



February 24, 1998

Susan Hugo  
Alameda County Department  
of Environmental Health  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502

Re: **Fourth Quarter 1997 Quarterly Monitoring Report**  
Shell Service Station  
1800 Powell Street  
Emeryville, California  
WIC #204-2495-0101  
Cambria Project #240-0314-497

Dear Ms. Hugo:

On behalf of Shell Oil Products Company, Cambria Environmental Technology, Inc. (Cambria) is submitting this status report to satisfy the quarterly reporting requirements prescribed by California Administrative Code Title 23 Waters, Division 3, Chapter 16, Article 5, Section 2652.d.

#### **Fourth Quarter 1997 Activities**

Blaine Tech Services, Inc. (Blaine) of San Jose, California measured ground water depths and collected water samples from the site wells (Figure 1). The Blaine report describing these sampling activities and presenting the analytical results is included as Attachment A. Cambria calculated ground water elevations and compiled the analytical data (Table 1) and prepared a ground water elevation contour map (Figure 1).

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TECHNOLOGY, INC.

#### **Anticipated Future 1998 Activities**

The next sampling event is scheduled for fourth quarter 1998. At that time, Blaine will measure ground water depths and collect samples from site wells. Cambria will submit a report presenting a summary of activities for the upcoming quarter.

1144 65TH STREET,  
SUITE B  
OAKLAND,  
CA 94608

PH: (510) 420-0700

FAX: (510) 420-9170

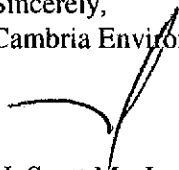
Susan Hugo  
February 24, 1998

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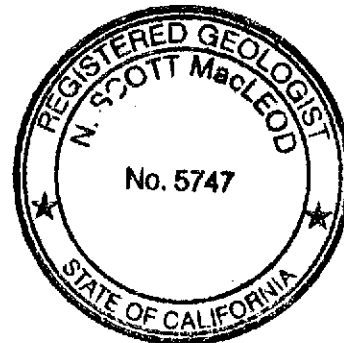
**Closing**

We appreciate this opportunity to work with you on this project. Please call if you have any questions.

Sincerely,  
Cambria Environmental Technology, Inc.



N. Scott MacLeod, R.G.  
Principal Geologist



Attachments: A - Blaine Quarterly Ground Water Monitoring Report

cc: A.E (Alex) Perez, Shell Oil Products Company, P.O. Box 8080, Martinez, California 94553

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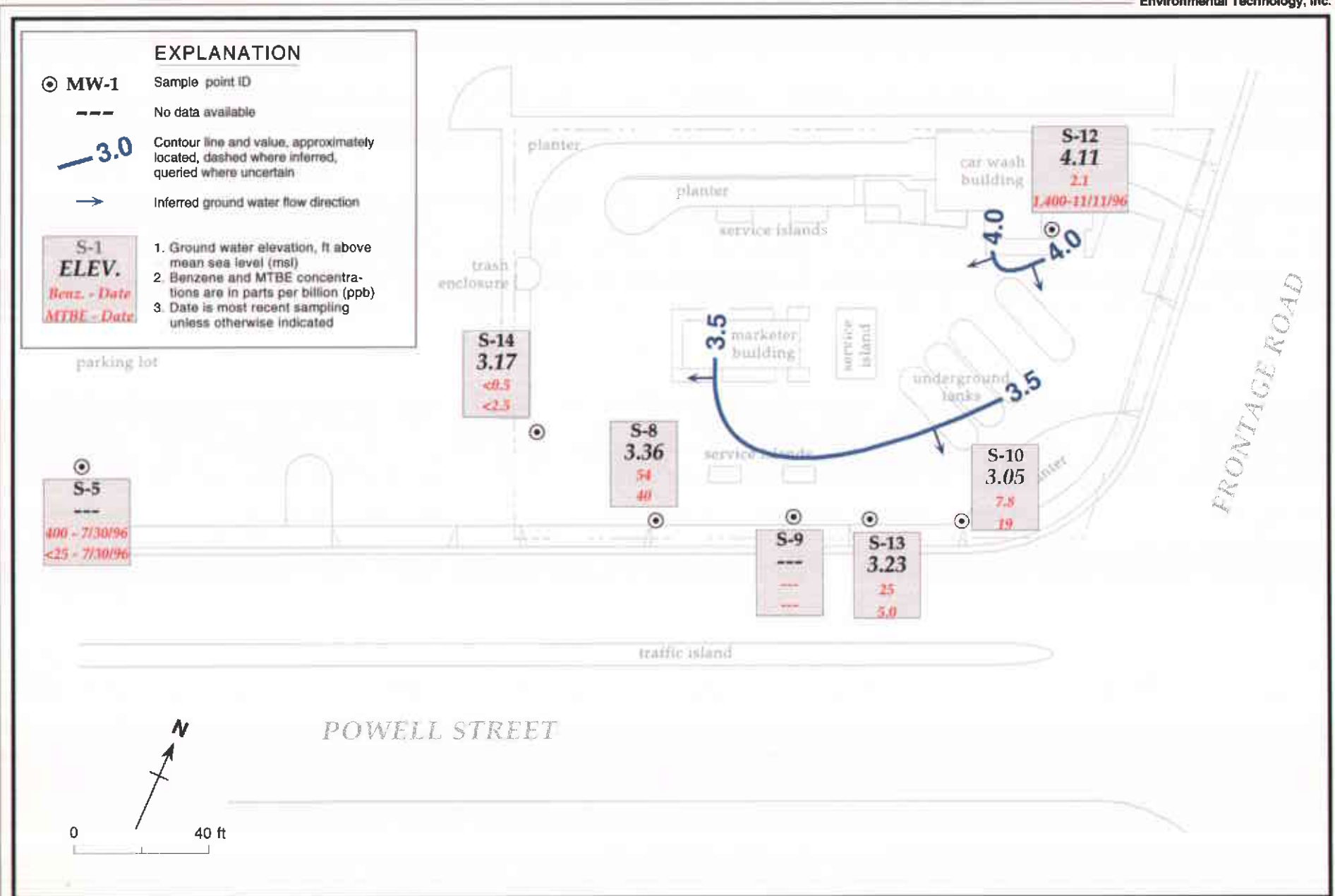


Figure 1. Ground Water Elevation Contours - Shell Service Station, November 3, 1997 - 1800 Powell Street, Emeryville, California.

**Table 1. Ground Water Elevations and Analytic Results - Shell Service Station WIC# 204-2495-0101, 1800 Powell Street, Emeryville, California**

Well ID	Sampling Date	TOB Elevation (ft msl)	Depth to Water (ft)	SPH Thickness (ft)	GW Elevation (ft msl)	TDS (ppm)	parts per billion (µg/L)						
							TPH-G	TPH-D	B	T	E	X	MTBE
S-5	10/26/84	11.72	---	---	---	---	3,000	---	660	20	20	70	---
	02/09/85		---	---	---	---	2,800	---	740	20	20	140	---
	04/27/85		---	---	---	---	4,300	---	750	10	20	<30	---
	07/06/85		---	---	---	---	1,500	---	300	8.0	7.0	9.0	---
	10/24/85		---	---	---	---	2,100	---	760	10	40	50	---
	01/03/86		---	---	---	---	1,300	---	520	9.0	8.0	10	---
	07/05/86		8.36	---	3.36	---	1,400	---	500	10	4.0	<10	---
	10/18/86		---	---	---	---	4,200	---	1,100	9.0	14	7.0	---
	01/13/87		---	---	---	---	4,500	6,100	1,100	15	30	25	---
	07/07/87		9.15	---	2.57	---	3,200	---	1,000	16	9.0	12	---
	10/10/87		9.67	---	2.05	---	1,700	---	16	5.7	5.2	8.9	---
	02/11/88		9.00	---	2.72	---	1,300	---	300	5.0	6	6	---
	05/10/88		8.61	---	3.11	---	1,900	---	490	<0.5	6	6	---
	08/31/88		9.61	---	2.11	---	6,700	---	760	26	<25	<25	---
	12/03/88		9.47	---	2.25	---	2,900	---	890	5.3	7.3	13	---
	02/16/89		8.29	---	3.43	---	1,300	---	280	3.0	3.4	9.4	---
	08/10/89		9.30	---	2.42	---	1,700	---	530	5.5	6	5.8	---
	11/11/89		9.42	---	2.30	---	---	---	---	---	---	---	---
	02/21/94		7.95	---	3.77	---	1,000	---	250	6	6	6	---
	02/21/94 <sup>dup</sup>		7.95	---	3.77	---	1,300	---	220	6	6	11	---
	05/16/94		8.00	---	3.72	---	1,200	---	230	6	6	6	---
	08/09/94 <sup>a</sup>		---	---	---	---	---	---	---	---	---	---	---
	11/09/94		8.32	---	3.40	---	1,600	---	220	3.2	1.8	5.0	---
	11/09/94 <sup>dup</sup>		8.32	---	---	---	1,600	---	250	3.3	1.9	5.9	---
	02/22/95 <sup>a</sup>		---	---	---	---	---	---	---	---	---	---	---
	05/02/95 <sup>a</sup>		---	---	---	---	---	---	---	---	---	---	---
	05/10/95		---	---	---	---	910	---	170	1.5	1.3	5.2	---
	08/24/95		8.78	---	2.94	---	620	---	210	<0.5	1.2	5.3	---
	12/08/95		9.78	---	1.94	---	1,600	---	510	3.3	1.5	6.6	---
	12/08/95 <sup>dup</sup>		9.78	---	1.94	---	1,600	---	530	1.8	1.1	5.4	---
	02/29/96		7.64	---	4.08	---	1,900	---	470	5.8	6.0	6.0	46
	02/29/96 <sup>dup</sup>		7.64	---	4.08	---	1,700	---	440	5.4	6.0	6.0	40

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**Table 1. Ground Water Elevations and Analytic Results - Shell Service Station WIC# 204-2495-0101, 1800 Powell Street, Emeryville, California (continued)**

Well ID	Sampling Date	TOB Elevation (ft msl)	Depth to Water (ft)	SPH Thickness (ft)	GW Elevation (ft msl)	TDS (ppm)	TPH-G	TPH-D	B	parts per billion (µg/L)			MTBE
										T	E	X	
	05/22/96		8.60	—	3.12	—	1,200	—	490	<10	<10	<10	<50
	07/30/96		9.40	—	2.32	—	1,100	—	400	<5.0	<5.0	6.9	<25
	11/11/96		Well Inaccessible										
	11/03/97		Well Inaccessible										
S-6	04/27/85		—	—	—	—	6,500	—	2,400	30	50	210	—
	07/06/85		—	—	—	—	3,700	—	1,700	34	55	200	—
	10/24/85		Well Abandoned 11/8/85			—	<50	—	23	<0.5	<5	10	—
S-7	10/26/84		—	—	—	—	50	—	1.1	<1	<1	4	—
	02/09/85		—	—	—	—	—	—	0.90	<1	<1	<3	—
	04/27/85		—	—	—	—	<50	—	<1	<1	<1	<3	—
	07/06/85		—	—	—	—	70	—	2.2	<1	<1	<3	—
	10/24/85		Well Abandoned 11/9/85			—	6,200	—	2,200	130	190	660	—
S-8	10/26/84	12.76	—	—	—	—	1,000	—	610	9.0	1.0	42	—
	02/09/85		—	—	—	—	500	—	160	5.0	<2	17	—
	04/27/85		—	—	—	—	2,700	—	1500	20	10	40	—
	07/06/85		—	—	—	—	440	—	180	5.0	2.0	12	—
	10/24/85		—	—	—	—	2,000	—	1,100	17	5.0	70	—
	01/03/86		—	—	—	—	1,900	—	1,300	20	<10	70	—
	07/05/86		9.50	—	3.26	—	1,600	—	920	30	<10	60	—
	10/18/86		—	—	—	—	1,400	—	640	<10	<10	30	—
	01/13/87		—	—	—	—	670	760	190	5.8	<0.5	19	—
	04/22/87		—	—	—	—	2,400	—	740	54	5.7	59	—
	07/07/87		10.45	—	2.31	—	1,100	—	450	15	<2.5	42	—
	10/10/87		10.83	—	1.93	—	340	—	4.0	0.60	<0.5	17	—
	02/11/88		10.44	—	2.32	—	<1,000	—	260	<10	<10	11	—
	05/10/88		10.17	—	2.59	—	1,800	—	700	14	<5	46	—
	08/31/88 <sup>SPH</sup>		10.81	—	1.95	—	—	—	—	—	—	—	—
	12/03/88		10.81	—	1.95	—	960	—	250	4.3	<2.5	14	—
	02/16/89		9.65	—	3.11	—	2,700	—	800	35	10	83	—

**Table 1. Ground Water Elevations and Analytic Results - Shell Service Station WIC# 204-2495-0101, 1800 Powell Street, Emeryville, California (continued)**

Well ID	Sampling Date	TOB Elevation (ft msl)	Depth to Water (ft)	SPH Thickness (ft)	GW Elevation (ft msl)	TDS (ppm)	parts per billion (µg/L)						
							TPH-G	TPH-D	B	T	E	X	MTBE
	05/28/89		10.46	--	2.3	--	960	--	710	25	84	80	--
	08/10/89		10.59	--	2.17	--	1,300	--	630	17	<5	46	--
	11/11/89		10.29	--	2.47	--	910	--	180	8	<2.5	15	--
	02/21/94		9.52	--	3.24	2,910	3,200	--	480	52	<5	130	--
	05/16/94		9.49	--	3.27	--	1,000	--	220	7.3	<5	28	--
	05/16/94 <sup>dup</sup>		9.49	--	3.27	--	1,000	--	280	10	<5	29	--
	08/09/94		10.37	--	2.39	4,500	400	--	27	6.6	<0.5	18	--
	11/09/94		9.58	--	3.18	4,600	650	--	170	5.3	<0.5	17	--
	02/22/95		9.02	--	3.74	--	650	--	210	10	1.2	22	--
	05/02/95		8.45	--	4.31	--	1,000	--	280	17	1.4	32	--
	08/24/95		10.02	--	2.74	--	480	--	180	11	1.0	19	--
	08/24/95 <sup>dup</sup>		10.02	--	2.74	--	700	--	180	6.5	<0.5	17	--
	12/08/95		10.65	--	2.11	--	740	--	230	6.9	0.7	15	--
	02/29/96		9.10	--	3.66	--	740	--	260	8.1	<5.0	19	58
	05/22/96		10.14	--	2.62	--	1,200	--	350	10	<5.0	23	74
	07/30/96		10.51	--	2.25	--	530	--	220	20	6.3	36	69
	11/11/96		10.23	--	2.53	--	540	--	140	3.7	<2.0	17	42
	11/03/97		9.40	--	3.36	--	480	--	54	3.5	<0.50	12	40
S-9	10/26/84 <sup>SPH</sup>	12.75	--	--	--	--	--	--	--	--	--	--	--
	02/09/85 <sup>SPH</sup>		--	1.30	--	--	--	--	--	--	--	--	--
	04/27/85 <sup>SPH</sup>		--	1.25	--	--	--	--	--	--	--	--	--
	07/06/85 <sup>SPH</sup>		--	1.20	--	--	--	--	--	--	--	--	--
	10/24/85 <sup>SPH</sup>		--	--	--	--	--	--	--	--	--	--	--
	01/03/86 <sup>SPH</sup>		--	--	--	--	--	--	--	--	--	--	--
	04/11/86 <sup>SPH</sup>		--	--	--	--	--	--	--	--	--	--	--
	07/05/86 <sup>SPH</sup>		9.67	--	3.08	--	--	--	--	--	--	--	--
	10/18/86 <sup>SPH</sup>		--	--	--	--	--	--	--	--	--	--	--
	01/13/87 <sup>SPH</sup>		--	--	--	--	--	--	--	--	--	--	--
	04/22/87 <sup>SPH</sup>		--	--	--	--	--	--	--	--	--	--	--
	07/07/87 <sup>SPH</sup>		--	--	--	--	--	--	--	--	--	--	--
	10/10/87 <sup>SPH</sup>		22.30	--	-9.55	--	--	--	--	--	--	--	--

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**Table 1. Ground Water Elevations and Analytic Results - Shell Service Station WIC# 204-2495-0101, 1800 Powell Street, Emeryville, California (continued)**

Well ID	Sampling Date	TOB Elevation (ft msl)	Depth to Water (ft)	SPH Thickness (ft)	GW Elevation (ft msl)	TDS (ppm)	parts per billion (µg/L)						
							TPH-G	TPH-D	B	T	E	X	MTBE
	02/24/94 <sup>SPH</sup>		---	---	---	---	---	---	---	---	---	---	---
	05/16/94 <sup>SPH</sup>		---	1.5	---	---	---	---	---	---	---	---	---
	08/09/94 <sup>SPH</sup>		11.80	2.0	---	---	---	---	---	---	---	---	---
	11/09/94 <sup>SPH</sup>		---	---	---	---	---	---	---	---	---	---	---
	02/22/95 <sup>SPH</sup>		11.40	2.38	---	---	---	---	---	---	---	---	---
	05/02/95 <sup>SPH</sup>		11.83	2.12	---	---	---	---	---	---	---	---	---
	12/08/95 <sup>SPH</sup>		11.92	1.06	---	---	---	---	---	---	---	---	---
	02/29/96 <sup>#</sup>		12.10	2.79	2.88	---	---	---	---	---	---	---	---
	05/22/96 <sup>#</sup>		11.71	1.75	2.44	---	---	---	---	---	---	---	---
	07/30/96 <sup>#</sup>		---	---	---	---	---	---	---	---	---	---	---
	11/11/96 <sup>#</sup>		---	9.00	---	---	---	---	---	---	---	---	---
	11/03/97		Well Inaccessible										
S-10	10/26/84	12.58	---	---	---	---	700,000	---	37,000	100,000	20,000	110,000	---
	02/09/85		---	---	---	---	6,500	---	480	700	100	1,800	---
	04/27/85		---	---	---	---	13,000	---	1,300	500	600	3,700	---
	07/06/85		---	---	---	---	14,000	---	1,300	310	270	2,400	---
	10/24/85		---	---	---	---	4,200	---	580	34	4	440	---
	01/03/86		---	---	---	---	1,700	---	360	10	7.8	170	---
	04/11/86 <sup>SPH</sup>		---	0.01	---	---	---	---	---	---	---	---	---
	07/05/86 <sup>SPH</sup>		9.16	0.01	3.42	---	---	---	---	---	---	---	---
	10/18/86 <sup>SPH</sup>		---	0.03	---	---	---	---	---	---	---	---	---
	01/13/87 <sup>SPH</sup>		---	0.03	---	---	---	---	---	---	---	---	---
	04/22/87 <sup>SPH</sup>		---	0.01	---	---	---	---	---	---	---	---	---
	07/07/87 <sup>SPH</sup>		9.41	0.03	3.17	---	---	---	---	---	---	---	---
	10/10/87 <sup>SPH</sup>		7.77	---	4.81	---	---	---	---	---	---	---	---
	02/11/88		6.41	---	6.17	---	1,200	---	470	16	<5	14	---
	05/10/88		9.04	---	3.54	---	1,100	---	100	6	4	19	---
	08/31/88 <sup>SPH</sup>		9.38	0.01	3.20	---	---	---	---	---	---	---	---
	12/03/88 <sup>SPH</sup>		6.89	---	5.69	---	---	---	---	---	---	---	---
	02/16/89		7.34	---	5.24	---	530	---	89	8.5	1.6	4.5	---
	05/28/89		6.60	---	5.98	---	240	---	65	3.8	2.2	8.6	---

**Table 1. Ground Water Elevations and Analytic Results - Shell Service Station WIC# 204-2495-0101, 1800 Powell Street, Emeryville, California (continued)**

Well ID	Sampling Date	TOB Elevation (ft msl)	Depth to Water (ft)	SPH Thickness (ft)	GW Elevation (ft msl)	TDS (ppm)	parts per billion (µg/L)						
							TPH-G	TPH-D	B	T	E	X	MTBE
	08/10/89		9.09	--	3.49	--	250	--	23	4.1	<1	6.4	--
	11/11/89		6.58	--	6.00	--	320	--	1.6	1.3	1.4	6.2	--
	02/21/94		8.32	--	4.26	--	1,400	--	190	9.9	<2.5	19	--
	05/16/94		8.35	--	4.23	--	300	--	45	8.6	6.2	19	--
	08/08/94		8.66	--	3.92	--	700	--	57	14	<0.5	9.3	--
	11/09/94		6.68	--	5.90	--	640	--	130	2.0	1.6	4.1	--
	02/22/95		9.12	--	3.46	--	500	--	65	5.9	1.0	8.2	--
	05/02/95		9.50	--	3.08	--	530	--	59	2.3	0.8	8.2	--
	08/24/95		10.06	--	2.52	--	350	--	35	4.6	<0.5	6.7	--
	12/08/95		10.08	--	2.50	--	690	--	28	4.6	0.9	8.6	--
	02/29/96		5.32	--	7.26	--	430	--	32	1.8	0.5	5.8	16
	05/22/96		6.04	--	6.54	--	100	1,200	19	0.63	<0.5	1.4	5.3
	07/30/96		10.48	--	2.10	--	240	13,000	17	<1.2	<1.2	7.8	11
	11/11/96		10.31	--	2.27	--	370	4,800	16	1.1	<0.5	7.0	94
	11/03/97		9.53	--	3.05	--	340	1,100	6.7	2.1	<0.50	3.3	19
	11/03/97 <sup>dup</sup>		9.53	--	3.05	--	310	1,100	7.8	1.3	<0.50	3.1	19
S-12	07/06/85	12.84	8.22	--	--	--	<250	2,200	0.71	<0.5	<0.5	<3.6	--
	11/16/85		--	--	--	--	<250	1,400	18	<2	<2	<5	--
	01/03/86		--	--	--	--	<250	--	24	2	<2	<5	--
	07/05/86		8.27	--	4.57	--	80	--	15	0.7	<0.5	2	--
	10/18/86		--	--	--	--	150	--	12	9	<0.5	3.6	--
	01/13/87		--	--	--	--	120	1,000	3.6	0.8	<0.5	2.9	--
	04/22/87		--	--	--	--	100	820	3.7	3.8	0.8	11	--
	07/07/87		9.5	--	3.34	--	70	--	2.5	0.8	<0.5	2.4	--
	10/10/87		9.9	--	2.94	--	220	2,500	2.1	0.7	<0.5	1.2	--
	02/11/88		9.43	--	3.41	--	110	2,500	0.8	<0.5	<0.5	1.3	--
	05/10/88		8.65	--	4.19	--	140	3,800 <sup>b</sup>	0.8	0.8	<0.5	2.5	--
	08/31/88		9.86	--	2.98	--	190	2,600 <sup>b</sup>	3	15	0.5	4.5	--
	12/03/88		9.93	--	2.91	--	180	3,900 <sup>b</sup>	1.2	1	1	7.7	--
	02/16/89		8.08	--	4.76	--	350 <sup>c</sup>	2,100 <sup>b</sup>	0.6	<0.5	0.5	5.5	--
	05/28/89		9.08	--	3.76	--	290	2,200	2	1.6	4.4	6	--



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**Table 1. Ground Water Elevations and Analytic Results - Shell Service Station WIC# 204-2495-0101, 1800 Powell Street, Emeryville, California (continued)**

Well ID	Sampling Date	TOB Elevation (ft msl)	Depth to Water (ft)	SPH Thickness (ft)	GW Elevation (ft msl)	TDS (ppm)	parts per billion (µg/L)						MTBE
							TPH-G	TPH-D	B	T	E	X	
	08/10/89		9.35	--	3.49	--	240	720	0.7	<0.5	<0.5	1.1	--
	11/11/89		9.28	--	3.56	--	210 <sup>c</sup>	4,100	0.7	0.5	<0.5	3.4	--
	02/21/94		8.22	--	4.62	--	240 <sup>d</sup>	2,200 <sup>c</sup>	0.7	<0.5	<0.5	3.6	--
	05/16/94		8.92	--	3.92	--	96	2,200	1.5	<0.5	<0.5	2.0	--
	08/08/94		--	--	--	--	110 <sup>f</sup>	3,500 <sup>g</sup>	<0.5	<0.5	<0.5	<0.5	--
	11/09/94		7.56	--	5.28	--	80	5,400 <sup>g</sup>	80	<0.5	<0.5	0.6	--
	02/22/95		7.98	--	4.86	--	110	2,900 <sup>g,h</sup>	0.7	<0.5	<0.5	3.7	--
	02/22/95 <sup>dap</sup>		7.98	--	4.86	--	110	3,400 <sup>g,h</sup>	4.8	7.1	<0.5	2.1	--
	05/02/95		8.44	--	4.40	--	140	2,800	2.4	1.1	0.8	4.3	--
	08/24/95		9.00	--	3.84	--	200	1,600	19	12	5.6	24	--
	12/08/95		9.62	--	3.22	--	170	2,700	2.2	0.7	0.9	3.6	--
	02/29/96		7.64	--	5.20	--	1,700	2,200	<5.0	<5.0	<5.0	<5.0	5,600
	05/22/96		8.94	--	3.90	--	<1,000	5,700	<10	<10	<10	<10	2,400
	07/30/96		9.71	--	3.13	--	<500	3,200	<5.0	<5.0	<5.0	<5.0	1,500
	07/30/96 <sup>dap</sup>		9.71	--	3.13	--	<500	2,900	<5.0	<5.0	<5.0	<5.0	2,000*
	11/11/96		9.65	--	3.19	--	<500	6,900	<5.0	<5.0	<5.0	<5.0	1,400
	<b>11/03/97</b>		<b>8.73</b>	<b>--</b>	<b>4.11</b>	<b>--</b>	<b>110</b>	<b>2,800</b>	<b>2.1</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>1.3</b>	<b>--</b>
S-13	07/06/85	12.59	9.26	--	--	--	700	3,600	200	<5	<5	45	--
	11/16/85		--	--	--	--	1,900	2,000	700	160	70	340	--
	01/03/86		--	--	--	--	2,800	--	1,400	130	10	500	--
	07/05/86		9.47	--	3.12	--	3,100	--	1,800	60	40	270	--
	10/23/86		--	--	--	--	3,400	--	1,500	28	28	250	--
	01/13/87		--	--	--	--	1,900	900	830	15	<10	99	--
	04/22/87		--	--	--	--	2,900 <sup>e</sup>	770 <sup>h</sup>	1,100	20	30	140	--
	07/07/87		10.38	--	2.21	--	1,500	--	880	10	6	160	--
	10/10/87		10.78	--	1.81	--	480	2,400	830	15	<0.5	120	--
	02/11/88		10.48	--	2.11	--	1,300	1,300	510	<10	<10	86	--
	05/10/88		9.48	--	3.11	--	1,000	1,300 <sup>b</sup>	470	<0.5	<5	50	--
	08/31/88 <sup>SPH</sup>		10.74	--	1.85	--	--	--	--	--	--	--	--
	12/03/88		10.3	--	2.29	--	900	2,400 <sup>b</sup>	290	4.6	<2.5	20	--
	02/16/89		7.6	--	4.99	--	840 <sup>c</sup>	1,200 <sup>b</sup>	310	3.5	<2.5	27	--

**Table 1. Ground Water Elevations and Analytic Results - Shell Service Station WIC# 204-2495-0101, 1800 Powell Street, Emeryville, California (continued)**

Well ID	Sampling Date	TOB Elevation (ft msl)	Depth to Water (ft)	SPH Thickness (ft)	GW Elevation (ft msl)	TDS (ppm)	parts per billion (µg/L)						
							TPH-G	TPH-D	B	T	E	X	MTBE
	05/28/89		10.6	--	1.99	--	2,100	4,600	1,100	19	50	350	--
	08/10/89		10.58	--	2.01	--	900	2,300	230	16	6.9	65	--
	11/11/89		9.84	--	2.75	--	2,800	2,800	200	15	8.6	58	--
	02/21/94		9.26	--	3.33	--	700	1,800 <sup>d</sup>	200	<5	<5	45	--
	05/16/94		9.62	--	2.97	--	650	1,700	180	2.5	<2.5	21	--
	08/08/94		10.32	--	2.27	--	470	2,600 <sup>e</sup>	12	1.5	0.5	14	--
	11/09/94 <sup>a</sup>		--	--	--	--	--	--	--	--	--	--	--
	02/22/95		8.92	--	3.67	--	550	2,400 <sup>b,h</sup>	190	4.0	<0.5	17	--
	05/02/95		9.52	--	3.07	--	790	2,100	250	6.9	1.2	22	--
	08/24/95		10.02	--	2.57	--	330	1,500	93	<0.5	<0.5	2.0	--
	12/08/95		10.75	--	1.84	--	440	2,400	110	2.2	0.8	23	--
	02/29/96		9.02	--	3.57	--	560	2,500	130	<5.0	<5.0	30	30
	05/22/96		10.20	--	2.39	--	430	3,700	55	1.6	310	27	<5.0
	07/30/96		10.42	--	2.17	--	230	1,600	30	2.0	1.4	17	15
	11/11/96		10.28	--	2.31	--	320	2,700	19	1.1	<0.5	14	3.5
	11/11/96 <sup>dup</sup>		10.28	--	2.31	--	360	2,400	24	1.3	<0.5	15	4.5
	11/03/97		9.36	--	3.23	--	300	1,900	25	1.4	0.63	12	5.0
S-14	11/16/85	12.69	--	--	--	--	<250	400	3	<2	<2	<5	--
	01/03/86		--	--	--	--	<250	--	3	2	<2	<5	--
	04/22/87		--	--	--	--	1,200	18,000	7.4	2.7	15	110	--
	07/07/87		10.32	--	2.37	--	190	--	6.5	0.6	1.9	26	--
	10/10/87		10.77	--	1.92	--	4,900	21,000	7	1.2	<0.5	25	--
	02/11/88		10.4	--	2.29	--	370	12,000 <sup>c</sup>	4.6	<2.5	<2.5	26	--
	05/10/88		9.66	--	3.03	--	660	2,200 <sup>b</sup>	2.9	<2.5	<2.5	24	--
	08/31/88		10.74	--	1.95	--	700	7,900	3.2	<2.5	<2.5	15	--
	12/03/88		10.69	--	2.00	--	210	11,000 <sup>b</sup>	<0.5	<0.5	0.8	6.8	--
	02/16/89		9.69	--	3.00	--	130 <sup>c</sup>	5,700 <sup>b</sup>	<0.5	<0.5	<0.5	4.4	--
	05/28/89		10.42	--	2.27	--	770	5,200	<0.5	<0.5	<0.5	4.5	--
	08/10/89		10.54	--	2.15	--	920	8,800	<1	<1	1.6	17	--
	11/11/89		9.91	--	2.78	--	710	28,000	20	57	25	69	--
	02/21/94		9.3	--	3.09	--	2,800	3,600	<5	<5	<5	14	--

# CAMBRIA

**Table 1. Ground Water Elevations and Analytic Results - Shell Service Station WIC# 204-2495-0101, 1800 Powell Street, Emeryville, California (continued)**

Well ID	Sampling Date	TOB Elevation (ft msl)	Depth to Water (ft)	SPH Thickness (ft)	GW Elevation (ft msl)	TDS (ppm)	TPH-G	TPH-D	parts per billion (µg/L)				
									B	T	E	X	MTBE
	02/21/94		9.30	---	3.39	---	2,300 <sup>d</sup>	3,600 <sup>c</sup>	<5.0	<5	<5	14	---
	05/16/94		9.54	---	3.15	---	310	6,700	<2.5	<2.5	<2.5	3.1	---
	08/08/94		10.29	---	2.4	---	480 <sup>f</sup>	2,900	<0.5	0.6	<0.5	0.8	---
	08/08/94 <sup>dup</sup>		10.29	---	2.4	---	590 <sup>f</sup>	2,900	<0.5	0.6	<0.5	1.5	---
	11/09/94		9.52	---	3.07	---	170 <sup>i</sup>	6,400 <sup>g</sup>	0.7	<0.5	<0.5	2.7	---
	02/22/95		9.18	---	3.51	---	550	7,000 <sup>g,h</sup>	<0.5	<0.5	<0.5	1.6	---
	05/02/95		9.49	---	3.2	---	210	2,300	1.0	0.9	1.1	6.3	---
	05/02/95 <sup>dup</sup>		9.49	---	3.2	---	160	2,600	0.6	0.6	0.7	3.8	---
	08/24/95		9.94	---	2.75	---	180	3,700	0.5	<0.5	<0.5	1.3	---
	12/08/95		10.65	---	2.04	---	190	4,900	1.0	<0.5	0.6	4.6	---
	02/29/96		8.90	---	3.79	---	200	11,000	<0.5	<0.5	<0.5	2.0	3.0
	05/22/96		10.10	---	2.59	---	93	3,800	<0.5	<0.5	<0.5	1.6	<2.5
	05/22/96 <sup>dup</sup>		10.10	---	2.59	---	150	3,900	<0.5	<0.5	<0.5	1.8	<2.5
	07/30/96		10.37	---	2.32	---	<50	2,500	<0.5	<0.5	<0.5	0.89	<2.5
	11/11/96		10.29	---	2.40	---	2,600	27,000	<2.5	<2.5	<2.5	3.9	<12
	<b>11/03/97</b>		<b>9.52</b>	---	<b>3.17</b>	---	<b>430</b>	<b>1,800</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>1.7</b>	<b>&lt;2.5</b>
Trip	02/21/94		---	---	---	---	<50	---	<0.5	<0.5	<0.5	<0.5	---
Blank	02/24/94		---	---	---	---	<50	---	<0.5	<0.5	<0.5	<0.5	---
	05/16/94		---	---	---	---	<50	---	<0.5	<0.5	<0.5	<0.5	---
	08/08/94		---	---	---	---	<50	---	<0.5	<0.5	<0.5	<0.5	---
	11/09/94		---	---	---	---	<50	---	<0.5	<0.5	<0.5	<0.5	---
	02/22/95		---	---	---	---	<50	---	<0.5	0.9	<0.5	<0.5	---
	05/02/95		---	---	---	---	<50	---	<0.5	<0.5	<0.5	<0.5	---
	05/10/95		---	---	---	---	<50	---	<0.5	<0.5	<0.5	<0.5	---
	12/08/95		---	---	---	---	<50	---	<0.5	<0.5	<0.5	<0.5	---
MCLs				---		---	NE	NE	1	150	700	1,750	NE

**Table 1. Ground Water Elevations and Analytic Results - Shell Service Station WIC# 204-2495-0101, 1800 Powell Street, Emeryville, California (continued)**

**Abbreviations:**

ft msl = Feet above mean sea level  
 TOB = Top of box  
 GW = Ground water  
 TDS = Total dissolved solids  
 TPH-G = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015  
 TPH-D = Total petroleum hydrocarbons as diesel by modified EPA Method 8015  
 B = Benzene by EPA Method 8020  
 T = Toluene by EPA Method 8020  
 E = Ethylbenzene by EPA Method 8020  
 X = Xylenes by EPA Method 8020  
 MTBE = Methyl tertiary butyl ether by EPA Method 8020  
 ppm = Parts per million  
 µg/L = Micrograms per liter  
 dup = Duplicate sample  
 SPH = Separate-phase hydrocarbons  
 -- = Not analyzed/not measured  
 <n = Not detected at a detection limit of n µg/L  
 MCLs = Maximum contaminant levels for drinking water  
 NE = Not established

**Notes:**

a = Well inaccessible  
 b = Compounds detected within the chromatographic range appear to be weathered diesel  
 c = Compounds detected within the chromatographic range of gasoline but not characteristic of the standard gasoline pattern  
 d = The concentrations reported as gasoline for samples S-12 and S-14 are primarily due to the presence of a discrete peak  
 e = The concentrations reported as diesel for samples S-12, S-13 and S-14 are due to the presence of a combination of diesel and a heavier petroleum product of hydrocarbon range C18 - C36, possibly motor oil  
 f = The result for gasoline is an unknown hydrocarbon which consists of several peaks  
 g = The positive result appears to be a heavier hydrocarbon than diesel  
 h = Compounds detected within the chromatographic range of diesel appears to include gasoline compounds  
 i = The positive result appears to be a heavier hydrocarbon than gasoline  
 j = No MTBE could be determined due to co-elution with early eluting compounds  
 \* = MTBE confirmed by EPA Method 8260  
 # = Tar-like substance in well, probably from previous landfill activities; not gasoline

CAMBRIA

**ATTACHMENT A**

Blaine Quarterly Ground Water Monitoring Report

**BLAINE**  
TECH SERVICES INC.



1680 ROGERS AVENUE  
SAN JOSE, CALIFORNIA 95112  
(408) 573-7771 FAX  
(408) 573-0555 PHONE

December 22, 1997

Shell Oil Company  
P.O. Box 8080  
Martinez, CA 94553

Attn: Alex Perez

Shell WIC #204-2495-0101  
1800 Powell Street  
Emeryville, California

4th Quarter 1997


## Groundwater Monitoring Report 971103-J-1

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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: Cambria Environmental Technology, Inc.  
1144 65th Street, Suite C  
Oakland, CA 94608  
Attn: Josh Bergstrom

(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-5	11/03/97	INACCESSIBLE						
S-8	11/03/97	TOB	--	NONE	--	--	9.40	18.66
S-9	11/03/97	INACCESSIBLE						
S-10*	11/03/97	TOB	SHEEN	NONE	--	--	9.53	19.92
S-12	11/03/97	TOB	--	NONE	--	--	8.73	24.38
S-13	11/03/97	TOB	--	NONE	--	--	9.36	19.89
S-14	11/03/97	TOB	SHEEN	NONE	--	--	9.52	23.78

\* Sample DUP was a duplicate sample taken from well S-10.



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

**CHAIN OF CUSTODY RECORD**

Serial No: 971103-32

Date: \_\_\_\_\_  
 Page 1 of 1

Site Address: 1800 Powell Street, Emeryville

WIC#: 204-2495-0101

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

Commons: 9711328

Sampled by: [Signature]

Printed Name: Matt James

**Analysis Required**

LAB: SEQ

CHECK ONE (1) BOX ONLY	CI/DI	TURN AROUND TIME
Quantity Monitoring <input checked="" type="checkbox"/>	6441	24 hours <input type="checkbox"/>
Site Investigation <input type="checkbox"/>	6441	48 hours <input type="checkbox"/>
Soil Classify/Disposal <input type="checkbox"/>	6442	15 days <input checked="" type="checkbox"/> (Hotmail)
Water Classify/Disposal <input type="checkbox"/>	6443	Other <input type="checkbox"/>
Soil/Air Rem. of Sp. O & M <input type="checkbox"/>	6462	
Water Rem. of Sp. O & M <input type="checkbox"/>	6463	
Other <input type="checkbox"/>		

NOTE: Notify Lab as soon as Possible of 24/48 hr. LAL.

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 6020/MTBE	Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/COMMENTS
S-8	11/3			w	03	4	X	X	X	X	X	X						
S-10						5	X	X	X	X	X	X						
S-12						5	X	X	X	X	X	X						
S-13						5	X	X	X	X	X	X						
S-14						5	X	X	X	X	X	X						
DUP						6	X	X	X	X	X	X						
EB				X		5	X	X	X	X	X	X						

Relinquished By (signature): <u>[Signature]</u>	Printed Name: <u>Matt James</u>	Date: <u>11/4/97</u>	Time: <u>11:00</u>	Received (signature): <u>[Signature]</u>	Printed Name: <u>Fletcher</u>	Date: <u>11/13/97</u>	Time: <u>11:30</u>
Relinquished By (signature): <u>[Signature]</u>	Printed Name:	Date: <u>11/4/97</u>	Time:	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>AS/NO</u>	Date: <u>11/16/97</u>	Time: <u>1:02</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

(650) 364-9600  
(510) 988-9600  
(916) 921-9600

FAX (650) 364-9233  
FAX (510) 988-9673  
FAX (916) 921-0100

Maine Tech Services  
680 Rogers Avenue  
San Jose, CA 95112  
Attention: Fran Thle

Project: Shell Emeryville/971103-J2

Enclosed are the results from samples received at Sequoia Analytical on November 4, 1997.  
The requested analyses are listed below:

<u>SAMPLE #</u>	<u>SAMPLE DESCRIPTION</u>	<u>DATE COLLECTED</u>	<u>TEST METHOD</u>
9711328 -01	LIQUID, S-8	11/03/97	TPGM2W Purgeable TPH/BTEX
9711328 -02	LIQUID, S-10	11/03/97	TPHD_W Extractable TPH
9711328 -02	LIQUID, S-10	11/03/97	TPGM2W Purgeable TPH/BTEX
9711328 -03	LIQUID, S-12	11/03/97	TPHD_W Extractable TPH
9711328 -03	LIQUID, S-12	11/03/97	TPGM2W Purgeable TPH/BTEX
9711328 -04	LIQUID, S-13	11/03/97	TPHD_W Extractable TPH
9711328 -04	LIQUID, S-13	11/03/97	TPGM2W Purgeable TPH/BTEX
9711328 -05	LIQUID, S-14	11/03/97	TPHD_W Extractable TPH
9711328 -05	LIQUID, S-14	11/03/97	TPGM2W Purgeable TPH/BTEX
9711328 -06	LIQUID, DUP	11/03/97	TPHD_W Extractable TPH
9711328 -06	LIQUID, DUP	11/03/97	TPGM2W Purgeable TPH/BTEX
9711328 -07	LIQUID, EB	11/03/97	TPHD_W Extractable TPH
9711328 -07	LIQUID, EB	11/03/97	TPGM2W 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



# 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

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(916) 921-9600

FAX (650) 364-9233  
FAX (510) 988-9673  
FAX (916) 921-0100

Blaine Tech Services 1680 Rogers Avenue San Jose, CA 95112	Client Proj. ID: Shell Emeryville/971103-J2 Sample Descript: S-8 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9711328-01	Sampled: 11/03/97 Received: 11/04/97 Analyzed: 11/17/97 Reported: 11/20/97
Attention: Fran Thie		

QC Batch Number: GC111797BTEX01A  
Instrument ID: GCHP1

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

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	480
Methyl t-Butyl Ether	2.5	40
Benzene	0.50	54
Toluene	0.50	3.5
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	12
Chromatogram Pattern:		C6-C12
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	124

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  
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FAX (510) 988-9673  
FAX (916) 921-0100

Blaine Tech Services 1680 Rogers Avenue San Jose, CA 95112	Client Proj. ID: Shell Emeryville/971103-J2 Sample Descript: S-10 Matrix: LIQUID Analysis Method: EPA 8015 Mod Lab Number: 9711328-02	Sampled: 11/03/97 Received: 11/04/97 Extracted: 11/12/97 Analyzed: 11/13/97 Reported: 11/20/97
--	---	--

QC Batch Number: GC1112970HBPEXB  
Instrument ID: GCHP4B

## Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern:	50	1100 C9-C24
Surrogates n-Pentacosane (C25)	Control Limits % 50 150	% Recovery 114

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 1680 Rogers Avenue San Jose, CA 95112	Client Proj. ID: Shell Emeryville/971103-J2 Sample Descript: S-10 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9711328-02	Sampled: 11/03/97 Received: 11/04/97  Analyzed: 11/17/97 Reported: 11/20/97
Attention: Fran Thie		

QC Batch Number: GC111797BTEX01A  
Instrument ID: GCHP1

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

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	340
Methyl t-Butyl Ether	2.5	19
Benzene	0.50	6.7
Toluene	0.50	2.1
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	3.3
Chromatogram Pattern:		C6-C12
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70                      130	103

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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FAX (916) 921-0100

Blaine Tech Services 1680 Rogers Avenue San Jose, CA 95112	Client Proj. ID: Shell Emeryville/971103-J2 Sample Descript: S-12 Matrix: LIQUID Analysis Method: EPA 8015 Mod Lab Number: 9711328-03	Sampled: 11/03/97 Received: 11/04/97 Extracted: 11/12/97 Analyzed: 11/13/97 Reported: 11/20/97
Attention: Fran Thie		

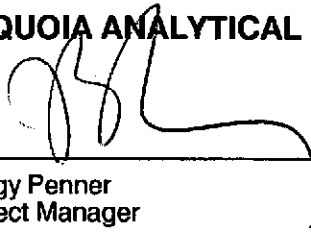
QC Batch Number: GC1112970HBPEXB  
Instrument ID: GCHP4B

## Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern:	50	2800 C9-C24
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
n-Pentacosane (C25)	50 150	179 Q

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 1680 Rogers Avenue San Jose, CA 95112	Client Proj. ID: Shell Emeryville/971103-J2 Sample Descript: S-12 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9711328-03	Sampled: 11/03/97 Received: 11/04/97  Analyzed: 11/17/97 Reported: 11/20/97
Attention: Fran Thie		

QC Batch Number: GC111797BTEX01A  
Instrument ID: GCHP1

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

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	110
Methyl t-Butyl Ether	2.5	-
Benzene	0.50	2.1
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	1.3
Chromatogram Pattern:		C6-C12
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
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



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Blaine Tech Services  
1680 Rogers Avenue  
San Jose, CA 95112

Attention: Fran Thie

Client Proj. ID: Shell Emeryville/971103-J2  
Sample Descript: S-13  
Matrix: LIQUID  
Analysis Method: EPA 8015 Mod  
Lab Number: 9711328-04

Sampled: 11/03/97  
Received: 11/04/97  
Extracted: 11/12/97  
Analyzed: 11/13/97  
Reported: 11/20/97

QC Batch Number: GC1112970HBPEXB  
Instrument ID: GCHP4B

**Total Extractable Petroleum Hydrocarbons (TEPH)**

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern:	50	1900 C9-C24
Surrogates	Control Limits %	% Recovery
n-Pentacosane (C25)	50 150	142

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 1680 Rogers Avenue San Jose, CA 95112	Client Proj. ID: Shell Emeryville/971103-J2 Sample Descript: S-13 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9711328-04	Sampled: 11/03/97 Received: 11/04/97 Analyzed: 11/16/97 Reported: 11/20/97
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QC Batch Number: GC111697BTEX18A  
Instrument ID: GCHP18

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

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	300
Methyl t-Butyl Ether	2.5	5.0
Benzene	0.50	25
Toluene	0.50	1.4
Ethyl Benzene	0.50	0.63
Xylenes (Total)	0.50	12
Chromatogram Pattern:		C6-C12

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	106

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 1680 Rogers Avenue San Jose, CA 95112	Client Proj. ID: Shell Emeryville/971103-J2 Sample Descript: S-14 Matrix: LIQUID Analysis Method: EPA 8015 Mod Lab Number: 9711328-05	Sampled: 11/03/97 Received: 11/04/97 Extracted: 11/12/97 Analyzed: 11/13/97 Reported: 11/20/97
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QC Batch Number: GC1112970HBPEXB  
 Instrument ID: GCHP4B

**Total Extractable Petroleum Hydrocarbons (TEPH)**

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern:	50	1800 C9-C24
Surrogates n-Pentacosane (C25)	Control Limits % 50 150	% Recovery 137

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

**SEQUOIA ANALYTICAL** - ELAP #1210

  
 Peggy Penner  
 Project Manager



Blaine Tech Services 1680 Rogers Avenue San Jose, CA 95112	Client Proj. ID: Shell Emeryville/971103-J2 Sample Descript: S-14 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9711328-05	Sampled: 11/03/97 Received: 11/04/97 Analyzed: 11/17/97 Reported: 11/20/97
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QC Batch Number: GC111797BTEX18A  
 Instrument ID: GCHP18

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

Analyte	Detection Limit ug/L	Sample Results ug/L
<b>TPPH as Gas</b>	<b>50</b>	<b>430</b>
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	1.7
Chromatogram Pattern:		>C10

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	88

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 1680 Rogers Avenue San Jose, CA 95112	Client Proj. ID: Shell Emeryville/971103-J2 Sample Descript: DUP Matrix: LIQUID Analysis Method: EPA 8015 Mod Lab Number: 9711328-06	Sampled: 11/03/97 Received: 11/04/97 Extracted: 11/12/97 Analyzed: 11/13/97 Reported: 11/20/97
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C Batch Number: GC1112970HBPEXB  
 Instrument ID: GCHP4B

**Total Extractable Petroleum Hydrocarbons (TEPH)**

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern:	50	1100 C9-C24
Surrogates n-Pentacosane (C25)	Control Limits % 50 150	% Recovery 77

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

**SEQUOIA ANALYTICAL** - ELAP #1210

Peggy Periner  
Project Manager



Blaine Tech Services 1680 Rogers Avenue San Jose, CA 95112	Client Proj. ID: Shell Emeryville/971103-J2 Sample Descript: DUP Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9711328-06	Sampled: 11/03/97 Received: 11/04/97 Analyzed: 11/17/97 Reported: 11/20/97
Attention: Fran Thle		

QC Batch Number: GC111797BTEX18A  
Instrument ID: GCHP18

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

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	310
Methyl t-Butyl Ether	2.5	19
Benzene	0.50	7.8
Toluene	0.50	1.3
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	3.1
Chromatogram Pattern:		C6-C12
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	179 Q

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 1680 Rogers Avenue San Jose, CA 95112	Client Proj. ID: Shell Emeryville/971103-J2 Sample Descript: EB Matrix: LIQUID Analysis Method: EPA 8015 Mod Lab Number: 9711328-07	Sampled: 11/03/97 Received: 11/04/97 Extracted: 11/12/97 Analyzed: 11/13/97 Reported: 11/20/97
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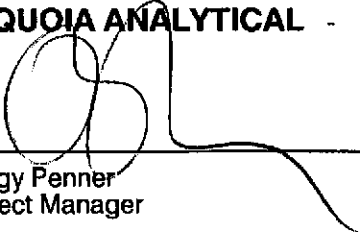
QC Batch Number: GC1112970HBPEXB  
Instrument ID: GCHP4B

**Total Extractable Petroleum Hydrocarbons (TEPH)**

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern:	50	N.D.
<b>Surrogates</b> n-Pentacosane (C25)	<b>Control Limits %</b> 50                      150	<b>% Recovery</b> 108

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  
1680 Rogers Avenue  
San Jose, CA 95112

Client Proj. ID: Shell Emeryville/971103-J2  
Sample Descript: EB  
Matrix: LIQUID  
Analysis Method: 8015Mod/8020  
Lab Number: 9711328-07

Sampled: 11/03/97  
Received: 11/04/97  
Analyzed: 11/16/97  
Reported: 11/20/97

QC Batch Number: GC111697BTEX18A  
Instrument ID: GCHP18

**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	96

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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Blaine Tech Services, Inc. Client Project ID: Shell Emeryville / 971103-J2  
 1680 Rogers Ave. Matrix: Liquid  
 San Jose, CA 95112 Work Order #: 9711328 -01-03 Reported: Nov 21, 1997  
 Attention: Fran Thie

## QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Gas
QC Batch#:	GC111797BTEX01A	GC111797BTEX01A	GC111797BTEX01A	GC111797BTEX01A	GC111797BTEX01A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015M
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	C. DeMartini	C. DeMartini	C. DeMartini	C. DeMartini	C. DeMartini
MS/MSD #:	971161103	971161103	971161103	971161103	971161103
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	11/17/97	11/17/97	11/17/97	11/17/97	11/17/97
Analyzed Date:	11/17/97	11/17/97	11/17/97	11/17/97	11/17/97
Instrument I.D.#:	GCHP1	GCHP1	GCHP1	GCHP1	GCHP1
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L	60 µg/L
Result:	12	12	11	35	73
MS % Recovery:	120	120	110	117	122
Dup. Result:	11	11	11	35	73
MSD % Recov.:	110	110	110	117	122
RPD:	8.7	8.7	0.0	0.0	0.0
RPD Limit:	0-25	0-25	0-25	0-25	0-25

LCS #:	BLK111797	BLK111797	BLK111797	BLK111797	BLK111797
Prepared Date:	11/17/97	11/17/97	11/17/97	11/17/97	11/17/97
Analyzed Date:	11/17/97	11/17/97	11/17/97	11/17/97	11/17/97
Instrument I.D.#:	GCHP1	GCHP1	GCHP1	GCHP1	GCHP1
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L	60 µg/L
LCS Result:	12	11	12	35	72
LCS % Recov.:	120	110	120	117	120

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

**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

9711328.BLA <1>

SEQUOIA ANALYTICAL

Reggy Penner  
Project Manager





# Sequoia Analytical

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

Client Project ID: Shell Emeryville / 971103-J2  
Matrix: Liquid

Work Order #: 9711328-04, 07

Reported: Nov 21, 1997

## QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Gas
QC Batch#:	GC111697BTEX18A	GC111697BTEX18A	GC111697BTEX18A	GC111697BTEX18A	GC111697BTEX18A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015M
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	T. Tran	T. Tran	T. Tran	T. Tran	T. Tran
MS/MSD #:	971132804	971132804	971132804	971132804	971132804
Sample Conc.:	25	1.4	N.D.	12	300
Prepared Date:	11/16/97	11/16/97	11/16/97	11/16/97	11/16/97
Analyzed Date:	11/16/97	11/16/97	11/16/97	11/16/97	11/16/97
Instrument I.D.#:	GCHP18	GCHP18	GCHP18	GCHP18	GCHP18
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L	60 µg/L
Result:	39	11	10	43	129
MS % Recovery:	140	110	100	103	-285
Dup. Result:	38	11	10	43	130
MSD % Recov.:	130	96	100	103	-283
RPD:	2.6	0.0	0.0	0.0	0.77
RPD Limit:	0-25	0-25	0-25	0-25	0-25

LCS #:	BLK111697	BLK111697	BLK111697	BLK111697	BLK111697
Prepared Date:	11/16/97	11/16/97	11/16/97	11/16/97	11/16/97
Analyzed Date:	11/16/97	11/16/97	11/16/97	11/16/97	11/16/97
Instrument I.D.#:	GCHP18	GCHP18	GCHP18	GCHP18	GCHP18
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L	60 µg/L
LCS Result:	9.4	9.4	9.4	30	64
LCS % Recov.:	94	94	94	100	107

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

9711328.BLA <2>





# Sequoia Analytical

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

Client Project ID: Shell Emeryville / 971103-J2  
Matrix: Liquid

Work Order #: 9711328-05-06

Reported: Nov 21, 1997

## QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Gas
QC Batch#:	GC111797BTEX18A	GC111797BTEX18A	GC111797BTEX18A	GC111797BTEX18A	GC111797BTEX18A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015M
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	C. DeMartini	C. DeMartini	C. DeMartini	C. DeMartini	C. DeMartini
MS/MSD #:	971161104	971161104	971161104	971161104	971161104
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	11/17/97	11/17/97	11/17/97	11/17/97	11/17/97
Analyzed Date:	11/17/97	11/17/97	11/17/97	11/17/97	11/17/97
Instrument I.D.#:	GCHP18	GCHP18	GCHP18	GCHP18	GCHP18
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L	60 µg/L
Result:	11	11	11	33	77
MS % Recovery:	110	110	110	110	128
Dup. Result:	11	11	11	35	76
MSD % Recov.:	110	110	110	117	127
RPD:	0.0	0.0	0.0	5.9	1.3
RPD Limit:	0-25	0-25	0-25	0-25	0-25

LCS #:	BLK111797	BLK111797	BLK111797	BLK111797	BLK111797
Prepared Date:	11/17/97	11/17/97	11/17/97	11/17/97	11/17/97
Analyzed Date:	11/17/97	11/17/97	11/17/97	11/17/97	11/17/97
Instrument I.D.#:	GCHP18	GCHP18	GCHP18	GCHP18	GCHP18
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L	60 µg/L
LCS Result:	12	12	12	35	77
LCS % Recov.:	120	120	120	117	128

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

**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

9711328.BLA <3>

SEQUOIA ANALYTICAL

Peggy Penner  
Project Manager



# Sequoia Analytical

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

Client Project ID: Shell Emeryville / 971103-J2  
Matrix: Liquid

Work Order #: 9711328-01-07

Reported: Nov 21, 1997

## QUALITY CONTROL DATA REPORT

Analyte: Diesel

QC Batch#: GC1112970HBPEXB  
Analy. Method: EPA 8015M  
Prep. Method: EPA 3510

Analyst: G. Fish  
MS/MSD #: 971132802  
Sample Conc.: 1100  
Prepared Date: 11/12/97  
Analyzed Date: 11/13/97  
Instrument I.D.#: GCHP4  
Conc. Spiked: 1000 µg/L

Result: 2100  
MS % Recovery: 100

Dup. Result: 2000  
MSD % Recov.: 90

RPD: 4.9  
RPD Limit: 0-50

LCS #: BLK111297

Prepared Date: 11/12/97  
Analyzed Date: 11/13/97  
Instrument I.D.#: GCHP4  
Conc. Spiked: 1000 µg/L

LCS Result: 980  
LCS % Recov.: 98

MS/MSD 50-150  
LCS 60-140  
Control Limits

SEQUOIA ANALYTICAL

Peggy Penner  
Project Manager

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

9711328.BLA <4>



**Sequoia  
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Blaine Tech Services 1680 Rogers Avenue San Jose, CA 95112 Attention: Fran Thie	Client Proj. ID: Shell Emeryville/971103-J2  Lab Proj. ID: 9711328	Received: 11/04/97  Reported: 11/20/97
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**LABORATORY NARRATIVE**

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 19 pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

MTBE Note: No MTBE could be determined for sample 9711328-03 due to co-elution with early eluting compounds.

SEQUOIA ANALYTICAL  
 10 FEB 27 AM 11:13

**SEQUOIA ANALYTICAL**

*[Handwritten Signature]*  
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 Peggy Penner  
 Project Manager

