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March 13, 2003

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

**Subject: Shell-branded Service Station**  
5755 Broadway  
Oakland, California

Dear Ms. Drogos:

Attached for your review and comment is a copy of the *Fourth Quarter 2002 Monitoring Report* for the above referenced site. Upon information and belief, I declare, under penalty of perjury, that the information contained in the attached document is true and correct.

As always, please feel free to contact me directly at (559) 645-9306 with any questions or concerns.

Sincerely,

**Shell Oil Products US**

A handwritten signature in cursive script that reads "Karen Petryna".

Karen Petryna  
Sr. Environmental Engineer

March 13, 2003

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

Re: **Fourth Quarter 2002 Monitoring Report**  
Shell-branded Service Station  
5755 Broadway  
Oakland, California  
Incident #98995756  
Cambria Project #245-0483-002



Dear Ms. Drogos:

On behalf of Equilon Enterprises LLC dba Shell Oil Products US (Shell), Cambria Environmental Technology, Inc. (Cambria) is submitting this groundwater monitoring report in accordance with the reporting requirements of 23 CCR 2652d.

## **HISTORICAL REMEDIATION SUMMARY**


The site location is shown on Figures 1 and 2. Mobile groundwater extraction (GWE) using a vacuum truck was conducted periodically at the site from April to November 2000. A single dual-phase vacuum extraction (DVE) event was performed at the site on February 7, 2001, and monthly mobile DVE was conducted at the site from May to November 2001. GWE and DVE have collectively extracted approximately 20,038 gallons of groundwater from wells S-2, H-1, and T-2, and removed 0.46 pounds of methyl tertiary-butyl ether (MTBE). Subsequent to Alameda County Health Care Services Agency notification in our November 7, 2001 *Third Quarter 2001 Monitoring Report*, Cambria suspended monthly DVE from wells S-2 and H-1 due to the low influent volume of groundwater from S-2 and the low influent MTBE concentrations from H-1.

**Cambria  
Environmental  
Technology, Inc.**

5900 Hollis Street  
Suite A  
Emeryville, CA 94608  
Tel (510) 420-0700  
Fax (510) 420-9170

**FOURTH QUARTER 2002 ACTIVITIES**

**Groundwater Monitoring:** Blaine Tech Services, Inc. (Blaine) of San Jose, California gauged and sampled scheduled site wells, calculated groundwater elevations, and compiled the analytical data. Cambria prepared a vicinity map that 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.



**GWE System Installation:** Shell has determined that conditions at this facility warrant remedial action. Shell authorized Cambria to design a GWE system to mitigate and remediate dissolved-phase MTBE in groundwater onsite and to hydraulically control MTBE migration in groundwater at the site perimeter. Cambria performed preliminary site reconnaissance for design and permitting of this system during the fourth quarter.

**ANTICIPATED FIRST QUARTER 2003 ACTIVITIES**

**Groundwater Monitoring:** Blaine will gauge and sample selected site wells, including the horizontal well (without purging), and tabulate the data. A groundwater monitoring report will be prepared.

**GWE System Design and Permitting:** Cambria will submit an *Interim Remedial Work Plan* describing installation of the proposed GWE system. We will prepare and submit appropriate permit applications for installation of this system.

**CLOSING**

We appreciate the opportunity to work with you on this project. Please call Diane Lundquist at (510) 420-3334 if you have any questions or comments.

Sincerely,  
**Cambria Environmental Technology, Inc**



Diane Lundquist, P.E.  
Principal Engineer

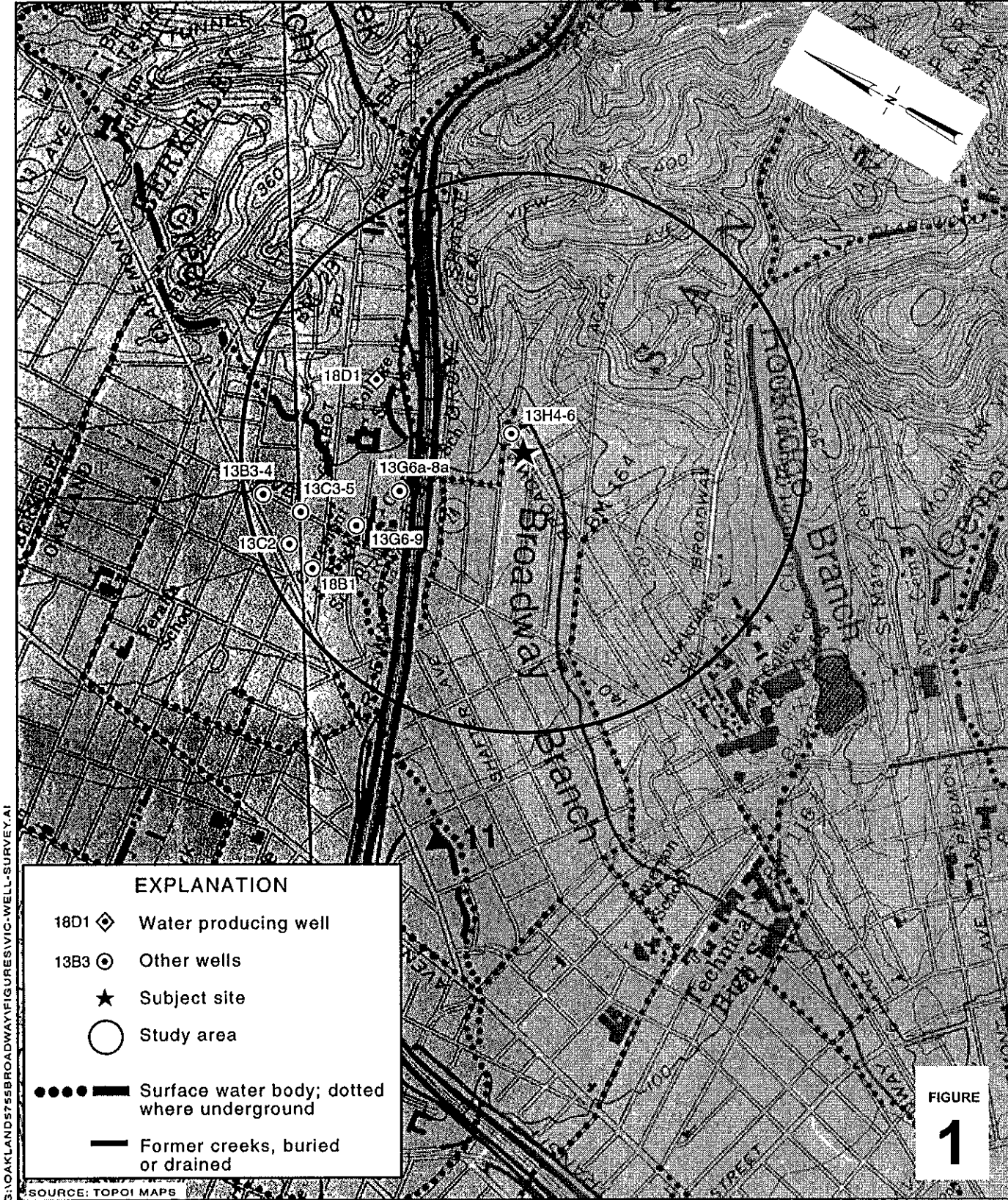


Figures:     1 - Vicinity/Well Survey Map  
              2 - Groundwater Elevation Contour Map

Attachment: A - Blaine Groundwater Monitoring Report and Field Notes

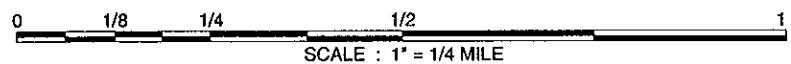
cc:           Karen Petryna, Shell Oil Products US, P.O. Box 7869, Burbank, CA, 91510-7869  
              Thrifty Oil Company, c/o Mr. Raymond Fredricksen, PO Box 2128, Santa Fe  
              Springs, CA 90670

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SOURCE: TOPOI MAPS



**Shell-branded Service Station**  
 5755 Broadway  
 Oakland, California  
 Incident #98995756



C A M B R I A

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

03/05/03  
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**EXPLANATION**

- S-1 Monitoring well location
- T-1 Tank backfill well location
- T-3 Pre-pack monitoring well location
- H-1 Horizontal extraction well location
- B-1 Soil boring location (Miller-Brooks, 8/6-7/02)
- Groundwater flow direction
- XX.XX Groundwater elevation contour, in feet above mean sea level (msl), approximately located

- Well designation
- Groundwater elevation, in feet above msl
- Benzene and MTBE concentrations are in parts per billion and are analyzed by EPA Method 8260.
- Sanitary sewer line (SS)
- Storm drain (SD)
- Overhead powerline (E)
- Flow direction
- Manhole
- 4.5 fbg Feet below grade

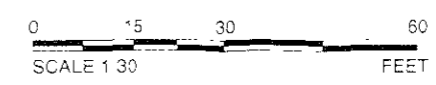
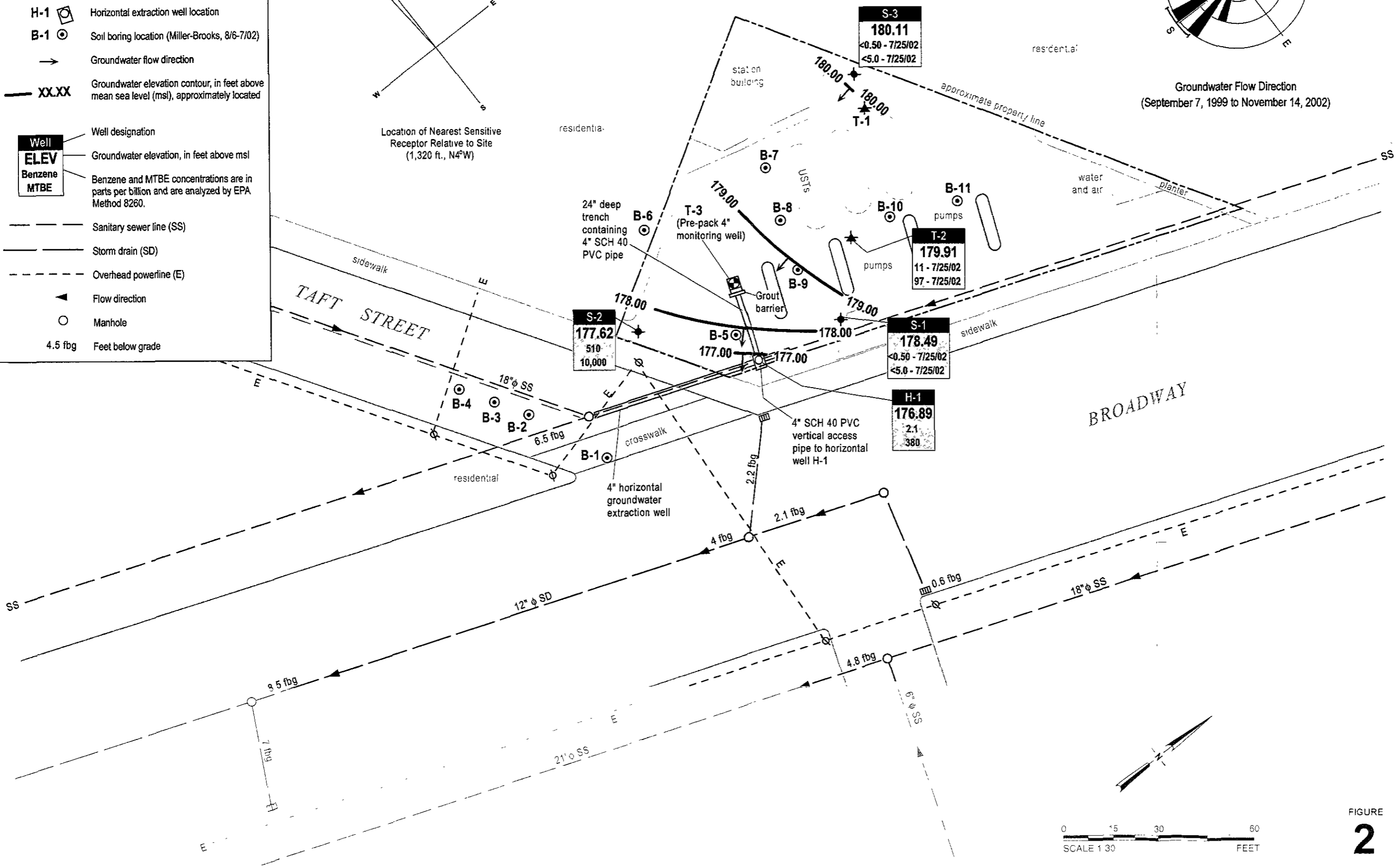
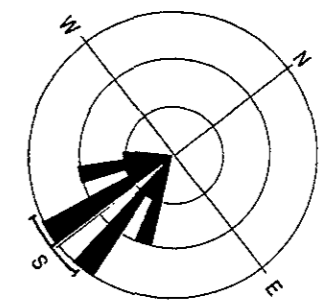
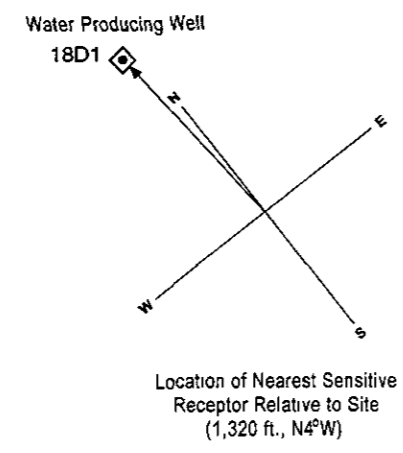


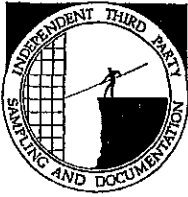
FIGURE  
**2**



**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

December 11, 2002

Karen Petryna  
Shell Oil Products US  
P.O. Box 7869  
Burbank, CA 91510-7869

Fourth Quarter 2002 Groundwater Monitoring at  
Shell-branded Service Station  
5755 Broadway  
Oakland, CA

Monitoring performed on November 7 and 14, 2002

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Groundwater Monitoring Report **021114-DW-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/jt

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**  
**5755 Broadway**  
**Oakland, CA**

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.)	GW Elevation (MSL)	DO Reading (ppm)
S-1	01/25/1991	<30	<0.3	<0.3	<0.3	<0.3	NA	NA	100.00	3.88	96.12	NA
S-1	06/03/1991	<30	<0.3	<0.3	<0.3	<0.3	NA	NA	100.00	3.51	96.49	NA
S-1	08/30/1991	<30	<0.3	<0.3	<0.3	<0.3	NA	NA	100.00	4.24	95.76	NA
S-1	11/22/1991	<30	2.3	<0.46	0.3	<0.65	NA	NA	100.00	4.29	95.71	NA
S-1	03/13/1992	<30	<0.52	<0.3	<0.3	<0.3	NA	NA	100.00	2.87	97.13	NA
S-1	05/28/1992	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	100.00	3.79	96.21	NA
S-1	08/19/1992	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	100.00	4.43	95.57	NA
S-1	11/18/1992	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	100.00	4.34	95.66	NA
S-1	02/10/1993	51	1.4	<0.5	<0.5	<0.5	NA	NA	100.00	4.20	95.80	NA
S-1 (D)	02/10/1993	<50	1.2	<0.5	<0.5	<0.5	NA	NA	100.00	4.20	95.80	NA
S-1	06/11/1993	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	100.00	3.39	96.61	NA
S-1	08/03/1993	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	100.00	3.69	96.31	NA
S-1	11/02/1993	70a	<0.5	<0.5	<0.5	<0.5	NA	NA	100.00	4.26	95.74	NA
S-1	12/16/1993	NA	NA	NA	NA	NA	NA	NA	100.00	2.73	97.27	NA
S-1	02/01/1994	60a	<0.5	<0.5	<0.5	<0.5	NA	NA	100.00	3.38	96.62	NA
S-1	05/04/1994	<50	1.1	<0.5	<0.5	<0.5	NA	NA	100.00	3.00	97.00	NA
S-1	08/18/1994	<50	0.6	<0.5	<0.5	<0.5	NA	NA	100.00	3.70	96.30	NA
S-1 (D)	08/18/1994	60a	0.5	<0.5	<0.5	<0.5	NA	NA	100.00	3.70	96.30	NA
S-1	11/09/1994	<50	4	<0.5	<0.5	<0.5	NA	NA	100.00	2.52	97.48	NA
S-1	02/22/1995	50	0.8	0.7	<0.5	1.3	NA	NA	100.00	4.08	95.92	NA
S-1	05/02/1995	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	100.00	2.58	97.42	NA
S-1	08/30/1995	<50	1.7	<0.5	<0.5	<0.5	NA	NA	100.00	3.48	96.52	NA
S-1	11/28/1995	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	100.00	3.99	96.01	NA
S-1	02/02/1996	<50	11	<0.5	0.9	<0.5	NA	NA	100.00	2.00	98.00	NA
S-1	03/09/1996	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	100.00	3.38	99.62	NA
S-1	08/22/1996	<50	1.5	<0.5	<0.5	<0.5	130	NA	100.00	3.43	96.57	NA
S-1	11/07/1996	<50	<0.5	<0.5	<0.5	<0.5	57	NA	100.00	3.70	96.30	4.33

**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**5755 Broadway**  
**Oakland, CA**

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.)	GW Elevation (MSL)	DO Reading (ppm)
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S-1	02/20/1997	<50	0.64	<0.50	<0.50	1.6	6.5	NA	100.00	3.60	96.40	2
S-1	05/30/1997	<50	<0.50	<0.50	<0.50	<0.50	46	NA	100.00	3.47	96.53	7
S-1 (D)	05/30/1997	<50	<0.50	<0.50	<0.50	<0.50	47	NA	100.00	3.47	96.53	7
S-1	08/21/1997	<50	<0.50	<0.50	<0.50	0.84	26	NA	100.00	3.01	96.99	3.1
S-1	11/03/1997	<50	<0.50	1.1	<0.50	1.3	190	NA	100.00	3.66	96.34	2
S-1	01/20/1998	110	7.9	2.8	4.4	13	53	NA	100.00	1.84	98.16	4.6
S-1 (D)	01/20/1998	130	9.2	6.9	5.2	15	93	NA	100.00	1.84	98.16	4.6
S-1	02/16/1999	<50	<0.50	<0.50	<0.50	<0.50	8.6	NA	100.00	2.43	97.57	2.2
S-1	09/07/1999	NA	NA	NA	NA	NA	NA	NA	100.00	2.84	97.16	NA
S-1	02/02/2000	<50.0	<0.500	<0.500	<0.500	<0.500	202	NA	100.00	3.10	96.90	2.1
S-1	04/26/2000	NA	NA	NA	NA	NA	NA	NA	100.00	2.91	97.09	NA
S-1	07/25/2000	<50.0	<0.500	<0.500	<0.500	<0.500	811	NA	100.00	3.21	96.79	1.8
S-1	11/15/2000	NA	NA	NA	NA	NA	NA	NA	100.00	3.18	96.82	NA
S-1	02/12/2001	<50.0	<0.500	<0.500	<0.500	<0.500	209	NA	100.00	1.34	98.66	2.2
S-1	06/07/2001	NA	NA	NA	NA	NA	NA	NA	100.00	1.27	98.73	NA
S-1	08/31/2001	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	100.00	3.16	96.84	4.0
S-1	12/05/2001	NA	NA	NA	NA	NA	NA	2.6	100.00	1.90	98.10	NA
S-1	01/31/2002	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	100.00	2.67	97.33	NA
S-1	06/04/2002	NA	NA	NA	NA	NA	NA	NA	100.00	1.87	98.13	NA
S-1	07/25/2002	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	100.00	2.01	97.99	NA
S-1	11/07/2002	NA	NA	NA	NA	NA	NA	NA	181.89	3.01	178.88	NA
S-1	11/14/2002	NA	NA	NA	NA	NA	NA	NA	181.89	3.40	178.49	NA

S-2	01/25/1991	450	140	1.8	6.2	15	NA	NA	98.92	4.52	94.40	NA
S-2	06/03/1991	490	150	2.7	8.2	7	NA	NA	98.92	4.02	94.90	NA
S-2	08/30/1991	70	0.37	<0.3	<0.3	<0.3	NA	NA	98.92	4.70	94.22	NA
S-2	11/22/1991	1,600	110	9.3	29	150	NA	NA	98.92	4.72	94.20	NA
S-2	03/13/1992	1,300	210	5.7	34	79	NA	NA	98.92	3.47	95.45	NA

**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**5755 Broadway**  
**Oakland, CA**

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.)	GW Elevation (MSL)	DO Reading (ppm)
S-2	05/28/1992	100	28	<0.5	<0.5	<0.5	NA	NA	98.92	4.45	94.45	NA
S-2	08/19/1992	470	42	<0.5	8.3	4	NA	NA	98.92	4.84	94.08	NA
S-2	11/18/1992	490	43	39	17	29	NA	NA	98.92	4.73	94.19	NA
S-2	02/10/1993	19,000	710	760	80	370	NA	NA	98.92	4.83	94.09	NA
S-2	06/11/1993	33,000	3,100	1,600	370	1,100	NA	NA	98.92	3.74	95.18	NA
S-2	08/03/1993	18,000	1,400	130	81	130	NA	NA	98.92	4.23	94.69	NA
S-2 (D)	08/03/1993	19,000	1,400	140	86	150	NA	NA	98.92	4.23	94.69	NA
S-2	11/02/1993	12,000a	470	47	31	92	NA	NA	98.92	4.72	94.20	NA
S-2 (D)	11/02/1993	13,000a	530	47	35	96	NA	NA	98.92	4.72	94.20	NA
S-2	12/16/1993	NA	NA	NA	NA	NA	NA	NA	98.92	3.00	95.92	NA
S-2	02/01/1994	31,000a	430	46	50	130	NA	NA	98.92	3.48	95.44	NA
S-2 (D)	02/01/1994	31,000a	300	33	30	100	NA	NA	98.92	3.48	95.44	NA
S-2	05/04/1994	3,900	1,200	31	53	71	NA	NA	98.92	3.26	95.66	NA
S-2 (D)	05/04/1994	4,500	1,200	37	57	110	NA	NA	98.92	3.26	95.66	NA
S-2	08/18/1994	24,000	600	8.3	15	27	NA	NA	98.92	3.98	94.94	NA
S-2	11/09/1994	1,400a	240	9.3	13	20	NA	NA	98.92	3.10	95.82	NA
S-2 (D)	11/09/1994	1,800	260	8.5	13	21	NA	NA	98.92	3.10	95.82	NA
S-2	02/22/1995	29,000	550	18	12	63	NA	NA	98.92	4.02	94.90	NA
S-2 (D)	02/22/1995	28,000	530	17	10	60	NA	NA	98.92	4.02	94.90	NA
S-2	05/02/1995	4,400	1,000	25	38	77	NA	NA	98.92	2.86	96.06	NA
S-2 (D)	05/02/1995	4,400	1,000	26	41	83	NA	NA	98.92	2.86	96.06	NA
S-2	08/30/1995	800	350	20	6.7	16	NA	NA	98.92	4.06	94.86	NA
S-2 (D)	08/30/1995	960	220	22	12	48	NA	NA	98.92	4.06	94.86	NA
S-2	11/28/1995	2,000	230	220	50	230	NA	NA	98.92	4.48	94.44	NA
S-2 (D)	11/28/1995	2,100	240	230	51	230	NA	NA	98.92	4.48	94.44	NA
S-2	02/02/1996	18,000	540	18	12	22	NA	NA	98.92	1.99	96.93	NA
S-2 (D)	02/02/1996	11,000	600	18	13	28	NA	NA	98.92	1.99	96.93	NA
S-2	03/09/1996	3,800	1,500	27	30	58	NA	NA	98.92	3.27	95.65	NA

**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**5755 Broadway**  
**Oakland, CA**

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)	GW Elevation (MSL)	DO Reading (ppm)
S-2 (D)	03/09/1996	3,500	1,300	24	21	53	NA	NA	98.92	3.27	95.65	NA
S-2	08/22/1996	<20,000	490	<200	<200	<200	43,000	NA	98.92	3.85	95.07	NA
S-2 (D)	08/22/1996	<20,000	570	<200	<200	<200	59,000	51,000	98.92	3.85	95.07	NA
S-2	11/07/1996	<5,000	290	<50	<50	<50	32,000	NA	98.92	4.00	94.92	3.51
S-2 (D)	11/07/1996	<5,000	290	<50	<50	<50	32,000	NA	98.92	4.00	94.92	3.51
S-2	02/20/1997	<10,000	520	<100	<100	<100	28,000	NA	98.92	3.20	95.72	1
S-2 (D)	02/20/1997	<10,000	520	<100	<100	<100	35,000	NA	98.92	3.20	95.72	1
S-2	05/30/1997	150	15	11	3.5	15	11	NA	98.92	3.87	95.05	6
S-2	08/21/1997	1,600	220	<10	20	<10	18,000	NA	98.92	3.29	95.63	3.3
S-2 (D)	08/21/1997	1,500	180	<10	16	<10	21,000	NA	98.92	3.29	95.63	3.3
S-2	11/03/1997	1,000	94	<10	<10	<10	<50	NA	98.92	4.02	94.90	1.8
S-2	01/20/1998	590	110	8.3	18	23	7,800	NA	98.92	1.54	97.38	3.2
S-2	07/23/1998	2,600	840	<10	44	22	15,000	NA	98.92	2.89	96.03	NA
S-2	02/16/1999	680	140	6.1	10	18	19,000	NA	98.92	1.86	97.06	2.0
S-2	09/07/1999	<2,000	248	<20.0	<20.0	<20.0	22,800	NA	98.92	3.66	95.26	1.8
S-2	02/02/2000	103	0.825	<0.500	<0.500	<0.500	11,700	10,500	98.92	4.02	94.90	2.0
S-2	04/26/2000	4,040	799	<20.0	40.9	255	19,000	17,100b	98.92	2.63	96.29	2.3
S-2	07/25/2000	1,120	195	5.94	5.62	11.3	26,600	21,100	98.92	3.42	95.50	0.6
S-2b	11/15/2000	613	35.6	<5.00	<5.00	7.36	18,100	17,800	98.92	3.31	95.61	1.8
S-2	02/12/2001	9,010	1,430	<20.0	219	848	28,300	17,000	98.92	1.47	97.45	2.0
S-2	06/07/2001	31,000	1,000	<25	630	3,200	NA	17,000	98.92	3.43	95.49	10.4
S-2	08/31/2001	50,000	950	<20	1,500	6,000	NA	17,000	98.92	4.72	94.20	0.9
S-2	12/05/2001	49,000	590	7.2	1,400	4,900	NA	11,000	98.92	1.53	97.39	NA
S-2	01/31/2002	37,000	860	<25	1,100	4,000	NA	14,000	98.92	2.13	96.79	NA
S-2	06/04/2002	150,000	800	<20	1,200	4,000	NA	9,200	98.92	2.24	96.68	NA
S-2	07/25/2002	37,000	350	<20	660	2,400	NA	10,000	98.92	2.03	96.89	NA
<b>S-2</b>	<b>11/14/2002</b>	<b>25,000</b>	<b>510</b>	<b>&lt;25</b>	<b>590</b>	<b>2,000</b>	<b>NA</b>	<b>10,000</b>	<b>180.79</b>	<b>3.17</b>	<b>177.62</b>	<b>NA</b>

**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**5755 Broadway**  
**Oakland, CA**

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.)	GW Elevation (MSL)	DO Reading (ppm)
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S-3	01/25/1991	<30	<0.3	<0.3	<0.3	<0.3	NA	NA	101.67	3.84	97.83	NA
S-3	06/03/1991	<30	<0.3	0.3	0.3	0.3	NA	NA	101.67	3.25	98.42	NA
S-3	08/03/1991	<30	<0.3	<0.3	<0.3	<0.3	NA	NA	101.67	4.73	96.94	NA
S-3	11/22/1991	<30	<0.3	<0.3	<0.3	<0.3	NA	NA	101.67	4.81	96.86	NA
S-3	03/13/1992	<30	<0.3	0.3	0.3	0.3	NA	NA	101.67	2.29	99.38	NA
S-3	05/28/1992	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	101.67	3.62	98.05	NA
S-3	08/19/1992	<50	<0.5	<0.5	<0.5	0.5	NA	NA	101.67	4.66	97.01	NA
S-3	11/18/1992	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	101.67	4.51	97.16	NA
S-3	02/10/1993	30	1.9	3.2	2.4	5.6	NA	NA	101.67	4.36	97.31	NA
S-3	06/11/1993	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	101.67	2.91	98.76	NA
S-3 (D)	06/11/1993	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	101.67	2.91	98.76	NA
S-3	08/03/1993	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	101.67	3.70	97.97	NA
S-3	11/02/1993	Well inaccessible		NA	NA	NA	NA	NA	101.67	NA	NA	NA
S-3	12/16/1993	NA	NA	NA	NA	NA	NA	NA	101.67	2.12	99.55	NA
S-3	02/01/1994	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	101.67	2.90	98.77	NA
S-3	05/04/1994	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	101.67	2.54	99.13	NA
S-3	08/18/1994	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	101.67	3.51	98.16	NA
S-3	11/09/1994	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	101.67	2.44	99.23	NA
S-3	02/22/1995	80	<0.5	0.5	<0.5	0.5	NA	NA	101.67	4.12	97.55	NA
S-3	05/02/1995	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	101.67	2.83	98.84	NA
S-3	08/30/1995	<50	0.5	<0.5	<0.5	<0.5	NA	NA	101.67	3.16	98.51	NA
S-3	11/28/1995	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	101.67	3.87	97.80	NA
S-3	02/02/1996	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	101.67	2.24	99.43	NA
S-3	03/09/1996	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	101.67	3.05	98.62	NA
S-3	08/22/1996	<50	0.8	<0.5	<0.5	<0.5	<2.5	NA	101.67	2.85	98.82	4.6
S-3	11/07/1996	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NA	101.67	3.35	98.32	4.6
S-3	02/20/1997	<50	<0.50	<0.50	<0.50	<0.50	<2.5	NA	101.67	3.00	98.67	1
S-3	05/30/1997	140	14	10	3.3	14	8.6	NA	101.67	3.00	98.67	8

**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**5755 Broadway**  
**Oakland, CA**

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.)	GW Elevation (MSL)	DO Reading (ppm)
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S-3	08/21/1997	<50	<0.50	<0.50	<0.50	<0.50	<2.5	NA	101.67	2.94	98.73	3.3
S-3	11/03/1997	<50	<0.50	<0.50	<0.50	<0.50	<2.5	NA	101.67	3.36	98.31	2.4
S-3 (D)	11/03/1997	<50	<0.50	<0.50	<0.50	<0.50	<2.5	NA	101.67	3.36	98.31	2.4
S-3	01/20/1998	Well inaccessible		NA	NA	NA	NA	NA	101.67	NA	NA	NA
S-3	07/23/1998	NA	NA	NA	NA	NA	NA	NA	101.67	2.69	98.98	NA
S-3	02/16/1999	<50	<0.50	0.92	0.59	3.9	3.7	NA	101.67	2.20	99.47	2.8
S-3	09/07/1999	NA	NA	NA	NA	NA	NA	NA	101.67	2.81	98.86	NA
S-3	02/02/2000	<50.0	<0.500	<0.500	<0.500	<0.500	<5.00	NA	101.67	3.97	97.70	2.7
S-3	04/26/2000	NA	NA	NA	NA	NA	NA	NA	101.67	2.96	98.71	NA
S-3	07/25/2000	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	NA	101.67	3.00	98.67	0.8
S-3	11/15/2000	NA	NA	NA	NA	NA	NA	NA	101.67	2.86	98.81	NA
S-3	02/12/2001	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	NA	101.67	2.47	99.20	2.3
S-3	06/07/2001	NA	NA	NA	NA	NA	NA	NA	101.67	2.78	98.89	NA
S-3	08/31/2001	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	101.67	3.94	97.73	0.5
S-3	12/05/2001	NA	NA	NA	NA	NA	NA	NA	101.67	2.05	99.62	NA
S-3	01/31/2002	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	101.67	2.29	99.38	NA
S-3	06/04/2002	NA	NA	NA	NA	NA	NA	NA	101.67	2.56	99.11	NA
S-3	07/25/2002	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	101.67	2.70	98.97	NA
S-3	11/14/2002	NA	NA	NA	NA	NA	NA	NA	183.54	3.43	180.11	NA

H-1	12/05/2001	150	<0.50	8.3	1.6	16	NA	52	NA	1.43	NA	NA
H-1	01/31/2002	3,200	12	<0.50	5.7	3.7	NA	650	NA	2.34	NA	NA
H-1	06/04/2002	280,000	<10	150	62	9,500	NA	<100	NA	2.56	NA	NA
H-1	07/25/2002	8,200	2.2	46	5.3	99	NA	<10	NA	2.83	NA	NA
H-1	11/14/2002	1,700	2.1	2.6	1.5	14	NA	380	180.63	3.74	176.89	NA

T-1	05/30/1997	NA	NA	NA	NA	NA	NA	NA	NA	2.65	NA	NA
T-1	08/21/1997	NA	NA	NA	NA	NA	NA	NA	NA	2.69	NA	NA

**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**5755 Broadway**  
**Oakland, CA**

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.)	GW Elevation (MSL)	DO Reading (ppm)
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T-1	11/03/1997	NA	NA	NA	NA	NA	NA	NA	NA	3.09	NA	NA
T-1	01/20/1998	NA	NA	NA	NA	NA	NA	NA	NA	0.61	NA	NA
T-1	07/23/1998	NA	NA	NA	NA	NA	NA	NA	NA	2.32	NA	NA
T-1	02/16/1999	NA	NA	NA	NA	NA	NA	NA	NA	1.95	NA	NA
T-1	09/07/1999	NA	NA	NA	NA	NA	NA	NA	NA	2.48	NA	NA
T-1	02/02/2000	<50.0	<0.500	<0.500	<0.500	<0.500	<5.00	NA	NA	2.66	NA	2.5
T-1	04/26/2000	NA	NA	NA	NA	NA	NA	NA	NA	2.56	NA	NA
T-1	07/25/2000	NA	NA	NA	NA	NA	NA	NA	NA	2.60	NA	NA
T-1	11/15/2000	NA	NA	NA	NA	NA	NA	NA	NA	2.47	NA	NA
T-1	02/12/2001	NA	NA	NA	NA	NA	NA	NA	NA	1.20	NA	NA
T-1	06/07/2001	NA	NA	NA	NA	NA	NA	NA	NA	2.36	NA	NA
T-1	08/31/2001	NA	NA	NA	NA	NA	NA	NA	NA	3.45	NA	NA
T-1	01/09/2002 c	NA	NA	NA	NA	NA	NA	NA	183.08	NA	NA	NA

T-2	05/30/1997	NA	NA	NA	NA	NA	NA	NA	NA	1.81	NA	NA
T-2	08/21/1997	NA	NA	NA	NA	NA	NA	NA	NA	1.89	NA	NA
T-2	11/03/1997	NA	NA	NA	NA	NA	NA	NA	NA	2.25	NA	NA
T-2	01/20/1998	NA	NA	NA	NA	NA	NA	NA	NA	0.55	NA	NA
T-2	07/23/1998	NA	NA	NA	NA	NA	NA	NA	NA	1.21	NA	NA
T-2	02/16/1999	NA	NA	NA	NA	NA	NA	NA	NA	1.08	NA	NA
T-2	09/07/1999	NA	NA	NA	NA	NA	NA	NA	NA	0.72	NA	NA
T-2	02/02/2000	1,540	53.4	20.8	11.4	21.8	1,330	NA	NA	0.98	NA	3.0
T-2	04/26/2000	NA	NA	NA	NA	NA	NA	NA	NA	1.02	NA	NA
T-2	07/25/2000	815	17.6	10.8	1.63	3.47	133	NA	NA	1.80	NA	0.8
T-2	11/15/2000	NA	NA	NA	NA	NA	NA	NA	NA	1.68	NA	NA
T-2	02/12/2001	310	7.48	7.76	0.693	2.28	301	NA	NA	1.45	NA	1.6
T-2	06/07/2001	NA	NA	NA	NA	NA	NA	NA	NA	1.57	NA	NA
T-2	08/31/2001	720	30	0.67	<0.50	2.3	NA	540	NA	2.69	NA	0.8



**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**5755 Broadway**  
**Oakland, CA**

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)	GW Elevation (MSL)	DO Reading (ppm)
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T-2	12/05/2001	NA	NA	NA	NA	NA	NA	NA	NA	0.58	NA	NA
T-2	01/31/2002	NA	NA	NA	NA	NA	NA	NA	NA	1.32	NA	NA
T-2	02/04/2002	1,000	41	30	4.6	20	NA	1,200	NA	1.46	NA	NA
T-2	06/04/2002	NA	NA	NA	NA	NA	NA	NA	NA	1.50	NA	NA
T-2	07/25/2002	660	11	0.59	<0.50	2.6	NA	97	NA	1.53	NA	NA
T-2	11/14/2002	NA	NA	NA	NA	NA	NA	NA	182.30	2.39	179.91	NA

T-3	05/30/1997	NA	NA	NA	NA	NA	NA	NA	NA	2.31	NA	NA
T-3	08/21/1997	NA	NA	NA	NA	NA	NA	NA	NA	1.57	NA	NA
T-3	11/03/1997	NA	NA	NA	NA	NA	NA	NA	NA	3.50	NA	NA
T-3	01/20/1998	NA	NA	NA	NA	NA	NA	NA	NA	0.76	NA	NA
T-3	07/23/1998	NA	NA	NA	NA	NA	NA	NA	NA	0.82	NA	NA
T-3	02/16/1999	NA	NA	NA	NA	NA	NA	NA	NA	0.55	NA	NA
T-3	09/07/1999	NA	NA	NA	NA	NA	NA	NA	NA	2.89	NA	NA
T-3	02/02/2000	<50.0	<0.500	<0.500	<0.500	<0.500	<5.00	NA	NA	3.02	NA	2.9
T-3	04/26/2000	NA	NA	NA	NA	NA	NA	NA	NA	2.81	NA	NA
T-3	07/25/2000	NA	NA	NA	NA	NA	NA	NA	NA	3.00	NA	NA
T-3	11/15/2000	NA	NA	NA	NA	NA	NA	NA	NA	1.70	NA	NA
T-3	02/12/2001	NA	NA	NA	NA	NA	NA	NA	NA	2.11	NA	NA
T-3	06/07/2001	NA	NA	NA	NA	NA	NA	NA	NA	1.68	NA	NA
T-3	08/31/2001	NA	NA	NA	NA	NA	NA	NA	NA	3.14	NA	NA
T-3	01/09/2002 c	NA	NA	NA	NA	NA	NA	NA	180.95	NA	NA	NA

**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**5755 Broadway**  
**Oakland, CA**

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)	GW Elevation (MSL)	DO Reading (ppm)
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Abbreviations:

TPPH = Total petroleum hydrocarbons as gasoline by EPA Method 8260B; prior to June 7, 2001, analyzed by EPA Method 8015.

BTEX = Benzene, toluene, ethylbenzene, xylenes by EPA Method 8260B; prior to June 7, 2001, analyzed by EPA Method 8020.

MTBE = Methyl-tertiary-butyl ether

TOC = Top of Casing Elevation

SPH = Separate-Phase Hydrocarbons

GW = Groundwater

DO = Dissolved Oxygen

ug/L = Parts per billion

ppm = Parts per million

MSL = Mean sea level

ft = Feet

<n = Below detection limit

D = Duplicate sample

NA = Not applicable

Notes:

a = Chromatogram pattern indicated an unidentified hydrocarbon.

b = This sample analyzed outside of EPA recommended hold time.

c = Survey date only.

Site surveyed January 9, 2002, by Virgil Chavez Land Surveying of Vallejo, California.



Report Number : 29830

Date : 11/25/02

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

Subject : 2 Water Samples  
Project Name : 5755 Broadway, Oakland  
Project Number : 021114-DW-2  
P.O. Number : 98995756

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,

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

Joel Kiff



Report Number : 29830

Date : 11/25/02

Project Name : 5755 Broadway, Oakland

Project Number : 021114-DW-2

Sample : S-2

Matrix : Water

Lab Number : 29830-01

Sample Date :11/14/02

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	<b>510</b>	25	ug/L	EPA 8260B	11/23/02
<b>Toluene</b>	<b>&lt; 25</b>	25	ug/L	EPA 8260B	11/23/02
<b>Ethylbenzene</b>	<b>590</b>	25	ug/L	EPA 8260B	11/23/02
<b>Total Xylenes</b>	<b>2000</b>	25	ug/L	EPA 8260B	11/23/02
<b>Methyl-t-butyl ether (MTBE)</b>	<b>10000</b>	250	ug/L	EPA 8260B	11/23/02
<b>TPH as Gasoline</b>	<b>25000</b>	2500	ug/L	EPA 8260B	11/23/02
Toluene - d8 (Surr)	103		% Recovery	EPA 8260B	11/23/02
4-Bromofluorobenzene (Surr)	96.6		% Recovery	EPA 8260B	11/23/02

Sample : H-1

Matrix : Water

Lab Number : 29830-02

Sample Date :11/14/02

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	<b>2.1</b>	1.0	ug/L	EPA 8260B	11/22/02
<b>Toluene</b>	<b>2.6</b>	1.0	ug/L	EPA 8260B	11/22/02
<b>Ethylbenzene</b>	<b>1.5</b>	1.0	ug/L	EPA 8260B	11/22/02
<b>Total Xylenes</b>	<b>14</b>	1.0	ug/L	EPA 8260B	11/22/02
<b>Methyl-t-butyl ether (MTBE)</b>	<b>380</b>	10	ug/L	EPA 8260B	11/22/02
<b>TPH as Gasoline</b>	<b>1700</b>	100	ug/L	EPA 8260B	11/22/02
Toluene - d8 (Surr)	99.9		% Recovery	EPA 8260B	11/22/02
4-Bromofluorobenzene (Surr)	110		% Recovery	EPA 8260B	11/22/02

Approved By:  Joel Kiff

Report Number : 29830

Date : 11/25/02

**QC Report : Method Blank Data**

Project Name : **5755 Broadway, Oakland**

Project Number : **021114-DW-2**

<u>Parameter</u>	<u>Measured Value</u>	<u>Method Reporting Limit</u>	<u>Units</u>	<u>Analysis Method</u>	<u>Date Analyzed</u>
Benzene	< 0.50	0.50	ug/L	EPA 8260B	11/22/02
Toluene	< 0.50	0.50	ug/L	EPA 8260B	11/22/02
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	11/22/02
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	11/22/02
Methyl-t-butyl ether (MTBE)	< 5.0	5.0	ug/L	EPA 8260B	11/22/02
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	11/22/02
Toluene - d8 (Surr)	99.8		%	EPA 8260B	11/22/02
4-Bromofluorobenzene (Surr)	107		%	EPA 8260B	11/22/02

<u>Parameter</u>	<u>Measured Value</u>	<u>Method Reporting Limit</u>	<u>Units</u>	<u>Analysis Method</u>	<u>Date Analyzed</u>
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KIFF ANALYTICAL, LLC

2795 2nd St. Suite 300 Davis. CA 95616 530-297-4800

Approved By:  \_\_\_\_\_  
Joel Kiff

## QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : 5755 Broadway, Oakland

Project Number : 021114-DW-2

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	29837-01	23	39.9	40.0	60.2	57.8	ug/L	EPA 8260B	11/22/02	92.3	86.0	7.05	70-130	25
Toluene	29837-01	1.1	39.9	40.0	39.7	39.5	ug/L	EPA 8260B	11/22/02	96.6	95.9	0.644	70-130	25
Tert-Butanol	29837-01	6.5	200	200	199	200	ug/L	EPA 8260B	11/22/02	96.7	97.0	0.286	70-130	25
Methyl-t-Butyl Ether	29837-01	<0.50	39.9	40.0	39.4	39.3	ug/L	EPA 8260B	11/22/02	98.6	98.3	0.330	70-130	25

Approved By:  Joel Kiff

KIFF ANALYTICAL, LLC

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

## QC Report : Laboratory Control Sample (LCS)

Project Name : 5755 Broadway, Oakland

Project Number : 021114-DW-2

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	20.0	ug/L	EPA 8260B	11/22/02	98.7	70-130
Toluene	20.0	ug/L	EPA 8260B	11/22/02	98.6	70-130
Tert-Butanol	100	ug/L	EPA 8260B	11/22/02	96.3	70-130
Methyl-t-Butyl Ether	20.0	ug/L	EPA 8260B	11/22/02	103	70-130

KIFF ANALYTICAL, LLC

Approved By:   
Joel Kiff

**SNELL Chain of Custody Record**

Lab Identification (if necessary):

Address:

City, State, Zip:

**Shell Project Manager to be Invoiced:**

SCIENCE & ENGINEERING

TECHNICAL SERVICES

CRMT HOUSTON

Karen Petryna

29830

INCIDENT NUMBER (S/E ONLY)

9	8	9	9	5	7	5	6
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SAP or CRMT NUMBER (TS/CRMT)

DATE: 11-14-02

PAGE: 6 of 1

SAMPLING COMPANY: <b>Blaine Tech Services</b>		LOG CODE: <b>BTSS</b>	SITE ADDRESS (Street and City): <b>5755 Broadway, Oakland</b>		GLOBAL ID NO: <b>T0600101270</b>
ADDRESS: <b>1680 Rogers Avenue, San Jose, CA 95112</b>			EDF DELIVERABLE TO (Responsible Party or Designee): <b>Heidi Bauer</b>	PHONE NO.: <b>(510) 891-0092</b>	E-MAIL: <b>hbauer@millerbroskoven.com</b>
PROJECT CONTACT (Hardcopy or PDF Report to): <b>Leon Gearhart</b>			CONSULTANT PROJECT NO. <b>02114-047</b>		BTS #
TELEPHONE: <b>408-573-0555</b>	FAX: <b>408-573-7771</b>	E-MAIL: <b>lgearhart@blainetech.com</b>	SAMPLER NAME(S) (PKI): <b>Dave Walter</b>		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  UST AGENCY: \_\_\_\_\_

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

SPECIAL INSTRUCTIONS OR NOTES: \_\_\_\_\_ CHECK BOX IF EDD IS NOT NEEDED

REQUESTED ANALYSIS										FIELD NOTES: Container/Preservative or PID Readings or Laboratory Notes		
TPH - Gas, Purgeable	BTEX	MTBE (8021B - 5ppb RL)	MTBE (8260B - 0.5ppb RL)	Oxygenates (5) by (8260B)	Ethanol (8260B)	Methanol	1,2-DCA (8260B)	EDB (8260B)	TPH - Diesel, Extractable (8015m)			TEMPERATURE ON RECEIPT C°
	X	X	X									-01
	X	X	X									-02

LAB USE ONLY	Field Sample Identification		MATRIX	NO. OF CONT.	TPH - Gas, Purgeable	BTEX	MTBE (8021B - 5ppb RL)	MTBE (8260B - 0.5ppb RL)	Oxygenates (5) by (8260B)	Ethanol (8260B)	Methanol	1,2-DCA (8260B)	EDB (8260B)	TPH - Diesel, Extractable (8015m)	TEMPERATURE ON RECEIPT C°
	DATE	TIME													
	S-2	11-14 14:20	W	3	X	X	X								-01
	H-1	11-14 12:44	W	3	X	X	X								-02

Relinquished by: (Signature) <i>David C. Stolt</i>	Received by: (Signature) _____	Date: 11/15/02	Time: 1224
Relinquished by: (Signature) _____	Received by: (Signature) _____	Date: _____	Time: _____
Relinquished by: (Signature) _____	Received by: (Signature) <i>John C. Little / Kiff Analytical</i>	Date: 11/15/02	Time: 1224

Q&C Graphic (714) 898-9702



# WELL GAUGING DATA

Project # 021107-BA3 Date 11/07/02 Client SHELL

Site 5755 BROADWAY, OAKLAND

Well ID	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or TOC	
S-1	3					3.01	11.62	TOC	

# WELL DEVELOPMENT DATA SHEET

Project #: <u>021107-BAS</u>	Client: <u>SHELL</u>
Developer: <u>BRIAN ALLEN</u>	Date Developed: <u>11/07/02</u>
Well I.D. <u>S-1</u>	Well Diameter: (circle one) 2 <u>(3)</u> 4 6
Total Well Depth: Before <u>11.62</u> After <u>11.64</u>	Depth to Water: Before <u>3.01</u> After <u>10.88</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>3.2</u>	X	<u>10</u>	=	<u>32</u>
1 Case Volume		Specified Volumes		gallons

Purging Device:    Bailer                       Electric Submersible   
                          Middleburg                       Suction Pump

Type of Installed Pump \_\_\_\_\_  
 Other equipment used \_\_\_\_\_

TIME	TEMP (F)	pH	Cond. (mS or <u>µS</u> )	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:	
1315	SURGED FOR 15 MINUTES						
1320	68.9	8.0	520	71000	3.25	VERY CLOUDY DARK BROWN	
1325	DEWATERED WELL				4	DTW 11.16 RECHARGE @ .05 ft/min	
1340	SURGED FOR <del>7</del> 15 MINUTES					DTW 10.72	
1350	SURGED FOR 10 MINUTES					DTW 10.31	
1400	SURGED FOR 10 MINUTES					DTW 9.98	
1410	SURGED FOR 10 MINUTES					DTW 9.66 .04 ft/min	
1420	DEWATERED WELL				5	DTW 10.52	
1430	SURGED FOR 10 MINUTES					DTW 10.27 4.02 ft/min	
1440	SURGED FOR 10 MINUTES					DTW 10.13	
1450	SURGED FOR 10 MINUTES					DTW 10.00	
1500	DEWATERED WELL				5.5	DTW 10.61	
1520	65.3	8.0	502	71000	6	PARAMETER @ DEPARTURE DTW 10.88	
Did Well Dewater? <u>Yes</u> If yes, note above.			Gallons Actually Evacuated:		<u>6</u>		

## WELL GAUGING DATA

Project # 021114-DW-2 Date 11-14-02 Client Shell

Site 5755 Broadway Oakland

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 <del>FOO</del>	
S-1	3					3.40	11.68		G
S-2	4					3.17	9.63		S
S-3	4					3.43	9.71		G
H-1	4					3.74	12.04		Grab sample
T-2	12					2.39	13.02	✓	G

## SHELL WELL MONITORING DATA SHEET

BTS #: 021114-DW-2	Site: 5755 Broadway Oakland
Sampler: Dave Walter	Date: 11-14-02
Well I.D.: 5-2	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth (TD): 9.63	Depth to Water (DTW): 3.17
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 4.46	

Purge Method: <input checked="" 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 <input type="checkbox"/> 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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$4.2 \text{ (Gals.)} \times 3 = 12.6 \text{ Gals.}$ I Case Volume      Specified Volumes      Calculated Volume	<table border="1" style="width: 100%; border-collapse: collapse; font-size: small;"> <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. (mS or $\mu$ S)	Turbidity (NTUs)	Gals. Removed	Observations
12:57	72.5	7.0	1023	46	5	odor
well dewatered @ 2:28 p.m. DTW = 7.42						
14:20	69.4	7.2	1061	47	-	

Did well dewater?  Yes    No    Gallons actually evacuated: 0

Sampling Date: 11-14-02    Sampling Time: 14:20    Depth to Water: 4.40

Sample I.D.: S-2    Laboratory: Riff    SPL    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):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

## SHELL WELL MONITORING DATA SHEET

BTS #: 02114-DW-2	Site: 5755 Broadway Oakland
Sampler: Dave Walter	Date: 11-14-02
Well I.D.: H-1	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth (TD): 12.04	Depth to Water (DTW): 3.74
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method:  Bailor  
 Disposable Bailor  
 Middleburg  
 Electric Submersible

Water  
 Peristaltic  
 Extraction Pump  
 Other

Sampling Method:  Bailor  
 Disposable Bailor  
 Extraction Port  
 Dedicated Tubing

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

(Gals.) X <u>No purge</u> = _____ Gals. 1 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
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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. (mS or $\mu$ S)	Turbidity (NTUs)	Gals. Removed	Observations
12:44	71.5	6.5	209	16	-	odor

Did well dewater?    Yes    No    Gallons actually evacuated: \_\_\_\_\_

Sampling Date: 11-14-02    Sampling Time: 12:44    Depth to Water: \_\_\_\_\_

Sample I.D.: H-1    Laboratory: KIT    SPL    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):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV