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January 13, 1994

Dennis Byrne  
Alameda County Department of  
Environmental Health  
80 Swan Way, Room 200  
Oakland, California 94621-1426

STR 281

Re: Shell Service Station  
WIC #204-5508-5306  
3420 San Pablo Avenue  
Oakland, California  
WA Job #81-612-203

Dear Mr. Byrne:

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 fourth quarter 1993 and proposed work for the first quarter 1994.

Fourth Quarter 1993 Activities:

- Blaine Tech Services (BTS) of San Jose, California measured ground water depths in all eleven site wells and collected ground water samples from seven of the wells. Wells MW-1, MW-4, MW-5 and MW-6 contained floating hydrocarbons and were not sampled. BTS' report describing these activities and presenting analytic results for ground water is included as Attachment A.
- BTS purged a total of 0.14 gallons of floating hydrocarbons from skimmers in wells MW-1 and MW-4 this quarter (Table 1). To date, approximately 2.27 gallons of floating hydrocarbons have been removed by bailing and by floating hydrocarbon skimmers.
- WA prepared a ground water elevation contour map for wells screened in the first water bearing zone (Figure 2). Since wells MW-1, MW-3, MW-4 and MW-5 are screened slightly deeper than the other site wells, these wells are contoured separately (Figure 3).
- WA conducted a soil vapor extraction test on November 16, 1993 to assess whether SVE is a viable remedial option for this site. Results of this test will be submitted shortly under separate cover.

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Anticipated First Quarter 1994 Activities:

- WA will submit a report presenting the results of the first quarter 1994 ground water sampling and ground water depth measurements. The report will include tabulated chemical analytic results, floating hydrocarbon removal data and ground water elevation contour maps.
- Floating hydrocarbon skimmers are installed in wells MW-1, MW-2, MW-4 and MW-6. The skimmers will be purged of hydrocarbons quarterly until no floating hydrocarbons are measured in these wells. Hydrocarbon volumes purged will be tabulated in subsequent quarterly status reports.

Conclusions and Recommendations:

Ground water elevations have decreased. This elevation decrease resulted in the reversal of the apparent ground water flow direction beneath the northern portion of the site compared to second quarter 1993. We will monitor ground water elevations in upcoming quarters to assess whether this trend continues.

Floating hydrocarbon thickness decreased compared to last quarter. WA will monitor the floating hydrocarbon thickness and begin monthly floating hydrocarbon purging if the skimmers are not effectively removing floating hydrocarbons.

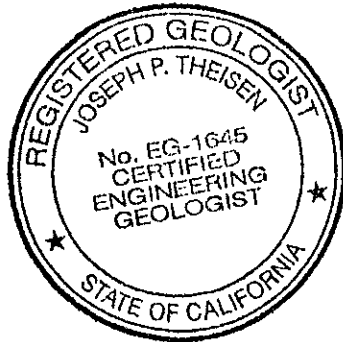


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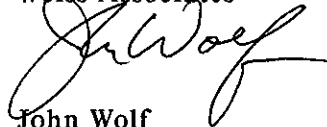
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Weiss Associates 

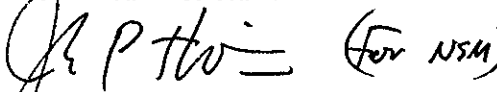
Please call if you have any questions.



Sincerely,  
Weiss Associates



John Wolf  
Technical Assistant

 (For NSM)

N. Scott MacLeod, R.G.  
Project Geologist

JAW/NSN:jaw

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Attachments: A - BTS' Associates Ground Water Monitoring Report

cc: Dan Kirk, Shell Oil Company, P.O. Box 5278, Concord, California 94520-9998  
Lisa McCann, California Regional Water Quality Control Board, San Francisco Bay  
Region, 2101 Webster Street, Suite 500, Oakland, California 94612

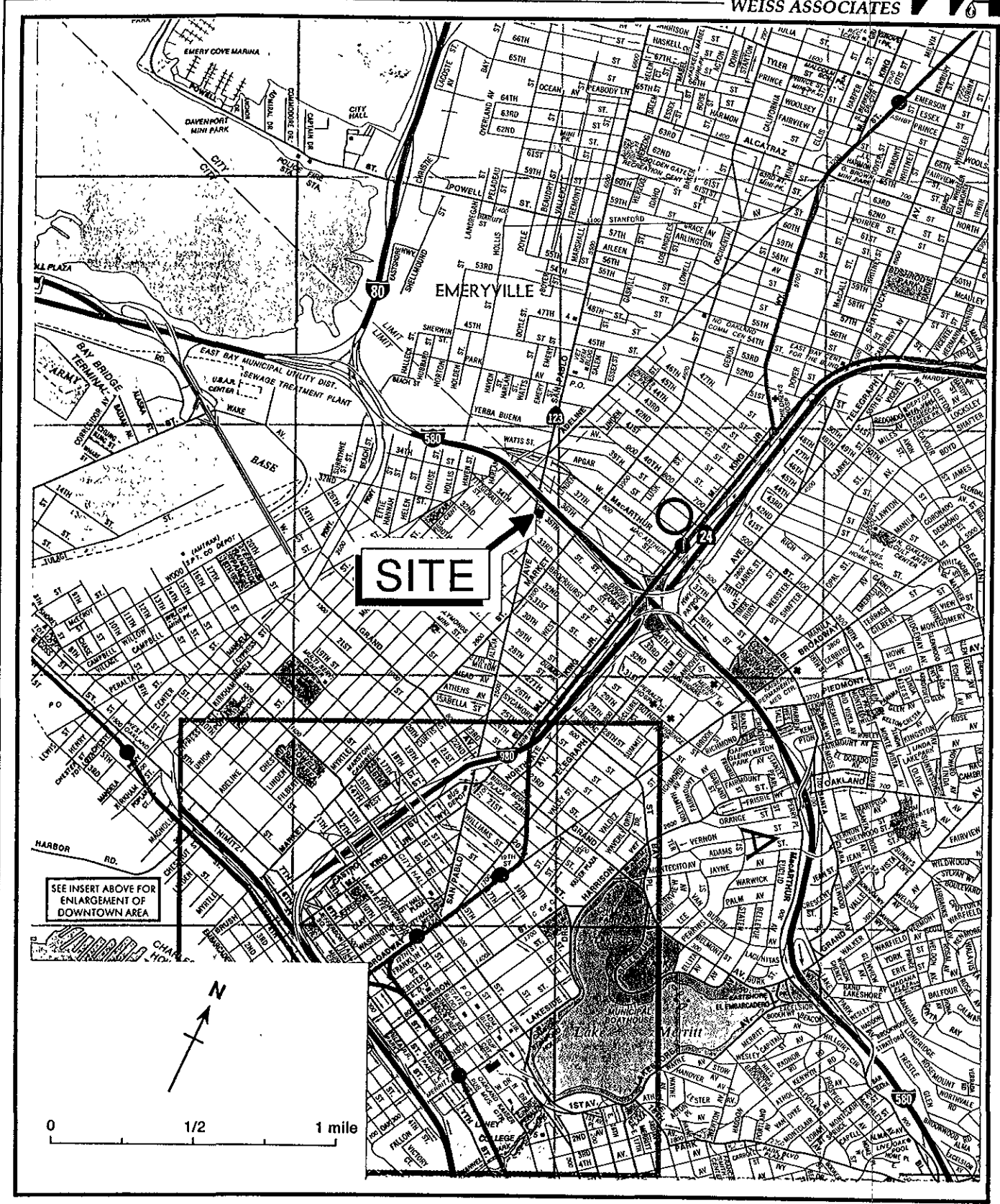


Figure 1. Site Location Map - Shell Service Station WIC #204-5508-5306, 3420 San Pablo Avenue, Oakland, California

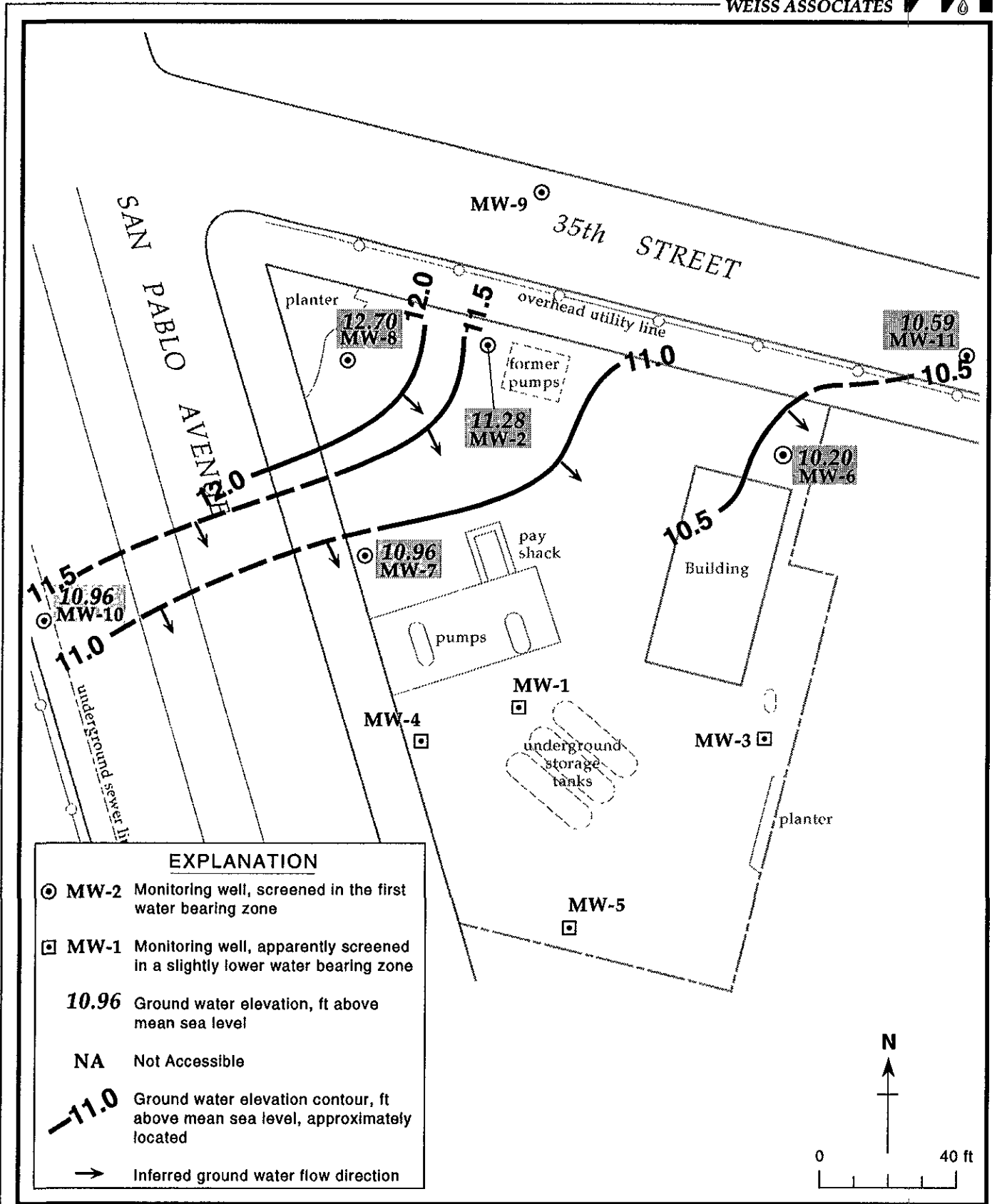


Figure 2. Monitoring Well Locations and Ground Water Elevation Contours, Upper Water Bearing Zone - October 13, 1993 - Shell Service Station WIC #204-5508-5306, 3420 San Pablo Avenue, Oakland, California

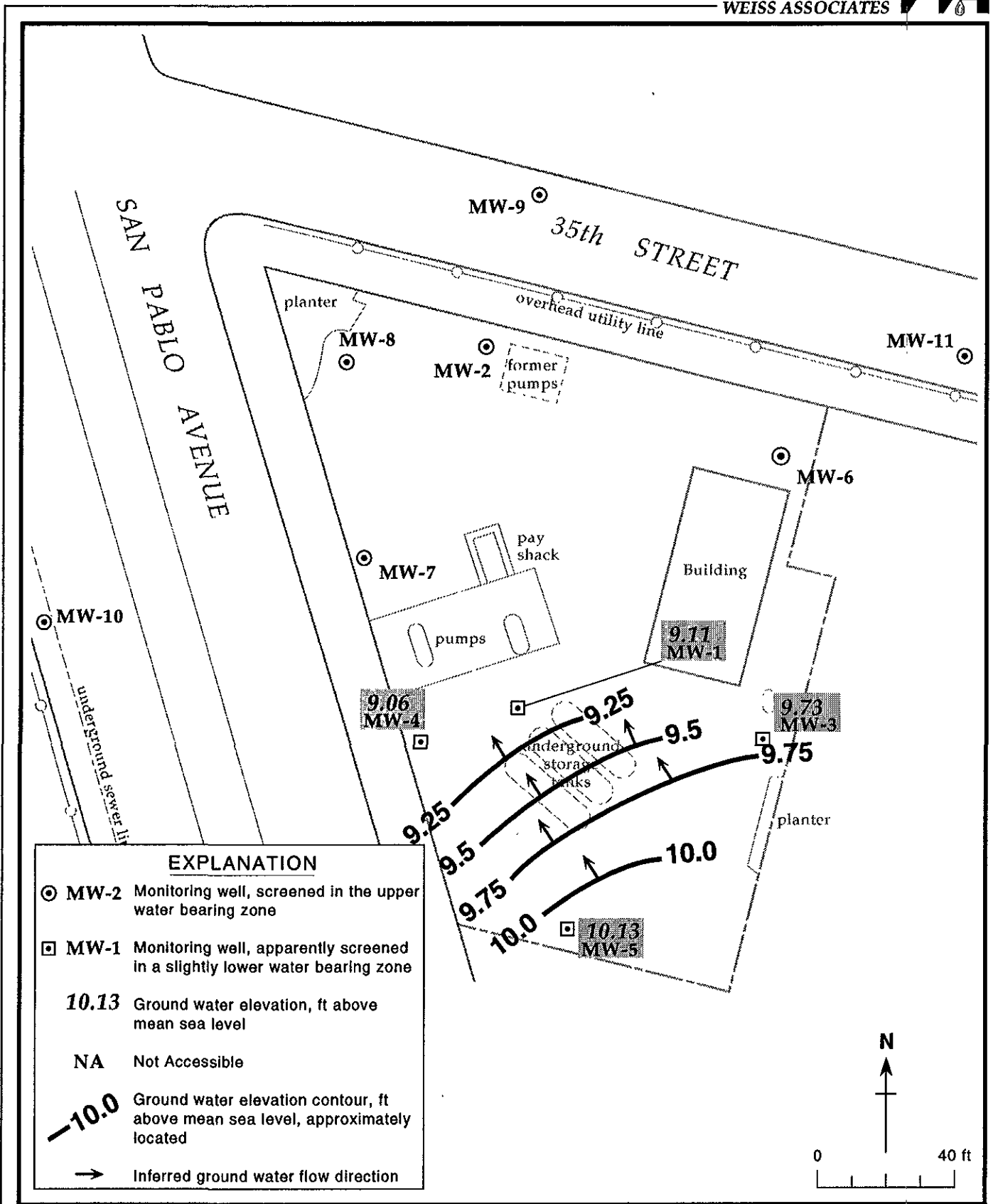


Figure 3. Monitoring Well Locations and Ground Water Elevation Contours, Lower Water Bearing Zone - October 13, 1993 - Shell Service Station WIC #204-5508-5306, 3420 San Pablo Avenue, Oakland, California

Table 1. Floating Hydrocarbon Removal - Shell Service Station WIC #204-5508-5306, 3420 San Pablo, Avenue, Oakland, California

Well ID	Date	Floating Hydrocarbon Thickness (ft)	Vol. of Floating Hydrocarbon Removed (gal)	Cumulative Volume of Floating Hydrocarbons Removed (gal)
MW-1	10/23/91	0.01	---	---
	05/04/92	<0.01	---	---
	10/12/92	0.09	---	---
	01/12/93	0.02	0.52	0.52
	04/06/93	<0.01	0.13	0.65
	07/12/93	0.01	0.03	0.68
	10/13/93	0.01	0.01	0.69
MW-2	10/12/92	0.03	---	---
	01/12/93	0.01	0.26	0.26
	04/06/93	<0.01	0.13	0.39
MW-4	10/12/92	0.78	---	---
	01/12/93	1.0	---	---
	04/06/93	0.95	b	---
	07/12/93	0.03	1.06	1.06
	10/13/93	0.12	0.13	1.19
MW-5	10/12/92	0.01	---	---
	01/12/93	<0.01	---	---
	10/13/93	0.03	---	---
MW-6	10/12/92	0.48	---	---
	01/12/93	<0.01	---	---
	10/13/93	0.2	---	---
Total Floating Hydrocarbons Removed				2.27

Note:

b = Not purged by sampling consultant, floating hydrocarbon skimmer installed on this date.

Table 2. Ground Water Elevations - Shell Service Station WIC #204-5508-5306, 3420 San Pablo, Avenue, Oakland, California

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Floating Hydrocarbon Thickness	Ground Water Elevation (ft above msl) <sup>a</sup>
MW-1	08/06/91	21.28	10.86	---	10.43
	10/23/91		11.05	0.01	10.24
	01/28/92		10.84	---	10.44
	05/04/92		9.42	<0.01	11.86
	07/13/92		11.36	---	9.92
	10/12/92		13.14	0.09	8.21
	01/12/93		7.52	0.02	13.78
	04/06/93		7.13	<0.01	14.16
	07/12/93		11.02	0.01	10.27
	10/13/93		12.18	0.01	9.11
MW-2	08/06/91	21.56	9.72	---	11.84
	10/23/91		10.03	---	11.53
	01/28/92		8.78	---	12.78
	05/04/92		7.58	---	13.98
	07/13/92		9.63	---	11.93
	10/12/92		11.66	0.03	9.92
	01/12/93		7.13	0.01	14.44
	04/06/93		6.40	<0.01	15.17
	07/12/93		8.75	---	12.81
	10/13/93		10.28	---	11.28
MW-3	08/06/91	21.78	11.18	---	10.60
	10/23/91		11.69	---	10.09
	01/28/92		9.99	---	11.79
	05/04/92		9.46	---	12.32
	07/13/92		11.29	---	10.49
	10/12/92		13.10	---	8.68
	01/12/93		7.32	---	14.46
	04/06/93		7.44	---	14.34
	07/12/93		10.62	---	11.16
	10/13/93		12.05	---	9.73
MW-4	08/06/91	20.31	10.57	---	9.74
	10/23/91		10.46	---	9.85
	01/28/92		9.54	---	10.77
	05/04/92		8.33	---	11.98
	07/13/92		9.87	---	10.44
	10/12/92		12.43	0.78	8.50
	01/12/93		7.12	1.0	13.99
	04/06/93		7.23	0.95	13.84
	07/12/93		10.08	0.03	10.25
	10/13/93		11.35	0.12	9.06
MW-5	08/06/91	20.91	10.23	---	10.68

-- Table 2 continues on next page --



Table 2. Ground Water Elevations - Shell Service Station WIC #204-5508-5306, 3420 San Pablo, Avenue, Oakland, California (continued)

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Floating Hydrocarbon Thickness	Ground Water Elevation (ft above msl) <sup>a</sup>
	10/23/91		10.89	---	10.02
	01/28/92		8.45	---	12.46
	05/04/92		8.05	---	12.86
	07/13/92		10.00	---	10.91
	10/12/92		11.83	0.01	9.09
	01/12/93		6.10	<0.01	14.81
	04/06/93		6.18	---	14.73
	07/12/93		9.59	---	11.32
	10/13/93		10.80	0.03	10.13*
MW-6	08/06/91	22.32	10.61	---	11.71
	10/23/91		11.68	---	10.64
	01/28/92		8.90	---	13.42
	05/04/92		8.01	---	14.31
	07/13/92		10.77	---	11.55
	10/12/92		13.36	0.48	9.34
	01/12/93		6.40	<0.01	15.92
	04/06/93		5.93	---	16.39
	07/12/93		10.25	---	12.07
	10/13/93		12.28	0.2	10.20*
MW-7	08/06/91	20.36	8.00	---	12.36
	10/23/91		8.16	---	12.20
	01/28/92		7.11	---	13.25
	05/04/92		6.47	---	13.89
	07/13/92		7.73	---	12.63
	10/12/92		8.68	---	11.68
	01/12/93		6.26	---	14.10
	04/06/93		5.92	---	14.44
	07/12/93		7.27	---	13.09
	10/13/93		9.40	---	10.96
MW-8	08/06/91	20.95	9.60	---	11.35
	10/23/91		9.73	---	11.22
	01/28/92		7.72	---	13.23
	05/04/92		6.48	---	14.47
	07/13/92		8.55	---	12.40
	10/12/92		9.97	---	10.98
	01/12/93		6.94	---	14.01
	04/06/93		5.72	---	15.23
	07/12/93		7.65	---	13.30
	10/13/93		8.25	---	12.70
MW-9	08/06/91	21.19	10.33	---	10.86
	10/23/91		11.13	---	10.06

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Table 2. Ground Water Elevations - Shell Service Station WIC #204-5508-5306, 3420 San Pablo, Avenue, Oakland, California (continued)

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Floating Hydrocarbon Thickness	Ground Water Elevation (ft above msl) <sup>a</sup>
	01/28/92		9.02	---	12.17
	05/04/92		7.67	---	13.52
	07/13/92		10.26	---	10.93
	10/12/92		12.19	---	9.0
	01/12/93 <sup>b</sup>		---	---	---
	04/06/93 <sup>b</sup>		---	---	---
	07/12/93 <sup>b</sup>		---	---	---
	10/13/92		11.17	---	10.02
MW-10	10/23/91	19.74	8.57	---	11.17
	01/28/92		7.60	---	12.14
	05/04/92		7.54	---	12.20
	07/13/92		8.59	---	11.15
	10/12/92		10.23	---	9.51
	01/12/93 <sup>b</sup>		---	---	---
	04/06/93		6.70	---	13.04
	07/12/93 <sup>b</sup>		8.05	---	11.69
	10/13/93		8.25	---	11.49
MW-11	10/23/91	22.06	14.0	---	8.06
	01/28/92		8.74	---	3.32
	05/04/92		8.29	---	13.77
	07/13/92		10.50	---	11.56
	10/12/92		12.40	---	9.66
	01/12/93 <sup>b</sup>		---	---	---
	04/06/93 <sup>b</sup>		---	---	---
	07/12/93 <sup>b</sup>		---	---	---
	10/13/93		11.47	---	10.59

Notes:

a = When floating hydrocarbons are present ground water elevation is adjusted using the relation:

$$\text{Ground Water Elevation} = \text{Top-of-casing elevation} - \text{depth to water} + (0.8 \times \text{hydrocarbon thickness}).$$

b = Well inaccessible

Table 3. Analytical Results for Ground Water - Shell Service Station WIC #204-5508-5306, 3420 San Pablo Avenue, Oakland, California

Well ID	Date Sampled	Depth to Water (ft)	TPH-G B E T X				
			-----parts per billion (ug/L)-----				
MW-1	08/06/91 <sup>FHC</sup>	10.86	---	---	---	---	---
	10/23/91	11.05	32,000	2,700	550	360	3,700
	01/28/92	10.84	14,000	1,000	450	106	1,600
	05/05/92	9.42	98,000	11,000	3,500	1,200	18,000
	07/13/92	11.36	11,000	1,100	740	130	1,300
	10/12/92 <sup>FHC</sup>	13.14	---	---	---	---	---
	01/12/93 <sup>FHC</sup>	7.52	---	---	---	---	---
	04/06/93 <sup>FHC</sup>	7.13	---	---	---	---	---
	07/12/93 <sup>FHC</sup>	11.02	---	---	---	---	---
	10/13/93 <sup>FHC</sup>	12.18	---	---	---	---	---
MW-2	08/06/91	9.72	50,000	15,000	2,700	1,400	13,000
	10/23/91	10.03	120,000	11,000	3,500	1,400	19,000
	01/28/92	8.78	49,000	7,400	1,800	800	8,300
	05/05/92	7.58	52,000	12,000	2,200	1,100	12,000
	07/13/92	9.63	47,000	15,000	4,500	2,400	16,000
	10/12/92 <sup>FHC</sup>	11.66	---	---	---	---	---
	01/12/93 <sup>FHC</sup>	7.13	---	---	---	---	---
	04/06/93 <sup>FHC</sup>	6.40	---	---	---	---	---
	07/12/93	8.75	59,000	12,000	2,400	950	11,000
	10/13/93	10.28	54,000	14,000	3,700	1,200	22,000
MW-3	08/06/91	11.18	430	8	4	1	15
	10/23/91	11.69	390	2.1	0.48	<0.3	2
	01/28/92	9.99	190	<0.5	<0.5	<0.5	<0.5
	05/04/92	9.46	190	<1	<1	<1	0.71
	07/20/92	11.29	200 <sup>a</sup>	<0.5	<0.5	<0.5	<0.5
	10/12/92	13.10	180 <sup>a</sup>	<0.5	<0.5	<0.5	<0.5
	01/12/93	7.32	180	<0.5	0.9	2.3	5.6
	01/12/93 <sup>dup</sup>	7.32	260	<0.5	<0.5	<0.5	<0.5
	04/06/93 <sup>a</sup>	7.44	280	<0.5	<0.5	<0.5	<0.5
	07/12/93	10.62	310 <sup>a</sup>	<0.5	<0.5	<0.5	<0.5
10/13/93 <sup>a</sup>	12.05	150	<0.5	<0.5	<0.5	<0.5	
MW-4	08/06/91	10.57	1,300	28	68	18	150
	10/23/91	10.46	1,900	97	38	6.1	77
	01/28/92	9.54	200	7.6	3	<0.5	3.3
	05/04/92	8.33	690	98	13	3	<1
	07/13/92	9.87	1,500	140	17	2.9	12
	07/13/92 <sup>dup</sup>	9.87	870	95	10	1.9	7.1
	10/12/92 <sup>FHC</sup>	12.43	---	---	---	---	---
	01/12/93 <sup>FHC</sup>	7.12	---	---	---	---	---
	04/06/93 <sup>FHC</sup>	7.23	---	---	---	---	---
	07/12/93 <sup>FHC</sup>	10.08	---	---	---	---	---
10/13/93 <sup>FHC</sup>	11.35	---	---	---	---	---	

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Table 3. Analytical Results for Ground Water - Shell Service Station WIC #204-5508-5306, 3420 San Pablo Avenue, Oakland, California (continued)

Well ID	Date Sampled	Depth to Water (ft)	TPH-G	B	E	T	X
			<-----parts per billion (ug/L)----->				
MW-5	08/06/91	10.23	9,100	210	240	27	660
	10/23/91	10.89	12,000	92	230	18	450
	01/28/92	8.45	3,300	130	180	10	220
	05/04/92	8.05	3,900	95	260	<12.5	120
	07/13/92	10.00	4,100	180	250	12	73
	10/12/92 <sup>FHC</sup>	11.83	---	---	---	---	---
	01/12/93 <sup>FHC</sup>	6.10	---	---	---	---	---
	04/06/93	6.18	6,200	71	53	<0.5	150
	07/12/93	9.59	3,400	130	170	<0.5	130
	10/13/93 <sup>FHC</sup>	10.80	---	---	---	---	---
MW-6	08/06/91	10.61	28,000	1,400	1,300	200	4,200
	10/23/91	11.68	53,000	1,400	1,800	230	6,700
	01/28/92	8.90	87,000	1,200	2,000	470	6,600
	05/05/92	8.01	230,000	<500	3,200	<500	11,000
	07/13/92	10.77	2,700,000	<2,500	14,000	3,500	36,000
	10/12/92 <sup>FHC</sup>	8.68	---	---	---	---	---
	01/12/93 <sup>FHC</sup>	6.40	---	---	---	---	---
	04/06/93	5.93	320,000	2,500	5,400	980	14,000
	07/12/93	10.25	31,000	1,100	1,700	150	4,500
	07/12/93 <sup>dup</sup>	10.25	25,000	1,200	2,000	270	4,800
10/13/93 <sup>FHC</sup>	12.28	---	---	---	---	---	
MW-7	08/06/91	8.00	13,000	4,300	770	76	730
	10/23/91	8.16	18,000	3,200	660	31	770
	01/28/92	7.11	5,000	1,200	220	<10	54
	05/05/92	6.47	9,500	3,100	620	72	880
	07/13/92	7.73	20,000	4,200	1,600	130	1,100
	10/12/92	9.97	16,000	2,500	560	<50	170
	01/12/93	6.26	15,000	2,300	690	<0.5	440
	04/06/93	5.92	26,000	5,400	1,200	310	3,000
	04/06/93 <sup>dup</sup>	5.92	21,000	5,200	1,200	180	3,000
	07/12/93	7.27	10,000 <sup>a</sup>	3,000	510	100	530
10/13/93	9.40	59,000	13,000	4,400	4,400	20,000	
MW-8	08/06/91	9.60	32,000	3,700	1,400	1,100	6,100
	10/23/91	9.73	63,000	4,800	1,300	1,300	6,900
	01/28/92	7.72	32,000	1,900	1,400	750	6,300
	05/05/92	6.48	180,000	2,200	2,700	2,000	13,000
	07/13/92	8.55	56,000	4,500	2,700	1,500	9,100
	10/12/92	9.97	34,000	2,400	1,400	550	6,400
	10/12/92 <sup>dup</sup>	9.97	34,000	3,100	1,500	700	7,200
01/12/93	6.94	110,000	2,100	2,400	1,200	12,000	

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Table 3. Analytical Results for Ground Water - Shell Service Station WIC #204-5508-5306, 3420 San Pablo Avenue, Oakland, California (continued)

Well ID	Date Sampled	Depth to Water (ft)	TPH-G					X
			-----parts per billion (ug/L)-----					
	04/06/93	5.72	38,000	2,500	1,100	840	4,900	
	07/12/93	7.65	27,000	2,800	1,200	990	5,300	
	10/13/93	8.25	32,000	3,300	1,600	1,300	8,400	
	10/13/93 <sup>dup</sup>	8.25	47,000	3,200	1,600	1,300	8,500	
MW-9	08/06/91	10.33	11,000	1,700	520	95	1,400	
	10/23/91	11.13	20,000	1,000	<0.3	47	940	
	01/28/92	9.02	3,500	120	280	<10	36	
	05/04/92	7.67	7,700	1,200	380	<50	630	
	07/20/92	10.26	11,000	910	220	<50	1,200	
	10/12/92	12.19	2,100	340	77	15	44	
	01/12/93 <sup>b</sup>	---	---	---	---	---	---	
	04/06/93 <sup>b</sup>	---	---	---	---	---	---	
	07/12/93 <sup>b</sup>	---	---	---	---	---	---	
	10/13/93	11.17	2,900	140	<5	<5	120	
MW-10	10/23/91	8.57	27,000	1,600	1,800	110	510	
	01/28/92	7.60	3,800	360	170	14	39	
	05/04/92	7.54	3,000	360	140	<12.5	26	
	07/20/92	8.59	15,000	400	180	<25	67	
	10/12/92	10.23	16,000	320	360	<50	100	
	01/12/93 <sup>b</sup>	---	---	---	---	---	---	
	04/06/93	6.70	14,000	370	880	<0.5	210	
	07/12/93 <sup>b</sup>	8.05	10,000	440	890	58	220	
	10/13/93	8.25	15,000	1,000	810	51	170	
MW-11	10/23/91	8.06	140	<12	0.37	<0.3	0.56	
	01/28/92	13.32	<50	<0.5	<0.5	<0.5	<0.5	
	05/04/92	13.77	<50	<0.5	<0.5	<0.5	<0.5	
	07/13/92	11.56	140 <sup>b</sup>	<0.5	<0.5	<0.5	<0.5	
	10/12/92	12.40	75 <sup>b</sup>	<0.5	<0.5	<0.5	<0.5	
	01/12/93 <sup>b</sup>	---	---	---	---	---	---	
	04/06/93 <sup>b</sup>	---	---	---	---	---	---	
	07/12/93	---	---	---	---	---	---	
	10/13/93	11.47	<50	<0.5	<0.5	<0.5	<0.5	
Bailer	07/13/92		<50	<0.5	<0.5	<0.5	<0.5	
Blank	07/20/92		<50	<0.5	<0.5	<0.5	<0.5	
	10/12/92		<50	<0.5	<0.5	<0.5	<0.5	
Trip	01/28/92		<50	<0.5	<0.5	<0.5	<0.5	
Blank	05/05/92		<50	<0.5	<0.5	<0.5	<0.5	
	07/13/92		<50	<0.5	<0.5	<0.5	<0.5	
	07/20/92		<50	<0.5	<0.5	<0.5	<0.5	
	10/12/92		<50	<0.5	<0.5	<0.5	<0.5	
	01/12/93		<50	<0.5	<0.5	<0.5	<0.5	
	04/06/93		<50	<0.5	<0.5	<0.5	<0.5	



Table 3. Analytical Results for Ground Water - Shell Service Station WIC #204-5508-5306, 3420 San Pablo Avenue, Oakland, California (continued)

Well ID	Date Sampled	Depth to Water (ft)	TPH-G B E T X				
			-----parts per billion (ug/L)-----				
	07/12/93		<0.05	<0.5	<0.5	<0.5	<0.5
	10/13/93		<50	<0.5	<0.5	<0.5	<0.5
DTSC MCLs			NE	0.001	0.680	0.10 <sup>c</sup>	1.750

**Abbreviations:**

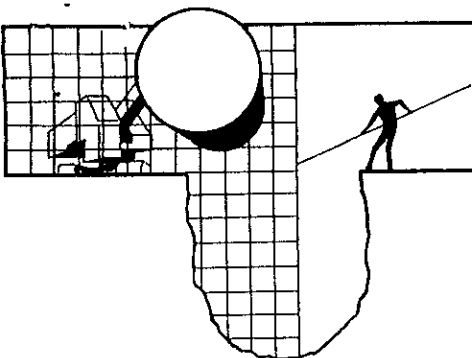
TPH-G = Total petroleum hydrocarbons as gasoline by Modified EPA Method 8015  
 TPH-D = Total petroleum hydrocarbons as diesel by Modified EPA Method 8015  
 TPH-MO = Total petroleum hydrocarbons as motor oil by Modified EPA Method 8015  
 B = Benzene by EPA Method 8020  
 E = Ethylbenzene by EPA Method 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  
 <n = Not detected at detection limits of n ppb

dup = Duplicate sample  
 FHC = Not sampled, floating hydrocarbons detected in well

**Notes:**

a = Concentration reported as gasoline is due to the presence of a discrete hydrocarbon peak that is not indicative of gasoline  
 b = Not sampled. Well inaccessible  
 c = DTSC recommended action level; MCL not established

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



November 2, 1993

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

Attn: Daniel T. Kirk

SITE:  
Shell WIC #204-5508-5306  
3420 San Pablo Avenue  
Oakland, California

QUARTER:  
4th quarter of 1993

## **QUARTERLY GROUNDWATER SAMPLING REPORT 931013-W-1**

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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 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.



## 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 are removed in cases where more evacuation is needed to achieve stabilization of water parameters and when requested by the local implementing agency. Less water may be removed 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. Effluent water from purging and on-site equipment cleaning is collected and transported to Shell's Martinez Manufacturing Complex in Martinez, California.

### 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 sites 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.

### **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 Anamatrix, Inc. in San Jose, California. Anamatrix, Inc. is a California Department of Health Services certified Hazardous Materials Testing Laboratory and is listed as DOHS HMTL #1234.

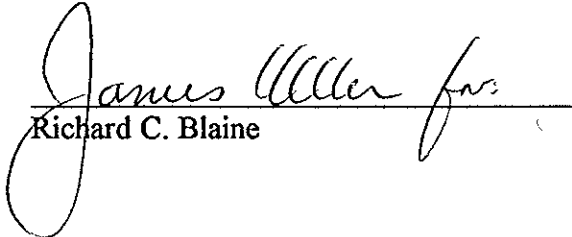
## **Objective Information Collection**

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/lp

attachments: table of well gauging data  
chain of custody  
certified analytical report

cc: Weiss Associates  
5500 Shellmound Street  
Emeryville, CA 94608-2411  
ATTN: Michael Asport

## TABLE OF WELL GAUGING DATA


WELL I.D.	DATA COLLECTION DATE	MEASUREMENT REFERENCED TO	QUALITATIVE OBSERVATIONS (sheen)	DEPTH TO FIRST IMMISCIBLES LIQUID (FPZ) (feet)	THICKNESS OF IMMISCIBLES LIQUID ZONE (feet)	VOLUME OF IMMISCIBLES REMOVED (ml)	DEPTH TO WATER (feet)	DEPTH TO WELL BOTTOM (feet)
MW-1	10/13/93	TOC	FREE PRODUCT	12.17	0.01	40	12.18	--
MW-2	10/13/93	TOC	SHEEN/ODOR	--	--	--	10.28	19.30
MW-3	10/13/93	TOC	--	NONE	--	--	12.05	27.55
MW-4	10/13/93	TOC	FREE PRODUCT	11.23	0.12	500	11.35	--
MW-5	10/13/93	TOC	FREE PRODUCT	10.77	0.03	--	10.80	--
MW-6	10/13/93	TOC	FREE PRODUCT	12.08	0.2	--	12.28	--
MW-7	10/13/93	TOC	ODOR	NONE	--	--	9.40	20.14
MW-8 *	10/13/93	TOC	ODOR	NONE	--	--	8.25	20.00
MW-9	10/13/93	TOC	ODOR	NONE	--	--	11.17	19.74
MW-10	10/13/93	TOC	ODOR	NONE	--	--	8.25	18.83
MW-11	10/13/93	TOC	--	NONE	--	--	11.47	19.00

\* Sample DUP was a duplicate sample taken from well MW-8.

57-18

931023 9310239 97M 10-18-93

(B)

 <b>SHELL OIL COMPANY</b> RETAIL ENVIRONMENTAL ENGINEERING - WEST						<b>CHAIN OF CUSTODY RECORD</b> Serial No: <u>931023W1</u>						Date: <u>10/13/93</u> Page <u>1</u> of <u>2</u>																																																																																																																																																																																		
Silo Address: 3420 San Pablo Ave. Oakland WIC#: 204-5506-5306 Shell Engineer: Dan Kirk Phone No.: (510) 675-6168 Fax #: 675-6160 Consultant Name & Address: Blaine Tech Services, Inc. 985 Timothy Drive San Jose, CA 95133 Consultant Contact: Jim Keller Phone No.: (408) 995-5535 Fax #: 293-8773 Comments:						<b>Analysis Required</b> TPH (EPA 8015 Mod. Gas) <input type="checkbox"/> TPH (EPA 8015 Mod. Diesel) <input type="checkbox"/> BTEX (EPA 8020/602) <input type="checkbox"/> Volatile Organics (EPA 8240) <input type="checkbox"/> Test for Disposal <input type="checkbox"/> Combination TPH 8015 & BTEX 8020 <input type="checkbox"/> Asbestos <input type="checkbox"/> Container Size <input type="checkbox"/> Preparation Used <input type="checkbox"/> Composite Y/N <input type="checkbox"/>						LAB: <u>Anamatrix</u> CHECK ONE (1) BOX ONLY C1/DT1 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/Disposal <input type="checkbox"/> 6442 16 days <input checked="" type="checkbox"/> (Normal) Water Classfy/Disposal <input type="checkbox"/> 6443 Other <input type="checkbox"/> Soil/Air Rem. of Sys. O & M <input type="checkbox"/> 6462 Water Rem. of Sys. O & M <input type="checkbox"/> 6463 Other <input type="checkbox"/> NOTE: Notify Lab as soon as possible of 24/48 hr. LAT.																																																																																																																																																																																		
Sampled by: <u>Don Wertz</u> Printed Name: <u>DON WERTZ</u>						<table border="1"> <thead> <tr> <th>Sample ID</th> <th>Date</th> <th>Sludge</th> <th>Soil</th> <th>Water</th> <th>Air</th> <th>No. of Confs.</th> <th>TPH (EPA 8015 Mod. Gas)</th> <th>TPH (EPA 8015 Mod. Diesel)</th> <th>BTEX (EPA 8020/602)</th> <th>Volatile Organics (EPA 8240)</th> <th>Test for Disposal</th> <th>Combination TPH 8015 &amp; BTEX 8020</th> <th>Asbestos</th> <th>Container Size</th> <th>Preparation Used</th> <th>Composite Y/N</th> <th>MATERIAL DESCRIPTION</th> <th>SAMPLE CONDITION/ COMMENTS</th> </tr> </thead> <tbody> <tr> <td>① MW-3</td> <td>10/13</td> <td></td> <td></td> <td>X</td> <td></td> <td>3</td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Groundwater</td> <td></td> </tr> <tr> <td>② MW-11</td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td>3</td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>"</td> <td></td> </tr> <tr> <td>③ EB</td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td>3</td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Equip blank</td> <td></td> </tr> <tr> <td>④ TB</td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>trip blank</td> <td></td> </tr> <tr> <td>⑤ MW 7</td> <td>10/14</td> <td></td> <td></td> <td>W</td> <td></td> <td>3</td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Tube received with particles and floating product.</td> <td></td> </tr> <tr> <td>⑥ MW 8</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>3</td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>⑦ MW 2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>3</td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>⑧ MW 9</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>3</td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>						Sample ID	Date	Sludge	Soil	Water	Air	No. of Confs.	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-3	10/13			X		3					X							Groundwater		② MW-11				X		3					X							"		③ EB				X		3					X							Equip blank		④ TB				X		2					X							trip blank		⑤ MW 7	10/14			W		3					X							Tube received with particles and floating product.		⑥ MW 8						3					X									⑦ MW 2						3					X									⑧ MW 9						3					X								
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Relinquished by (Signature): <u>[Signature]</u> Relinquished by (Signature): <u>[Signature]</u> Relinquished by (Signature):		Printed Name: <u>DON WERTZ</u> Printed Name: <u>BENNY S. GARIBOSA</u> Printed Name:		Date: <u>10-18-93</u> Date: <u>10-18-93</u> Date: <u>0955</u>		Received (Signature): <u>[Signature]</u> Received (Signature): <u>[Signature]</u> Received (Signature):		Printed Name: <u>BENNY S. GARIBOSA</u> Printed Name: <u>Maribel Parajas</u> Printed Name:		Date: <u>10/13/93</u> Date: <u>07-55</u> Date:																																																																																																																																																																																				



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

**CHAIN OF CUSTODY RECORD**  
Serial No: 93023W1

Date: 10/13/93  
Page 2 of 2

931023B <sup>gm 10-18-93</sup> 9310239 (18)

Silo Address: 3420 San Pablo Ave. Oakland  
WIC#: 204-5506-5306  
Shell Engineer: Dan Kirk  
Phone No.: (510) 675-6168  
Fax #: 675-6160  
Consultant Name & Address: Blaine Tech Services, Inc.  
985 Timothy Drive San Jose, CA 95133  
Consultant Contact: Jim Keller  
Phone No.: (408) 995-5535  
Fax #: 293-8773  
Comments:

Sampled by: Jeff Curtis  
Printed Name: JEFF CURTIS

**Analysis Required**

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
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LAB: Anamatrix

CHECK ONE (1) BOX ONLY	CI/DI	TURN AROUND TIME
Quantity Monitoring <input checked="" type="checkbox"/> 6441		24 hours <input type="checkbox"/>
Site Investigation <input type="checkbox"/> 6441		48 hours <input type="checkbox"/>
Soil Classify/Disposal <input type="checkbox"/> 6442		16 days <input checked="" type="checkbox"/> (Normal)
Water Classify/Disposal <input type="checkbox"/> 6443		Other <input type="checkbox"/>
Soil/Air Rem. of Syst. O & M <input type="checkbox"/> 6462		
Water Rem. of Syst. O & M <input type="checkbox"/> 6463		
Other <input type="checkbox"/>		

NOTE: Natty Lab as soon as possible of 24/48 hr. TAT.

Sample ID	Date	Sludge	Soil	Water	Air	No. of conis.	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	
<del>MW-2</del>	<del>10/14</del>			W		3						X						ground	
DUP	10/14			W		3						X						water	
MW-10	10/14/93			W		3						X							

already written the first cell  
9  
10

Relinquished By (Signature): <u>[Signature]</u>	Printed Name: <u>[Name]</u>	Date: <u>10-18-93</u>	Time: <u>0930</u>	Received (Signature): <u>[Signature]</u>	Printed Name: <u>Benny S. Carrizosa</u>	Date: <u>10-18-93</u>	Time: <u>0930</u>
Relinquished By (Signature): <u>[Signature]</u>	Printed Name: <u>Benny S. Carrizosa</u>	Date: <u>10-18-93</u>	Time: <u>0935</u>	Received (Signature): <u>[Signature]</u>	Printed Name: <u>Maria Parajas</u>	Date: <u>10/18/93</u>	Time: <u>09:55</u>
Relinquished By (Signature):	Printed Name:	Date:	Time:	Received (Signature):	Printed Name:	Date:	Time:



# Inchcape Testing Services

## Anamatrix Laboratories

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

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

Workorder # : 9310239  
 Date Received : 10/18/93  
 Project ID : 204-5506-5306  
 Purchase Order: MOH-B813

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

ANAMATRIX ID	CLIENT SAMPLE ID
9310239- 1	MW-3
9310239- 2	MW-11
9310239- 3	EB
9310239- 4	TB
9310239- 5	MW-7
9310239- 6	MW-8
9310239- 7	MW-2
9310239- 8	MW-9
9310239- 9	DUP
9310239-10	MW-10

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*

Sarah Schoen, Ph.D.  
 Laboratory Director

*10-29-93*

Date

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

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

Workorder # : 9310239  
Date Received : 10/18/93  
Project ID : 204-5506-5306  
Purchase Order: MOH-B813  
Department : GC  
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9310239- 1	MW-3	WATER	10/13/93	TPHgBTEX
9310239- 2	MW-11	WATER	10/13/93	TPHgBTEX
9310239- 3	EB	WATER	10/13/93	TPHgBTEX
9310239- 4	TB	WATER	10/13/93	TPHgBTEX
9310239- 5	MW-7	WATER	10/14/93	TPHgBTEX
9310239- 6	MW-8	WATER	10/14/93	TPHgBTEX
9310239- 7	MW-2	WATER	10/14/93	TPHgBTEX
9310239- 8	MW-9	WATER	10/14/93	TPHgBTEX
9310239- 9	DUP	WATER	10/14/93	TPHgBTEX
9310239-10	MW-10	WATER	10/14/93	TPHgBTEX



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

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

Workorder # : 9310239  
Date Received : 10/18/93  
Project ID : 204-5506-5306  
Purchase Order: MOH-B813  
Department : GC  
Sub-Department: TPH

QA/QC SUMMARY :

- The concentration reported as TPHg for sample MW-3 is primarily due to the presence of a discrete peak not indicative of gasoline.

Cheryl Balman                      10/29/93  
Department Supervisor                      Date

Charles Runch                      10-29-93  
Chemist    Date

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

Anamatrix W.O.: 9310239  
Matrix : WATER  
Date Sampled : 10/13 & 14/93

Project Number : 204-5506-5306  
Date Released : 10/29/93

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# MW-3	Sample I.D.# MW-11	Sample I.D.# EB	Sample I.D.# TB	Sample I.D.# MW-7
Benzene	0.5	ND	ND	ND	ND	13000
Toluene	0.5	ND	ND	ND	ND	4400
Ethylbenzene	0.5	ND	ND	ND	ND	4400
Total Xylenes	0.5	ND	ND	ND	ND	20000
TPH as Gasoline	50	150	ND	ND	ND	59000
% Surrogate Recovery		130%	133%	102%	108%	103%
Instrument I.D.		HP21	HP21	HP21	HP21	HP21
Date Analyzed		10/22/93	10/22/93	10/24/93	10/22/93	10/26/93
RLMF		1	1	1	1	500

- 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 (Dilution).

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

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

Charles M. Burch 10-29-93  
Analyst Date

Cheryl Baerman 10/29/93  
Supervisor Date

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

Anamatrix W.O.: 9310239  
Matrix : WATER  
Date Sampled : 10/14/93

Project Number : 204-5506-5306  
Date Released : 10/29/93

Reporting Limit	Sample I.D.# MW-8	Sample I.D.# MW-2	Sample I.D.# MW-9	Sample I.D.# DUP	Sample I.D.# MW-10	
COMPOUNDS (ug/L)	-06	-07	-08	-09	-10	
Benzene	0.5	3300	14000	140	3200	1000
Toluene	0.5	1300	1200	ND	1300	51
Ethylbenzene	0.5	1600	3700	ND	1600	810
Total Xylenes	0.5	8400	22000	120	8500	170
TPH as Gasoline	50	32000	54000	2900	47000	15000
% Surrogate Recovery	97%	100%	105%	97%	115%	
Instrument I.D.	HP21	HP21	HP21	HP21	HP21	
Date Analyzed	10/25/93	10/27/93	10/25/93	10/25/93	10/25/93	
RLMF	250	500	10	250	25	

- 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 (Dilution).

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

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

Charles M. Burk 10-29-93  
Analyst Date

Cheryl Kramer 10/29/93  
Supervisor Date

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

Anamatrix W.O.: 9310239  
Matrix : WATER  
Date Sampled : N/A

Project Number : 204-5506-5306  
Date Released : 10/29/93

Reporting Limit	Sample I.D.#	Sample I.D.#	Sample I.D.#	Sample I.D.#	Sample I.D.#
	B02101E1	B02401E1	B02501E1	B02601E1	B02701E1
COMPOUNDS (ug/L)	BLANK	BLANK	BLANK	BLANK	BLANK
Benzene	0.5	ND	ND	ND	ND
Toluene	0.5	ND	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND	ND
Total Xylenes	0.5	ND	ND	ND	ND
TPH as Gasoline	50	ND	ND	ND	ND
% Surrogate Recovery	106%	97%	100%	107%	102%
Instrument I.D.	HP21	HP21	HP21	HP21	HP21
Date Analyzed	10/21/93	10/24/93	10/25/93	10/26/93	10/27/93
RLMF	1	1	1	1	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 (Dilution).

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

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

Charlyl Bauman 10-29-93  
Analyst Date

Charlyl Bauman 10/29/93  
Supervisor Date

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.: MO2103E3
Matrix : WATER	Analyst : <i>CMB</i>
Date Sampled : N/A	Supervisor : <i>CS</i>
Date Analyzed : 10/22/93	Date Released : 10/24/93
	Instrument ID : HP21

COMPOUND	SPIKE AMT. (ug/L)	LCS (ug/L)	REC LCS	%REC LIMITS
Benzene	20.0	16.6	83%	52-133
Toluene	20.0	20.0	100%	57-136
Ethylbenzene	20.0	23.3	117%	56-139
Total Xylenes	20.0	24.0	120%	56-141
P-BFB			100%	61-139

\* Quality control limits established by Anamatrix, Inc.

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

Sample I.D. : LAB CONTROL SAMPLE  
 Matrix : WATER  
 Date Sampled : N/A  
 Date Analyzed : 10/24/93

Anamatrix I.D. : MO2401E1  
 Analyst : *CMB*  
 Supervisor : *ds*  
 Date Released : 10/29/93  
 Instrument I.D. : HP21

COMPOUND	SPIKE AMT. (ug/L)	LCS (ug/L)	REC LCS	%REC LIMITS *
Benzene	20.0	20.8	104%	52-133
Toluene	20.0	20.6	103%	57-136
Ethylbenzene	20.0	20.7	103%	56-139
Total Xylenes	20.0	19.9	99%	56-141
P-BFB			98%	61-139

\* Quality control limits established by Anamatrix, Inc.