Weiss Associates Environmental and Geologic Services

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

March 22, 1995

Juliet Shin
Alameda County Department of
Environmental Health
1131 Harbor Bay Parkway
Suite 250
Alameda, CA 94502-6577

Re: Shell Service Station
WIC #204-0072-0502
2160 Otis Drive
Alameda, California
WA Job #81-0429-105

Dear Ms. Shin:

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 first quarter 1995 and proposed work for the second quarter 1995.

First Quarter 1995 Activities:

- Weiss Associates (WA) received approval on February 8, 1995 for a workplan to investigate whether the VOCs detected in one well are coming from an offsite source.

- On January 13th, Blaine Tech Services, Inc., (BTS) of San Jose, California measured depths to ground water in all three wells and collected ground water samples for analyses of hydrocarbons, volatile organic compounds (VOCs), and total dissolved solids (TSD) for well MW-2. BTS's reports describing the sampling activities including the ground water analytic report are included as Attachments A.

- WA compiled the ground water elevation data and the laboratory analytic results (Tables 1, 2A and 2B) and prepared a ground water elevation contour map (Figure 2).

Anticipated Second Quarter 1995 Activities:

- WA will submit a report presenting the results of the second quarter 1995 ground water sampling and ground water depth measurements. The report will include tabulated chemical analytic results, ground water elevations and a ground water elevation contour map.

- WA will submit a report presenting the results of the proposed investigation.

Conclusions and Recommendations

TDS concentrations were measured in ground water from well MW-2 at 177,000 ppm.

WA will continue with the sampling frequency presented in earlier monitoring reports. However, the elevated TDS concentrations may affect future activities at this site. These concentrations are much greater than the threshold value considered safe for "potable" water use. Therefore, ground water beneath the site cannot be considered a drinking water source.

Petroleum hydrocarbons were not detected in well MW-2 this quarter. However, some VOCs were detected in well MW-2 this quarter, tetrachloroethylene at 18 ppb, chloroform at 25 ppb and carbon disulfate at 9.4 ppb. These concentrations are slightly higher than those detected in fourth quarter 1994 for this well.

Concentrations could be higher due to shallower DTW or gradient direction change. - JS

Please call if you have any questions.

Sincerely,
Weiss Associates

REGISTERED GEOLOGIST
JAMES W. CARMODY
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CERTIFIED
ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

Grady S. Glasser
Technical Assistant

James W. Carmody, C.E.G.
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Attachments: A - BTS's Ground Water Monitoring Report

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

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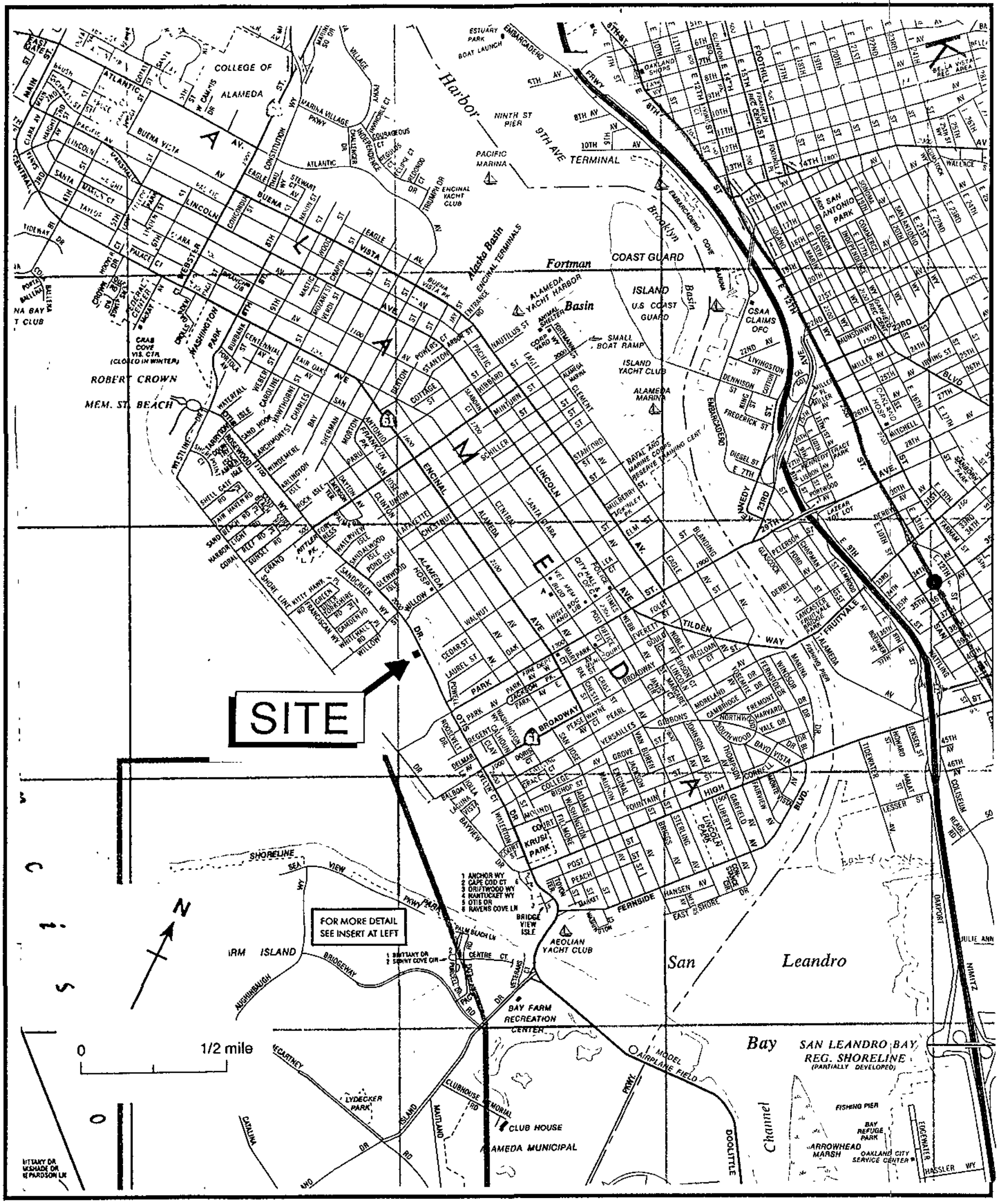

Figure 1. Site Location Map - Shell Service Station, WIC# 204-0072-0502, 2160 Otis Drive, Alameda, CA

8/21/90

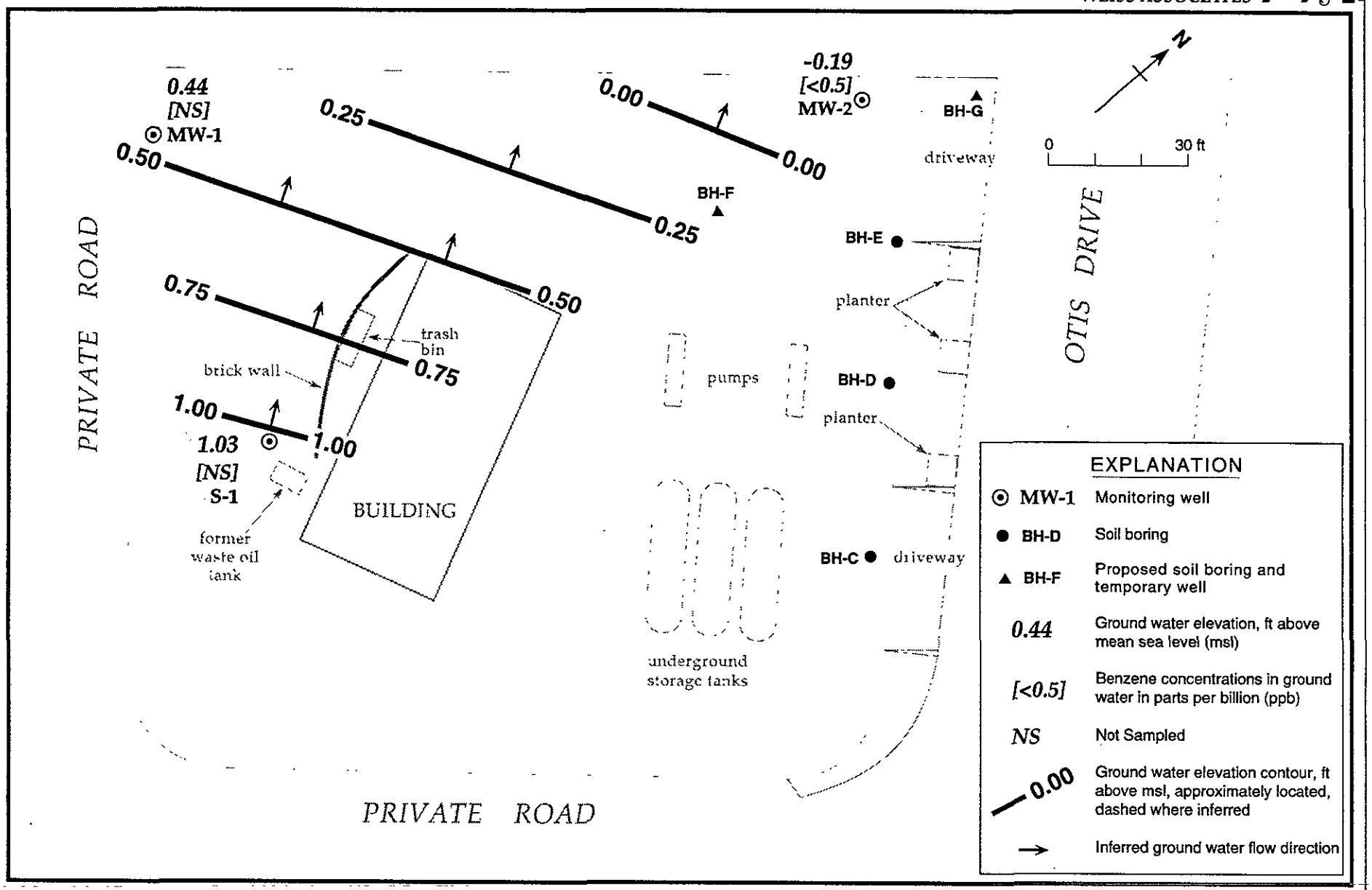

Figure 2. Monitoring Well and Soil Boring Locations, Ground Water Elevation Contours, and Benzene Concentrations in Ground Water January 13, 1995 - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda, California

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Table 1. Ground Water Elevations - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda, California

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Ground Water Elevation (ft above msl)
MW-1	04/11/90	6.00	5.23	0.77
	07/10/90		5.40	0.60
	10/09/90		5.61	0.39
	01/17/91		5.66	0.34
	04/09/91		4.96	1.04
	07/10/91		5.52	0.48
	10/09/91		5.70	0.30
	01/24/92		5.51	0.49
	04/23/92		5.14	0.86
	07/01/92		4.48	1.52
	10/02/92		5.80	0.20
	01/05/93		5.34	0.66
	04/08/93		4.62	1.38
	07/20/93		5.20	0.80
	10/15/93		4.37	1.63
	01/07/94		5.26	0.74
	04/13/94		5.01	0.99
	07/26/94		5.38	0.62
	08/18/94		5.40	0.60
	11/01/94		5.60	0.40
	01/13/95		**5.56**	**0.44**
MW-2	04/11/90	3.29	4.51	-1.22
	07/10/90		4.61	-1.32
	10/09/90		4.74	-1.45
	01/17/91		4.73	-1.44
	04/09/91		4.09	-0.80
	07/10/91		4.66	-1.37
	10/09/91		4.81	-1.52
	01/24/92		4.66	-1.37
	04/23/92		4.51	-1.22
	07/01/92		4.57	-1.28
	10/02/92		4.80	-1.51
	01/05/93		4.39	-1.1
	04/08/93		4.15	-0.86
	07/20/93		4.40	-1.11
	10/15/93		5.41	-2.12
	01/07/94		4.34	-1.05
	04/13/94		4.29	-1.00
	07/26/94		4.56	-1.27
	11/01/94		4.68	-1.39
	01/13/95		**3.48**	**-0.19**

— Table 1 continues on next page —

Table 1. Ground Water Elevations - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda, California (continued)

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Ground Water Elevation (ft above msl)
S-1	09/11/90	5.10	4.29	0.81
	04/11/90		4.00	1.10
	07/10/90		4.25	0.85
	10/09/90		4.46	0.64
	01/17/91		4.53	0.57
	04/09/91		4.20	0.90
	07/10/91		4.42	0.68
	10/09/91		4.87	0.23
	01/24/92		4.90	0.20
	04/23/92		4.66	0.44
	07/01/92		4.85	0.25
	10/02/92		4.80	0.30
	01/05/93		5.38	-0.28
	04/08/93		3.69	1.41
	07/20/93		4.20	0.90
	10/15/93		4.38	0.72
	01/07/94		4.19	0.91
	04/17/94		4.03	1.07
	07/26/94		4.76	0.34
	11/01/94		4.84	0.26
	01/13/95		**4.07**	**1.03**

Table 2A. Analytic Results for Ground Water - Petroleum Hydrocarbons - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda, California

Well ID (Sampling Frequency)	Date Sampled	Depth to Water (ft)	TPH-G	TPH-D	POG	B	E	T	X	TDS
			← parts per billion (µg/L) →							
S-1	09/04/87		---	---	---	<5	<5	<5	<5	---
(Annually	09/11/89[a]	4.29	<50	<100	<1,000	<0.5	<1	<1	<3	---
1st Qtr)	04/11/90	4.00	<50	<50	<10,000	<0.5	<0.5	<0.5	<0.5	---
	07/10/90	4.25	<90	---	<10,000	<0.5	<0.5	<0.5	<0.5	---
	10/09/90	4.46	<50	---	<5,000	<0.5	<0.5	<0.5	<0.5	---
	01/17/91	4.53	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	04/09/91	4.20	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	07/10/91	4.42	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	10/09/91	4.87	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	01/24/92	4.90	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	04/23/92	4.66	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	07/01/92	4.85	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	10/02/92	5.80	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	01/05/93	5.38	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	01/07/94	4.19	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	01/07/94	4.19	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	11/01/94	4.84	<50	---	---	<0.5	<0.5	<0.5	<0.5	560,000
MW-1	04/11/90	5.23	<50	<50	<10,000	<0.5	<0.5	<0.5	<0.5	---
(Annually	07/10/90	5.40	100	---	<10,000	<0.5	<0.5	<0.5	<0.5	---
1st Qtr)	10/09/90	5.61	<50	---	<5,000	<0.5	<0.5	<0.5	<0.5	---
	01/17/91	5.66	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	04/09/91	4.96	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	07/10/91	5.52	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	10/09/91	5.70	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	01/24/92	5.51	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	04/23/92	5.14	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	07/01/92	4.48	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	10/02/92	4.80	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	01/05/93	5.34	<50	---	---	<0.5	<0.5	<0.5	<0.5	---

— Table 2A continues on next page —

Table 2A. Analytic Results for Ground Water - Petroleum Hydrocarbons - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda, California (continued)

Well ID (Sampling Frequency)	Date Sampled	Depth to Water (ft)	TPH-G	TPH-D	POG	B	E	T	X	TDS
			← parts per billion (µg/L) →							
	01/05/93[dup]	5.34	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	01/07/94	5.26	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	08/18/94	5.40	<50	---	---	<0.5	<0.5	<0.5	<0.5	6,300,000
	10/11/94	5.60	<50	<50	---	<0.5	<0.5	<0.5	<0.5	6,700,000
MW-2	04/11/90	4.51	200[b]	220	<10,000	2.7	<0.5	0.5	2.4	---
(Quarterly)	07/10/90	4.61	570[b]	450	<10,000	150	<0.5	0.9	3.1	---
	10/09/90	4.74	190[b]	51	<5,000	55	<0.5	<0.5	<0.5	---
	01/17/91	4.73	350[b]	<50	---	51	<0.5	<0.5	<0.5	---
	04/09/91	4.09	---	<50	---	21	<5	<5	<5	---
	07/10/91	4.66	50[b]	<50	---	8.4	<0.5	<0.5	<0.5	---
	10/09/91	4.81	150	---	---	22	<0.5	<0.5	<0.5	---
	01/24/92	4.66	<50	---	---	4.8	<0.5	<0.5	<0.5	---
	04/23/92	4.51	<50	---	---	2.3	1.5	<0.5	<0.5	---
	07/01/92	4.57	130[c]	---	---	19	<0.5	<0.5	<0.5	---
	10/02/92	4.80	120[c]	---	---	7.8	<0.5	<0.5	<0.8	---
	01/05/93	4.39	200[c]	---	---	9.0	<0.5	0.6	1.8	---
	04/08/93	4.15	170[c]	---	---	9.6	<0.5	<0.5	1.6	---
	07/20/93	4.40	80[d]	---	---	16	1.3	1.4	6.1	---
	10/15/93	4.38	400[c]	---	---	37	0.6	1.1	4.7	---
	01/07/94	4.34	86[d]	---	<500	12	<0.5	<0.5	1.1	---
	04/13/94	4.29	<50	---	---	14	<0.5	<0.5	<0.5	---
	07/26/94	4.56	290	---	---	51	<0.5	<0.5	<0.5	12,800,000
	11/11/94	4.68	<50	---	---	3.5	<0.5	<0.5	<0.5	20,400,000
	01/13/95	**3.48**	**<50**	**---**	**---**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**17,700,000**
BH-C	12/17/92	5.0	<50	<0.5	---	<0.5	<0.5	<0.5	<0.5	---
BH-D	12/17/92	5.0	<50	<0.5	---	<0.5	<0.5	<0.5	<0.5	---

— Table 2A continues on next page —

Table 2A. Analytic Results for Ground Water - Petroleum Hydrocarbons - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda, California (continued)

Well ID (Sampling Frequency)	Date Sampled	Depth to Water (ft)	TPH-G	TPH-D	POG	B	E	T	X	TDS
			← parts per billion (µg/L) →							
BH-E	12/17/92	5.5	<50	<0.5	---	<0.5	<0.5	<0.5	<0.5	---
Trip Blank	07/10/90		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	10/09/90		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	01/17/91		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	04/09/91		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	07/10/91		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	10/09/91		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	01/24/92		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	04/23/92		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	07/01/92		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	10/02/92		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	01/05/93		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	04/08/93		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	07/20/93		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	10/15/93		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	01/07/94		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	04/13/94		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	10/11/94		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	11/01/94		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	01/13/95		**<50**	**---**	**---**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**---**
DTSC MCLs			NE	NE	NE	1	680	100[e]	1,750	

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Table 2A. Analytic Results for Ground Water - Petroleum Hydrocarbons - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda, California (continued)

Abbreviations:

TPH-G = Total petroleum hydrocarbons as gasoline by Modified EPA Method 8015
TPH-D = Total petroleum hydrocarbons as diesel by Modified EPA Method 8015
POG = Petroleum oil and grease by American Public Health Association Standard Methods 503, or EPA method 5520BF
B = Benzene by EPA Method 8020, or 8240
E = Ethylbenzene by EPA Method 8020, or 8240
T = Toluene by EPA Method 8020, or 8240
X = Xylenes by EPA Method 8020, or 8240
TDS = Total dissolved solids
DTSC MCLs = Department of Toxic Substances Control maximum contaminant levels
<n = Not detected above detection limit of n ppb
NE = DTSC MCL not established
BH-C = Grab Ground Water Sample

Notes:

a = 0.090 ppm chromium, 0.090 ppm lead and 0.10 ppm Zn detected; no cadmium detected above detection limit of 0.010 ppm by EPA Method 6010. No semi-volatile organic compounds or PCBs detected by EPA Method 625. DTSC MCLs for Cr = 0.05 ppm; Pb = 0.05 ppm; secondary MCL for Zn = 5 ppm.
b = Chromatographic pattern not typical for gasoline; the concentration is due mostly to lighter hydrocarbon compounds.
c = The concentration reported as gasoline is partially due to the presence of discrete peaks not indicative of gasoline.
d = The concentration reported as gasoline is primarily due to the presence of discrete peaks not indicative of gasoline.
e = DTSC recommended action level for drinking water; MCL not established

Table 2B. Analytic Results for Ground Water - Volatile Organic Compounds - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda, California

Well ID	Date Sampled	Depth to Water (ft)	TCE	TCA	PCE	Chloroform	cis-1,2-DCE	trans-1,2-DCE	1,2-DCA	Carbon Disulfate	Vinyl Chloride
			← parts per billion (µg/l) →								
S-1	09/04/87[a]	---	---	---	---	---	---	---	---	---	---
	09/11/89	4.29	ND	ND	ND	ND	ND	ND	ND	ND	ND
	04/11/90	4.00	<0.4	<0.4	<0.4	1.7	<0.4	<0.4	<0.4	---	<0.4
	07/10/90	4.25	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	---	<2
	10/09/90	4.96	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	---	<2
	01/07/94	4.19	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	---	<0.5
	01/07/94[dup]	4.19	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	---	<0.5
	11/01/94	4.84	<0.4	<0.4	<0.4	<0.4	---	<0.4	<0.4	---	<0.4
MW-1	04/11/90	5.23	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	---	<0.4
	07/10/90	5.40	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	---	<2
	10/09/90	5.61	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	---	<2
	01/07/94	5.26	---	---	---	---	---	---	---	---	---
	08/18/94	5.40	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	---	---
	10/11/94	5.60	<0.4	<0.4	<0.4	<0.4	---	<0.4	<0.4	---	<0.4
MW-2	04/11/90	4.51	1.2	<0.4	<0.4	4.5	<0.4	16	<0.4	---	<2
	07/10/90	4.61	0.93	<0.4	<0.4	1.7	<0.4	11	0.44	---	<2
	10/09/90	4.74	1.3	<0.5	1.6	15	46	6.7	<0.5	---	2.5
	01/17/91[b]	4.73	1.2	<0.5	0.6	2.6	74	12	0.5	---	3.0
	04/09/91	4.09	<5	<5	<5	<5	64	<5	<5	<0.5	<10
	07/10/91	4.66	<0.5	<0.5	6.9	43	<0.5	<0.5	<0.5	14	<10
	10/09/91	4.81	1.9	<1	28	7.4	54	16	<1	---	1.7
	01/24/92	4.66	2.5	<0.5	7.0	19	16	4.3	0.6	---	<0.5
	04/23/92	4.51	<3	<3	3.0	<3	84	18	<3	---	<3
	07/01/92	4.57	2.0	<1	2.0	<1	54	14	<1	---	1.0
	10/92/92	4.80	1.0	<1	<1	<1	61	12	<1	---	<1
	01/05/93	4.39	1.7	<0.5	2.2	<0.5	33	8.7	<0.5	---	.67
	04/08/93	4.15	1.3	<1	<1	<1	38	7.8	<1	---	<1
	07/20/93	4.40	2.4	<1	4.7	2.3	43	10	<0.5	---	<0.5

— Table 2B continues on next page —

Table 2B. Analytic Results for Ground Water - Volatile Organic Compounds - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda, California (continued)

Well ID	Date Sampled	Depth to Water (ft)	TCE	TCA	PCE	Chloroform	cis-1,2-DCE	trans-1,2-DCE	1,2-DCA	Carbon Disulfate	Vinyl Chloride
			← parts per billion (µg/l) →								
	10/15/93	4.38	<2.5	<2.5	<2.5	<2.5	110	25	<2.5	---	<2.5
	01/07/94	4.34	3.8	<0.5	14.0	8.9	29	5.4	<0.5	---	<0.5
	04/13/94	4.29	4.3	<1.3	5.7	2.9	76	14	<1.3	---	---
	07/26/94	4.56	4.3	<0.4	3.5	<0.4	57	5.7	<0.4	---	<0.4
	11/11/94	4.68	2.2	<0.4	6.3	5.6	---	2.2	<0.4	---	<0.4
	01/13/95	**3.48**	**<5.0**	**<5.0**	**18**	**25**	**<5.0[c]**	**<5.0**	**<5.0**	**9.4**	**<5.0**
BH-C	12/17/93	5.0	<2	<2	<2	<2	<2	<2	<2	---	<2
BH-D	12/17/93	5.0	<2	<2	<2	<2	<2	<2	<2	---	<2
BH-E	12/17/93	5.5	<2	<2	<2	<2	<2	<2	<2	---	<2
DTSC MCLs			5	200	.5	NE	6	10	0.5	NE	0.5

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
DTCS MCLs = Department of Toxic Substance control maximum contaminant levels
NE = DTSC MCL not established
ND = Analyte not detected, detection limit not known

Notes:

a = 7.0 ppb unknown alcohol and 270 ppb acetone detected
b = 5.0 ppb chlorobenzene detected
c = Data confirmed through lab

ATTACHMENT A

BTS GROUND WATER MONITORING REPORT

BLAINE
TECH SERVICES INC.

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

February 2, 1995

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

Attn: Daniel T. Kirk

SITE:
Shell WIC #204-0072-0502
2160 Otis Drive
Alameda, California

QUARTER:
1st quarter of 1995

QUARTERLY GROUNDWATER SAMPLING REPORT 950113-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 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	1/13/95	TOC	–	NONE	–	–	5.56	16.50
MW-2	1/13/95	TOC	–	NONE	–	–	3.48	17.09
S-1	1/13/95	TOC	–	NONE	–	–	4.07	18.73

3042

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No: 9501 [33]

Date: 1/13/95
Page 1 of 1

Site Address: 2160 Otis Drive, Alameda

WIC#: 204-0072-0502

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:

Printed Name: JEAN GATINEAU

LAB: NET

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.

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	T.D.S.		Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
MW-2	1/13			X		7				X		X	X							
T.B.	X			X		2						X								

(COC 1/16/95 BK)
Seal intact S.S

Relinquished By (signature):	Printed Name:	Date / Time	Received (signature):	Printed Name:	Date / Time
Jean Gatineau	JEAN GATINEAU	Date: 1/16/95 Time: 10:30	[signature]	G. Lumbre	Date: 1/16/95 Time: 1030
[signature]	G. Lumbre	Date: 1/16/95 Time: 16:00	J. Sorensen	J. Sorensen	Date: 1/17/95 Time: 0700
		Date: Time:			Date: Time:

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: 01/25/1995
NET Client Acct. No: 1821
NET Pacific Job No: 95.00217
Received: 01/17/1995

Client Reference Information

Shell 2160 Otis Drive, Alameda/950113-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 2160 Otis Drive, Alameda/950113-J1

SAMPLE DESCRIPTION: MW-2
Date Taken: 01/13/1995
Time Taken:
NET Sample No: 233833

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
Tot. Dissolved Solids (TFR)	17,700,000		10,000	ug/L	160.1		01/18/1995	534
TPH (Gas/BTXE,Liquid)								
METHOD 5030/M8015	--						01/19/1995	2512
DILUTION FACTOR*	1						01/19/1995	2512
as Gasoline	ND		50	ug/L	5030		01/19/1995	2512
Carbon Range:	--						01/19/1995	2512
METHOD 8020 (GC,Liquid)	--						01/19/1995	2512
Benzene	ND		0.5	ug/L	8020		01/19/1995	2512
Toluene	ND		0.5	ug/L	8020		01/19/1995	2512
Ethylbenzene	ND		0.5	ug/L	8020		01/19/1995	2512
Xylenes (Total)	ND		0.5	ug/L	8020		01/19/1995	2512
SURROGATE RESULTS	--						01/19/1995	2512
Bromofluorobenzene (SURR)	104			% Rec.	5030		01/19/1995	2512

Ref: Shell 2160 Otis Drive, Alameda/950113-J1

SAMPLE DESCRIPTION: MW-2
Date Taken: 01/13/1995
Time Taken:
NET Sample No: 233833

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
METHOD 8240(GCMS,Liquid)								
DILUTION FACTOR*	1						01/23/1995	444
Acetone	ND		10	ug/L	8240		01/23/1995	444
Benzene	ND		5.0	ug/L	8240		01/23/1995	444
Bromodichloromethane	ND		5.0	ug/L	8240		01/23/1995	444
Bromoform	ND		5.0	ug/L	8240		01/23/1995	444
Bromomethane	ND		5.0	ug/L	8240		01/23/1995	444
2-Butanone	ND		10	ug/L	8240		01/23/1995	444
Carbon disulfide	9.4		5.0	ug/L	8240		01/23/1995	444
Carbon Tetrachloride	ND		5.0	ug/L	8240		01/23/1995	444
Chlorobenzene	ND		5.0	ug/L	8240		01/23/1995	444
Chloroethane	ND		5.0	ug/L	8240		01/23/1995	444
2-Chloroethyl vinyl ether	ND		10	ug/L	8240		01/23/1995	444
Chloroform	25		5.0	ug/L	8240		01/23/1995	444
Chloromethane	ND		5.0	ug/L	8240		01/23/1995	444
Dibromochloromethane	ND		5.0	ug/L	8240		01/23/1995	444
1,2-Dichlorobenzene	ND		6.0	ug/L	8240		01/23/1995	444
1,3-Dichlorobenzene	ND		6.0	ug/L	8240		01/23/1995	444
1,4-Dichlorobenzene	ND		6.0	ug/L	8240		01/23/1995	444
1,1-Dichloroethane	ND		5.0	ug/L	8240		01/23/1995	444
1,2-Dichloroethane	ND		5.0	ug/L	8240		01/23/1995	444
1,1-Dichloroethene	ND		5.0	ug/L	8240		01/23/1995	444
trans-1,2-Dichloroethene	ND		5.0	ug/L	8240		01/23/1995	444
1,2-Dichloropropane	ND		5.0	ug/L	8240		01/23/1995	444
cis-1,3-Dichloropropene	ND		5.0	ug/L	8240		01/23/1995	444
trans-1,3-Dichloropropene	ND		5.0	ug/L	8240		01/23/1995	444
Ethyl benzene	ND		5.0	ug/L	8240		01/23/1995	444
2-Hexanone	ND		10	ug/L	8240		01/23/1995	444
Methylene chloride	ND		5.0	ug/L	8240		01/23/1995	444
4-Methyl-2-pentanone	ND		10	ug/L	8240		01/23/1995	444
Styrene	ND		5.0	ug/L	8240		01/23/1995	444
1,1,2,2-Tetrachloroethane	ND		5.0	ug/L	8240		01/23/1995	444
Tetrachloroethene	18		5.0	ug/L	8240		01/23/1995	444
Toluene	ND		5.0	ug/L	8240		01/23/1995	444
1,1,1-Trichloroethane	ND		5.0	ug/L	8240		01/23/1995	444
1,1,2-Trichloroethane	ND		5.0	ug/L	8240		01/23/1995	444
Trichloroethene	ND		5.0	ug/L	8240		01/23/1995	444
Trichlorofluoromethane	ND		5.0	ug/L	8240		01/23/1995	444
Vinyl acetate	ND		10	ug/L	8240		01/23/1995	444
Vinyl chloride	ND		5.0	ug/L	8240		01/23/1995	444
Xylenes (total)	ND		5.0	ug/L	8240		01/23/1995	444
SURROGATE RESULTS	--						01/23/1995	444

Ref: Shell 2160 Otis Drive, Alameda/950113-J1

SAMPLE DESCRIPTION: MW-2
Date Taken: 01/13/1995
Time Taken:
NET Sample No: 233833

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
Toluene-d8 (SURR)	101			% Rec.	8240		01/23/1995	444
Bromofluorobenzene (SURR)	99			% Rec.	8240		01/23/1995	444
1,2-Dichloroethane-d4 (SURR)	99			% Rec.	8240		01/23/1995	444

Ref: Shell 2160 Otis Drive, Alameda/950113-J1

SAMPLE DESCRIPTION: TB
Date Taken: 01/13/1995
Time Taken:
NET Sample No: 233834

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
TPH (Gas/BTXE,Liquid)								
METHOD 5030/M8015	--						01/19/1995	2512
DILUTION FACTOR*	1						01/19/1995	2512
as Gasoline	ND		50	ug/L	5030		01/19/1995	2512
Carbon Range:	--						01/19/1995	2512
METHOD 8020 (GC,Liquid)	--						01/19/1995	2512
Benzene	ND		0.5	ug/L	8020		01/19/1995	2512
Toluene	ND		0.5	ug/L	8020		01/19/1995	2512
Ethylbenzene	ND		0.5	ug/L	8020		01/19/1995	2512
Xylenes (Total)	ND		0.5	ug/L	8020		01/19/1995	2512
SURROGATE RESULTS	--						01/19/1995	2512
Bromofluorobenzene (SURR)	98			% Rec.	5030		01/19/1995	2512

Ref: Shell 2160 Otis Drive, Alameda/950113-J1

CONTINUING CALIBRATION VERIFICATION STANDARD REPORT

Parameter	CCV Standard % Recovery	CCV Standard Amount Found	CCV Standard Amount Expected	Units	Date Analyzed	Analyst Initials	Run Batch Number
TPH (Gas/BTXE,Liquid)							
as Gasoline	96.0	0.96	1.00	mg/L	01/19/1995	lss	2512
Benzene	99.4	4.97	5.00	ug/L	01/19/1995	lss	2512
Toluene	99.8	4.99	5.00	ug/L	01/19/1995	lss	2512
Ethylbenzene	97.6	4.88	5.00	ug/L	01/19/1995	lss	2512
Xylenes (Total)	96.0	14.4	15.0	ug/L	01/19/1995	lss	2512
Bromofluorobenzene (SURR)	98.0	98	100	% Rec.	01/19/1995	lss	2512

Ref: Shell 2160 Otis Drive, Alameda/950113-J1

CONTINUING CALIBRATION VERIFICATION STANDARD REPORT

Parameter	CCV Standard % Recovery	CCV Standard Amount Found	CCV Standard Amount Expected	Units	Date Analyzed	Analyst Initials	Run Batch Number
METHOD 8240(GCMS,Liquid)							
Chloroform	96.6	48.3	50.0	ug/L	01/23/1995	gec	444
1,1-Dichloroethene	120.4	60.2	50.0	ug/L	01/23/1995	gec	444
1,2-Dichloropropane	108.4	54.2	50.0	ug/L	01/23/1995	gec	444
Ethyl benzene	108.4	54.2	50.0	ug/L	01/23/1995	gec	444
Toluene	105.6	52.8	50.0	ug/L	01/23/1995	gec	444
Vinyl chloride	114.8	57.4	50.0	ug/L	01/23/1995	gec	444
Toluene-d8 (SURR)	81.0	81	100	% Rec.	01/23/1995	gec	444
Bromofluorobenzene (SURR)	83.0	83	100	% Rec.	01/23/1995	gec	444
1,2-Dichloroethane-d4 (SURR)	65.0	65	100	% Rec.	01/23/1995	gec	444

Ref: Shell 2160 Otis Drive, Alameda/950113-J1

METHOD BLANK REPORT

Parameter	Method Blank Amount Found	Reporting Limit	Units	Date Analyzed	Analyst Initials	Run Batch Number
Tot. Dissolved Solids (TFR)	ND	10	mg/L	01/18/1995	shr	534
TPH (Gas/BTXE,Liquid)						
as Gasoline	ND	0.05	mg/L	01/19/1995	lss	2512
Benzene	ND	0.5	ug/L	01/19/1995	lss	2512
Toluene	ND	0.5	ug/L	01/19/1995	lss	2512
Ethylbenzene	ND	0.5	ug/L	01/19/1995	lss	2512
Xylenes (Total)	ND	0.5	ug/L	01/19/1995	lss	2512
Bromofluorobenzene (SURR)	82		% Rec.	01/19/1995	lss	2512

Ref: Shell 2160 Otis Drive, Alameda/950113-J1

METHOD BLANK REPORT

Parameter	Method Blank Amount Found	Reporting Limit	Units	Date Analyzed	Analyst Initials	Run Batch Number
METHOD 8240(GCMS,Liquid)						
Acetone	ND	10	ug/L	01/23/1995	gec	444
Benzene	ND	5.0	ug/L	01/23/1995	gec	444
Bromodichloromethane	ND	5.0	ug/L	01/23/1995	gec	444
Bromoform	ND	5.0	ug/L	01/23/1995	gec	444
Bromomethane	ND	5.0	ug/L	01/23/1995	gec	444
2-Butanone	ND	10	ug/L	01/23/1995	gec	444
Carbon disulfide	ND	5.0	ug/L	01/23/1995	gec	444
Carbon Tetrachloride	ND	5.0	ug/L	01/23/1995	gec	444
Chlorobenzene	ND	5.0	ug/L	01/23/1995	gec	444
Chloroethane	ND	5.0	ug/L	01/23/1995	gec	444
2-Chloroethyl vinyl ether	ND	10	ug/L	01/23/1995	gec	444
Chloroform	ND	5.0	ug/L	01/23/1995	gec	444
Chloromethane	ND	5.0	ug/L	01/23/1995	gec	444
Dibromochloromethane	ND	5.0	ug/L	01/23/1995	gec	444
1,2-Dichlorobenzene	ND	6.0	ug/L	01/23/1995	gec	444
1,3-Dichlorobenzene	ND	6.0	ug/L	01/23/1995	gec	444
1,4-Dichlorobenzene	ND	6.0	ug/L	01/23/1995	gec	444
1,1-Dichloroethane	ND	5.0	ug/L	01/23/1995	gec	444
1,2-Dichloroethane	ND	5.0	ug/L	01/23/1995	gec	444
1,1-Dichloroethene	ND	5.0	ug/L	01/23/1995	gec	444
trans-1,2-Dichloroethene	ND	5.0	ug/L	01/23/1995	gec	444
1,2-Dichloropropane	ND	5.0	ug/L	01/23/1995	gec	444
cis-1,3-Dichloropropene	ND	5.0	ug/L	01/23/1995	gec	444
trans-1,3-Dichloropropene	ND	5.0	ug/L	01/23/1995	gec	444
Ethyl benzene	ND	5.0	ug/L	01/23/1995	gec	444
2-Hexanone	ND	10	ug/L	01/23/1995	gec	444
Methylene chloride	4.2 J	5.0	ug/L	01/23/1995	gec	444
4-Methyl-2-pentanone	ND	10	ug/L	01/23/1995	gec	444
Styrene	ND	5.0	ug/L	01/23/1995	gec	444
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L	01/23/1995	gec	444
Tetrachloroethene	ND	5.0	ug/L	01/23/1995	gec	444
Toluene	ND	5.0	ug/L	01/23/1995	gec	444
1,1,1-Trichloroethane	ND	5.0	ug/L	01/23/1995	gec	444
1,1,2-Trichloroethane	ND	5.0	ug/L	01/23/1995	gec	444
Trichloroethene	ND	5.0	ug/L	01/23/1995	gec	444
Trichlorofluoromethane	ND	5.0	ug/L	01/23/1995	gec	444
Vinyl acetate	ND	10	ug/L	01/23/1995	gec	444
Vinyl chloride	ND	5.0	ug/L	01/23/1995	gec	444
Xylenes (total)	ND	5.0	ug/L	01/23/1995	gec	444
Toluene-d8 (SURR)	109		% Rec.	01/23/1995	gec	444
Bromofluorobenzene (SURR)	91		% Rec.	01/23/1995	gec	444
1,2-Dichloroethane-d4 (SURR)	89		% Rec.	01/23/1995	gec	444

J: Value is estimated.

Client Name: Blaine Tech Services
Client Acct: 1821
NET Job No: 95.00217

Date: 01/25/1995
ELAP Cert: 1386
Page: 10

Ref: Shell 2160 Otis Drive, Alameda/950113-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	Run Batch	Sample Spiked
TPH (Gas/BTXE,Liquid)											233833
as Gasoline	105.0	103.0	1.9	1.00	ND	1.05	1.03	mg/L	01/19/1995	2512	233833
Benzene	111.2	110.3	0.8	32.9	ND	36.6	36.3	ug/L	01/19/1995	2512	233833
Toluene	109.9	108.9	0.9	99.2	ND	109	108	ug/L	01/19/1995	2512	233833

Ref: Shell 2160 Otis Drive, Alameda/950113-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	Run Batch	Sample Spiked
METHOD 8240(GCMS,Liquid)											233833
Benzene	110.2	106.8	3.1	50.0	ND	55.1	53.4	ug/L	01/23/1995	444	233833
Chlorobenzene	106.2	107.4	1.1	50.0	ND	53.1	53.7	ug/L	01/23/1995	444	233833
1,1-Dichloroethene	97.6	94.6	3.1	50.0	ND	48.8	47.3	ug/L	01/23/1995	444	233833
Toluene	108.6	107.0	1.5	50.0	ND	54.3	53.5	ug/L	01/23/1995	444	233833
Trichloroethene	106.8	108.0	1.1	50.0	ND	53.4	54.0	ug/L	01/23/1995	444	233833

Ref: Shell 2160 Otis Drive, Alameda/950113-J1

LABORATORY CONTROL SAMPLE REPORT

Parameter	LCS % Recovery	Duplicate LCS % Recovery	RPD	LCS Amount Found	Duplicate LCS Amount Found	LCS Amount Expected	Units	Date Analyzed	Analyst Initials	Run Batch
Tot. Dissolved Solids (TFR)	101.4			1,014		1,000	mg/L	01/18/1995	shr	534
METHOD 8240(GCMS,Liquid)										
Benzene	108.8			54.4		50.0	ug/L	01/24/1995	gec	444
Chlorobenzene	104.8			52.4		50.0	ug/L	01/24/1995	gec	444
1,1-Dichloroethene	100.2			50.1		50.0	ug/L	01/24/1995	gec	444
Toluene	104.8			52.4		50.0	ug/L	01/24/1995	gec	444
Trichloroethene	106.2			53.1		50.0	ug/L	01/24/1995	gec	444
Toluene-d8 (SURR)	99.0			99		100	% Rec.	01/24/1995	gec	444
Bromofluorobenzene (SURR)	101.0			101		100	% Rec.	01/24/1995	gec	444
1,2-Dichloroethane-d4 (SURR)	98.0			98		100	% Rec.	01/24/1995	gec	444

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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
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COOLER RECEIPT FORM

Project: 960113-J1 Log No: 5042
Cooler received on: 1/17/95 and checked on 1/17/95 by: Tom Greene
(signature) Tom Greene

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 0.0°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)