



**Shell Oil Products US**

May 16, 2003

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

Alameda County  
MAY 21 2003  
Environmental Health

**Subject: Shell-branded Service Station**  
105 Fifth Street  
Oakland, California

Dear Mr. Chan:

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**

Karen Petryna  
Sr. Environmental Engineer

# C A M B R I A

May 16, 2003

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

**Re: First Quarter 2003 Monitoring Report**  
Shell-branded Service Station  
105 Fifth Street  
Oakland, California  
Incident #98995757  
Cambria Project #245-0472-002

Alameda County  
MAY 21 2003  
Environmental Health



Dear Mr. Chan:

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

## HISTORICAL REMEDIATION SUMMARY

Mobile dual-phase vacuum extraction (DVE) was performed at the site from April to November 2000 and once in March 2001. Mobile DVE is the process of applying a high vacuum through an airtight well seal to simultaneously extract soil vapors from the vadose zone and enhance groundwater extraction from the saturated zone. Between April 2000 and March 2001, the DVE process removed an estimated 14.59 lbs. of total petroleum hydrocarbons as gasoline (TPHg) and 14.50 lbs. of methyl tertiary butyl ether (MTBE) from monitoring wells MW-2 and MW-3. DVE was discontinued due to limited chemical recovery.

## FIRST QUARTER 2003 ACTIVITIES

**Groundwater Monitoring:** Blaine Tech Services, Inc. (Blaine) of San Jose, California gauged and sampled the site wells, calculated groundwater elevations, and compiled the analytical data. Cambria prepared a vicinity map showing well survey data (Figure 1) and a groundwater elevation contour map (Figure 2). Blaine's report, presenting the laboratory report and

**Cambria  
Environmental  
Technology, Inc.**

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supporting field documents, is included as Attachment A. Well MW-3 was also sampled for oxygenates di-isopropyl ether, tert-amyl methyl ether, ethyl tertiary butyl ether, and tert-butanol, and for lead scavengers 1,2-dichloroethane and 1,2-dibromomethane. Results of this analysis are presented in Table 1.

**GWE:** Beginning in November 2001, Phillips Services Corporation of Benicia, California has conducted semi-monthly mobile GWE events from tank backfill well T-1. 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. Mass removal data from the GWE events is presented in Table 2. Through February 2003, a total of 109,144 gallons of water have been extracted, resulting in removal of 7.2 lbs. of TPHg and 69.4 lbs. of MTBE.

### ANTICIPATED SECOND QUARTER 2003 ACTIVITIES

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

**GWE System Installation:** Cambria submitted an *Interim Remedial Work Plan* dated February 10, 2003 describing installation of a GWE system. We have received all necessary permits for construction of the system. However, groundwater monitoring results presented in this report show a substantial decrease in MTBE concentrations. The concentration in tank backfill well T-1 decreased from 29,000 parts per billion (ppb) during the fourth quarter 2002 to 820 ppb in the first quarter 2003. Concentrations in monitoring well MW-3 decreased from 19,000 ppb to 14,000 ppb.

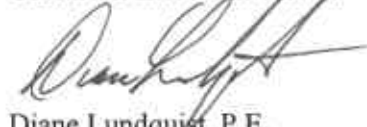
Shell will maintain the permits for installation of the GWE system, but will not install it at this time, pending evaluation of additional quarterly groundwater monitoring data.

**GWE:** The frequency of mobile GWE from well T-1 will be increased to twice-monthly, and well MW-3 will be added to the extraction program. Well MW-6 will also be added to the extraction program as soon as an encroachment permit for occupying the street during these events is obtained from the city of Oakland. Cambria will apply for this permit.

**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



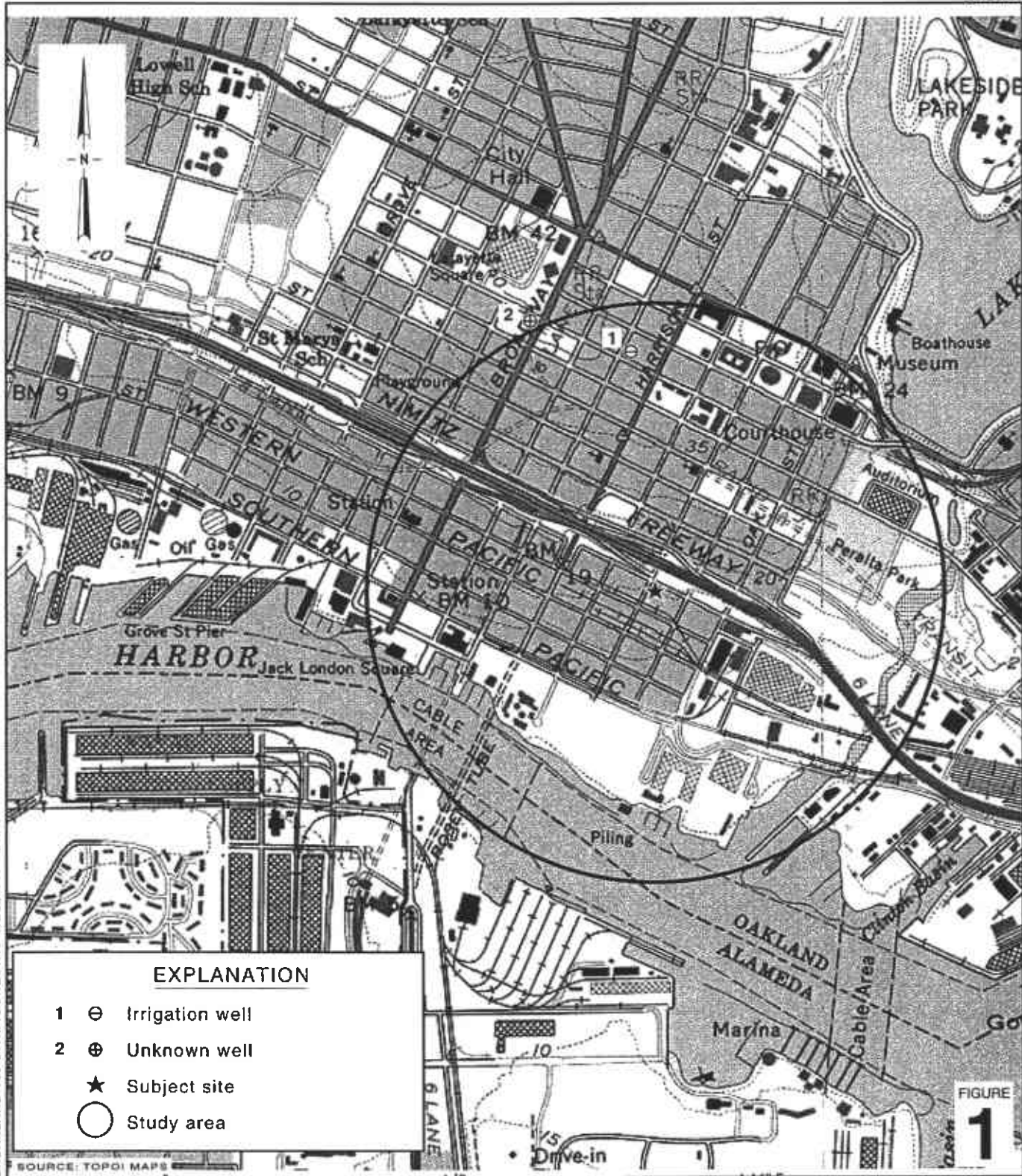
Figures: 1 - Vicinity/Well Survey Map  
2 - Groundwater Elevation Contour Map

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

Attachment: A - Blaine Groundwater Monitoring Report and Field Notes

cc: Karen Petryna, Shell Oil Products US, P.O. Box 7869, Burbank, CA 91510-7869  
Arthur R. and Mary A. Hansen, Trs., et al, 820 Loyola Drive, Los Altos, CA 94024

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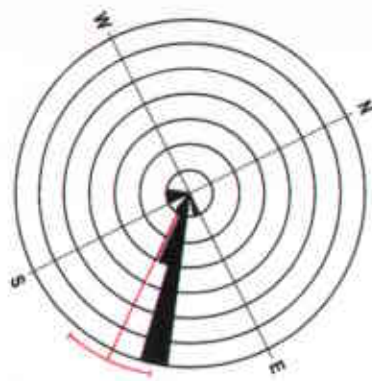
**Shell-branded Service Station**  
 105 Fifth Street  
 Oakland, California  
 Incident# 98995757



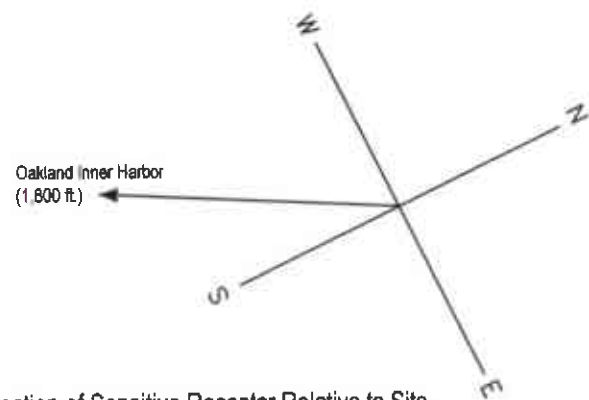
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**Vicinity / Well Survey Map**

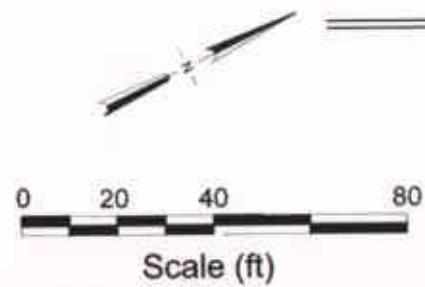
(1/2 Mile Radius)



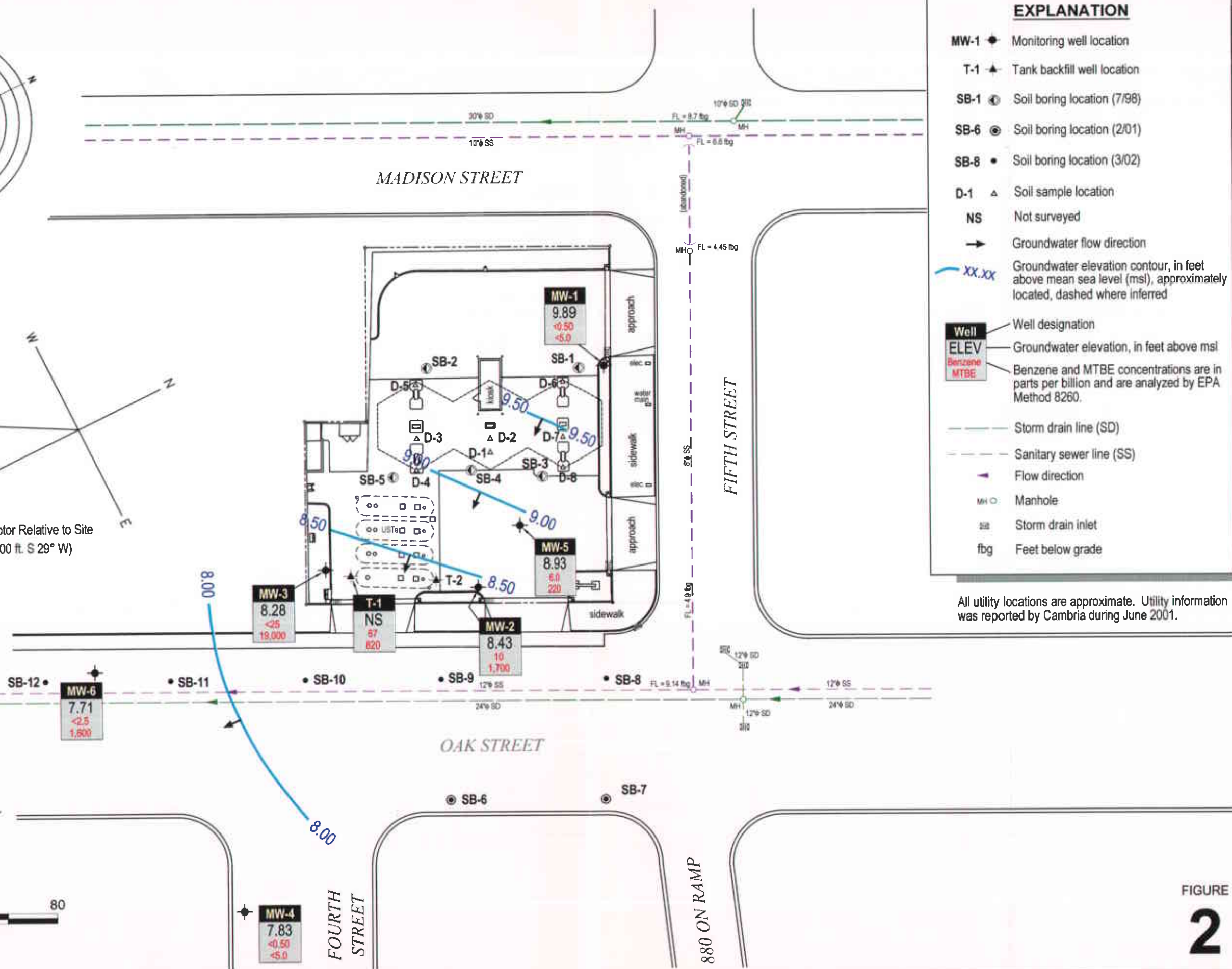
Groundwater Flow Direction  
(07/23/99 to 01/29/03)



Location of Sensitive Receptor Relative to Site  
(Oakland Inner Harbor - 1,800 ft. S 29° W)



Scale (ft)



**EXPLANATION**

- MW-1 ◆ Monitoring well location
- T-1 ▲ Tank backfill well location
- SB-1 ● Soil boring location (7/98)
- SB-6 ● Soil boring location (2/01)
- SB-8 ● Soil boring location (3/02)
- D-1 ▲ Soil sample location
- NS Not surveyed
- Groundwater flow direction
- XX.XX— Groundwater elevation contour, in feet above mean sea level (msl), approximately located, dashed where inferred

Well	ELEV
Benzene	
MTBE	

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

All utility locations are approximate. Utility information was reported by Cambria during June 2001.

FIGURE  
**2**

Groundwater Elevation  
Contour Map



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Shell-branded Service Station

105 Fifth Street  
Oakland, California  
Incident #9989577

January 29, 2003

**Table 1. Groundwater Analytical Data - Oxygenates - Shell-branded Service Station, Incident #98995757, 105 5th Street, Oakland, California**

Sample ID	Date Sampled	MTBE	DIPE	ETBE	TAME	TBA	Ethanol	1,2-DCA	EDB	
		←————— (Concentrations in ppb) —————→								
MW-2	10/23/01	13,000	<25	<25	<25	820	<500	---	---	
MW-3	10/23/01	180,000	<250	<250	<250	53,000	<5,000	---	---	
	10/15/02	44,000	<100	---	<100	9,100	---	<100	<100	
	01/29/03	19,000	<25	---	<25	14,000	---	<25	<25	

**Abbreviations & Notes:**

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  
 1,2-DCA = 1,2-dichloroethane, analyzed by EPA Method 8260  
 EDB = 1,2-dibromomethane or ethylene dibromide, analyzed by EPA Method 8260  
 ppb = Parts per billion  
 --- = Not analyzed

**Table 2: Groundwater Extraction - Mass Removal Data - Shell-branded Service Station, Incident #98995757, 105 Fifth Street, Oakland, California**

Date Purged	Well ID	Volume Pumped (gal)	Cumulative Volume Pumped (gal)	Date Sampled	TPPH			Benzene			MTBE		
					TPPH Concentration (ppb)	TPPH Removed (pounds)	TPPH Removed To Date (pounds)	Benzene Concentration (ppb)	Benzene Removed (pounds)	Benzene Removed To Date (pounds)	MTBE Concentration (ppb)	MTBE Removed (pounds)	MTBE Removed To Date (pounds)
04/21/00	MW-2	150	150	04/07/00	4,940	0.00618	0.00618	659	0.00082	0.00082	41,800	0.05232	0.05232
04/28/00	MW-2	100	250	04/07/00	4,940	0.00412	0.01031	659	0.00055	0.00137	41,800	0.03488	0.08720
05/05/00	MW-2	310	560	04/07/00	4,940	0.01278	0.02308	659	0.00170	0.00308	41,800	0.10813	0.19532
05/12/00	MW-2	350	910	04/07/00	4,940	0.01443	0.03751	659	0.00192	0.00500	41,800	0.12208	0.31740
06/02/00	MW-2	257	1,167	04/07/00	4,940	0.01059	0.04811	659	0.00141	0.00642	41,800	0.08964	0.40704
07/06/00	MW-2	334	1,501	04/07/00	4,940	0.01377	0.06187	659	0.00184	0.00825	41,800	0.11650	0.52354
09/12/00	MW-2	312	1,813	07/26/00	5,010	0.01304	0.07492	409	0.00106	0.00932	54,300	0.14137	0.66491
10/26/00	MW-2	56	1,869	07/26/00	5,010	0.00234	0.07726	409	0.00019	0.00951	54,300	0.02537	0.69028
04/21/00	MW-3	100	100	04/07/00	<1,000	0.00042	0.00042	853	0.00071	0.00071	283,000	0.23615	0.23615
04/28/00	MW-3	100	200	04/07/00	<1,000	0.00042	0.00083	853	0.00071	0.00142	283,000	0.23615	0.47229
05/05/00	MW-3	50	250	04/07/00	<1,000	0.00021	0.00104	853	0.00036	0.00178	283,000	0.11807	0.59036
05/12/00	MW-3	150	400	04/07/00	<1,000	0.00063	0.00167	853	0.00107	0.00285	283,000	0.35422	0.94458
06/02/00	MW-3	550	950	04/07/00	<1,000	0.00229	0.00396	853	0.00391	0.00676	283,000	1.29880	2.24338
07/06/00	MW-3	528	1,478	04/07/00	<1,000	0.00220	0.00617	853	0.00376	0.01052	283,000	1.24685	3.49023
08/16/00	MW-3	849	2,327	07/26/00	<20,000	0.07084	0.07701	<200	0.00071	0.01123	320,000	2.26699	5.75722
09/12/00	MW-3	188	2,515	07/26/00	<20,000	0.01569	0.09270	<200	0.00016	0.01139	320,000	0.50200	6.25922
10/26/00	MW-3	156	2,671	07/26/00	<20,000	0.01302	0.10571	<200	0.00013	0.01152	320,000	0.41655	6.67577
11/26/01	T-1 <sup>a</sup>	2,700	2,700	10/23/01	<50,000	0.56324	0.56324	<250	0.00282	0.00282	180,000	4.05536	4.05536
12/10/01	T-1 <sup>a</sup>	2,750	5,450	10/23/01	<50,000	0.57367	1.13692	<250	0.00287	0.00568	180,000	4.13046	8.18581
12/26/01	T-1 <sup>a</sup>	2,800	8,250	10/23/01	<50,000	0.58410	1.72102	<250	0.00292	0.00861	180,000	4.20556	12.39137
01/09/02	T-1	5,184	13,434	01/07/02	<20,000	0.43257	2.15359	310	0.01341	0.02201	92,000	3.97966	16.37103
01/23/02	T-1	4,250	17,684	01/07/02	<20,000	0.35464	2.50823	310	0.01099	0.03301	92,000	3.26264	19.63367
02/06/02	T-1	4,000	21,684	01/07/02	<20,000	0.33377	2.84200	310	0.01035	0.04336	92,000	3.07072	22.70439
02/20/02	T-1	3,000	24,684	01/07/02	<20,000	0.25033	3.09233	310	0.00776	0.05112	92,000	2.30304	25.00743
03/06/02	T-1	4,500	29,184	01/07/02	<20,000	0.37550	3.46783	310	0.01164	0.06276	92,000	3.45456	28.46200
03/20/02	T-1	5,000	34,184	01/07/02	<20,000	0.41722	3.88505	310	0.01293	0.07569	92,000	3.83840	32.30040



**Table 2: Groundwater Extraction - Mass Removal Data - Shell-branded Service Station, Incident #98995757, 105 Fifth Street, Oakland, California**

Date Purged	Well ID	Volume Pumped (gal)	Cumulative Volume Pumped (gal)	Date Sampled	TPPH			Benzene			MTBE		
					TPPH Concentration (ppb)	TPPH Removed (pounds)	TPPH Removed To Date (pounds)	Benzene Concentration (ppb)	Benzene Removed (pounds)	Benzene Removed To Date (pounds)	MTBE Concentration (ppb)	MTBE Removed (pounds)	MTBE Removed To Date (pounds)
04/03/02	T-1	5,200	39,384	01/07/02	<20,000	0.43391	4.31896	310	0.01345	0.08914	92,000	3.99194	36.29234
04/17/02	T-1	4,800	44,184	04/12/02	<5,000	0.10013	4.41909	230	0.00921	0.09835	57,000	2.28302	38.57536
06/03/02	T-1	3,539	47,723	04/12/02	<5,000	0.07383	4.49291	230	0.00679	0.10515	57,000	1.68325	40.25861
06/17/02	T-1	5,000	52,723	04/12/02	<5,000	0.10430	4.59722	230	0.00960	0.11474	57,000	2.37814	42.63675
07/01/02	T-1	2,873	55,596	04/12/02	<5,000	0.05993	4.65715	230	0.00551	0.12026	57,000	1.36648	44.00323
07/15/02	T-1	4,000	59,596	07/10/02	<20,000	0.33377	4.99093	260	0.00868	0.12893	69,000	2.30304	46.30627
08/12/02	T-1	3,900	63,496	07/10/02	<20,000	0.32543	5.31636	260	0.00846	0.13739	69,000	2.24547	48.55174
08/26/02	T-1	2,367	65,863	07/10/02	<20,000	0.19751	5.51387	260	0.00514	0.14253	69,000	1.36283	49.91456
09/09/02	T-1	1,959	67,822	07/10/02	<20,000	0.16347	5.67733	260	0.00425	0.14678	69,000	1.12791	51.04248
09/23/02	T-1	5,000	72,822	07/10/02	<20,000	0.41722	6.09455	260	0.01085	0.15763	69,000	2.87880	53.92128
10/09/02	T-1	4,500	77,322	07/10/02	<20,000	0.37550	6.47005	260	0.00976	0.16739	69,000	2.59092	56.51220
10/22/02	T-1	4,500	81,822	10/15/02	<5,000	0.09387	6.56392	150	0.00563	0.17302	29,000	1.08894	57.60114
11/05/02	T-1	2,384	84,206	10/15/02	<5,000	0.04973	6.61365	150	0.00298	0.17601	29,000	0.57690	58.17804
11/19/02	T-1	4,375	88,581	10/15/02	<5,000	0.09127	6.70492	150	0.00548	0.18148	29,000	1.05869	59.23673
12/09/02	T-1	2,341	90,922	10/15/02	<5,000	0.04884	6.75376	150	0.00293	0.18441	29,000	0.56649	59.80322
12/23/02	T-1	2,341	93,263	10/15/02	<5,000	0.04884	6.80259	150	0.00293	0.18734	29,000	0.56649	60.36971
01/06/03	T-1 <sup>b</sup>	2,341	95,604	10/15/02	<5,000	0.04884	6.85143	1.5	0.00003	0.18737	29,000	0.56649	60.93620
01/28/03	T-1 <sup>b</sup>	4,500	100,104	10/15/02	<5,000	0.09387	6.94530	1.5	0.00006	0.18743	29,000	1.08894	62.02514
02/11/03	T-1	4,500	104,604	01/29/03	1,300	0.04881	6.99411	67	0.00252	0.18994	820	0.03079	62.05593
<b>Total Gallons Extracted:</b>		<b>109,144</b>		<b>Total Pounds Removed:</b>		<b>7.17709</b>		<b>0.21097</b>		<b>69.42198</b>			
				<b>Total Gallons Removed:</b>		<b>1.17657</b>		<b>0.02890</b>		<b>11.19709</b>			

**Table 2: Groundwater Extraction - Mass Removal Data - Shell-branded Service Station, Incident #98995757, 105 Fifth Street, Oakland, California**

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

**Abbreviations & Notes:**

TPPH = Total purgeable hydrocarbons as gasoline

MtBE = Methyl tert-butyl ether

ppb = Parts per billion

gal = Gallon

a = Concentrations for tank backfill well T-1 estimated from nearest monitoring well MW-3.

b = Tank backfill well T-1 sampled for BTEX (including benzene) on 1/2/03.

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)

TPPH, benzene analyzed by EPA Method 8015/8020

TPPH, benzene MTBE analyzed by EPA Method 8260 are in bold font, all other results analyzed by EPA Method 8020.

Concentrations based on most recent groundwater monitoring results

Groundwater extracted by vacuum trucks provided by Phillips Services. Water disposed of at a Martinez Refinery.

If concentration is less than the laboratory detection limit, one half of the detection limit concentration is used in the mass removal calculation.

**ATTACHMENT A**  
**Blaine Groundwater Monitoring Report**  
**and Field Notes**

**BLAINE**  
TECH SERVICES, INC.



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SAN JOSE, CA 95112-1105  
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February 10, 2003

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

First Quarter 2003 Groundwater Monitoring at  
Shell-branded Service Station  
105 5<sup>th</sup> Street  
Oakland, CA

Monitoring performed on January 2 and 29, 2003

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**Groundwater Monitoring Report 030129-RH-1.**

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. Purge water (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.  
5900 Hollis Street, Suite A  
Oakland, CA 94608

**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**105 5th Street**  
**Oakland, CA**

Well ID	Date	TPPH (ug/L)	TEPH (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)
MW-1	07/20/1999	NA	NA	NA	NA	NA	NA	NA	NA	12.22	17.56	-5.34	NA
MW-1	07/23/1999	<50.0	NA	<0.500	<0.500	<0.500	<0.500	<2.50	<2.00	12.22	6.45	5.77	NA
MW-1	11/01/1999	100	NA	15.6	3.12	4.04	12.6	6.69	NA	12.22	6.59	5.63	0.5/0.7
MW-1	01/05/2000	<50.0	<20.0	<0.500	<0.500	<0.500	<0.500	<2.50	NA	12.22	6.38	5.84	1.2/1.4
MW-1	04/07/2000	<50.0	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	NA	12.22	5.83	6.39	1.6/2.4
MW-1	07/26/2000	<50.0	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	NA	12.22	6.10	6.12	1.1/1.4
MW-1	10/28/2000	<50.0	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	NA	12.22	14.08	-1.86	2.2/2.7
MW-1	01/30/2001	<50.0	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	NA	12.22	10.71	1.51	1.2/1.6
MW-1	04/17/2001	<50.0	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	NA	12.22	6.61	5.61	2.4/4.4
MW-1	07/09/2001	<50	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	12.22	6.31	5.91	1.4/3.4
MW-1	10/23/2001	<50	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	12.22	6.24	5.98	2.6/4.1
MW-1	01/07/2002	<50	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	12.22	5.25	6.97	NA
MW-1	04/12/2002	<50	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	14.92	5.54	9.38	NA
MW-1	07/10/2002	<50	74	<0.50	<0.50	<0.50	<0.50	NA	<5.0	14.92	5.98	8.94	NA
MW-1	10/15/2002	<50	51	<0.50	<0.50	<0.50	<0.50	NA	<5.0	14.92	5.46	9.46	NA
MW-1	01/29/2003	<50	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	14.92	5.03	9.89	NA

L50

MW-2	07/20/1999	NA	NA	NA	NA	NA	NA	NA	NA	10.87	18.24	-7.37	NA
MW-2	07/23/1999	13,800	NA	1,790	<100	<100	682	29,900	29,400	10.87	5.98	4.89	NA
MW-2	11/01/1999	2,420	NA	316	10.8	119	44.2	17,000	NA	10.87	6.03	4.84	0.5/0.3
MW-2	01/05/2000	2,120a	687	301a	<5.00a	116a	84.4a	14,700	NA	10.87	5.90	4.97	2.1/2.6
MW-2	04/07/2000	4,940b	1,300	659b	<25.0b	214b	314b	41,800b	NA	10.87	5.37	5.50	0.4/0.2
MW-2	07/26/2000	5,010	1,520	409	<50.0	302	307	54,300	NA	10.87	5.81	5.06	2.1/2.2
MW-2	10/28/2000	1,720	412	82.2	<10.0	46.0	102	9,800	NA	10.87	14.59	-3.72	0.7/0.7
MW-2	01/30/2001	1,640	574	14.7	<5.00	40.1	58.1	3,670	NA	10.87	10.31	0.56	1.8/2.0
MW-2	04/17/2001	598	179	21.8	<2.00	16.9	10.8	5,630	NA	10.87	6.08	4.79	1.5/2.6

**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**105 5th Street**  
**Oakland, CA**

Well ID	Date	TPPH (ug/L)	TEPH (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)
MW-2	07/09/2001	<1,000	<500	19	<10	33	15	NA	6,200	10.87	5.70	5.17	1.1/2.0
MW-2	10/23/2001	<5,000	<500	50	<25	92	<25	NA	13,000	10.87	5.72	5.15	2.0/3.2
MW-2	01/07/2002	<1,000	<200	<10	<10	<10	<10	NA	4,500	10.87	4.87	6.00	NA
MW-2	04/12/2002	<1,000	<100	14	<10	27	13	NA	6,200	13.57	5.14	8.43	NA
MW-2	07/10/2002	<1,000	290	<10	<10	14	<10	NA	6,100	13.57	5.45	8.12	NA
MW-2	10/15/2002	<100	85	1.2	<1.0	<1.0	<1.0	NA	640	13.57	5.38	8.19	NA
MW-2	01/29/2003	<500	<300	10	<5.0	16	6.3	NA	1,700	13.57	5.14	8.43	NA
<i>3500</i>													
MW-3	07/20/1999	NA	NA	NA	NA	NA	NA	NA	NA	11.27	19.07	-7.80	NA
MW-3	07/23/1999	128	NA	<0.500	<0.500	<0.500	<0.500	404,000	324,000	11.27	6.43	4.84	NA
MW-3	11/01/1999	<1,000	NA	<10.0	<10.0	<10.0	<10.0	169,000	224,000	11.27	6.48	4.79	0.5/0.3
MW-3	01/05/2000	137	322	<1.00	<1.00	<1.00	<1.00	165,000	219,000	11.27	6.35	4.92	2.4/2.2
MW-3	04/07/2000	<1,000	264	853	<10.0	<10.0	<10.0	283,000	196,000a	11.27	5.91	5.36	04/0.2
MW-3	07/26/2000	<20,000	585	<200	<200	<200	<200	437,000	320,000	11.27	5.83	5.44	1.9/1.7
MW-3	10/28/2000	<12,500	441	<125	<125	<125	<125	266,000	308,000	11.27	17.51	-6.24	1.1/1.4
MW-3	01/30/2001	<5,000	555	<50.0	<50.0	<50.0	<50.0	248,000	167,000a	11.27	11.43	-0.16	2.0/2.2
MW-3	04/17/2001	<5,000	347	<50.0	<50.0	<50.0	<50.0	134,000	133,000	11.27	6.57	4.70	1.3/1.2
MW-3	07/09/2001	<20,000	250	<200	<200	<200	<200	NA	170,000	11.27	6.12	5.15	1.2/1.9
MW-3	10/23/2001	<50,000	260	<250	<250	<250	<250	NA	180,000	11.27	6.25	5.02	2.2/1.6
MW-3	01/07/2002	<10,000	160	<100	<100	<100	<100	NA	96,000	11.27	5.29	5.98	NA
MW-3	04/12/2002	<10,000	87	<100	<100	<100	<100	NA	78,000	13.96	5.43	8.53	NA
MW-3	07/10/2002	<20,000	150	<200	<200	<200	<200	NA	64,000	13.96	6.33	7.63	NA
MW-3	10/15/2002	<10,000	120	<100	<100	<100	<100	NA	44,000	13.96	5.96	8.00	NA
MW-3	01/02/2003	NA	NA	<5.0	<5.0	<5.0	<10	NA	NA	13.96	5.40	8.56	NA
MW-3	01/29/2003	<2,500	96	<25	<25	<25	<25	NA	19,000	13.96	5.68	8.28	NA
<i>14000</i>													
MW-4	03/23/2001	NA	NA	NA	NA	NA	NA	NA	NA	9.50	8.21	1.29	NA

**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**105 5th Street**  
**Oakland, CA**

Well ID	Date	TPPH (ug/L)	TEPH (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)
MW-4	04/17/2001	<50.0	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	NA	9.50	5.08	4.42	2.4/2.6
MW-4	07/09/2001	<50	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	9.50	4.64	4.86	2.0/1.5
MW-4	10/23/2001	<50	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	9.50	7.90	1.60	2.8/1.8
MW-4	01/07/2002	<50	64	<0.50	<0.50	<0.50	<0.50	NA	<5.0	9.50	5.00	4.50	NA
MW-4	04/12/2002	<50	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	12.17	7.49	4.68	NA
MW-4	07/10/2002	<50	67	<0.50	<0.50	<0.50	<0.50	NA	<5.0	12.17	4.75	7.42	NA
MW-4	10/15/2002	<50	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	12.17	4.56	7.61	NA
MW-4	01/29/2003	<50	73	<0.50	<0.50	<0.50	<0.50	NA	<5.0	12.17	4.34	7.83	NA
<i>450</i>													
MW-5	03/29/2002	NA	NA	NA	NA	NA	NA	NA	NA	14.78	5.86	8.92	NA
MW-5	04/12/2002	1,600	<50	25	3.5	44	110	NA	570	14.78	5.96	8.82	NA
MW-5	07/10/2002	930	<400	36	<2.0	93	8.8	NA	630	14.78	6.57	8.21	NA
MW-5	10/15/2002	200	90	9.9	<0.50	19	5.5	NA	180	14.78	6.17	8.61	NA
MW-5	01/29/2003	120	85	6.0	<0.50	2.9	2.6	NA	220	14.78	5.85	8.93	NA
<i>250</i>													
MW-6	09/25/2002	NA	NA	NA	NA	NA	NA	NA	NA	12.91	5.50	7.41	NA
MW-6	10/15/2002	<500	72	<5.0	<5.0	<5.0	<5.0	NA	2,600	12.91	5.45	7.46	NA
MW-6	01/29/2003	<250	350	<2.5	<2.5	<2.5	<2.5	NA	1,600	12.91	5.20	7.71	NA
<i>590</i>													
T-1	01/07/2002	<20,000	2,600	310	<200	<200	<200	NA	92,000	NA	4.86	NA	NA
T-1	04/12/2002	<5,000	1,000	230	<50	<50	<50	NA	57,000	NA	5.05	NA	NA
T-1	07/10/2002	<20,000	3,700	260	<200	<200	<200	NA	69,000	NA	5.84	NA	NA
T-1	10/15/2002	<5,000	2,100	150	62	<50	75	NA	29,000	NA	5.77	NA	NA
T-1	01/02/2003	NA	NA	1.5	<0.50	<0.50	<1.0	NA	NA	NA	5.10	NA	NA
T-1	01/29/2003	1,300	1,200	67	6.5	<2.0	5.2	NA	820	NA	5.49	NA	NA

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**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**105 5th Street**  
**Oakland, CA**

Well ID	Date	TPPH (ug/L)	TEPH (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 July 9, 2001, analyzed by EPA Method 8015.

TEPH = Total petroleum hydrocarbons as diesel by modified EPA Method 8015.

BTEX = Benzene, toluene, ethylbenzene, xylenes by EPA Method 8260B; prior to July 9, 2001, analyzed by EPA Method 8020.

MTBE = Methyl-tertiary-butyl ether

TOC = Top of Casing Elevation

GW = Groundwater

DO = Dissolved Oxygen

ug/L = Parts per billion

ppm = Parts per million

MSL = Mean sea level

ft = Feet

<n = Below detection limit

NA = Not applicable

n/n = Pre-purge/Post-purge

Notes:

a = Sample was analyzed outside of the EPA recommended holding time.

b = Result was generated out of hold time.

Top of casing for well MW-4 provided by Cambria Environmental Technology, Inc.

Wells MW-1 through MW-5 surveyed April 12, 2002, by Virgil Chavez Land Surveying of Vallejo, California.

Site surveyed Spetember 26, 2002, by Virgil Chavez Land Surveying of Vallejo, California.



Report Number : 31190

Date : 2/6/2003

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

Subject : 7 Water Samples  
Project Name : 105 5th Street, Oakland  
Project Number : 030129-RH1  
P.O. Number : 98995757

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 initial "J".

Joel Kiff



Report Number : 31190

Date : 2/6/2003

Subject : 7 Water Samples  
Project Name : 105 5th Street, Oakland  
Project Number : 030129-RH1  
P.O. Number : 98995757

## Case Narrative

The Method Reporting Limit for TPH as Diesel is increased due to interference from Gasoline-Range Hydrocarbons for sample MW-2. Hydrocarbons reported as TPH as Diesel do not exhibit a typical Diesel chromatographic pattern for samples MW-4, MW-5 and MW-6.

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



Report Number : 31190

Date : 2/6/2003

Project Name : 105 5th Street, Oakland

Project Number : 030129-RH1

Sample : MW-1

Matrix : Water

Lab Number : 31190-01

Sample Date : 1/29/2003

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	1/31/2003
Toluene	< 0.50	0.50	ug/L	EPA 8260B	1/31/2003
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	1/31/2003
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	1/31/2003
Methyl-t-butyl ether (MTBE)	< 5.0	5.0	ug/L	EPA 8260B	1/31/2003
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	1/31/2003
Toluene - d8 (Surr)	94.9		% Recovery	EPA 8260B	1/31/2003
4-Bromofluorobenzene (Surr)	97.3		% Recovery	EPA 8260B	1/31/2003
TPH as Diesel	< 50	50	ug/L	M EPA 8015	2/3/2003

Approved By:  Joel Kiff



Report Number : 31190

Date : 2/6/2003

Project Name : 105 5th Street, Oakland

Project Number : 030129-RH1

Sample : MW-2

Matrix : Water

Lab Number : 31190-02

Sample Date :1/29/2003

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	<b>10</b>	5.0	ug/L	EPA 8260B	2/1/2003
<b>Toluene</b>	<b>&lt; 5.0</b>	5.0	ug/L	EPA 8260B	2/1/2003
<b>Ethylbenzene</b>	<b>16</b>	5.0	ug/L	EPA 8260B	2/1/2003
<b>Total Xylenes</b>	<b>6.3</b>	5.0	ug/L	EPA 8260B	2/1/2003
<b>Methyl-t-butyl ether (MTBE)</b>	<b>1700</b>	50	ug/L	EPA 8260B	2/1/2003
<b>TPH as Gasoline</b>	<b>&lt; 500</b>	500	ug/L	EPA 8260B	2/1/2003
Toluene - d8 (Surr)	95.4		% Recovery	EPA 8260B	2/1/2003
4-Bromofluorobenzene (Surr)	98.6		% Recovery	EPA 8260B	2/1/2003
<b>TPH as Diesel</b>	<b>&lt; 300</b>	300	ug/L	M EPA 8015	2/1/2003

Approved By:  Joel Kiff



Report Number : 31190

Date : 2/6/2003

Project Name : 105 5th Street, Oakland

Project Number : 030129-RH1

Sample : MW-3

Matrix : Water

Lab Number : 31190-03

Sample Date : 1/29/2003

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 25	25	ug/L	EPA 8260B	2/1/2003
Toluene	< 25	25	ug/L	EPA 8260B	2/1/2003
Ethylbenzene	< 25	25	ug/L	EPA 8260B	2/1/2003
Total Xylenes	< 25	25	ug/L	EPA 8260B	2/1/2003
Methyl-t-butyl ether (MTBE)	19000	25	ug/L	EPA 8260B	2/1/2003
Diisopropyl ether (DIPE)	< 25	25	ug/L	EPA 8260B	2/1/2003
Tert-amyl methyl ether (TAME)	< 25	25	ug/L	EPA 8260B	2/1/2003
Tert-Butanol	14000	250	ug/L	EPA 8260B	2/1/2003
TPH as Gasoline	< 2500	2500	ug/L	EPA 8260B	2/1/2003
1,2-Dichloroethane	< 25	25	ug/L	EPA 8260B	2/1/2003
1,2-Dibromoethane	< 25	25	ug/L	EPA 8260B	2/1/2003
Toluene - d8 (Surr)	95.7		% Recovery	EPA 8260B	2/1/2003
4-Bromofluorobenzene (Surr)	98.1		% Recovery	EPA 8260B	2/1/2003
Dibromofluoromethane (Surr)	103		% Recovery	EPA 8260B	2/1/2003
1,2-Dichloroethane-d4 (Surr)	99.6		% Recovery	EPA 8260B	2/1/2003
TPH as Diesel	96	50	ug/L	M EPA 8015	2/1/2003

Approved By:  Joel Kiff



Report Number : 31190

Date : 2/6/2003

Project Name : 105 5th Street, Oakland

Project Number : 030129-RH1

Sample : MW-4

Matrix : Water

Lab Number : 31190-04

Sample Date :1/29/2003

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	1/31/2003
Toluene	< 0.50	0.50	ug/L	EPA 8260B	1/31/2003
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	1/31/2003
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	1/31/2003
Methyl-t-butyl ether (MTBE)	< 5.0	5.0	ug/L	EPA 8260B	1/31/2003
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	1/31/2003
Toluene - d8 (Surr)	88.2		% Recovery	EPA 8260B	1/31/2003
4-Bromofluorobenzene (Surr)	100		% Recovery	EPA 8260B	1/31/2003
TPH as Diesel	73	50	ug/L	M EPA 8015	2/1/2003

Approved By:  Joel Kiff



Report Number : 31190

Date : 2/6/2003

Project Name : 105 5th Street, Oakland

Project Number : 030129-RH1

Sample : MW-5

Matrix : Water

Lab Number : 31190-05

Sample Date :1/29/2003

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	6.0	0.50	ug/L	EPA 8260B	1/30/2003
Toluene	< 0.50	0.50	ug/L	EPA 8260B	1/30/2003
Ethylbenzene	2.9	0.50	ug/L	EPA 8260B	1/30/2003
Total Xylenes	2.6	0.50	ug/L	EPA 8260B	1/30/2003
Methyl-t-butyl ether (MTBE)	220	5.0	ug/L	EPA 8260B	1/30/2003
TPH as Gasoline	120	50	ug/L	EPA 8260B	1/30/2003
Toluene - d8 (Surr)	95.7		% Recovery	EPA 8260B	1/30/2003
4-Bromofluorobenzene (Surr)	98.0		% Recovery	EPA 8260B	1/30/2003
TPH as Diesel	85	50	ug/L	M EPA 8015	2/1/2003

Approved By:  Joel Kiff





Report Number : 31190

Date : 2/6/2003

Project Name : 105 5th Street, Oakland

Project Number : 030129-RH1

Sample : MW-6

Matrix : Water

Lab Number : 31190-06

Sample Date :1/29/2003

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	< 2.5	2.5	ug/L	EPA 8260B	2/1/2003
<b>Toluene</b>	< 2.5	2.5	ug/L	EPA 8260B	2/1/2003
<b>Ethylbenzene</b>	< 2.5	2.5	ug/L	EPA 8260B	2/1/2003
<b>Total Xylenes</b>	< 2.5	2.5	ug/L	EPA 8260B	2/1/2003
<b>Methyl-t-butyl ether (MTBE)</b>	<b>1600</b>	25	ug/L	EPA 8260B	2/1/2003
<b>TPH as Gasoline</b>	< 250	250	ug/L	EPA 8260B	2/1/2003
Toluene - d8 (Surr)	96.9		% Recovery	EPA 8260B	2/1/2003
4-Bromofluorobenzene (Surr)	98.8		% Recovery	EPA 8260B	2/1/2003
<b>TPH as Diesel</b>	<b>350</b>	50	ug/L	M EPA 8015	2/1/2003

Approved By:  Joel Kiff



Report Number : 31190

Date : 2/6/2003

Project Name : 105 5th Street, Oakland

Project Number : 030129-RH1

Sample : T-1

Matrix : Water

Lab Number : 31190-07

Sample Date : 1/29/2003

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	<b>67</b>	2.0	ug/L	EPA 8260B	2/1/2003
<b>Toluene</b>	<b>6.5</b>	2.0	ug/L	EPA 8260B	2/1/2003
<b>Ethylbenzene</b>	<b>&lt; 2.0</b>	2.0	ug/L	EPA 8260B	2/1/2003
<b>Total Xylenes</b>	<b>5.2</b>	2.0	ug/L	EPA 8260B	2/1/2003
<b>Methyl-t-butyl ether (MTBE)</b>	<b>820</b>	20	ug/L	EPA 8260B	2/1/2003
<b>TPH as Gasoline</b>	<b>1300</b>	200	ug/L	EPA 8260B	2/1/2003
Toluene - d8 (Surr)	94.6		% Recovery	EPA 8260B	2/1/2003
4-Bromofluorobenzene (Surr)	98.4		% Recovery	EPA 8260B	2/1/2003
<b>TPH as Diesel</b>	<b>1200</b>	50	ug/L	M EPA 8015	2/1/2003

Approved By:  Joel Kiff


Report Number : 31190

Date : 2/6/2003

**QC Report : Method Blank Data**Project Name : **105 5th Street, Oakland**Project Number : **030129-RH1**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
TPH as Diesel	< 50	50	ug/L	M EPA 8015	1/31/2003
Benzene	< 0.50	0.50	ug/L	EPA 8260B	1/30/2003
Toluene	< 0.50	0.50	ug/L	EPA 8260B	1/30/2003
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	1/30/2003
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	1/30/2003
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	1/30/2003
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	1/30/2003
Toluene - d8 (Surr)	92.2		%	EPA 8260B	1/30/2003
4-Bromofluorobenzene (Surr)	98.6		%	EPA 8260B	1/30/2003
Benzene	< 0.50	0.50	ug/L	EPA 8260B	1/31/2003
Toluene	< 0.50	0.50	ug/L	EPA 8260B	1/31/2003
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	1/31/2003
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	1/31/2003
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	1/31/2003
Diisopropyl ether (DIPE)	< 2.0	2.0	ug/L	EPA 8260B	1/31/2003
Tert-amyl methyl ether (TAME)	< 2.0	2.0	ug/L	EPA 8260B	1/31/2003
Tert-Butanol	< 50	50	ug/L	EPA 8260B	1/31/2003
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	1/31/2003
1,2-Dichloroethane	< 2.0	2.0	ug/L	EPA 8260B	1/31/2003
1,2-Dibromoethane	< 2.0	2.0	ug/L	EPA 8260B	1/31/2003
Toluene - d8 (Surr)	98.8		%	EPA 8260B	1/31/2003
4-Bromofluorobenzene (Surr)	96.0		%	EPA 8260B	1/31/2003
Dibromofluoromethane (Surr)	105		%	EPA 8260B	1/31/2003
1,2-Dichloroethane-d4 (Surr)	100		%	EPA 8260B	1/31/2003

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
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Approved By:  Joel Kiff

KIFF ANALYTICAL, LLC


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

## QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : 105 5th Street, Oakland

Project Number : 030129-RH1

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
TPH as Diesel	Blank	<50	1000	1000	1030	1090	ug/L	M EPA 8015	1/31/03	103	109	5.50	70-130	25
Benzene	31188-01	<0.50	40.0	40.0	36.8	38.2	ug/L	EPA 8260B	1/30/03	92.0	95.5	3.73	70-130	25
Toluene	31188-01	<0.50	40.0	40.0	36.0	33.2	ug/L	EPA 8260B	1/30/03	90.1	83.1	8.08	70-130	25
Tert-Butanol	31188-01	340	200	200	481	504	ug/L	EPA 8260B	1/30/03	71.2	82.8	15.2	70-130	25
Methyl-t-Butyl Ether	31188-01	<0.50	40.0	40.0	40.0	42.7	ug/L	EPA 8260B	1/30/03	100	107	6.48	70-130	25
Benzene	31199-04	<0.50	40.0	40.0	41.5	40.1	ug/L	EPA 8260B	1/31/03	104	100	3.60	70-130	25
Toluene	31199-04	<0.50	40.0	40.0	37.8	36.5	ug/L	EPA 8260B	1/31/03	94.5	91.3	3.47	70-130	25
Tert-Butanol	31199-04	<5.0	200	200	196	195	ug/L	EPA 8260B	1/31/03	97.9	97.4	0.450	70-130	25
Methyl-t-Butyl Ether	31199-04	<0.50	40.0	40.0	39.8	40.4	ug/L	EPA 8260B	1/31/03	99.5	101	1.62	70-130	25

Approved By:  Joel Kiff

KIFF ANALYTICAL, LLC

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

Report Number : 31190

Date : 2/6/2003

QC Report : Laboratory Control Sample (LCS)

Project Name : 105 5th Street, Oakland

Project Number : 030129-RH1

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	40.0	ug/L	EPA 8260B	1/30/03	96.5	70-130
Toluene	40.0	ug/L	EPA 8260B	1/30/03	89.2	70-130
Tert-Butanol	200	ug/L	EPA 8260B	1/30/03	95.6	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	1/30/03	103	70-130
Benzene	40.0	ug/L	EPA 8260B	1/31/03	104	70-130
Toluene	40.0	ug/L	EPA 8260B	1/31/03	95.8	70-130
Tert-Butanol	200	ug/L	EPA 8260B	1/31/03	102	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	1/31/03	102	70-130

KIFF ANALYTICAL, LLC

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

# SHELL 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**

31190

INCIDENT NUMBER (S&E ONLY)

9 8 9 9 5 7 5 7

SAP or CRMT NUMBER (TS/CRMT)

DATE: 1/29/03

PAGE: 1 of 1

SAMPLING COMPANY: <b>Blaine Tech Services</b>		LOG CODE: <b>BTSS</b>	SITE ADDRESS (Street and City): <b>105 5th Street, Oakland</b>		GLOBAL ID NO.: <b>T0600102116</b>
ADDRESS: <b>1680 Rogers Avenue, San Jose, CA 95112</b>		EDF DELIVERABLE TO (Responsible Party or Designee): <b>Anni Krami</b>		PHONE NO.: <b>(510) 420-3335</b>	CONSULTANT PROJECT NO.: <b>BTS #03029-RH1</b>
PROJECT CONTACT (Hardcopy or PDF Report to): <b>Leon Gearhart</b>		SAMPLER NAME(S) (Print): <b>Ryan Hamstedt</b>		E-MAIL: <b>ShellOaklandEDF@cambria-env.com</b>	
TELEPHONE: <b>408-573-0555</b>	FAX: <b>408-573-7771</b>	E-MAIL: <b>lgearhart@blainetech.com</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

LAB USE ONLY	Field Sample Identification	SAMPLING		MATRIX	NO. OF CONT.	TPH - Gas, Purgeable	BTEX	MTBE (9021B - 5ppb RL)	MTBE (8260B - 0.5ppb RL)	Oxygenates (S) by (8260B)	Ethanol (8260B)	Methanol	1,2-DCA (8260B)	EDB (8260B)	TPH - Diesel, Extractable (8015m)	TGA, DIPE, TAME (8260)	TEMPERATURE ON RECEIPT °C	FIELD NOTES: Container/Preservative or PID Readings or Laboratory Notes	
		DATE	TIME																
	MW-1	1/29/03	1020	GW	5	X	X	X							X			-01	
	MW-2		1030			X	X	X							X			-02	
	MW-3		1115			X	X	Y					X	X	X	X		-03	
	MW-4		846			X	X	Y							X			-04	
	MW-5		1109			Y	X	X							X			-05	
	MW-6		920			Y	X	X							X			-06	
	T-1		1041			X	X	X							X			-07	

Relinquished by: (Signature) <i>[Signature]</i>	Received by: (Signature) _____	Date:	Time:
Relinquished by: (Signature) _____	Received by: (Signature) _____	Date:	Time:
Relinquished by: (Signature) _____	Received by: (Signature) <i>Bi-A. Brown</i>	Date: <b>013003</b>	Time: <b>1118</b>

C&Q Graphic (714) 898-9702

## WELL GAUGING DATA

Project # 030129-RH1 Date 1/29/09 Client Shell

Site 105 5th St, 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
MW-1	4					5.03	<del>23.60</del> 23.60	
MW-2	4					5.14	23.61	
MW-3	4		gauged w/ stinger in well			5.68	24.99	
MW-4	2					4.34	20.07	
MW-5	4					5.85	24.17	
MW-6	2					5.20	24.12	
T-1	12		gauged w/ stinger in well			5.49	11.50	

## SHELL WELL MONITORING DATA SHEET

BTS #: 030129-RH1	Site: 105 5th St, Oakland
Sampler: Ryan H	Date: 1/29/03
Well I.D.: mw-1	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth (TD): 23.60	Depth to Water (DTW): 5.03
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]: 8.74	

Purge Method: Bailer      Waterru      Sampling Method: Bailer  
 Disposable Bailer      Peristaltic      Disposable Bailer  
 Middleburg      Extraction Pump      Extraction Port  
Electric Submersible      Other \_\_\_\_\_      Dedicated Tubing

$12$  (Gals.) X  $3$  =  $36$  Gals.  
 I Case Volume      Specified Volumes      Calculated Volume

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

Time	Temp (°F)	pH	Cond. (mS or <u>µS</u> )	Turbidity (NTUs)	Gals. Removed	Observations
946	62.9	7.1	715	79.1	12.0	turbid
948	64.1	7.0	723	58.2	24.0	clear
950	65.1	6.9	653	86.0	36.0	turbid

Did well dewater? Yes  No  Gallons actually evacuated: 36.0

Sampling Date: 1/29/03      Sampling Time: 1020      Depth to Water: 5.25

Sample I.D.: mw-1      Laboratory: Kitt      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 #: 030129-241	Site: 105 5th St, Oakland
Sampler: Ryan H	Date: 1/29/03
Well I.D.: mw-2	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth (TD): 23.01	Depth to Water (DTW): 5.14
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]: 6.83	

Purge Method: Bailer      Water      Sampling Method: Bailer  
 Disposable Bailer      Peristaltic      Disposable Bailer  
 Middleburg      Extraction Pump      Extraction Port  
Electric Submersible      Other \_\_\_\_\_      Dedicated Tubing  
 Other: \_\_\_\_\_

$12 \text{ (Gals.)} \times 3 = 36 \text{ Gals.}$ 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. (mS or <u>µS</u> )	Turbidity (NTUs)	Gals. Removed	Observations
956	67.6	6.8	467	64.5	12.0	clear
958	67.8	6.8	439	59.7	24.0	"
1000	68.2	6.8	476	76.9	36.0	"

Did well dewater? Yes No      Gallons actually evacuated: 36.0

Sampling Date: 1/29/03      Sampling Time: 1030      Depth to Water: 5.45

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

## SHELL WELL MONITORING DATA SHEET

BTS #: 030129-RH1	Site: 105 5th St, Oakland
Sampler: Ryan H	Date: 1/29/03
Well I.D.: mw-3	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth (TD): 24.99	Depth to Water (DTW): 5.68
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]: 9.94	

Purge Method: Bailer      Water      Sampling Method: Bailer  
 Disposable Bailer      Peristaltic      Disposable Bailer  
 Middleburg      Extraction Pump      Extraction Port  
Electric Submersible      Other \_\_\_\_\_      Dedicated Tubing

<u>12.5</u> (Gals.) X <u>3</u> = <u>37.5</u> Gals.	
I Case Volume	Specified Volumes      Calculated Volume

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

Time	Temp (°F)	pH	Cond. (mS or <u>µS</u> )	Turbidity (NTUs)	Gals. Removed	Observations
1052	64.9	6.9	1364	104	12.5	<del>turbid</del>
1054	64.9	6.9	1355	75.8	25.0	clear
1056	64.9	6.9	1196	82.8	37.5	"

Did well dewater? Yes  No  Gallons actually evacuated: 37.5

Sampling Date: 1/29/03      Sampling Time: 1115      Depth to Water: 6.24

Sample I.D.: mw-3      Laboratory: Kiff      SPL      Other \_\_\_\_\_

Analyzed for: TPH-G BTEX MTBE TPH-D      Other: TBA, DPE, TAME, EDB, 1,2-DCA by P260

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 #: 030129-RH1	Site: 105 5th St, Oakland
Sampler: Ryan H	Date: 1/29/03
Well I.D.: mw-4	Well Diameter: <input checked="" type="radio"/> 2   3   4   6   8
Total Well Depth (TD): 20.07	Depth to Water (DTW): 4.34
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <input checked="" type="radio"/> PVC <input type="radio"/> Grade	D.O. Meter (if req'd):    YSI    HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 7.49	

Purge Method:    Bailer Disposable Bailer <input checked="" type="radio"/> Middleburg Electric Submersible	Waters Peristaltic Extraction Pump Other _____	Sampling Method: <input checked="" type="radio"/> Bailer Disposable Bailer Extraction Port Dedicated Tubing
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Other: \_\_\_\_\_

2.5	(Gals.) X	3	=	7.5	Gals.
I Case Volume		Specified Volumes		Calculated Volume	

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	$\text{radius}^2 \times 0.163$

Time	Temp (°F)	pH	Cond. (mS or μS)	Turbidity (NTUs)	Gals. Removed	Observations
835	62.2	6.6	1724	142	2.5	cloudy
938	62.7	7.1	1759	60.6	5.0	turbid
941	63.4	6.8	1784	51.0	7.5	clear

Did well dewater?    Yes <input checked="" type="radio"/> No	Gallons actually evacuated: 7.5
--	---------------------------------

Sampling Date: 1/29/03    Sampling Time: 9:46    Depth to Water: 12.66 <sup>due to traffic</sup>

Sample I.D.: mw-4    Laboratory:  Kiff    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:	$\text{mg/L}$	Post-purge:	$\text{mg/L}$
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

## SHELL WELL MONITORING DATA SHEET

BTS #: 030129-RH1	Site: 1055th St, Oakland
Sampler: Ryan H	Date: 1/29/03
Well I.D.: mw-5	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth (TD): 24.17	Depth to Water (DTW): 5.85
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Gmde	D.O. Meter (if req'd): YSI HACR
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 9.91	

Purge Method: Bailer      Water      Sampling Method: Bailer  
 Disposable Bailer      Peristaltic      Disposable Bailer  
 Middleburg      Extraction Pump      Extraction Port  
Electric Submersible      Other \_\_\_\_\_      Dedicated Tubing  
 Other: \_\_\_\_\_

$11.9 \text{ (Gals.)} \times 3 = 35.7 \text{ Gals.}$ I Case Volume      Specified Volumes      Calculated Volume	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Well Diameter</th> <th>Multplier</th> <th>Well Diameter</th> <th>Multplier</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	Multplier	Well Diameter	Multplier	1"	0.04	4"	0.65	2"	0.16	6"	1.47	3"	0.37	Other	radius <sup>2</sup> * 0.163
Well Diameter	Multplier	Well Diameter	Multplier														
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 <u>µS</u> )	Turbidity (NTUs)	Gals. Removed	Observations
1006	68.2	7.0	294	77.5	11.9	turbid
1008	67.5	6.8	296	151	23.8	li
1010	68.5	6.8	307	99.0	35.7	li

Did well dewater? Yes  No  Gallons actually evacuated: 35.7

Sampling Date: 1/29/03      Sampling Time: 1105      Depth to Water: 5.96

Sample I.D.: mw-5      Laboratory: Kiff      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 #: 030129-241	Site: 105 5th St, Oakland
Sampler: Ryan H	Date: 1/29/03
Well I.D.: mw-6	Well Diameter: (2) 3 4 6 8
Total Well Depth (TD): 24.12	Depth to Water (DTW): 5.20
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Gmde	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 8.98	

Purge Method:  Bailor  Disposable Bailor  Middleburg  Electric Submersible

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

Sampling Method:  Bailor  Disposable Bailor  Extraction Port  Dedicated Tubing

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

<u>3.0</u> (Gals.) X	<u>3</u>	=	<u>9.0</u> Gals.	
I Case Volume	Specified Volumes		Calculated Volume	

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

Time	Temp (°F)	pH	Cond. (mS of $\mu$ S)	Turbidity (NTUs)	Gals. Removed	Observations
913	63.1	7.7	273	>200	3.0	brown, cloudy
917	64.4	7.3	325	2200	6.0	cloudy
921	65.5	7.2	362	>200	9.0	"

Did well dewater? Yes  No  Gallons actually evacuated: 9.0

Sampling Date: 1/29/03      Sampling Time: 926      Depth to Water: 7.81

Sample I.D.: mw-6      Laboratory: (Kitt) 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 #: 030129-R41	Site: 1055th St, Oakland
Sampler: Ryan H	Date: 1/29/03
Well I.D.: T-1	Well Diameter: 2 3 4 6 8 <b>12</b>
Total Well Depth (TD): 11.50	Depth to Water (DTW): 5.49
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <b>PVC</b> Gmde	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 6.69	

Purge Method:  Bailor       Disposable Bailor       Middleburg       **Electric Submersible**

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

Sampling Method:  **Bailor**       Disposable Bailor       Extraction Port       Dedicated Tubing

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

$35.0 \text{ (Gals.)} \times 3 = 105.0 \text{ Gals.}$	<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. (mS or <b>µS</b> )	Turbidity (NTUs)	Gals. Removed	Observations
1022	62.6	6.8	961	57.3	35.0	clear
1029	62.8	6.8	971	29.9	70.0	"
1036	62.9	6.8	968	29.0	105.0	"

Did well dewater? Yes  **No**      Gallons actually evacuated: 105.0

Sampling Date: 1/29/03      Sampling Time: 1041      Depth to Water: 5.51

Sample I.D.: T-1      Laboratory: **Kiff**      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

## WELL GAUGING DATA

Project # 030102-552 Date 1/2/03 Client SHELL

Site 105 5th St. OAKLAND, CA.

Well ID	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or TOC
MW-3	4					5.40	24.99	↓
T-1	12					5.10	11.50	

## SHELL WELL MONITORING DATA SHEET

BTS #: 030102-SS2	Site: 105 5 <sup>th</sup> ST. OAKLAND
Sampler: Goett	Date: 1/2/03
Well I.D.: MW-3	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth (TD): 24.99	Depth to Water (DTW): 5.40
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]: 9.32	

Purge Method: <u>Bailer</u> Disposable Bailer <u>Middleburg</u> <u>Electric Submersible</u>	Water: Peristaltic Extraction Pump Other _____	Sampling Method: <u>Bailer</u> Disposable Bailer Extraction Port Dedicated Tubing Other: _____
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$\frac{12.7 \text{ (Gals.)} \times 3}{\text{Specified Volumes}} = \frac{38.1 \text{ Gals.}}{\text{Calculated Volume}}$	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <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 <u>µS</u> )	Turbidity (NTUs)	Gals. Removed	Observations
1023	64.5	6.8	1279	33	12.7	CLEAR / GAS ODOUR
1026	65.1	6.8	1281	30	25.4	" "
1029	65.3	6.8	1185	29	38.1	" "

Did well dewater? Yes  No  Gallons actually evacuated: 38.1

Sampling Date: 1/2/03      Sampling Time: 1035      Depth to Water: 9.22

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

Analyzed for: TPH-G BTEX MTBE TPH-D Other: APP 6260 TML STATE + CAM 17 METALS BY 200.7

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 #: <u>030102-552</u>	Site: <u>105 5th St. CALIANO</u>
Sampler: <u>5000H</u>	Date: <u>1/2/03</u>
Well I.D.: <u>T-1</u>	Well Diameter: 2 3 4 6 8 <u>(12)</u>
Total Well Depth (TD): <u>11.50</u>	Depth to Water (DTW): <u>5.10</u>
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]: <u>6.36</u>	

Purge Method: <u>Boiler</u> Disposable Bailer <u>Middleburg</u> Electric Submersible	Waterra Peristaltic Extraction Pump Other:	Sampling Method: <u>Boiler</u> Disposable Bailer Extraction Port Dedicated Tubing Other:
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$37.6 \text{ (Gals.)} \times \underline{3} = \underline{112.8} \text{ Gals.}$   
 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. (mS or <u>µS</u> )	Turbidity (NTUs)	Gals. Removed	Observations
<u>955</u>	<u>62.8</u>	<u>6.7</u>	<u>1125</u>	<u>5</u>	<u>37.6</u>	<u>clear / GAS OVER</u>
<u>1002</u>	<u>63.3</u>	<u>6.7</u>	<u>940</u>	<u>4</u>	<u>75.2</u>	" "
<u>1009</u>	<u>63.5</u>	<u>6.7</u>	<u>931</u>	<u>3</u>	<u>112.0</u>	" "

Did well dewater? Yes  No  Gallons actually evacuated: 113  
 Sampling Date: 1/2/03 Sampling Time: 1013 Depth to Water: 5.20

Sample I.D.: TL1 Laboratory: Kiff SPL Other:

Analyzed for: TPH-G BTEX MTBE TPH-D Other: EPA 8760 FULL SUITE + CAM 17 METALS BY 200.7  
 EB I.D. (if applicable): @ This 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