CAMBRIA

August 31, 1998

ST 10 4374
C S

Ms. Jennifer Eberle
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, #250
Alameda, CA 94502-6577

Re: **Semi-Annual Monitoring Report - Third Quarter 1998**
Former Shell Service Station
461 8th Street
Oakland, California
WIC #204-5508-6205

Dear Ms. Eberle:

This Semi-Annual Monitoring Report describes the recently completed activities associated with ground water monitoring and sampling at the referenced site (Plate 1). This report was prepared to meet reporting guidelines issued by the Regional Water Quality Control Board, San Francisco Bay Region and the Alameda County Health Care Services Agency.

Semi-Annual Monitoring & Sampling Summary

Ground water monitoring and sampling for the second half of 1998 are summarized below:

- Blaine Tech Services, Inc. (Blaine) of San Jose, California measured ground water levels in and collected ground water samples from Wells S-4 through S-6 and S-8 through S-10 on July 8, 1998. The samples were transported to Sequoia Analytical of Redwood City, California for chemical analysis.

- Approximately 100 gallons and 150 gallons of water was purged from Well S-5 and S-6, respectively, although no separate phase product (SP) was observed in either well during the second and third quarter purging events.

- Cambria Environmental Technology, Inc. (Cambria) evaluated water-level measurement data and prepared a ground water contour map (Plate 2). The ground water flow direction appears to be predominantly southwards at an approximate hydraulic gradient of 0.007.

- TPPH concentrations in ground water samples collected from the wells ranged from ND to 74,000 ppb, benzene concentrations ranged from ND to 26,000 ppb, and MTBE

Oakland, CA
Sonoma, CA
Portland, OR
Seattle, WA

Cambria Environmental Technology, Inc.

270 Perkins Street
P.O. Box 259
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concentrations ranged from ND to 3.3 ppb. A chemical concentration map was prepared and is presented on Plate 2.

Semi-Annual Sampling

Monitoring Wells S-4 through S-6, and S-8 through S-10 were sampled and analyzed for Total Purgeable Petroleum Hydrocarbons quantitated as gasoline (TPPH) according to EPA Method 8015 (Modified) and benzene, toluene, ethylbenzene, xylenes (BTEX), and methyl-tertiary-butyl-ether (MTBE) according to EPA Method 8020. Additionally, a duplicate sample was prepared and analyzed for quality control purposes.

SP amd grpimd water are purged from Wells S-5 and S-6 on a quarterly basis. SP removal data are summarized in Table 1. Field monitoring data and chemical analytical data are summarized in Table 2. Blaine's ground water monitoring report is presented in Appendix A.

If you have any questions regarding the contents of this document, please call.

Sincerely,
Cambria Environmental Technology, Inc.

Mike Prinz
Project Engineer

Diane M. Lundquist, P.E.
Principal Engineer
C46725

Attachments

Table 1. Separate Phase Hydrocarbon Recovery
Table 2. Well Concentrations

Plate 1. Vicinity Map
Plate 2. Ground Water Contour/Chemical Concentration Map

Appendix A

Blaine Tech Services Inc. - Ground Water Monitoring Report

cc: Ms. Karen Petryna, Equiva Services LLC
Mr. Rory Campbell, Hanson, Bridgett, Marcus, Vlahos & Rudy
R. Casteel & Co. P.O. Box 6839, Moraga, CA 94570

TABLE 1

SEPARATE PHASE HYDROCARBON RECOVERY
Former Shell Service Station
461 8th Street
Oakland, California
WIC# 204-5508-6205

Mont. Date	Well S-5		Well S-6		Recovery To Date (gal)
	Product Thickness (feet)	Volume Removed (gal)	Product Thickness (feet)	Volume Removed (gal)	
13-May-93	0.27	0	0.27	0.00	0
22-Jul-93	0.25	200	0.25	0.00	200
20-Oct-93	0.23	200	0.23	0.00	400
25-Jan-94	0.18	150	0.18	0.00	550
25-Apr-94	0.35	36	0.35	0.00	586
26-May-94	0.35	130	0.35	na	716
16-Jun-94	0.32	50	0.32	na	766
21-Jul-94	0.47	50	0.47	0.00	816
25-Aug-94	0.44	80	0.44	na	896
22-Sep-94	0.15	45	0.15	na	941
24-Oct-94	0.56	40	0.56	0.00	981
29-Nov-94	1.13	85	1.13	na	1066
22-Dec-94	0.99	0	0.99	0.00	1066
3-Jan-95	1.21	40	1.21	na	1106
22-Feb-95	0.60	60	0.60	na	1166
31-Mar-95	0.02	40	0.02	na	1206
20-Apr-95	0.33	60	0.33	0.00	1266
26-May-95	0.28	50	0.28	na	1316
30-Jun-95*	0.02	60	0.02	na	1376
4-Oct-95	0.00	0	0.00	0.00	1376
3-Jan-96	0.83	0	0.83	0.00	1376
11-Apr-96	0.67	0	0.67	0.00	1376
11-Jul-96	0.90	0	0.90	0.00	1376
2-Oct-96	0.64	0	0.64	0.00	1376
22-Jan-97	0.16	0	0.16	0.00	1376
21-Jul-97	0.05	75	0.00	0.00	1451
29-Oct-97	0.03	60	0.00	40.00	1551
22-Jan-98	0.04	60	0.00	60.00	1671
1-May-98	0.06	50	0.00	200.00	1921
8-Jul-98	0.00	100	0.00	150.00	2171

Notes:

1. "Volume Removed" and "Recovery to Date" refer to the volume of liquid removed by a vacuum truck. This liquid includes ground water and separate phase hydrocarbons if present.

2. Product recovery booms were installed from 3Q95 to 4Q96.

TABLE 2

WELL CONCENTRATIONS
Former Shell Service Station
461 8th Street
Oakland, California
WIC# 204-5508-6205

Sample Date	Measured GW Depth (ft)	Corrected GW Elev (ft)	SP (ft)	TPPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	Comments
S-4		**Top casing elevation (ft):**		**93.51**						
26-Oct-88	NA	NA	NA	130	3.8	13	4.0	30	NA	
14-Feb-89	12.82	80.69	0.00	<50	0.5	<1	<1	3.0	NA	
01-May-89	16.48	77.03	0.00	NA	NA	NA	NA	NA	NA	Dry Well
27-Jul-89	15.84	77.67	0.00	NA	NA	NA	NA	NA	NA	Dry Well
05-Oct-89	15.98	77.53	0.00	NA	NA	NA	NA	NA	NA	Dry Well
09-Jan-90	15.86	77.65	0.00	NA	NA	NA	NA	NA	NA	Dry Well
30-Apr-90	14.48	79.03	0.00	<50	<0.5	<0.5	<0.5	<1	NA	
31-Jul-90	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry Well
30-Oct-90	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry Well
06-May-91	15.23	78.28	0.00	NA	NA	NA	NA	NA	NA	Dry Well
27-Jun-91	13.54	79.97	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
24-Sep-91	15.85	77.66	0.00	NA	NA	NA	NA	NA	NA	Dry Well
07-Nov-91	15.60	77.91	0.00	NA	NA	NA	NA	NA	NA	Dry Well
13-Feb-92	14.27	79.24	0.00	<50	<0.5	<0.5	<0.5	3.0	NA	
11-May-92	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry Well
03-Dec-92	NA	NA	NA	NA	NA	NA	NA	NA	NA	Well Inaccessible
13-May-93	14.81	78.70	0.00	NA	NA	NA	NA	NA	NA	Well Inaccessible
22-Jul-93	14.42	79.09	0.00	NA	NA	NA	NA	NA	NA	Well Inaccessible
20-Oct-93	NA	NA	NA	NA	NA	NA	NA	NA	NA	Well Inaccessible
25-Jan-94	14.60	78.91	0.00	NA	NA	NA	NA	NA	NA	Well Inaccessible
25-Apr-94	14.39	79.12	0.00	NA	NA	NA	NA	NA	NA	Well Inaccessible
21-Jul-94	22.29	71.22	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
24-Oct-94	22.72	70.79	0.00	<500	<0.3	<0.3	<0.3	<0.6	NA	
		New top of box elevation (ft): 25.77								
22-Dec-94	22.25	3.52	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	

TABLE 2

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Sample Date	Measured GW Depth (ft)	Corrected GW Elev (ft)	SP (ft)	TPPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	Comments
20-Apr-95	21.16	4.61	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
04-Oct-95	22.25	3.52	0.00	<50	1.2	0.7	<0.5	<0.5	NA	
03-Jan-96	23.28	2.49	0.00	<50	0.6	<0.5	<0.5	1.7	NA	
11-Apr-96	21.58	4.19	0.00	<50	<0.5	<0.5	<0.5	<0.5	<2.5	
11-Jul-96	21.60	4.17	0.00	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
02-Oct-96	22.46	3.31	0.00	<50	<0.50	<0.50	<0.50	<0.50	2.6	
22-Jan-97	20.06	5.71	0.00	<50	0.73	<0.50	<0.50	0.63	<2.5	
21-Jul-97	22.10	3.67	0.00	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
22-Jan-98	20.50	5.27	0.00	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
08-Jul-98	20.86	4.91	0.00	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
S-5		**Top casing elevation (ft):**		**99.36**						
16-Apr-87	NA	NA	NA	130000	15000	16000	NA	14000	NA	Ethylbenzene and xylenes
26-Oct-88	NA	NA	NA	110000	20000	25000	2300	10000	NA	combined
14-Feb-89	19.87	79.49	0.00	94000	16000	21000	1800	10000	NA	
01-May-89	21.23	78.13	0.00	120000	29000	35000	3100	15000	NA	
27-Jul-89	20.41	78.95	0.00	110000	20000	29000	2400	14000	NA	
05-Oct-89	20.43	78.94	0.01	NA	NA	NA	NA	NA	NA	
09-Jan-90	21.16	78.21	0.01	NA	NA	NA	NA	NA	NA	
30-Apr-90	20.96	78.40	0.00	100000	13000	22000	2100	11000	NA	
31-Jul-90	20.88	78.48	0.00	53000	8300	14000	1200	7400	NA	
30-Oct-90	21.96	77.42	0.03	NA	NA	NA	NA	NA	NA	
06-May-91	23.00	76.46	0.13	NA	NA	NA	NA	NA	NA	
27-Jun-91	20.53	78.85	0.03	NA	NA	NA	NA	NA	NA	
24-Sep-91	21.40	78.01	0.06	NA	NA	NA	NA	NA	NA	
07-Nov-91	21.33	78.23	0.25	NA	NA	NA	NA	NA	NA	

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Sample Date	Measured GW Depth (ft)	Corrected GW Elev (ft)	SP (ft)	TPPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	Comments
13-Feb-92	22.52	77.09	0.31	NA	NA	NA	NA	NA	NA	
11-May-92	22.46	77.36	0.58	NA	NA	NA	NA	NA	NA	
03-Dec-92	NA	NA	NA	NA	NA	NA	NA	NA	NA	Well Inaccessible
13-May-93	22.22	77.36	0.27	NA	NA	NA	NA	NA	NA	
22-Jul-93	21.68	77.88	0.25	NA	NA	NA	NA	NA	NA	
20-Oct-93	20.51	79.03	0.23	NA	NA	NA	NA	NA	NA	
25-Jan-94	21.93	77.57	0.18	NA	NA	NA	NA	NA	NA	
25-Apr-94	21.97	77.67	0.35	NA	NA	NA	NA	NA	NA	
26-May-94	20.84	78.80	0.35	NA	NA	NA	NA	NA	NA	
10-Jun-94	21.01	78.61	0.32	NA	NA	NA	NA	NA	NA	
21-Jul-94	22.18	77.56	0.47	NA	NA	NA	NA	NA	NA	
25-Aug-94	22.01	77.70	0.44	NA	NA	NA	NA	NA	NA	
22-Sep-94	22.00	77.48	0.15	NA	NA	NA	NA	NA	NA	
24-Oct-94	22.28	77.53	0.56	NA	NA	NA	NA	NA	NA	
		New top of box elevation (ft): 22.94								
22-Dec-94	22.88	0.85	0.99	NA	NA	NA	NA	NA	NA	
20-Apr-95	21.66	1.54	0.33	NA	NA	NA	NA	NA	NA	
04-Oct-95	22.18	0.76	0.00	NA	NA	NA	NA	NA	NA	
03-Jan-96	22.80	0.80	0.83	NA	NA	NA	NA	NA	NA	
11-Apr-96	21.15	2.33	0.67	NA	NA	NA	NA	NA	NA	
11-Jul-96	22.62	1.04	0.90	NA	NA	NA	NA	NA	NA	
02-Oct-96	23.07	0.38	0.64	NA	NA	NA	NA	NA	NA	
22-Jan-97	20.83	2.24	0.16	NA	NA	NA	NA	NA	NA	
21-Jul-97	21.16	1.82	0.05	NA	NA	NA	NA	NA	NA	
22-Jan-98	20.04	2.93	0.04	NA	NA	NA	NA	NA	NA	
08-Jul-98	18.61	4.33	0.00	220	14	40	5.8	34	3.3	

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Sample Date	Measured GW Depth (ft)	Corrected GW Elev (ft)	SP (ft)	TPPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	Comments
S-6		**Top casing elevation (ft):**		**100.58**						
16-Apr-87	NA	NA	0.00	81000	16000	9000	NA	6400	NA	Ethylbenzene and xylenes
26-Oct-88	NA	NA	0.00	110000	29000	18000	2500	8200	NA	combined
14-Feb-89	20.87	79.71	0.00	54000	18000	4500	1400	4000	NA	
01-May-89	20.49	80.09	0.00	93000	43000	9900	3000	8000	NA	
27-Jul-89	21.01	79.57	0.00	52000	20000	3200	1700	5500	NA	
05-Oct-89	21.24	79.34	0.00	55000	20000	2900	1600	5500	NA	
09-Jan-90	22.62	77.96	SHEEN	76000	35000	9100	2300	8600	NA	
30-Apr-90	22.10	78.48	0.00	39000	13000	2300	900	2800	NA	
31-Jul-90	22.00	78.58	0.00	48000	20000	4600	1500	4900	NA	
30-Oct-90	22.14	78.44	0.00	27000	7400	900	600	1400	NA	
06-May-91	22.40	78.18	0.00	35000	3900	2700	2300	3500	NA	
27-Jun-91	21.21	79.37	0.00	51000	19000	5600	1700	6300	NA	
24-Sep-91	22.26	78.32	0.00	42000	14000	4300	1200	4000	NA	
07-Nov-91	22.35	78.23	0.00	39000	11000	2000	800	2300	NA	
13-Feb-92	22.28	78.30	0.00	64000	21000	6200	1600	5100	NA	
11-May-92	22.10	78.48	0.00	57000	22000	7600	2200	7700	NA	
03-Dec-92	22.14	78.44	0.00	110000	26000	9400	2100	8700	NA	
13-May-93	22.16	78.42	0.00	58000	21000	6800	2500	9800	NA	
22-Jul-93	21.64	78.94	0.00	70000	31000	14000	3000	13000	NA	
20-Oct-93	21.62	78.96	0.00	48000	28000	9800	3200	12000	NA	
25-Jan-94	21.80	78.78	0.00	70000	23000	7500	2500	8000	NA	
25-Apr-94	21.68	78.90	0.00	61000	16000	4000	1800	5100	NA	
21-Jul-94	21.78	78.80	0.00	44000	8200	3600	1400	3900	NA	
24-Oct-94	22.06	78.52	0.00	2936	1184	440.6	163.4	648.4	NA	

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Sample Date	Measured GW Depth (ft)	Corrected GW Elev (ft)	SP (ft)	TPPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	Comments
		New top of box elevation (ft): 22.08								
22-Dec-94	21.91	0.17	0.00	32000	7000	2900	790	2400	NA	
20-Apr-95	21.38	0.70	0.00	56000	15000	3800	1900	4900	NA	
04-Oct-95	21.80	0.28	0.00	49000	8400	4700	1800	4800	NA	
03-Jan-96	21.70	0.38	0.00	52000	9100	7100	1800	5800	NA	
11-Apr-96	21.62	0.46	0.00	59000	11000	7100	2100	6400	<500	
11-Jul-96	21.65	0.43	0.00	72000	18000	6600	2500	8400	<1000	
02-Oct-96	21.80	0.28	0.00	57000	11000	6500	1500	5100	<500	
22-Jan-97	19.95	2.13	0.00	67000	15000	5000	1800	5400	<1000	
21-Jul-97	20.61	1.47	0.00	61000	15000	2100	1100	3500`	[illegible]	
22-Jan-98	19.82	2.26	0.00	46000	14000	3200	1300	3400	<500	
08-Jul-98	18.20	3.88	0.00	[illegible]	[illegible]	7500	2200	6200	<1000	
S-6 (DUP)										
21-Jul-94	NA	NA	NA	32000	7800	3400	1300	3700	NA	
24-Oct-94	NA	NA	NA	2968	770.8	325.3	144.1	622	NA	
22-Dec-94	NA	NA	NA	32000	8000	3800	1100	3400	NA	
20-Apr-95	NA	NA	NA	49000	13000	3500	1800	4700	NA	
04-Oct-95	NA	NA	NA	41000	8400	4100	1400	4400	NA	
11-Apr-96	NA	NA	NA	59000	11000	6800	1900	6400	<500	
22-Jan-97	NA	NA	NA	63000	15000	4800	1800	5200	<1000	
S-8		**Top of box elevation (ft):**		**27.21**						
22-Dec-94	24.87	2.34	0.00	600	120	32	5.2	34	NA	
20-Apr-95	23.90	3.31	0.00	460	180	23	5.2	21	NA	
04-Oct-95	24.48	2.73	0.00	830	210	38	11	42	NA	

TABLE 2

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Sample Date	Measured GW Depth (ft)	Corrected GW Elev (ft)	SP (ft)	TPPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	Comments
03-Jan-96	24.62	2.59	0.00	350	61	12	2.5	12	NA	
11-Apr-96	24.32	2.89	0.00	570	140	37	12	47	<6.2	
11-Jul-96	24.10	3.11	0.00	980	98	32	9.1	160	<12	
02-Oct-96	25.38	1.83	0.00	280	62	13	3.3	25	15	
22-Jan-97	23.91	3.30	0.00	400	90	13	4.9	25	12	
21-Jul-97	23.62	3.59	0.00	2900	380	110	26	260	85	
22-Jan-98	23.52	3.69	0.00	3800	790	140	42	330	160	
08-Jul-98	21.52	5.69	0.00	[illegible]	[illegible]	<25	<25	<25	<125	
S-8 (DUP)										
03-Jan-96	NA	NA	NA	340	54	12	2.4	12	NA	
02-Oct-96	NA	NA	NA	490	110	24	7.0	45	22 [1]	MTBE by 8260: <2.0 ppb
21-Jul-97	NA	NA	NA	3200	420	120	32	300	130	
22-Jan-98	NA	NA	NA	3500	780	120	33	300	160	
08-Jul-98	NA	NA	NA	4000	1800	<25	<25	31	<125	
S-9		**Top of box elevation (ft):**		**26.06**						
22-Dec-94	24.37	1.69	0.00	2600	400	150	42	310	NA	
20-Apr-95	23.49	2.57	0.00	1900	400	130	51	200	NA	
04-Oct-95	24.01	2.05	0.00	3200	590	260	68	280	NA	
03-Jan-96	NA	NA	NA	NA	NA	NA	NA	NA	NA	Well Inaccessible
11-Apr-96	23.61	2.45	0.00	2100	440	1500	42	210	<25	
11-Jul-96	23.78	2.28	0.00	5200	940	450	120	520	<50	
02-Oct-96	24.31	1.75	0.00	3000	680	220	56	270	<62	
22-Jan-97	23.08	2.98	0.00	1500	230	71	36	130	<12	
21-Jul-97	22.83	3.23	0.00	3400	590	57	19	210	96	

TABLE 2

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22-Jan-98	21.96	4.10	0.00	2600	300	46	<10	270	62	
08-Jul-98	20.85	5.21	0.00	820	150	6.2	7.5	57	<10	
S-9 (DUP)										
11-Jul-96	NA	NA	NA	4800	890	430	110	500	<50	
S-10		**Top of box elevation (ft):**		**28.04**						
22-Dec-94	25.84	2.20	0.00	420	27	8.0	18	45	NA	
20-Apr-95	24.92	3.12	0.00	820	49	3.7	97	52	NA	
04-Oct-95	25.47	2.57	0.00	240	6.5	1.1	16	12	NA	
03-Jan-96	25.60	2.44	0.00	1100	27	4.9	110	70	NA	
11-Apr-96	25.27	2.77	0.00	530	19	1.6	82	52	<5.0	
11-Jul-96	25.46	2.58	0.00	570	16	3.2	53	53	<2.5	
02-Oct-96	25.81	2.23	0.00	270	8.2	0.77	24	23	3.3	
22-Jan-97	24.74	3.30	0.00	160	4.8	0.73	16	11	<2.5	
21-Jul-97	24.50	3.54	0.00	530	5.7	0.70	29	69	<2.5	
22-Jan-98	24.44	3.60	0.00	1500	15	<5.0	88	130	<25	
08-Jul-98	22.36	5.68	0.00	530	4.8	1.1	47	51	<2.5	

Abbreviations:

NA = Not analyzed or not available

SP = Separate Phase hydrocarbon

<x = Not detected at detection limit of x

(DUP) = Duplicate sample

TPPH = Total Purgeable Petroleum Hydrocarbons carbon range C6 to C12 by EPA Method 8015 (Modified)
(previously reported as Total Petroleum Hydrocarbons as Gasoline)

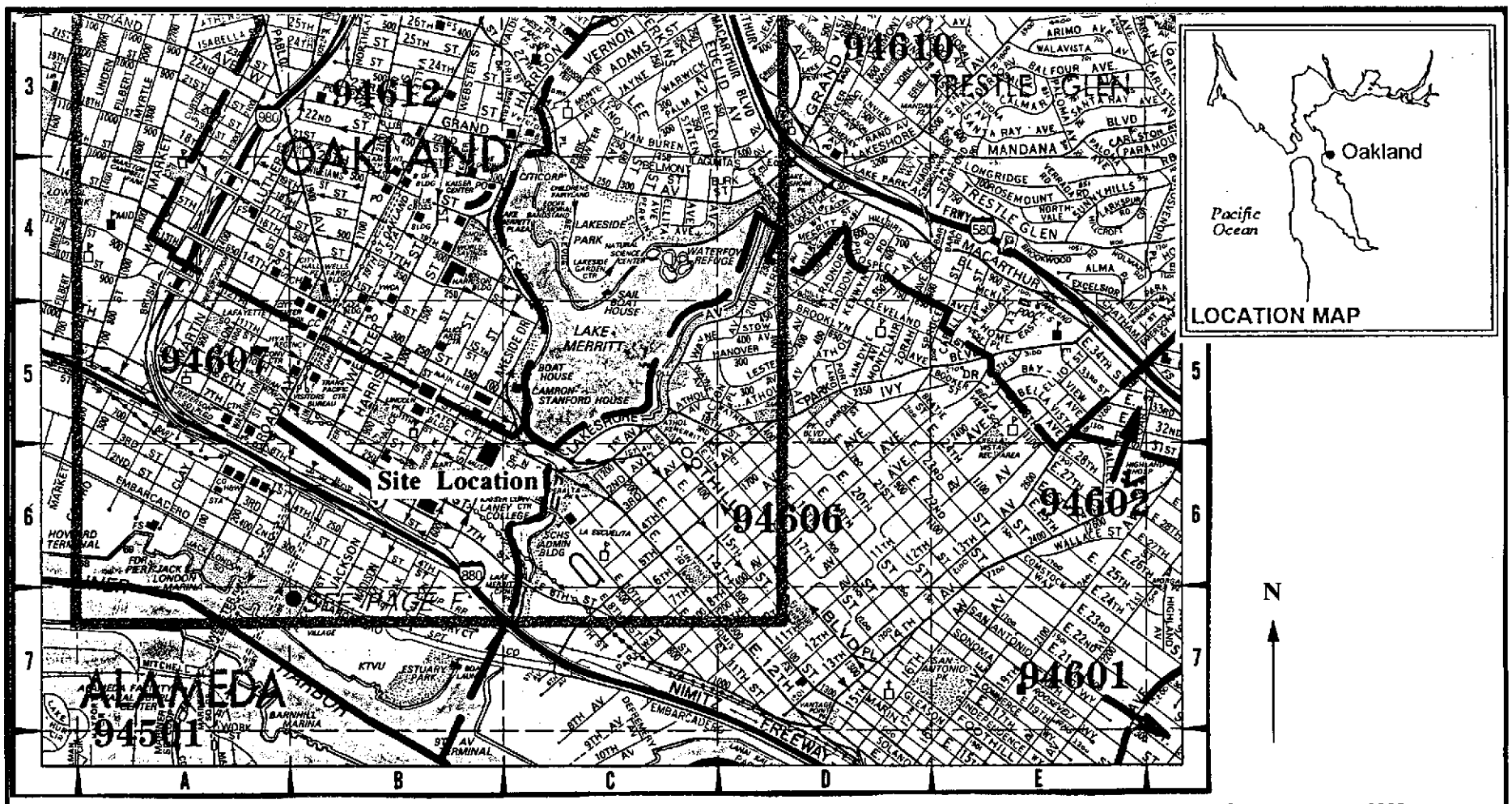
TABLE 2

WELL CONCENTRATIONS
Former Shell Service Station
461 8th Street
Oakland, California
WIC# 204-5508-6205

Sample Date	Measured GW Depth (ft)	Corrected GW Elev (ft)	SP (ft)	TPPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	Comments

BTEX = benzene, toluene, ethylbenzene, and xylenes by EPA Method 8020
MTBE = methyl-tertiary-butyl ether by EPA Method 8020

Notes:
0.8 used for hydrocarbon specific gravity
(1) The MTBE result did not confirm by EPA method 8260, therefore, MTBE results at this site should be considered suspect.



Base Map: 1993 Thomas Guide

PLATE

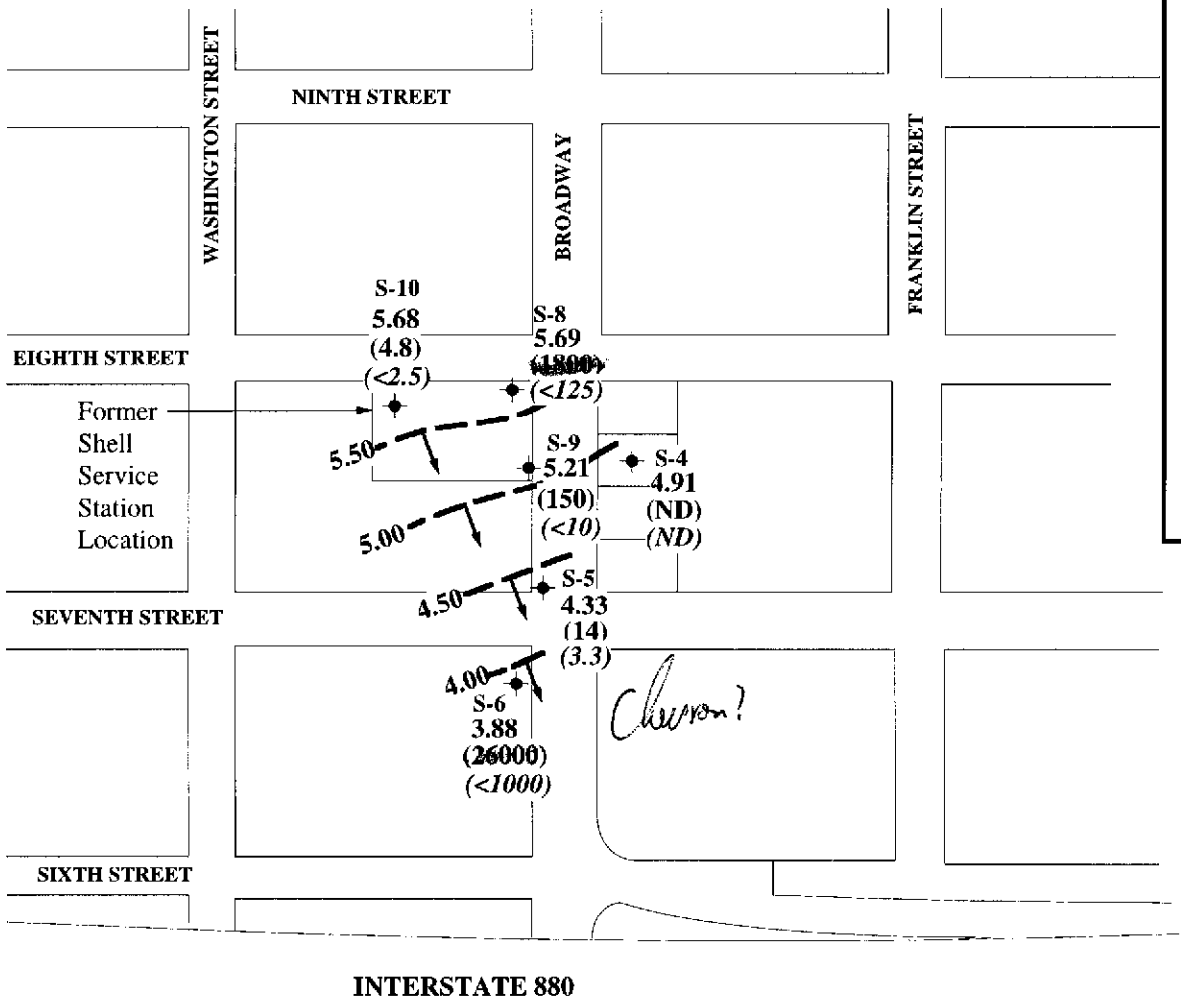
1

VICINITY MAP
Former Shell Service Station
461 Eighth Street
Oakland, California

CAMBRIA
216

Drawn By: JWN Date: 10/3/94

Approved By: _____ Date: 8.31.98



EXPLANATION

- Ground water monitoring well
- Ground water elevation contour in feet referenced to mean sea level (MSL). Arrows indicate approximate ground water flow direction.
- 4.33 Ground water elevation in feet MSL
- (14) Benzene concentration in ppb ND = Not Detected
- *(3.3)* MTBE concentration in ppb
- <x Not detected at detection limit of x

Notes: Quarterly monitoring performed on 8-Jul-98
Approximate hydraulic gradient = 0.007

N

0 200

Scale in Feet

Note: Base Map taken from GeoStrategies Inc. Report dated 10-4-93.

PLATE **2**

GROUND WATER CONTOUR/CHEMICAL CONCENTRATION MAP
Former Shell Service Station
461 Eighth Street
Oakland, California

CAMBRIA
216

Drawn By: MDP | Date: 24-Aug-98 | Approved By: ___ Date: 8.31.98

Appendix A

Blaine Tech Services Inc.
Ground Water Monitoring Report

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 (gal.)	DEPTH TO WATER (feet)	DEPTH TO WELL BOTTOM (feet)
S-4	07/08/98	TOB	--	NONE	--	--	20.86	29.04
S-5	07/08/98	TOB	ODOR	NONE	--	--	18.61	41.18
S-6	07/08/98	TOB	ODOR	NONE	--	--	18.20	36.65
S-8*	07/08/98	TOB	ODOR	NONE	--	--	21.52	29.34
S-9	07/08/98	TOB	--	NONE	--	--	20.85	30.19
S-10	07/08/98	TOB	--	NONE	--	--	22.36	36.65

*Sample DUP was a duplicate sample taken at well S-8.

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No: 980708-N1

Date: 7-8-98
Page 1 of 1

Site Address: 461 8th Street, Oakland, CA

WIC#: 204-5508-6200

Shell Engineer: Alex Perez
Phone No.: (510) 675-6168
Fax #: 675-6172

Consultant Name & Address:
Blaine Tech Services, Inc.
1680 Rogers Ave., San Jose, CA 95112

Consultant Contact: Fran Thie
Phone No.: (408) 573-0555
Fax #: 573-7771

Comments: 9807443

Sampled by: Morgan Hargrave

Printed Name:

LAB: Sequoia

CHECK ONE (1) BOX ONLY		CT/DT
G.W. Monitoring	X	4461
Site Investigation	☐	4441
Soil Classify/Disposal	☐	4442
Water Classify/Disposal	☐	4443
Soil/Air Rem. or Sys. O & M	☐	4452
Water Rem. or Sys. O & M	☐	4453
Other	☐	

TURN AROUND TIME
- 24 hours ☐
- 48 hours ☐
- 16 days X (Normal)
- Other ☐ ____

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

UST AGENCY: ____

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 / MTBE			Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
S-4	7/8			X		3						X							01	
S-5				↓		↓						↓							02	
S-6				↓		↓						↓							03	
S-8				↓		↓						↓							04	
S-9				↓		↓						↓							05	
S-10				↓		↓						↓							06	
DUP				↓		↓						↓							07	

Relinquished By (signature):	Printed Name:	Date/Time	Received (signature):	Printed Name:	Date/Time
[signature]	Morgan Hargrave	Date: 7-9-98 Time: 10:30	[signature]	LANCE A. DAVIDSON	Date: 7-9-98 Time: 10:30
[signature]	LANCE A. DAVIDSON	Date: 7-9-98 Time:	Received (signature):	Printed Name:	Date: Time:
Relinquished By (signature):	Printed Name:	Date: Time:	Lim Downs	DOWNS	Date: 7-9-98 Time: 1223

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

Shell Oil Chn. of Custody

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (925) 988-9600, FAX (925) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100
1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Blaine Tech Services
1680 Rogers Avenue
San Jose, CA 95112
Attention: Fran Thie

Project: Shell 461 8th St.

Enclosed are the results from samples received at Sequoia Analytical on July 9, 1998. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE COLLECTED	TEST METHOD
9807443 -01	LIQUID, S-4	07/08/98	Purgeable TPH/BTEX/MTBE
9807443 -02	LIQUID, S-5	07/08/98	Purgeable TPH/BTEX/MTBE
9807443 -03	LIQUID, S-6	07/08/98	Purgeable TPH/BTEX/MTBE
9807443 -04	LIQUID, S-8	07/08/98	Purgeable TPH/BTEX/MTBE
9807443 -05	LIQUID, S-9	07/08/98	Purgeable TPH/BTEX/MTBE
9807443 -06	LIQUID, S-10	07/08/98	Purgeable TPH/BTEX/MTBE
9807443 -07	LIQUID, DUP	07/08/98	Purgeable TPH/BTEX/MTBE

Please contact me if you have any questions. In the meantime, thank you for the opportunity to work with you on this project.

Very truly yours,

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
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Blaine Tech Services	Client Proj. ID: Shell 461 8th St.	Sampled: 07/08/98
1680 Rogers Avenue	Sample Descript: S-4	Received: 07/09/98
San Jose, CA 95112	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 07/20/98
Attention: Fran Thie	Lab Number: 9807443-01	Reported: 07/24/98

QC Batch Number: GC072098BTEX21A
Instrument ID: GCHP21

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Methyl t-Butyl Ether	2.5	N.D.
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	102

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Blaine Tech Services	Client Proj. ID: Shell 461 8th St.	Sampled: 07/08/98
1680 Rogers Avenue	Sample Descript: S-5	Received: 07/09/98
San Jose, CA 95112	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 07/22/98
Attention: Fran Thie	Lab Number: 9807443-02	Reported: 07/24/98

QC Batch Number: GC072298BTEX03A
Instrument ID: GCHP03

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**50**	**220**
Methyl t-Butyl Ether	**2.5**	**3.3**
Benzene	**0.50**	**14**
Toluene	**0.50**	**40**
Ethyl Benzene	**0.50**	**5.8**
Xylenes (Total)	**0.50**	**34**
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	118

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Blaine Tech Services	Client Proj. ID: Shell 461 8th St.	Sampled: 07/08/98
1680 Rogers Avenue	Sample Descript: S-6	Received: 07/09/98
San Jose, CA 95112	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 07/21/98
Attention: Fran Thie	Lab Number: 9807443-03	Reported: 07/24/98

QC Batch Number: GC072198BTEX02A
Instrument ID: GCHP02

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**20000**	**74000**
Methyl t-Butyl Ether	1000	N.D.
Benzene	**200**	**26000**
Toluene	**200**	**7500**
Ethyl Benzene	**200**	**2200**
Xylenes (Total)	**200**	**6200**
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	91

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Blaine Tech Services	Client Proj. ID: Shell 461 8th St.	Sampled: 07/08/98
1680 Rogers Avenue	Sample Descript: S-8	Received: 07/09/98
San Jose, CA 95112	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 07/21/98
Attention: Fran Thie	Lab Number: 9807443-04	Reported: 07/24/98

QC Batch Number: GC072198BTEX02A
Instrument ID: GCHP02

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**2500**	**3600**
Methyl t-Butyl Ether	125	N.D.
Benzene	**25**	**1800**
Toluene	25	N.D.
Ethyl Benzene	25	N.D.
Xylenes (Total)	25	N.D.
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	91

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Blaine Tech Services	Client Proj. ID: Shell 461 8th St.	Sampled: 07/08/98
1680 Rogers Avenue	Sample Descript: S-9	Received: 07/09/98
San Jose, CA 95112	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 07/21/98
Attention: Fran Thie	Lab Number: 9807443-05	Reported: 07/24/98

QC Batch Number: GC072198BTEX02A
Instrument ID: GCHP02

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**200**	**820**
Methyl t-Butyl Ether	10	N.D.
Benzene	**2.0**	**150**
Toluene	**2.0**	**6.2**
Ethyl Benzene	**2.0**	**7.5**
Xylenes (Total)	**2.0**	**57**
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	90

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Blaine Tech Services	Client Proj. ID: Shell 461 8th St.	Sampled: 07/08/98
1680 Rogers Avenue	Sample Descript: S-10	Received: 07/09/98
San Jose, CA 95112	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 07/20/98
Attention: Fran Thie	Lab Number: 9807443-06	Reported: 07/24/98

QC Batch Number: GC072098BTEX21A
Instrument ID: GCHP21

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**50**	**530**
Methyl t-Butyl Ether	2.5	N.D.
Benzene	**0.50**	**4.8**
Toluene	**0.50**	**1.1**
Ethyl Benzene	**0.50**	**47**
Xylenes (Total)	**0.50**	**51**
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	110

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Blaine Tech Services	Client Proj. ID: Shell 461 8th St.	Sampled: 07/08/98
1680 Rogers Avenue	Sample Descript: DUP	Received: 07/09/98
San Jose, CA 95112	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 07/21/98
Attention: Fran Thie	Lab Number: 9807443-07	Reported: 07/24/98

QC Batch Number: GC072198BTEX02A
Instrument ID: GCHP02

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**2500**	**4000**
Methyl t-Butyl Ether	125	N.D.
Benzene	**25**	**1800**
Toluene	25	N.D.
Ethyl Benzene	25	N.D.
Xylenes (Total)	**25**	**31**
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	90

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Blaine Tech Services	Client Proj. ID: Shell 461 8th St.	Received: 07/09/98
1680 Rogers Avenue		
San Jose, CA 95112	Lab Proj. ID: 9807443	Reported: 07/24/98
Attention: Fran Thie		

LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of_____ pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

Sequoia Analytical

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Blaine Tech Services
1680 Rogers Ave.
San Jose, CA 95112
Attention: Fran Thie

Client Project ID: Shell 461 8th St.

QC Sample Group: 9807443-01, -06

Reported: Jul 24, 1998

QUALITY CONTROL DATA REPORT

Matrix: Liquid
Method: EPA 8020
Analyst:

ANALYTE	Benzene	Toluene	Ethylbenzene	Xylenes
QC Batch #:	GC072098BTEX21A			
Sample No.:	GW9807502-1			
Date Prepared:	7/20/98	7/20/98	7/20/98	7/20/98
Date Analyzed:	7/20/98	7/20/98	7/20/98	7/20/98
Instrument I.D.#:	GCHP21	GCHP21	GCHP21	GCHP21
Sample Conc., ug/L:	N.D.	N.D.	N.D.	N.D.
Conc. Spiked, ug/L:	10	10	10	30
Matrix Spike, ug/L:	10.0	9.9	9 6	30
% Recovery:	100.0	99	96	100.0
Matrix pike Duplicate, ug/L:	9.7	9.3	9.1	28
% Recovery:	97	93	91	93
elative % Difference:	3.0	6.2	5.3	7.3
RPD Control Limits:	0-25	0-25	0-25	0-25

LCS Batch#:	GWBLK072098AS			
Date Prepared:	7/20/98	7/20/98	7/20/98	7/20/98
Date Analyzed:	7/20/98	7/20/98	7/20/98	7/20/98
Instrument I.D.#:	GCHP21	GCHP21	GCHP21	GCHP21
Conc. Spiked, ug/L:	10	10	10	30
LCS Recovery, ug/L:	11	11	10.0	32
LCS % Recovery:	110	110	100.0	107

Percent Recovery Control Limits:

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

Sequoia Analytical

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Blaine Tech Services
1680 Rogers Ave.
San Jose, CA 95112
Attention: Fran Thie

Client Project ID: Shell 461 8th St.

QC Sample Group: 9807443-03-05, -07

Reported: Jul 24, 1998

QUALITY CONTROL DATA REPORT

Matrix: Liquid
Method: EPA 8015
Analyst:

ANALYTE Gasoline

RECEIVED
SEP 03 1998
By

QC Batch #: GC072198BTEX02A

Sample No.: GW9807441-01
Date Prepared: 7/21/98
Date Analyzed: 7/21/98
Instrument I.D.#: GCHP02

Sample Conc., ug/L: N.D.
Conc. Spiked, ug/L: 250

Matrix Spike, ug/L: 260
% Recovery: 104

Matrix pike Duplicate, ug/L: 240
% Recovery: 96

elative % Difference: 8.0

RPD Control Limits: 0-25

LCS Batch#: GWBLK072198AS

Date Prepared: 7/21/98
Date Analyzed: 7/21/98
Instrument I.D.#: GCHP02

Conc. Spiked, ug/L: 250

LCS Recovery, ug/L: 260
LCS % Recovery: 104

Percent Recovery Control Limits:

MS/MSD	60-140
LCS	70-130

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

Sequoia Analytical

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Blaine Tech Services
1680 Rogers Ave.
San Jose, CA 95112
Attention: Fran Thie

Client Project ID: Shell 461 8th St.

QC Sample Group: 9807443-02

Reported: Jul 24, 1998

QUALITY CONTROL DATA REPORT

Matrix:	Liquid			
Method:	EPA 8020			
Analyst:				
ANALYTE	Benzene	Toluene	Ethylbenzene	Xylenes
QC Batch #:	GC072298BTEX03A			
Sample No.:	GW9807723-03			
Date Prepared:	7/22/98	7/22/98	7/22/98	7/22/98
Date Analyzed:	7/23/98	7/23/98	7/23/98	7/23/98
Instrument I.D.#:	GCHP03	GCHP03	GCHP03	GCHP03
Sample Conc., ug/L:	N.D.	N.D.	N.D.	N.D.
Conc. Spiked, ug/L:	10	10	10	30
Matrix Spike, ug/L:	9.9	9.9	10.0	30
% Recovery:	99	99	100.0	100.0
Matrix pike Duplicate, ug/L:	10.0	10.0	10.0	32
% Recovery:	100.0	100.0	100.0	107
elative % Difference:	1.0	1.0	0.0	6.8
RPD Control Limits:	0-25	0-25	0-25	0-25

LCS Batch#:	GWBLK072298AS			
Date Prepared:	7/22/98	7/22/98	7/22/98	7/22/98
Date Analyzed:	7/23/98	7/23/98	7/23/98	7/23/98
Instrument I.D.#:	GCHP03	GCHP03	GCHP03	GCHP03
Conc. Spiked, ug/L:	10	10	10	30
LCS Recovery, ug/L:	10.0	10.0	10.0	31
LCS % Recovery:	100.0	100.0	100.0	103

Percent Recovery Control Limits:

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

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