Weiss Associates Environmental and Geologic Services

5500 Shellmound Street, Emeryville, CA 94608-2411 Fax: 510-547-5043 Phone: **510-450-6000**

ALCO HAZMAT

94 APR 14 PM 12:34

April 8, 1994

STID 381

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

Re: Shell Service Station
WIC #204-5508-5306
3420 San Pablo Avenue
Oakland, California
WA Job #81-612-104

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 first quarter 1994 and proposed work for the second quarter 1994.

First Quarter 1994 Activities:

- Weiss Associates (WA) evaluated the results of a soil vapor extraction (SVE) test conducted at the site. The SVE test results, which are enclosed with this report as Attachment A, concludes that SVE may be a viable remedial alternative at this site.

- Blaine Tech Services (BTS) of San Jose, California measured ground water depths in all eleven site wells and collected ground water samples from the wells. BTS' report describing these activities and presenting analytic results for ground water is included as Attachment B.

- BTS removed <0.02 gallons of floating hydrocarbons from skimmers in wells MW-1 and MW-4 this quarter (Table 1). To date, approximately 2.29 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).

Anticipated Second Quarter 1994 Activities:

- WA will submit a report presenting the results of the second 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, and MW-4. 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.

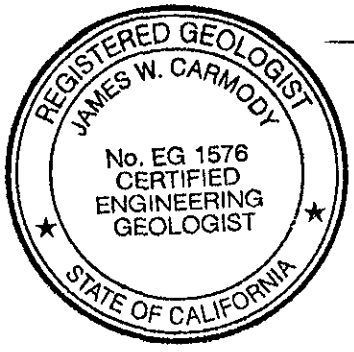
Conclusions and Recommendations:

Ground water elevations have increased. This elevation increase still continues to result 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.

Please call if you have any questions.

Sincerely,
Weiss Associates



J. Michael Asport
Technical Assistant

James W. Carmody, C.E.G.
Senior Project Hydrogeologist

JMA/JWC:jma

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Attachments: A - WA's Soil Vapor Extraction Test Report
B - 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

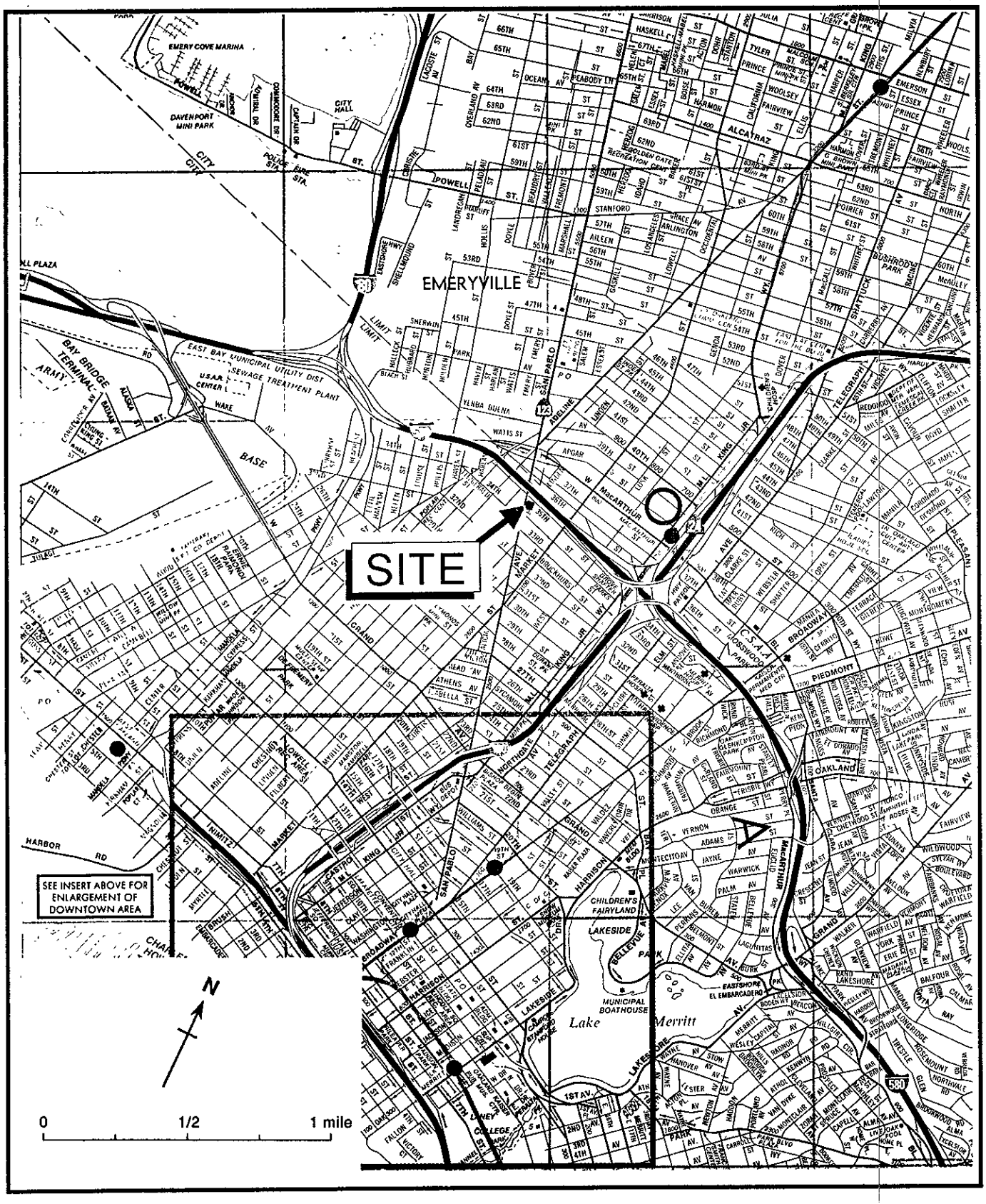

Figure 1. Site Location Map - Shell Service Station WIC #204-5508-5306, 3420 San Pablo Avenue, Oakland, California

2/13/92

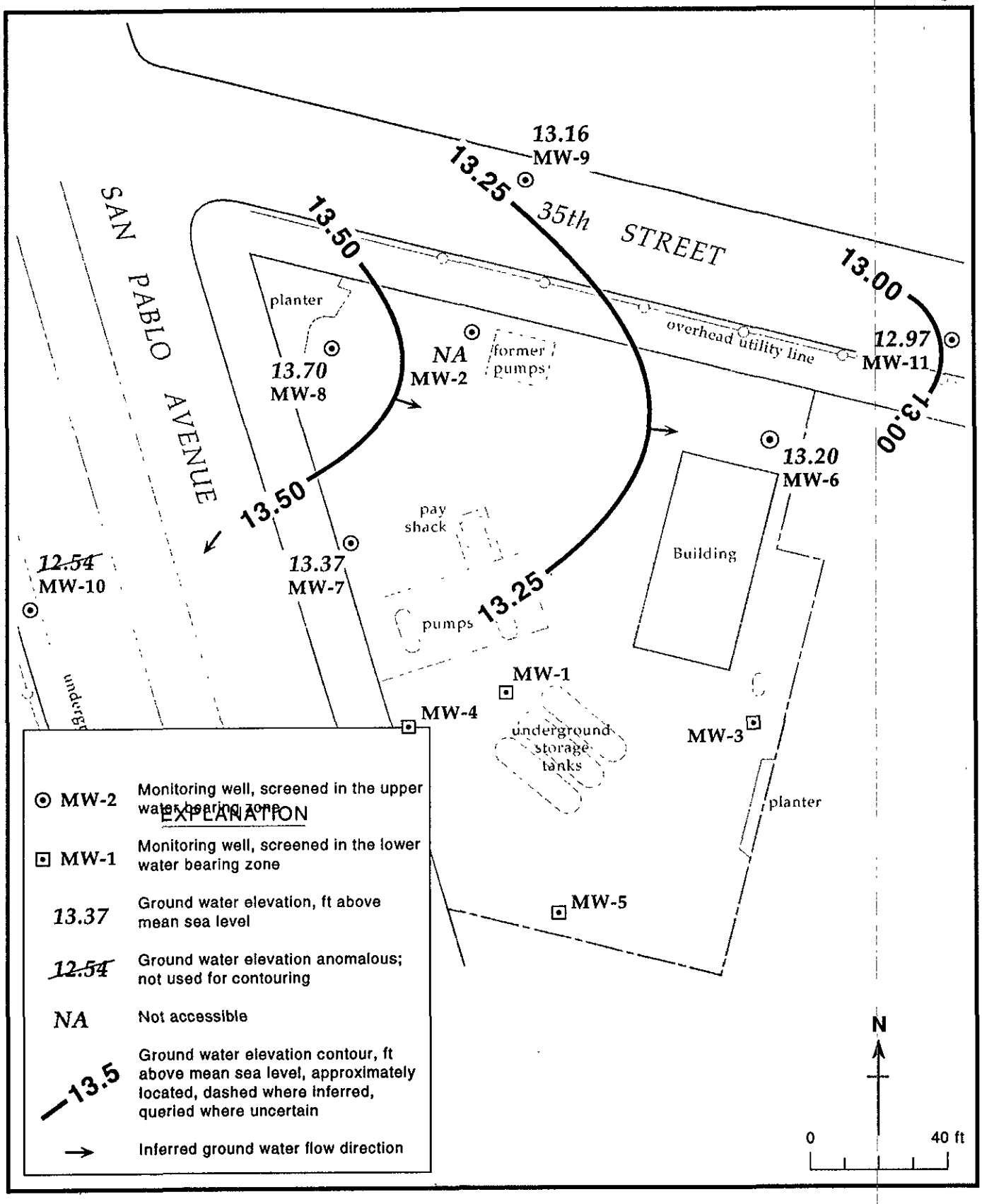

Figure 2. Monitoring Well Locations and Ground Water Elevation Contours, Upper Water Bearing Zone - January 20, 1994 - Shell Service Station WIC #204-5508-5306, 3420 San Pablo Avenue, Oakland, California

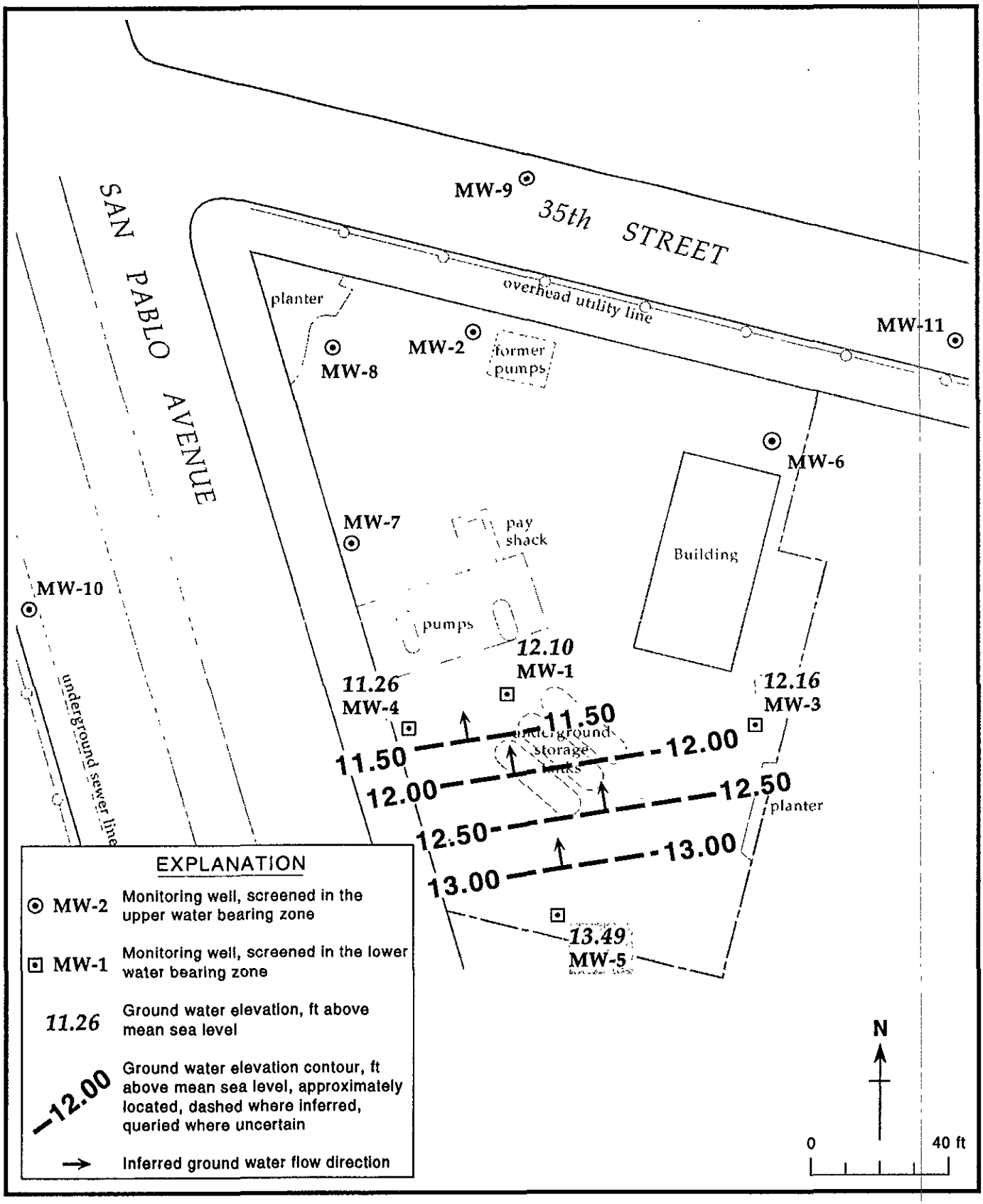

Figure 3. Monitoring Well Locations and Ground Water Elevation Contours, Lower Water Bearing Zone - January 20, 1994 - Shell Service Station WIC #204-5508-5306, 3420 San Pablo Avenue,

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
	01/20/94	**0.01**	**<0.01**	**0.70**
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
	01/20/94	**0.02**	**<0.01**	**1.20**
MW-5	10/12/92	0.01	---	---
	01/12/93	<0.01	---	---
	10/13/93	0.03	---	---
	01/20/94	**0.01**	---	---
MW-6	10/12/92	0.48	---	---
	01/12/93	<0.01	---	---
	10/13/93	0.2	---	---
	01/20/94	**0.02**	---	---
MW-7	**01/20/94**	**0.05**	---	---
		Total Floating Hydrocarbons Removed		2.29

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)[a]
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[a]
	01/20/94		**9.18**	**0.01**	**12.10**
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
	01/20/94		**---**	**---**	**---**
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
	01/20/94		**9.62**	**---**	**12.16**
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

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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)[a]
	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
	01/20/94		**9.06**	**0.02**	**11.26**
MW-5	08/06/91	20.91	10.23	---	10.68
	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[a]
	01/20/94		**7.42**	**0.01**	**13.49**
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[a]
	01/20/94		**9.14**	**0.02**	**13.20**
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

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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)[a]
	07/12/93		7.27	---	13.09
	10/13/93		9.40	---	10.96
	01/20/94		**7.03**	**0.05**	**13.37**
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
	01/20/94		**7.25**	**---**	**13.70**
MW-9	08/06/91	21.19	10.33	---	10.86
	10/23/91		11.13	---	10.06
	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[b]		---	---	---
	04/06/93[b]		---	---	---
	07/12/93[b]		---	---	---
	10/13/92		11.17	---	10.02
	01/20/94		**8.03**	**---**	**13.16**
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[b]		---	---	---
	04/06/93		6.70	---	13.04
	07/12/93[b]		8.05	---	11.69
	10/13/93		8.25	---	11.49
	01/20/94		**7.20**	**---**	**12.54**

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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)[a]
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[b]		---	---	---
	04/06/93[b]		---	---	---
	07/12/93[b]		---	---	---
	10/13/93		11.47	---	10.59
	01/20/94		**9.09**	**---**	**12.97**

Notes:

a = When floating hydrocarbons are present ground water elevation is adjusted using the relation: *Ground Water Elevation = Top-of-casing elevation - depth to water + (0.8 x hydrocarbon thickness)*.

b = Well inaccessible, coverd by construction debris.

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[FHC]	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[FHC]	13.14	---	---	---	---	---
	01/12/93[FHC]	7.52	---	---	---	---	---
	04/06/93[FHC]	7.13	---	---	---	---	---
	07/12/93[FHC]	11.02	---	---	---	---	---
	10/13/93[FHC]	12.18	---	---	---	---	---
	01/20/94[FHC]	9.18	---	---	---	---	---
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[FHC]	11.66	---	---	---	---	---
	01/12/93[FHC]	7.13	---	---	---	---	---
	04/06/93[FHC]	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
	01/20/94	---	---	---	---	---	---
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[a]	<0.5	<0.5	<0.5	<0.5
	10/12/92	13.10	180[a]	<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[dup]	7.32	260	<0.5	<0.5	<0.5	<0.5
	04/06/93[a]	7.44	280	<0.5	<0.5	<0.5	<0.5
	07/12/93	10.62	310[a]	<0.5	<0.5	<0.5	<0.5
	10/13/93[a]	12.05	150	<0.5	<0.5	<0.5	<0.5
	01/20/94	9.62	180	<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[dup]	9.87	870	95	10	1.9	7.1
	10/12/92[FHC]	12.43	---	---	---	---	---
	01/12/93[FHC]	7.12	---	---	---	---	---
	04/06/93[FHC]	7.23	---	---	---	---	---
	07/12/93[FHC]	10.08	---	---	---	---	---

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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)---------->				
	10/13/93[FHC]	11.35	---	---	---	---	---
	01/20/94[FHC]	9.06	---	---	---	---	---
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[FHC]	11.83	---	---	---	---	---
	01/12/93[FHC]	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[FHC]	10.80	---	---	---	---	---
	01/20/94[FHC]	7.42	---	---	---	---	---
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[FHC]	8.68	---	---	---	---	---
	01/12/93[FHC]	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[dup]	10.25	25,000	1,200	2,000	270	4,800
	10/13/93[FHC]	12.28	---	---	---	---	---
	01/20/94[FHC]	9.14	---	---	---	---	---
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[dup]	5.92	21,000	5,200	1,200	180	3,000
	07/12/93	7.27	10,000[a]	3,000	510	100	530
	10/13/93	9.40	59,000	13,000	4,400	4,400	20,000
	01/20/94[FHC]	7.03	---	---	---	---	---
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

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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)---------->				
	10/12/92[dup]	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
	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[dup]	8.25	47,000	3,200	1,600	1,300	8,500
	01/20/94	**7.25**	**78,000**	**1,900**	**1,300**	**670**	**6,600**
	01/20/94[dup]	**7.25**	**60,000**	**1,700**	**1,100**	**680**	**5,500**
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[b]	---	---	---	---	---	---
	04/06/93[b]	---	---	---	---	---	---
	07/12/93[b]	---	---	---	---	---	---
	10/13/93	11.17	2,900	140	<5	<5	120
	01/20/94	**8.03**	**1,700**	**380**	**150**	**6.9**	**400**
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[b]	---	---	---	---	---	---
	04/06/93	6.70	14,000	370	880	<0.5	210
	07/12/93[b]	8.05	10,000	440	890	58	220
	10/13/93	8.25	15,000	1,000	810	51	170
	01/20/94	**7.20**	**12,000**	**820**	**1,100**	**56**	**350**
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[b]	<0.5	<0.5	<0.5	<0.5
	10/12/92	12.40	75[b]	<0.5	<0.5	<0.5	<0.5
	01/12/93[b]	---	---	---	---	---	---
	04/06/93[b]	---	---	---	---	---	---
	07/12/93	---	---	---	---	---	---
	10/13/93	11.47	<50	<0.5	<0.5	<0.5	<0.5
	01/20/94	**9.09**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Bailer Blank	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

-- Table 3 continues on next page --

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)---------->				
Trip Blank	01/28/92		<50	<0.5	<0.5	<0.5	<0.5
	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
	07/12/93		<05	<0.5	<0.5	<0.5	<0.5
	10/13/93		<50	<0.5	<0.5	<0.5	<0.5
	01/20/94		**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
DTSC MCLs			NE	0.001	0.680	0.10[c]	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

WEISS ASSOCIATES SOIL VAPOR EXTRACTION TEST REPORT

Weiss Associates
Environmental and Geologic Services
5500 Shellmound Street, Emeryville, CA 94608-2411
Fax. 510-547-5043 Phone: 510-450-6000

January 27, 1994

Dan Kirk
Shell Oil Company
P.O. Box 5278
Concord, California 94520-9998

Re: Soil Vapor Extraction Test Results
Shell Service Station
WIC #204-5508-5306
3420 San Pablo Avenue
Oakland, California
WA Job #81-612-88

Dear Mr. Kirk:

This letter presents the results of Weiss Associates' (WA) soil vapor extraction (SVE) test at the Shell service station referenced above (Figure 1) on November 16, 1993. The test protocol, results, and conclusions are described below.

Test Protocol

We used a VR System V3 engine to test wells MW-1, MW-2, MW-4 and MW-6 individually for 15 minutes each to assess which wells could produce the most vapor-phase hydrocarbons. Based on these short test, we selected wells MW-1 and MW-6 for longer-term testing. While performing the SVE test on MW-1, we monitored vacuum influence in wells MW-3 and MW-4. During the SVE test on MW-6, we monitored vacuum influence in well MW-2. Nearby well MW-11 was not monitored because it was in the street and could not be accessed safely.

Test Results

During extraction from each well, we adjusted the vacuum applied to maximize the flow rate from the well and to avoid pulling ground water into the SVE system. The applied vacuum ranged from 40 to 64 inches of water. The achieved vapor flow rates ranged from 8 to 19 scfm. The hydrocarbon concentrations in soil vapor ranged from 1,400 to 4,500 ppmv TPH-G based on laboratory analytic results, while TPH-G removal rates ranged from 7 to 32 pounds per day.

The 9,000 ppmv methane detected in soil vapor extracted from well MW-6 may suggest anaerobic biologic activity in the subsurface.

The vacuum influence data during extraction from well MW-1 suggests that the *actual* radius of influence extends beyond 30 ft. However the relatively small measured influence suggests that the *effective* radius of influence may be less than 30 ft. The vacuum influence data during extraction from MW-6 is unreliable since the measured vacuum may be attributed to residual vacuum from testing of MW-2 earlier in the day.

Test Conclusions

Based on these test results, SVE may remove vapor-phase hydrocarbons from the subsurface at moderate rates. However, the benzene removal may be negligible since no benzene was detected in the extracted soil vapor. If you implement SVE at this site, the achievable vapor flow rates will be limited by the ground water upwelling in the extraction wells and the shallow depth of water.

We appreciate this opportunity to provide hydrogeologic consulting services to Shell. Please call Bob Clark-Riddell or Scott MacLeod if you have any questions.

Sincerely,
Weiss Associates

Joyce E. Adams

Joyce E. Adams
Senior Staff Geologist

Bob Clark-Riddell

Bob Clark-Riddell, P.E.
Project Engineer

JEA/BGR:jca

J:\HC_ENG\SHELL\OAK-612\612L1DE3.WP

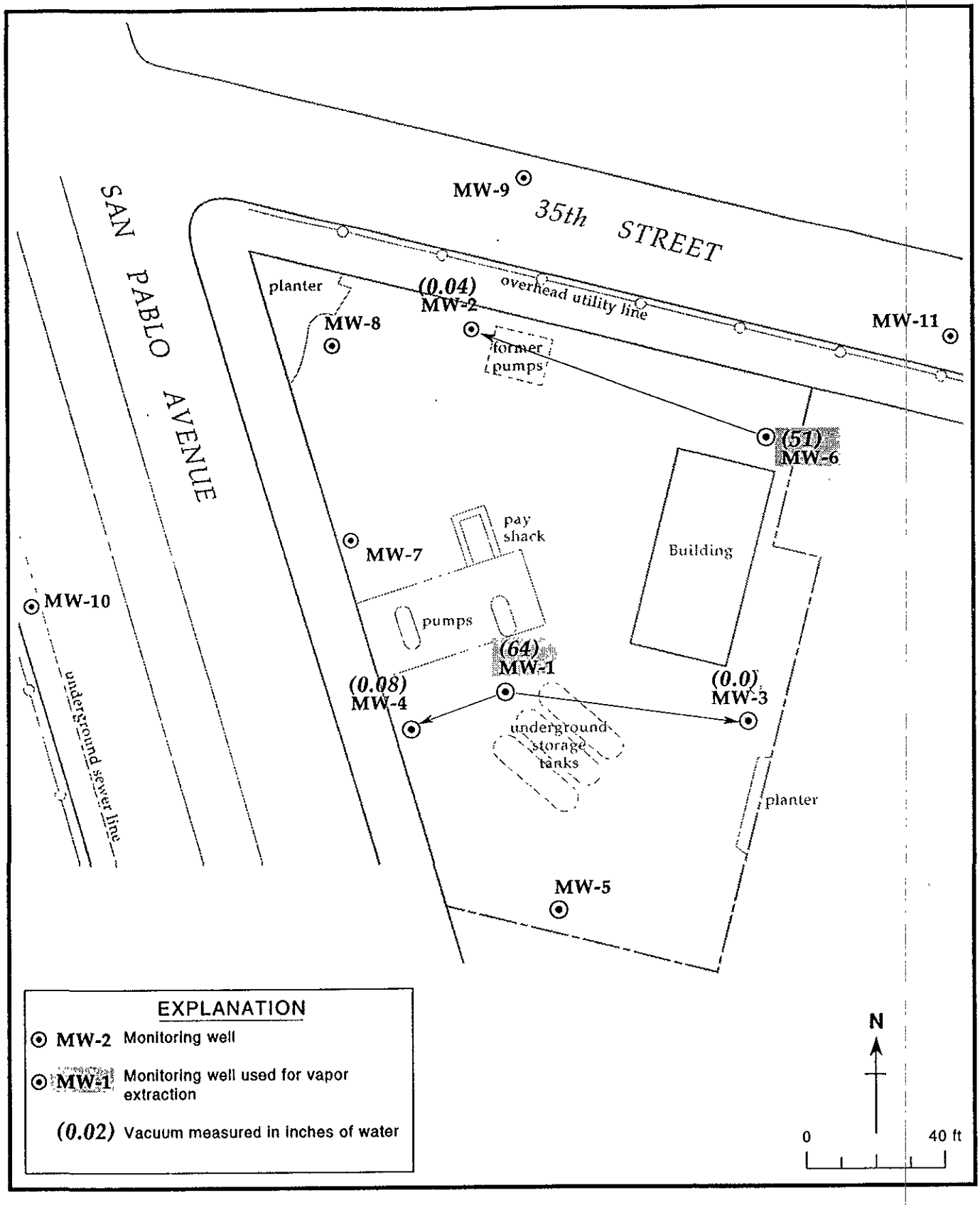

Figure 1. Well Location Map and Vacuum Measurements - Shell Service Station WIC #204-5508-5306, 3420 San Pablo Avenue, Oakland, California

Table 1. Soil Vapor Extraction Test Data - Shell Service Station WIC# 204-5508-5306, 3420 San Pablo, Oakland, California

WELL ID	EXPOSED SCREEN DEPTH (a) (ft)	VACUUM APPLIED (inches H2O)	FLOW RATE (scfm)	ELAPSED TIME (min)	INLET CONCENTRATION FID	TPH-G	BENZENE	MASS REMOVAL (b) TPH-G (lb/day)	BENZENE (lb/day)	VACUUM INFLUENCE WELL ID	DISTANCE (ft)	VACUUM ("H2O)	
					<----------ppmv---------->								
MW-1	5 - 10.6	60	9	5	> 10,000	---	---	> 29	0.0	MW-3	68	0.00	
										MW-4	30	0.02	
MW-1	5 - 10.6	64	8	180	> 10,000	2,900	< 4	7	< 0.01	MW-3	68	0.00	
										MW-4	30	0.08	
MW-2	4. - 10.4	40	10	3	> 10,000	---	---	> 32	0.0	---	---	---	
MW-2	4. - 10.4	40	9	10	> 10,000	---	---	> 29	0.0	---	---	---	
MW-4	5 - 11.4	55	4	14	> 10,000	---	---	> 13	0.0	---	---	---	
MW-6	5 - 12.3	51	15	9	> 7,600	4,500	< 2	22	< 0.01	MW-2	83	0.05	(c)
MW-6	5 - 12.3	51	19	81	> 1,000	1,400	< 2	9	< 0.05	MW-2	83	0.04	(c)

Notes:

(a) = Depth interval below ground surface between top of well screen and ground water.

(b) = Mass removal rate based on Bay Area Air Quality Management District's Manual of Procedures for Soil Vapor Extraction, July 17, 1991.
Rate = concentration(ppmv) x flow rate(scfm) x (1 lb-mole/386 cu ft) x molecular weight (86 lb/lb-mole for TPH-G as hexane, 78 for benzene) x 1,440 minutes/day x 0.000001.

(c) = Data may be unreliable since well was used for extraction testing earlier during test.

FID = Portable flame ionization detector measurements. MW-6 measurements are less the methane reading of 2,400 ppmv and 9,000 ppmv, respectively.

TPH-G = Total petroleum hydrocarbons by EPA Method 5030.

BENZENE = Benzene by EPA Method 8020.

scfm = Standard cubic feet per minute.

ppmv = Parts per million by volume.

--- = Data not reliable or representative.

ATTACHMENT B

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

February 14, 1994

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

Attn: Daniel T. Kirk

RECEIVED
FEB 23 1994

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

QUARTER:
1st quarter of 1994

QUARTERLY GROUNDWATER SAMPLING REPORT 940120-K-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 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 dewaters 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 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/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	1/20/94	TOC	FREE PRODUCT	9.17	0.01	10	9.18	--
MW-2	1/20/94	TOC	INACCESSIBLE				--	--
MW-3	1/20/94	TOC	--	NONE	--	--	9.62	27.38
MW-4	1/20/94	TOC	FREE PRODUCT	9.04	0.02	20	9.06	--
MW-5	1/20/94	TOC	FREE PRODUCT	7.41	0.01	--	7.42	--
MW-6	1/20/94	TOC	FREE PRODUCT	9.12	0.02	--	9.14	--
MW-7	1/20/94	TOC	FREE PRODUCT	6.98	0.05	--	7.03	--
MW-8 *	1/20/94	TOC	SHEEN/ODOR	--	--	--	7.25	19.83
MW-9	1/20/94	TOC	ODOR	NONE	--	--	8.03	19.60
MW-10	1/20/94	TOC	ODOR	NONE	--	--	7.20	18.20
MW-11	1/20/94	TOC	--	NONE	--	--	9.09	18.85

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

980

9401285

(18)

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No: _____

Date: 1/21/94 Page 1 of 1

Site 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: KCB

Printed Name: Keith Brown

LAB: Anametrix

Sample ID	Date	Sludge	Soil	Water	Air	No. of conts.	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) MW3	1/20			W		3						X								
(2) MW8				W		3						X								
(3) MW9				W		3						X								
(4) MW10				W		3						X								
(5) MW11				W		3						X								
(6) DUP				W		3						X								
(7) EB				W		3						X							PLACE EB ON HOLD	
(8) TB	↓			W		2						X								

CHECK ONE (1) BOX ONLY — CT/DT

		CT/DT
Quarterly Monitoring	X	6441
Site Investigation		6441
Soil Closure/Disposal		6442
Water Closure/Disposal		6443
Soil/Air Rem. or Syst. O & M		6442
Water Rem. or Syst. O & M		6443
Other		

TURN AROUND TIME

- 24 hours ☐
- 48 hours ☐
- 16 days XX (Normal)
- Other ☐ ____

NOTE: Notify Lab as soon as Possible of 24/48 hrs. TAT.

	Printed Name	Date	Time		Printed Name	Date	Time
Relinquished By (signature): Keith Brown	Keith Brown	1/21/94	16:15	Received (signature):	Logan Harris	1/21/94	16:25
Relinquished By (signature): Ben Hunnicutt	Ben Hunnicutt	1/21/94	6:50	Received (signature): Maria Barajas	Maria Barajas	1/21/94	16:50
Relinquished By (signature):	Printed Name:	Date:	Time:	Received (signature):	Printed Name:	Date:	Time:

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

Inchcape Testing Services
Anametrix 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 # : 9401285
Date Received : 01/21/94
Project ID : 204-5506-5306
Purchase Order: MOH-B813

The following samples were received at Anametrix for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9401285- 1	MW3
9401285- 2	MW8
9401285- 3	MW9
9401285- 4	MW10
9401285- 5	MW11
9401285- 6	DUP
9401285- 7	EB
9401285- 8	TB

This report consists of 7 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group which performed the analysis(es) and generated the data.

The results contained within this report relate to only the sample(s) tested. Additionally, these data should be considered in their entirety and Anametrix cannot be responsible for the detachment, separation, or otherwise partial use of this report.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234.

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

Corinne Kham for
Doug Robbins
Laboratory Director

02/04/94
Date

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

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

Workorder # : 9401285
Date Received : 01/21/94
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
9401285- 1	MW3	WATER	01/20/94	TPHgBTEX
9401285- 2	MW8	WATER	01/20/94	TPHgBTEX
9401285- 3	MW9	WATER	01/20/94	TPHgBTEX
9401285- 4	MW10	WATER	01/20/94	TPHgBTEX
9401285- 5	MW11	WATER	01/20/94	TPHgBTEX
9401285- 6	DUP	WATER	01/20/94	TPHgBTEX
9401285- 8	TB	WATER	01/20/94	TPHgBTEX

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

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

Workorder # : 9401285
Date Received : 01/21/94
Project ID : 204-5506-5306
Purchase Order: MOH-B813
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- The concentration reported as gasoline for sample MW3 is primarily due to the presence of a discrete peak not indicative of gasoline.

Department Supervisor 2/3/94 Date

Chemist 02/03/94 Date

Organic Analysis Data Sheet
Total Petroleum Hydrocarbons as Gasoline with BTEX
ITS - Anametrix Laboratories - (408)432-8192

Lab Workorder : 9401285
Matrix : WATER

Client Project ID : 204-5506-5306
Units : ug/L

Compound Name	Method Reporting Limit*	Client ID MW3 Lab ID 9401285-01	Client ID MW8 Lab ID 9401285-02	Client ID MW9 Lab ID 9401285-03	Client ID MW10 Lab ID 9401285-04	Client ID MW11 Lab ID 9401285-05
Benzene	0.50	ND	1900	380	820	ND
Toluene	0.50	ND	670	6.9	56	ND
Ethylbenzene	0.50	ND	1300	150	1100	ND
Total Xylenes	0.50	ND	6600	400	350	ND
TPH as Gasoline	50	180	78000	1700	12000	ND
Surrogate Recovery		131%	125%	138%	136%	138%
Instrument ID		HP4	HP4	HP4	HP4	HP4
Date Sampled		01/20/94	01/20/94	01/20/94	01/20/94	01/20/94
Date Analyzed		01/28/94	01/28/94	01/28/94	01/31/94	01/28/94
RLMF		1	250	10	25	1
Filename Reference		FPJ28501.D	FPJ28502.D	FPJ28503.D	FRJ28504.D	FPJ28505.D

* The Method Reporting Limit must be multiplied by the Reporting Limit Multiplication Factor (RLMF) to achieve the compound's reporting limit in the analysis.

ND : Not detected at or above the reporting limit for the analysis as performed.
TPHg : Determined by GC/FID following sample purge & trap by EPA Method 5030.
BTEX : Determined by modified EPA Method 8020 following sample purge & trap by EPA Method 5030.

Lab Control Limits for surrogate compound p-Bromofluorobenzene are 61-139%.

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

Analyst — 02/09/94 — Date

Supervisor — 2/2/94 — Date

Issued on 2/1/94 @ 10:08 AM

Organic Analysis Data Sheet
Total Petroleum Hydrocarbons as Gasoline with BTEX
ITS - Anametrix Laboratories - (408)432-8192

Lab Workorder : 9401285 | Client Project ID : 204-5506-5306

Matrix : WATER | Units : ug/L

Compound Name	Method Reporting Limit*	Client ID DUP Lab ID 9401285-06	Client ID TB Lab ID 9401285-08	Client ID Lab ID Method Blank	Client ID Lab ID Method Blank	Client ID Lab ID
Benzene	0.50	1700	ND	ND	ND	
Toluene	0.50	680	ND	ND	ND	
Ethylbenzene	0.50	1100	ND	ND	ND	
Total Xylenes	0.50	5500	ND	ND	ND	
TPH as Gasoline	50	60000	ND	ND	ND	
Surrogate Recovery		119%	114%	97%	106%	
Instrument ID		HP4	HP4	HP4	HP4	
Date Sampled		01/20/94	01/20/94	N/A	N/A	
Date Analyzed		01/28/94	01/28/94	01/28/94	01/31/94	
RLMF		250	1	1	1	
Filename Reference		FPJ28506.D	FPJ28508.D	BJ2801E1.D	BJ3101E1.D	

* The Method Reporting Limit must be multiplied by the Reporting Limit Multiplication Factor (RLMF) to achieve the compound's reporting limit in the analysis.

ND : Not detected at or above the reporting limit for the analysis as performed.
TPHg : Determined by GC/FID following sample purge & trap by EPA Method 5030.
BTEX : Determined by modified EPA Method 8020 following sample purge & trap by EPA Method 5030.

Lab Control Limits for surrogate compound p-Bromofluorobenzene are 61-139%.

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

Analyst 02/03/94 Date

Supervisor 2/2/94 Date

Matrix Spike Report
Total Petroleum Hydrocarbons as BTEX
ITS - Anametrix Laboratories - (408)432-8192

Project ID : 204-5506-5306
Sample ID : MW11
Matrix : WATER
Date Sampled : 01/20/94

Laboratory ID : 9401285-05
Analyst : AC
Supervisor : [illegible]
Instrument ID : HP4
Units : ug/L

COMPOUND NAME	SPIKE AMOUNT	SAMPLE RESULTS	MS RECOVERY	MSD RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS
Benzene	20	ND	100%	115%	45-139	-14%	30
Toluene	20	ND	90%	100%	51-138	-11%	30
Ethylbenzene	20	ND	100%	110%	48-146	-10%	30
Total Xylenes	20	ND	95%	110%	50-139	-15%	30
Surrogate Recovery		138%	115%	114%			
Date Analyzed		01/28/94	01/28/94	01/28/94			
Multiplier		1	1	1			
Filename Reference		FPJ28505.D	FNJ28505.D	FOJ28505.D			

* Limits established by Inchcape Testing Services, Anametrix Laboratories.

Laboratory Control Spike Report
Total Petroleum Hydrocarbons as BTEX
ITS - Anametrix Laboratories - (408)432-8192

Instrument ID : HP4
Matrix : LIQUID

Analyst : AP
Supervisor : ay
Units : ug/L

COMPOUND NAME	SPIKE AMOUNT	LCS RECOVERY	RECOVERY LIMITS
Benzene	20	85%	52-133
Toluene	20	85%	57-136
Ethylbenzene	20	95%	56-139
Total Xylenes	20	90%	56-141
Surrogate Recovery		102%	61-139
Date Analyzed		01/28/94	
Multiplier		1	
Filename Reference		MJ2801E1.D	

* Limits established by Inchcape Testing Services, Anametrix Laboratories.

Laboratory Control Spike Report
Total Petroleum Hydrocarbons as BTEX
ITS - Anametrix Laboratories - (408)432-8192

Instrument ID : HP4
Matrix : LIQUID

Analyst : AP
Supervisor : [illegible]
Units : ug/L

COMPOUND NAME	SPIKE AMOUNT	LCS RECOVERY	RECOVERY LIMITS
Benzene	20	90%	52-133
Toluene	20	85%	57-136
Ethylbenzene	20	90%	56-139
Total Xylenes	20	90%	56-141
Surrogate Recovery		101%	61-139
Date Analyzed		01/31/94	
Multiplier		1	
Filename Reference		MJ3101E1.D	

* Limits established by Inchcape Testing Services, Anametrix Laboratories.