900	4,400	19,000	NA	12,000	174.61	14.43	NA	160.18	NA	0.4	29
MW-3	10/31/2001	65,000	2,700	510	1,800	7,200	NA	9,800	174.61	14.59	NA	160.02	NA	0.9	-27
MW-4	11/17/1994	NA	NA	NA	NA	NA	NA	NA	164.06	6.62	NA	157.44	NA	NA	NA
MW-4	11/28/1994	2,900	200	17	76	260	NA	NA	164.06	6.11	NA	157.95	NA	NA	NA
MW-4	01/13/1995	1,900	130	5.6	13	40	NA	NA	164.06	6.05	NA	158.01	NA	NA	NA
MW-4	04/12/1995	680	150	<2.0	10	13	NA	NA	164.06	6.31	NA	157.75	NA	NA	NA
MW-4	07/25/1995	340	100	0.8	8.8	3	NA	NA	164.06	7.36	NA	156.70	NA	NA	NA
MW-4	10/18/1995	150	31	<0.5	3.5	0.8	NA	NA	164.06	8.54	NA	155.52	NA	NA	NA
MW-4	01/17/1996	290	14	<0.5	1.8	0.8	NA	NA	164.06	8.48	NA	155.58	NA	NA	NA

**WELL CONCENTRATIONS**  
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Well ID	Date	TPPH (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.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO Reading (ppm)	ORP Reading (mV)
MW-4	04/25/1996	<500	65	<5	<5	<5	1,700	NA	164.06	7.40	NA	156.66	NA	NA	NA
MW-4 (D)	04/25/1996	<500	66	<5	8.7	<5	1,500	NA	164.06	7.40	NA	156.66	NA	NA	NA
MW-4	07/17/1996	<500	84	<5.0	6.5	<5.0	1,500	NA	164.06	7.75	NA	156.31	NA	NA	NA
MW-4 (D)	07/17/1996	<500	54	<5.0	<5.0	<5.0	1,700	2,100	164.06	7.75	NA	156.31	NA	NA	NA
MW-4	10/01/1996	<500	1.9	<5.0	<5.0	<5.0	3,000	NA	164.06	8.82	NA	155.24	NA	NA	NA
MW-4	01/22/1997	580	130	<2.5	18	5.2	1,200	NA	164.06	7.51	NA	156.55	NA	NA	NA
MW-4	04/08/1997	770	200	7	26	55	1,500	8	164.06	7.18	NA	156.88	NA	NA	NA
MW-4	07/08/1997	570	78	<5.0	14	11	1,200	NA	164.06	9.00	NA	155.06	NA	NA	NA
MW-4 (D)	07/08/1997	640	81	<5.0	16	19	1,600	NA	164.06	9.00	NA	155.06	NA	NA	NA
MW-4	10/08/1997	<500	40	<5.0	7.4	5.4	1,400	NA	164.06	8.97	NA	155.09	NA	NA	NA
MW-4 (D)	10/08/1997	<500	36	<5.0	5.9	<5.0	1,400	NA	164.06	8.97	NA	155.09	NA	NA	NA
MW-4	01/08/1998	<1,000	55	<10	13	<10	2,000	NA	164.06	7.90	NA	156.16	NA	NA	NA
MW-4	04/13/1998	350	110	2.4	20	26	<2.5	NA	164.06	7.35	NA	156.71	NA	NA	NA
MW-4	07/17/1998	210	66	0.78	5.4	9.8	1,700	NA	164.06	6.95	NA	157.11	NA	NA	NA
MW-4	10/02/1998	<50	0.69	<0.50	<0.50	<0.50	2,900	NA	164.06	7.35	NA	156.71	NA	NA	NA
MW-4	02/03/1999	560	120	2.5	29	34	6,800	NA	164.06	7.71	NA	156.35	NA	0.9	NA
MW-4	04/29/1999	390	80	1.9	13	19	7,000	8,360	164.06	7.83	NA	156.23	NA	1.1	-125
MW-4	07/23/1999	460	93.6	8.40	25.2	28.8	3,760	6,000*	164.06	11.33	NA	152.73	NA	0.9	NA
MW-4	11/01/1999	77.3	0.520	<0.500	<0.500	<0.500	539	NA	164.06	10.66	NA	153.40	NA	2.8	3
MW-4	01/17/2000	160	27	<0.50	12	6.3	12,000	NA	164.06	10.15	NA	153.91	NA	3.9	-17
MW-4	04/17/2000	<500	26	6.38	9.35	10.4	9,070	NA	164.06	10.10	NA	153.96	NA	1.7	-129
MW-4	07/26/2000	<500	22.7	<5.00	7.59	6.96	7,660	NA	164.06	10.09	NA	153.97	NA	1.4	-137
MW-4	10/12/2000	172	19.8	<0.500	7.47	4.50	8,290	NA	164.06	9.35	NA	154.71	NA	3.5	529
MW-4	01/15/2001	53.6	1.50	<0.500	2.45	1.80	9,260	NA	164.06	8.77	NA	155.29	NA	2.3	53
MW-4	04/09/2001	<500	<5.00	<5.00	<5.00	5.52	10,300	NA	164.06	7.75	NA	156.31	NA	1.0	-133
MW-4	07/24/2001	58	3.8	<0.50	3.2	2.9	NA	1,700	164.06	10.07	NA	153.99	NA	0.5	106

**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**4255 MacArthur Boulevard**  
**Oakland, CA**  
**Wic #204-5510-0600**

Well ID	Date	TPPH (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.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO Reading (ppm)	ORP Reading (mV)
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MW-4	10/31/2001	<1,000	<10	<10	<10	<10	NA	7,400	164.06	9.97	NA	154.09	NA	0.8	22
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TB-1	04/29/1999	NA	NA	NA	NA	NA	NA	NA	NA	6.00	NA	NA	NA	3.8	-132
TB-1	11/01/1999	NA	NA	NA	NA	NA	NA	NA	NA	12.65	NA	NA	NA	0.2	-165
TB-1	01/17/2000	NA	NA	NA	NA	NA	NA	NA	NA	7.72	NA	NA	NA	0.8	-178
TB-1	04/17/2000	NA	NA	NA	NA	NA	NA	NA	NA	7.65	NA	NA	NA	0.5	-152
TB-1	07/26/2000	NA	NA	NA	NA	NA	NA	NA	NA	5.13	NA	NA	NA	1.0	-124
TB-1	10/12/2000	NA	NA	NA	NA	NA	NA	NA	NA	5.20	NA	NA	NA	0.7	-73
TB-1	01/15/2001	NA	NA	NA	NA	NA	NA	NA	NA	5.09	NA	NA	NA	1.2	-118
TB-1	04/09/2001	NA	NA	NA	NA	NA	NA	NA	NA	4.96	NA	NA	NA	1.0	-72
TB-1	07/24/2001	NA	NA	NA	NA	NA	NA	NA	NA	6.03	NA	NA	NA	1.4	31
TB-1	10/31/2001	1,000	85	<10	<10	42	NA	4,100	NA	5.89	NA	NA	NA	1.8	88

TB-2	04/29/1999	NA	NA	NA	NA	NA	NA	NA	NA	4.76	NA	NA	NA	4.2	-108
TB-2	11/01/1999	NA	NA	NA	NA	NA	NA	NA	NA	11.33	NA	NA	NA	0.5	-148
TB-2	01/17/2000	NA	NA	NA	NA	NA	NA	NA	NA	9.79	NA	NA	NA	0.7	-162
TB-2	04/17/2000	NA	NA	NA	NA	NA	NA	NA	NA	9.75	NA	NA	NA	0.9	-121
TB-2	07/26/2000	NA	NA	NA	NA	NA	NA	NA	NA	4.73	NA	NA	NA	0.9	-85
TB-2	10/12/2000	NA	NA	NA	NA	NA	NA	NA	NA	4.05	NA	NA	NA	0.6	-47
TB-2	01/15/2001	NA	NA	NA	NA	NA	NA	NA	NA	3.87	NA	NA	NA	0.7	-91
TB-2	04/09/2001	46,600	1,240	1,310	1,110	12,100	31,300	NA	NA	3.76	NA	NA	NA	0.8	-24
TB-2	07/24/2001	11,000	630	<25	310	200	NA	11,000	NA	4.75	NA	NA	NA	0.4	-51
TB-2	10/31/2001	7,500	530	1,500	100	500	NA	2,500	NA	4.24	NA	NA	NA	0.6	-7



**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**4255 MacArthur Boulevard**  
**Oakland, CA**  
**Wic #204-5510-0600**

Well ID	Date	TPPH (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.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO Reading (ppm)	ORP Reading (mV)
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**Abbreviations:**

TPPH = Total petroleum hydrocarbons as gasoline by EPA Method 8260B; prior to July 24, 2001 analyzed by EPA Method 8015

BTEX = benzene, toluene, ethylbenzene, xylenes by EPA Method 8260B; prior to July 24, 2001 analyzed by EPA Method 8020

MTBE = methyl-tertiary-butyl ether

TOC = Top of Casing Elevation

SPH = Separate-Phase Hydrocarbons

GW = Groundwater

ug/L = parts per billion

msl = Mean sea level

ft = Feet

<n = Below detection limit

D = Duplicate sample

NA = Not applicable

DO = Dissolved Oxygens

ppm = parts per million

ORP = Oxidation Reduction Potential

mV = millivolts

**Notes:**

\* = Sample analyzed outside the EPA recommended holding time.

a = Ground water surface had a sheen when sampled

b = MTBE value is estimated by Sequoia Analytical of Redwood City, California

When separate-phase hydrocarbons are present, ground water elevation is adjusted using the relation:

Corrected ground water elevation = Top-of-casing elevation - depth to water + (0.8 x hydrocarbon thickness).



Report Number : 23149

Date : 11/15/2001

Nick Sudano  
Blaine Tech Services  
1680 Rogers Avenue  
San Jose, CA 95112-1105

Subject : 6 Water Samples  
Project Name : 4255 MacArthur Boulevard, Oakland  
Project Number : 011031-C2  
P.O. Number : 98995758

Dear Mr. Sudano,

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,

A handwritten signature in black ink that reads "Joel Kiff". The signature is written in a cursive style with a large initial "J".

Joel Kiff



Report Number : 23149

Date : 11/15/2001

Project Name : 4255 MacArthur Boulevard, Oakland

Project Number : 011031-C2

Sample : MW-1

Matrix : Water

Lab Number : 23149-01

Sample Date :10/31/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	<b>4.4</b>	0.50	ug/L	EPA 8260B	11/4/2001
<b>Toluene</b>	<b>&lt; 0.50</b>	0.50	ug/L	EPA 8260B	11/4/2001
<b>Ethylbenzene</b>	<b>&lt; 0.50</b>	0.50	ug/L	EPA 8260B	11/4/2001
<b>Total Xylenes</b>	<b>0.98</b>	0.50	ug/L	EPA 8260B	11/4/2001
<b>Methyl-t-butyl ether (MTBE)</b>	<b>&lt; 5.0</b>	5.0	ug/L	EPA 8260B	11/4/2001
<b>TPH as Gasoline</b>	<b>&lt; 50</b>	50	ug/L	EPA 8260B	11/4/2001
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	11/4/2001
4-Bromofluorobenzene (Surr)	99.8		% Recovery	EPA 8260B	11/4/2001

Approved By:  Joel Kiff



Report Number : 23149

Date : 11/15/2001

Project Name : 4255 MacArthur Boulevard, Oakland

Project Number : 011031-C2

Sample : MW-2

Matrix : Water

Lab Number : 23149-02

Sample Date :10/31/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	<b>2200</b>	50	ug/L	EPA 8260B	11/7/2001
<b>Toluene</b>	<b>3000</b>	50	ug/L	EPA 8260B	11/7/2001
<b>Ethylbenzene</b>	<b>1500</b>	50	ug/L	EPA 8260B	11/7/2001
<b>Total Xylenes</b>	<b>7700</b>	50	ug/L	EPA 8260B	11/7/2001
<b>Methyl-t-butyl ether (MTBE)</b>	<b>29000</b>	50	ug/L	EPA 8260B	11/7/2001
<b>Diisopropyl ether (DIPE)</b>	<b>&lt; 50</b>	50	ug/L	EPA 8260B	11/7/2001
<b>Ethyl-t-butyl ether (ETBE)</b>	<b>&lt; 50</b>	50	ug/L	EPA 8260B	11/7/2001
<b>Tert-amyl methyl ether (TAME)</b>	<b>&lt; 50</b>	50	ug/L	EPA 8260B	11/7/2001
<b>Tert-Butanol</b>	<b>51000</b>	500	ug/L	EPA 8260B	11/7/2001
<b>Ethanol</b>	<b>&lt; 500</b>	500	ug/L	EPA 8260B	11/7/2001
<b>TPH as Gasoline</b>	<b>45000</b>	5000	ug/L	EPA 8260B	11/7/2001
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	11/7/2001
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	11/7/2001

Approved By:  Joel Kiff



Report Number : 23149

Date : 11/15/2001

Project Name : 4255 MacArthur Boulevard, Oakland

Project Number : 011031-C2

Sample : MW-3

Matrix : Water

Lab Number : 23149-03

Sample Date : 10/31/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	<b>2700</b>	20	ug/L	EPA 8260B	11/7/2001
<b>Toluene</b>	<b>510</b>	20	ug/L	EPA 8260B	11/7/2001
<b>Ethylbenzene</b>	<b>1800</b>	20	ug/L	EPA 8260B	11/7/2001
<b>Total Xylenes</b>	<b>7200</b>	20	ug/L	EPA 8260B	11/7/2001
<b>Methyl-t-butyl ether (MTBE)</b>	<b>9800</b>	20	ug/L	EPA 8260B	11/7/2001
<b>Diisopropyl ether (DIPE)</b>	<b>&lt; 20</b>	20	ug/L	EPA 8260B	11/7/2001
<b>Ethyl-t-butyl ether (ETBE)</b>	<b>&lt; 20</b>	20	ug/L	EPA 8260B	11/7/2001
<b>Tert-amyl methyl ether (TAME)</b>	<b>&lt; 20</b>	20	ug/L	EPA 8260B	11/7/2001
<b>Tert-Butanol</b>	<b>5200</b>	200	ug/L	EPA 8260B	11/7/2001
<b>Ethanol</b>	<b>&lt; 500</b>	500	ug/L	EPA 8260B	11/7/2001
<b>TPH as Gasoline</b>	<b>65000</b>	2000	ug/L	EPA 8260B	11/7/2001
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	11/7/2001
4-Bromofluorobenzene (Surr)	98.5		% Recovery	EPA 8260B	11/7/2001

Approved By:  Joel Kiff



Report Number : 23149

Date : 11/15/2001

Project Name : 4255 MacArthur Boulevard, Oakland

Project Number : 011031-C2

Sample : MW-4

Matrix : Water

Lab Number : 23149-04

Sample Date :10/31/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	< 10	10	ug/L	EPA 8260B	11/4/2001
<b>Toluene</b>	< 10	10	ug/L	EPA 8260B	11/4/2001
<b>Ethylbenzene</b>	< 10	10	ug/L	EPA 8260B	11/4/2001
<b>Total Xylenes</b>	< 10	10	ug/L	EPA 8260B	11/4/2001
<b>Methyl-t-butyl ether (MTBE)</b>	7400	100	ug/L	EPA 8260B	11/4/2001
<b>TPH as Gasoline</b>	< 1000	1000	ug/L	EPA 8260B	11/4/2001
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	11/4/2001
4-Bromofluorobenzene (Surr)	100		% Recovery	EPA 8260B	11/4/2001

Approved By:  Joel Kiff



Report Number : 23149

Date : 11/15/2001

Project Name : **4255 MacArthur Boulevard, Oakland**

Project Number : **011031-C2**

Sample : TB-1

Matrix : Water

Lab Number : 23149-05

Sample Date :10/31/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	<b>85</b>	10	ug/L	EPA 8260B	11/6/2001
<b>Toluene</b>	<b>&lt; 10</b>	10	ug/L	EPA 8260B	11/6/2001
<b>Ethylbenzene</b>	<b>&lt; 10</b>	10	ug/L	EPA 8260B	11/6/2001
<b>Total Xylenes</b>	<b>42</b>	10	ug/L	EPA 8260B	11/6/2001
<b>Methyl-t-butyl ether (MTBE)</b>	<b>4100</b>	100	ug/L	EPA 8260B	11/6/2001
<b>TPH as Gasoline</b>	<b>1000</b>	1000	ug/L	EPA 8260B	11/6/2001
Toluene - d8 (Surr)	99.4		% Recovery	EPA 8260B	11/6/2001
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	11/6/2001

Approved By:  Joel Kiff





Report Number : 23149

Date : 11/15/2001

Project Name : 4255 MacArthur Boulevard, Oakland

Project Number : 011031-C2

Sample : TB-2

Matrix : Water

Lab Number : 23149-06

Sample Date :10/31/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	<b>530</b>	5.0	ug/L	EPA 8260B	11/6/2001
<b>Toluene</b>	<b>1500</b>	5.0	ug/L	EPA 8260B	11/6/2001
<b>Ethylbenzene</b>	<b>100</b>	5.0	ug/L	EPA 8260B	11/6/2001
<b>Total Xylenes</b>	<b>500</b>	5.0	ug/L	EPA 8260B	11/6/2001
<b>Methyl-t-butyl ether (MTBE)</b>	<b>2500</b>	50	ug/L	EPA 8260B	11/6/2001
<b>TPH as Gasoline</b>	<b>7500</b>	500	ug/L	EPA 8260B	11/6/2001
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	11/6/2001
4-Bromofluorobenzene (Surr)	88.7		% Recovery	EPA 8260B	11/6/2001

Approved By:  Joel Kiff

Report Number : 23149

Date : 11/15/2001

Project Name : **4255 MacArthur**

Project Number : **011031-C2**

23149 Quality Control Data - Method Blank

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	< 0.50	0.50	ug/L	EPA 8260B	11/4/2001
<b>Toluene</b>	< 0.50	0.50	ug/L	EPA 8260B	11/4/2001
<b>Ethylbenzene</b>	< 0.50	0.50	ug/L	EPA 8260B	11/4/2001
<b>Total Xylenes</b>	< 0.50	0.50	ug/L	EPA 8260B	11/4/2001
<b>Methyl-t-butyl ether (MTBE)</b>	< 0.50	0.50	ug/L	EPA 8260B	11/4/2001
<b>Diisopropyl ether (DIPE)</b>	< 2.0	2.0	ug/L	EPA 8260B	11/4/2001
<b>Ethyl-t-butyl ether (ETBE)</b>	< 2.0	2.0	ug/L	EPA 8260B	11/4/2001
<b>Tert-amyl methyl ether (TAME)</b>	< 2.0	2.0	ug/L	EPA 8260B	11/4/2001
<b>Tert-Butanol</b>	< 50	50	ug/L	EPA 8260B	11/4/2001
<b>Ethanol</b>	< 500	500	ug/L	EPA 8260B	11/4/2001
<b>TPH as Gasoline</b>	< 50	50	ug/L	EPA 8260B	11/4/2001
<b>Toluene - d8 (Surr)</b>	101		% Recovery	EPA 8260B	11/4/2001
<b>4-Bromofluorobenzene (Surr)</b>	102		% Recovery	EPA 8260B	11/4/2001

Approved By:  Joel Kiff

Report Number : 23149

Date : 11/15/2001

QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : 4255 MacArthur

Project Number : 011031-C2

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
Spike Recovery Data														
Benzene	23149-01	4.4	20.0	19.4	23.4	22.3	ug/L	EPA 8260B	11/5/2001	194.9	92.5	2.59	70-130	25
Toluene	23149-01	<0.50	20.0	19.4	19.0	18.6	ug/L	EPA 8260B	11/5/2001	195.1	95.6	0.472	70-130	25
Tert-Butanol	23149-01	<5.0	100	97.1	85.3	81.8	ug/L	EPA 8260B	11/5/2001	185.3	84.2	1.27	70-130	25
Methyl-t-Butyl Ether	23149-01	1.9	20.0	19.4	23.8	21.3	ug/L	EPA 8260B	11/5/2001	109	99.8	9.26	70-130	25

KIFF ANALYTICAL, LLC

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

Approved By:  Joel Kiff

Report Number : 23149

Date : 11/15/2001

**QC Report : Laboratory Control Sample (LCS)**

Project Name : **4255 MacArthur**

Project Number : **011031-C2**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	20.0	ug/L	EPA 8260B	11/4/2001	99.0	70-130
Toluene	20.0	ug/L	EPA 8260B	11/4/2001	99.6	70-130
Tert-Butanol	100	ug/L	EPA 8260B	11/4/2001	103	70-130
Methyl-t-Butyl Ether	20.0	ug/L	EPA 8260B	11/4/2001	81.8	70-130

KIFF ANALYTICAL, LLC

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

Approved By:  Joel Kiff

LAB: KIFR

# EQUIVA Services LLC Chain Of Custody Record 23149

Lab Identification (if necessary):

Address:

City, State, Zip:

Equiva Project Manager to be Invoiced:

Karen Petryna

- SCIENCE & ENGINEERING
- TECHNICAL SERVICES
- QM/ HOUSTON

ACCIDENT NUMBER (SEE ONLY)

9 8 9 9 5 7 5 8

SAMPLE NUMBER (ITS/CRMT)

DATE: 10-31-01

PAGE: 1 of 1

SAMPLING COMPANY: **Blaine Tech Services** LOG CODE: **BTSS** SITE ADDRESS (Street and City): **4255 MacArthur Boulevard, Oakland** GLOBAL ID NO.: **T0600101261**

ADDRESS: **1680 Rogers Avenue, San Jose, CA 95112** EDI DELIVERABLE TO (Responsible Party or Designee): **Ann Kreaml** PHONE NO.: **510-420-3335** EMAIL: **akreaml@cambria-env.com** CONSULTANT PROJECT NO.: **BTS # 011031-C2**

PROJECT CONTACT (hardcopy or PDF Report to): **Nick Sudano** SAMPLER NAME(S) (Print): **Hank Castro** LAB USE ONLY

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

LA - RWQCB REPORT FORMAT  LIST AGENCY:

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

SPECIAL INSTRUCTIONS OR NOTES: TEMPERATURE ON RECEIPT C° \_\_\_\_\_

### REQUESTED ANALYSIS

### FIELD NOTES:

Container/Preservative or PID Readings or Laboratory Notes

Field Sample Identification	SAMPLING		MATRIX	NO. OF CONT.	TPH - Gas, Purgeable	BTEX	MTBE (8021B - 6ppb RL)	MTBE (8260B - 0.5ppb RL)	Oxygenates (5) by (8260B)	Ethanol (8260B)	Methanol	1,2-DCA (8260B)	EDB (8260B)	TPH - Diesel, Extractable (8015m)	Total Alkalinity	Ferrous Iron	Nitrate as Nitrate	Sulfate	MTBE (8260B) Confirmation, See Note	FIELD NOTES	
	DATE	TIME																			
MW-1	10-31	1244	W	3	X	X	X														
MW-2		1413		1	X	X	X		X	X											-01
MW-3		1430		1	X	X	X		X	X											-02
MW-4		1323		1	X	X	X														-03
TB-1		1304		1	X	X	X														-04
TB-2		1347		1	X	X	X														-05
																					-06

Relinquished by: (Signature) <u>Hank Castro</u>	Received by: (Signature) _____	Date: _____	Time: _____
Relinquished by: (Signature) _____	Received by: (Signature) _____	Date: _____	Time: _____
Relinquished by: (Signature) _____	Received by: (Signature) <u>Lucia / Kiff Analytical</u>	Date: <u>11/01/01</u>	Time: <u>1140</u>

DISTRIBUTION: White with final report, Green to File, Yellow and Pink to Client.

O&O Graphix 7741 898 8733

## WELL GAUGING DATA

Project # 011071-C2      Date 10-31-01      Client Eguiva

Site 4255 MacArthur Blvd Oaks

Well ID	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or TBC
MW-1	4	ORC's				7.94	23.32	
MW-2	4	Skimmer in well				11.04	19.71	
MW-3	4	ORC's				14.59	21.94	
MW-4	2	ORC's *				9.97	30.50	
TB-1	4	ORC's				5.89	13.43	
TB-2	4	ORC's				4.24	12.96	
* Gauged w/ ORC's in well except MW-4								

## EQUIVA WELL MONITORING DATA SHEET

BTS #: <u>011031-C2</u>	Site: <u>98995758</u>
Sampler: <u>Hawk</u>	Date: <u>10-31-01</u>
Well I.D.: <u>MW-1</u>	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth: <u>23.32</u>	Depth to Water: <u>7.94</u>
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

Water:  Peristaltic Extraction Pump  Other \_\_\_\_\_

Sampling Method:  Bailer  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
<u>1225</u>	<u>68.3</u>	<u>9.2</u>	<u>1230</u>	<u>38</u>	<u>10</u>	
<u>1227</u>	<u>69.3</u>	<u>9.1</u>	<u>1189</u>	<u>30</u>	<u>20</u>	
<u>1229</u>	<u>69.0</u>	<u>9.2</u>	<u>1197</u>	<u>34</u>	<u>30</u>	

Did well dewater? Yes  No  Gallons actually evacuated: 30

Sampling Time: 1244      Sampling Date: 10-31-01

Sample I.D.: MW-1      Laboratory: Kiff      Sequoia      Other \_\_\_\_\_

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

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

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

D.O. (if req'd): <u>Pre-purge:</u> <u>12.6</u> <sup>uv</sup> mg/L	Post-purge: _____ mg/L
O.R.P. (if req'd): <u>Pre-purge:</u> <u>123</u> mV	Post-purge: _____ mV



## EQUIVA WELL MONITORING DATA SHEET

BTS #: <u>011031-C2</u>	Site: <u>98995758</u>
Sampler: <u>Hawk</u>	Date: <u>10-31-01</u>
Well I.D.: <u>MW-2</u>	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth: <u>19.71</u>	Depth to Water: <u>11.04</u>
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

Water:  Peristaltic  Extraction Pump  Other \_\_\_\_\_

Sampling Method:  Bailer  Disposable Bailer  Extraction Port  Dedicated Tubing

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

$\frac{5.6 \text{ (Gals.)} \times 3}{1} = 16.8 \text{ Gals.}$	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> <tr> <td>1"</td> <td>0.04</td> <td>4"</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius<sup>2</sup> = 0.163</td> </tr> </table>	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	
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															
1 Case Volume	Specified Volumes	Calculated Volume																

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
1405	72.6	6.9	996	>200	5.6	odor
1406	72.1	6.8	938	142	11.2	↓
1407	72.4	6.9	921	65	17	
+ No product detected in swimmer - odor <del>known by [unclear]</del>						

Did well dewater? Yes  No  Gallons actually evacuated: 17

Sampling Time: 1413 Sampling Date: 10-31-01

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

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: 1.2 mg/L Post-purge: \_\_\_\_\_ mg/L

O.R.P. (if req'd): Pre-purge: -17 mV Post-purge: \_\_\_\_\_ mV

## EQUIV. WELL MONITORING DATA SHEET

BTS #: <u>011031-C2</u>	Site: <u>98995758</u>
Sampler: <u>Hawk</u>	Date: <u>10-31-01</u>
Well I.D.: <u>MW-3</u>	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth: <u>21.94</u>	Depth to Water: <u>14.59</u>
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: <input type="checkbox"/> Bailer <input type="checkbox"/> Disposable Bailer <input type="checkbox"/> Middleburg <input checked="" type="checkbox"/> Electric Submersible	Water: <input type="checkbox"/> Peristaltic <input type="checkbox"/> Extraction Pump Other: _____	Sampling Method: <input checked="" type="checkbox"/> Bailer <input type="checkbox"/> Disposable Bailer <input type="checkbox"/> Extraction Port <input type="checkbox"/> Dedicated Tubing Other: _____
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$\frac{4.7 \text{ (Gals.)} \times 3}{1 \text{ Case Volume}} = \frac{14.1 \text{ Gals.}}{\text{Specified Volumes}} = \text{Calculated Volume}$	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> </thead> <tbody> <tr> <td>1"</td> <td>0.04</td> <td>4"</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius<sup>2</sup> * 0.163</td> </tr> </tbody> </table>	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
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
1422	69.8	6.9	1589	78	4.7	odor/slight she
1423	69.0	7.0	1562	62	9.4	↓
1424	68.6	7.0	1617	47	14.1	

Did well dewater? Yes  No  Gallons actually evacuated: 14.1

Sampling Time: 1430 Sampling Date: 10-31-01

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

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): <input checked="" type="checkbox"/> Pre-purge: <u>0.9</u> mg/L	Post-purge: _____ mg/L
U.R.P. (if req'd): <input checked="" type="checkbox"/> Pre-purge: <u>-27</u> mV	Post-purge: _____ mV

## EQUIV. WELL MONITORING DATA SHEET

BTS #: <u>011031-02</u>	Site: <u>98995758</u>
Sampler: <u>Hawk</u>	Date: <u>10-31-01</u>
Well I.D.: <u>MW-4</u>	Well Diameter: <u>(2)</u> 3 <del>4</del> 6 8
Total Well Depth: <u>30.50</u>	Depth to Water: <u>9.97</u>
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 <input checked="" type="checkbox"/> Electric Submersible	Waterra Peristaltic Extraction Pump Other _____	Sampling Method: <input checked="" type="checkbox"/> Bailer Disposable Bailer Extraction Port Dedicated Tubing Other: _____
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$\frac{3.2 \text{ (Gals.)} \times 3}{3} = 9.6 \text{ Gals.}$   Case Volume      Specified Volumes      Calculated Volume	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> </thead> <tbody> <tr> <td>1"</td> <td>0.04</td> <td>4"</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius<sup>2</sup> * 0.163</td> </tr> </tbody> </table>	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
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
1215	68.8	6.9	1200	7200	3.2	
1516	68.7	6.8	1168	7200	6.4	
1317	69.2	6.9	1184	110	10	

Did well dewater? Yes  No       Gallons actually evacuated: 10

Sampling Time: 1322      Sampling Date: 10-31-01

Sample I.D.: MW-4      Laboratory: (Kiff) Sequoia Other \_\_\_\_\_

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):	<u>(Pre-purge:)</u> <u>0.8</u> mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	<u>(Pre-purge:)</u> <u>22</u> mV	Post-purge:	mV

## EQUIV. WELL MONITORING DATA SHEET

BTS #: <u>011031-C2</u>	Site: <u>98995758</u>
Sampler: <u>Hawk</u>	Date: <u>10-31-01</u>
Well I.D.: <u>TR-1</u>	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth: <u>1343</u>	Depth to Water: <u>5.89</u>
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       Water  
 Disposable Bailer       Peristaltic  
 Middleburg       Extraction Pump  
 Electric Submersible       Other \_\_\_\_\_

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

$\underline{5} \text{ (Gals.)} \times \underline{3} = \underline{15} \text{ Gals.}$ Case Volume      Specified Volumes      Calculated Volume	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> </thead> <tbody> <tr> <td>1"</td> <td>0.04</td> <td>4"</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius<sup>3</sup> = 0.163</td> </tr> </tbody> </table>	Well Diameter	Multiplier	Well Diameter	Multiplier	1"	0.04	4"	0.65	2"	0.16	6"	1.47	3"	0.37	Other	radius <sup>3</sup> = 0.163
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1"	0.04	4"	0.65														
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3"	0.37	Other	radius <sup>3</sup> = 0.163														

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
1256	70.4	6.7	687	26	5	odor
1257	70.6	6.7	698	16	10	
1258	68.8	6.8	674	11	15	

Did well dewater? Yes  No       Gallons actually evacuated: 15

Sampling Time: 1304      Sampling Date: 10-31-01

Sample I.D.: TR-1      Laboratory: Kiff      Sequoia      Other \_\_\_\_\_

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): <u>Pre-purge:</u> <u>1.8</u> mg/L	Post-purge: _____ mg/L
O.R.P. (if req'd): <u>Pre-purge:</u> <u>88</u> mV	Post-purge: _____ mV

## EQUIVA WELL MONITORING DATA SHEET

BTS #: <u>011031-C2</u>	Site: <u>98995758</u>
Sampler: <u>Hawk</u>	Date: <u>10-31-01</u>
Well I.D.: <del>AW</del> <u>TR-2</u>	Well Diameter: 2 3 <u>(4)</u> 6 8
Total Well Depth: <u>12.96</u>	Depth to Water: <u>4.24</u>
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

Water:  Peristaltic  Extraction Pump  Other \_\_\_\_\_

Sampling Method:  Bailer  Disposable Bailer  Extraction Port  Dedicated Tubing

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

$\frac{5.6 \text{ (Gals.)} \times 3}{\text{Specified Volumes}} = \frac{16.8 \text{ Gals.}}{\text{Calculated Volume}}$	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> </thead> <tbody> <tr> <td>1"</td> <td>0.04</td> <td>4"</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius<sup>2</sup> * 0.163</td> </tr> </tbody> </table>	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
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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
1340	71.0	7.0	895	24	5.6	odor
1341	70.8	7.1	874	15	16.2	↓
1342	70.4	7.1	868	9	17	↓

Did well dewater? Yes  No  Gallons actually evacuated: 17

Sampling Time: 1347 Sampling Date: 10-31-01

Sample I.D.: ~~AW~~ TR-2 Laboratory: (Kiff) Sequoia Other \_\_\_\_\_

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): <u>(Pre-purge: 0.6)</u> mg/L	Post-purge: _____ mg/L
D.R.P. (if req'd): <u>(Pre-purge: -7)</u> mV	Post-purge: _____ mV