

Alameda County

C A M B R I A

SEP 05 2002

August 29, 2002

Environmental Health

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

Re: **Second Quarter 2002 Monitoring Report**
Shell-branded Service Station
4255 MacArthur Boulevard
Oakland, California
Incident #98995758
Cambria Project #244-0524-002

Handwritten initials/signature



Dear Mr. Chan:

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.

HYDROCARBON REMOVAL SUMMARY

Groundwater Extraction (GWE): Monthly GWE using a vacuum truck has been conducted intermittently at the site since April 1999. Mobile GWE vacuum operations consist of lowering dedicated stingers into selected monitoring wells and extracting fluids using a vacuum truck. The volume of extracted fluid is recorded and used to calculate the quantity of aqueous-phase hydrocarbon removed from the subsurface. To date, an estimated 13.2 pounds of liquid-phase hydrocarbons and 24.0 pounds of liquid-phase methyl tert-butyl ether (MTBE) have been removed from the site.

Dual Phase Vapor Extraction (DVE): From November 2000 to June 2001, hydrocarbon removal efforts were augmented by mobile DVE. DVE is the process of applying high vacuum through an airtight well seal to simultaneously extract soil vapors from the vadose zone and enhance GWE from the saturated zone. For mobile DVE, a vacuum truck is used to create the vacuum and contain extracted fluids. An estimated 1.29 pounds of vapor-phase hydrocarbon were removed by the system.

Oakland, CA
San Ramon, CA
Sonoma, CA

**Cambria
Environmental
Technology, Inc.**

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

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

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

Mass Removal	Cumulative MTBE (lbs)	Cumulative Hydrocarbons (lbs)
Aqueous-Phase	24.0	13.2
Separate-Phase	0.0	21.80
Vapor-Phase	0.06	1.29
Total	24.06	36.29



SECOND QUARTER 2002 ACTIVITIES

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

GWE: During this quarter, Onyx Industrial Services of Benicia, California conducted semi-monthly mobile GWE using monitoring well MW-2 and tank backfill well TB-2. An additional monthly DVE event is conducted using MW-2 to enhance groundwater extraction. Mass-removal data for the site is presented in Table 1 and Table 2. GWE, DVE and quarterly monitoring data for MW-2 are depicted graphically in Figure 3.

ANTICIPATED THIRD QUARTER 2002 ACTIVITIES

Groundwater Monitoring: Blaine will gauge and sample all wells and tabulate the data. A monitoring report will be prepared.

GWE and DVE: Monthly GWE will be performed using monitoring well MW-2 and tank backfill well TB-2. In addition, DVE using monitoring well MW-2 began in April 2002 and will continue through September 2002. An interim remedial action work plan will be submitted, proposing installation of a GWE system. Monthly GWE will continue until system installation is completed.



Joint Groundwater Sampling: Beginning in the third quarter of 2002, Cambria has coordinated joint sampling with the adjacent (upgradient) TOSCO station #1156, located at the corner of High & MacArthur. The coordinated sampling data will be used to determine the groundwater elevation contours.

Project Transfer: Effective August 5, 2002, Shell has transferred consulting responsibility for this site to Miller Brooks Environmental, Inc. All future correspondence and notices regarding this site should be sent to Ms. Heidi Bauer of Miller Brooks Environmental, Inc (Miller Brooks).

CLOSING

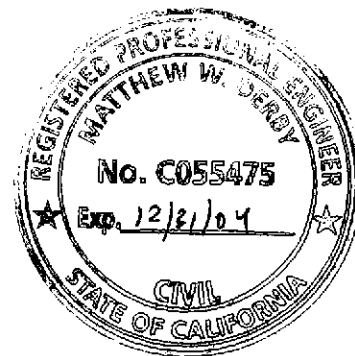
We appreciate the opportunity to work with you on this project. Please call Ms. Heidi Bauer of Miller Brooks at (510) 891-0092 if you have any questions or comments.

Sincerely,
Cambria Environmental Technology, Inc



M. Munz
Melody Munz
Project Engineer

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



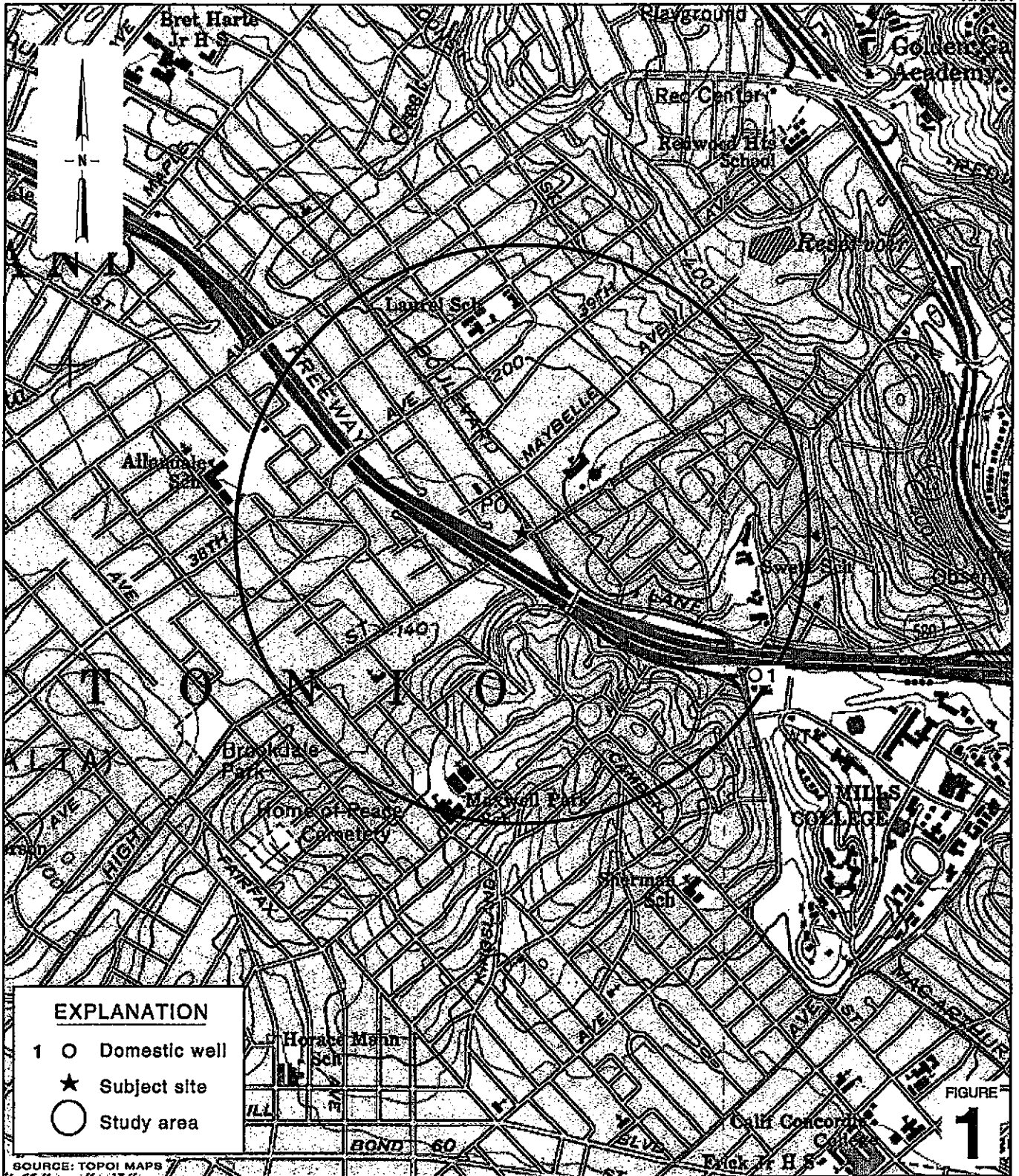
Figures: 1 - Vicinity/Area Well Survey Map
2 - Groundwater Elevation Contour Map
3 - GWE/DVE Effect on MTBE Concentration (MW-2)

Tables: 1 - Groundwater Extraction - Mass Removal Data
2 - Vapor Extraction - Mass Removal Data

Attachments: A - Blaine Groundwater Monitoring Report and Field Notes

cc: Karen Petryna, Shell Oil Products US, P.O.Box 7869, Burbank, CA 91510-7869
Roland C. Malone, Jr., PO Box 2744, Castro Valley, CA 94546
Heidi M. Bauer, Miller Brooks Environmental, Inc. 2425 West 14th Street, Suite D2,
Oakland, CA 94607

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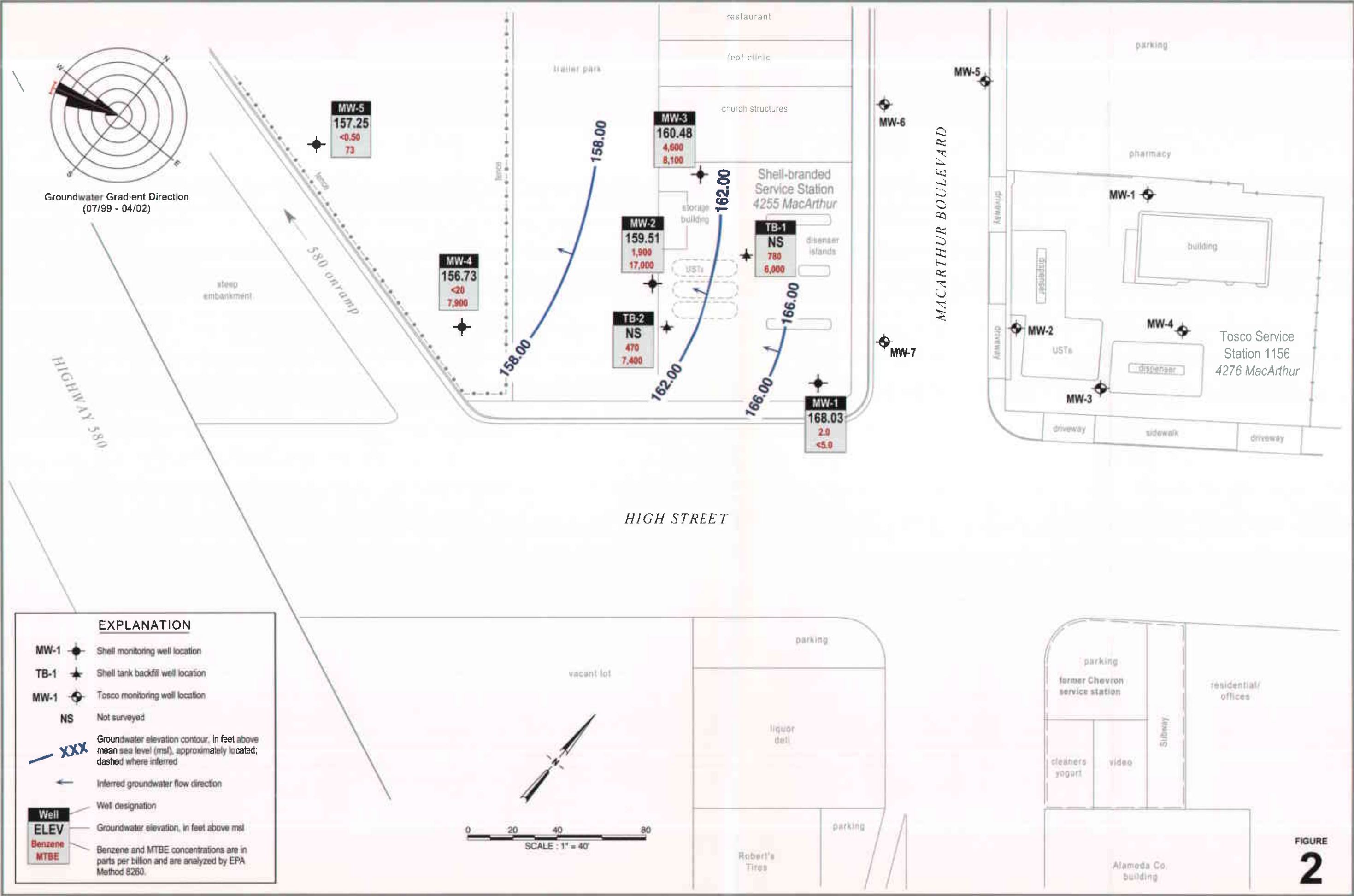
SOURCE: TOPOI MAPS

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



C A M B R I A

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



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

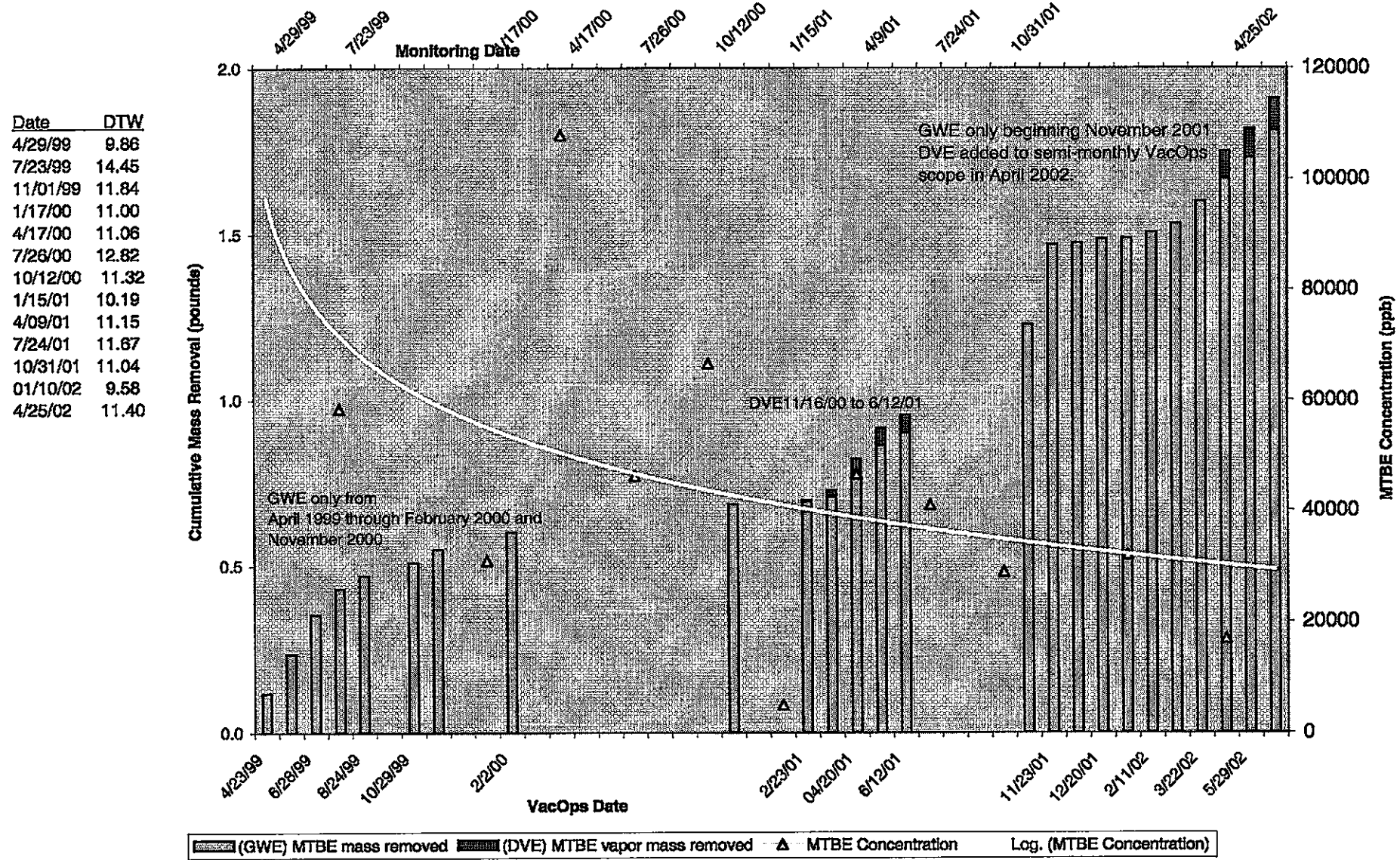


Figure 3

Table 1: Groundwater Extraction - Mass Removal Data - Shell-branded Service Station, Incident #98995758, 4255 MacArthur Boulevard, Oakland, CA

Date Purged	Well ID	Volume Pumped (gal)	Cumulative Volume Pumped (gal)	Date Sampled	TPPH			Benzene			MTBE		
					TPPH Concentration (ppb)	TPPH Removed (lb)	TPPH Removed To Date (lb)	Benzene Concentration (ppb)	Benzene Removed (lb)	Benzene Removed to Date (lb)	MTBE Concentration (ppb)	MTBE Removed (lb)	MTBE Removed To Date (lb)
04/23/99	MW-2	200	200	04/13/98	180,000	0.30040	0.30040	2,800	0.00467	0.00467	71,000	0.11849	0.11849
05/24/99	MW-2	200	400	04/13/98	180,000	0.30040	0.60079	2,800	0.00467	0.00935	71,000	0.11849	0.23698
06/28/99	MW-2	200	600	04/13/98	180,000	0.30040	0.90119	2,800	0.00467	0.01402	71,000	0.11849	0.35547
07/30/99	MW-2	200	800	07/23/99	65,800	0.10981	1.01100	6,500	0.01085	0.02487	46,600	0.07777	0.43324
08/24/99	MW-2	100	900	07/23/99	65,800	0.05491	1.06591	6,500	0.00542	0.03029	46,600	0.03888	0.47212
10/29/99	MW-2	100	1,000	07/23/99	65,800	0.05491	1.12081	6,500	0.00542	0.03571	46,600	0.03888	0.51101
11/30/99	MW-2	100	1,100	07/23/99	65,800	0.05491	1.17572	6,500	0.00542	0.04114	46,600	0.03888	0.54989
02/02/00	MW-2	200	1,300	01/17/00	46,000	0.07677	1.25249	6,000	0.01001	0.05115	31,000	0.05174	0.60163
11/16/00	MW-2	150	1,450	10/12/00	63,200	0.07910	1.33159	5,840	0.00731	0.05846	66,600	0.08336	0.68499
02/23/01	MW-2	200	1,650	01/15/01	59,700	0.09963	1.43122	2,630	0.00439	0.06285	5,080	0.00848	0.69347
03/14/01	MW-2	300	1,950	01/15/01	59,700	0.14945	1.58067	2,630	0.00658	0.06943	5,080	0.01272	0.70618
04/20/01*	MW-2	200	2,150	04/09/01	56,900	0.09496	1.67563	1,860	0.00310	0.07254	46,600	0.07777	0.78395
05/30/01	MW-2	200	2,350	04/09/01	56,900	0.09496	1.77059	1,860	0.00310	0.07564	46,600	0.07777	0.86172
06/12/01	MW-2	100	2,450	04/09/01	56,900	0.04748	1.81807	1,860	0.00155	0.07719	46,600	0.03888	0.90061
11/06/01	MW-2	1,350	3,800	10/31/01	45,000	0.50692	2.32499	2,200	0.02478	0.10198	29,000	0.32668	1.22729
11/23/01	MW-2	1,000	4,800	10/31/01	45,000	0.37550	2.70048	2,200	0.01836	0.12033	29,000	0.24199	1.46927
12/04/01	MW-2	20	4,820	10/31/01	45,000	0.00751	2.70799	2,200	0.00037	0.12070	29,000	0.00484	1.47411
12/20/01	MW-2	50	4,870	10/31/01	45,000	0.01877	2.72677	2,200	0.00092	0.12162	29,000	0.01210	1.48621
01/14/02	MW-2	10	4,880	01/10/02	28,000	0.00234	2.72911	840	0.00007	0.12169	32,000	0.00267	1.48888
02/11/02	MW-2	62	4,942	01/10/02	28,000	0.01449	2.74359	840	0.00043	0.12212	32,000	0.01656	1.50544
02/25/02	MW-2	100	5,042	01/10/02	28,000	0.02336	2.76696	840	0.00070	0.12282	32,000	0.02670	1.53214
03/08/02*	MW-2	125	5,167	01/10/02	28,000	0.02921	2.79616	840	0.00088	0.12370	32,000	0.03338	1.56552
03/22/02	MW-2	125	5,292	01/10/02	28,000	0.02921	2.82537	840	0.00088	0.12458	32,000	0.03338	1.59890
04/10/02	MW-2	53	5,345	01/10/02	28,000	0.01238	2.83775	840	0.00037	0.12495	32,000	0.01415	1.61305
04/16/02	MW-2	100	5,445	01/10/02	28,000	0.02336	2.86111	840	0.00070	0.12565	32,000	0.02670	1.63975
04/24/02	MW-2	100	5,545	01/10/02	28,000	0.02336	2.88448	840	0.00070	0.12635	32,000	0.02670	1.66645
05/08/02	MW-2	29	5,574	04/25/02	41,000	0.00992	2.89440	1,900	0.00046	0.12681	17,000	0.00411	1.67057
05/22/02	MW-2	300	5,874	04/25/02	41,000	0.10264	2.99703	1,900	0.00476	0.13157	17,000	0.04256	1.71312

Table 1: Groundwater Extraction - Mass Removal Data - Shell-branded Service Station, Incident #98995758, 4255 MacArthur Boulevard, Oakland, CA

Date Purged	Well ID	Volume Pumped (gal)	Cumulative Volume Pumped (gal)	Date Sampled	TPPH			Benzene			MTBE		
					TPPH Concentration (ppb)	TPPH Removed (lb)	TPPH Removed To Date (lb)	Benzene Concentration (ppb)	Benzene Removed (lb)	Benzene Removed to Date (lb)	MTBE Concentration (ppb)	MTBE Removed (lb)	MTBE Removed To Date (lb)
05/29/02	MW-2	122	5,996	04/25/02	41,000	0.04174	3.03877	1,900	0.00193	0.13350	17,000	0.01731	1.73043
06/05/02	MW-2	30	6,026	04/25/02	41,000	0.01026	3.04904	1,900	0.00048	0.13398	17,000	0.00426	1.73468
06/19/02	MW-2	500	6,526	04/25/02	41,000	0.17106	3.22010	1,900	0.00793	0.14190	17,000	0.07093	1.80561
06/26/02	MW-2	50	6,576	04/25/02	41,000	0.01711	3.23720	1,900	0.00079	0.14270	17,000	0.00709	1.81270
05/30/01	MW-3	50	50	04/09/01	33,800	0.01410	0.01410	7,100	0.00296	0.00296	13,000	0.00542	0.00542
06/12/01	MW-3	50	100	04/09/01	33,800	0.01410	0.02820	7,100	0.00296	0.00592	13,000	0.00542	0.01085
09/05/01	TB-1	300	300	10/31/01	1,000	0.00250	0.00250	85	0.00021	0.00021	4,100	0.01026	0.01026
09/19/01	TB-1	1,400	1,700	10/31/01	1,000	0.01168	0.01419	85	0.00099	0.00121	4,100	0.04790	0.05816
10/16/01	TB-1	1,200	2,900	10/31/01	1,000	0.01001	0.02420	85	0.00085	0.00206	4,100	0.04105	0.09921
04/16/02	TB-1	1,111	4,011	10/31/01	5,000	0.04635	0.07055	410	0.00380	0.00586	9,000	0.08344	0.18265
04/23/99	TB-2	4,800	4,800	08/24/99	6,240	0.24993	0.24993	400	0.01602	0.01602	86,100	3.44856	3.44856
05/24/99	TB-2	4,800	9,600	08/24/99	6,240	0.24993	0.49986	400	0.01602	0.03204	86,100	3.44856	6.89711
06/28/99	TB-2	4,800	14,400	08/24/99	6,240	0.24993	0.74979	400	0.01602	0.04806	86,100	3.44856	10.34567
07/30/99	TB-2	4,800	19,200	08/24/99	6,240	0.24993	0.99972	400	0.01602	0.06408	86,100	3.44856	13.79422
08/24/99	TB-2	2,400	21,600	08/24/99	6,240	0.12497	1.12469	400	0.00801	0.07210	86,100	1.72428	15.51850
10/29/99	TB-2	2,255	23,855	10/29/99	7,460	0.14037	1.26506	656	0.01234	0.08444	442	0.00832	15.52682
11/30/99	TB-2	3,800	27,655	10/29/99	7,460	0.23655	1.50160	656	0.02080	0.10524	442	0.01402	15.54083
02/02/00	TB-2	4,500	32,155	01/31/00	2,070	0.07773	1.57933	108	0.00406	0.10930	6,550	0.24595	15.78678
11/16/00	TB-2	974	33,129	11/16/00	107,000	0.86963	2.44896	3,390	0.02755	0.13685	16,800	0.13654	15.92332
02/23/01	TB-2	2,506	35,635	02/23/01	80,600	1.68542	4.13439	2,410	0.05040	0.18724	38,100	0.79671	16.72003
03/14/01	TB-2	1,075	36,710	02/23/01	80,600	0.72300	4.85738	2,410	0.02162	0.20886	38,100	0.34176	17.06179
04/20/01*	TB-2	1,760	38,470	04/09/01	46,600	0.68437	5.54175	1,240	0.01821	0.22707	31,300	0.45967	17.52147
05/30/01	TB-2	2,100	40,570	04/09/01	46,600	0.81658	6.35833	1,240	0.02173	0.24880	31,300	0.54847	18.06994
06/12/01	TB-2	2,400	42,970	04/09/01	46,600	0.93323	7.29156	1,240	0.02483	0.27363	31,300	0.62683	18.69677
08/07/01	TB-2	2,510	43,080	07/24/01	11,000	0.23039	7.52195	630	0.01319	0.28683	11,000	0.23039	18.92716

Table 1: Groundwater Extraction - Mass Removal Data - Shell-branded Service Station, Incident #98995758, 4255 MacArthur Boulevard, Oakland, CA

Date Purged	Well ID	Volume Pumped (gal)	Cumulative Volume Pumped (gal)	Date Sampled	TPPH			Benzene			MTBE			
					TPPH Concentration (ppb)	TPPH Removed (lb)	TPPH Removed To Date (lb)	Benzene Concentration (ppb)	Benzene Removed (lb)	Benzene Removed to Date (lb)	MTBE Concentration (ppb)	MTBE Removed (lb)	MTBE Removed To Date (lb)	
08/21/01	TB-2	2,700	45,670	07/24/01	11,000	0.24783	7.76978	630	0.01419	0.30102	11,000	0.24783	19.17499	
09/05/01	TB-2	2,100	45,180	07/24/01	11,000	0.19275	7.96253	630	0.01104	0.31206	11,000	0.19275	19.36774	
09/19/01	TB-2	1,500	47,170	07/24/01	11,000	0.13768	8.10022	630	0.00789	0.31995	11,000	0.13768	19.50542	
10/16/01	TB-2	1,750	46,930	07/24/01	11,000	0.16063	8.26085	630	0.00920	0.32915	11,000	0.16063	19.66605	
11/06/01	TB-2	1,500	48,670	10/31/01	7,500	0.09387	8.35472	530	0.00663	0.33578	2,500	0.03129	19.69734	
11/23/01	TB-2	1,500	48,430	10/31/01	7,500	0.09387	8.44859	530	0.00663	0.34241	2,500	0.03129	19.72863	
10/04/01	TB-2	2,900	51,570	10/31/01	7,500	0.18149	8.63008	530	0.01283	0.35524	2,500	0.06050	19.78913	
12/20/01	TB-2	2,950	51,380	10/31/01	7,500	0.18462	8.81470	530	0.01305	0.36829	2,500	0.06154	19.85067	
01/14/02	TB-2	2,542	54,112	01/10/02	<5,000	0.05303	8.86773	480	0.01018	0.37847	12,000	0.25454	20.10521	
02/11/02	TB-2	1,300	52,680	01/10/02	<5,000	0.02712	8.89485	480	0.00521	0.38367	12,000	0.13017	20.23538	
02/25/02	TB-2	2,400	56,512	01/10/02	<5,000	0.05007	8.94492	480	0.00961	0.39329	12,000	0.24032	20.47570	
03/08/02*	TB-2	3,052	55,732	01/10/02	<5,000	0.06367	9.00858	480	0.01222	0.40551	12,000	0.30560	20.78130	
03/22/02	TB-2	2,234	58,746	01/10/02	<5,000	0.04660	9.05519	480	0.00895	0.41446	12,000	0.22370	21.00499	
04/10/02	TB-2	2,156	57,888	01/10/02	<5,000	0.04498	9.10016	480	0.00864	0.42309	12,000	0.21589	21.22088	
04/24/02	TB-2	1,308	60,054	01/10/02	<5,000	0.02729	9.12745	480	0.00524	0.42833	12,000	0.13097	21.35185	
05/08/02	TB-2	1,400	59,288	04/27/02	4,700	0.05491	9.18235	470	0.00549	0.43382	7,400	0.08645	21.43830	
05/22/02	TB-2	1,707	61,761	04/27/02	4,700	0.06695	9.24930	470	0.00669	0.44052	7,400	0.10540	21.54370	
05/29/02	TB-2	900	60,188	04/27/02	4,700	0.03530	9.28460	470	0.00353	0.44405	7,400	0.05557	21.59928	
06/05/02	TB-2	1,615	63,376	04/27/02	4,700	0.06334	9.34793	470	0.00633	0.45038	7,400	0.09972	21.69900	
06/19/02	TB-2	400	60,588	04/27/02	4,700	0.01569	9.36362	470	0.00157	0.45195	7,400	0.02470	21.72370	
06/26/02	TB-2	1,027	64,403	04/27/02	4,700	0.04028	9.40390	470	0.00403	0.45598	7,400	0.06342	21.78712	
Total Gallons Extracted:		95,108		Total Pounds Removed:			12.73986	Total Pounds Removed:			0.61046	Total Pounds Removed:		23.79332
				Total Gallons Removed:			2.08850				0.08362			3.83763

Abbreviations & Notes:

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

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

Table 1: Groundwater Extraction - Mass Removal Data - Shell-branded Service Station, Incident #98995758, 4255 MacArthur Boulevard, Oakland, CA

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

ppb = Parts per billion

lb = Pound

gal = Gallon

* = Purge volume estimated

Mass removed based on the formula: volume extracted (gal) x Concentration (µg/L) x (g/10⁶µg) x (pound/453.6g) x (3.785 L/gal)

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

Benzene analyzed by EPA Method 8020

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

Date	Well ID	Interval Hours of Operation (hours)	System Flow Rate (CFM)	Hydrocarbon Concentrations			TPHg		Benzene		MTBE	
				TPHg	Benzene	MTBE	TPHg Removal Rate (#/hour)	Cumulative TPHg Removed (#)	Benzene Removal Rate (#/hour)	Cumulative Benzene Removed (#)	MTBE Removal Rate (#/hour)	Cumulative MTBE Removed (#)
11/16/00	MW-2	0.67	0.5	663.0	7.00	42.0	0.004	0.003	0.000	0.000	0.000	0.000
02/23/01	MW-2	7.00	3.2	24.1	0.93	11.9	0.001	0.010	0.000	0.000	0.001	0.004
03/14/01	MW-2	6.00	4.0	203	4.13	51.9	0.011	0.075	0.000	0.001	0.003	0.021
04/20/01*	MW-2	4.00	6.2	310	4.4	49	0.026	0.178	0.000	0.003	0.004	0.037
05/30/01	MW-2	3.00	7.7	360	4.4	50	0.037	0.289	0.000	0.004	0.005	0.053
06/12/01	MW-2	3.00	5.1	56	0.33	2.0	0.004	0.301	0.000	0.004	0.000	0.054
04/16/02	MW-2	6.00	7.7	1,600	7.2	47	0.165	1.289	0.001	0.008	0.005	0.083
05/22/02	MW-2	2.00	7.5	160	1.3	13	0.016	1.321	0.000	0.008	0.001	0.086
06/19/02	MW-2	5.00	11.5	95	0.94	10	0.015	1.394	0.000	0.009	0.002	0.094
05/30/01	MW-3	3.00	4.0	4,200	7.1	14	0.225	0.674	0.000	0.001	0.001	0.002
06/12/01	MW-3	3.00	3.3	2,400	5.8	9.8	0.106	0.991	0.000	0.002	0.000	0.004
Total Pounds Removed:							TPHg =	#REF!	Benzene =	#REF!	MTBE =	#REF!

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

Abbreviations and Notes:

CFM = Cubic feet per minute

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

ppmv = Parts per million by volume

= Pounds

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

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

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

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

* = Interval hours of operation estimated.

ATTACHMENT A

Blaine Groundwater Monitoring Report
and Field Notes

BLAINE
TECH SERVICES, INC.



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

May 8, 2002

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

Second Quarter 2002 Groundwater Monitoring at
Shell-branded Service Station
4255 MacArthur Boulevard
Oakland, CA

Monitoring performed on April 25, 2002

Groundwater Monitoring Report 020425-MM-2

This report covers the routine monitoring of groundwater wells at this Shell-branded facility. In accordance with standard procedures that conform to Regional Water Quality Control Board requirements, routine field data collection includes depth to water, total well depth, thickness of any separate immiscible layer, water column volume, calculated purge volume (if applicable), elapsed evacuation time (if applicable), total volume of water removed (if applicable), and standard water parameter instrument readings. Sample material is collected, contained, stored, and transported to the laboratory in conformance with EPA standards. 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.
1144 65th Street, Suite C
Oakland, CA 94608-2411

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

Well ID	Date	TPPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO Reading (ppm)	ORP Reading (mV)
MW-1	11/17/1993	410	21	11	7.9	47	NA	NA	175.79	8.59	NA	167.20	NA	NA	NA
MW-1	01/20/1994	1,200	180	19	48	47	NA	NA	175.79	8.22	NA	167.57	NA	NA	NA
MW-1	04/25/1994	3,100	610	<10	130	27	NA	NA	175.79	7.63	NA	168.16	NA	NA	NA
MW-1	07/07/1994	2,400	1,000	10	250	20	NA	NA	175.79	8.31	NA	167.48	NA	NA	NA
MW-1	10/27/1994	2,200	500	3.1	72	1.8	NA	NA	175.79	8.84	NA	166.95	NA	NA	NA
MW-1	11/17/1994	NA	NA	NA	NA	NA	NA	NA	175.79	7.60	NA	168.19	NA	NA	NA
MW-1	11/28/1994	NA	NA	NA	NA	NA	NA	NA	175.79	7.56	NA	168.23	NA	NA	NA
MW-1	01/13/1995	570	75	2.5	6.7	11	NA	NA	175.79	7.11	NA	168.68	NA	NA	NA
MW-1	04/12/1995	1,800	480	<5.0	79	<5.0	NA	NA	175.79	7.08	NA	168.71	NA	NA	NA
MW-1	07/25/1995	120	15	1.1	2.1	2.9	NA	NA	175.79	7.73	NA	168.06	NA	NA	NA
MW-1 (D)	07/25/1995	300	88	2.4	11	6.5	NA	NA	175.79	7.73	NA	168.06	NA	NA	NA
MW-1	10/18/1995	130	9.5	0.8	1.3	1.7	NA	NA	175.79	8.42	NA	167.37	NA	NA	NA
MW-1 (D)	10/18/1995	120	11	0.8	1.4	1.8	NA	NA	175.79	8.42	NA	167.37	NA	NA	NA
MW-1	01/17/1996	250	22	0.9	1.6	2.3	NA	NA	175.79	7.83	NA	167.96	NA	NA	NA
MW-1	04/25/1996	<50	4.6	<0.5	<0.5	0.6	500b	NA	175.79	7.35	NA	168.44	NA	NA	NA
MW-1	07/17/1996	<250	15	<2.5	<2.5	<2.5	540	NA	175.79	7.70	NA	168.09	NA	NA	NA
MW-1	10/01/1996	1,200	500	12	57	82	1,900	NA	175.79	8.07	NA	167.72	NA	NA	NA
MW-1	01/22/1997	640	170	4.3	33	33	1,200	NA	175.79	7.21	NA	168.58	NA	NA	NA
MW-1	04/08/1997	<200	34	<2.0	3.3	4.3	950	NA	175.79	7.75	NA	168.04	NA	NA	NA
MW-1 (D)	04/08/1997	<200	66	<2.0	6.4	8	740	NA	175.79	7.75	NA	168.04	NA	NA	NA
MW-1	07/08/1997	190	49	1.2	5.8	8.6	560	NA	175.79	8.01	NA	167.78	NA	NA	NA
MW-1	10/08/1997	<100	7	<1.0	<1.0	<1.0	620	NA	175.79	8.10	NA	167.69	NA	NA	NA
MW-1	01/09/1998	970	390	12	48	71	1,200	NA	175.79	7.14	NA	168.65	NA	NA	NA
MW-1	04/13/1998	<50	136	<0.50	1.5	1.8	170	NA	175.79	6.78	NA	169.01	NA	NA	NA
MW-1	07/17/1998	2,500	750	11	88	67	150	NA	175.79	7.28	NA	168.51	NA	NA	NA
MW-1	10/02/1998	8,000	970	36	270	440	35	NA	175.79	7.77	NA	168.02	NA	NA	NA

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

Well ID	Date	TPPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO Reading (ppm)	ORP Reading (mV)
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MW-1	02/03/1999	210	56	0.82	<0.50	3.2	220	NA	175.79	7.45	NA	168.34	NA	1.4	NA
MW-1	04/29/1999	<50	4.5	<0.50	0.56	<0.50	140	196	175.79	7.58	NA	168.21	NA	1.2	140
MW-1	07/23/1999	<50.0	<0.500	<0.500	<0.500	<0.500	120	111*	175.79	8.51	NA	167.28	NA	1.0	NA
MW-1	11/01/1999	<50.0	<0.500	<0.500	<0.500	<0.500	2.90	NA	175.79	8.30	NA	167.49	NA	1.4	-71
MW-1	01/17/2000	<50	<0.50	<0.50	<0.50	<0.50	3.30	NA	175.79	8.04	NA	167.75	NA	16.9	64
MW-1	04/17/2000	<50.0	1.08	<0.500	<0.500	<0.500	<2.50	NA	175.79	8.00	NA	167.79	NA	1.8	112
MW-1	07/26/2000	125	54.3	2.16	5.45	9.86	33.1	NA	175.79	7.52	NA	168.27	NA	13.2	-140
MW-1	10/12/2000	101	40.7	2.68	3.00	5.18	25.0	NA	175.79	7.71	NA	168.08	NA	>20	534
MW-1	01/15/2001	<50.0	0.633	<0.500	0.505	1.74	<2.50	NA	175.79	7.33	NA	168.46	NA	16.9	-127
MW-1	04/09/2001	<50.0	<0.500	<0.500	<0.500	0.927	<2.50	NA	175.79	7.68	NA	168.11	NA	12.8	-117
MW-1	07/24/2001	<50	4.0	0.65	0.53	1.3	NA	<5.0	175.79	8.00	NA	167.79	NA	>20	43
MW-1	10/31/2001	<50	4.4	<0.50	<0.50	0.98	NA	<5.0	175.79	7.94	NA	167.85	NA	13.6	123
MW-1	01/10/2002	<50	2.2	<0.50	<0.50	1.2	NA	6.1	175.79	7.63	NA	168.16	NA	0.1	63
MW-1	04/25/2002	<50	2.0	<0.50	<0.50	<0.50	NA	<5.0	175.79	7.76	NA	168.03	NA	0.3	54

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

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

Well ID	Date	TPPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO Reading (ppm)	ORP Reading (mV)
MW-2	04/12/1995	100,000	8,500	11,000	2,400	12,000	NA	NA	170.91	10.12	NA	160.79	NA	NA	NA
MW-2 (D)	04/12/1995	80,000	4,200	9,300	2,500	12,000	NA	NA	170.91	10.12	NA	160.79	NA	NA	NA
MW-2	07/25/1995	NA	NA	NA	NA	NA	NA	NA	170.91	11.53	NA	159.80	0.52	NA	NA
MW-2	10/18/1995	NA	NA	NA	NA	NA	NA	NA	170.91	14.02	NA	156.99	0.13	NA	NA
MW-2	01/17/1996	NA	NA	NA	NA	NA	NA	NA	170.91	10.27	NA	160.78	0.17	NA	NA
MW-2	04/25/1996	NA	NA	NA	NA	NA	NA	NA	170.91	11.68	NA	159.25	0.03	NA	NA
MW-2	07/17/1996	NA	NA	NA	NA	NA	NA	NA	170.91	12.78	NA	158.81	0.48	NA	NA
MW-2	10/01/1996	NA	NA	NA	NA	NA	NA	NA	170.91	14.21	NA	156.70	0.28	NA	NA
MW-2	01/22/1997	NA	NA	NA	NA	NA	NA	NA	170.91	10.92	NA	160.08	0.11	NA	NA
MW-2	04/08/1997	NA	NA	NA	NA	NA	NA	NA	170.91	14.12	NA	156.95	0.20	NA	NA
MW-2	07/08/1997	NA	NA	NA	NA	NA	NA	NA	170.91	14.98	NA	156.08	0.19	NA	NA
MW-2	10/08/1997	NA	NA	NA	NA	NA	NA	NA	170.91	12.97	NA	157.98	0.05	NA	NA
MW-2	01/08/1998	NA	NA	NA	NA	NA	NA	NA	170.91	12.54	NA	158.43	0.08	NA	NA
MW-2	04/13/1998	180,000	2,800	5,200	2,400	13,000	71,000	NA	170.91	10.05	NA	160.86	NA	NA	NA
MW-2	07/17/1998	NA	NA	NA	NA	NA	NA	NA	170.91	11.75	NA	159.24	0.10	NA	NA
MW-2	10/02/1998	NA	NA	NA	NA	NA	NA	NA	170.91	16.78	NA	154.22	0.11	NA	NA
MW-2	02/03/1999	NA	NA	NA	NA	NA	NA	NA	170.91	9.90	9.82	161.07	0.08	NA	NA
MW-2	04/29/1999	NA	NA	NA	NA	NA	NA	NA	170.91	9.86	9.81	161.09	0.05	NA	NA
MW-2	07/23/1999	65,800	6,500	4,480	1,960	8,960	46,600	58,500*	170.91	14.45	NA	156.46	NA	1.4	NA
MW-2	11/01/1999	NA	NA	NA	NA	NA	NA	NA	170.91	11.84	11.81	159.09	0.03	NA	NA
MW-2	01/17/2000	46,000	6,000	2,400	1,500	5,500	50,000	31,000	170.91	11.00	NA	159.91	NA	1.3	-54
MW-2	04/17/2000	96,300	8,150	10,200	2,820	14,900	112,000	108,000	170.91	11.06	NA	159.85	NA	2.6	125
MW-2	07/26/2000	72,400	8,680	5,620	2,810	13,400	66,200	46,300	170.91	12.82	NA	158.09	NA	2.2	113
MW-2	10/12/2000	63,200	5,840	4,180	2,310	11,100	61,200	66,600	170.91	11.32	NA	159.59	NA	0.4	55
MW-2	01/15/2001	59,700	2,630	4,800	2,050	11,500	44,400	5,080	170.91	10.19	NA	160.72	NA	1.1	-22
MW-2	04/09/2001	56,900	1,860	2,550	1,810	9,720	40,000	46,600	170.91	11.15	NA	159.76	NA	1.0	-55

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

Well ID	Date	TPPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO Reading (ppm)	ORP Reading (mV)
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MW-2	07/24/2001	84,000	3,000	4,600	2,500	13,000	NA	41,000	170.91	11.67	NA	159.24	NA	0.2	53
MW-2	10/31/2001	45,000	2,200	3,000	1,500	7,700	NA	29,000	170.91	11.04	NA	159.87	NA	1.2	-17
MW-2	01/10/2002	28,000	840	740	760	3,300	NA	32,000	170.91	9.58	NA	161.33	NA	2.1	-76
MW-2	04/25/2002	41,000	1,900	2,000	1,200	6,900	NA	17,000	170.91	11.40	NA	159.51	NA	0.8	-95

MW-3	11/17/1993	18,000	5,400	660	720	2,200	NA	NA	174.61	15.40	NA	159.21	NA	NA	NA
MW-3	01/20/1994	55,000	13,000	2,600	2,200	6,500	NA	NA	174.61	14.61	NA	160.00	NA	NA	NA
MW-3	04/25/1994	96,000	11,000	1,600	3,100	9,900	NA	NA	174.61	13.12	NA	161.49	NA	NA	NA
MW-3 (D)	04/25/1994	78,000	12,000	1,900	2,600	7,300	NA	NA	174.61	13.12	NA	161.49	NA	NA	NA
MW-3	07/07/1994	NA	NA	NA	NA	NA	NA	NA	174.61	14.54	NA	160.07	0.02	NA	NA
MW-3	10/27/1994	NA	NA	NA	NA	NA	NA	NA	174.61	15.62	NA	159.03	0.05	NA	NA
MW-3	11/17/1994	NA	NA	NA	NA	NA	NA	NA	174.61	13.83	NA	160.78	NA	NA	NA
MW-3	11/28/1994	NA	NA	NA	NA	NA	NA	NA	174.61	14.02	NA	160.59	NA	NA	NA
MW-3	01/13/1995	180,000	3,200	2,700	1,700	5,200	NA	NA	174.61	12.13	NA	162.48	NA	NA	NA
MW-3 (D)	01/13/1995	23,000	4,000	690	960	3,000	NA	NA	174.61	12.13	NA	162.48	NA	NA	NA
MW-3	04/12/1995	56,000	8,700	1,500	2,100	6,300	NA	NA	174.61	12.96	NA	161.65	NA	NA	NA
MW-3	07/25/1995	NA	NA	NA	NA	NA	NA	NA	174.61	14.28	NA	160.38	0.06	NA	NA
MW-3	10/18/1995	NA	NA	NA	NA	NA	NA	NA	174.61	15.88	NA	158.77	0.05	NA	NA
MW-3	01/17/1996	NA	NA	NA	NA	NA	NA	NA	174.61	13.86	NA	160.94	0.24	NA	NA
MW-3	04/25/1996	NA	NA	NA	NA	NA	NA	NA	174.61	13.82	NA	160.81	0.02	NA	NA
MW-3	07/17/1996	NA	NA	NA	NA	NA	NA	NA	174.61	16.11	NA	158.52	0.03	NA	NA
MW-3	10/01/1996	46,000	7,300	530	1,700	3,900	3,200	NA	174.61	16.56	NA	158.05	NA	NA	NA
MW-3 (D)	10/01/1996	47,000	7,100	530	1,700	4,000	2,900	NA	174.61	16.56	NA	158.05	NA	NA	NA
MW-3	01/22/1997	82,000	5,200	1,300	2,800	8,900	1,100	NA	174.61	13.07	NA	161.54	NA	NA	NA
MW-3 (D)	01/22/1997	61,000	8,400	1,100	2,300	7,000	2,700	NA	174.61	13.07	NA	161.54	NA	NA	NA
MW-3	04/08/1997	NA	NA	NA	NA	NA	NA	NA	174.61	17.09	NA	157.54	0.03	NA	NA

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

Well ID	Date	TPPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO Reading (ppm)	ORP Reading (mV)
MW-3	07/08/1997	56,000	8,800	580	2,000	4,900	2,800	NA	174.61	15.85	NA	158.76	NA	NA	NA
MW-3	10/08/1997	48,000	8,000	590	1,700	3,400	5,100	NA	174.61	16.22	NA	158.39	NA	NA	NA
MW-3	01/08/1998	47,000	9,400	810	2,300	4,700	6,300	NA	174.61	13.80	NA	160.81	NA	NA	NA
MW-3 (D)	01/08/1998	48,000	8,100	750	2,000	4,100	5,800	NA	174.61	13.80	NA	160.81	NA	NA	NA
MW-3	04/13/1998	32,000	6,800	540	1,400	3,400	4,000	NA	174.61	12.97	NA	161.64	NA	NA	NA
MW-3 (D)	04/13/1998	36,000	7,300	660	1,600	3,700	4,000	NA	174.61	12.97	NA	161.64	NA	NA	NA
MW-3	07/17/1998	71,000	11,000	590	2,200	6,900	3,900	NA	174.61	11.51	NA	163.10	NA	NA	NA
MW-3 (D)	07/17/1998	76,000	12,000	700	2,600	8,000	3,000	NA	174.61	11.51	NA	163.10	NA	NA	NA
MW-3	10/02/1998	66,000	8,900	510	2,000	4,900	4,600	NA	174.61	16.50	NA	158.11	NA	NA	NA
MW-3 (D)	10/02/1998	59,000	9,400	460	2,000	4,900	4,700	NA	174.61	16.50	NA	158.11	NA	NA	NA
MW-3	02/03/1999	36,000	6,800	300	1,600	2,900	18,000	NA	174.61	15.21	NA	159.40	NA	1.3	NA
MW-3	04/29/1999	45,000	8,100	580	2,200	5,800	4,700	5,150	174.61	15.43	NA	159.18	NA	1.5	-68
MW-3	07/23/1999	29,400	3,540	215	810	3,800	4,720	6,950*	174.61	14.95	NA	159.66	NA	1.3	NA
MW-3	11/01/1999	20,000	4,190	294	1,060	1,740	5,540	8,590	174.61	14.66	NA	159.95	NA	0.6	-110
MW-3	01/17/2000	17,000	3,900	89	1,100	1,200	7,900	NA	174.61	13.94	NA	160.67	NA	1.3	-40
MW-3	04/17/2000	28,100	5,240	247	1,540	2,750	16,600	NA	174.61	14.00	NA	160.61	NA	1.1	-86
MW-3	07/26/2000	24,300	6,680	159	1,610	1,640	17,100	NA	174.61	13.72	NA	160.89	NA	0.9	-70
MW-3	10/12/2000	14,300	2,630	86.7	241	1,360	16,300	NA	174.61	14.15	NA	160.46	NA	0.9	50
MW-3	01/15/2001	22,100	4,400	266	977	2,990	13,200	NA	174.61	13.05	NA	161.56	NA	1.3	-40
MW-3	04/09/2001	33,800	7,100	147	1,700	2,660	13,000	NA	174.61	13.59	NA	161.02	NA	0.6	-56
MW-3	07/24/2001	220,000	5,600	1,900	4,400	19,000	NA	12,000	174.61	14.43	NA	160.18	NA	0.4	29
MW-3	10/31/2001	65,000	2,700	510	1,800	7,200	NA	9,800	174.61	14.59	NA	160.02	NA	0.9	-27
MW-3	01/10/2002	66,000	2,400	490	1,700	6,600	NA	5,500	174.61	12.65	NA	161.96	NA	1.7	-76
MW-3	04/25/2002	55,000	4,600	460	2,400	6,900	NA	8,100	174.61	14.13	NA	160.48	NA	1.2	-96
MW-4	11/17/1994	NA	NA	NA	NA	NA	NA	NA	164.06	6.62	NA	157.44	NA	NA	NA

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

Well ID	Date	TPPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO Reading (ppm)	ORP Reading (mV)
MW-4	11/28/1994	2,900	200	17	76	260	NA	NA	164.06	6.11	NA	157.95	NA	NA	NA
MW-4	01/13/1995	1,900	130	5.6	13	40	NA	NA	164.06	6.05	NA	158.01	NA	NA	NA
MW-4	04/12/1995	680	150	<2.0	10	13	NA	NA	164.06	6.31	NA	157.75	NA	NA	NA
MW-4	07/25/1995	340	100	0.8	8.8	3	NA	NA	164.06	7.36	NA	156.70	NA	NA	NA
MW-4	10/18/1995	150	31	<0.5	3.5	0.8	NA	NA	164.06	8.54	NA	155.52	NA	NA	NA
MW-4	01/17/1996	290	14	<0.5	1.8	0.8	NA	NA	164.06	8.48	NA	155.58	NA	NA	NA
MW-4	04/25/1996	<500	65	<5	<5	<5	1,700	NA	164.06	7.40	NA	156.66	NA	NA	NA
MW-4 (D)	04/25/1996	<500	66	<5	8.7	<5	1,500	NA	164.06	7.40	NA	156.66	NA	NA	NA
MW-4	07/17/1996	<500	84	<5.0	6.5	<5.0	1,500	NA	164.06	7.75	NA	156.31	NA	NA	NA
MW-4 (D)	07/17/1996	<500	54	<5.0	<5.0	<5.0	1,700	2,100	164.06	7.75	NA	156.31	NA	NA	NA
MW-4	10/01/1996	<500	1.9	<5.0	<5.0	<5.0	3,000	NA	164.06	8.82	NA	155.24	NA	NA	NA
MW-4	01/22/1997	580	130	<2.5	18	5.2	1,200	NA	164.06	7.51	NA	156.55	NA	NA	NA
MW-4	04/08/1997	770	200	7	26	55	1,500	8	164.06	7.18	NA	156.88	NA	NA	NA
MW-4	07/08/1997	570	78	<5.0	14	11	1,200	NA	164.06	9.00	NA	155.06	NA	NA	NA
MW-4 (D)	07/08/1997	640	81	<5.0	16	19	1,600	NA	164.06	9.00	NA	155.06	NA	NA	NA
MW-4	10/08/1997	<500	40	<5.0	7.4	5.4	1,400	NA	164.06	8.97	NA	155.09	NA	NA	NA
MW-4 (D)	10/08/1997	<500	36	<5.0	5.9	<5.0	1,400	NA	164.06	8.97	NA	155.09	NA	NA	NA
MW-4	01/08/1998	<1,000	55	<10	13	<10	2,000	NA	164.06	7.90	NA	156.16	NA	NA	NA
MW-4	04/13/1998	350	110	2.4	20	26	<2.5	NA	164.06	7.35	NA	156.71	NA	NA	NA
MW-4	07/17/1998	210	66	0.78	5.4	9.8	1,700	NA	164.06	6.95	NA	157.11	NA	NA	NA
MW-4	10/02/1998	<50	0.69	<0.50	<0.50	<0.50	2,900	NA	164.06	7.35	NA	156.71	NA	NA	NA
MW-4	02/03/1999	560	120	2.5	29	34	6,800	NA	164.06	7.71	NA	156.35	NA	0.9	NA
MW-4	04/29/1999	390	80	1.9	13	19	7,000	8,360	164.06	7.83	NA	156.23	NA	1.1	-125
MW-4	07/23/1999	460	93.6	8.40	25.2	28.8	3,760	6,000*	164.06	11.33	NA	152.73	NA	0.9	NA
MW-4	11/01/1999	77.3	0.520	<0.500	<0.500	<0.500	539	NA	164.06	10.66	NA	153.40	NA	2.8	3
MW-4	01/17/2000	160	27	<0.50	12	6.3	12,000	NA	164.06	10.15	NA	153.91	NA	3.9	-17

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

Well ID	Date	TPPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO Reading (ppm)	ORP Reading (mV)
MW-4	04/17/2000	<500	26	6.38	9.35	10.4	9,070	NA	164.06	10.10	NA	153.96	NA	1.7	-129
MW-4	07/26/2000	<500	22.7	<5.00	7.59	6.96	7,660	NA	164.06	10.09	NA	153.97	NA	1.4	-137
MW-4	10/12/2000	172	19.8	<0.500	7.47	4.50	8,290	NA	164.06	9.35	NA	154.71	NA	3.5	529
MW-4	01/15/2001	53.6	1.50	<0.500	2.45	1.80	9,260	NA	164.06	8.77	NA	155.29	NA	2.3	53
MW-4	04/09/2001	<500	<5.00	<5.00	<5.00	5.52	10,300	NA	164.06	7.75	NA	156.31	NA	1.0	-133
MW-4	07/24/2001	58	3.8	<0.50	3.2	2.9	NA	1,700	164.06	10.07	NA	153.99	NA	0.5	106
MW-4	10/31/2001	<1,000	<10	<10	<10	<10	NA	7,400	164.06	9.97	NA	154.09	NA	0.8	22
MW-4	01/10/2002	<2,000	<20	<20	<20	<20	NA	12,000	164.06	8.53	NA	155.53	NA	8.9	224
MW-4	04/25/2002	<2,000	<20	<20	<20	<20	NA	7,900	164.06	7.33	NA	156.73	NA	3.6	-84
MW-5	01/04/2002	NA	NA	NA	NA	NA	NA	NA	NA	5.62	NA	NA	NA	NA	NA
MW-5	01/10/2002	<50	<0.50	<0.50	<0.50	<0.50	NA	110	164.06	5.88	NA	158.18	NA	3.3	172
MW-5	04/25/2002	<50	<0.50	<0.50	<0.50	<0.50	NA	73	164.06	6.81	NA	157.25	NA	0.3	-44
TB-1	04/29/1999	NA	NA	NA	NA	NA	NA	NA	NA	6.00	NA	NA	NA	3.8	-132
TB-1	11/01/1999	NA	NA	NA	NA	NA	NA	NA	NA	12.65	NA	NA	NA	0.2	-165
TB-1	01/17/2000	NA	NA	NA	NA	NA	NA	NA	NA	7.72	NA	NA	NA	0.8	-178
TB-1	04/17/2000	NA	NA	NA	NA	NA	NA	NA	NA	7.65	NA	NA	NA	0.5	-152
TB-1	07/26/2000	NA	NA	NA	NA	NA	NA	NA	NA	5.13	NA	NA	NA	1.0	-124
TB-1	10/12/2000	NA	NA	NA	NA	NA	NA	NA	NA	5.20	NA	NA	NA	0.7	-73
TB-1	01/15/2001	NA	NA	NA	NA	NA	NA	NA	NA	5.09	NA	NA	NA	1.2	-118
TB-1	04/09/2001	NA	NA	NA	NA	NA	NA	NA	NA	4.96	NA	NA	NA	1.0	-72
TB-1	07/24/2001	NA	NA	NA	NA	NA	NA	NA	NA	6.03	NA	NA	NA	1.4	31
TB-1	10/31/2001	1,000	85	<10	<10	42	NA	4,100	NA	5.89	NA	NA	NA	1.8	88
TB-1	01/10/2002	5,000	410	390	65	620	NA	9,000	NA	7.47	NA	NA	NA	2.0	95
TB-1	04/25/2002	5,000	780	60	49	91	NA	6,000	NA	11.71	NA	NA	NA	1.7	-136

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

Well ID	Date	TPPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO Reading (ppm)	ORP Reading (mV)
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TB-2	04/29/1999	NA	NA	NA	NA	NA	NA	NA	NA	4.76	NA	NA	NA	4.2	-108
TB-2	11/01/1999	NA	NA	NA	NA	NA	NA	NA	NA	11.33	NA	NA	NA	0.5	-148
TB-2	01/17/2000	NA	NA	NA	NA	NA	NA	NA	NA	9.79	NA	NA	NA	0.7	-162
TB-2	04/17/2000	NA	NA	NA	NA	NA	NA	NA	NA	9.75	NA	NA	NA	0.9	-121
TB-2	07/26/2000	NA	NA	NA	NA	NA	NA	NA	NA	4.73	NA	NA	NA	0.9	-85
TB-2	10/12/2000	NA	NA	NA	NA	NA	NA	NA	NA	4.05	NA	NA	NA	0.6	-47
TB-2	01/15/2001	NA	NA	NA	NA	NA	NA	NA	NA	3.87	NA	NA	NA	0.7	-91
TB-2	04/09/2001	46,600	1,240	1,310	1,110	12,100	31,300	NA	NA	3.76	NA	NA	NA	0.8	-24
TB-2	07/24/2001	11,000	630	<25	310	200	NA	11,000	NA	4.75	NA	NA	NA	0.4	-51
TB-2	10/31/2001	7,500	530	1,500	100	500	NA	2,500	NA	4.24	NA	NA	NA	0.6	-7
TB-2	01/10/2002	<5,000	480	47	34	110	NA	12,000	NA	6.26	NA	NA	NA	1.3	-81
TB-2	04/25/2002	4,700	470	140	<20	80	NA	7,400	NA	11.78	NA	NA	NA	0.9	-107

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

Well ID	Date	TPPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO Reading (ppm)	ORP Reading (mV)
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Abbreviations:

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

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

MTBE = Methyl-tertiary-butyl ether

TOC = Top of Casing Elevation

SPH = Separate-Phase Hydrocarbons

GW = Groundwater

ug/L = Parts per billion

msl = Mean sea level

ft = Feet

<n = Below detection limit

D = Duplicate sample

NA = Not applicable

DO = Dissolved Oxygens

ppm = Parts per million

ORP = Oxidation Reduction Potential

mV = Millivolts

Notes:

* = Sample analyzed outside the EPA recommended holding time.

a = Ground water surface had a sheen when sampled

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

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

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

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

Subject : 7 Water Samples
Project Name : 4255 MacArthur Boulevard, Oakland
Project Number : 020425-MM2
P.O. Number : 98995758

Dear Mr. Gearhart,

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

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

Sincerely,


Joel Kiff



Report Number : 26095

Date : 5/2/2002

Project Name : 4255 MacArthur Boulevard, Oakland

Project Number : 020425-MM2

Sample : MW-1

Matrix : Water

Lab Number : 26095-01

Sample Date :4/25/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	2.0	0.50	ug/L	EPA 8260B	4/30/2002
Toluene	< 0.50	0.50	ug/L	EPA 8260B	4/30/2002
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	4/30/2002
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	4/30/2002
Methyl-t-butyl ether (MTBE)	< 5.0	5.0	ug/L	EPA 8260B	4/30/2002
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	4/30/2002
Toluene - d8 (Surr)	97.5		% Recovery	EPA 8260B	4/30/2002
4-Bromofluorobenzene (Surr)	95.6		% Recovery	EPA 8260B	4/30/2002

Sample : MW-2

Matrix : Water

Lab Number : 26095-02

Sample Date :4/25/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	1900	25	ug/L	EPA 8260B	5/1/2002
Toluene	2000	25	ug/L	EPA 8260B	5/1/2002
Ethylbenzene	1200	25	ug/L	EPA 8260B	5/1/2002
Total Xylenes	6900	25	ug/L	EPA 8260B	5/1/2002
Methyl-t-butyl ether (MTBE)	17000	250	ug/L	EPA 8260B	5/1/2002
TPH as Gasoline	41000	2500	ug/L	EPA 8260B	5/1/2002
Toluene - d8 (Surr)	95.9		% Recovery	EPA 8260B	5/1/2002
4-Bromofluorobenzene (Surr)	93.7		% Recovery	EPA 8260B	5/1/2002

Approved By:  Joel Kiff



Report Number : 26095

Date : 5/2/2002

Project Name : 4255 MacArthur Boulevard, Oakland

Project Number : 020425-MM2

Sample : MW-3

Matrix : Water

Lab Number : 26095-03

Sample Date :4/25/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	4600	25	ug/L	EPA 8260B	5/1/2002
Toluene	460	25	ug/L	EPA 8260B	5/1/2002
Ethylbenzene	2400	25	ug/L	EPA 8260B	5/1/2002
Total Xylenes	6900	25	ug/L	EPA 8260B	5/1/2002
Methyl-t-butyl ether (MTBE)	8100	250	ug/L	EPA 8260B	5/1/2002
TPH as Gasoline	55000	2500	ug/L	EPA 8260B	5/1/2002
Toluene - d8 (Surr)	96.0		% Recovery	EPA 8260B	5/1/2002
4-Bromofluorobenzene (Surr)	93.9		% Recovery	EPA 8260B	5/1/2002

Sample : MW-4

Matrix : Water

Lab Number : 26095-04

Sample Date :4/25/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 20	20	ug/L	EPA 8260B	5/1/2002
Toluene	< 20	20	ug/L	EPA 8260B	5/1/2002
Ethylbenzene	< 20	20	ug/L	EPA 8260B	5/1/2002
Total Xylenes	< 20	20	ug/L	EPA 8260B	5/1/2002
Methyl-t-butyl ether (MTBE)	7900	200	ug/L	EPA 8260B	5/1/2002
TPH as Gasoline	< 2000	2000	ug/L	EPA 8260B	5/1/2002
Toluene - d8 (Surr)	96.6		% Recovery	EPA 8260B	5/1/2002
4-Bromofluorobenzene (Surr)	93.0		% Recovery	EPA 8260B	5/1/2002

Approved By:  Joel Kiff



Report Number : 26095

Date : 5/2/2002

Project Name : 4255 MacArthur Boulevard, Oakland

Project Number : 020425-MM2

Sample : MW-5

Matrix : Water

Lab Number : 26095-05

Sample Date :4/25/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	4/30/2002
Toluene	< 0.50	0.50	ug/L	EPA 8260B	4/30/2002
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	4/30/2002
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	4/30/2002
Methyl-t-butyl ether (MTBE)	73	5.0	ug/L	EPA 8260B	4/30/2002
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	4/30/2002
Toluene - d8 (Surr)	97.0		% Recovery	EPA 8260B	4/30/2002
4-Bromofluorobenzene (Surr)	95.4		% Recovery	EPA 8260B	4/30/2002

Sample : TB-1

Matrix : Water

Lab Number : 26095-06

Sample Date :4/25/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	780	20	ug/L	EPA 8260B	5/1/2002
Toluene	60	20	ug/L	EPA 8260B	5/1/2002
Ethylbenzene	49	20	ug/L	EPA 8260B	5/1/2002
Total Xylenes	91	20	ug/L	EPA 8260B	5/1/2002
Methyl-t-butyl ether (MTBE)	6000	200	ug/L	EPA 8260B	5/1/2002
TPH as Gasoline	5000	2000	ug/L	EPA 8260B	5/1/2002
Toluene - d8 (Surr)	97.6		% Recovery	EPA 8260B	5/1/2002
4-Bromofluorobenzene (Surr)	92.7		% Recovery	EPA 8260B	5/1/2002

Approved By:  Joel Kiff



Report Number : 26095

Date : 5/2/2002

Project Name : 4255 MacArthur Boulevard, Oakland

Project Number : 020425-MM2

Sample : TB-2

Matrix : Water

Lab Number : 26095-07

Sample Date : 4/25/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	470	20	ug/L	EPA 8260B	5/1/2002
Toluene	140	20	ug/L	EPA 8260B	5/1/2002
Ethylbenzene	< 20	20	ug/L	EPA 8260B	5/1/2002
Total Xylenes	80	20	ug/L	EPA 8260B	5/1/2002
Methyl-t-butyl ether (MTBE)	7400	200	ug/L	EPA 8260B	5/1/2002
TPH as Gasoline	4700	2000	ug/L	EPA 8260B	5/1/2002
Toluene - d8 (Surr)	95.5		% Recovery	EPA 8260B	5/1/2002
4-Bromofluorobenzene (Surr)	93.3		% Recovery	EPA 8260B	5/1/2002

Approved By:  Joel Kiff

Report Number : 26095

Date : 5/2/2002

QC Report : Method Blank Data

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

Project Number : **020425-MM2**

<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	4/30/2002
Toluene	< 0.50	0.50	ug/L	EPA 8260B	4/30/2002
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	4/30/2002
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	4/30/2002
Methyl-t-butyl ether (MTBE)	< 5.0	5.0	ug/L	EPA 8260B	4/30/2002
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	4/30/2002
Toluene - d8 (Surr)	100		%	EPA 8260B	4/30/2002
4-Bromofluorobenzene (Surr)	111		%	EPA 8260B	4/30/2002

<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

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

Approved By: Joel Kiff
Joel Kiff

QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : **4255 MacArthur**Project Number : **020425-MM2**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Benzene	26098-11	<0.50	19.6	19.6	18.5	18.3	ug/L	EPA 8260B	4/30/02	94.0	93.2	0.962	70-130	25
Toluene	26098-11	<0.50	19.6	19.6	19.6	19.4	ug/L	EPA 8260B	4/30/02	99.9	98.9	1.03	70-130	25
Tert-Butanol	26098-11	<5.0	98.2	98.2	100	98.1	ug/L	EPA 8260B	4/30/02	102	99.9	2.31	70-130	25
Methyl-t-Butyl Ether	26098-11	<0.50	19.6	19.6	18.6	18.4	ug/L	EPA 8260B	4/30/02	94.4	93.6	0.851	70-130	25

KIFF ANALYTICAL, LLC

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

Approved By:  Joel Kiff

QC Report : Laboratory Control Sample (LCS)

Project Name : **4255 MacArthur**Project Number : **020425-MM2**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	20.0	ug/L	EPA 8260B	4/30/02	95.5	70-130
Toluene	20.0	ug/L	EPA 8260B	4/30/02	102	70-130
Tert-Butanol	100	ug/L	EPA 8260B	4/30/02	100	70-130
Methyl-t-Butyl Ether	20.0	ug/L	EPA 8260B	4/30/02	92.4	70-130

KIFF ANALYTICAL, LLC

Approved By: 
Joel Kiff

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

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

26095

INCIDENT NUMBER (S&E ONLY)

9 8 9 9 5 7 5 8

SAP or CRMT NUMBER (TS/CRMT)

DATE: 4/25/02

PAGE: 1 of 1

SAMPLING COMPANY Blaine Tech Services		LOG CODE: BTSS	SITE ADDRESS (Street and City): 4255 MacArthur Boulevard, Oakland		GLOBAL ID NO.: T0600101261
ADDRESS 1680 Rogers Avenue, San Jose, CA 95112		EOP DELIVERABLE TO (Responsible Party or Designee): AnnI KremI		PHONE NO.: 510-420-3335	E-MAIL: ShellOaklandEDF@cambria-env.com
PROJECT CONTACT (Hardcopy or PDF Report to): Leon Gearhart		SAMPLER NAME(S) (PHN): Matthew Miller		CONSULTANT PROJECT NO.: BTS #020425-MAA 2	
TELEPHONE: 408-573-0555	FAX: 408-573-7771	E-MAIL: lgearhart@blainetech.com		LAB USE ONLY	

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

LA - RWQCB REPORT FORMAT LIST AGENCY: _____

GC/MS MTBE CONFIRMATION: HIGHEST _____ HIGHEST per BORING _____ ALL _____

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

REQUESTED ANALYSIS

LAB USE ONLY	Field Sample Identification	SAMPLING		MATRIX	NO. OF CONT.	TPH - Gas, Purgeable	BTEX	MTBE (8021B - 5ppb RL)	MTBE (8260B - 0.5ppb RL)	Oxygenates (5) by (8260B)	Ethanol (8260B)	Methanol	1,2-DCA (8260B)	EDB (8260B)	TPH - Diesel, Extractable (8015m)	Total Alkalinity	Ferrous Iron	Nitrate as Nitrate	Sulfate	MTBE (8260B) Confirmation, See Note	TEMPERATURE ON RECEIPT C°	FIELD NOTES: Container/Preservative or PID Readings or Laboratory Notes		
		DATE	TIME																					
✓	MW-1	4/25	1700	W	3	X	X	X														-01		
✓	MW-2		1710	W	3	X	X	X															-02	
✓	MW-3		1720	W	3	X	X	X															-03	
✓	MW-4		1545	W	3	X	X	X															-04	
✓	MW-5		1510	W	3	X	X	X															-05	
✓	TB-1		1635	W	3	X	X	X															-06	
✓	TB-2		1610	W	3	X	X	X															-07	

Relinquished by: (Signature) 	Received by: (Signature) _____	Date: _____	Time: _____
Relinquished by: (Signature) _____	Received by: (Signature) _____	Date: _____	Time: _____
Relinquished by: (Signature) _____	Received by: (Signature) K. J. Analytical	Date: 042602	Time: 1053

WELL GAUGING DATA

Project # 070425-MMZ Date 4/25/02 Client Shell

Site 4255 Oakland MacArthur 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					7.76	23.32	}
MW-2	4	no	product detected			11.40	19.71	
MW-3	4	no	product detected			14.13	21.94	
MW-4	2					7.33	30.50	
MW-5	2					6.81	19.96	
TB-1	4					11.71	13.43	
TB-2	4					11.78	12.96	
gauged w/stinger in well								

EQUIVA WELL MONITORING DATA SHEET

BTS #: <u>020425-MMZ</u>	Site: <u>4255 MacArthur</u>
Sampler: <u>MTM</u>	Date: <u>4/25/02</u>
Well I.D.: <u>MW-1</u>	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth: <u>23.32</u>	Depth to Water: <u>7.76</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

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

Other: _____

<u>10</u> (Gals.) X	<u>3</u> Specified Volumes	<u>=</u>	<u>30</u> Gals. Calculated Volume
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Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius ² * 0.163

Time	Temp (°F)	pH	Coud.	Turbidity	Gals. Removed	Observations
<u>1442</u>	<u>66.9</u>	<u>8.68</u>	<u>1816</u>	<u>42</u>	<u>10</u>	<u>cloudy</u>
<u>1444</u>		<u>dewatered @</u>		<u>13 gallons</u>		<u>DTW = 20.83</u>
<u>1700</u>	<u>65.8</u>	<u>7.96</u>	<u>1180</u>	<u>10</u>	<u>—</u>	<u>DTW = 11.20</u>

Did well dewater? Yes No Gallons actually evacuated: 13

Sampling Time: 1700 Sampling Date: 4/25/02

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

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

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

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

D.O. (if req'd): <u>Pre-purge:</u>	<u>0.3</u> mg/L	Post-purge:	mg/L
O.R.P. (if req'd): <u>Pre-purge:</u>	<u>54</u> mV	Post-purge:	mV

EQUIVA WELL MONITORING DATA SHEET

BTS #: 020425-MMZ	Site: 4255 MacArthur
Sampler: MTM	Date: 4/25/02
Well I.D.: MW-2	Well Diameter: 2 3 4 6 8
Total Well Depth: 19.71	Depth to Water: 11.40
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH

Purge Method: **Bailer** Waterra Sampling Method: **Bailer**
 Disposable Bailer Peristaltic Disposable Bailer
 Middleburg Extraction Pump Extraction Port
Electric Submersible Other _____ Dedicated Tubing

Other: _____

$55 \text{ (Gals.)} \times 3 = 16.5 \text{ Gals.}$	<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>radius² * 0.103</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 ² * 0.103
Well Diameter	Multiplier	Well Diameter	Multiplier														
1"	0.04	4"	0.65														
2"	0.16	6"	1.47														
3"	0.37	Other	radius ² * 0.103														
1 Case Volume	Specified Volumes	Calculated Volume															

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
1640	67.1	7.12	953	20	6	dewatered
					18	DTW = 17.65
					18	
			site departure			
1710	66.7	7.13	956	17	—	DTW = 12.46

Did well dewater? **Yes** No Gallons actually evacuated: 6

Sampling Time: 1710 Sampling Date: 4/25/02

Sample I.D.: MW-2 Laboratory: **Kiff** Sequoia Other _____

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

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

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

D.O. (if req'd): Pre-purge: 0.8 mg/L	Post-purge: _____ mg/L
O.R.P. (if req'd): Pre-purge: -95 mV	Post-purge: _____ mV

EQUIVA WELL MONITORING DATA SHEET

BTS #: <u>020425-MMZ</u>	Site: <u>4255 MacArthur</u>
Sampler: <u>MTM</u>	Date: <u>4/25/02</u>
Well I.D.: <u>MW-3</u>	Well Diameter: 2 3 <u>(4)</u> 6 8
Total Well Depth: <u>21.94</u>	Depth to Water: <u>14.13</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

Purge Method: Bailer Waterra Sampling Method: Bailer
 Disposable Bailer Peristaltic Disposable Bailer
 Middleburg Extraction Pump Extraction Port
Electric Submersible Other _____ Dedicated Tubing

$\underline{5} \text{ (Gals.)} \times \underline{.3} = \underline{1.5} \text{ Gals.}$ I Case Volume Specified Volumes Calculated Volume	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Well Diameter</th> <th>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>radius² * 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 ² * 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 ² * 0.163														

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
<u>1650</u>	<u>67.5</u>	<u>6.94</u>	<u>1340</u>	<u>30</u>	<u>5</u>	<u>odor</u>
						<u>decontred</u>
						<u>DTW = 19.27</u>
						<u>site departure</u>
<u>1720</u>	<u>66.4</u>	<u>6.97</u>	<u>1332</u>	<u>21</u>	<u>—</u>	<u>DTW = 15.81</u>

Did well dewater? (Yes) No Gallons actually evacuated: 5

Sampling Time: 1720 Sampling Date: 4/25/02

Sample I.D.: MW-3 Laboratory: (Kiff) Sequoia Other _____

Analyzed for: (TPH-G BTEX MTBE TPH-D) Other: _____

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

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

D.O. (if req'd): <u>(Pre-purge:)</u> <u>1.2</u> mg/L	Post-purge: _____ mg/L
O.R.P. (if req'd): <u>(Pre-purge:)</u> <u>-96</u> mV	Post-purge: _____ mV

EQUIVA WELL MONITORING DATA SHEET

BTS #: <u>020425-MMZ</u>	Site: <u>4255 MacArthur</u>
Sampler: <u>MTM</u>	Date: <u>4/25/02</u>
Well I.D.: <u>MW-4</u>	Well Diameter: <u>2</u> 3 4 6 8
Total Well Depth: <u>30.50</u>	Depth to Water: <u>7.33</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

Purge Method: <u>Bailer</u> Disposable Bailer <u>Middleburg</u> Electric Submersible	Water Peristaltic Extraction Pump Other _____	Sampling Method: <u>Bailer</u> Disposable Bailer Extraction Port Dedicated Tubing Other: _____
-----------------------------------------------------------------------------------------------	--------------------------------------------------------	------------------------------------------------------------------------------------------------------------

$\underline{3.7} \text{ (Gals.)} \times \underline{3} = \underline{11.1} \text{ Gals.}$ 1 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>radius² * 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 ² * 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 ² * 0.163														

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
1531	65.9	7.12	1101	62	3.7	cloudy
1535	65.1	7.08	1106	MISSED READINGS	7.4	clear
1538	65.2	7.08	1090		11.1	"

Did well dewater? Yes No Gallons actually evacuated: 11.1

Sampling Time: 1545 Sampling Date: 4/25/02

Sample I.D.: MW-4 Laboratory: Kiff Sequoia Other _____

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

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

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

D.O. (if req'd): <u>Pre-purge:</u>	<u>3.6</u> mg/L	Post-purge:	
O.R.P. (if req'd): <u>Pre-purge:</u>	<u>-84</u> mV	Post-purge:	

EQUIVA WELL MONITORING DATA SHEET

BTS #: <u>020425-MMZ</u>	Site: <u>4255 Mac Arthur</u>
Sampler: <u>MTM</u>	Date: <u>4/25/02</u>
Well I.D.: <u>MW-5</u>	Well Diameter: <u>(2)</u> 3 4 6 8
Total Well Depth: <u>19.96</u>	Depth to Water: #10 <u>6.81</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>(PVC)</u> Grade	D.O. Meter (if req'd): <u>(YSI)</u> HACH

Purge Method: Bailer Water Sampling Method: (Bailer)
 Disposable Bailer Peristaltic Disposable Bailer
 Middleburg Extraction Pump Extraction Port
 Electric Submersible Other _____ Dedicated Tubing

<u>2</u> (Gals.) X	<u>3</u> =	<u>6</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 ² * 0.163

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
<u>1501</u>	<u>63.9</u>	<u>7.27</u>	<u>733</u>	<u>7200</u>	<u>2</u>	<u>Silty turbid</u>
<u>1503</u>	<u>63.1</u>	<u>7.21</u>	<u>789</u>	<u>196</u>	<u>4</u>	<u>brown</u>
<u>1505</u>	<u>63.8</u>	<u>7.21</u>	<u>756</u>	<u>189</u>	<u>6</u>	<u>"</u>

Did well dewater? Yes (No) Gallons actually evacuated: 6

Sampling Time: 1510 Sampling Date: 4/25/02

Sample I.D.: MW-5 Laboratory: (Kiff) Sequoia Other _____

Analyzed for: (PH-G BTEX MTBE TPH-D) Other: _____

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

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

D.O. (if req'd): <u>(Pre-purge)</u> <u>0.3</u> mg/L	Post-purge: _____ mg/L
O.R.P. (if req'd): <u>(Pre-purge)</u> <u>~44</u> mV	Post-purge: _____ mV

EQUIVA WELL MONITORING DATA SHEET

BTS #: <u>020425-MMZ</u>	Site: <u>4255 MacArthur</u>
Sampler: <u>MTM</u>	Date: <u>4/25/02</u>
Well I.D.: <u>TB-1</u>	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth: <u>13.43</u>	Depth to Water: <u>11.71</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

Purge Method: <u>Bailer</u>	Water: <u>Peristaltic</u>	Sampling Method: <u>Bailer</u>
Disposable Bailer	Extraction Pump	Disposable Bailer
Middleburg	Other _____	Extraction Port
Electric Submersible		Dedicated Tubing

Other: _____

$\frac{1.1 \text{ (Gals.)} \times 3}{1 \text{ Case Volume}} = 3.3 \text{ Gals.}$	<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>1.17</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius² * 0.163</td> </tr> </tbody> </table>	Well Diameter	Multiplier	Well Diameter	Multiplier	1"	0.04	4"	0.65	2"	0.16	6"	1.17	3"	0.37	Other	radius ² * 0.163	
Well Diameter	Multiplier	Well Diameter	Multiplier															
1"	0.04	4"	0.65															
2"	0.16	6"	1.17															
3"	0.37	Other	radius ² * 0.163															

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
1624	67.6	6.97	763	37	1.1	sewage smell
1627	67.2	7.02	757	42	2.2	"
1631	67.4	7.00	728	31	3.3	"

Did well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: <u>3.3</u>
Sampling Time: <u>1635</u>	Sampling Date: <u>4/25/02</u>
Sample I.D.: <u>TB-1</u>	Laboratory: <u>Kiff</u> Sequoia Other _____

Analyzed for: <u>PH-G BTEX MTBE TPH-D</u> Other: _____
EB I.D. (if applicable): _____ @ _____ Time Duplicate I.D. (if applicable): _____
Analyzed for: <u>TPH-G BTEX MTBE TPH-D</u> Other: _____

D.O. (if req'd): <u>Pre-purge:</u> <u>1.7</u> mg/L	Post-purge: _____ mg/L
O.R.P. (if req'd): <u>Pre-purge:</u> <u>-136</u> mV	Post-purge: _____ mV

EQUIVA WELL MONITORING DATA SHEET

BTS #: <u>020425-MMZ</u>	Site: <u>4255 MacArthur</u>
Sampler: <u>MTM</u>	Date: <u>4/25/02</u>
Well I.D.: <u>TB-2</u>	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth: <u>12.96</u>	Depth to Water: <u>11.78</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

Furge Method: <u>Bailer</u> Disposable Bailer Middleburg Electric Submersible	Waterma Peristaltic Extraction Pump Other _____	Sampling Method: <u>Bailer</u> Disposable Bailer Extraction Port Dedicated Tubing Other: _____
----------------------------------------------------------------------------------------	----------------------------------------------------------	------------------------------------------------------------------------------------------------------------

$0.75 \text{ (Gals.)} \times 3 = 2.25 \text{ Gals.}$	Well Diameter Multiplier Well Diameter Multiplier 1" 0.04 4" 0.65 2" 0.16 6" 1.47 3" 0.37 Other radius ² * 0.163
1 Case Volume Specified Volumes Calculated Volume	

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
1601	67.7	7.02	738	10	0.75	clear/odor
1603	67.8	6.97	706	11	1.50	"
1605	67.8	6.96	701	9	2.25	"

Did well dewater? Yes <u>No</u>	Gallons actually evacuated: <u>2.25</u>
Sampling Time: <u>1610</u>	Sampling Date: <u>4/25/02</u>

Sample I.D.: <u>TB-2</u>	Laboratory: <u>Kiff</u> Sequoia Other _____
Analyzed for: <u>TPH-G BTEX MTBE TPH-D</u> Other: _____	

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

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

D.O. (if req'd): <u>Pre-purge:</u> <u>0.9</u> mg/L	Post-purge: _____ mg/L
O.R.P. (if req'd): <u>Pre-purge:</u> <u>-107</u> mV	Post-purge: _____ mV