Weiss Associates Environmental and Geologic Services

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

October 28, 1994

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

Re: Third Quarter 1994
Shell Service Station
WIC #204-5508-5801
500 - 40th Street
Oakland, California
WA Job #81-0601-104

Dear Mr. Hiett:

This letter describes recently completed and anticipated activities at the Shell service station referenced above (Figure 1). This status report satisfies the quarterly reporting requirements prescribed by California Administrative Code Title 23 Waters, Chapter 3, Subchapter 16, Article 5, Section 2652.d. Included below are descriptions and results of activities performed in the third quarter 1994 and proposed work for the fourth quarter 1994.

Third Quarter 1994 Activities:

- Blaine Tech Services, Inc. (BTS) of San Jose, California measured depths to ground water and collected ground water samples from the site wells. Wells MW-6, MW-9, and MW-13 were inaccessible due to parked cars. BTS' report describing these activities and the analytic report for the ground water samples are included as Attachment A.

- Weiss Associates (WA) compiled the ground water elevation and analytic data (Tables 1, 2 and 2b) and prepared a ground water elevation contour map (Figure 2).

Anticipated Fourth Quarter 1994 Activities:

As indicated in our April 15, 1993 monitoring report, WA has implemented semi-annual sampling of wells EW-1, MW-2 through MW-10 and well MW-13. These wells will be sampled in the second and fourth quarters of 1994. Wells MW-11 and MW-12 will continue to be sampled quarterly.

Parked cars have prevented scheduled sampling of several wells. To avoid this problem in the future, WA will procure an obstruction permit from the City of Oakland which will allow the posting of "No Parking" signs prior to the scheduled sampling event. We anticipate being able to sample all of the site wells in the fourth quarter.

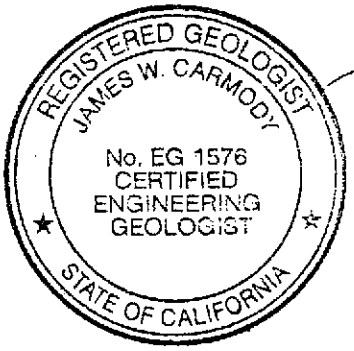
WA will submit a report presenting the results of the fourth quarter 1994 ground water sampling and ground water depth measurements. The report will include tabulated chemical analytic results, and a ground water elevation contour map.

Conclusions and Recommendations:

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

Please call if you have any questions.

Sincerely,
Weiss Associates



John Wolf
Technical Assistant

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

Attachments: A - Blaine Tech Services' Ground Water Monitoring Report

cc: Lynn Walker, Shell Oil Company, P.O. Box 4023, Concord, CA 94524
Jim Matthews, Shell Oil Company, P.O. Box 4848, Anaheim, CA 92803
Brian Oliva, Alameda County Department of Environmental Health, 1131 Harbor Bay Parkway, Alameda, CA 94502-6577

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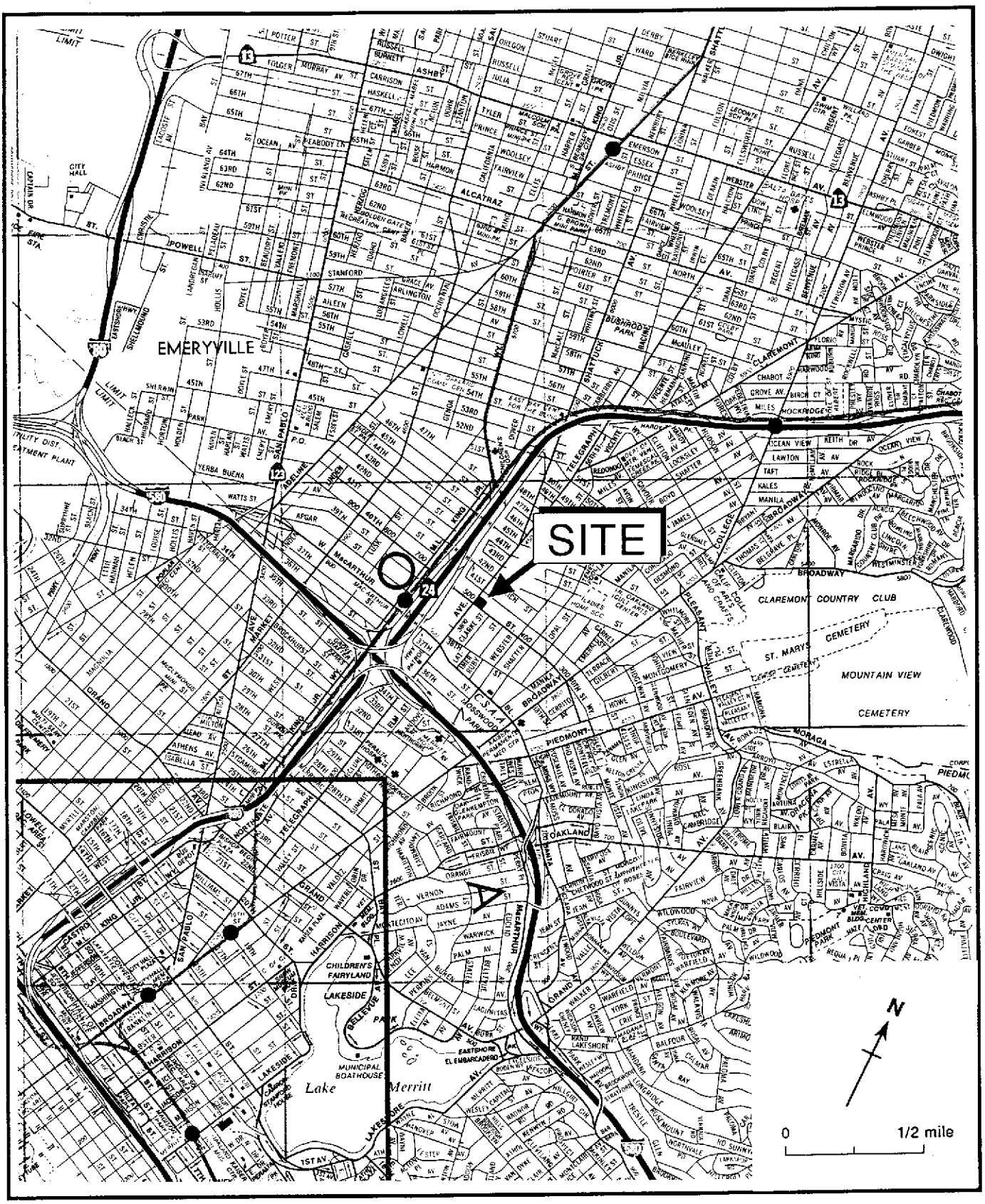

Figure 1. Site Location Map - Shell Service Station WIC #204-5508-4903, 500 40th Street, Oakland, California

2/28/92

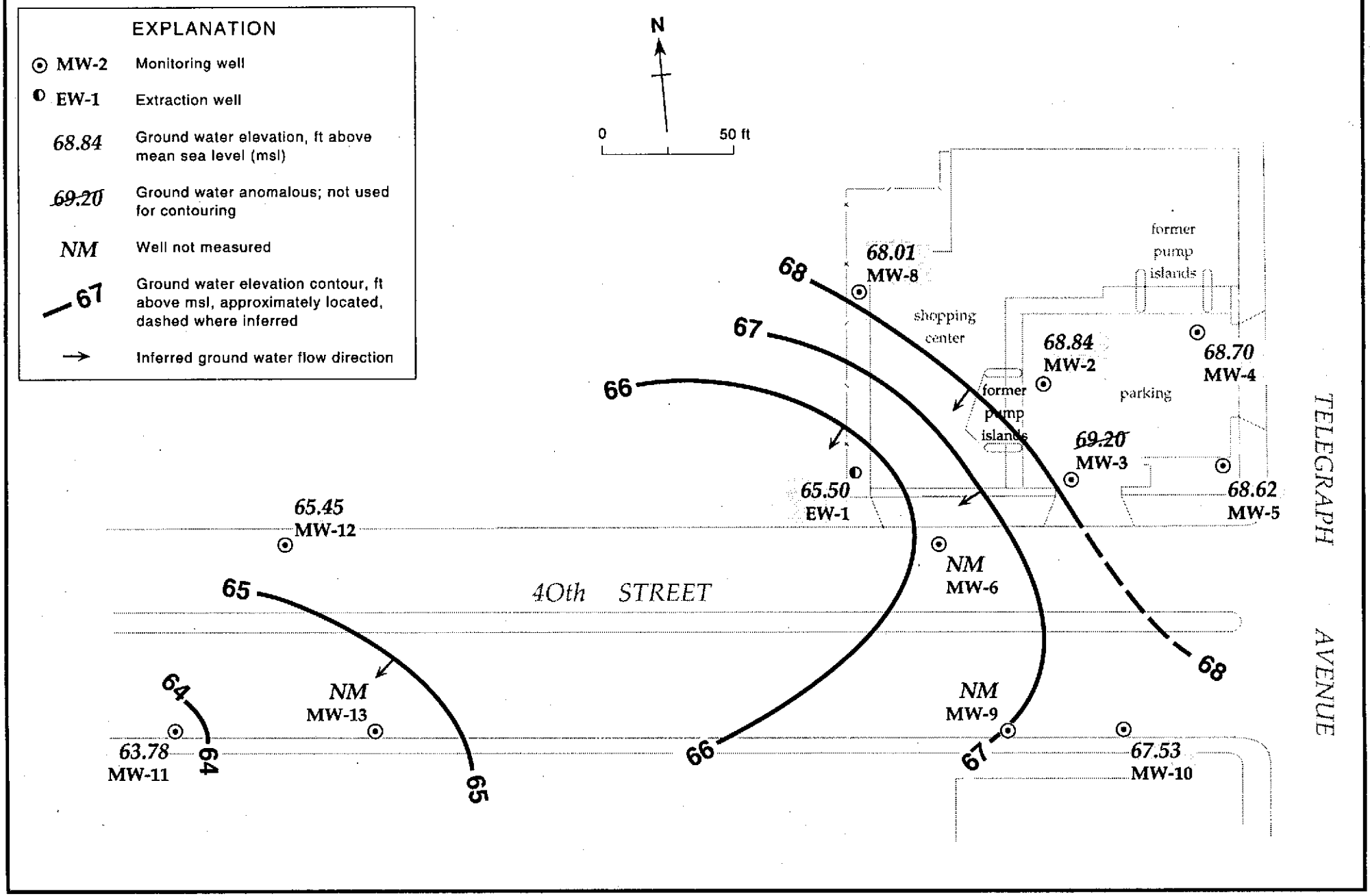

Figure 2. Monitoring Well Locations and Ground Water Elevation Contours - August 29, 1994 - Shell Service Station, WIC #204-5508-4903, 500 40th Street, Oakland, California

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

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Ground Water Elevation (ft above msl)
EW-1	08/06/91	78.26	---	---
	10/30/91		12.72	65.54
	03/18/92		11.71	66.55
	05/20/92		12.84	65.42
	08/19/92		13.04	65.22
	11/18/92		12.90	65.36
	02/11/93		11.28	66.98
	05/19/93		12.52	65.74
	08/18/93		12.48	65.78
	11/17/93		12.63	65.63
	02/18/94		11.38	66.88
	05/26/94		12.02	66.24
	08/29/94		12.76	65.50
MW-2	08/06/91	80.80	12.12	68.68
	10/30/91		11.70	69.10
	03/18/92		11.10	69.70
	05/20/92		12.12	68.68
	08/19/92		12.18	68.62
	11/18/92		12.03	68.77
	02/11/93		11.15	69.65
	05/19/93		11.80	69.00
	08/18/93[a]		---	---
	11/17/93		12.00	68.80
	02/18/94[a]		---	---
	05/26/94		11.61	69.19
	08/29/94		11.96	68.84
MW-3	08/06/91	79.60	11.12	68.48
	10/30/91		10.93	68.67
	03/18/92		10.54	69.06
	05/20/92		10.79	68.81
	08/19/92		11.23	68.37
	11/18/92		11.20	68.40
	02/11/93		11.00	68.60
	05/19/93		11.16	68.44
	08/18/93		11.35	68.25
	11/17/93		11.10	68.50
	02/18/94		10.76	68.84
	05/26/94		11.85	67.75
	08/29/94		10.40	69.20

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

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Ground Water Elevation (ft above msl)
MW-4	08/06/91	81.00	12.36	68.64
	10/30/91		12.02	68.98
	03/18/92		11.34	69.66
	05/20/92		12.35	68.65
	08/19/92		12.41	68.59
	11/18/92		12.28	68.72
	02/11/93		11.65	69.35
	05/19/93		11.92	69.08
	08/18/93[a]		---	---
	11/17/93		12.24	68.76
	02/18/94		11.69	69.31
	05/26/94		12.00	69.00
	08/29/94		12.30	68.70
MW-5	08/06/91	81.50	13.02	68.48
	10/30/91		12.73	68.77
	03/18/92		12.52	68.98
	05/20/92		13.05	68.45
	08/19/92		13.04	68.46
	11/18/92		12.91	68.59
	02/11/93		12.44	69.06
	05/19/93		12.84	68.66
	08/18/93		12.88	68.62
	11/17/93		12.89	68.61
	02/18/94		12.30	69.20
	05/26/94		12.73	68.77
	08/29/94		12.88	68.62
MW-6	08/06/91	77.90	10.71	67.19
	10/30/91		10.50	67.40
	03/18/92		9.24	68.66
	05/20/92		10.13	67.77
	08/19/92		10.16	67.74
	11/18/92		9.94	67.96
	02/11/93		9.20	68.70
	05/19/93		10.64	67.86
	08/18/93		10.04	67.86
	11/17/93		10.12	67.78
	02/18/94		9.65	68.25
	05/26/94		---	---
	08/29/94		---	---

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

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Ground Water Elevation (ft above msl)
MW-8	08/06/91	79.91	13.08	66.83
	10/30/91		12.87	67.04
	03/18/92		11.54	68.37
	05/20/92		12.32	67.59
	08/19/92		12.58	67.33
	11/18/92		12.47	67.44
	02/11/93		11.02	68.89
	05/19/93		11.78	68.13
	08/18/93		12.22	67.69
	11/17/93		12.25	67.66
	02/18/94		10.56	69.35
	05/26/94		11.30	68.61
	08/29/94		11.90	68.01
MW-9	08/06/91	77.71	10.38	67.33
	10/30/91		---	---
	03/18/92		8.76	68.95
	05/20/92[a]		---	---
	08/19/92		9.98	67.73
	11/18/92		9.81	67.90
	02/11/93[a]		---	---
	05/19/93		---	---
	08/18/93		9.75	67.96
	11/17/93		9.92	67.79
	02/18/94[a]		---	---
	05/26/94		---	---
	08/29/94		---	---
MW-10	08/06/91	77.91	10.00	67.91
	10/31/91		10.10	67.81
	03/18/92		9.55	68.36
	05/20/92		10.41	67.50
	08/19/92		10.46	67.45
	11/18/92		10.31	67.60
	02/11/93		9.68	68.23
	05/19/93		10.19	67.72
	08/18/93		10.29	67.62
	11/17/93		10.32	67.59
	02/18/94		9.60	68.31
	05/26/94		10.14	67.77
	08/09/94		10.38	67.53

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

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Ground Water Elevation (ft above msl)
MW-11	11/22/91	75.76	11.90	63.86
	02/15/92[a]		---	---
	03/18/92[a]		---	---
	05/20/92[a]		---	---
	08/19/92		12.06	63.70
	11/18/92		12.01	63.75
	02/11/93[a]		---	---
	05/19/93		11.90	63.86
	08/18/93		11.90	63.86
	11/17/93		11.94	63.82
	02/18/94[a]		---	---
	05/26/94		---	---
	08/29/94		11.98	63.78
MW-12	12/02/91	75.65	10.31	65.34
	03/18/92		8.93	66.72
	05/20/92		10.26	65.39
	08/19/92		10.53	65.12
	11/18/92		10.45	65.20
	02/11/93		8.90	66.75
	05/19/93		10.60	65.05
	08/18/93		10.28	65.37
	11/17/93		10.24	65.41
	02/18/94		8.97	66.68
	05/26/94		9.62	66.03
	08/29/94		10.20	65.45
MW-13	11/22/91	76.36	11.96	64.40
	03/18/92		10.84	65.52
	05/20/92[a]		---	---
	08/19/92		12.12	64.24
	11/18/92		12.00	64.42
	02/11/93[a]		---	---
	05/19/93		12.26	64.10
	08/18/93		11.75	64.61

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

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Ground Water Elevation (ft above msl)
	11/17/93		11.78	64.58
	02/18/94[a]		---	---
	05/26/94		---	---
	08/29/94		---	---

Notes:

a = Inaccessible well, ground water depth not measured

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

Well ID	Date Sampled	Depth to Water (ft)	TPH-G	TPH-D	B	E	T	X
			← parts per billion (µg/L) →					
EW-1	08/06/91	---	180	<50	5.4	0.9	<0.5	0.7
(Semi-annually	10/30/91	12.72	70	<50	2.6	<0.5	<0.5	<0.5
2nd & 4th Qtrs)	02/15/92	11.71	<50	---	2.1	<0.5	<0.5	<0.5
	05/22/92	12.84	99	---	4.1	<0.5	<0.5	<0.5
	08/19/92	13.04	140	---	6.6	<0.5	<0.5	<0.5
	11/18/92	12.90	56	---	<0.5	<0.5	<0.5	<0.5
	02/11/93	11.28	63	---	<0.5	<0.5	<0.5	0.9
	02/11/93[dup]	11.28	63	---	<0.5	<0.5	<0.5	0.8
	05/19/93	12.52	60[b]	---	<0.5	<0.5	<0.5	<0.5
	11/17/93	12.63	170	---	17	<0.5	<0.5	<0.5
	11/17/93[dup]	12.63	190	---	17	<0.5	<0.5	<0.5
	05/26/94	12.02	<50	---	3.5	<0.5	<0.5	0.51
MW-2	08/07/91	12.12	1,200	230	59	38	1.1	56
(Semi-annually	10/30/91	11.70	520	300	56	56	<0.5	100
2nd & 4th Qtrs)	02/15/92	11.10	2,300	2,200[a]	87	88	<2.5	150
	05/21/92	12.12	700	---	24	34	1.0	48
	08/19/92	12.18	740	---	21	24	<2.5	26
	08/19/92[dup]	12.18	840	---	31	36	<2.5	43
	11/18/92	12.03	920	---	19	30	<2.5	51
	11/18/92[dup]	12.03	870	---	25	34	<2.5	52
	02/11/93	11.15	1,000	---	25	43	6.0	73
	05/19/93	11.80	570	---	19	37	<0.5	42
	11/17/93	12.00	250	---	10	26	<1.0	20
	05/26/94	11.61	620	---	17	25	1.4	31
	05/26/94[dup]	11.61	600	---	16	24	1.2	29

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

Well ID	Date Sampled	Depth to Water (ft)	TPH-G	TPH-D	B	E	T	X
			← parts per billion (µg/L) →					
MW-3	08/07/91	11.12	1,900	470	220	57	57	260
(Semi-annually	10/30/91	10.93	1,900	480	160	63	28	180
2nd & 4th Qtrs)	02/15/92	10.54	2,300	780[a]	170	59	31	180
	05/21/92	10.79	1,500	---	160	44	20	140
	08/19/92	11.23	4,500	---	210	89	64	310
	11/18/92	11.20	2,400	---	81	39	14	140
	02/11/93	11.0	3,000	---	200	90	47	260
	05/19/93	11.16	2,100	---	240	100	44	330
	11/17/93	11.10	1,000	---	110	60	13	150
	05/26/94	11.85	1,100	---	200	29	17	58
MW-4	08/07/91	12.36	<50	<50	<0.5	<0.5	<0.5	<0.5
(Semi-annually	10/30/91	12.02	50	<50	<0.5	<0.5	<0.5	<0.5
2nd & 4th Qtrs)	02/15/92	11.34	90	---	0.9	<0.5	<0.5	<0.5
	05/21/92	12.35	<50	---	<0.5	<0.5	<0.5	<0.5
	08/19/92	12.41	82[b]	---	<0.5	<0.5	<0.5	<0.5
	11/18/92	12.28	85[b]	---	<0.5	<0.5	<0.5	<0.5
	02/11/93	11.65	62[b]	---	<0.5	<0.5	<0.5	<0.5
	05/19/93	11.92	<50	---	<0.5	<0.5	<0.5	<0.5
	11/17/93	12.24	<50	---	<0.5	<0.5	<0.5	<0.5
	05/26/94	12.00	<50	---	<0.5	<0.5	<0.5	<0.5
MW-5	08/07/91	13.02	<50	<50	<0.5	<0.5	<0.5	<0.5
(Semi-annually	10/30/91	12.73	<50	<50	<0.5	<0.5	<0.5	<0.5
2nd & 4th Qtrs)	02/15/92	12.52	<50	---	<0.5	<0.5	<0.5	<0.5
	05/20/92	13.05	<50	---	<0.5	<0.5	<0.5	<0.5
	08/19/92	13.04	55[b]	---	<0.5	<0.5	<0.5	<0.5
	11/18/92	12.91	<50	---	<0.5	<0.5	<0.5	<0.5
	02/11/93	12.44	59[b]	---	<0.5	<0.5	<0.5	<0.5
	05/19/93	12.84	<50	---	<0.5	<0.5	<0.5	<0.5
	05/19/93[dup]	12.84	<50	---	<0.5	<0.5	<0.5	<0.5

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

Well ID	Date Sampled	Depth to Water (ft)	TPH-G	TPH-D	B	E	T	X
			← parts per billion (µg/L) →					
	11/17/93	12.89	<50	---	<0.5	<0.5	<0.5	<0.5
	05/26/94	12.73	<50	---	1.8	1.3	2.4	4.9
MW-6	08/06/91	10.71	26,000	3,600	910	560	420	1,900
(Semi-annually	10/30/91	10.50	20,000	4,600	710	410	240	1,700
2nd & 4th Qtrs)	02/15/92	9.24	35,000	27,000	690	650	420	3,000
	05/21/92	10.13	15,000	---	460	300	110	1,600
	08/19/92	10.16	24,000	---	600	460	300	2,000
	11/18/92	9.94	29,000	---	480	450	250	2,300
	02/11/93	9.20	24,000	---	1,300	630	250	2,400
	05/19/93	10.04	18,000	---	750	520	180	2,500
	11/17/93	10.12	14,000	---	260	430	64	1,900
	05/26/94	---	---	---	---	---	---	---
MW-8	08/06/91	13.08	90	<50	<0.5	<0.5	<0.5	<0.5
(Semi-annually	10/30/91	12.87	<50	<50	<0.5	<0.5	<0.5	<0.5
2nd & 4th Qtrs)	02/15/92	11.54	<50	---	<0.5	<0.5	<0.5	<0.5
	05/20/92	12.32	<50	---	<0.5	<0.5	<0.5	<0.5
	08/19/92	12.58	60	---	<0.5	<0.5	<0.5	<0.5
	11/18/92	12.47	<50	---	<0.5	<0.5	<0.5	<0.5
	02/11/93	11.02	76[b]	---	<0.5	<0.5	<0.5	<0.5
	05/18/93	11.78	<50	---	<0.5	<0.5	<0.5	<0.5
	11/17/93	12.25	<50	---	<0.5	<0.5	<0.5	<0.5
	05/26/94	11.30	<50	---	<0.5	<0.5	<0.5	<0.5
MW-9	08/06/91	10.38	3,900	190	58	80	8.8	220
(Semi-annually	10/30/91	---	---	---	---	---	---	---
2nd & 4th Qtrs)	03/18/92	8.76	1,800[c]	210	84	49	11	60
	05/20/92	---	---	---	---	---	---	---
	08/19/92	9.98	4,600	22[a]	63	48	<25	70
	11/18/93	9.81	1,800	130[a]	30	46	9.2	61

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

Well ID	Date Sampled	Depth to Water (ft)	TPH-G	TPH-D	B	E	T	X
			← parts per billion (µg/L) →					
	02/11/93	---	---	---	---	---	---	---
	05/19/93	---	---	---	---	---	---	---
	11/17/93	9.92	5,900	2,400[d]	86	150	14	46
	05/26/94	---	---	---	---	---	---	---
MW-10	08/07/91	10.00	460	<50	73	18	1.0	8.4
(Semi-annually	10/31/91	10.10	630	150	100	33	<0.5	26
2nd & 4th Qtrs)	02/15/92	9.55	810	570[a]	85	44	2.5	38
	05/21/92	10.41	280	---	47	4.0	0.7	3.1
	08/19/92	10.46	330	---	35	6.0	<1	4.1
	11/18/93	10.31	300	---	30	7.1	0.8	6.3
	02/11/93	9.68	510[b]	---	49	18	3.8	18
	05/19/93	10.19	<50	---	96	3.4	<0.5	1.5
	11/17/93	9.92	400	---	24	2.8	<1.0	1.9
	05/26/94	10.14	330	---	32	7.5	13	26
MW-11	11/22/91	11.90	450	240	1.1	<0.5	<0.5	<0.5
(Quarterly)	02/15/92	---	---	---	---	---	---	---
	03/18/92	---	---	---	---	---	---	---
	05/20/92	---	---	---	---	---	---	---
	08/19/92	12.06	270[b]	<50	<0.5	<0.5	<0.5	<0.5
	11/18/92	12.01	400[b]	100	<0.5	<0.5	<0.5	<0.5
	02/11/93	---	---	---	---	---	---	---
	05/20/93	11.90	200[b]	<0.5	<0.5	<0.5	<0.5	<0.5
	08/18/93	11.90	180[b]	<50	<0.5	<0.5	<0.5	<0.5
	11/17/93	11.94	150[b]	<50[d]	<0.5	<0.5	3.6	<0.5
	02/18/94	---	---	---	---	---	---	---
	05/26/94	---	---	---	---	---	---	---

— Table 2 continues on next page —

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

Well ID	Date Sampled	Depth to Water (ft)	TPH-G	TPH-D	B	E	T	X
			← parts per billion (µg/L) →					
MW-12 (Quarterly)	12/02/91	10.31	<1,000	<50	<0.5	<0.5	<0.5	<0.5
	03/18/92	8.93	<50	<50	<0.5	<0.5	<0.5	<0.5
	05/20/92	10.26	180[b]	---	<0.5	<0.5	<0.5	<0.5
	08/19/92	10.53	230[b]	---	<0.5	<0.5	<0.5	<0.5
	11/18/92	10.45	220[b]	---	<0.5	<0.5	<0.5	<0.5
	02/11/93	8.90	240	---	<0.5	<0.5	<0.5	<0.5
	05/19/93	10.60	110[b]	---	<0.5	<0.5	<0.5	<0.5
	08/18/93	10.28	140[b]	---	<0.5	<0.5	<0.5	<0.5
	11/17/93	10.24	120[b]	---	<0.5	<0.5	<0.5	<0.5
	02/18/94	8.97	180[b]	---	1.7	0.90	2.1	4.8
	05/26/94	9.62	150	---	<0.5	<0.5	<0.5	<0.5
	08/29/94	11.98	110	---	<0.5	<0.5	<0.5	<0.5
MW-13 (Semi-annually 2nd & 4th Qtrs)	11/22/91	11.96	900	1,000	37	74	9.5	130
	03/18/92	10.84	900[c]	590[a]	24	320	28	320
	05/20/92	---	---	---	---	---	---	---
	08/19/92	12.12	7,000	470[a]	180	150	36	150
	11/18/92	12.00	---	---	---	---	---	---
	02/11/93	---	---	---	---	---	---	---
	05/20/93	12.26	9,200	---	320	490	83	950
	11/17/93	11.78	38,000	3,800	210	1,000	<130	2,500
	05/26/94	---	---	---	---	---	---	---
Field Blank	08/19/92		<50	---	<0.5	<0.5	0.5	0.5
	11/18/92		<50	---	<0.5	<0.5	<0.5	<0.5
Trip Blank	02/15/92		<50	<50	<0.5	<0.5	<0.5	<0.5
	03/18/92		<50	---	<0.5	<0.5	<0.5	<0.5
	05/21/92		<50	---	<0.5	<0.5	<0.5	<0.5
	08/19/92		<50	---	<0.5	<0.5	<0.5	<0.5
	11/18/92		<50	---	<0.5	<0.5	<0.5	<0.5

— Table 2 continues on next page —

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

Well ID	Date Sampled	Depth to Water (ft)	TPH-G	TPH-D	B	E	T	X
			← parts per billion (µg/L) →					
	02/11/93		<50	---	<0.5	<0.5	<0.5	<0.5
	05/20/93		<50	---	<0.5	<0.5	<0.5	<0.5
	08/18/93		<50	---	<0.5	<0.5	<0.5	<0.5
	11/17/93		<50	---	<0.5	<0.5	<0.5	<0.5
	02/18/94		<50	---	<0.5	<0.5	<0.5	<0.5
	05/26/94		<50	---	<0.5	<0.5	<0.5	<0.5
	08/29/94		<50	---	<0.5	<0.5	<0.5	<0.5
DTSC MCLs			NE	NE	1	680	100[e]	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 EPA Method 8015
B = Benzene by EPA Method 8020
E = Ethylbenzene by EPA Method 8020
T = Toluene by EPA Method 8020
X = Xylenes by EPA Method 8020
NE = Not established
DTSC MCLs = California Department of Toxic Substances Control maximum contaminant levels for drinking water
--- = Not analyzed
ND = Not detected

Notes:

a = Concentration reported as diesel is primary due to the presence of a lighter petroleum product, possible gasoline or kerosene
b = Concentration reported as gasoline is primarily due to the presence of discrete hydrocarbon peaks not indicative of gasoline
c = Compounds detected and calculated as gasoline do not match the standard gasoline chromatographic pattern
d = The concentrations reported as diesel are primarily due to the presence of a lighter petroleum product of hydrocarbon range C6-C12, possibly gasoline.
e = DTSC recommended action level; MCL not established

Table 2B. Analytic Results for Ground Water - Volatile Organic Compounds - Shell Service Station WIC #204-5508-5801, 500 40th Street, Oakland, California

Well ID	Date Sampled	Depth to Water (ft)	TCE	PCE	Chloroform	cis-1,2-DCE	1,2-DCA	1,1-DCA
			← parts per billion (mg/l) →					
EW-1	11/18/93	12.63	5.5	<0.05	<0.05	6.8	2.4	0.69
	11/18/93[dup]	12.63	5.1	---	---	6.5	2.3	0.63
MW-4	11/18/93	12.24	2.5	36	1.3	3.5	<0.5	<0.5
MW-5	11/18/93	12.89	2.0	34	1.0	1.2	<0.5	<0.5
MW-8	11/18/93	12.25	1.8	50	1.1	1.1	<1.0	<1.0
OMW-9	11/18/93	9.92	<0.5	<0.5	<0.5	0.68	<0.05	<0.05
OMW-10	11/18/93	10.32	1.7	1.9	<0.5	3.9	<0.5	<0.5
OMW-11	11/18/93	11.94	40	<10	<10	42	<10	<10
OMW-12	11/18/93	10.24	13	400	<10	11	<10	<10
	02/18/94	8.97	14	430	<10	11	<10	<10
OMW-13	11/18/93	11.78	<10	<10	<10	<10	<10	<10
DTSC MCLs			5	5	NE	6	0.5	.5

Abbreviations:

TCE = Trichloroethene by EPA Method 601/8010 or 8240
TCA = 1,1,1-Trichloroethane by EPA Method 601/8010 or 8240
PCE = Tetrachloroethene by EPA Method 601/8010 or 8240
cis-1,2-DCE = cis-1,2-Dichloroethene by EPA Method 601/8010 or 8240
trans-1,2-DCE = trans-1,2-Dichloroethene by EPA Method 601/8010 or 8240

--- = Not analyzed
<n = Not detected above detection limit of n ppb
1,2-DCA = 1,2 dichloroethane by EPA Method 601/8010 or 8240
DTSC MCLs = Department of Toxic Substance control maximum contaminant levels
NE = DTSC MCL not established
ND = Analyte not detected, detection limit not known

ATTACHMENT A

GROUND WATER MONITORING REPORT AND ANALYTIC REPORT

BLAINE
TECH SERVICES INC.

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

September 15, 1994

Shell Oil Company
P.O. Box 4023
Concord, CA 94524

Attn: Lynn Walker

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

QUARTER:
3rd quarter of 1994

QUARTERLY GROUNDWATER SAMPLING REPORT 940829-J-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 obtained 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 site is performed in accordance with specific directions from the professional consulting firm overseeing work at the site on Shell's behalf.

Sample Containers

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

Sampling

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

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

Sample Designations

All sample containers are identified with a site designation and a discrete sample identification number specific to that particular groundwater well. Additional standard notations (e.g. time, date, sampler) are also made on the label.

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)
EW-1	8/29/94	TOC	--	NONE	--	--	12.76	38.50
MW-2	8/29/94	TOC	--	NONE	--	--	11.96	19.48
MW-3	8/29/94	TOC	--	NONE	--	--	10.40	18.70
MW-4	8/29/94	TOC	--	NONE	--	--	12.30	14.90
MW-5	8/29/94	TOC	--	NONE	--	--	12.88	20.14
OMW-6	8/29/94	INACCESSIBLE						
MW-8	8/29/94	TOC	--	NONE	--	--	11.90	38.78
OMW-9	8/29/94	INACCESSIBLE						
OMW-10	8/29/94	TOC	--	NONE	--	--	10.38	16.02
OMW-11	8/29/94	TOC	--	NONE	--	--	11.98	19.74
OMW-12	8/29/94	TOC	--	NONE	--	--	10.20	19.50
OMW-13	8/29/94	INACCESSIBLE						

2271

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No: 940829JJ

Date: 8/29/94
Page 1 of 1

Site Address: 500 40th Street, Oakland

WIC#: 204-5508-4903

Shell Engineer: Lynn Walker
Phone No.: (510) 675-6169
Fax #: 675-6172

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:

Printed Name: JEAN GATINEAU

LAB: NET

Analysis Required

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
OMW-12	8/29			X		3						X								
TB,	8/29			X		2						X								
																				CUSTODY SEALED 8/30/94 [signature] seal intact

CHECK ONE (1) BOX ONLY | CT/DT
- [X] Quarterly Monitoring 5461
- [ ] Site Investigation 5441
- [ ] Soil Classify/Disposal 5442
- [ ] Water Classify/Disposal 5443
- [ ] Soil/Air Rem. or Sys. O & M 5452
- [ ] Water Rem. or Sys. O & M 5453
- [ ] Other

TURN AROUND TIME
- [ ] 24 hours
- [ ] 48 hours
- [X] 16 days (Normal)
- [ ] 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:
[signature]	JEAN GATINEAU	Date: 8/30 Time: 11:00	[signature]	G/ LUMBEE	Date: 8/30 Time: 11:00
[signature]	G/ LUMBEE	Date: 8/30 Time: 16:00	Received (signature):	Printed Name:	Date: Time:
(VIA NCS)		Date: Time:	[signature]	K. Temple	Date: 8/31/94 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: 09/13/1994
NET Client Acct. No: 1821
NET Pacific Job No: 94.03935
Received: 08/31/1994

Client Reference Information

SHELL, 500 40th Street, Oakland, Job No. 940829-J1

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, 500 40th Street, Oakland, Job No. 940829-J1

SAMPLE DESCRIPTION: OMW-12
Date Taken: 08/29/1994
Time Taken:
NET Sample No: 213619

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
TPH (Gas/BTXE,Liquid)							
METHOD 5030/M8015	--						09/08/1994
DILUTION FACTOR*	1						09/08/1994
as Gasoline	110		50	ug/L	5030		09/08/1994
Carbon Range:	C5-C12						09/08/1994
METHOD 8020 (GC,Liquid)	--						09/08/1994
Benzene	ND		0.5	ug/L	8020		09/08/1994
Toluene	ND		0.5	ug/L	8020		09/08/1994
Ethylbenzene	ND		0.5	ug/L	8020		09/08/1994
Xylenes (Total)	ND		0.5	ug/L	8020		09/08/1994
SURROGATE RESULTS	--						09/08/1994
Bromofluorobenzene (SURR)	99			% Rec.	5030		09/08/1994

Ref: SHELL, 500 40th Street, Oakland, Job No. 940829-J1

SAMPLE DESCRIPTION: T.B.
Date Taken: 08/29/1994
Time Taken:
NET Sample No: 213620

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
TPH (Gas/BTXE,Liquid)							
METHOD 5030/M8015	--						09/08/1994
DILUTION FACTOR*	1						09/08/1994
as Gasoline	ND		50	ug/L	5030		09/08/1994
Carbon Range:	--						09/08/1994
METHOD 8020 (GC,Liquid)	--						09/08/1994
Benzene	ND		0.5	ug/L	8020		09/08/1994
Toluene	ND		0.5	ug/L	8020		09/08/1994
Ethylbenzene	ND		0.5	ug/L	8020		09/08/1994
Xylenes (Total)	ND		0.5	ug/L	8020		09/08/1994
SURROGATE RESULTS	--						09/08/1994
Bromofluorobenzene (SURR)	102			% Rec.	5030		09/08/1994

Ref: SHELL, 500 40th Street, Oakland, Job No. 940829-J1

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	104.0	1.04	1.00	mg/L	09/08/1994	dfw
Benzene	89.6	4.48	5.00	ug/L	09/08/1994	dfw
Toluene	91.6	4.58	5.00	ug/L	09/08/1994	dfw
Ethylbenzene	92.8	4.64	5.00	ug/L	09/08/1994	dfw
Xylenes (Total)	93.1	13.96	15.0	ug/L	09/08/1994	dfw
Bromofluorobenzene (SURR)	101.0	101	100	% Rec.	09/08/1994	dfw

Ref: SHELL, 500 40th Street, Oakland, Job No. 940829-J1

METHOD BLANK REPORT

Parameter	Method Blank Amount Found	Reporting Limit	Units	Date Analyzed	Analyst Initials
TPH (Gas/BTXE,Liquid)					
as Gasoline	ND	0.05	mg/L	09/08/1994	dfw
Benzene	ND	0.5	ug/L	09/08/1994	dfw
Toluene	ND	0.5	ug/L	09/08/1994	dfw
Ethylbenzene	ND	0.5	ug/L	09/08/1994	dfw
Xylenes (Total)	ND	0.5	ug/L	09/08/1994	dfw
Bromofluorobenzene (SURR)	96		% Rec.	09/08/1994	dfw

Ref: SHELL, 500 40th Street, Oakland, Job No. 940829-J1

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	107.0	106.0	0.9	1.00	ND	1.07	1.06	mg/L	09/08/1994	dfw
Benzene	104.9	103.7	1.2	32.7	ND	34.3	33.9	ug/L	09/08/1994	dfw
Toluene	104.2	103.0	1.2	96.0	ND	100.0	98.9	ug/L	09/08/1994	dfw

NET®

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

Project: Shell Oakland 940829-J1 Log No: 2271
Cooler received on: 8-31-94 and checked on 8-31-94 by J. Sorensen
(signature)

Were custody papers present?..... (YES) NO
Were custody papers properly filled out?..... (YES) NO
Were the custody papers signed?..... (YES) NO
Was sufficient ice used?..... (YES) NO 0.4°C
Did all bottles arrive in good condition (unbroken)?..... (YES) NO
Did bottle labels match COC?..... (YES) NO
Were proper bottles used for analysis indicated?..... (YES) NO
Correct preservatives used?..... (YES) NO
VOA vials checked for headspace bubbles?..... (YES) NO
Note which voas (if any) had bubbles:*

Sample descriptor:	Number of vials:

*All VOAs with headspace bubbles have been set aside so they will not be used for analysis..... YES NO

List here all other jobs received in the same cooler:

Client Job #	NET log #

(coolerrec)