Weiss Associates *Environmental and Geologic Services*

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

October 4, 1994

STID 381

Dennis Byrne
Alameda County Department of
Environmental Health
1131 Harbor Bay Parkway,
Suite 250
Alameda, California 94502-6577

ALCO HAZMAT
94 OCT 13 PM 4:10

Re: Shell Service Station
WIC #204-5508-5306
3420 San Pablo Avenue
Oakland, California
WA Job #81-0612-104

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 2652.d. Included below are descriptions and results of activities performed in the third quarter 1994 and proposed work for the fourth quarter 1994.

Hydrocarbon Removal Summary	***Pounds Removed Second Quarter 1994***	***Cumulative Pounds Removed***
Separate-phase Hydrocarbon	0.07	14.77

Third Quarter 1994 Activities:

- Blaine Tech Services (BTS) of San Jose, California measured ground water depths and collected ground water samples from the wells. BTS' report describing these activities and the analytic report for the ground water samples are included as Attachment A.

- BTS removed a total of 0.07 pounds of separate-phase hydrocarbons (SPHs) from a skimmer in well MW-7 and bailed SPHs from well MW-6 this quarter (Table 1). To date, approximately 14.77 pounds of SPHs have been removed by skimmers and additional bailing.

- Weiss Associates (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 Fourth Quarter 1994 Activities:

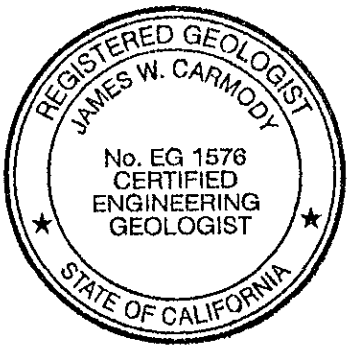
- WA will submit a report presenting the results of the fourth quarter 1994 ground water sampling and ground water depth measurements. The report will include tabulated chemical analytic results, SPH removal data and ground water elevation contour maps.

- SPH skimmers are installed in wells MW-2, MW-4 and MW-7. The skimmers will be purged of hydrocarbons quarterly until no SPHs are measured in these wells. SPH volumes removed will be tabulated in subsequent quarterly status reports.

Conclusions and Recommendations:

In most wells ground water elevations have decreased. This elevation decrease 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.

Please call if you have any questions.



Sincerely,
Weiss Associates

John Wolf
Technical Assistant

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

JW/JWC:jw

J:\SHELL\0612\QM\612QMAU4.WP

Attachments: A - BTS' Ground Water Monitoring Report

cc: Dan Kirk, Shell Oil Company, P.O. Box 4023, Concord, California 94524
Lisa McCann, California Regional Water Quality Control Board, San Francisco Bay Region, 2101 Webster Street, Suite 500, Oakland, California 94612

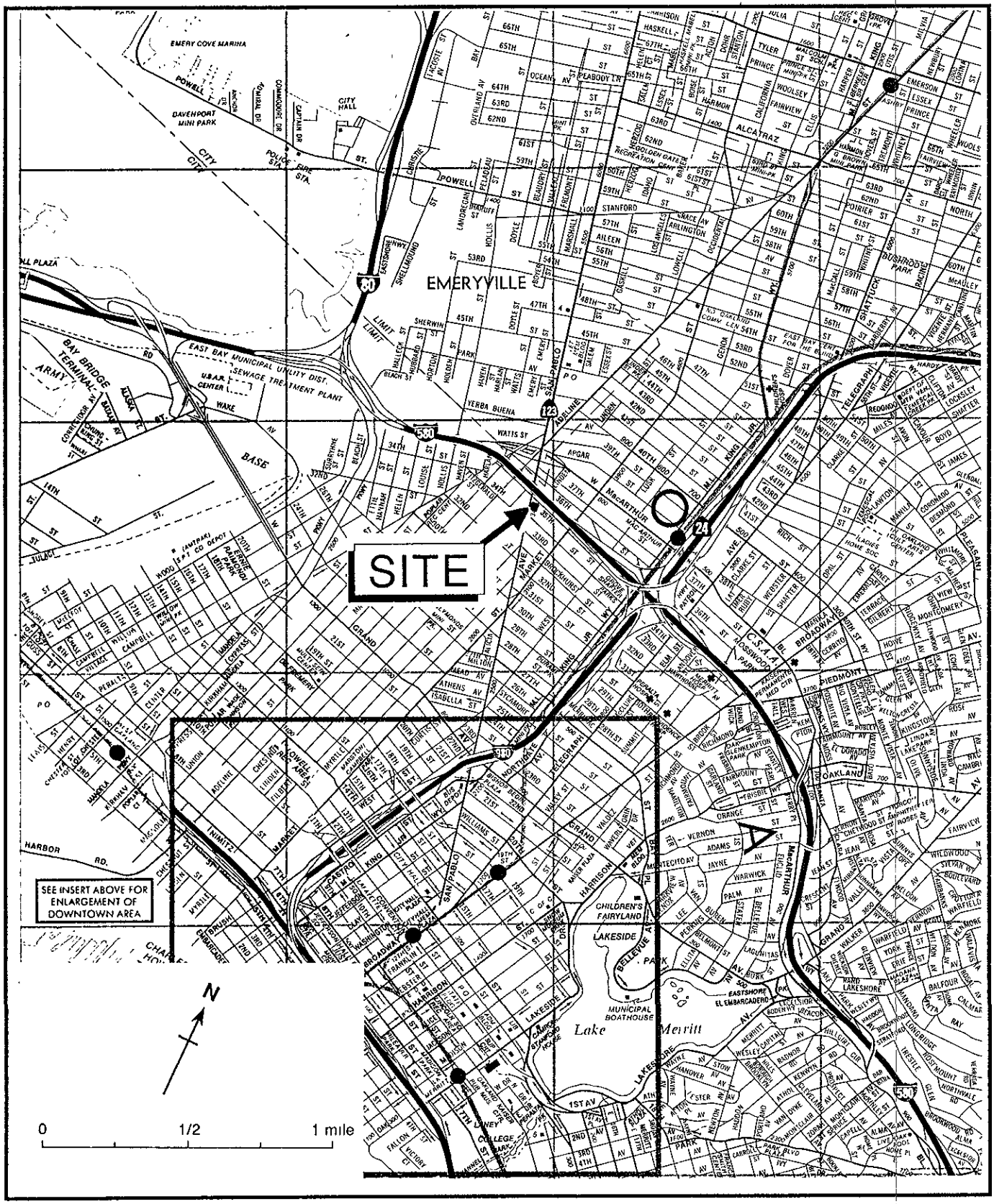


Figure 1. Site Location Map - Shell Service Station WIC #204-5508-5306, 3420 San Pablo Avenue, Oakland, California

2/13/92

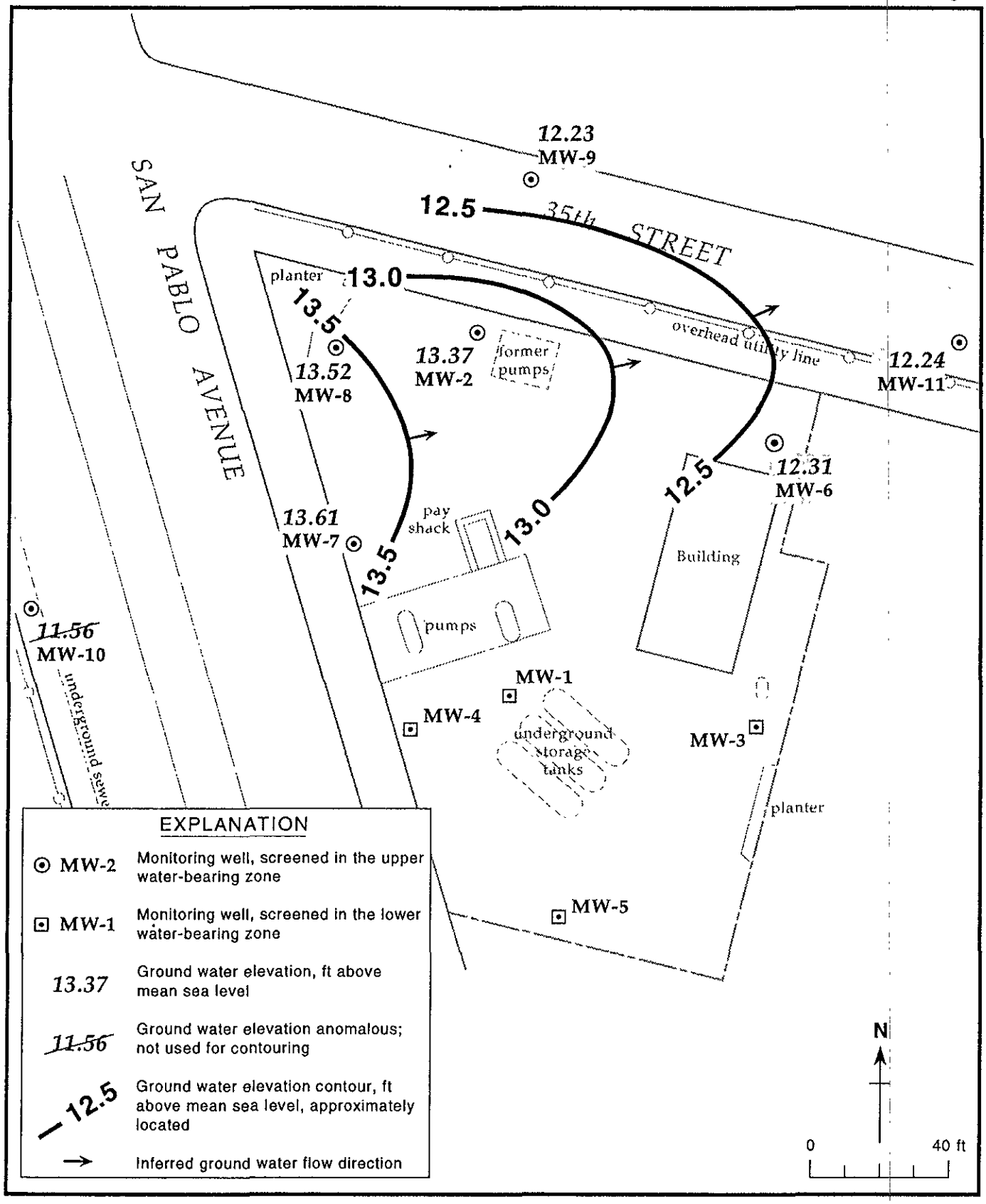


Figure 2. Monitoring Well Locations and Ground Water Elevation Contours, Upper Water-Bearing Zone - July 19, 1994 - Shell Service Station WIC #204-5508-5306, 3420 San Pablo Avenue, Oakland, California

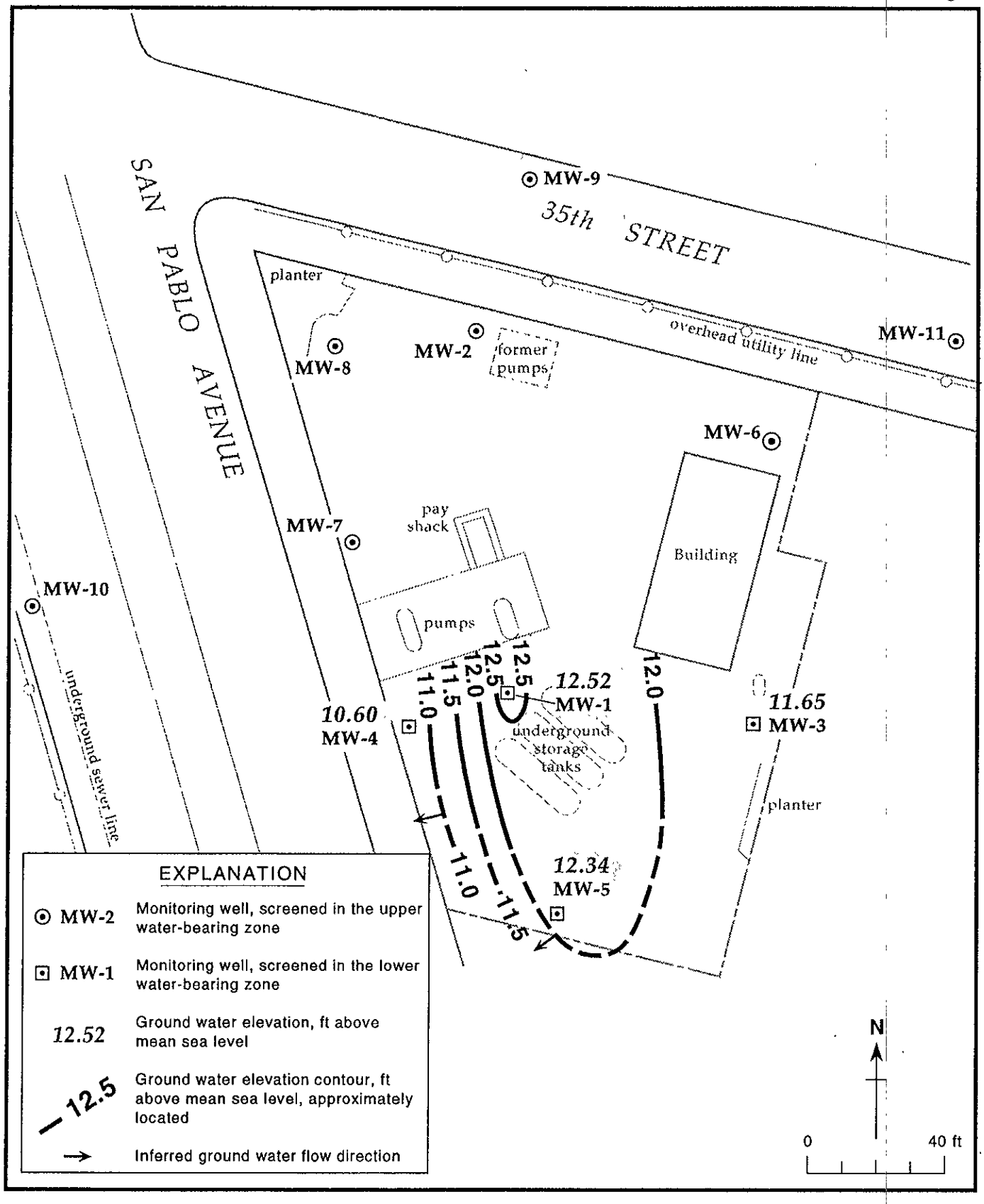


Figure 3. Monitoring Well Locations and Ground Water Elevation Contours, Lower Water-Bearing Zone - July 19, 1994 - Shell Service Station WIC #204-5508-5306, 3420 San Pablo Avenue, Oakland, California

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

Well ID	Date	Separate-Phase Hydrocarbon Thickness (ft)	Separate-Phase Hydrocarbons Removed (lbs)	Cumulative Separate-Phase Hydrocarbons Removed (lbs)
MW-1	10/23/91	0.01	---	---
	05/04/92	<0.01	---	---
	10/12/92	0.09	---	---
	01/12/93	0.02	3.12	3.12
	04/06/93	<0.01	0.78	3.90
	07/12/93	0.01	0.18	4.08
	10/13/93	0.01	0.06	4.14
	01/20/94	0.01	0.03	4.17
	04/03/94	0.02	0.12	4.29
MW-2	10/12/92	0.03	---	---
	01/12/93	0.01	1.56	1.56
	04/06/93	<0.01	0.78	2.34
	04/03/94	<0.01	0.03	2.37
MW-4	10/12/92	0.78	---	---
	01/12/93	1.0	---	---
	04/06/93	0.95	---	---
	07/12/93	0.03	6.36	6.36
	10/13/93	0.12	0.78	7.14
	01/20/94	0.02	0.03	7.17
	04/13/94	0.01	0.12	7.29
MW-5	10/12/92	0.01	---	---
	01/12/93	<0.01	---	---
	10/13/93	0.03	---	---
	01/20/94	0.01	---	---
	04/13/94	0.01	0.03	0.06
MW-6	10/12/92	0.48	---	---
	01/12/93	<0.01	---	---
	10/13/93	0.2	---	---
	01/20/94	0.02	---	---
	04/13/94	0.01	0.03	0.03
	07/19/94	**0.07**	**0.03**	**0.06**
MW-7	01/20/94	0.05	---	---
	04/13/94	0.16	0.66	0.66
	07/19/94	**0.20**	**0.04**	**0.70**
		Total Separate-Phase Hydrocarbons Removed		14.77

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)	Separate-Phase 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
	04/13/94		8.72	0.02	12.58
	07/19/94		**8.76**	**---**	**12.52**
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		---	---	---
	04/13/94		7.35	<0.01	14.22
	07/19/94		**8.24**	**---**	**13.32**
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
	04/13/94		9.15	---	12.63

-- 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)	Separate-Phase Hydrocarbon Thickness	Ground Water Elevation (ft above msl)[a]
	04/13/94		9.15	---	12.63
	07/19/94		**10.13**	**---**	**11.65**
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
	01/20/94		9.06	0.02	11.26
	04/13/94		8.58	0.01	11.74
	07/19/94		**9.71**	**---**	**10.60**
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
	04/13/94		7.05	0.01	13.87
	07/19/94		**8.57**	**---**	**12.34**
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

-- 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)	Separate-Phase Hydrocarbon Thickness	Ground Water Elevation (ft above msl)[a]
	10/13/93		12.28	0.2	10.20[a]
	01/20/94		9.14	0.02	13.20
	04/13/94		7.67	0.01	14.66
	07/19/94		**10.07**	**0.07**	**12.31**
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
	01/20/94		7.03	0.05	13.37
	04/13/94		6.56	0.16	13.93
	07/19/94		**6.91**	**0.20**	**13.61**
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
	04/13/94		7.12	---	13.83
	07/19/94		**7.43**	**---**	**13.52**
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]		---	---	---

-- 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)	Separate-Phase Hydrocarbon Thickness	Ground Water Elevation (ft above msl)[a]
	04/06/93[b]		---	---	---
	07/12/93[b]		---	---	---
	10/13/92		11.17	---	10.02
	01/20/94		8.03	---	13.16
	04/13/94		7.81	---	13.38
	07/19/94		**8.96**	**---**	**12.23**
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
	04/13/94		7.57	---	12.17
	07/19/94		**8.18**	**---**	**11.56**
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
	04/13/94		8.02	---	14.04
	07/19/94		**9.82**	**---**	**12.24**

Notes:

a = When separate-phase 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[SPH]	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[SPH]	13.14	---	---	---	---	---
	01/12/93[SPH]	7.52	---	---	---	---	---
	04/06/93[SPH]	7.13	---	---	---	---	---
	07/12/93[SPH]	11.02	---	---	---	---	---
	10/13/93[SPH]	12.18	---	---	---	---	---
	01/20/94[SPH]	9.18	---	---	---	---	---
	04/13/94[SPH]	8.72	---	---	---	---	---
	07/19/94	8.76	17,000	420	530	140	1,300
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[SPH]	11.66	---	---	---	---	---
	01/12/93[SPH]	7.13	---	---	---	---	---
	04/06/93[SPH]	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	---	---	---	---	---	---
	04/13/94	7.35	79,000	9,400	2,100	740	12,000
	04/13/94[dup]	7.35	110,000	11,000	2,400	710	13,000
	07/19/94	8.24	63,000	13,000	1,900	810	13,000
	07/19/94[dup]	8.24	12,000	12,000	340	140	12,000
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[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
	04/13/94	9.15	270	<0.5	<0.5	<0.5	<0.5
	07/19/94	10.13	190*	<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)---------->				
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[SPH]	12.43	---	---	---	---	---
	01/12/93[SPH]	7.12	---	---	---	---	---
	04/06/93[SPH]	7.23	---	---	---	---	---
	07/12/93[SPH]	10.08	---	---	---	---	---
	10/13/93[SPH]	11.35	---	---	---	---	---
	01/20/94[SPH]	9.06	---	---	---	---	---
	04/13/84[SPH]	8.58	---	---	---	---	---
	07/18/94	9.71	12,000	230	230	43	660
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[SPH]	11.83	---	---	---	---	---
	01/12/93[SPH]	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[SPH]	10.80	---	---	---	---	---
	01/20/94[SPH]	7.42	---	---	---	---	---
	04/13/94[SPH]	7.05	---	---	---	---	---
	07/19/94	8.57	11,000	180	180	13	260
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[SPH]	8.68	---	---	---	---	---
	01/12/93[SPH]	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[SPH]	12.28	---	---	---	---	---
	01/20/94[SPH]	9.14	---	---	---	---	---
	04/13/94[SPH]	7.67	---	---	---	---	---
	07/19/94[SPH]	10.07	---	---	---	---	---

-- 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)---------->				
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[SPH]	7.03	---	---	---	---	---
	04/13/94[SPH]	6.56	---	---	---	---	---
	07/19/94[SPH]	6.91	---	---	---	---	---
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[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
	04/13/94	7.12	41,000	1,300	1,200	720	6,00
	07/19/94	7.43	140,000	1,800	2,000	1,400	9,000
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

-- 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)---------->				
	04/13/94	7.81	6,000	1,000	450	<20	420
	07/19/94	8.96	12,000	1,400	740	<5	1,200
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
	04/13/94	7.57	18,000	760	700	36	130
	07/19/94	8.18	24,000	400	800	2.3	22
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
	04/13/94	8.02	<50	<0.5	<0.5	<0.5	<0.5
	07/19/94	9.82	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
	04/13/94		<50	<0.5	<0.5	0.67	<0.5
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

-- 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)---------->				
	04/13/94		<50	<0.5	<0.5	<0.5	<0.5
	07/19/94		<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
SPH = Not sampled, separate-phase 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
* = The result for gasoline in an unknown hydrocarbon which consists of a single peak

ATTACHMENT A

GROUND WATER MONITORING REPORT

BLAINE
TECH SERVICES INC.

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

August 5, 1994

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:
3rd quarter of 1994

QUARTERLY GROUNDWATER SAMPLING REPORT 940719-E-3

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 National Environmental Testing, Inc. in Santa Rosa, California. NET is a California Department of Health Services certified Hazardous Materials Testing Laboratory and is listed as DOHS HMTL #178.

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	7/19/94	TOC	SHEEN/ODOR	--	--	--	8.76	25.10
MW-2 *	7/19/94	TOC	SHEEN/ODOR	--	--	--	8.24	19.26
MW-3	7/19/94	TOC	--	NONE	--	--	10.13	27.40
MW-4	7/19/94	TOC	SHEEN/ODOR	--	--	--	9.71	25.34
MW-5	7/19/94	TOC	ODOR	NONE	--	--	8.57	24.87
MW-6	7/19/94	TOC	FREE PRODUCT	10	0.07	20	10.07	--
MW-7	7/19/94	TOC	FREE PRODUCT	6.71	0.20	25	6.91	--
MW-8	7/19/94	TOC	ODOR	NONE	--	--	6.43	19.96
MW-9	7/19/94	TOC	ODOR	NONE	--	--	8.96	19.73
MW-10	7/19/94	TOC	ODOR	NONE	--	--	8.18	18.81
MW-11	7/19/94	TOC	--	NONE	--	--	9.82	18.84

* Sample DUP was a duplicate sample taken from well MW-2.

(1511)

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No: 446719-E3

Date: 7/20/94
Page 1 of 2

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: Kent E. Brown

Printed Name: KENT E. BROWN

LAB: NET

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	Total Dissolved Solids		Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
MW-1	7/20/94			W		4						X	X							
MW-2	7/19/94			W		4						X	X							
MW-3	7/19/94			W		4						X	X							
MW-4	7/20/94			W		4						X	X							
MW-5	7/19/94			W		4						X	X							
MW-8	7/19/94			W		4						X	X							
MW-9	7/19/94			W		4						X	X							
MW-10	7/19/94			W		4						X	X							

CHECK ONE (1) BOX ONLY — CT/DI — TURN AROUND TIME

Quarterly Monitoring	X	6441	24 hours ☐
Site Investigation	☐	6441	48 hours ☐
Soil Closure/Disposal	☐	6442	15 days X (Normal)
Water Closure/Disposal	☐	6443	Other ☐
Soil/Air Rem. or Syst. O & M	☐	6462	NOTE: Notify Lab as soon as Possible of 24/48 hrs. TAT.
Water Rem. or Syst. O & M	☐	6463	
Other	☐		

CUSTODY SEALED 7/20/94 G P Lumbre

Relinquished By (signature): Kent E. Brown	Printed Name: KENT BROWN	Date: 7/20/94 Time: 1:00	Received (signature): G P Lumbre	Printed Name: G P Lumbre	Date: 7/21/94 Time: 0700
Relinquished By (signature): G P Lumbre	Printed Name: G P Lumbre	Date: 7/21/94 Time: 19:30	Received (signature):	Printed Name:	Date: Time:
Relinquished By (signature): (VIA UCS)	Printed Name:	Date: Time:	Received (signature):	Printed Name: K Temple	Date: 7/22/94 Time: 0800

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

2nd Copy of Custody

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No: 940719-E3

Date: 7/20/94
Page 2 of 2

Sit. 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: Kent E. Brown

Printed Name: KENT E. BROWN

LAB: NET

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	Total Dissolved Solids		Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
MW-11	7/19/94			W		4						X	X							
EB	7/19/94			W		4						X	X							
DCP	7/19/94			W		4						X	X							
T.B.	7/19/94			W		2						X								
																			CUSTODY SEALED 7/21/94 G Lumbre	

CHECK ONE (1) BOX ONLY — CT/DI — TURN AROUND TIME

- Quarterly Monitoring [X] 8441 — 24 hours [ ]
- Site Investigation [ ] 8441 — 48 hours [ ]
- Soil Closure/Disposal [ ] 8442 — 15 days [X] (Normal)
- Water Closure/Disposal [ ] 8443 — Other [ ]
- Soil/Air Rem. or Sys. O & M [ ] 8452
- Water Rem. or Sys. O & M [ ] 8453
- Other [ ]

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

Relinquished By (signature)	Printed Name	Date / Time	Received (signature)	Printed Name	Date / Time
Kent E. Brown	Kent Brown	Date: 7/21/94 Time: 11:69	G Lumbre	G Lumbre	Date: 7/21/94 Time: 11:60
G Lumbre	G Lumbre	Date: 7/21/94 Time: 19:30			Date: Time:
(UNKNOWN)		Date: Time:		K. Temple	Date: 7/22/94 Time: 0800

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

NATIONAL ENVIRONMENTAL® TESTING, INC.

Santa Rosa Division
435 Tesconi Circle
Santa Rosa, CA 95401
Tel. (707) 526-7200
Fax: (707) 526-9623

Jim Keller
Blaine Tech Services
985 Timothy Dr.
San Jose, CA 95133

Date: 08/05/1994
NET Client Acct. No: 1821
NET Pacific Job No: 94.03157
Received: 07/22/1994

Client Reference Information

SHELL, 3420 San Pablo Ave., Oakland, Job No. 940719-E3

Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Approved by:

Judy Ridley
Project Coordinator

Jim Hoch
Operations Manager

Enclosure(s)

Ref: SHELL, 3420 San Pablo Ave., Oakland, Job No. 940719-E3

SAMPLE DESCRIPTION: MW-1
Date Taken: 07/20/1994
Time Taken:
NET Sample No: 201017

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
Tot. Dissolved Solids (TFR)	510		10	mg/L	160.1		07/23/1994
TPH (Gas/BTXE,Liquid)							
METHOD 5030/M8015	--						07/29/1994
DILUTION FACTOR*	10						07/29/1994
as Gasoline	17,000	FF	500	ug/L	5030		07/29/1994
Carbon Range:	C5-C14						07/29/1994
METHOD 8020 (GC,Liquid)	--						07/29/1994
DILUTION FACTOR*	10						07/29/1994
Benzene	420	FF	5	ug/L	8020		07/29/1994
Toluene	140		5	ug/L	8020		07/31/1994
Ethylbenzene	530	FF	5	ug/L	8020		07/29/1994
Xylenes (Total)	1,300	FF	5	ug/L	8020		07/29/1994
SURROGATE RESULTS	--						07/29/1994
Bromofluorobenzene (SURR)	103			% Rec.	5030		07/29/1994

FF : Compound quantitated at a 100X dilution factor.

Ref: SHELL, 3420 San Pablo Ave., Oakland, Job No. 940719-E3

SAMPLE DESCRIPTION: MW-2
Date Taken: 07/19/1994
Time Taken:
NET Sample No: 201018

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
Tot. Dissolved Solids (TFR)	840		10	mg/L	160.1		07/23/1994
TPH (Gas/BTXE,Liquid)							
METHOD 5030/M8015	--						07/29/1994
DILUTION FACTOR*	100						07/29/1994
as Gasoline	63,000		5000	ug/L	5030		07/29/1994
Carbon Range:	C5-C12						07/29/1994
METHOD 8020 (GC,Liquid)	--						07/29/1994
DILUTION FACTOR*	100						07/29/1994
Benzene	13,000	FI	50	ug/L	8020		07/29/1994
Toluene	810		50	ug/L	8020		07/29/1994
Ethylbenzene	1,900		50	ug/L	8020		07/29/1994
Xylenes (Total)	13,000	FI	50	ug/L	8020		07/29/1994
SURROGATE RESULTS	--						07/29/1994
Bromofluorobenzene (SURR)	115			% Rec.	5030		07/29/1994

FI : Compound quantitated at a 1000X dilution factor

Ref: SHELL, 3420 San Pablo Ave., Oakland, Job No. 940719-E3

SAMPLE DESCRIPTION: MW-3
Date Taken: 07/19/1994
Time Taken:
NET Sample No: 201019

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
Tot. Dissolved Solids (TFR)	500		10	mg/L	160.1		07/23/1994
TPH (Gas/BTXE,Liquid)							
METHOD 5030/M8015	--						07/29/1994
DILUTION FACTOR*	1						07/29/1994
as Gasoline	190	G1	50	ug/L	5030		07/29/1994
Carbon Range:	C6						07/29/1994
METHOD 8020 (GC,Liquid)	--						07/29/1994
DILUTION FACTOR*	1						07/29/1994
Benzene	ND		0.5	ug/L	8020		07/29/1994
Toluene	ND		0.5	ug/L	8020		07/29/1994
Ethylbenzene	ND		0.5	ug/L	8020		07/29/1994
Xylenes (Total)	ND		0.5	ug/L	8020		07/29/1994
SURROGATE RESULTS	--						07/29/1994
Bromofluorobenzene (SURR)	103			% Rec.	5030		07/29/1994

G1 : The result for Gasoline is an unk. HC which consists of a single peak.

Ref: SHELL, 3420 San Pablo Ave., Oakland, Job No. 940719-E3

SAMPLE DESCRIPTION: MW-4
Date Taken: 07/20/1994
Time Taken:
NET Sample No: 201020

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
Tot. Dissolved Solids (TFR)	630		10	mg/L	160.1		07/23/1994
TPH (Gas/BTXE,Liquid)							
METHOD 5030/M8015	--						07/31/1994
DILUTION FACTOR*	10						07/31/1994
as Gasoline	12,000		500	ug/L	5030		07/31/1994
Carbon Range:	C5-C14						07/31/1994
METHOD 8020 (GC,Liquid)	--						07/31/1994
DILUTION FACTOR*	10						07/31/1994
Benzene	230		5	ug/L	8020		07/31/1994
Toluene	43		5	ug/L	8020		07/31/1994
Ethylbenzene	230		5	ug/L	8020		07/31/1994
Xylenes (Total)	660		5	ug/L	8020		07/31/1994
SURROGATE RESULTS	--						07/31/1994
Bromofluorobenzene (SURR)	127	MI		% Rec.	5030		07/31/1994

MI : Matrix Interference Suspected

Ref: SHELL, 3420 San Pablo Ave., Oakland, Job No. 940719-E3

SAMPLE DESCRIPTION: MW-5
Date Taken: 07/19/1994
Time Taken:
NET Sample No: 201021

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
Tot. Dissolved Solids (TFR)	520		10	mg/L	160.1		07/23/1994
TPH (Gas/BTXE,Liquid)							
METHOD 5030/M8015	--						08/02/1994
DILUTION FACTOR*	10						08/02/1994
as Gasoline	11,000		500	ug/L	5030		08/02/1994
Carbon Range:	C5-C14						08/02/1994
METHOD 8020 (GC,Liquid)	--						08/02/1994
DILUTION FACTOR*	10						08/02/1994
Benzene	180		5	ug/L	8020		08/02/1994
Toluene	13		5	ug/L	8020		08/02/1994
Ethylbenzene	180		5	ug/L	8020		08/02/1994
Xylenes (Total)	260		5	ug/L	8020		08/02/1994
SURROGATE RESULTS	--						08/02/1994
Bromofluorobenzene (SURR)	153	MI		% Rec.	5030		08/02/1994

MI : Matrix Interference Suspected

Ref: SHELL, 3420 San Pablo Ave., Oakland, Job No. 940719-E3

SAMPLE DESCRIPTION: MW-8
Date Taken: 07/19/1994
Time Taken:
NET Sample No: 201022

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
Tot. Dissolved Solids (TFR)	760		10	mg/L	160.1		07/23/1994
TPH (Gas/BTXE,Liquid)							
METHOD 5030/M8015	--						08/01/1994
DILUTION FACTOR*	100						08/01/1994
as Gasoline	140,000		5000	ug/L	5030		08/01/1994
Carbon Range:	C4-C14						08/01/1994
METHOD 8020 (GC,Liquid)	--						08/01/1994
DILUTION FACTOR*	100						08/01/1994
Benzene	1,800		50	ug/L	8020		08/01/1994
Toluene	1,400		50	ug/L	8020		08/01/1994
Ethylbenzene	2,000		50	ug/L	8020		08/01/1994
Xylenes (Total)	9,000		50	ug/L	8020		08/01/1994
SURROGATE RESULTS	--						08/01/1994
Bromofluorobenzene (SURR)	139			% Rec.	5030		08/01/1994

Ref: SHELL, 3420 San Pablo Ave., Oakland, Job No. 940719-E3

SAMPLE DESCRIPTION: MW-9
Date Taken: 07/19/1994
Time Taken:
NET Sample No: 201023

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
Tot. Dissolved Solids (TFR)	830		10	mg/L	160.1		07/23/1994
TPH (Gas/BTXE,Liquid)							
METHOD 5030/M8015	--						07/29/1994
DILUTION FACTOR*	10						07/29/1994
as Gasoline	12,000		500	ug/L	5030		07/29/1994
Carbon Range:	C5-C14						07/29/1994
METHOD 8020 (GC,Liquid)	--						07/29/1994
DILUTION FACTOR*	10						07/29/1994
Benzene	1,400	FF	5	ug/L	8020		07/31/1994
Toluene	ND		5	ug/L	8020		07/29/1994
Ethylbenzene	740		5	ug/L	8020		07/29/1994
Xylenes (Total)	1,200		5	ug/L	8020		07/29/1994
SURROGATE RESULTS	--						07/29/1994
Bromofluorobenzene (SURR)	117			% Rec.	5030		07/29/1994

FF : Compound quantitated at a 100X dilution factor.

Ref: SHELL, 3420 San Pablo Ave., Oakland, Job No. 940719-E3

SAMPLE DESCRIPTION: MW-10
Date Taken: 07/19/1994
Time Taken:
NET Sample No: 201024

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
Tot. Dissolved Solids (TFR)	600		10	mg/L	160.1		07/23/1994
TPH (Gas/BTXE,Liquid)							
METHOD 5030/M8015	--						08/02/1994
DILUTION FACTOR*	10						08/02/1994
as Gasoline	24,000		500	ug/L	5030		08/02/1994
Carbon Range:	C5-C14						08/02/1994
METHOD 8020 (GC,Liquid)	--						08/02/1994
DILUTION FACTOR*	10						08/02/1994
Benzene	400	FE	5	ug/L	8020		08/03/1994
Toluene	2.3		5	ug/L	8020		08/02/1994
Ethylbenzene	800	FE	5	ug/L	8020		08/03/1994
Xylenes (Total)	22		5	ug/L	8020		08/02/1994
SURROGATE RESULTS	--						08/02/1994
Bromofluorobenzene (SURR)	114			% Rec.	5030		08/02/1994

FE : Compound quantitated at a 50X dilution factor.

Ref: SHELL, 3420 San Pablo Ave., Oakland, Job No. 940719-E3

SAMPLE DESCRIPTION: MW-11
Date Taken: 07/19/1994
Time Taken:
NET Sample No: 201025

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
Tot. Dissolved Solids (TFR)	410		10	mg/L	160.1		07/23/1994
TPH (Gas/BTXE,Liquid)							
METHOD 5030/M8015	--						07/29/1994
DILUTION FACTOR*	1						07/29/1994
as Gasoline	50	G1	50	ug/L	5030		07/29/1994
Carbon Range:	C6						07/29/1994
METHOD 8020 (GC,Liquid)	--						07/29/1994
DILUTION FACTOR*	1						07/29/1994
Benzene	ND		0.5	ug/L	8020		07/29/1994
Toluene	ND		0.5	ug/L	8020		07/29/1994
Ethylbenzene	ND		0.5	ug/L	8020		07/29/1994
Xylenes (Total)	ND		0.5	ug/L	8020		07/29/1994
SURROGATE RESULTS	--						07/29/1994
Bromofluorobenzene (SURR)	100			% Rec.	5030		07/29/1994

G1 : The result for Gasoline is an unk. HC which consists of a single peak.

Ref: SHELL, 3420 San Pablo Ave., Oakland, Job No. 940719-E3

SAMPLE DESCRIPTION: EB
Date Taken: 07/19/1994
Time Taken:
NET Sample No: 201026

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
Tot. Dissolved Solids (TFR)	ND		10	mg/L	160.1		07/23/1994
TPH (Gas/BTXE,Liquid)							
METHOD 5030/M8015	--						07/29/1994
DILUTION FACTOR*	1						07/29/1994
as Gasoline	ND		50	ug/L	5030		07/29/1994
Carbon Range:	--						07/29/1994
METHOD 8020 (GC,Liquid)	--						07/29/1994
DILUTION FACTOR*	1						07/29/1994
Benzene	ND		0.5	ug/L	8020		07/29/1994
Toluene	ND		0.5	ug/L	8020		07/29/1994
Ethylbenzene	ND		0.5	ug/L	8020		07/29/1994
Xylenes (Total)	ND		0.5	ug/L	8020		07/29/1994
SURROGATE RESULTS	--						07/29/1994
Bromofluorobenzene (SURR)	100			% Rec.	5030		07/29/1994

Ref: SHELL, 3420 San Pablo Ave., Oakland, Job No. 940719-E3

SAMPLE DESCRIPTION: DUP
Date Taken: 07/19/1994
Time Taken:
NET Sample No: 201027**

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
Tot. Dissolved Solids (TFR)	850		10	mg/L	160.1		07/23/1994
TPH (Gas/BTXE,Liquid)							
METHOD 5030/M8015	--						07/29/1994
DILUTION FACTOR*	50						07/29/1994
as Gasoline	12,000		2500	ug/L	5030		07/29/1994
Carbon Range:	C4-C14						07/29/1994
METHOD 8020 (GC,Liquid)	--						07/29/1994
DILUTION FACTOR*	50						07/29/1994
Benzene	12,000	FI*	20	ug/L	8020		07/29/1994
Toluene	140		20	ug/L	8020		07/29/1994
Ethylbenzene	340		20	ug/L	8020		07/29/1994
Xylenes (Total)	12,000	FI*	20	ug/L	8020		07/29/1994
SURROGATE RESULTS	--						07/29/1994
Bromofluorobenzene (SURR)	95			% Rec.	5030		07/29/1994

* Gasoline, and Benzene, Xylene dilutions were performed from different vials. Both runs are acceptable and within linear range, suggesting vial to vial variability.
FI : Compound quantitated at a 1000X dilution factor.

Ref: SHELL, 3420 San Pablo Ave., Oakland, Job No. 940719-E3

SAMPLE DESCRIPTION: TB
Date Taken: 07/20/1994
Time Taken:
NET Sample No: 201028

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
TPH (Gas/BTXE,Liquid)							
METHOD 5030/M8015	--						07/28/1994
DILUTION FACTOR*	1						07/28/1994
as Gasoline	ND		50	ug/L	5030		07/28/1994
Carbon Range:	ND						07/28/1994
METHOD 8020 (GC,Liquid)	--						07/28/1994
DILUTION FACTOR*	1						07/28/1994
Benzene	ND		0.5	ug/L	8020		07/28/1994
Toluene	ND		0.5	ug/L	8020		07/28/1994
Ethylbenzene	ND		0.5	ug/L	8020		07/28/1994
Xylenes (Total)	ND		0.5	ug/L	8020		07/28/1994
SURROGATE RESULTS	--						07/28/1994
Bromofluorobenzene (SURR)	89			% Rec.	5030		07/28/1994

Ref: SHELL, 3420 San Pablo Ave., Oakland, Job No. 940719-E3

CONTINUING CALIBRATION VERIFICATION STANDARD REPORT

Parameter	CCV Standard % Recovery	CCV Standard Amount Found	CCV Standard Amount Expected	Units	Date Analyzed	Analyst Initials
TPH (Gas/BTXE,Liquid)						
as Gasoline	102.0	1.02	1.00	mg/L	07/28/1994	aal
Benzene	94.4	4.72	5.00	ug/L	07/28/1994	aal
Toluene	93.6	4.68	5.00	ug/L	07/28/1994	aal
Ethylbenzene	95.4	4.77	5.00	ug/L	07/28/1994	aal
Xylenes (Total)	95.3	14.3	15.0	ug/L	07/28/1994	aal
Bromofluorobenzene (SURR)	99.0	99	100	% Rec.	07/28/1994	aal
TPH (Gas/BTXE,Liquid)						
as Gasoline	102.0	1.02	1.00	mg/L	07/29/1994	aal
Benzene	88.2	4.41	5.00	ug/L	07/29/1994	aal
Toluene	86.4	4.32	5.00	ug/L	07/29/1994	aal
Ethylbenzene	87.8	4.39	5.00	ug/L	07/29/1994	aal
Xylenes (Total)	86.7	13.01	15.0	ug/L	07/29/1994	aal
Bromofluorobenzene (SURR)	93.0	93	100	% Rec.	07/29/1994	aal
TPH (Gas/BTXE,Liquid)						
as Gasoline	100.0	1.00	1.00	mg/L	07/31/1994	jmh
Benzene	95.8	4.79	5.00	ug/L	07/31/1994	jmh
Toluene	90.0	4.50	5.00	ug/L	07/31/1994	jmh
Ethylbenzene	89.6	4.48	5.00	ug/L	07/31/1994	jmh
Xylenes (Total)	90.7	13.6	15.0	ug/L	07/31/1994	jmh
Bromofluorobenzene (SURR)	99.0	99	100	% Rec.	07/31/1994	jmh
TPH (Gas/BTXE,Liquid)						
as Gasoline	118.0	1.18	1.00	mg/L	08/01/1994	jmh
Benzene	97.6	4.88	5.00	ug/L	08/01/1994	jmh
Toluene	97.2	4.86	5.00	ug/L	08/01/1994	jmh
Ethylbenzene	103.0	5.15	5.00	ug/L	08/01/1994	jmh
Xylenes (Total)	104.0	15.6	15.0	ug/L	08/01/1994	jmh
Bromofluorobenzene (SURR)	98.0	98	100	% Rec.	08/01/1994	jmh
TPH (Gas/BTXE,Liquid)						
as Gasoline	104.0	1.04	1.00	mg/L	08/02/1994	jmh
Benzene	106.0	5.30	5.00	ug/L	08/02/1994	jmh
Toluene	93.0	4.65	5.00	ug/L	08/02/1994	jmh
Ethylbenzene	99.4	4.97	5.00	ug/L	08/02/1994	jmh
Xylenes (Total)	99.0	14.85	15.0	ug/L	08/02/1994	jmh
Bromofluorobenzene (SURR)	94.0	94	100	% Rec.	08/02/1994	jmh
TPH (Gas/BTXE,Liquid)						
as Gasoline	108.0	1.08	1.00	mg/L	08/03/1994	jmh
Benzene	98.6	4.93	5.00	ug/L	08/03/1994	jmh
Toluene	93.6	4.68	5.00	ug/L	08/03/1994	jmh
Ethylbenzene	98.8	4.94	5.00	ug/L	08/03/1994	jmh
Xylenes (Total)	100.1	15.02	15.0	ug/L	08/03/1994	jmh
Bromofluorobenzene (SURR)	94.0	94	100	% Rec.	08/03/1994	jmh

Ref: SHELL, 3420 San Pablo Ave., Oakland, Job No. 940719-E3

METHOD BLANK REPORT

Parameter	Method Blank Amount Found	Reporting Limit	Units	Date Analyzed	Analyst Initials
Tot. Dissolved Solids (TFR)	ND	10	mg/L	07/23/1994	shr
Tot. Dissolved Solids (TFR)	ND	10	mg/L	07/23/1994	shr
TPH (Gas/BTXE,Liquid)					
as Gasoline	ND	0.05	mg/L	07/28/1994	aal
Benzene	ND	0.5	ug/L	07/28/1994	aal
Toluene	ND	0.5	ug/L	07/28/1994	aal
Ethylbenzene	ND	0.5	ug/L	07/28/1994	aal
Xylenes (Total)	ND	0.5	ug/L	07/28/1994	aal
Bromofluorobenzene (SURR)	100		% Rec.	07/28/1994	aal
TPH (Gas/BTXE,Liquid)					
as Gasoline	ND	0.05	mg/L	07/29/1994	aal
Benzene	ND	0.5	ug/L	07/29/1994	aal
Toluene	ND	0.5	ug/L	07/29/1994	aal
Ethylbenzene	ND	0.5	ug/L	07/29/1994	aal
Xylenes (Total)	ND	0.5	ug/L	07/29/1994	aal
Bromofluorobenzene (SURR)	97		% Rec.	07/29/1994	aal
TPH (Gas/BTXE,Liquid)					
as Gasoline	ND	0.05	mg/L	07/31/1994	jmh
Benzene	ND	0.5	ug/L	07/31/1994	jmh
Toluene	ND	0.5	ug/L	07/31/1994	jmh
Ethylbenzene	ND	0.5	ug/L	07/31/1994	jmh
Xylenes (Total)	ND	0.5	ug/L	07/31/1994	jmh
Bromofluorobenzene (SURR)	73		% Rec.	07/31/1994	jmh
TPH (Gas/BTXE,Liquid)					
as Gasoline	ND	0.05	mg/L	08/01/1994	jmh
Benzene	ND	0.5	ug/L	08/01/1994	jmh
Toluene	ND	0.5	ug/L	08/01/1994	jmh
Ethylbenzene	ND	0.5	ug/L	08/01/1994	jmh
Xylenes (Total)	ND	0.5	ug/L	08/01/1994	jmh
Bromofluorobenzene (SURR)	78		% Rec.	08/01/1994	jmh
TPH (Gas/BTXE,Liquid)					
as Gasoline	ND	0.05	mg/L	08/02/1994	jmh
Benzene	ND	0.5	ug/L	08/02/1994	jmh
Toluene	ND	0.5	ug/L	08/02/1994	jmh
Ethylbenzene	ND	0.5	ug/L	08/02/1994	jmh
Xylenes (Total)	ND	0.5	ug/L	08/02/1994	jmh
Bromofluorobenzene (SURR)	75		% Rec.	08/02/1994	jmh
TPH (Gas/BTXE,Liquid)					
as Gasoline	ND	0.05	mg/L	08/03/1994	jmh
Benzene	ND	0.5	ug/L	08/03/1994	jmh
Toluene	ND	0.5	ug/L	08/03/1994	jmh
Ethylbenzene	ND	0.5	ug/L	08/03/1994	jmh
Xylenes (Total)	ND	0.5	ug/L	08/03/1994	jmh
Bromofluorobenzene (SURR)	92		% Rec.	08/03/1994	jmh

Ref: SHELL, 3420 San Pablo Ave., Oakland, Job No. 940719-E3

MATRIX SPIKE / MATRIX SPIKE DUPLICATE

Parameter	Matrix Spike % Rec.	Matrix Spike Dup % Rec.	RPD	Spike Amount	Sample Conc.	Matrix Spike Conc.	Matrix Spike Dup. Conc.	Units	Date Analyzed	Analyst Initials
TPH (Gas/BTXE,Liquid)										
as Gasoline	100.0	101.0	1.0	1.00	ND	1.00	1.01	mg/L	07/28/1994	aal
Benzene	100.0	100.0	0.0	33.7	ND	33.7	33.7	ug/L	07/28/1994	aal
Toluene	99.7	99.5	0.2	105.8	ND	105.5	105.3	ug/L	07/28/1994	aal
TPH (Gas/BTXE,Liquid)										
as Gasoline	80.0	87.0	8.4	1.00	ND	0.80	0.87	mg/L	07/29/1994	aal
Benzene	91.9	94.0	2.3	33.5	ND	30.8	31.5	ug/L	07/29/1994	aal
Toluene	90.3	94.1	4.1	105.4	ND	95.2	99.2	ug/L	07/29/1994	aal
TPH (Gas/BTXE,Liquid)										
as Gasoline	100.0	99.0	0.9	1.00	ND	1.00	0.99	mg/L	07/31/1994	jmh
Benzene	99.7	97.9	1.8	33.3	ND	33.2	32.6	ug/L	07/31/1994	jmh
Toluene	100.8	99.2	1.5	74.7	ND	75.3	74.1	ug/L	07/31/1994	jmh
TPH (Gas/BTXE,Liquid)										
as Gasoline	100.0	114.0	13.1	1.00	ND	1.00	1.14	mg/L	08/01/1994	jmh
Benzene	88.6	97.1	9.2	37.6	ND	33.3	36.5	ug/L	08/01/1994	jmh
Toluene	92.9	98.6	6.0	81.3	ND	75.5	80.2	ug/L	08/01/1994	jmh
TPH (Gas/BTXE,Liquid)										
as Gasoline	116.0	120.0	3.4	1.00	0.19	1.35	1.39	mg/L	08/02/1994	jmh
Benzene	114.4	117.3	2.5	34.1	5.5	44.5	45.5	ug/L	08/02/1994	jmh
Toluene	101.6	104.2	2.5	76.5	2.3	80.0	82.0	ug/L	08/02/1994	jmh
TPH (Gas/BTXE,Liquid)										
as Gasoline	93.0	93.0	0.0	1.00	ND	0.93	0.93	mg/L	08/02/1994	jmh
Benzene	91.8	92.1	0.3	34.1	ND	31.3	31.4	ug/L	08/02/1994	jmh
Toluene	96.3	96.2	0.1	76.5	ND	73.7	73.6	ug/L	08/02/1994	jmh
TPH (Gas/BTXE,Liquid)										
as Gasoline	94.0	103.0	9.0	1.00	0.18	1.12	1.21	mg/L	08/03/1994	jmh
Benzene	98.3	102.3	3.9	35.3	ND	34.7	36.1	ug/L	08/03/1994	jmh
Toluene	98.5	101.9	3.3	77.5	ND	76.3	79.0	ug/L	08/03/1994	jmh
TPH (Gas/BTXE,Liquid)										
as Gasoline	88.0	92.0	4.4	1.00	ND	0.88	0.92	mg/L	08/03/1994	jmh
Benzene	88.1	89.2	1.2	35.3	ND	31.1	31.5	ug/L	08/03/1994	jmh
Toluene	91.2	91.9	0.8	77.5	ND	70.7	71.2	ug/L	08/03/1994	jmh

Ref: SHELL, 3420 San Pablo Ave., Oakland, Job No. 940719-E3

LABORATORY CONTROL SAMPLE REPORT

Parameter	LCS % Recovery	RPD	LCS Amount Found	LCS Amount Expected	Units	Date Analyzed	Analyst Initials
Tot. Dissolved Solids (TFR)	104.5		1045	1000	mg/L	07/23/1994	shr
Tot. Dissolved Solids (TFR)	104.4		1044	1000	mg/L	07/23/1994	shr

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in results column indicates analyte not detected at the value following. This datum supercedes the listed Reporting Limit.
*	:	Reporting Limits are a function of the dilution factor for any given sample. Actual reporting limits and results have been multiplied by the listed dilution factor. **Do not** multiply the reporting limits or reported values by the dilution factor.
dw	:	Result expressed as dry weight.
mean	:	Average; sum of measurements divided by number of measurements.
mg/Kg (ppm)	:	Concentration in units of milligrams of analyte per kilogram of sample, wet-weight basis (parts per million).
mg/L	:	Concentration in units of milligrams of analyte per liter of sample.
mL/L/hr	:	Milliliters per liter per hour.
MPN/100 mL	:	Most probable number of bacteria per one hundred milliliters of sample.
N/A	:	Not applicable.
NA	:	Not analyzed.
ND	:	Not detected; the analyte concentration is less than the applicable listed reporting limit.
NTU	:	Nephelometric turbidity units.
RPD	:	Relative percent difference, 100 [Value 1 - Value 2]/mean value.
SNA	:	Standard not available.
ug/Kg (ppb)	:	Concentration in units of micrograms of analyte per kilogram of sample, wet-weight basis (parts per billion).
ug/L	:	Concentration in units of micrograms of analyte per liter of sample.
umhos/cm	:	Micromhos per centimeter.

Method References

Methods 100 through 493: see "Methods for Chemical Analysis of Water & Wastes", U.S. EPA, 600/4-79-020, Rev. 1983.

Methods 601 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants" U.S. EPA, 40 CFR, Part 136, Rev. 1988.

Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd edition, 1986., Rev. 1, December 1987.

SM: see "Standard Methods for the Examination of Water & Wastewater, 17th Edition, APHA, 1989.

Revised September, 1993
abb.93

COOLER RECEIPT FORM

oject: Shell 3420 San Pablo Ave. Oakland Log No:
oler received on: 7/22/94 and checked on 7/22/94 by K Tempel
(signature)

re custody papers present?..... YES NO
re custody papers properly filled out?..... YES NO
re the custody papers signed?..... YES NO
s sufficient ice used?..... YES NO 5.3°C
d all bottles arrive in good condition (unbroken)?..... YES NO
d bottle labels match COC?..... YES NO
re proper bottles used for analysis indicated?..... YES NO
rrect preservatives used?..... YES NO
A vials checked for headspace bubbles?..... YES NO
Note which voas (if any) had bubbles:*

mple descriptor:	Number of vials:
T.B.	1 of 2

ll VOAs with headspace bubbles have been set aside so they will not be sed for analysis..... YES NO

st here all other jobs received in the same cooler:

ient Job #	NET log #

(coolerrec)