

ENVIRONMENTAL  
PROTECTION

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December 11, 1996

**Mr. R. Jeff Granberry**  
*Shell Oil Products Company*  
P.O. Box 4023  
Concord, California 94524

**RE: Quarterly Monitoring Report - Fourth Quarter 1996**  
Shell Service Station  
2800 Telegraph Avenue  
Oakland, California  
WIC #204-5508-2303

Dear Mr. Granberry:

This Quarterly Monitoring Report describes the recently completed activities associated with ground water monitoring and sampling at the referenced site (Plates 1 and 2). This report was prepared to meet quarterly reporting guidelines issued by the Regional Water Quality Control Board and the Alameda County Health Care Services Agency.

This document presents the results of activities performed in the fourth quarter of 1996.

#### **Quarterly Monitoring & Sampling Summary**

- Blaine Tech Services, Inc. (Blaine) of San Jose, California measured ground water levels in Wells S-1, S-4 through S-11, and SR-1 on October 2, 1996.
- Ground water samples collected from Wells S-8 and S-11 were transported to Sequoia Analytical (Sequoia) of Redwood City, California. A duplicate sample and an equipment blank were prepared and analyzed for quality control purposes.
- Enviros, Inc. (Enviros) evaluated water-level measurement data and chemical analytical results and prepared this report, which includes the Blaine Quarterly Ground Water Monitoring Report and a ground water contour/benzene concentration map.
- Ground water flow is primarily to the southwest-southeast at an approximate hydraulic gradient of 0.01. A ground water contour/benzene concentration map is presented on Plate 2.
- TPPH concentrations in ground water samples ranged from not detected (ND) to 1,300 ppb. Benzene concentrations ranged from ND to 20 ppb.

## Quarterly Sampling

Monitoring Wells S-8 and S-11 were sampled and analyzed for Total Purgeable Petroleum Hydrocarbons quantified as Gasoline (TPPH) according to EPA Method 8015 (Modified) and benzene, toluene, ethylbenzene and xylenes (BTEX) and methyl-tertiary-butyl-ether (MTBE) according to EPA Method 8020. Additionally, a duplicate sample and an equipment blank were prepared and analyzed for quality control purposes.

Field monitoring data and chemical analytical data are summarized in Table 1. The Blaine Quarterly Ground Water Monitoring Report is presented in Appendix A.

Monitoring, sampling, and reporting will continue on the established schedule for the next quarter.

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

Sincerely,

Enviros, Inc.

*Jeffrey L. Peterson*

Jeffrey L. Peterson  
Hydrogeologist

*Diane M. Lundquist*

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



### Attachments:

Table 1. Well Concentrations

Plate 1. Vicinity Map

Plate 2. Ground Water Contour/Benzene Concentration Map

### Appendix A

Blaine Quarterly Ground Water Monitoring Report

cc: Ms. Susan L. Hugo, Alameda County Health Care Services Agency

TABLE 1

**WELL CONCENTRATIONS**  
**Shell Oil Products Company**  
**2800 Telegraph Avenue**  
**Oakland, California**  
**WIC #204-5508-2303**

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

<b>S-1</b>		<b>Top of box elevation (ft): 35.31</b>								
04-May-92	9.50	25.81	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
10-Aug-92	10.85	24.46	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
09-Nov-92	10.34	24.97	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
23-Feb-93	7.60	27.71	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
07-Jun-93	8.63	26.68	0.00	<50	2.8	1.3	0.7	3.0	NA	
13-Aug-93	9.20	26.11	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
18-Nov-93	10.58	24.73	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
10-Feb-94	8.41	26.90	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
03-May-94	9.09	26.22	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
01-Aug-94	8.81	26.50	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
08-Nov-94	9.32	25.99	0.00	NA	NA	NA	NA	NA	NA	
03-Feb-95	6.98	28.33	0.00	NA	NA	NA	NA	NA	NA	
02-Aug-95	9.35	25.96	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
02-Feb-96	7.45	27.86	0.00	NA	NA	NA	NA	NA	NA	
04-May-96	8.91	26.40	0.00	NA	NA	NA	NA	NA	NA	
02-Aug-96	9.33	25.98	0.00	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
02-Oct-96	10.11	25.20	0.00	NA	NA	NA	NA	NA	NA	

<b>S-2</b>		<b>Top of box elevation (ft): 33.91</b>								
04-May-92	9.44	24.47	0.00	1600	190	6.0	240	54	NA	
10-Aug-92	10.73	23.18	0.00	<50	4.1	<0.5	<0.5	<0.5	NA	
11-Sep-92	NA	NA	NA	84	19	0.7	2.2	4.3	NA	
09-Nov-92	10.29	23.62	0.00	NA	NA	NA	NA	NA	NA	
23-Feb-93	9.04	24.87	0.00	16000	1600	480	850	1800	NA	
07-Jun-93	NA	NA	NA	NA	NA	NA	NA	NA	NA	Well Destroyed 4/8/93

TABLE 1

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**Shell Oil Products Company**  
**2800 Telegraph Avenue**  
**Oakland, California**  
**WIC #204-5508-2303**

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
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<b>S-3</b>		<b>Top of box elevation (ft): 33.56</b>								
04-May-92	9.22	24.34	0.00	NA	NA	NA	NA	NA	NA	
10-Aug-92	NA	NA	NA	NA	NA	NA	NA	NA	NA	Well Paved Over - Inaccessible

<b>S-4</b>		<b>Top of box elevation (ft): 34.08</b>								
04-May-92	9.96	24.12	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
10-Aug-92	11.32	22.76	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
09-Nov-92	11.29	22.79	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
23-Feb-93	9.82	24.26	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
07-Jun-93	10.51	23.57	0.00	50	9.2	5.5	3.3	14	NA	
13-Aug-93	11.05	23.03	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
18-Nov-93	11.34	22.74	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
10-Feb-94	9.93	24.15	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
03-May-94	10.40	23.68	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
01-Aug-94	10.68	23.40	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
08-Nov-94	9.44	24.64	NA	NA	NA	NA	NA	NA	NA	
03-Feb-95	9.18	24.90	NA	NA	NA	NA	NA	NA	NA	
02-Aug-95	10.62	23.46	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
02-Feb-96	9.23	24.85	0.00	NA	NA	NA	NA	NA	NA	
04-May-96	10.37	23.71	0.00	NA	NA	NA	NA	NA	NA	
02-Aug-96	10.69	23.39	0.00	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
02-Oct-96	10.96	23.12	0.00	NA	NA	NA	NA	NA	NA	

<b>S-5</b>		<b>Top of box elevation (ft): 33.42</b>								
04-May-92	10.27	23.15	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
10-Aug-92	10.68	22.74	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	

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 Shell Oil Products Company  
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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
09-Nov-92	10.69	22.73	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
23-Feb-93	9.45	23.97	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
07-Jun-93	10.23	23.19	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
13-Aug-93	10.58	22.84	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
18-Nov-93	10.70	22.72	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
10-Feb-94	9.75	23.67	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
03-May-94	10.19	23.23	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
01-Aug-94	10.30	23.12	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
08-Nov-94	9.64	23.78	NA	NA	NA	NA	NA	NA	NA	
03-Feb-95	9.59	23.83	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
02-Aug-95	10.23	23.90	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
02-Feb-96	9.51	23.91	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
04-May-96	10.15	23.27	0.00	NA	NA	NA	NA	NA	NA	
02-Aug-96	10.30	23.12	0.00	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
02-Oct-96	10.54	22.88	0.00	NA	NA	NA	NA	NA	NA	

S-6	Top of box elevation (ft): 32.59									
04-May-92	9.42	23.17	0.00	3100	640	22	23	97	NA	
10-Aug-92	10.40	22.19	0.00	3400	430	27	26	120	NA	
09-Nov-92	10.16	22.43	0.00	2000	320	15	15	100	NA	
23-Feb-93	7.60	24.99	0.00	14000	780	180	380	1300	NA	
07-Jun-93	8.90	23.69	0.00	3900	1400	56	83	210	NA	
13-Aug-93	9.39	23.20	0.00	4000 (a)	890	16	<0.5	41	NA	
18-Nov-93	10.32	22.27	0.00	80	5.0	<0.5	<0.5	<0.5	NA	
10-Feb-94	8.68	23.91	0.00	4100	370	23	21	90	NA	
03-May-94	9.20	23.39	0.00	4700	550	28	85	340	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
01-Aug-94	8.90	23.69	0.00	2900	370	11	11	43	NA	
08-Nov-94	8.32	23.69	0.00	NA	NA	NA	NA	NA	NA	
03-Feb-95	8.04	23.69	0.00	NA	NA	NA	NA	NA	NA	
02-Aug-95	9.26	23.19	0.00	1400	160	<5	<5	<5	NA	
02-Feb-96	7.90	24.69	0.00	NA	NA	NA	NA	NA	NA	
04-May-96	8.98	23.61	0.00	NA	NA	NA	NA	NA	NA	
02-Aug-96	9.34	23.25	0.00	1600	150	9.2	13	23	17	
02-Oct-96	9.96	22.63	0.00	NA	NA	NA	NA	NA	NA	

S-6 (DUP)										
01-Aug-94	NA	NA	NA	2600	340	8.8	7.7	33	NA	
02-Aug-95	NA	NA	NA	1400	170	<5	<5	<5	NA	

S-7	Top of box elevation (ft): 33.33									
04-May-92	11.21	22.12	0.00	180	1.6	<0.5	1.5	3.0	NA	
10-Aug-92	12.28	21.05	0.00	190	8.0	1.4	4.7	8.5	NA	
09-Nov-92	11.77	21.56	0.00	280	16	4.0	7.8	21	NA	
23-Feb-93	8.86	24.47	0.00	210	13	2.2	5.4	12	NA	
07-Jun-93	10.58	22.75	0.00	90	1.2	2.5	1.0	<0.5	NA	
13-Aug-93	11.34	21.99	0.00	140	4.0	0.8	<0.5	0.5	NA	
18-Nov-93	12.00	21.33	0.00	440	43	4.9	0.9	4.2	NA	
10-Feb-94	9.88	23.45	0.00	250 (a)	<0.5	<0.5	1.8	<0.5	NA	
03-May-94	10.75	22.58	0.00	130	<0.5	<0.5	<0.5	<0.5	NA	
01-Aug-94	11.05	22.28	0.00	250	4.8	<0.5	<0.5	<0.5	NA	
08-Nov-94	9.64	23.69	NA	NA	NA	NA	NA	NA	NA	
03-Feb-95	8.53	24.80	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	

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**Shell Oil Products Company**  
**2800 Telegraph Avenue**  
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**WIC #204-5508-2303**

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
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02-Aug-95	11.10	22.23	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
02-Feb-96	8.58	24.75	0.00	480	2.2	2.4	7.9	25	NA	
04-May-96	10.41	22.92	0.00	NA	NA	NA	NA	NA	NA	
02-Aug-96	11.18	22.15	0.00	300	20	2.2	3.8	7.9	21	MTBE by EPA Method 8260: 11 ppb
02-Oct-96	12.12	21.21	0.00	NA	NA	NA	NA	NA	NA	

<b>S-7 (DUP)</b>										
02-Aug-96	NA	NA	NA	340	22	2.2	4.4	8.9	20	

<b>S-8</b>	<b>Top of box elevation (ft): 31.97</b>									
04-May-92	10.29	21.68	0.00	1600	20	420	96	330	NA	
10-Aug-92	11.12	20.85	0.00	1500	19	37	60	250	NA	
09-Nov-92	10.71	21.26	0.00	710	5.7	24	28	120	NA	
23-Feb-93	6.04	25.93	0.00	3800	40	54	68	260	NA	
07-Jun-93	10.06	21.91	0.00	1200	13	19	65	150	NA	
13-Aug-93	10.56	21.41	0.00	1300	21	23	49	250	NA	
18-Nov-93	10.90	21.07	0.00	870	16	5.3	59	230	NA	
10-Feb-94	9.53	22.44	0.00	2400	11	55	120	530	NA	
03-May-94	10.06	21.91	0.00	3100	12	27	130	370	NA	
01-Aug-94	10.32	21.65	0.00	1500	20	18	39	190	NA	
08-Nov-94	9.25	22.72	0.00	2100	22	38	73	390	NA	
03-Feb-95	8.99	22.98	0.00	4800	67	39	130	300	NA	
04-May-95	9.22	22.75	0.00	2600	31	23	71	310	NA	
02-Aug-95	10.36	21.61	0.00	1700	10	9.1	48	210	NA	
02-Nov-95	10.72	21.25	0.00	1200	16	13	72	130	NA	
02-Feb-96	8.92	23.05	0.00	7100	29	140	360	1300	NA	

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04-May-96	9.86	22.11	0.00	3500	13	27	110	400	<25	
02-Aug-96	10.30	21.67	0.00	850	9.6	7.4	30	160	11	
02-Oct-96	10.71	21.26	0.00	980	<5.0	11	13	92	<25	

<b>S-8 (DUP)</b>										
10-Feb-94	NA	NA	NA	2400	11	46	100	440	NA	
03-May-94	NA	NA	NA	3000	21	25	120	340	NA	
08-Nov-94	NA	NA	NA	2100	20	31	75	390	NA	
03-Feb-95	NA	NA	NA	3700	53	30	100	240	NA	
04-May-95	NA	NA	NA	3300	38	26	89	390	NA	
02-Aug-95	NA	NA	NA	1200	15	13	70	120	NA	
02-Feb-96	NA	NA	NA	7800	33	160	400	1500	NA	
04-May-96	NA	NA	NA	5100	19	37	190	690	<25	
02-Oct-96	NA	NA	NA	1300	<5.0	10	28	180	<25	

<b>S-9</b>										
		Top of box elevation (ft): 31.86								
04-May-92	10.45	21.41	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
10-Aug-92	11.52	20.34	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
09-Nov-92	11.02	20.84	0.00	<50	<0.5	<0.5	<0.5	0.7	NA	
23-Feb-93	8.00	23.86	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
07-Jun-93	10.07	21.79	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
13-Aug-93	10.92	20.94	0.00	140 (b)	<0.5	<0.5	<0.5	<0.5	NA	
18-Nov-93	11.19	20.67	0.00	170	<0.5	<0.5	<0.5	<0.5	NA	
10-Feb-94	9.16	22.70	0.00	140 (b)	<0.5	<0.5	<0.5	<0.5	NA	
03-May-94	10.03	21.83	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
01-Aug-94	10.52	21.34	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	



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08-Nov-94	9.08	22.78	0.00	NA	NA	NA	NA	NA	NA	
03-Feb-95	8.37	23.49	0.00	NA	NA	NA	NA	NA	NA	
02-Aug-95	9.35	22.51	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
02-Feb-96	7.53	24.33	0.00	NA	NA	NA	NA	NA	NA	
04-May-96	9.60	22.26	0.00	NA	NA	NA	NA	NA	NA	
02-Aug-96	10.46	21.40	0.00	<50	<0.50	<0.50	<0.50	<0.50	12	
02-Oct-96	10.66	21.20	0.00	NA	NA	NA	NA	NA	NA	

<b>S-10</b>	<b>Top of box elevation (ft): 32.95</b>									
04-May-92	8.54	24.41	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
10-Aug-92	10.43	22.52	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
09-Nov-92	9.14	23.81	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
23-Feb-93	6.72	26.23	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
07-Jun-93	8.08	24.87	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
13-Aug-93	8.83	24.12	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
18-Nov-93	9.46	23.49	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
10-Feb-94	7.41	25.54	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
03-May-94	8.16	24.79	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
01-Aug-94	8.29	24.66	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
08-Nov-94	7.02	25.93	0.00	NA	NA	NA	NA	NA	NA	
03-Feb-95	6.79	26.16	0.00	NA	NA	NA	NA	NA	NA	
02-Aug-95	8.30	24.65	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
02-Feb-96	6.49	26.46	0.00	NA	NA	NA	NA	NA	NA	
04-May-96	7.55	25.40	0.00	NA	NA	NA	NA	NA	NA	
02-Aug-96	9.25	23.70	0.00	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
02-Oct-96	10.54	22.41	0.00	NA	NA	NA	NA	NA	NA	

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 WIC #204-5508-2303

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
-------------	------------------------	------------------------	---------	-------------	----------	----------	----------	----------	-------------	----------

<b>S-11</b>		<b>Top of box elevation (ft): 30.78</b>								
04-May-92	9.99	20.79	0.00	1500	55	32	57	190	NA	
10-Aug-92	10.92	19.86	0.00	750	29	13	43	120	NA	
09-Nov-92	10.44	20.34	0.00	4100	32	62	120	1100	NA	
23-Feb-93	7.30	23.48	0.00	760	15	13	37	140	NA	
07-Jun-93	9.51	21.27	0.00	1700	40	16	100	360	NA	
13-Aug-93	10.39	20.39	0.00	60	0.9	<0.5	0.8	1.2	NA	
18-Nov-93	10.64	20.14	0.00	150	7.8	1.0	9.0	12	NA	
10-Feb-94	8.50	22.28	0.00	4400	53	19	160	390	NA	
03-May-94	9.42	21.36	0.00	65	1.5	<0.5	0.53	0.59	NA	
01-Aug-94	10.12	20.66	0.00	240	18	6.7	6.9	18	NA	
08-Nov-94	8.84	21.94	0.00	490	14	5.2	15	47	NA	
03-Feb-95	7.12	23.66	0.00	380	4.1	0.9	1.4	5.1	NA	
04-May-95	7.96	22.82	0.00	110	1.3	<0.5	1.1	1.8	NA	
02-Aug-95	9.88	20.90	0.00	230	22	11	13	35	NA	
02-Nov-95	10.10	20.68	0.00	200	26	10	10	30	NA	
02-Feb-96	7.33	23.45	0.00	110	2.9	1.0	2.6	6.5	NA	
04-May-96	8.62	22.16	0.00	<50	0.70	0.54	0.82	2.6	7.5	
02-Aug-96	9.85	20.93	0.00	200	11	4.6	12	38	10	
02-Oct-96	11.00	19.78	0.00	290	20	6.2	16	48	8.4	

<b>S-11 (DUP)</b>										
07-Jun-93	NA	NA	NA	1600	51	16	83	300	NA	
13-Aug-93	NA	NA	NA	70	2.1	<0.5	0.9	2.1	NA	

TABLE 1

**WELL CONCENTRATIONS**  
**Shell Oil Products Company**  
**2800 Telegraph Avenue**  
**Oakland, California**  
**WIC #204-5508-2303**

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
----------------	------------------------------	------------------------------	------------	----------------	-------------	-------------	-------------	-------------	----------------	----------

<b>SR-1</b>		<b>Top of box elevation (ft): not surveyed</b>									
04-May-92	9.02	NA	0.00	NA	NA	NA	NA	NA	NA	NA	
10-Aug-92	10.29	NA	0.00	NA	NA	NA	NA	NA	NA	NA	
09-Nov-92	10.92	NA	0.00	NA	NA	NA	NA	NA	NA	NA	
22-Feb-93	6.64	NA	0.00	NA	NA	NA	NA	NA	NA	NA	
07-Jun-93	7.36	NA	0.00	NA	NA	NA	NA	NA	NA	NA	
13-Aug-93	7.96	NA	0.00	NA	NA	NA	NA	NA	NA	NA	
18-Nov-93	10.02	NA	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	
10-Feb-94	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
03-May-94	8.28	NA	0.00	NA	NA	NA	NA	NA	NA	NA	
01-Aug-94	7.98	NA	0.00	NA	NA	NA	NA	NA	NA	NA	
08-Nov-94	7.75	NA	0.00	NA	NA	NA	NA	NA	NA	NA	
03-Feb-95	7.20	NA	0.00	NA	NA	NA	NA	NA	NA	NA	
04-May-95	4.10	NA	0.00	NA	NA	NA	NA	NA	NA	NA	
02-Aug-95	5.31	NA	0.00	NA	NA	NA	NA	NA	NA	NA	
02-Nov-95	10.62	NA	0.00	NA	NA	NA	NA	NA	NA	NA	
02-Feb-96	7.30	NA	0.00	90 (d)	6.1	6.7	2.8	8.5	NA	NA	
04-May-96	8.10	NA	0.00	NA	NA	NA	NA	NA	NA	NA	
02-Aug-96	8.10	NA	0.00	NA	NA	NA	NA	NA	NA	NA	
02-Oct-96	9.25	NA	0.00	NA	NA	NA	NA	NA	NA	NA	

<b>SR-1 (DUP)</b>										
18-Nov-93	NA	NA	NA	<50	<0.5	<0.5	<0.5	<0.5	NA	

**TABLE 1**

**WELL CONCENTRATIONS  
Shell Oil Products Company  
2800 Telegraph Avenue  
Oakland, California  
WIC #204-5508-2303**

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

Abbreviations:

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

BTEX = benzene, toluene, ethylbenzene, xylenes by EPA Method 8020

MTBE = methyl-tertiary-butyl ethel by EPA Method 8020

<x = Not detected at detection limit of x

NA = Not analyzed or not available

(DUP) = Duplicate sample

Notes:

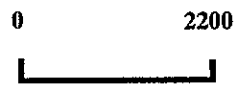
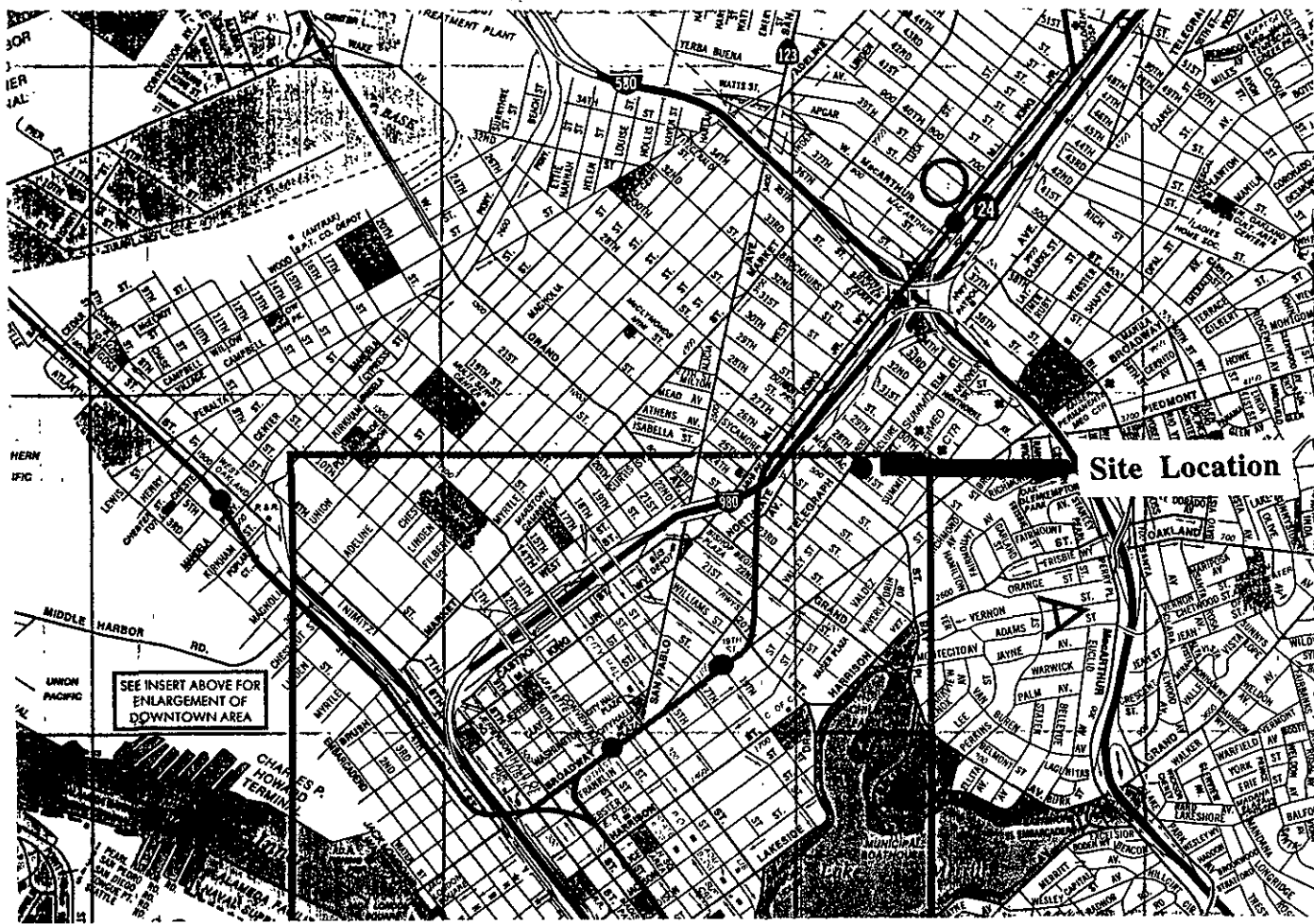
Benzene, Toluene, Ethylbenzene, Xylenes analyzed by EPA Method 8020

a = The concentration reported as gasoline is primarily due to the presence of a combination of gasoline and a discrete peak not indicative of gasoline.

b = Well inaccessible since August 1992

c = The concentration reported as gasoline is primarily due to the presence of a discrete peak not indicative of gasoline.

Elevations referenced to Mean Sea Level



Scale in Feet

Note: Vicinity Map taken from California State AAA map.

PLATE  
**1**

**SITE VICINITY MAP**  
Former Shell Service Station  
2800 Telegraph Avenue  
Oakland, California

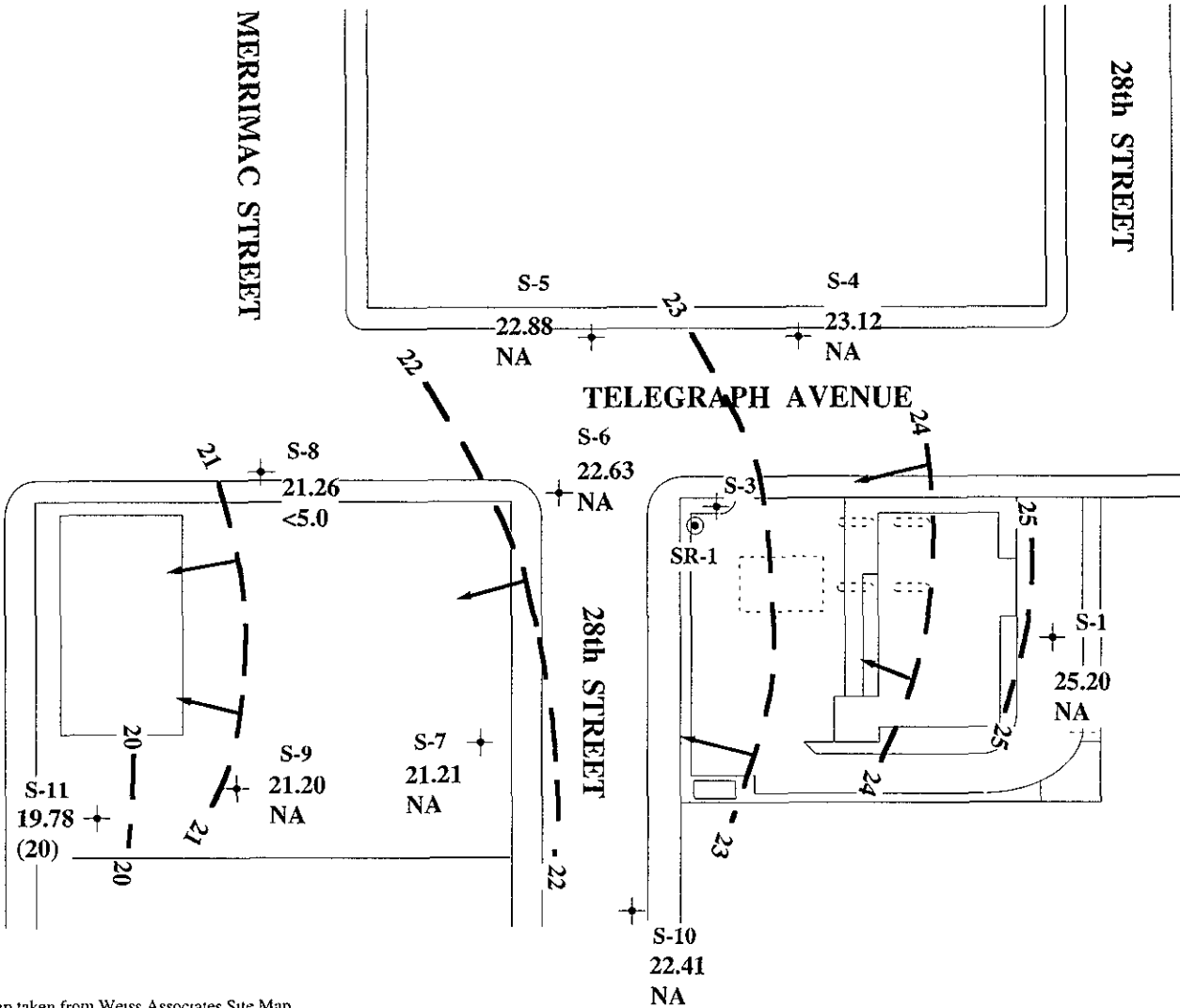
**enviros**<sup>®</sup>  
95290

Drawn By: JLP

Date: 5-15-95

Approved By: *[Signature]*

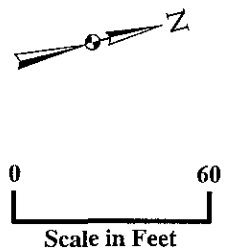
Date: 12-11-96



**EXPLANATION**

- + Ground water Monitoring Well
- ⊙ Recovery Well
- ↘ 25.0 Ground water elevation contour in feet referenced to Mean Sea Level (MSL). Arrows indicate approximate ground water flow direction.
- 21.20 Ground water elevation in feet MSL
- (20) Benzene concentration in ppb
- NA Not Analyzed

Notes: Monitoring performed on 10-2-96.  
 Approximate Hydraulic Gradient = 0.01.  
 Well SR-1 not used in contouring.



Base map taken from Weiss Associates Site Map

**PLATE 2** **GROUND WATER CONTOUR/BENZENE CONCENTRATION MAP**  
 Former Shell Service Station  
 2800 Telegraph Avenue  
 Oakland, California

**enviros**®  
 96290

Drawn By: JLP Date: 12-5-96

Approved By: *DA* Date: 12-11-99

**Appendix A**

**Blaine Tech Services Inc.  
Quarterly Ground Water Monitoring Report**

# BLAINE TECH SERVICES INC.

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

October 22, 1996

RECEIVED  
OCT 23 1996

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

Attn: R. Jeff Granberry

Shell WIC #204-5508-2303  
2800 Telegraph Avenue  
Oakland, California

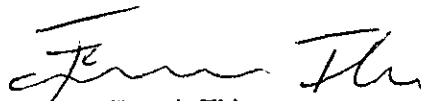
4th Quarter 1996

## Quarterly Groundwater Monitoring Report 961002-T-1

Blaine Tech Services, Inc. performs environmental sampling and documentation as an independent third party. Copies of our Sampling Report along with the laboratory's Certified Analytical Report are forwarded to the consultant overseeing work at this site. Submission of the assembled documents to interested regulatory agencies will be made by the designated consultant.

Groundwater monitoring at this site was performed in accordance with Standard Operating Procedures provided to the interested regulatory agencies. If you have any questions about the work performed at this site please call me at (408) 995-5535 ext. 201.

Yours truly,

  
Francis Thie

attachments: Table of Well Gauging Data  
Chain of Custody  
Field Data Sheets  
Certified Analytical Report

cc: Enviros, Inc.  
P.O. Box 259  
Sonoma, CA 95476-0259  
Attn: Joe Neely

(Any professional evaluations or recommendations will be made by the consultant under separate cover.)



## 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)
S-1	10/2/96	TOB	--	NONE	--	--	10.11	27.51
S-4	10/2/96	TOB	--	NONE	--	--	10.96	30.31
S-5	10/2/96	TOB	--	NONE	--	--	10.54	30.50
S-6	10/2/96	TOB	--	NONE	--	--	9.96	22.10
S-7	10/2/96	TOB	ODOR	NONE	--	--	12.12	30.65
S-8 *	10/2/96	TOB	ODOR	NONE	--	--	10.71	19.17
S-9	10/2/96	TOB	--	NONE	--	--	10.66	30.01
S-10	10/2/96	TOB	--	NONE	--	--	10.54	24.20
S-11	10/2/96	TOB	ODOR	NONE	--	--	11.00	19.12
SR-1	10/2/96	TOB	--	NONE	--	--	9.25	34.17

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



**SHELL OIL COMPANY**  
RETAIL ENVIRONMENTAL ENGINEERING - WEST

**CHAIN OF CUSTODY RECORD**

Serial No: 94002-71

Date: 10/2/94

Page 1 of 1

Silo Address: 2800 Telegraph Ave., Oakland

WIC#: 204-5508-2303

Shell Engineer: R. Jeff Granberry  
Phone No.: (510) 575-6168  
Fax #: 675-6172

Consultant Name & Address:  
Blaine Tech Services, Inc.  
985 Timothy Drive San Jose, CA 95133

Consultant Contact:  
Jim Keller Fran Thie  
Phone No.: (408) 995-5535  
Fax #: 293-8773

Comments:

Sampled by: [Signature]

Printed Name: Mike Toll

**Analysis Required**

LAB: SEL

CHECK ONE (1) BOX ONLY	CI/DI	TURN AROUND TIME
Quarterly Monitoring <input checked="" type="checkbox"/>	6441	24 hours <input type="checkbox"/>
Site Investigation <input type="checkbox"/>	6441	48 hours <input type="checkbox"/>
Sox Closure/Disposal <input type="checkbox"/>	6442	16 days <input checked="" type="checkbox"/> (Normal)
Water Closure/Disposal <input type="checkbox"/>	6443	Other <input type="checkbox"/>
Sox/Air Rem. of Sys. O & M <input type="checkbox"/>	6462	
Water Rem. of Sys. O & M <input type="checkbox"/>	6463	
Other <input type="checkbox"/>		

NOTE: Notify lab as soon as possible of 24/48 hr. TAT.

Sample ID	Date	Sludge	Soil	Water	Air	No. of conds.	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
S8	10/2			X		3						X	X						01
S11	10/2			X		3						X	X						02
EB	10/2			X		3						X	X						03
DUP	10/2			X		3						X	X						04

Relinquished By (Signature): <u>[Signature]</u>	Printed Name: <u>Mike Toll</u>	Date: <u>10/2/94</u>	Time: <u>10:20</u>	Received (Signature): <u>[Signature]</u>	Printed Name: <u>SWRIGHT</u>	Date: <u>10/3/94</u>	Time: <u>10:00</u>
Relinquished By (Signature): <u>[Signature]</u>	Printed Name:	Date: <u>10/15/94</u>	Time: <u>11:48</u>	Received (Signature): <u>[Signature]</u>	Printed Name:	Date:	Time:
Relinquished By (Signature): <u>[Signature]</u>	Printed Name:	Date:	Time:	Received (Signature): <u>[Signature]</u>	Printed Name: <u>W. Koh</u>	Date: <u>10/15/94</u>	Time: <u>12:05</u>

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



# Sequoia Analytical

680 Chesapeake Drive  
404 N Wiget Lane  
819 Striker Avenue, Suite 8

Redwood City, CA 94063  
Walnut Creek, CA 94598  
Sacramento, CA 95834

(415) 364-9600  
(510) 988-9600  
(916) 921-9600

FAX (415) 364-9233  
FAX (510) 988-9673  
FAX (916) 921-0100

Blaine Technical Services  
985 Timothy Drive  
San Jose, CA 95133  
Attention: Fran Thie

Project: Shell Oakland/961002-T1

Enclosed are the results from samples received at Sequoia Analytical on October 3, 1996.  
The requested analyses are listed below:

<u>SAMPLE #</u>	<u>SAMPLE DESCRIPTION</u>	<u>DATE COLLECTED</u>	<u>TEST METHOD</u>
9610233 -01	LIQUID, S8	10/02/96	TPGBMW Purgeable TPH/BTEX
9610233 -02	LIQUID, S11	10/02/96	TPGBMW Purgeable TPH/BTEX
9610233 -03	LIQUID, EB	10/02/96	TPGBMW Purgeable TPH/BTEX
9610233 -04	LIQUID, DUP	10/02/96	TPGBMW Purgeable TPH/BTEX

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





Blaine Technical Services 985 Timothy Drive San Jose, CA 95133	Client Proj. ID: Shell Oakland/961002-T1 Sample Descript: S8 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9610233-01	Sampled: 10/02/96 Received: 10/03/96  Analyzed: 10/08/96 Reported: 10/14/96
--	--	---

QC Batch Number: GC100896BTEX17A  
Instrument ID: GCHP17

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE**


Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	500	980
Methyl t-Butyl Ether	25	N.D.
Benzene	5.0	N.D.
Toluene	5.0	11
Ethyl Benzene	5.0	13
Xylenes (Total)	5.0	92
Chromatogram Pattern:		C6-C12

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70                      130	121

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

**SEQUOIA ANALYTICAL** - ELAP #1210

  
\_\_\_\_\_  
Peggy Penner  
Project Manager





Blaine Technical Services 985 Timothy Drive San Jose, CA 95133	Client Proj. ID: Shell Oakland/961002-T1 Sample Descript: S11 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9610233-02	Sampled: 10/02/96 Received: 10/03/96  Analyzed: 10/09/96 Reported: 10/14/96
--	---	---

QC Batch Number: GC100996BTEX17A  
Instrument ID: GCHP17

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE**


Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	290
Methyl t-Butyl Ether	2.5	8.4
Benzene	0.50	20
Toluene	0.50	6.2
Ethyl Benzene	0.50	16
Xylenes (Total)	0.50	48
Chromatogram Pattern:		C6-C12

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70                      130	113

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

**SEQUOIA ANALYTICAL** - ELAP #1210

  
Peggy Penner  
Project Manager



Blaine Technical Services 985 Timothy Drive San Jose, CA 95133	Client Proj. ID: Shell Oakland/961002-T1 Sample Descript: EB Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9610233-03	Sampled: 10/02/96 Received: 10/03/96  Analyzed: 10/08/96 Reported: 10/14/96
--	--	---

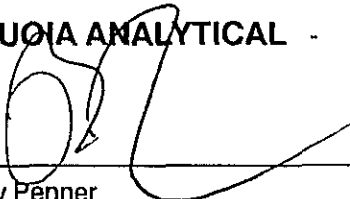
QC Batch Number: GC100896BTEX17A  
Instrument ID: GCHP17

**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:		
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70                      130	104

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

**SEQUOIA ANALYTICAL** - ELAP #1210

  
Peggy Penner  
Project Manager



Blaine Technical Services 985 Timothy Drive San Jose, CA 95133	Client Proj. ID: Shell Oakland/961002-T1 Sample Descript: DUP Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9610233-04	Sampled: 10/02/96 Received: 10/03/96 Analyzed: 10/08/96 Reported: 10/14/96
Attention: Fran Thie		

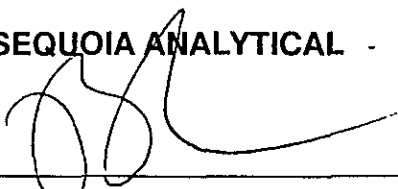
QC Batch Number: GC100896BTEX17A  
Instrument ID: GCHP17

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	500	1300
Methyl t-Butyl Ether	25	N.D.
Benzene	5.0	N.D.
Toluene	5.0	10
Ethyl Benzene	5.0	28
Xylenes (Total)	5.0	180
Chromatogram Pattern:		C6-C12
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
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



Blaine Tech Services, Inc.  
985 Timothy Drive  
San Jose, CA 95133  
Attention: Fran Thie

Client Project ID: Shell, Oakland / 961002-T1  
Matrix: Liquid

Work Order #: 9610233 -01, 03-04

Reported: Oct 16, 1996

**QUALITY CONTROL DATA REPORT**

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC100896BTEX17A	GC100896BTEX17A	GC100896BTEX17A	GC100896BTEX17A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	R. Burton	R. Burton	R. Burton	R. Burton
MS/MSD #:	9609H4604	9609H4604	9609H4604	9609H4604
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	10/8/96	10/8/96	10/8/96	10/8/96
Analyzed Date:	10/8/96	10/8/96	10/8/96	10/8/96
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	3.5	3.2	3.2	9.4
MS % Recovery:	35	32	32	31
Dup. Result:	11	10	9.7	28
MSD % Recov.:	110	100	97	93
RPD:	103	103	101	99
RPD Limit:	0-25	0-25	0-25	0-25

LCS #:	BLK100896	BLK100896	BLK100896	BLK100896
Prepared Date:	10/8/96	10/8/96	10/8/96	10/8/96
Analyzed Date:	10/8/96	10/8/96	10/8/96	10/8/96
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	11	11	10	31
LCS % Recov.:	110	110	100	103

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

**SEQUOIA ANALYTICAL**  
  
Peggy Renner  
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

680 Chesapeake Drive  
404 N Wiget Lane  
819 Striker Avenue, Suite 8

Redwood City, CA 94063  
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Sacramento, CA 95834

(415) 364-9600  
(510) 988-9600  
(916) 921-9600

FAX (415) 364-9233  
FAX (510) 988-9673  
FAX (916) 921-0100

Blaine Tech Services, Inc.  
985 Timothy Drive  
San Jose, CA 95133  
Attention: Fran Thie

Client Project ID: Shell, Oakland / 961002-T1  
Matrix: Liquid

Work Order #: 9610233-02

Reported: Oct 16, 1996

## QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC100996BTEX17A	GC100996BTEX17A	GC100996BTEX17A	GC100996BTEX17A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	R. Burton	R. Burton	R. Burton	R. Burton
MS/MSD #:	961003604	961003604	961003604	961003604
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	10/9/96	10/9/96	10/9/96	10/9/96
Analyzed Date:	10/9/96	10/9/96	10/9/96	10/9/96
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	11	10	9.7	29
MS % Recovery:	110	100	97	97
Dup. Result:	11	11	11	31
MSD % Recov.:	110	110	110	103
RPD:	0.0	9.5	13	6.7
RPD Limit:	0-25	0-25	0-25	0-25

LCS #:	BLK100996	BLK100996	BLK100996	BLK100996
Prepared Date:	10/9/96	10/9/96	10/9/96	10/9/96
Analyzed Date:	10/9/96	10/9/96	10/9/96	10/9/96
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	11	10	10	31
LCS % Recov.:	110	100	100	103

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

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.

\*\* MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

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