



**Weiss Associates**

5500 Shellmound Street, Emeryville, CA 94608-2411

*Environmental and Geologic Services*

Fax: 510-547-5043, Phone: 510-450-6000

July 15, 1993

Richard Hiett  
Regional Water Quality Control Board  
San Francisco Bay Region  
2101 Webster Street, Suite 500  
Oakland, CA 94612

Re: Shell Service Station  
WIC #204-5508-5801  
500 - 40th Street  
Oakland, California  
WA Job #81-601-203

Dear Mr. Hiett:

This letter describes recently completed and anticipated activities at the Shell service station referenced above (Figure 1). This status report satisfies the quarterly reporting requirements prescribed by California Administrative Code Title 23 Waters, Chapter 3, Subchapter 16, Article 5, Section 265.d. Included below are descriptions and results of activities performed in the second quarter 1993 and proposed work for the third quarter 1993.

Second Quarter 1993 Activities:

- Blaine Tech Services, Inc. (BTS) of San Jose, California measured depths to ground water and collected ground water samples from eleven of the twelve site wells. Well MW-9 was inaccessible and was not sampled. BTS' report describing these activities and the analytic report for the ground water samples are included as Attachment A.
- Weiss Associates (WA) compiled the ground water elevation and analytic data (Tables 1 and 2) and prepared a ground water elevation contour map (Figure 2).

Richard Hiatt  
July 15, 1993

2

Anticipated Third and Fourth Quarter 1993 Activities:

As indicated in the first quarter 1993 monitoring report, submitted to your office April 15th, 1993, WA will implement semi-annual sampling of wells EW-1 and MW-2 through MW-10. These wells will be sampled in the fourth quarter of 1993. Wells MW-11, MW-12 and MW-13 will continue to be sampled quarterly. WA will submit a report presenting the results of the third quarter 1993 ground water sampling and ground water depth measurements. The report will include tabulated chemical analytic results and a ground water elevation contour map. The fourth quarter report will include a benzene isoconcentration contour map.

Conclusions and Recommendations:

WA recommends continued ground water sampling to monitor ground water flow directions and hydrocarbon concentrations.

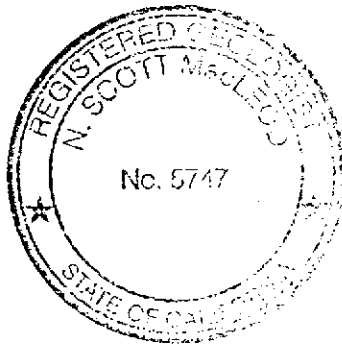
Richard Hiatt  
July 15, 1993

3

Weiss Associates



Please call if you have any questions.



Sincerely,  
Weiss Associates

J. Michael Asport  
Technical Assistant

N. Scott MacLeod, R.G.  
Project Geologist

JMA/NSM:jma

J:\SHELL\600\QMRPTS\601QMJU3.WP

Attachments:    Figures  
                     Tables  
                     A - BTS' Ground Water Monitoring Report

cc:    Dan Kirk, Shell, Shell Oil Company, P.O. Box 5728, Concord, CA 94520-9998  
       Jim Matthews, Shell Oil Company, P.O. Box 4848, Anaheim, CA 92803  
       ~~John Gino~~, Alameda County Department of Environmental Health, 80 Swan Way,  
           Room 200, Oakland, CA 94621-1426

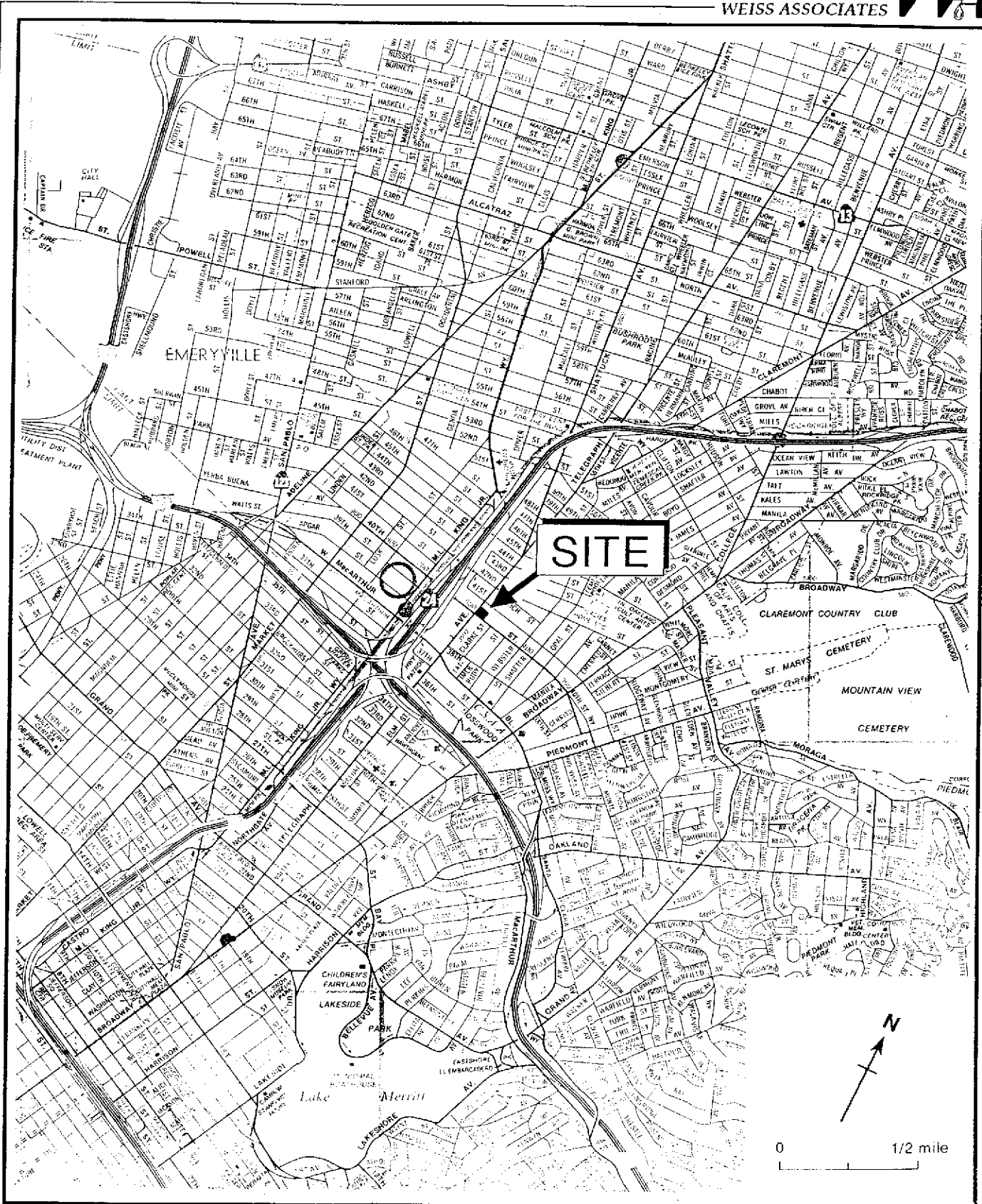


Figure 1. Site Location Map - Shell Service Station WIC #204-5508-4903, 500 40th Street, Oakland, California

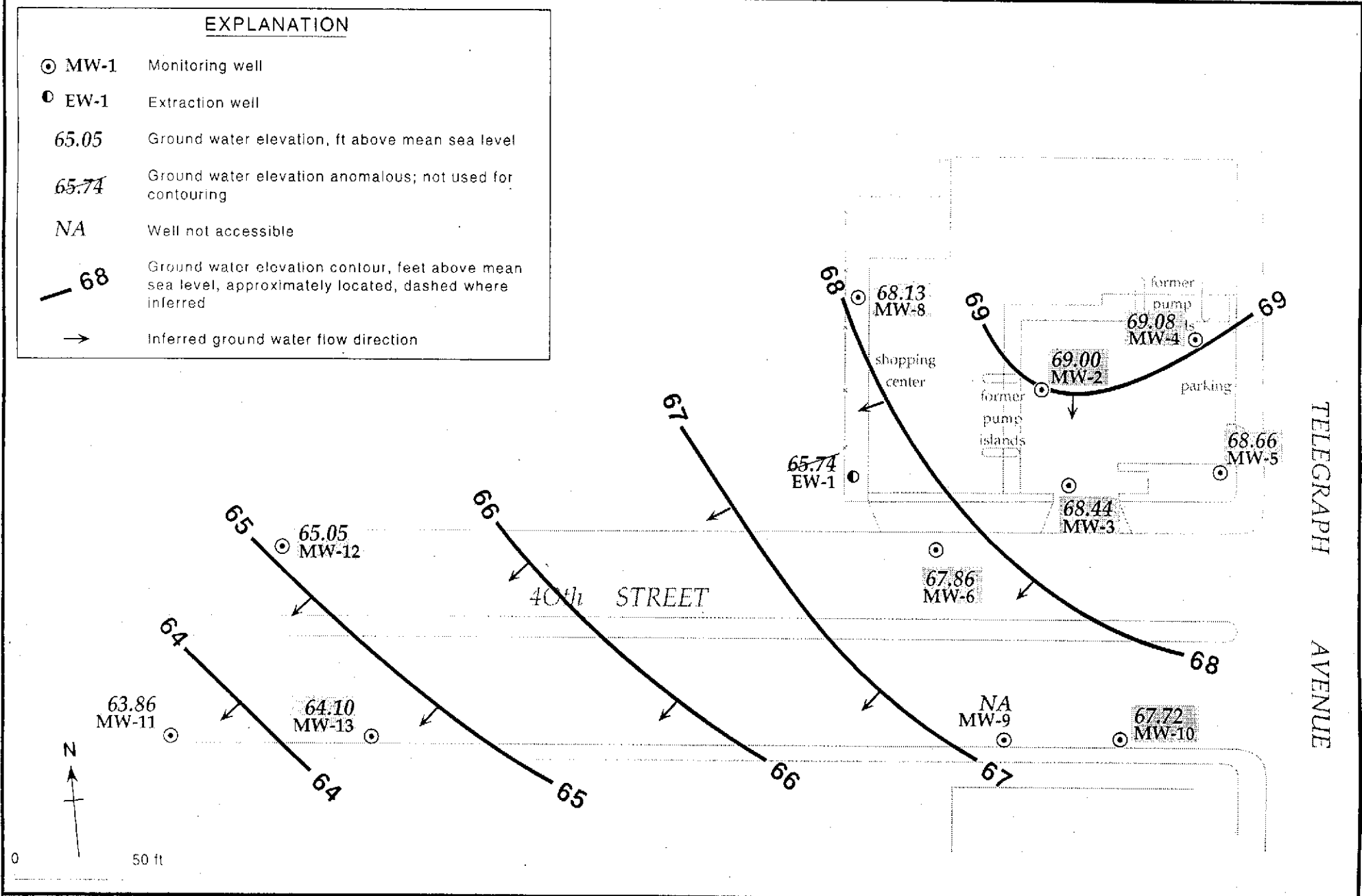


Figure 2. Monitoring Well Locations and Ground Water Elevation Contours - May 19, 1993 - Shell Service Station, WIC #204-5508-4903, 500 40th Street, Oakland, California

Table 1. Ground Water Elevations - Shell Service Station WIC #204-5508-5801, 500 40th Street, Oakland, California

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Ground Water Elevation (ft above msl)
EW-1	08/06/91	78.26	---	---
	10/30/91		12.72	65.54
	03/18/92		11.71	66.55
	05/20/92		12.84	65.42
	08/19/92		13.04	65.22
	11/18/92		12.90	65.36
	02/11/93		11.28	66.98
	05/19/93		12.52	65.74
MW-2	08/06/91	80.80	12.12	68.68
	10/30/91		11.70	69.10
	03/18/92		11.10	69.70
	05/20/92		12.12	68.68
	08/19/92		12.18	68.62
	11/18/92		12.03	68.77
	02/11/93		11.15	69.65
	05/19/93		11.80	69.00
MW-3	08/06/91	79.60	11.12	68.48
	10/30/91		10.93	68.67
	03/18/92		10.54	69.06
	05/20/92		10.79	68.81
	08/19/92		11.23	68.37
	11/18/92		11.20	68.40
	02/11/93		11.00	68.60
	05/19/93		11.16	68.44
MW-4	08/06/91	81.00	12.36	68.64
	10/30/91		12.02	68.98
	03/18/92		11.34	69.66
	05/20/92		12.35	68.65
	08/19/92		12.41	68.59
	11/18/92		12.28	68.72
	02/11/93		11.65	69.35
	05/19/93		11.92	69.08
MW-5	08/06/91	81.50	13.02	68.48
	10/30/91		12.73	68.77
	03/18/92		12.52	68.98
	05/20/92		13.05	68.45

-- Table 1 continues on next page --

Table 1. Ground Water Elevations - Shell Service Station WIC #204-5508-5801, 500 40th Street, Oakland, California (continued)

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Ground Water Elevation (ft above msl)
	08/19/92		13.04	68.46
	11/18/92		12.91	68.59
	02/11/93		12.44	69.06
	05/19/93		12.84	68.66
MW-6	08/06/91	77.90	10.71	67.19
	10/30/91		10.50	67.40
	03/18/92		9.24	68.66
	05/20/92		10.13	67.77
	08/19/92		10.16	67.74
	11/18/92		9.94	67.96
	02/11/93		9.20	68.70
	05/19/93		10.64	67.86
MW-8	08/06/91	79.91	13.08	66.83
	10/30/91		12.87	67.04
	03/18/92		11.54	68.37
	05/20/92		12.32	67.59
	08/19/92		12.58	67.33
	11/18/92		12.47	67.44
	02/11/93		11.02	68.89
	05/19/93		11.78	68.13
MW-9	08/06/91	77.71	10.38	67.33
	10/30/91		---	---
	03/18/92		8.76	68.95
	05/20/92 <sup>a</sup>		---	---
	08/19/92		9.98	67.73
	11/18/92		9.81	67.90
	02/11/93 <sup>a</sup>		---	---
	05/19/93		---	---
MW-10	08/06/91	77.91	10.00	67.91
	10/31/91		10.10	67.81
	03/18/92		9.55	68.36
	05/20/92		10.41	67.50
	08/19/92		10.46	67.45
	11/18/92		10.31	67.60
	02/11/93		9.68	68.23
	05/19/93		10.19	67.72

-- Table 1 continues on next page --

Table 1. Ground Water Elevations - Shell Service Station WIC #204-5508-5801, 500 40th Street, Oakland, California (continued)

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Ground Water Elevation (ft above msl)
MW-11	11/22/91	75.76	11.90	63.86
	02/15/92 <sup>a</sup>		---	---
	03/18/92 <sup>a</sup>		---	---
	05/20/92 <sup>a</sup>		---	---
	08/19/92		12.06	63.70
	11/18/92		12.01	63.75
	02/11/93 <sup>a</sup>		---	---
	05/19/93		11.90	63.86
MW-12	12/02/91	75.65	10.31	65.34
	03/18/92		8.93	66.72
	05/20/92		10.26	65.39
	08/19/92		10.53	65.12
	11/18/92		10.45	65.20
	02/11/93		8.90	66.75
	05/19/93		10.60	65.05
	MW-13		11/22/91	76.36
03/18/92		10.84	65.52	
05/20/92 <sup>a</sup>		---	---	
08/19/92		12.12	64.24	
11/18/92		12.00	64.42	
02/11/93 <sup>a</sup>		---	---	
05/19/93		12.26	64.10	

Notes:

a = Inaccessible well, ground water depth not measured



Table 2. Analytical Results for Ground Water - Shell Service Station WIC #204-5508-5801, 500 40th Street, Oakland, California

Well ID	Date Sampled	Depth to Water (ft)	TPH-G	TPH-D	B E T X			
					-----parts per million (mg/L)-----			
EW-1	08/06/91	---	0.18	<0.05	0.0054	0.0009	<0.0005	0.0007
	10/30/91	12.72	0.07	<0.05	0.0026	<0.0005	<0.0005	<0.0005
	02/15/92	11.71	<0.05	---	0.0021	<0.0005	<0.0005	<0.0005
	05/22/92	12.84	0.099	---	0.0041	<0.0005	<0.0005	<0.0005
	08/19/92	13.04	0.14	---	0.0066	<0.0005	<0.0005	<0.0005
	11/18/92	12.90	0.056	---	<0.0005	<0.0005	<0.0005	<0.0005
	02/11/93	11.28	0.063	---	<0.0005	<0.0005	<0.0005	0.0009
	02/11/93 <sup>a</sup>	11.28	0.063	---	<0.0005	<0.0005	<0.0005	0.0008
	05/19/93	12.52	0.060 <sup>o</sup>	---	<0.0005	<0.0005	<0.0005	<0.0005
MW-2	08/07/91	12.12	1.2	0.23	0.059	0.038	0.0011	0.056
	10/30/91	11.70	0.52	0.3	0.056	0.056	<0.0005	0.1
	02/15/92	11.10	2.3	2.2 <sup>b</sup>	0.087	0.088	<0.0025	0.15
	05/21/92	12.12	0.70	---	0.024	0.034	0.0010	0.048
	08/19/92	12.18	0.74	---	0.021	0.024	<0.0025	0.026
	08/19/92 <sup>a</sup>	12.18	0.84	---	0.031	0.036	<0.0025	0.043
	11/18/92	12.03	0.92	---	0.019	0.030	<0.0025	0.051
	11/18/92 <sup>a</sup>	12.03	0.87	---	0.025	0.034	<0.0025	0.052
	02/11/93	11.15	1.0	---	0.025	0.043	0.006	0.073
05/19/93	11.80	0.57	---	0.019	0.037	<0.0005	0.042	
MW-3	08/07/91	11.12	1.9	0.47	0.22	0.057	0.057	0.26
	10/30/91	10.93	1.9	0.48	0.16	0.063	0.028	0.18
	02/15/92	10.54	2.3	0.78 <sup>b</sup>	0.17	0.059	0.031	0.18
	05/21/92	10.79	1.5	---	0.16	0.044	0.020	0.14
	08/19/92	11.23	4.5	---	0.21	0.089	0.064	0.31
	11/18/92	11.20	2.4	---	0.081	0.039	0.014	0.14
	02/11/93	11.0	3.0	---	0.20	0.090	0.047	0.26
	05/19/93	11.16	2.1	---	0.24	0.10	0.044	0.330
MW-4	08/07/91	12.36	<0.05	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
	10/30/91	12.02	0.05	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
	02/15/92	11.34	0.09	---	0.0009	<0.0005	<0.0005	<0.0005
	05/21/92	12.35	<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005
	08/19/92	12.41	0.082 <sup>o</sup>	---	<0.0005	<0.0005	<0.0005	<0.0005
	11/18/92	12.28	0.085 <sup>o</sup>	---	<0.0005	<0.0005	<0.0005	<0.0005
	02/11/93	11.65	0.062 <sup>o</sup>	---	<0.0005	<0.0005	<0.0005	<0.0005
	05/19/93	11.92	<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005
MW-5	08/07/91	13.02	<0.05	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
	10/30/91	12.73	<0.05	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
	02/15/92	12.52	<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005
	05/20/92	13.05	<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005

-- Table 2 continues on next page --

Welss Associates



Table 2. Analytical Results for Ground Water - Shell Service Station WIC #204-5508-5801, 500 40th Street, Oakland, California (continued)

Well ID	Date Sampled	Depth to Water (ft)	TPH-G	TPH-D	B	E	T	X
			-----parts per million (mg/L)-----					
	08/19/92	13.04	0.055 <sup>o</sup>	---	<0.0005	<0.0005	<0.0005	<0.0005
	11/18/92	12.91	<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005
	02/11/93	12.44	0.059 <sup>o</sup>	---	<0.0005	<0.0005	<0.0005	<0.0005
	05/19/93	12.84	<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005
	05/19/93 <sup>dup</sup>	12.84	<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005
MW-6	08/06/91	10.71	26	3.6	0.91	0.56	0.42	1.9
	10/30/91	10.50	20	4.6	0.71	0.41	0.24	1.7
	02/15/92	9.24	35	27	0.69	0.65	0.42	3.0
	05/21/92	10.13	15	---	0.46	0.30	0.11	1.6
	08/19/92	10.16	24	---	0.60	0.46	0.30	2.0
	11/18/92	9.94	29	---	0.48	0.45	0.25	2.3
	02/11/93	9.20	24	---	1.3	0.63	0.25	2.4
	05/19/93	10.04	18	---	0.750	0.520	0.180	2.5
MW-8	08/06/91	13.08	0.09	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
	10/30/91	12.87	<0.05	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
	02/15/92	11.54	<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005
	05/20/92	12.32	<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005
	08/19/92	12.58	0.060	---	<0.0005	<0.0005	<0.0005	<0.0005
	11/18/92	12.47	<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005
	02/11/93	11.02	0.076 <sup>o</sup>	---	<0.0005	<0.0005	<0.0005	<0.0005
	05/18/93	11.78	<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005
MW-9	08/06/91	10.38	3.9	0.19	0.058	0.080	0.0088	0.220
	10/30/91	---	---	---	---	---	---	---
	03/18/92	8.76	1.8 <sup>d</sup>	0.21	0.084	0.049	0.011	0.060
	05/20/92	---	---	---	---	---	---	---
	08/19/92	9.98	4.6	0.22 <sup>b</sup>	0.063	0.048	<0.025	0.070
	11/18/93	9.81	1.8	0.13 <sup>b</sup>	0.030	0.046	0.0092	0.061
	02/11/93	---	---	---	---	---	---	---
	05/19/93	---	---	---	---	---	---	---
MW-10	08/07/91	10.00	0.46	<0.05	0.073	0.018	0.001	0.0084
	10/31/91	10.10	0.63	0.15	0.100	0.033	<0.0005	0.026
	02/15/92	9.55	0.81	0.57 <sup>b</sup>	0.085	0.044	0.0025	0.038
	05/21/92	10.41	0.28	---	0.047	0.0040	0.0007	0.0031
	08/19/92	10.46	0.33	---	0.035	0.0060	<0.0010	0.0041
	11/18/93	10.31	0.30	---	0.030	0.0071	0.0008	0.0063
	02/11/93	9.68	0.51 <sup>o</sup>	---	0.049	0.018	0.0038	0.018
	05/19/93	10.19	<0.05	---	0.096	0.0034	<0.0005	0.0015
MW-11	11/22/91	11.90	0.45	0.24	0.0011	<0.0005	<0.0005	<0.0005

-- Table 2 continues on next page --



Table 2. Analytical Results for Ground Water - Shell Service Station WIC #204-5508-5801, 500 40th Street, Oakland, California (continued)

Well ID	Date Sampled	Depth to Water (ft)	TPH-G	TPH-D	B	E	T	X
			-----parts per million (mg/L)-----					
	02/15/92	---	---	---	---	---	---	---
	03/18/92	---	---	---	---	---	---	---
	05/20/92	---	---	---	---	---	---	---
	08/19/92	12.06	0.27 <sup>c</sup>	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
	11/18/92	12.01	0.40 <sup>c</sup>	0.10	<0.0005	<0.0005	<0.0005	<0.0005
	02/11/93	---	---	---	---	---	---	---
	05/20/93	11.90	0.20 <sup>c</sup>	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
MW-12	12/02/91	10.31	<1	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
	03/18/92	8.93	<0.05	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
	05/20/92	10.26	0.18 <sup>c</sup>	---	<0.0005	<0.0005	<0.0005	<0.0005
	08/19/92	10.53	0.23 <sup>c</sup>	---	<0.0005	<0.0005	<0.0005	<0.0005
	11/18/92	10.45	0.22 <sup>c</sup>	---	<0.0005	<0.0005	<0.0005	<0.0005
	02/11/93	8.90	0.24	---	<0.0005	<0.0005	<0.0005	<0.0005
	05/19/93	10.60	0.11 <sup>c</sup>	---	<0.0005	<0.0005	<0.0005	<0.0005
MW-13	11/22/91	11.96	0.90	1.0	0.037	0.074	0.0095	0.130
	03/18/92	10.84	9 <sup>d</sup>	0.59 <sup>b</sup>	0.24	0.32	0.028	0.32
	05/20/92	---	---	---	---	---	---	---
	08/19/92	12.12	7.0	0.47 <sup>b</sup>	0.18	0.15	0.036	0.15
	11/18/92	12.00	---	---	---	---	---	---
	02/11/93	---	---	---	---	---	---	---
	05/20/93	12.26	9.2	---	0.32	0.49	0.083	0.95
Field Blank	08/19/92		<0.05	---	<0.0005	<0.0005	0.0005	0.0005
	11/18/92		<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005
Trailer Blank	02/15/92		<0.05	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
	03/18/92		<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005
	05/21/92		<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005
	08/19/92		<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005
	11/18/92		<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005
	02/11/93		<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005
	05/20/93		<0.05	---	<0.0005	<0.0005	<0.0005	<0.0005
DTCS MCLs			NE	NE	0.001	0.680	0.10 <sup>e</sup>	1.750

-- Table 2 continues on next page --



---

Table 2. Analytical Results for Ground Water - Shell Service Station WIC #204-5508-5801, 500 40th Street, Oakland, California (continued)

---

Abbreviations:

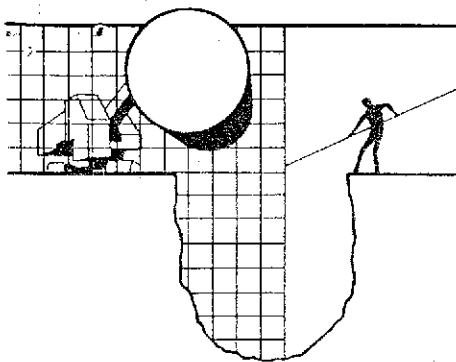
TPH-G = Total petroleum hydrocarbons as gasoline by Modified EPA Method 8015  
TPH-D = Total petroleum hydrocarbons as diesel by Modified EPA Method 8015  
TPH-MO = Total petroleum hydrocarbons as motor oil by EPA Method 8015  
B = Benzene by EPA Method 8020  
E = Ethylbenzene by EPA Method 8020  
T = Toluene by EPA Method 8020  
X = Xylenes by EPA Method 8020  
NE = Not established  
DTSC MCLs = California Department of Toxic Substances Control maximum contaminant levels for drinking water  
--- = Not analyzed  
ND = Not detected

Notes:

a = Duplicate sample  
b = Concentration reported as diesel is primary due to the presence of a lighter petroleum product, possible gasoline or kerosene  
c = Concentration reported as gasoline is primarily due to the presence of discrete hydrocarbon peaks not indicative of gasoline  
d = Compounds detected and calculated as gasoline do not match the standard gasoline chromatographic pattern  
e = DTSC recommended action level; MCL not established



**ATTACHMENT A**  
**GROUND WATER MONITORING REPORT AND ANALYTIC REPORT**



# BLAINE TECH SERVICES INC.

985 TIMOTHY DRIVE  
SAN JOSE, CA 95133  
(408) 995-5535  
FAX (408) 293-8773

June 21, 1993

Shell Oil Company  
P.O. Box 5278  
Concord, CA 94520-9998

Attn: Daniel T. Kirk

SITE:  
Shell WIC # 204-5508-4903  
500 40th/Telegraph  
Oakland, California

QUARTER:  
2nd quarter of 1993

## QUARTERLY GROUNDWATER SAMPLING REPORT 930519-A-1

---

This report contains data collected during routine inspection, gauging and sampling of groundwater monitoring wells performed by Blaine Tech Services, Inc. in response to the request of the consultant who is overseeing work at this site on behalf of our mutual client, Shell Oil Company. Data collected in the course of our field work is presented in a **TABLE OF WELL GAUGING DATA**. The field information was collected during our preliminary gauging and inspection of the wells, the subsequent evacuation of each well prior to sampling, and at the time of sampling.

Measurements taken include the total depth of the well and the depth to water. The surface of the water was further inspected for the presence of immiscibles which may be present as a thin film (a sheen on the surface of the water) or as a measurable free product zone (FPZ). At intervals during the evacuation phase, the purge water was monitored with instruments that measure electrical conductivity (EC), potential hydrogen (pH), temperature (degrees Fahrenheit), and turbidity (NTU). In the interest of simplicity, fundamental information is tabulated here, while the bulk of the information is turned over directly to the consultant who is making professional interpretations and evaluations of the conditions at the site.

## TABLE OF WELL GAUGING DATA

WELL I.D.	WELL DIAMETER (inches)	DATA COLLECTION DATE	MEASUREMENTS REFERENCED TO	QUALITATIVE OBSERVATIONS (sheen)	DEPTH TO FIRST IMMISCIBLE LIQUID (FPZ) (feet)	THICKNESS OF IMMISCIBLE LIQUID ZONE (feet)	VOLUME OF IMMISCIBLES REMOVED (ml)	DEPTH TO WATER (feet)	DEPTH TO WELL BOTTOM (feet)
EW-1	6	05-19-93	TOP OF PIPE	--	NONE	--	--	12.52	38.54
MW-2	4	05-19-93	TOP OF PIPE	--	NONE	--	--	11.80	19.52
MW-3	4	05-19-93	TOP OF PIPE	--	NONE	--	--	11.16	18.74
MW-4	4	05-19-93	TOP OF PIPE	--	NONE	--	--	11.92	14.90
MW-5 *	4	05-19-93	TOP OF PIPE	--	NONE	--	--	12.84	20.20
OMW-6	4	05-19-93	TOP OF PIPE	SHEEN/ODOR	--	--	--	10.04	20.18
MW-8	4	05-19-93	TOP OF PIPE	--	NONE	--	--	11.78	38.40
OMW-9	--	05-19-93	INACCESSIBLE						
OMW-10	4	05-19-93	TOP OF PIPE	--	NONE	--	--	10.19	16.04
OMW-11	4	05-20-93	TOP OF PIPE	--	NONE	--	--	11.90	19.72
OMW-12	4	05-19-93	TOP OF PIPE	--	NONE	--	--	10.60	19.48
OMW-13	4	05-20-93	TOP OF PIPE	SHEEN/ODOR	--	--	--	12.26	20.58

\* Sample DUP was a duplicate sample taken from well MW-5.

## STANDARD PROCEDURES

---

### Evacuation

Groundwater wells are thoroughly purged before sampling to insure that the sample is collected from water that has been newly drawn into the well from the surrounding geologic formation. The selection of equipment to evacuate each well is based on the physical characteristics of the well and what is known about the performance of the formation in which the well has been installed. There are several suitable devices which can be used for evacuation. The most commonly employed devices are air or gas actuated pumps, electric submersible pumps, and hand or mechanically actuated bailers. Our personnel frequently employ USGS/Middleburg positive displacement pumps or similar air actuated pumps which do not agitate the water standing in the well.

Normal evacuation removes three case volumes of water from the well. More than three case volumes of water may be removed in cases where more evacuation is needed to achieve stabilization of water parameters. Less than three case volumes of water may be obtained in cases where the well dewateres and does not recharge to 80% of its original volume within two hours and any additional time our personnel have reason to remain at the site. In such cases, our personnel return to the site within twenty four hours and collect sample material from the water which has recharged into the well case.

### Decontamination

All apparatus is brought to the site in clean and serviceable condition. The equipment is decontaminated after each use and before leaving the site.

### Free Product Skimmer

The column headed, VOLUME OF IMMISCIBLES REMOVED (ml) is included in the TABLE OF WELL GAUGING DATA to cover situations where a free product skimming device must be removed from the well prior to gauging. Skimmers are installed in wells with a free product zone on the surface of the water. The skimmer is a free product recovery device which often prevents normal well gauging and free product zone measurements. The 2.0" and 3.0" PetroTraps fall into the category of devices that obstruct normal gauging. In cases where the consultant elects to have our personnel pull the skimmers out of the well and gauge the well, our personnel perform the additional task of draining the accumulated free product out of the PetroTrap before putting it back in the well. This recovered free product is measured and logged in the VOLUME OF IMMISCIBLES REMOVED column. Gauging at such site is performed in accordance with specific directions from the professional consulting firm overseeing work at the site on Shell's behalf.



## **Sample Containers**

Sample material is collected in specially prepared containers which are provided by the laboratory that performs the analyses.

## **Sampling**

Sample material is collected in stainless steel bailer type devices normally fitted with both a top and a bottom check valve. Water is promptly decanted into new sample containers in a manner which reduces the loss of volatile constituents and follows the applicable EPA standard for handling volatile organic and semi-volatile compounds.

Following collection, samples are promptly placed in an ice chest containing prefrozen blocks of an inert ice substitute such as Blue Ice or Super Ice. The samples are maintained in either an ice chest or a refrigerator until delivered into the custody of the laboratory.

## **Sample Designations**

All sample containers are identified with a site designation and a discrete sample identification number specific to that particular groundwater well. Additional standard notations (e.g. time, date, sampler) are also made on the label. Either the requested analyses or the specific analytes are written on the sample label (e.g. TPH-G, BTEX).

## **Chain of Custody**

Samples are continuously maintained in an appropriate cooled container while in our custody and until delivered to the laboratory under a standard Shell Oil Company chain of custody. If the samples are taken charge of by a different party (such as another person from our office, a courier, etc.) prior to being delivered to the laboratory, appropriate release and acceptance records are made on the chain of custody (time, date, and signature of the person releasing the samples followed by the time, date and signature of the person accepting custody of the samples).

## **Hazardous Materials Testing Laboratory**

The samples obtained at this site were delivered to Anametrix, Inc. in San Jose, California. Anametrix, Inc. is a California Department of Health Services certified Hazardous Materials Testing Laboratory and is listed as DOHS HMTL #1234.

## **Objective Information Collection**

Blaine Tech Services, Inc. performs specialized environmental sampling and documentation as an independent third party. In order to avoid compromising the objectivity necessary for the proper and disinterested performance of this work, Blaine Tech Services, Inc.

performs no consulting and does not become involved in the marketing or installation of remedial systems of any kind. Blaine Tech Services, Inc. is concerned only with the generation of objective information, not with the use of that information to support evaluations and recommendations concerning the environmental condition of the site. Even the straightforward interpretation of objective analytical data is better performed by interested regulatory agencies, and those engineers and geologists who are engaged in the work of providing professional opinions about the site and proposals to perform additional investigation or design remedial systems.

### Reportage

Submission of this report and the attached laboratory report to interested regulatory agencies is handled by the consultant in charge of the project. Any professional evaluations or recommendations will be made by the consultant under separate cover.

Please call if we can be of any further assistance.

  
Richard C. Blaine

RCB/skt

attachments: chain of custody  
certified analytical report

cc: Weiss Associates  
5500 Shellmound St.  
Emeryville, Ca 94608-2411  
ATTN: Michael Asport



**SHELL OIL COMPANY**  
RETAIL ENVIRONMENTAL ENGINEERING - WEST

**CHAIN OF CUSTODY RECORD**  
Serial No: \_\_\_\_\_

Date: 5-19-93  
Page 1 of 2

Site Address: 500 40th / TELEGRAPH  
WIC#: 204 5508 4903

**Analysis Required**

LAB: ANALYTIX

Shell Engineer: Derick Kirk Phone No.: 510  
Fax #: 625 617  
Consultant Name & Address: Prime Tech Services 985 Timpany St.  
Consultant Contact: Alan Keller Phone No.:  
Fax #:

Comments:

Sampled by: Jeff Curtis  
Printed Name: JEFF CURTIS

TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	Combination TPH 8015 & BTEX 8020		Asbestos	Container Size	Preparation Used	Composite Y/N										

CHECK ONE (1) FOR ONLY	C1/D1	TURN AROUND TIME
Quarterly Monitoring <input checked="" type="checkbox"/>	6461	24 hours <input type="checkbox"/>
Site Investigation <input type="checkbox"/>	6461	48 hours <input type="checkbox"/>
Soil Cleanup/Disposal <input type="checkbox"/>	6462	16 days <input checked="" type="checkbox"/> (Normal)
Water Cleanup/Disposal <input type="checkbox"/>	6463	Other <input type="checkbox"/>
Soil/Air Rem. or Sys. O & M <input type="checkbox"/>	6462	
Water Rem. or Sys. O & M <input type="checkbox"/>	6463	
Other <input type="checkbox"/>		

NOTE: Holly Lab as soon as Possible of 24/18 Hr. LAT.

Sample ID	Date	Sludge	Soil	Water	Air	No. of conls.	TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	Combination TPH 8015 & BTEX 8020	Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
① MW 5	5/19			W		3											ground water	
② MW 4																		
③ MW 2																		
④ MW 3																		
⑤ MW 8																		
⑥ MW 1																		
⑦ DMW 12	4			4		4												
⑧ DMW 6																		

Relinquished By (Signature): <u>[Signature]</u>	Printed Name: <u>JEFF CURTIS</u>	Date: <u>5-20-93</u>	Received (Signature): <u>[Signature]</u>	Printed Name: <u>BENNY S. CARRIZOSA</u>	Date: <u>5-20-93</u>
Relinquished By (Signature): <u>[Signature]</u>	Printed Name: <u>BENNY S. CARRIZOSA</u>	Date: <u>5-20-93</u>	Received (Signature): <u>[Signature]</u>	Printed Name: <u>MICHELE D. AGUIAR</u>	Date: <u>5-20-93</u>
Relinquished By (Signature): _____	Printed Name: _____	Date: _____	Received (Signature): _____	Printed Name: _____	Date: _____

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE AND RESULTS



**SHELL OIL COMPANY**  
RETAIL ENVIRONMENTAL ENGINEERING - WEST

**CHAIN OF CUSTODY RECORD**

Serial No: \_\_\_\_\_

Date: 5-19-93

Page 2 of 2

Silo Address: 500 40th/Telegraph

WIC#: 204 5508 4903

Shell Engineer: Duval Kirk Phone No.: 510

Consultant Name & Address: Blaine Tech Services 985 TIMOTHY ST. Phone No.: 468

Consultant Contact: Ann Keller Fax #: 293 8772

Comments:

Sampled by: J. Curtis

Printed Name: JEFF CURTIS

**Analysis Required**

LAB: ANATOMY

TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	Combination TPH 8015 & BTEX 8020	Asbestos	Container Size	Preparation Used	Composite Y/N
-------------------------	----------------------------	---------------------	------------------------------	-------------------	----------------------------------	----------	----------------	------------------	---------------

CHECK ONE (1) BOX ONLY	CI/01	TURN AROUND TIME
Quarterly Monitoring	<input checked="" type="checkbox"/> 6441	24 hours <input type="checkbox"/>
Site Investigation	<input type="checkbox"/> 6441	48 hours <input type="checkbox"/>
Soil Classfy/Diposal	<input type="checkbox"/> 6442	14 days <input checked="" type="checkbox"/> (Normal)
Water Classfy/Diposal	<input type="checkbox"/> 6443	Other <input type="checkbox"/>
Soil/Air Sam. at Site, O & M	<input type="checkbox"/> 6442	
Water Sam. at Site, O & M	<input type="checkbox"/> 6443	
Other	<input type="checkbox"/>	

Sample ID	Date	Sludge	Soil	Water	Air	No. of conds.	ANALYSIS REQUIRED										MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS	
							TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	Combination TPH 8015 & BTEX 8020	Asbestos	Container Size	Preparation Used	Composite Y/N			
④ DMU 10	5/19			W		3												Groundwater	
⑩ DUP						3													
⑪ TRIP BLANK						2													

Relinquished by (Signature): <i>J. Curtis</i>	Printed Name: JEFF CURTIS	Date: 5-20-93	Received (Signature): <i>Denny S. Carrizosa</i>	Printed Name: DENNY S. CARRIZOSA	Date: 5-20-93
Relinquished by (Signature): <i>Denny S. Carrizosa</i>	Printed Name: DENNY S. CARRIZOSA	Date: 5-20-93	Received (Signature): <i>Michelle D. Devillar</i>	Printed Name: MICHELLE D. DEVILLAR	Date: 5-20-93
Relinquished by (Signature):	Printed Name:	Date:	Received (Signature):	Printed Name:	Date:

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE AND RESULTS.



MR. JIM KELLER  
BLAINE TECH  
985 TIMOTHY STREET  
SAN JOSE, CA 95133

Workorder # : 9305201  
Date Received : 05/20/93  
Project ID : 204-5508-4903  
Purchase Order: MOH-B813

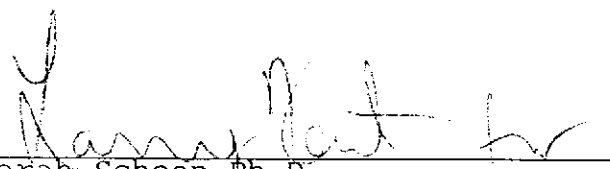
The following samples were received at Anamatrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9305201- 1	MW5
9305201- 2	MW4
9305201- 3	MW2
9305201- 4	MW3
9305201- 5	MW8
9305201- 6	EW1
9305201- 7	OMW12
9305201- 8	OMW6
9305201- 9	OMW10
9305201-10	DUP
9305201-11	T. BLANK

This report consists of 7 pages not including the cover letter, and is organized in sections according to the specific Anamatrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anamatrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anamatrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anamatrix.

  
Sarah Schoen, Ph.D.  
Laboratory Director

6-2-93  
Date

REPORT SUMMARY  
ANAMETRIX, INC. (408)432-8192

MR. JIM KELLER  
BLAINE TECH  
985 TIMOTHY STREET  
SAN JOSE, CA 95133

Workorder # : 9305201  
Date Received : 05/20/93  
Project ID : 204-5508-4903  
Purchase Order: MOH-B813  
Department : GC  
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9305201- 1	MW5	WATER	05/19/93	TPHgBTEX
9305201- 2	MW4	WATER	05/19/93	TPHgBTEX
9305201- 3	MW2	WATER	05/19/93	TPHgBTEX
9305201- 4	MW3	WATER	05/19/93	TPHgBTEX
9305201- 5	MW8	WATER	05/19/93	TPHgBTEX
9305201- 6	EW1	WATER	05/19/93	TPHgBTEX
9305201- 7	OMW12	WATER	05/19/93	TPHgBTEX
9305201- 8	OMW6	WATER	05/19/93	TPHgBTEX
9305201- 9	OMW10	WATER	05/19/93	TPHgBTEX
9305201-10	DUP	WATER	05/19/93	TPHgBTEX
9305201-11	T. BLANK	WATER	05/19/93	TPHgBTEX







ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS  
(GASOLINE WITH BTEX)  
ANAMETRIX, INC. - (408) 432-8192

Anamatrix W.O.: 9305201  
Matrix : WATER  
Date Sampled : 05/19/93

Project Number : 204-5508-4903  
Date Released : 05/28/93

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# EW1	Sample I.D.# OMW12	Sample I.D.# OMW6	Sample I.D.# OMW10	Sample I.D.# DUP
		-06	-07	-08	-09	-10
Benzene	0.5	ND	ND	750	96	ND
Toluene	0.5	ND	ND	180	ND	ND
Ethylbenzene	0.5	ND	ND	520	3.4	ND
Total Xylenes	0.5	ND	ND	2500	1.5	ND
TPH as Gasoline	50	60	110	18000	490	ND
% Surrogate Recovery		126%	130%	123%	131%	126%
Instrument I.D.		HP21	HP21	HP21	HP21	HP21
Date Analyzed		05/24/93	05/24/93	05/25/93	05/24/93	05/24/93
RLMF		1	1	100	2	1

ND - Not detected at or above the practical quantitation limit for the method.

TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.

BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.

RLMF - Reporting Limit Multiplication Factor.

Anamatrix control limits for surrogate p-Bromofluorobenzene recovery are 61-139%

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Analyst

Date

Supervisor

Date



TOTAL VOLATILE HYDROCARBON MATRIX SPIKE REPORT  
 EPA METHOD 5030 WITH GC/FID  
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 204-5508-4903 MW4  
 Matrix : WATER  
 Date Sampled : 05/19/93  
 Date Analyzed : 05/24/93

Anamatrix I.D. : 05201-02  
 Analyst : *CMB*  
 Supervisor : *CS*  
 Date Released : 05/28/93

COMPOUND	SPIKE AMT (ug/L)	SAMPLE CONC (ug/L)	MS AMT (ug/L)	% REC MS	MD AMT (ug/L)	% REC MD	RPD	% REC LIMITS
BENZENE	20.0	0.0	21.2	106%	20.0	100%	-6%	45-139
TOLUENE	20.0	0.0	24.4	122%	23.0	115%	-6%	51-138
ETHYLBENZENE	20.0	0.0	24.6	123%	22.5	113%	-9%	48-146
TOTAL-XYLENES	20.0	0.0	24.6	123%	22.7	114%	-8%	50-139
p-BFB				126%		102%		61-139

\* Quality control limit established by Anamatrix, Inc.

BTEX LABORATORY CONTROL SAMPLE REPORT  
 EPA METHOD 5030 WITH GC/PID  
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : LAB CONTROL SAMPLE      Anamatrix I.D.: LCSW0524  
 Matrix : WATER      Analyst : *OmB*  
 Date Sampled : N/A      Supervisor : *US*  
 Date Analyzed : 05/24/93      Date Released : 05/28/93  
    Instrument ID : HP21

COMPOUND	SPIKE AMT. (ug/L)	LCS (ug/L)	REC LCS	%REC LIMITS
Benzene	20.0	18.6	93%	52-133
Toluene	20.0	22.0	110%	57-136
Ethylbenzene	20.0	21.5	108%	56-139
TOTAL Xylenes	20.0	22.0	110%	56-141
P-BFB			107%	61-139

\* Limits established by Anamatrix, Inc.

<b>SHELL OIL COMPANY</b> RETAIL ENVIRONMENTAL ENGINEERING - WEST		<b>CHAIN OF CUSTODY RECORD</b> Serial No: <u>930520-C2</u>				Date: _____ Page <u>1</u> of <u>1</u>	
Silo Address: <u>500 40th / Telegraph OAKLAND</u>		<b>Analysis Required</b>				LAB: <u>ANAMETREX</u>	
WIC#: <u>204-5508-4903</u>		TPH (EPA 8015 Mod. Gas) TPH (EPA 8015 Mod. Diesel) BTEX (EPA 8020/602) Volatile Organics (EPA 8240) Test for Disposal Combination TPH 8015 & BTEX 8020 Asbestos Container Size Preparation Used Composite Y/N	CHECK ONE (1) BOX ONLY		TURN AROUND TIME		
Shell Engineer: <u>DANIEL KIRK</u>			Phone No.: <u>510</u> Fax #: <u>6756171</u>		Quantity Monitoring <input checked="" type="checkbox"/> 6441	24 hours <input type="checkbox"/>	
Consultant Name & Address: <u>BLAINE TECH SERVICES INC</u>			Phone No.: <u>408</u> Fax #: <u>9955535</u>		Site Investigation <input type="checkbox"/> 6441	48 hours <input type="checkbox"/>	
Consultant Contact: <u>JIM KELCEK</u>			Comments:		Soil Clarity/Disposal <input type="checkbox"/> 6442	14 days <input checked="" type="checkbox"/> (Normal)	
Sampled by: <u>BEN CASTANEDA</u>		Printed Name: <u>BEN CASTANEDA</u>		Water Clarity/Disposal <input type="checkbox"/> 6443	Other <input type="checkbox"/>		
Other: <input type="checkbox"/>		Note: Notify Lab as soon as possible of 24/48 hr. TAT.		MATERIAL DESCRIPTION			
Sample ID		Date		SAMPLE CONDITION/ COMMENTS			
Sludge		Soil					
Water		Air					
No. of cans.							
①	<u>OMW-11</u>	<u>5-20</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
②	<u>OMW-13</u>	<u>5-20</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Relinquished by (Signature): <u>BEN CASTANEDA</u>		Relinquished by (Signature): <u>JEFF THOMPSON</u>		Relinquished by (Signature): <u>MICHELE D AGUILAR</u>			
Printed Name: <u>BEN CASTANEDA</u>		Printed Name: <u>JEFF THOMPSON</u>		Printed Name: <u>MICHELE D AGUILAR</u>			
Date: <u>5-21-93</u>		Date: <u>5-21-93</u>		Date: <u>5-21-93</u>			
Time: <u>17:40</u>		Time: <u>17:40</u>		Time: <u>17:40</u>			
Relinquished by (Signature): _____		Relinquished by (Signature): _____		Relinquished by (Signature): _____			
Printed Name: _____		Printed Name: _____		Printed Name: _____			
Date: _____		Date: _____		Date: _____			
Time: _____		Time: _____		Time: _____			

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE AND RESULTS



# Inchcape Testing Services

## Anamatrix Laboratories

1961 Concourse Drive #E  
San Jose, CA 95131  
Tel: 408-432-8192  
Fax: 408-432-8198

MR. JIM KELLER  
BLAINE TECH  
985 TIMOTHY STREET  
SAN JOSE, CA 95133

Workorder # : 9305236  
Date Received : 05/21/93  
Project ID : 204-5508-4903  
Purchase Order: MOH-B813

The following samples were received at Anamatrix, Inc. for analysis :

ANAMATRIX ID	CLIENT SAMPLE ID
9305236- 1	OMW-11
9305236- 2	OMW-13

This report consists of 4 pages not including the cover letter, and is organized in sections according to the specific Anamatrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anamatrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anamatrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anamatrix.

Sarah Schoen, Ph.D.  
Laboratory Director

06-04-93  
Date

REPORT SUMMARY  
ANAMETRIX, INC. (408)432-8192

MR. JIM KELLER  
BLAINE TECH  
985 TIMOTHY STREET  
SAN JOSE, CA 95133

Workorder # : 9305236  
Date Received : 05/21/93  
Project ID : 204-5508-4903  
Purchase Order: MOH-B813  
Department : GC  
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9305236- 1	OMW-11	WATER	05/20/93	TPHgBTEX
9305236- 2	OMW-13	WATER	05/20/93	TPHgBTEX







BTEX LABORATORY CONTROL SAMPLE REPORT  
 EPA METHOD 5030 WITH GC/PID  
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : LAB CONTROL SAMPLE	Anamatrix I.D. : LCSW0526
Matrix : WATER	Analyst : <i>ND</i>
Date Sampled : N/A	Supervisor : <i>[Signature]</i>
Date Analyzed : 05/26/93	Date Released : 06/03/93
	Instrument ID : HP12

COMPOUND	SPIKE AMT. (ug/L)	LCS (ug/L)	REC LCS	%REC LIMITS
Benzene	20.0	22.6	113%	52-133
Toluene	20.0	22.7	114%	57-136
Ethylbenzene	20.0	23.0	115%	56-139
TOTAL Xylenes	20.0	22.5	113%	56-141
P-BFB			97%	61-139

\* Limits established by Anamatrix, Inc.