



June 28, 1994  
Project 0117-115.01

Mr. Lynn Walker  
Shell Oil Company  
P.O. Box 5278  
Concord, California 94520

Re: Second Quarter 1994 Groundwater Monitoring Report for Shell Oil Company  
(Shell) Service Station, 15275 Washington, San Leandro, California  
(WIC No. 204-6852-1008)

Dear Mr. Walker:

This letter presents the results of the second quarter 1994 monitoring performed by Blaine Tech Services, Inc. (Blaine) at and near the Shell service station located at 15275 Washington in San Leandro, California (see Figure 1). The monitoring activities were performed consistent with regulatory requirements for quarterly monitoring and reporting.

Groundwater samples were collected from monitoring wells S-1, S-3, S-5, S-7 through S-10, S-16, S-18, and SR-1 on May 5, 1994. Water levels were also measured in each of these wells. Samples were collected and water levels were measured consistent with the procedures described in Blaine's *Quarterly Groundwater Sampling Report 940505-K-1*, presented in Attachment A.

## **BACKGROUND**

In July 1985 four groundwater monitoring wells (S-1 through S-4) were installed by EMCON Associates to assess soil and groundwater conditions beneath the site (see Figure 2). Total petroleum hydrocarbons as gasoline (TPHG) were detected in soil and groundwater samples, and well S-3 contained approximately 0.5 foot of floating product.

In August 1986 four soil borings (S-A through S-D) were drilled within the underground fuel tank complex prior to removal of the tanks. Boring S-A was drilled adjacent to the former waste oil tank, and boring S-B was converted to a temporary tank backfill monitoring well. TPHG was detected in soil samples from these borings; however, no waste oil was detected in the analyzed soil samples.

In June 1987 the underground fuel storage tanks were removed. The temporary tank backfill well S-B and monitoring wells S-2 and S-4 were destroyed during construction activities.



Between December 1986 and May 1991 fourteen groundwater monitoring wells (S-5 through S-18) and one recovery well (SR-1) were installed on and off site. The groundwater monitoring well network has been monitored quarterly since September 1988.

In October 1988 a soil-gas survey was conducted by Tracer Research Corporation at 15 off-site locations. Samples were collected south of the site along Lewelling Boulevard and on the adjacent property to the west. The highest soil vapor concentrations were detected south of the site along Lewelling Boulevard.

In March 1990 hydraulic testing was conducted. A variable discharge test was conducted using well SR-1, and slug tests were conducted in several wells. The hydraulic tests indicated low-yield conditions in the shallow aquifer.

At some time between July 23, 1993, and October 27, 1993, monitoring wells S-11 through S-15 were paved over by the city of San Leandro. On May 3, 1994, the wells were relocated and the vault boxes raised to match the new grade.

## **GROUNDWATER FLOW DIRECTION**

Table 1 presents a summary of historical groundwater elevation data, including data for the second quarter of 1994. Based on water levels measured in wells S-1, S-3, S-5 through S-18, and SR-1 on May 5, 1994 (see Table 1), and top-of-casing elevations, the direction of groundwater flow at the site is generally toward the southeast (see Figure 2). This is consistent with the historical direction of groundwater flow.

## **SAMPLING FREQUENCY**

Groundwater samples are collected quarterly from monitoring wells S-1, S-3, S-5, S-7 through S-10, S-12, S-15, S-16, S-18, and SR-1. Wells S-6, S-11, S-13, S-14, and S-17 are sampled semiannually during the second and fourth quarters. The samples are analyzed for TPHG; and benzene, toluene, ethylbenzene, and total xylenes (BTEX).

## **ANALYTICAL RESULTS**

Table 2 presents a summary of historical groundwater analytical results, including analytical results for the second quarter 1994 monitoring event. Certified analytical reports are included in Attachment A. Figure 3 shows the concentrations of TPHG and BTEX at each monitoring location.

TPHG was not detected in samples from wells S-6, S-10, S-11, S-13, S-15, S-17, or S-18. TPHG was not detected in the sample from well S-12. The highest TPHG and BTEX concentrations were generally detected in the sample from well SR-1, which contained 43 milligrams per liter (mg/l) of TPHG and 1.5 mg/l of benzene.

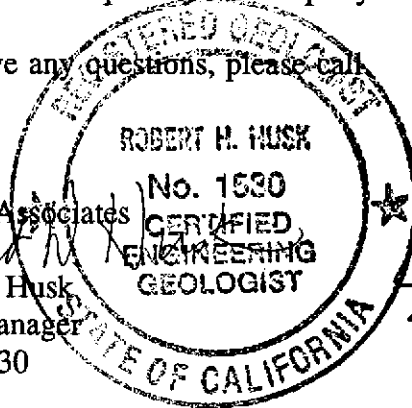
The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

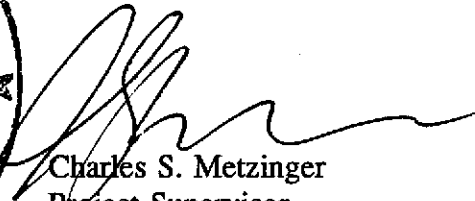
If you have any questions, please call

Sincerely,

EMCON Associates

Robert H. Husk  
Project Manager  
C.E.G. 1530



  
Charles S. Metzinger  
Project Supervisor

Attachments: Table 1	Summary of Historical Groundwater Elevation Data
Table 2	Summary of Historical Groundwater Analytical Results
Figure 1	Site Location Map
Figure 2	Groundwater Contour Map, May 5, 1994
Figure 3	TPHG and BTEX Concentration Map, May 5, 1994
Attachment A	<i>Quarterly Groundwater Sampling Report 940505-K-1</i> , Blaine Tech Services, Inc.

cc: Juliette Shin, Alameda County Department of Environmental Health  
Rich Hiatt, Regional Water Quality Control Board, San Francisco Bay Region

**Table 1**  
**Summary of Historical Groundwater Elevation Data**

Well	Date	Reference Elevation (Ft.-MSL)	Depth to Groundwater (feet)	Depth to Floating Product (feet)	Floating Product Thickness (feet)	Groundwater Elevation (Ft.-MSL)
S-1	11/22/88	21.55	8.01	NA	0.00	13.54
	8/10/89	21.55	7.93	NA	0.00	13.62
	10/10/89	21.55	8.09	NA	0.00	13.46
	1/25/90	21.55	7.73	NA	0.00	13.82
	4/18/90	21.55	7.91	NA	0.00	13.64
	7/23/90	21.55	7.72	NA	0.00	13.83
	10/18/90	21.55	8.55	NA	0.00	13.00
	1/28/91	21.55	8.52	NA	0.00	13.03
	4/25/91	21.55	7.18	NA	0.00	14.37
	7/9/91	21.55	8.22	NA	0.00	13.33
	10/8/91	21.55	8.70	NA	0.00	12.85
	2/5/92	21.55	8.14	NA	0.00	13.41
	4/28/92	21.55	7.52	NA	0.00	14.03
	7/27/92	21.55	8.28	NA	0.00	13.27
	10/26/92	21.55	8.74	NA	0.00	12.81
	1/13/93	21.55	5.91	NA	0.00	15.64
	4/16/93	21.55	6.66	NA	0.00	14.89
	7/23/93	21.55	7.53	NA	0.00	14.02
	10/27/93	21.55	8.20	NA	0.00	13.35
	1/27/94	21.55	7.26	NA	0.00	14.29
5/5/94	21.27 *	7.38	NA	0.00	13.89	
S-3	11/22/88	21.14	7.76	NA	0.00	13.38
	8/10/89	21.14	7.92	NA	0.00	13.22
	10/10/89	21.14	8.00	NA	0.00	13.14
	1/25/90	21.14	7.54	NA	0.00	13.60
	4/18/90	21.14	7.74	NA	0.00	13.40
	7/23/90	21.14	7.55	NA	0.00	13.59
	10/18/90	21.14	8.47	NA	0.00	12.67
	1/28/91	21.14	8.38	NA	0.00	12.76
	4/25/91	21.14	6.91	NA	0.00	14.23
	7/9/91	21.14	8.07	NA	0.00	13.07
	10/8/91	21.14	8.61	NA	0.00	12.53
	2/5/92	21.14	7.80	NA	0.00	13.34
	4/28/92	21.14	7.27	NA	0.00	13.87
	7/27/92	21.14	8.10	NA	0.00	13.04
	10/26/92	21.14	8.62	NA	0.00	12.52
	1/13/93	21.14	5.16	NA	0.00	15.98
	4/16/93	21.14	7.18	NA	0.00	13.96
	7/23/93	21.14	7.34	NA	0.00	13.80
	10/27/93	21.14	8.03	NA	0.00	13.11
	1/27/94	21.14	6.79	NA	0.00	14.35
5/5/94	20.48 *	6.75	NA	0.00	13.73	

**Table 1**  
**Summary of Historical Groundwater Elevation Data**  
**(continued)**

Well	Date	Reference Elevation (Ft.-MSL)	Depth to Groundwater (feet)	Depth to Floating Product (feet)	Floating Product Thickness (feet)	Groundwater Elevation (Ft.-MSL)
S-5	8/10/89	21.41	8.28	NA	0.00	13.13
	10/10/89	21.41	8.32	NA	0.00	13.09
	1/25/90	21.41	8.20	NA	0.00	13.21
	4/18/90	21.41	8.32	NA	0.00	13.09
	7/23/90	21.41	8.03	NA	0.00	13.38
	10/18/90	21.41	9.03	NA	0.00	12.38
	1/28/91	21.41	8.80	NA	0.00	12.61
	4/25/91	21.41	7.40	NA	0.00	14.01
	7/9/91	21.41	8.52	NA	0.00	12.89
	10/8/91	21.41	9.00	NA	0.00	12.41
	2/5/92	21.41	8.11	NA	0.00	13.30
	4/28/92	21.41	7.70	NA	0.00	13.71
	7/27/92	21.41	8.52	NA	0.00	12.89
	10/26/92	21.41	9.02	NA	0.00	12.39
	1/13/93	21.41	5.22	NA	0.00	16.19
	4/16/93	21.41	7.04	NA	0.00	14.37
	7/23/93	21.41	7.75	NA	0.00	13.66
	10/27/93	21.41	8.49	NA	0.00	12.92
1/27/94	21.41	7.04	NA	0.00	14.37	
5/5/94	21.03 *	7.20	NA	0.00	13.83	
S-6	11/22/88	22.02	8.58	NA	0.00	13.44
	8/10/89	22.02	8.54	NA	0.00	13.48
	10/10/89	22.02	8.58	NA	0.00	13.44
	1/25/90	22.02	8.31	NA	0.00	13.71
	4/18/90	22.02	8.43	NA	0.00	13.59
	7/23/90	22.02	8.24	NA	0.00	13.78
	10/18/90	22.02	9.20	NA	0.00	12.82
	1/28/91	22.02	9.10	NA	0.00	12.92
	4/25/91	22.02	7.74	NA	0.00	14.28
	7/9/91	22.02	8.81	NA	0.00	13.21
	10/8/91	22.02	9.26	NA	0.00	12.76
	2/5/92	22.02	8.47	NA	0.00	13.55
	4/28/92	22.02	7.91	NA	0.00	14.11
	7/27/92	22.02	8.83	NA	0.00	13.19
	10/26/92	22.02	9.29	NA	0.00	12.73
	1/13/93	22.02	6.43	NA	0.00	15.59
	4/16/93	22.02	7.12	NA	0.00	14.90
	7/23/93	22.02	8.14	NA	0.00	13.88
10/27/93	22.02	8.75	NA	0.00	13.27	
1/27/94	22.02	7.87	NA	0.00	14.15	
5/5/94	21.40 *	7.71	NA	0.00	13.69	

**Table 1**  
**Summary of Historical Groundwater Elevation Data**  
**(continued)**

Well	Date	Reference Elevation (Ft.-MSL)	Depth to Groundwater (feet)	Depth to Floating Product (feet)	Floating Product Thickness (feet)	Groundwater Elevation (Ft.-MSL)
S-7	11/22/88	21.47	8.24	NA	0.00	13.23
	8/10/89	21.47	8.18	NA	0.00	13.29
	10/10/89	21.47	8.35	NA	0.00	13.12
	1/25/90	21.47	7.95	NA	0.00	13.52
	4/18/90	21.47	8.06	NA	0.00	13.41
	7/23/90	21.47	7.89	NA	0.00	13.58
	10/18/90	21.47	8.83	NA	0.00	12.64
	1/28/91	21.47	8.77	NA	0.00	12.70
	4/25/91	21.47	7.25	NA	0.00	14.22
	7/9/91	21.47	8.41	NA	0.00	13.06
	10/8/91	21.47	8.95	NA	0.00	12.52
	2/5/92	21.47	8.04	NA	0.00	13.43
	4/28/92	21.47	7.45	NA	0.00	14.02
	7/27/92	21.47	8.48	NA	0.00	12.99
	10/26/92	21.47	9.95	NA	0.00	11.52
	1/13/93	21.47	5.84	NA	0.00	15.63
	4/16/93	21.47	6.38	NA	0.00	15.09
	7/23/93	21.47	7.72	NA	0.00	13.75
	10/27/93	21.47	7.79	NA	0.00	13.68
	1/27/94	21.47	7.85	NA	0.00	13.62
5/5/94	20.85 *	9.45	NA	0.00	11.40	
S-8	11/22/88	20.72	7.76	NA	0.00	12.96
	8/10/89	20.72	7.79	NA	0.00	12.93
	10/10/89	20.72	7.84	NA	0.00	12.88
	1/25/90	20.72	7.47	NA	0.00	13.25
	4/18/90	20.72	7.59	NA	0.00	13.13
	7/23/90	20.72	7.49	NA	0.00	13.23
	10/18/90	20.72	8.44	NA	0.00	12.28
	1/28/91	20.72	8.28	NA	0.00	12.44
	4/25/91	20.72	6.72	NA	0.00	14.00
	7/9/91	20.72	7.98	NA	0.00	12.74
	10/8/91	20.72	8.55	NA	0.00	12.17
	2/5/92	20.72	7.50	NA	0.00	13.22
	4/28/92	20.72	7.14	NA	0.00	13.58
	7/27/92	20.72	8.06	NA	0.00	12.66
	10/26/92	20.72	8.58	NA	0.00	12.14
	1/13/93	20.72	5.32	NA	0.00	15.40
	4/16/93	20.72	5.76	NA	0.00	14.96
	7/23/93	20.72	7.29	NA	0.00	13.43
	10/27/93	20.72	7.93	NA	0.00	12.79
	1/27/94	20.72	6.31	NA	0.00	14.41
5/5/94	20.32 *	6.84	NA	0.00	13.48	

**Table 1**  
**Summary of Historical Groundwater Elevation Data**  
**(continued)**

Well	Date	Reference Elevation (Ft.-MSL)	Depth to Groundwater (feet)	Depth to Floating Product (feet)	Floating Product Thickness (feet)	Groundwater Elevation (Ft.-MSL)
S-9	11/22/88	20.96	7.78	NA	0.00	13.18
	8/10/89	20.96	7.82	NA	0.00	13.14
	10/10/89	20.96	7.87	NA	0.00	13.09
	1/25/90	20.96	7.41	NA	0.00	13.55
	4/18/90	20.96	7.65	NA	0.00	13.31
	7/23/90	20.96	7.58	NA	0.00	13.38
	10/18/90	20.96	8.46	NA	0.00	12.50
	1/28/91	20.96	8.29	NA	0.00	12.67
	4/25/91	20.96	6.09	NA	0.00	14.87
	7/9/91	20.96	7.82	NA	0.00	13.14
	10/8/91	20.96	8.55	NA	0.00	12.41
	2/5/92	20.96	6.96	NA	0.00	14.00
	4/28/92	20.96	6.76	NA	0.00	14.20
	7/27/92	20.96	8.10	NA	0.00	12.86
	10/26/92	20.96	8.53	NA	0.00	12.43
	1/13/93	20.96	6.80	NA	0.00	14.16
	4/16/93	20.96	6.28	NA	0.00	14.68
	7/23/93	20.96	7.26	NA	0.00	13.70
	10/27/93	20.96	8.00	NA	0.00	12.96
	1/27/94	20.96	5.96	NA	0.00	15.00
5/5/94	20.68 *	6.99	NA	0.00	13.69	
S-10	11/22/88	20.69	7.91	NA	0.00	12.78
	8/10/89	20.69	7.94	NA	0.00	12.75
	10/10/89	20.69	7.99	NA	0.00	12.70
	1/25/90	20.69	7.56	NA	0.00	13.13
	4/18/90	20.69	7.71	NA	0.00	12.98
	7/23/90	20.69	7.64	NA	0.00	13.05
	10/18/90	20.69	8.58	NA	0.00	12.11
	1/28/91	20.69	8.35	NA	0.00	12.34
	4/25/91	20.69	6.91	NA	0.00	13.78
	7/9/91	20.69	8.14	NA	0.00	12.55
	10/8/91	20.69	8.70	NA	0.00	11.99
	2/5/92	20.69	7.57	NA	0.00	13.12
	4/28/92	20.69	7.20	NA	0.00	13.49
	7/27/92	20.69	8.17	NA	0.00	12.52
	10/26/92	20.69	8.68	NA	0.00	12.01
	1/13/93	20.69	3.78	NA	0.00	16.91
	4/16/93	20.69	6.46	NA	0.00	14.23
	7/23/93	20.69	7.38	NA	0.00	13.31
	10/27/93	20.69	8.09	NA	0.00	12.60
	1/27/94	20.69	5.81	NA	0.00	14.88
5/5/94	20.15 *	6.82	NA	0.00	13.33	

**Table 1**  
**Summary of Historical Groundwater Elevation Data**  
**(continued)**

Well	Date	Reference Elevation (Ft.-MSL)	Depth to Groundwater (feet)	Depth to Floating Product (feet)	Floating Product Thickness (feet)	Groundwater Elevation (Ft.-MSL)
S-11	11/22/88	21.26	8.62	NA	0.00	12.64
	8/10/89	21.26	8.65	NA	0.00	12.61
	10/10/89	21.26	8.64	NA	0.00	12.62
	1/25/90	21.26	8.43	NA	0.00	12.83
	4/18/90	21.26	8.42	NA	0.00	12.84
	7/23/90	21.26	8.23	NA	0.00	13.03
	10/18/90	21.26	9.20	NA	0.00	12.06
	1/28/91	21.26	9.13	NA	0.00	12.13
	4/25/91	21.26	7.53	NA	0.00	13.73
	7/9/91	21.26	8.85	NA	0.00	12.41
	10/8/91	21.26	9.34	NA	0.00	11.92
	2/5/92	21.26	8.50	NA	0.00	12.76
	4/28/92	21.26	7.80	NA	0.00	13.46
	7/27/92	21.26	8.80	NA	0.00	12.46
	10/26/92	21.26	9.42	NA	0.00	11.84
	1/13/93	21.26	6.52	NA	0.00	14.74
	4/16/93	21.26	6.86	NA	0.00	14.40
	7/23/93	21.26	8.07	NA	0.00	13.19
	10/27/93	21.26	NM	NM	NM	NM
	1/27/94	21.26	NM	NM	NM	NM
5/5/94	21.24 *	7.73	NA	0.00	13.51	
S-12	8/10/89	21.05	8.32	NA	0.00	12.73
	10/10/89	21.05	8.32	NA	0.00	12.73
	1/25/90	21.05	8.18	NA	0.00	12.87
	4/18/90	21.05	8.05	NA	0.00	13.00
	7/23/90	21.05	7.92	NA	0.00	13.13
	10/18/90	21.05	8.90	NA	0.00	12.15
	1/28/91	21.05	8.54	NA	0.00	12.51
	4/25/91	21.05	7.08	NA	0.00	13.97
	7/9/91	21.05	8.42	NA	0.00	12.63
	10/8/91	21.05	8.80	NA	0.00	12.25
	2/5/92	21.05	8.07	NA	0.00	12.98
	4/28/92	21.05	8.33	NA	0.00	12.72
	7/27/92	21.05	8.55	NA	0.00	12.50
	10/26/92	21.05	9.03	NA	0.00	12.02
	1/13/93	21.05	6.38	NA	0.00	14.67
	4/16/93	21.05	6.56	NA	0.00	14.49
	7/23/93	21.05	7.76	NA	0.00	13.29
	10/27/93	21.05	NM	NM	NM	NM
	1/27/94	21.05	NM	NM	NM	NM
	5/5/94	20.71 *	7.49	NA	0.00	13.22



**Table 1**  
**Summary of Historical Groundwater Elevation Data**  
**(continued)**

Well	Date	Reference Elevation (Ft.-MSL)	Depth to Groundwater (feet)	Depth to Floating Product (feet)	Floating Product Thickness (feet)	Groundwater Elevation (Ft.-MSL)
S-13	8/10/89	20.57	8.00	NA	0.00	12.57
	10/10/89	20.57	7.95	NA	0.00	12.62
	1/25/90	20.57	7.79	NA	0.00	12.78
	4/18/90	20.57	7.73	NA	0.00	12.84
	7/23/90	20.57	7.63	NA	0.00	12.94
	10/18/90	20.57	8.58	NA	0.00	11.99
	1/28/91	20.57	8.39	NA	0.00	12.18
	4/25/91	20.57	7.00	NA	0.00	13.57
	7/9/91	20.57	8.12	NA	0.00	12.45
	10/8/91	20.57	8.69	NA	0.00	11.88
	2/5/92	20.57	7.62	NA	0.00	12.95
	4/28/92	20.57	7.15	NA	0.00	13.42
	7/27/92	20.57	8.20	NA	0.00	12.37
	10/26/92	20.57	8.73	NA	0.00	11.84
	1/13/93	20.57	5.06	NA	0.00	15.51
	4/16/93	20.57	6.38	NA	0.00	14.19
	7/23/93	20.57	7.45	NA	0.00	13.12
	10/27/93	20.57	NM	NM	NM	NM
1/27/94	20.57	NM	NM	NM	NM	
5/5/94	20.16 *	6.91	NA	0.00	13.25	
S-14	8/10/89	20.44	7.58	NA	0.00	12.86
	10/10/89	20.44	7.62	NA	0.00	12.82
	1/25/90	20.44	7.82	NA	0.00	12.62
	4/18/90	20.44	7.37	NA	0.00	13.07
	7/23/90	20.44	7.28	NA	0.00	13.16
	10/18/90	20.44	8.10	NA	0.00	12.34
	1/28/91	20.44	8.04	NA	0.00	12.40
	4/25/91	20.44	6.40	NA	0.00	14.04
	7/9/91	20.44	7.69	NA	0.00	12.75
	10/8/91	20.44	8.24	NA	0.00	12.20
	2/5/92	20.44	7.20	NA	0.00	13.24
	4/28/92	20.44	9.75	NA	0.00	10.69
	7/27/92	20.44	7.64	NA	0.00	12.80
	10/26/92	20.44	8.32	NA	0.00	12.12
	1/13/93	20.44	5.07	NA	0.00	15.37
	4/16/93	20.44	5.86	NA	0.00	14.58
	7/23/93	20.44	7.06	NA	0.00	13.38
	10/27/93	20.44	NM	NM	NM	NM
1/27/94	20.44	NM	NM	NM	NM	
5/5/94	19.99 *	6.48	NA	0.00	13.51	

**Table 1**  
**Summary of Historical Groundwater Elevation Data**  
**(continued)**

Well	Date	Reference Elevation (Ft.-MSL)	Depth to Groundwater (feet)	Depth to Floating Product (feet)	Floating Product Thickness (feet)	Groundwater Elevation (Ft.-MSL)
S-15	8/10/89	22.22	8.48	NA	0.00	13.74
	10/10/89	22.22	8.46	NA	0.00	13.76
	1/25/90	22.22	8.34	NA	0.00	13.88
	4/18/90	22.22	8.45	NA	0.00	13.77
	7/23/90	22.22	8.22	NA	0.00	14.00
	10/18/90	22.22	9.11	NA	0.00	13.11
	1/28/91	22.22	9.13	NA	0.00	13.09
	4/25/91	22.22	7.83	NA	0.00	14.39
	7/9/91	22.22	8.93	NA	0.00	13.29
	10/8/91	22.22	9.26	NA	0.00	12.96
	2/5/92	22.22	8.60	NA	0.00	13.62
	4/28/92	22.22	8.09	NA	0.00	14.13
	7/27/92	22.22	8.83	NA	0.00	13.39
	10/26/92	22.22	9.31	NA	0.00	12.91
	1/13/93	22.22	6.64	NA	0.00	15.58
	4/16/93	22.22	7.14	NA	0.00	15.08
	7/23/93	22.22	8.23	NA	0.00	13.99
	10/27/93	22.22	NM	NM	NM	NM
	1/27/94	22.22	NM	NM	NM	NM
	5/5/94	21.42 *	7.57	NA	0.00	13.85
S-16	8/10/89	21.82	8.36	NA	0.00	13.46
	10/10/89	21.82	8.23	NA	0.00	13.59
	1/25/90	21.82	7.88	NA	0.00	13.94
	4/18/90	21.82	8.19	NA	0.00	13.63
	7/23/90	21.82	8.09	NA	0.00	13.73
	10/18/90	21.82	8.90	NA	0.00	12.92
	1/28/91	21.82	8.55	NA	0.00	13.27
	4/25/91	21.82	7.48	NA	0.00	14.34
	7/9/91	21.82	8.48	NA	0.00	13.34
	10/8/91	21.82	8.95	NA	0.00	12.87
	2/5/92	21.82	8.20	NA	0.00	13.62
	4/28/92	21.82	7.80	NA	0.00	14.02
	7/27/92	21.82	8.29	NA	0.00	13.53
	10/26/92	21.82	9.02	NA	0.00	12.80
	1/13/93	21.82	5.78	NA	0.00	16.04
	4/16/93	21.82	6.80	NA	0.00	15.02
	7/23/93	21.82	7.67	NA	0.00	14.15
	10/27/93	21.82	8.52	NA	0.00	13.30
	1/27/94	21.82	7.20	NA	0.00	14.62
	5/5/94	21.24 *	7.76	NA	0.00	13.48

**Table 1**  
**Summary of Historical Groundwater Elevation Data**  
**(continued)**

Well	Date	Reference Elevation (Ft.-MSL)	Depth to Groundwater (feet)	Depth to Floating Product (feet)	Floating Product Thickness (feet)	Groundwater Elevation (Ft.-MSL)
S-17	8/10/89	20.95	8.13	NA	0.00	12.82
	10/10/89	20.95	8.18	NA	0.00	12.77
	1/25/90	20.95	7.60	NA	0.00	13.35
	4/18/90	20.95	7.95	NA	0.00	13.00
	7/23/90	20.95	7.87	NA	0.00	13.08
	10/18/90	20.95	8.71	NA	0.00	12.24
	1/28/91	20.95	8.54	NA	0.00	12.41
	4/25/91	20.95	7.15	NA	0.00	13.80
	7/9/91	20.95	8.24	NA	0.00	12.71
	10/8/91	20.95	8.86	NA	0.00	12.09
	2/5/92	20.95	7.74	NA	0.00	13.21
	4/28/92	20.95	7.41	NA	0.00	13.54
	7/27/92	20.95	8.34	NA	0.00	12.61
	10/26/92	20.95	8.87	NA	0.00	12.08
	1/13/93	20.95	3.43	NA	0.00	17.52
	4/16/93	20.95	6.70	NA	0.00	14.25
	7/23/93	20.95	7.53	NA	0.00	13.42
	10/27/93	20.95	8.29	NA	0.00	12.66
	1/27/94	20.95	5.78	NA	0.00	15.17
5/5/94	20.45 *	6.99	NA	0.00	13.46	
S-18	4/25/91	21.03	NM	NM	NM	NM
	7/9/91	21.03	8.23	NA	0.00	12.80
	10/8/91	21.03	8.84	NA	0.00	12.19
	2/5/92	21.03	7.67	NA	0.00	13.36
	4/28/92	21.03	7.40	NA	0.00	13.63
	7/27/92	21.03	8.34	NA	0.00	12.69
	10/26/92	21.03	8.83	NA	0.00	12.20
	1/13/93	21.03	5.86	NA	0.00	15.17
	4/16/93	21.03	4.88	NA	0.00	16.15
	7/23/93	21.03	7.56	NA	0.00	13.47
	10/27/93	21.03	8.30	NA	0.00	12.73
	1/27/94	21.03	6.84	NA	0.00	14.19
	5/5/94	20.57 *	7.05	NA	0.00	13.52

**Table 1**  
**Summary of Historical Groundwater Elevation Data**  
**(continued)**

Well	Date	Reference Elevation (Ft.-MSL)	Depth to Groundwater (feet)	Depth to Floating Product (feet)	Floating Product Thickness (feet)	Groundwater Elevation (Ft.-MSL)
SR-1	1/25/90	21.45	7.53	NA	0.00	13.92
	4/18/90	21.45	8.17	NA	0.00	13.28
	7/23/90	21.45	7.58	NA	0.00	13.87
	10/18/90	21.45	8.81	NA	0.00	12.64
	1/28/91	21.45	8.37	NA	0.00	13.08
	4/25/91	21.45	6.91	NA	0.00	14.54
	7/9/91	21.45	8.11	NA	0.00	13.34
	10/8/91	21.45	8.63	NA	0.00	12.82
	2/5/92	21.45	7.68	NA	0.00	13.77
	4/28/92	21.45	7.27	NA	0.00	14.18
	7/27/92	21.45	8.11	8.10	0.01	13.34
	10/26/92	21.45	8.63	NA	0.00	12.82
	1/13/93	21.45	5.46	NA	0.00	15.99
	4/16/93	21.45	6.28	NA	0.00	15.17
	7/23/93	21.45	7.34	NA	0.00	14.11
	10/27/93	21.45	8.04	NA	0.00	13.41
	1/27/94	21.45	6.68	NA	0.00	14.77
	5/5/94	20.57 *	6.81	NA	0.00	13.76

Ft.-MSL = feet above mean sea level  
 NM = not measured  
 \* Top of casing elevation surveyed by L. Wade Hammond on 5/31/94

Table 2

**Summary of Historical Groundwater Analytical Results**  
(milligrams per liter)

Well Number	Sampling Date	TPHG	Benzene	Toluene	Ethylbenzene	Total Xylenes
S-1	07/08/85	0.52	NA	NA	NA	NA
	09/06/88	<0.050	<0.0005	<0.001	<0.001	<0.003
	11/16/88	<0.050	<0.0005	<0.001	<0.001	<0.003
	02/27/89	<0.050	0.0005	<0.001	<0.001	<0.003
	05/04/89	<0.050	0.001	<0.001	<0.001	<0.003
	08/10/89	<0.050	0.0007	<0.001	<0.001	<0.003
	10/10/89	<0.050	<0.0005	<0.001	<0.001	<0.003
	01/25/90	<0.050	<0.0005	<0.0005	<0.0005	<0.001
	04/18/90	<0.050	<0.0005	<0.0005	<0.0005	<0.001
	07/23/90	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	10/18/90	0.080	0.005	<0.0005	<0.0005	0.003
	01/28/91	<0.050	0.0045	<0.0005	<0.0005	0.002
	04/25/91	0.080*	0.0037	<0.0005	0.0007	0.002
	07/09/91	0.20	0.016	<0.0005	0.0013	0.0058
	10/08/91	<0.050	0.0023	<0.0005	<0.0005	<0.0005
	02/05/92	0.16	0.0089	<0.0005	0.0021	0.006
	04/28/92	<0.050	0.0024	<0.0005	<0.0005	0.0009
	07/27/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	10/26/92	0.057	0.003	0.0016	0.0014	0.0017
	01/14/93	0.49	0.053	0.0012	0.020	0.033
	04/16/93	0.24	0.020	<0.0005	0.015	0.24
	07/23/93	<0.050	0.0005	<0.0005	<0.0005	<0.0005
	10/27/93	0.060	0.0059	<0.0005	0.0025	0.0017
01/27/94	<0.050	0.0021	<0.0005	<0.0005	0.00063	
05/05/94	0.057	0.0039	<0.0005	0.0019	0.0019	
S-3	09/06/88	96	3.4	9.5	2.7	17
	11/16/88	70	4.6	8.4	2.5	13
	02/27/89	32	2.4	3.1	1.5	6.4
	05/04/89	47	4.4	0.30	2.4	15
	08/10/89	110	5.7	5.7	3.2	19
	10/10/89	52	4.6	3.3	2.6	15
	01/25/90	420	5.2	4.1	6.7	34
	04/18/90	58	3.8	1.4	2.4	12
	07/23/90	49	3.4	1.8	2.3	12
	10/18/90	44	3.5	0.65	2.4	11
	01/28/91	64	40.9	0.57	1.94	8.09
	04/25/91	120	3.9	3.6	2.4	8.9
	07/09/91	50	3.6	2.3	1.8	10
10/08/91	130	3.6	1.0	2.8	8.4	

Table 2 (Continued)

**Summary of Historical Groundwater Analytical Results**  
(milligrams per liter)

Well Number	Sampling Date	TPHG	Benzene	Toluene	Ethylbenzene	Total Xylenes
S-3	02/05/92	150	2.5	0.67	2.7	10
	04/28/92	120	2.2	1.2	2.0	5.8
	07/27/92	190	1.4	<1.25	<1.25	3.4
	10/26/92	950	2.0	8.4	16	36
	01/14/93	41	2.7	2.5	1.8	6.9
	04/16/93	40	0.93	2.8	1.9	14
	07/23/93	87	1.6	<0.0050	1.3	4.0
	10/27/93	36	2.2	<0.5	1.5	3.2
	01/27/94	190	3.2	3.1	4.1	15
	05/05/94	36	1.1	0.49	1.6	4.7
S-5	01/08/87	7.8	0.38	0.51	NR	1.0
	09/06/88	7.0	2.6	0.060	0.40	0.70
	11/16/88	3.0	0.66	0.060	0.12	0.22
	02/27/89	5.7	2.0	0.22	0.26	0.32
	05/04/89	9.0	3.0	0.60	0.63	1.7
	08/10/89	5.1	1.1	<0.050	0.27	0.40
	10/10/89	15	3.3	0.16	0.83	2.2
	01/25/90	12	2.4	0.36	0.57	1.4
	04/18/90	5.2	1.1	0.040	0.30	0.46
	07/23/90	5.5	1.3	0.14	0.32	0.73
	10/18/90	12	3.2	0.040	0.72	0.9
	01/28/91	2.55	0.41	0.015	0.11	0.060
	04/25/91	67	5.1	3.1	2.8	11
	07/09/91	4.9	0.48	0.036	0.36	1.0
	10/08/91	6.6	0.37	0.007	0.19	0.38
	02/05/92	44	4.8	0.85	2.7	8.4
	04/28/92	33	1.4	0.32	1.6	5.2
	07/27/92	20	2.4	<0.125	1.8	5.3
	10/26/92	21	1.6	0.14	1.5	2.8
	01/14/93	54	1.9	1.0	2.7	16
04/16/93	42	2.0	1.3	4.3	18	
07/23/93	46	2.5	2.2	3.4	11	
10/27/93	6.5	0.99	0.031	1.1	1.0	
01/27/94	34	1.8	0.58	2.9	9.7	
05/05/94	24	0.67	0.070	1.4	2.7	
S-6	11/16/88	0.050	0.0007	<0.001	<0.001	<0.003
	02/27/89	<0.050	<0.0005	<0.001	<0.001	<0.003
	05/04/89	<0.050	<0.0005	<0.001	<0.001	<0.003
	08/10/89	<0.050	<0.0005	<0.001	<0.001	<0.003
	10/10/89	<0.050	<0.0005	<0.001	<0.001	<0.003

Table 2 (Continued)

**Summary of Historical Groundwater Analytical Results**  
(milligrams per liter)

Well Number	Sampling Date	TPHG	Benzene	Toluene	Ethylbenzene	Total Xylenes
S-6	01/25/90	<0.050	<0.0005	<0.0005	<0.0005	<0.001
	04/18/90	<0.050	<0.0005	0.0006	<0.0005	0.001
	07/23/90	<0.050	<0.0005	0.0009	<0.0005	0.0018
	10/18/90	<0.050	<0.0005	0.0007	<0.0005	0.0008
	01/28/91	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	04/25/91	<0.050	<0.0005	<0.0005	<0.0005	0.0007
	07/09/91	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	10/08/91	<0.050	0.0007	<0.0005	<0.0005	<0.0005
	04/28/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	10/26/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	01/13/93	NR	NR	NR	NR	NR
	04/16/93	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	07/23/93	NR	NR	NR	NR	NR
	10/27/93	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	01/27/94	NR	NR	NR	NR	NR
05/05/94	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
S-7	11/16/88	0.10	0.0051	0.015	0.002	0.013
	02/27/89	0.050	0.0005	0.003	0.001	0.011
	05/04/89	<0.050	<0.0005	<0.001	<0.001	<0.003
	08/10/89	<0.050	<0.0005	<0.001	<0.001	<0.003
	10/10/89	<0.050	<0.0005	<0.001	<0.001	<0.003
	01/25/90	<0.050	<0.0005	<0.0005	<0.0005	<0.001
	04/18/90	<0.050	<0.0005	<0.0005	<0.0005	<0.001
	07/23/90	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	10/18/90	<0.050	<0.0005	0.0005	0.0005	0.0041
	01/28/91	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	04/25/91	0.060*	<0.0005	<0.0005	<0.0005	<0.0005
	07/09/91	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	10/08/91	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	02/05/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	04/28/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	07/27/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	10/26/92	0.057^	<0.0005	<0.0005	<0.0005	<0.0005
	01/14/93	0.056^	<0.0005	<0.0005	<0.0005	<0.0005
	04/16/93	0.11	0.028	<0.0005	<0.0005	0.0018
	07/23/93	0.080	0.0048	<0.0005	<0.0005	0.0008
	10/27/93	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	01/27/94	0.070**	<0.0005	<0.0005	<0.0005	<0.0005
	05/05/94	0.092	0.0021	<0.0005	<0.0005	<0.0005

Table 2 (Continued)

**Summary of Historical Groundwater Analytical Results**  
(milligrams per liter)

Well Number	Sampling Date	TPHG	Benzene	Toluene	Ethylbenzene	Total Xylenes
S-8	11/16/88	0.21	0.005	<0.001	0.001	0.005
	02/27/89	<0.050	0.0024	<0.001	<0.001	<0.003
	05/03/89	<0.050	0.0075	<0.001	0.002	<0.003
	08/10/89	<0.050	0.0006	<0.001	<0.001	<0.003
	10/09/89	<0.050	<0.0005	<0.001	<0.001	<0.003
	01/25/90	<0.050	<0.0005	<0.0005	<0.0005	<0.001
	04/18/90	<0.050	<0.0005	<0.0005	<0.0005	<0.001
	07/23/90	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	10/18/90	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	01/28/91	<0.050	0.055	0.0005	<0.0005	0.0014
	04/25/91	0.13*	0.019	<0.0005	0.0013	0.0011
	07/09/91	0.20	0.033	<0.0005	0.0018	0.0028
	10/08/91	0.58	0.095	0.0022	0.0049	0.0065
	02/05/92	0.090*	0.018	<0.0005	0.0062	0.0018
	04/28/92	<0.050	0.0059	<0.0005	0.0025	<0.0005
	07/27/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	10/26/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	01/14/93	0.27	0.074	0.0009	0.025	0.0055
	04/16/93	1.1	0.42	<0.0005	0.20	0.020
	07/23/93	0.16	0.023	<0.0005	0.0012	0.0015
	10/27/93	0.42	0.065	0.0007	0.011	0.0017
	01/27/94	0.29	0.065	<0.0010	0.0069	0.0024
	05/05/94	0.12	0.013	<0.0005	<0.0005	<0.0005
S-9	11/16/88	1.4	0.069	0.003	0.052	0.18
	02/27/89	1.6	0.24	0.004	0.13	0.18
	05/03/89	2.6	0.47	0.010	0.24	0.48
	08/10/89	0.52	0.073	<0.01	0.040	<0.030
	10/09/89	0.38	0.082	<0.001	0.046	0.013
	01/25/90	0.75	0.14	0.0012	0.069	0.075
	04/18/90	0.68	0.15	0.0017	0.050	0.037
	07/23/90	0.49	0.094	0.0012	0.032	0.024
	10/18/90	0.39	0.14	0.0007	0.0033	0.024
	01/28/91	1.04	0.45	0.0046	0.085	0.097
	04/25/91	5.8	0.88	0.009	0.36	0.50
	07/09/91	1.4	0.22	0.0028	0.082	0.10
	10/08/91	0.89	0.96	<0.0025	0.016	0.029
	02/05/92	0.95	0.24	<0.0025	0.028	0.055
	04/28/92	1.4*	0.29	0.003	0.10	0.081
07/27/92	0.89	0.19	<0.0025	0.066	0.068	



Table 2 (Continued)

**Summary of Historical Groundwater Analytical Results**  
(milligrams per liter)

Well Number	Sampling Date	TPHG	Benzene	Toluene	Ethylbenzene	Total Xylenes
S-9	10/26/92	0.65	0.16	<0.0025	0.063	0.089
	01/13/93	19	2.4	0.038	1.7	2.2
	04/16/93	10	1.5	<0.0005	1.1	0.99
	07/23/93	1.1	0.40	<0.0050	0.26	0.16
	10/27/93	2.5	0.40	<0.005	0.19	0.11
	01/27/94	4.8	0.99	0.016	0.63	0.49
	05/05/94	3.7	0.48	<0.005	0.021	0.12
S-10	11/16/88	0.33	0.0005	<0.001	0.001	0.011
	02/27/89	0.14	<0.0005	<0.003	0.002	0.006
	05/03/89	0.22	<0.0005	0.001	0.002	0.007
	08/10/89	<0.050	<0.0005	<0.001	<0.001	<0.003
	10/09/89	0.17	<0.0005	<0.001	<0.001	<0.003
	01/25/90	<0.050	<0.0005	<0.0005	0.0011	0.004
	04/18/90	<0.050	<0.0005	0.0009	<0.0005	0.002
	07/23/90	0.59	<0.0005	<0.0005	0.0019	0.019
	10/18/90	0.14	<0.0005	0.0007	<0.0005	0.007
	01/28/91	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	04/25/91	<0.050	<0.0005	<0.0005	0.0011	0.0008
	07/09/91	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	10/08/91	0.14	<0.0005	<0.0005	<0.0005	<0.0005
	02/05/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	04/28/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	07/27/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	10/26/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	01/13/93	0.088	<0.0005	0.0006	<0.0005	<0.0005
	04/16/93	0.080	<0.0005	<0.0005	<0.0005	<0.0005
	07/23/93	<0.050	0.0015	<0.0005	0.0007	0.0027
10/27/93	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
01/27/94	0.27	0.0011	0.0013	0.0020	0.0074	
05/05/94	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
S-11	11/16/88	<0.050	<0.0005	<0.001	<0.001	<0.003
	02/27/89	<0.050	<0.0005	<0.001	<0.001	<0.003
	05/03/89	<0.050	<0.0005	<0.001	<0.001	<0.003
	08/10/89	<0.050	<0.0005	<0.001	<0.001	<0.003
	10/09/89	<0.050	<0.0005	<0.001	<0.001	<0.003
	01/25/90	<0.050	<0.0005	<0.0005	<0.0005	<0.001
	04/18/90	<0.050	<0.0005	<0.0005	<0.0005	<0.001
	07/23/90	<0.050	<0.0005	0.0006	<0.0005	0.0011
	10/18/90	<0.050	<0.0005	<0.0005	<0.0005	0.0005
	01/28/91	0.063	<0.0005	0.0033	0.0009	0.007

Table 2 (Continued)

**Summary of Historical Groundwater Analytical Results**  
(milligrams per liter)

Well Number	Sampling Date	TPHG	Benzene	Toluene	Ethylbenzene	Total Xylenes
S-11	04/25/91	<0.050	<0.0005	<0.0005	0.0008	<0.0005
	07/09/91	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	10/08/91	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	04/28/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	10/26/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	01/13/93	NR	NR	NR	NR	NR
	04/16/93	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	07/23/93	NR	NR	NR	NR	NR
	10/27/93	NA	NA	NA	NA	NA
	01/27/94	NR	NR	NR	NR	NR
	05/05/94	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
S-12	11/16/88	0.050	0.0035	<0.001	<0.001	<0.003
	02/27/89	<0.050	0.0008	<0.001	<0.001	<0.003
	05/03/89	<0.050	<0.0005	<0.001	<0.001	<0.003
	08/10/89	<0.050	<0.0005	<0.001	<0.001	<0.003
	10/09/89	<0.050	<0.0005	<0.001	<0.001	<0.003
	01/25/90	<0.050	<0.0005	<0.0005	<0.0005	<0.001
	04/18/90	<0.050	<0.0005	<0.0005	<0.0005	<0.001
	07/23/90	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	10/18/90	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	01/28/91	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	04/25/91	0.090	0.0054	<0.0005	0.0011	0.0007
	07/09/91	<0.050	0.0029	<0.0005	<0.0005	<0.0005
	10/08/91	0.050	<0.0005	<0.0005	<0.0005	<0.0005
	02/05/92	0.050*	<0.0005	<0.0005	<0.0005	<0.0005
	04/28/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	07/27/92	0.094 <sup>^</sup>	<0.0005	<0.0005	<0.0005	<0.0005
	10/26/92	0.086 <sup>^</sup>	<0.0005	<0.0005	<0.0005	<0.0005
	01/14/93	0.12	0.002	<0.0005	<0.0005	<0.0005
	04/16/93	0.060	<0.0005	<0.0005	<0.0005	<0.0005
	07/23/93	0.090	<0.0005	<0.0005	<0.0005	0.0009
	10/27/93	NA	NA	NA	NA	NA
	01/27/94	NA	NA	NA	NA	NA
05/05/94	<0.050	0.0020	<0.0005	<0.0005	<0.0005	
S-13	05/03/89	0.15	0.0049	0.004	0.002	0.014
	08/10/89	0.11	0.0029	<0.001	<0.001	<0.003
	10/09/89	0.077	0.0014	<0.001	<0.001	<0.003
	01/25/90	0.051	0.0005	<0.0005	<0.0005	<0.001
	04/18/90	0.085	0.0087	<0.0005	<0.0005	<0.001
	07/23/90	0.080	0.0008	<0.0005	<0.0005	<0.0005

Table 2 (Continued)

**Summary of Historical Groundwater Analytical Results**  
(milligrams per liter)

Well Number	Sampling Date	TPHG	Benzene	Toluene	Ethylbenzene	Total Xylenes
S-13	10/18/90	0.13	<0.0005	<0.0005	<0.0005	<0.0005
	01/28/91	<0.050	<0.0005	0.0009	<0.0005	0.001
	04/25/91	0.44*	0.0038	<0.0005	0.0012	0.0006
	07/09/91	0.32*	0.0006	<0.0005	<0.0005	<0.0005
	10/08/91	0.31	<0.0005	<0.0005	<0.0005	<0.0005
	04/28/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	10/26/92	0.18^	<0.0005	<0.0005	<0.0005	<0.0005
	01/13/93	NR	NR	NR	NR	NR
	04/16/93	0.24	0.0048	<0.0005	0.0013	<0.0005
	07/23/93	NR	NR	NR	NR	NR
	10/27/93	NA	NA	NA	NA	NA
	01/27/94	NR	NR	NR	NR	NR
	05/05/94	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
S-14	05/03/89	5.3	0.75	0.40	0.20	0.80
	08/10/89	1.8	0.54	0.14	0.042	0.050
	10/09/89	1.0	0.36	0.060	0.020	0.030
	01/25/90	0.64	0.16	0.077	0.017	0.039
	04/18/90	1.2	0.20	0.11	0.030	0.096
	07/23/90	5.0	0.43	0.34	0.14	0.66
	10/18/90	1.8	0.77	0.013	0.017	0.12
	01/28/91	0.72	0.20	0.036	0.021	0.078
	04/25/91	14	0.93	0.43	0.25	0.97
	07/09/91	0.16	0.030	0.0053	0.005	0.016
	10/08/91	5.4	0.081	0.057	0.095	0.38
	04/28/92	2.0	0.27	0.14	0.048	0.17
	10/26/92	0.92	0.033	0.012	0.025	0.088
	01/13/93	NR	NR	NR	NR	NR
	04/16/93	4.5	1.1	0.029	0.091	0.17
	07/23/93	NR	NR	NR	NR	NR
	10/27/93	NA	NA	NA	NA	NA
01/27/94	NR	NR	NR	NR	NR	
05/05/94	0.81	0.25	<0.0025	0.0094	0.019	
S-15	05/03/89	<0.050	<0.0005	<0.001	<0.001	<0.003
	08/10/89	<0.050	<0.0005	<0.001	<0.001	<0.003
	10/09/89	<0.050	<0.0005	<0.001	<0.001	<0.003
	01/25/90	<0.050	<0.0005	<0.001	<0.001	<0.001
	04/18/90	<0.050	<0.0005	<0.0005	<0.0005	<0.001
	07/23/90	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	10/18/90	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	01/28/91	<0.050	<0.0005	0.0006	<0.0005	0.0008

Table 2 (Continued)

**Summary of Historical Groundwater Analytical Results**  
(milligrams per liter)

Well Number	Sampling Date	TPHG	Benzene	Toluene	Ethylbenzene	Total Xylenes
S-15	04/25/91	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	07/09/91	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	10/08/91	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	02/05/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	04/28/92	0.050	0.0008	0.0009	<0.0005	0.0014
	07/27/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	10/26/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	01/14/93	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	04/16/93	<0.050	0.0006	0.001	<0.0005	0.0007
	07/23/93	<0.050	0.0012	<0.0005	<0.0005	0.0016
	10/27/93	NA	NA	NA	NA	NA
	01/27/94	NA	NA	NA	NA	NA
	05/05/94	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
S-16	05/04/89	0.38	0.044	0.003	0.002	<0.003
	08/10/89	<0.050	0.0006	<0.001	<0.001	<0.003
	10/10/89	<0.005	<0.0005	<0.001	<0.001	<0.003
	01/25/90	0.24	0.16	0.0033	0.0008	0.011
	04/18/90	<0.050	0.001	<0.0005	<0.0005	<0.001
	07/23/90	<0.050	0.0011	<0.0005	<0.0005	<0.0005
	10/18/90	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	01/28/91	<0.050	<0.0005	0.0006	<0.0005	0.0009
	04/25/91	0.060 <sup>A</sup>	0.021	0.0005	0.0032	0.0048
	07/09/91	<0.050	0.001	<0.0005	<0.0005	<0.0005
	10/08/91	0.050	0.017	0.0014	0.0012	0.0055
	02/05/92	0.15	0.065	0.0007	<0.0005	0.0084
	04/28/92	<0.050	0.013	<0.0005	<0.0005	<0.0005
	07/27/92	0.51	0.13	<0.0025	<0.0005	0.021
	10/26/92	<0.050	<0.0005	<0.0005	<0.0025	<0.0005
	01/13/93	0.10	0.025	0.0019	<0.0005	0.0084
	04/16/93	0.15	0.056	0.0018	0.0046	0.012
	07/23/93	<0.050	0.0009	<0.0005	<0.0005	<0.0005
	10/27/93	<0.050	0.0015	<0.0005	<0.0005	<0.0005
	01/27/94	0.14	0.085	<0.0010	<0.0010	0.013
05/05/94	0.071	0.025	<0.0005	<0.0005	0.0042	
S-17	05/03/89	<0.050	<0.0005	<0.001	<0.001	<0.003
	08/10/89	<0.050	<0.0005	<0.001	<0.001	<0.003
	10/09/89	<0.050	<0.0005	<0.001	<0.001	<0.003
	01/25/90	<0.050	<0.0005	<0.0005	<0.0005	<0.001
	04/18/90	<0.050	<0.0005	<0.0005	<0.0005	<0.001
	07/23/90	<0.050	<0.0005	<0.0005	<0.0005	<0.0005

Table 2 (Continued)

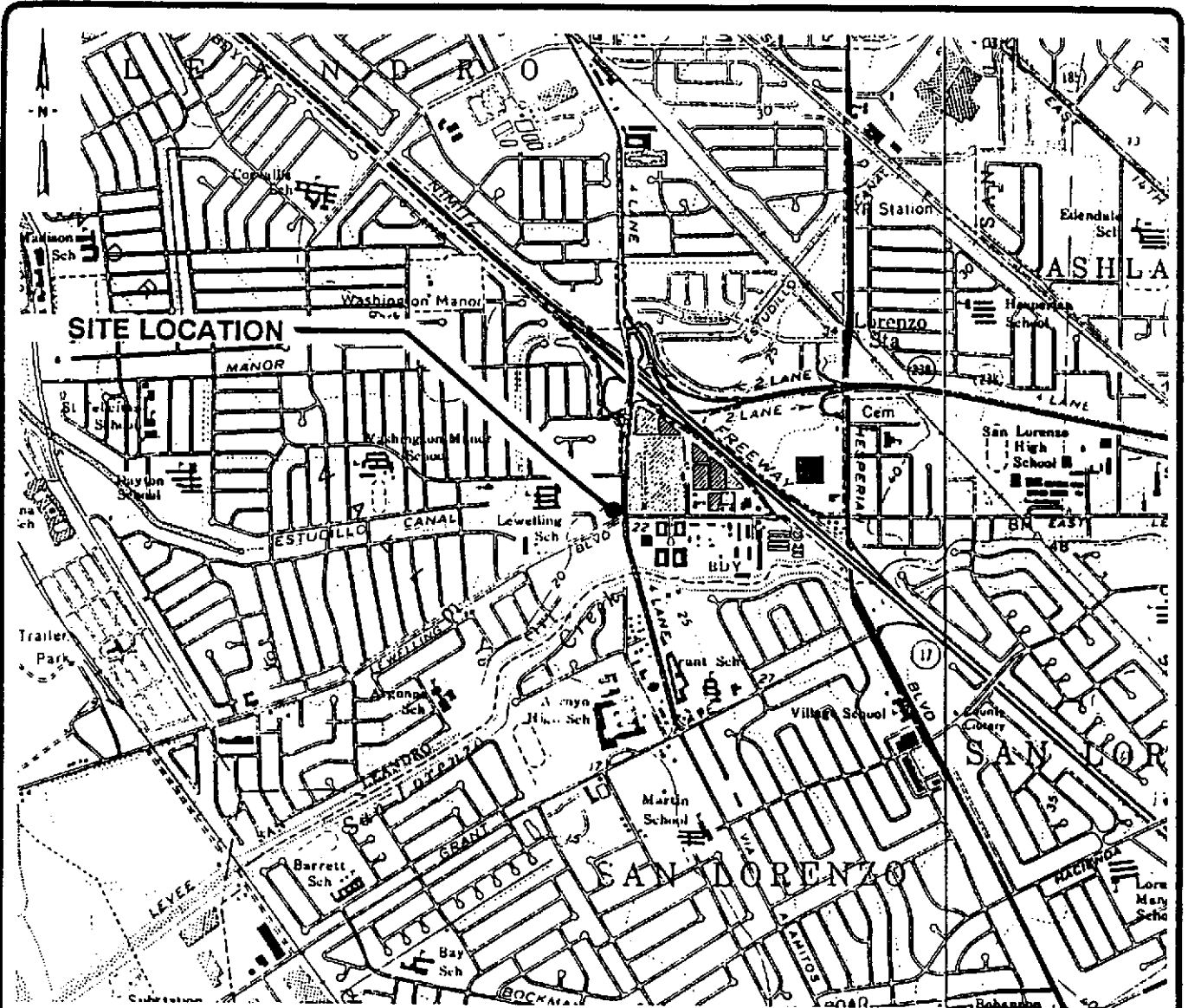
**Summary of Historical Groundwater Analytical Results**  
(milligrams per liter)

Well Number	Sampling Date	TPHG	Benzene	Toluene	Ethylbenzene	Total Xylenes
S-17	10/18/90	0.39	0.010	0.062	0.022	0.11
	01/28/91	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	04/25/91	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	07/09/91	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	10/08/91	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	04/28/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	10/26/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	01/13/93	NR	NR	NR	NR	NR
	04/16/93	0.13	<0.0005	<0.0005	<0.0005	<0.0005
	07/23/93	NR	NR	NR	NR	NR
	10/27/93	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	01/27/94	NR	NR	NR	NR	NR
	05/05/94	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
S-18	05/31/91	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	07/09/91	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	10/08/91	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	02/05/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	04/28/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	07/27/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	10/26/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	01/13/93	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	04/16/93	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	07/23/93	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	10/27/93	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	01/27/94	<0.050	0.0019	<0.0005	<0.0005	<0.0005
	05/05/94	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
SR-1	03/22/89	5.4	1.1	0.23	0.35	1.3
	01/25/90	2.2	0.47	0.12	0.11	0.51
	04/18/90	1.0	0.13	0.047	0.047	0.22
	07/23/90	3.2	0.47	0.32	0.17	0.87
	10/18/90	1.3	0.28	0.0066	0.11	0.13
	01/28/91	0.11	0.12	0.012	0.051	0.11
	07/09/91	1.4	0.20	0.027	0.13	0.34
	10/08/91	0.98	0.079	0.0015	0.044	0.052
	02/05/92	3.8	0.58	0.036	0.32	0.40
	04/28/92	38	1.8	0.46	1.9	0.75
	07/27/92	FP	FP	FP	FP	FP
	10/26/92	1.8	0.37	0.010	0.13	0.13
	01/13/93	47	1.0	1.1	1.7	13

Table 2 (Continued)

Summary of Historical Groundwater Analytical Results  
(milligrams per liter)

Well Number	Sampling Date	TPHG	Benzene	Toluene	Ethylbenzene	Total Xylenes
SR-1	04/16/93	25	1.7	0.43	2.4	8.3
	07/23/93	33	2.4	2.0	3.8	14
	10/27/93	2.3	0.34	<0.0125	0.27	0.44
	01/27/94	36	2.0	1.7	3.0	11
	05/05/94	43	1.5	0.13	2.9	12
<p>TPHG = Total petroleum hydrocarbons as gasoline by EPA Method 8015 (modified).                      BTEX = Benzene, toluene, ethylbenzene and total xylenes by EPA Method 8020.                      NA = Not analyzed; well inaccessible.                      NR = Not required.                      * = Compounds detected within the chromatographic range of gasoline but not characteristic of the standard gasoline pattern.                      ** = The concentration reported as gasoline is primarily due to the presence of a discrete peak not indicative of gasoline.                      ^ = Compounds detected are volatile aromatics (BTEX) present in sample.</p>						



SCALE: 0 2000 FEET

Base map from GeoStrategies, Inc.

12/93



**EMCON**  
Associates

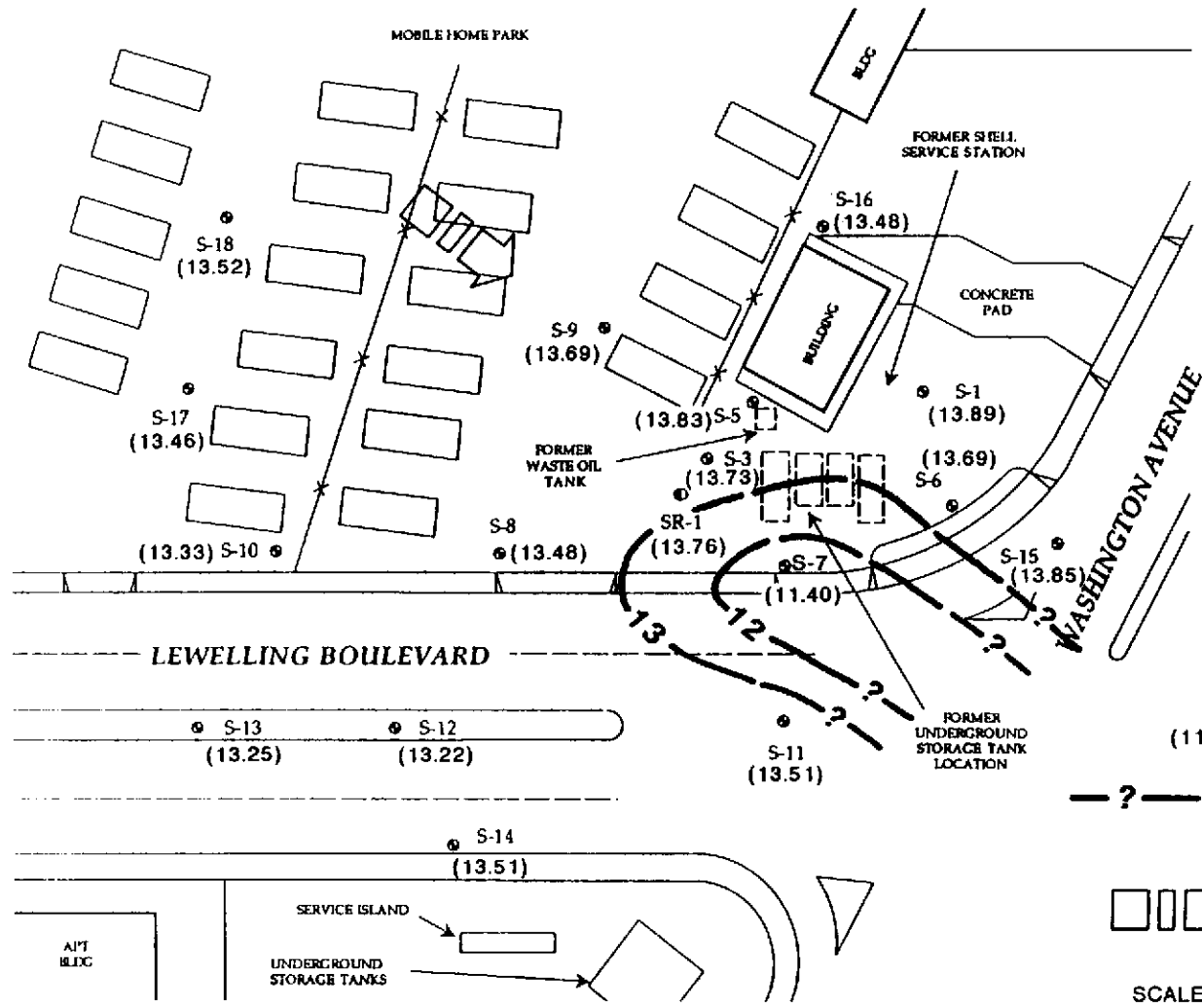
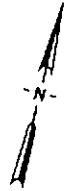
SHELL OIL COMPANY  
FORMER SHELL SERVICE STATION  
15275 WASHINGTON AVENUE  
SAN LEANDRO, CALIFORNIA

SITE LOCATION MAP

FIGURE

**1**

PROJECT NO.  
0117-115.01



**LEGEND**

- Monitoring well
- Recovery well
- (11.40) Groundwater elevation (Ft.-MSL), May 5, 1994

— ? — 13 Groundwater elevation contour (Ft.-MSL), May 5, 1994 queried where uncertain

□ □ □ Approximate direction of groundwater flow

SCALE: 0 60 FEET

Base map from Hydro-Environmental Technologies, Inc.



**EMCON**  
Associates  
Sacramento, California

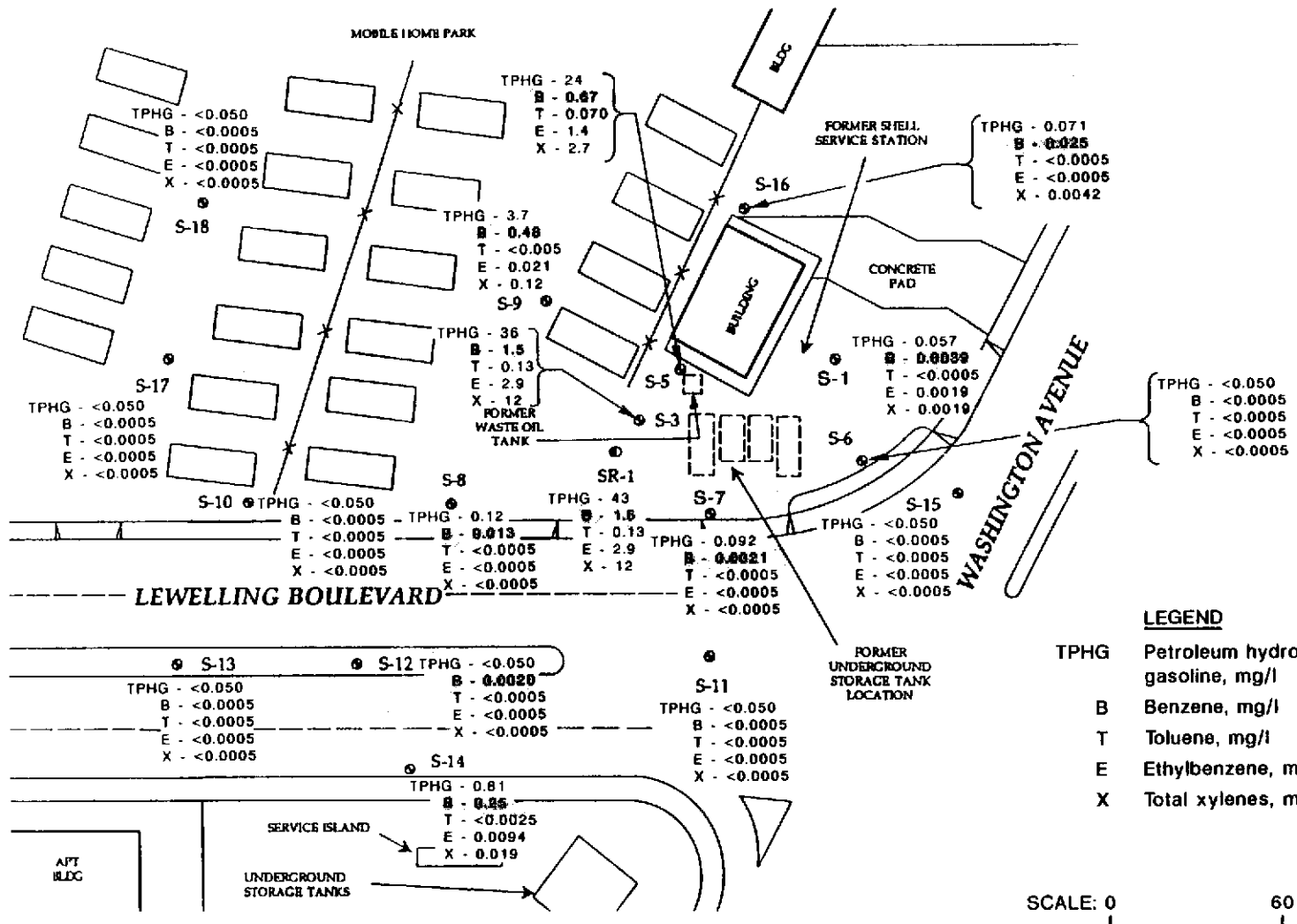
SHELL OIL COMPANY  
FORMER SHELL SERVICE STATION  
15275 WASHINGTON AVENUE  
SAN LEANDRO, CALIFORNIA

GROUNDWATER CONTOUR MAP, MAY 5, 1994

FIGURE  
**2**

PROJECT NO.  
0117-115.01





Base map from Hydro-Environmental Technologies, Inc.

**EMCON Associates**  
Sacramento, California

SHELL OIL COMPANY  
FORMER SHELL SERVICE STATION  
15275 WASHINGTON AVENUE  
SAN LEANDRO, CALIFORNIA

TPHG AND BTEX CONCENTRATION MAP, MAY 5, 1994

FIGURE  
**3**  
PROJECT NO.  
0117-115.01

**ATTACHMENT A**

**QUARTERLY  
GROUNDWATER SAMPLING REPORT 940505-K-1,  
BLAINE TECH SERVICES, INC.**

**RECEIVED**

June 8, 1994

JUN 16 1994

**EMCON/SACRAMENTO**

Shell Oil Company  
P.O. Box 5278  
Concord, CA 94520-9998

Attn: Lynn Walker

SITE:  
Shell WIC #204-6852-1008  
15275 Washington  
San Leandro, California

QUARTER:  
2nd quarter of 1994

## **QUARTERLY GROUNDWATER SAMPLING REPORT 940505-K-1**

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This report contains data collected during routine inspection, gauging and sampling of groundwater monitoring wells performed by Blaine Tech Services, Inc. in response to the request of the consultant who is overseeing work at this site on behalf of our mutual client, Shell Oil Company. Data collected in the course of our field work is presented in a **TABLE OF WELL GAUGING DATA**. The field information was collected during our preliminary gauging and inspection of the wells, the subsequent evacuation of each well prior to sampling, and at the time of sampling.

Measurements taken include the total depth of the well and the depth to water. The surface of water was further inspected for the presence of immiscibles which may be present as a thin film (a sheen on the surface of the water) or as a measurable free product zone (FPZ). At intervals during the evacuation phase, the purge water was monitored with instruments that measure electrical conductivity (EC), potential hydrogen (pH), temperature (degrees Fahrenheit), and turbidity (NTU). In the interest of simplicity, fundamental information is tabulated here, while the bulk of the information is turned over directly to the consultant who is making professional interpretations and evaluations of the conditions at the site.

## **STANDARD PROCEDURES**

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### **Evacuation**

Groundwater wells are thoroughly purged before sampling to insure that the sample is collected from water that has been newly drawn into the well from the surrounding geologic formation. The selection of equipment to evacuate each well is based on the physical characteristics of the well and what is known about the performance of the formation in which the well has been installed. There are several suitable devices which can be used for evacuation. The most commonly employed devices are air or gas actuated pumps, electric submersible pumps, and hand or mechanically actuated bailers. Our personnel frequently employ USGS/Middleburg positive displacement pumps or similar air actuated pumps which do not agitate the water standing in the well.

Normal evacuation removes three case volumes of water from the well. More than three case volumes of water are removed in cases where more evacuation is needed to achieve stabilization of water parameters and when requested by the local implementing agency. Less water may be removed in cases where the well dewateres and does not recharge to 80% of its original volume within two hours and any additional time our personnel have reason to remain at the site. In such cases, our personnel return to the site within twenty four hours and collect sample material from the water which has recharged into the well case.

### **Decontamination**

All apparatus is brought to the site in clean and serviceable condition. The equipment is decontaminated after each use and before leaving the site. Effluent water from purging and on-site equipment cleaning is collected and transported to Shell's Martinez Manufacturing Complex in Martinez, California.

### **Free Product Skimmer**

The column headed, VOLUME OF IMMISCIBLES REMOVED (ml) is included in the TABLE OF WELL GAUGING DATA to cover situations where a free product skimming device must be removed from the well prior to gauging. Skimmers are installed in wells with a free product zone on the surface of the water. The skimmer is a free product recovery device which often prevents normal well gauging and free product zone measurements. The 2.0" and 3.0" PetroTraps fall into the category of devices that obstruct normal gauging. In cases where the consultant elects to have our personnel pull the skimmers out of the well and gauge the well, our personnel perform the additional task of draining the accumulated free product out of the PetroTrap before putting it back in the well. This

recovered free product is measured and logged in the VOLUME OF IMMISCIBLES REMOVED column. Gauging at such site is performed in accordance with specific directions from the professional consulting firm overseeing work at the site on Shell's behalf.

### **Sample Containers**

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

### **Sampling**

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

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

### **Sample Designations**

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

### **Chain of Custody**

Samples are continuously maintained in an appropriate cooled container while in our custody and until delivered to the laboratory under a standard Shell Oil Company chain of custody. If the samples are taken charge of by a different party (such as another person from our office, a courier, etc.) prior to being delivered to the laboratory, appropriate release and acceptance records are made on the chain of custody (time, date, and signature of the person releasing the samples followed by the time, date and signature of the person accepting custody of the samples).

## **Hazardous Materials Testing Laboratory**

The samples obtained at this site were delivered to Sequoia Analytical Laboratory in Redwood City, California. Sequoia Analytical Laboratory is a California Department of Health Services certified Hazardous Materials Testing Laboratory and is listed as DOHS HMTL #1210.

### **Objective Information Collection**

Blaine Tech Services, Inc. performs specialized environmental sampling and documentation as an independent third party. In order to avoid compromising the objectivity necessary for the proper and disinterested performance of this work, Blaine Tech Services, Inc. performs no consulting and does not become involved in the marketing or installation of remedial systems of any kind. Blaine Tech Services, Inc. is concerned only with the generation of objective information, not with the use of that information to support evaluations and recommendations concerning the environmental condition of the site. Even the straightforward interpretation of objective analytical data is better performed by interested regulatory agencies, and those engineers and geologists who are engaged in the work of providing professional opinions about the site and proposals to perform additional investigation or design remedial systems.

### **Reportage**

Submission of this report and the attached laboratory report to interested regulatory agencies is handled by the consultant in charge of the project. Any professional evaluations or recommendations will be made by the consultant under separate cover.

Please call if we can be of any further assistance.

  
Richard C. Blaine

RCB/lp

attachments: table of well gauging data  
chain of custody  
certified analytical report

cc: EMCON Associates  
1433 N. Market Blvd.  
Sacramento, CA 95834-1943  
ATTN: Bob Husk

## 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	5/5/94	TOB	--	NONE	--	--	7.63	19.97
S-3 *	5/5/94	TOB	SHEEN/ODOR	--	--	--	7.35	15.49
S-5	5/5/94	TOB	ODOR	NONE	--	--	7.80	18.46
S-6	5/5/94	TOB	--	NONE	--	--	8.28	24.69
S-7	5/5/94	TOB	--	NONE	--	--	9.99	24.31
S-8	5/5/94	TOB	--	NONE	--	--	7.20	24.20
S-9	5/5/94	TOB	ODOR	NONE	--	--	7.26	17.91
S-10	5/5/94	TOB	--	NONE	--	--	7.31	18.19
S-11	5/5/94	TOB	--	NONE	--	--	8.24	24.00
S-12	5/5/94	TOB	--	NONE	--	--	7.97	24.06
S-13	5/5/94	TOB	--	NONE	--	--	7.45	23.94
S-14	5/5/94	TOB	ODOR	NONE	--	--	7.01	22.94
S-15	5/5/94	TOB	--	NONE	--	--	8.37	23.55
S-16	5/5/94	TOB	--	NONE	--	--	8.31	24.24
S-17	5/5/94	TOB	--	NONE	--	--	7.45	24.36
S-18	5/5/94	TOB	--	NONE	--	--	7.45	18.40
SR-1	5/5/94	TOB	ODOR	NONE	--	--	7.34	21.23

\* Sample DUP was a duplicate sample taken from well S-3

## 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	6/6/94	TOC	ODOR	NONE	--	--	7.40	19.74
S-3	6/6/94	TOC	--	NONE	--	--	6.64	14.85
S-5	6/6/94	TOC	ODOR	NONE	--	--	7.18	17.83
S-6	6/6/94	TOC	ODOR	NONE	--	--	8.60	24.13
S-7	6/6/94	TOC	--	NONE	--	--	7.20	23.74
S-8	6/6/94	TOC	--	NONE	--	--	6.85	23.82
S-9	6/6/94	TOC	--	NONE	--	--	7.03	17.65
S-10	6/6/94	TOC	--	NONE	--	--	6.84	17.70
S-11	6/6/94	TOC	--	NONE	--	--	7.43	23.28
S-12	6/6/94	TOC	--	NONE	--	--	7.21	23.56
S-13	6/6/94	TOC	--	NONE	--	--	7.01	23.29
S-14	6/6/94	TOC	--	NONE	--	--	6.91	22.65
S-15	6/6/94	TOC	--	NONE	--	--	8.35	22.65
S-16	6/6/94	TOC	--	NONE	--	--	7.36	23.58
S-17	6/6/94	TOC	--	NONE	--	--	7.06	23.87
S-18	6/6/94	TOC	--	NONE	--	--	7.11	17.60
SR-1	6/6/94	TOC	--	NONE	--	--	6.81	20.67





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

**CHAIN OF CUSTODY RECORD**

Serial No: 940505-K1

Date: 1/13  
Page: 1 of 3

Site Address: 15275 Washington, San Leandro  
WIC#: 204-6852-1008  
Shell Engineer: Lynn Walker  
Phone No.: (510) 675-6170  
Fax #: 675-6170  
Consultant Name & Address: Blaine Tech Services, Inc. 985 Timothy Drive, San Jose, CA 95133  
Consultant Contact: Jim Keller  
Phone No.: (408) 995-5535  
Fax #: 293-8773  
Comments:

**Analysis Required**

TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	Compliance TPH 8015 & BTEX 8020	Asbestos	Container Size	Preparation Used	Composite Y/N
-------------------------	----------------------------	---------------------	------------------------------	-------------------	---------------------------------	----------	----------------	------------------	---------------

LAB: Serovar

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"/> (Normal)
Water Classify/Disposal <input type="checkbox"/> 6443		Other <input type="checkbox"/>
Soil/Air Rem. or Sys. O & M <input type="checkbox"/> 6445		
Water Rem. or Sys. O & M <input type="checkbox"/> 6445		
Other <input type="checkbox"/>		

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

Sampled by: KEB / KEB  
Printed Name: Keith L Brown / Kent Brown

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	Compliance TPH 8015 & BTEX 8020	Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
S-1	5/5			W		(3)					X						9405391 /	9405392 -01
S-3				W		(3)					X							-02
S-5				W		(3)					X							-03
S-6				W		(3)					X							-04
S-7				W		(3)					X							-05
S-8				W		(3)					X							-06
S-9				W		(3)					X							-07
S-10	Y			W		(3)					X							-08

Relinquished By (signature): <u>[Signature]</u>	Printed Name: <u>Keith L Brown</u>	Date: <u>5-6-94</u>	Time: <u>11:10</u>	Received (signature): <u>[Signature]</u>	Printed Name: <u>Gres Fultcher</u>	Date: <u>5-6-94</u>	Time: <u>9:50</u>
Relinquished By (signature): <u>[Signature]</u>	Printed Name: <u>Gres Fultcher</u>	Date: <u>5-6-94</u>	Time: <u>11:10</u>	Received (signature): <u>[Signature]</u>	Printed Name:	Date:	Time:
Relinquished By (signature):	Printed Name:	Date:	Time:	Received (signature):	Printed Name:	Date:	Time:

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



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

**CHAIN OF CUSTODY RECORD**

Serial No: 940505-K1

Date: 2ol 3

Silo Address: 15275 Washington, San Leandro  
WIC#: 204-6852-1008  
Shell Engineer: Lynn Walker  
Phone No.: (510) 675-6170  
Fax #: 675-6170  
Consultant Name & Address: Blaine Tech Services, Inc. 985 Timothy Drive, San Jose, CA 95133  
Consultant Contact: Jim Keller  
Phone No.: (408) 995-5535  
Fax #: 293-8773

**Analysis Required**

TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/802)	Volatile Organics (EPA 8240)	Test for Disposal	Combination TPH 8015 & BTEX 8020	Asbestos	Container Size	Preparation Used	Composite Y/N

LAB: Serova

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"/>
Soil Classify/Disposal <input type="checkbox"/> 6443		15 days <input checked="" type="checkbox"/> (Normal)
Water Classify/Disposal <input type="checkbox"/> 6443		Other <input type="checkbox"/>
Soil/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 soon as possible of 24/48 hr. 1st.

Comments:  
Sampled by: KCB / KCB  
Printed Name: Keith Brown / Kent Brown

Sample ID	Date	Sludge	Soil	Water	Air	No. of confs.	TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/802)	Volatile Organics (EPA 8240)	Test for Disposal	Combination TPH 8015 & BTEX 8020	Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
S-11	5/5			W		(3)						X					9405391 / 9405392-09	-11
S-12				W		(3)						X						-10
S-13				W		(3)						X						-11
S-14				W		(3)						X						-12
S-15				W		(3)						X						-13
S-16				W		(3)						X						-14
S-17				W		(3)						X						-15
S-18				W		(3)						X						-16

Relinquished by (signature): <u>[Signature]</u>	Printed Name: <u>Keith Brown</u>	Date: <u>5-6-99</u>	Received (signature): <u>[Signature]</u>	Printed Name: <u>GREG FULTCHER</u>	Date: <u>5-6-99</u>
Relinquished by (signature): <u>[Signature]</u>	Printed Name: <u>GREG FULTCHER</u>	Date: <u>5-6-99</u>	Received (signature): <u>[Signature]</u>	Printed Name:	Date: <u>9:30</u>
Relinquished by (signature):	Printed Name:	Date: <u>11:10</u>	Received (signature):	Printed Name:	Date:
Relinquished by (signature):	Printed Name:	Date:	Received (signature):	Printed Name:	Date:



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

**CHAIN OF CUSTODY RECORD**

Serial No: 94050514

Date:   
Page 3 of 3

Site Address: 15275 Washington, San Leandro

WIC#: 204-6852-1008

Shall Engineer: Lynn Walker  
Phone No.: (510) 675-6170  
Fax #: 675-6170

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

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

Comments:

Sampled by: KCB/KEB

Printed Name: Keith Brown / Kent Brown

**Analysis Required**

TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	Combination TPH 8015 & BTEX 8020	Asbestos	Container Size	Preparation Used	Composite Y/N

LAB: Sequerra

CHECK ONE (1) BOX ONLY	CI/OT	TURN AROUND TIME
Quality Monitoring <input checked="" type="checkbox"/>	6441	24 hours <input type="checkbox"/>
Site Investigation <input type="checkbox"/>	6441	48 hours <input type="checkbox"/>
Soil Cleanup/Disposal <input type="checkbox"/>	6442	15 days <input checked="" type="checkbox"/> (Normal)
Water Cleanup/Disposal <input type="checkbox"/>	6443	Other <input type="checkbox"/>
Soil/Air Rem. or Sys. O & M <input type="checkbox"/>	6462	
Water Rem. or Sys. O & M <input type="checkbox"/>	6463	
Other <input type="checkbox"/>		

NOTE: Notify Lab 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	Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS	
SR-1	5/5			W		3											26g -17	9405391 9405392	
DUP	↓			W		3												-17 -18	
EB	↓			W		3												-18 -19	
TB	↓			W		2												-19 -20	

Released by (signature): <u>[Signature]</u>	Printed Name: <u>Keith Brown</u>	Date: <u>5-6-94</u>	Received (signature): <u>[Signature]</u>	Printed Name: <u>Gres Fultcher</u>	Date: <u>5-6-94</u>
Released by (signature): <u>[Signature]</u>	Printed Name: <u>Gres Fultcher</u>	Date: <u>5-6-94</u>	Received (signature): <u>[Signature]</u>	Printed Name:	Date:
Released by (signature):	Printed Name:	Date:	Received (signature):	Printed Name:	Date:

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



# Sequoia Analytical

680 Chesapeake Drive  
1900 Bates Avenue, Suite L  
819 Striker Avenue, Suite 8

Redwood City, CA 94063  
Concord, CA 94520  
Sacramento, CA 95834

(415) 364-9600  
(510) 686-9600  
(916) 921-9600

FAX (415) 364-9233  
FAX (510) 686-9689  
FAX (916) 921-0100

Blaine Tech Services, Inc.  
985 Timothy Drive  
San Jose, CA 95133  
Attention: Jim Keller

Project: 940505-K1, Shell, 15275 Washington

Enclosed are the results from 20 water samples received at Sequoia Analytical on May 6, 1994. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
4E39101	Water, S-1	5/5/94	EPA 5030/8015 Mod./8020
4E39102	Water, S-3	5/5/94	EPA 5030/8015 Mod./8020
4E39103	Water, S-5	5/5/94	EPA 5030/8015 Mod./8020
4E39104	Water, S-6	5/5/94	EPA 5030/8015 Mod./8020
4E39105	Water, S-7	5/5/94	EPA 5030/8015 Mod./8020
4E39106	Water, S-8	5/5/94	EPA 5030/8015 Mod./8020
4E39107	Water, S-9	5/5/94	EPA 5030/8015 Mod./8020
4E39108	Water, S-10	5/5/94	EPA 5030/8015 Mod./8020
4E39109	Water, S-11	5/5/94	EPA 5030/8015 Mod./8020
4E39110	Water, S-12	5/5/94	EPA 5030/8015 Mod./8020
4E39111	Water, S-13	5/5/94	EPA 5030/8015 Mod./8020
4E39112	Water, S-14	5/5/94	EPA 5030/8015 Mod./8020
4E39113	Water, S-15	5/5/94	EPA 5030/8015 Mod./8020
4E39114	Water, S-16	5/5/94	EPA 5030/8015 Mod./8020
4E39115	Water, S-17	5/5/94	EPA 5030/8015 Mod./8020
4E39116	Water, S-18	5/5/94	EPA 5030/8015 Mod./8020
4E39117	Water, SR-1	5/5/94	EPA 5030/8015 Mod./8020
4E39118	Water, DUP	5/5/94	EPA 5030/8015 Mod./8020





# Sequoia Analytical

680 Chesapeake Drive  
1900 Bates Avenue, Suite L  
819 Striker Avenue, Suite 8

Redwood City, CA 94063  
Concord, CA 94520  
Sacramento, CA 95834

(415) 364-9600  
(510) 686-9600  
(916) 921-9600

FAX (415) 364-9233  
FAX (510) 686-9689  
FAX (916) 921-0100

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
4E39119	Water, EB	5/5/94	EPA 5030/8015 Mod./8020
4E39220	Water, TB	5/5/94	EPA 5030/8015 Mod./8020

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

Suzanne Chin  
Project Manager





Blaine Tech Services, Inc. 985 Timothy Drive San Jose, CA 95133 Attention: Jim Keller	Client Project ID: 940505-K1, Shell, 15275 Washington Sample Matrix: Water Analysis Method: EPA 5030/8015 Mod./8020 First Sample #: 4E39101	Sampled: May 5, 1994 Received: May 6, 1994 Reported: May 17, 1994
--	--	---

**TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION**

Analyte	Reporting Limit µg/L	Sample I.D. 4E39101 S-1	Sample I.D. 4E39102 S-3	Sample I.D. 4E39103 S-5	Sample I.D. 4E39104 S-6	Sample I.D. 4E39105 S-7	Sample I.D. 4E39106 S-8
Purgeable Hydrocarbons	50	57	36,000	24,000	N.D.	92	120
Benzene	0.50	3.9	1,100	670	N.D.	2.1	13
Toluene	0.50	N.D.	490	70	N.D.	N.D.	N.D.
Ethyl Benzene	0.50	1.9	1,600	1,400	N.D.	N.D.	N.D.
Total Xylenes	0.50	1.9	4,700	2,700	N.D.	N.D.	N.D.
Chromatogram Pattern:		C6 - C12	C6 - C12	C6 - C12	--	C6 - C12	C6 - C12

**Quality Control Data**

Report Limit Multiplication Factor:	1.0	100	50*	1.0	1.0	1.0
Date Analyzed:	5/10/94	5/11/94	5/11/94	5/10/94	5/10/94	5/10/94
Instrument Identification:	GCHP-17	GCHP-17	GCHP-17	GCHP-2	GCHP-2	GCHP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	89	93	78	85	103	103

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

**SEQUOIA ANALYTICAL**

Suzanne Chin  
Project Manager





Blaine Tech Services, Inc.  
985 Timothy Drive  
San Jose, CA 95133  
Attention: Jim Keller

Client Project ID: 940505-K1, Shell, 15275 Washington  
Sample Matrix: Water  
Analysis Method: EPA 5030/8015 Mod./8020  
First Sample #: 4E39107

Sampled: May 5, 1994  
Received: May 6, 1994  
Reported: May 17, 1994

**TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION**

Analyte	Reporting Limit µg/L	Sample I.D. 4E39107 S-9	Sample I.D. 4E39108 S-10	Sample I.D. 4E39109 S-11	Sample I.D. 4E39110 S-12	Sample I.D. 4E39111 S-13	Sample I.D. 4E39112 S-14
Purgeable Hydrocarbons	50	3,700	N.D.	N.D.	N.D.	N.D.	810
Benzene	0.50	480	N.D.	N.D.	2.0	N.D.	250
Toluene	0.50	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.50	21	N.D.	N.D.	N.D.	N.D.	9.4
Total Xylenes	0.50	120	N.D.	N.D.	N.D.	N.D.	19
Chromatogram Pattern:		C6 - C12	--	--	C6	--	C6 - C12

**Quality Control Data**

Report Limit Multiplication Factor:	10	1.0	1.0	1.0	1.0	5.0
Date Analyzed:	5/11/94	5/10/94	5/10/94	5/11/94	5/11/94	5/12/94
Instrument Identification:	GCHP-17	GCHP-2	GCHP-2	GCHP-17	GCHP-17	GCHP-3
Surrogate Recovery, %: (QC Limits = 70-130%)	95	92	92	92	91	105

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

**SEQUOIA ANALYTICAL**

  
Suzanne Chin  
Project Manager





Blaine Tech Services, Inc.  
985 Timothy Drive  
San Jose, CA 95133  
Attention: Jim Keller

Client Project ID: 940505-K1, Shell, 15275 Washington  
Sample Matrix: Water  
Analysis Method: EPA 5030/8015 Mod./8020  
First Sample #: 4E39113

Sampled: May 5, 1994  
Received: May 6, 1994  
Reported: May 17, 1994

**TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION**

Analyte	Reporting Limit µg/L	Sample I.D. 4E39113 S-15	Sample I.D. 4E39114 S-16	Sample I.D. 4E39115 S-17	Sample I.D. 4E39116 S-18	Sample I.D. 4E39117 SR-1	Sample I.D. 4E39118 DUP
Purgeable Hydrocarbons	50	N.D.	71	N.D.	N.D.	43,000	43,000
Benzene	0.50	N.D.	25	N.D.	N.D.	1,500	1,000
Toluene	0.50	N.D.	N.D.	N.D.	N.D.	130	450
Ethyl Benzene	0.50	N.D.	N.D.	N.D.	N.D.	2,900	1,600
Total Xylenes	0.50	N.D.	4.2	N.D.	N.D.	12,000	4,500
Chromatogram Pattern:		--	C6 - C12	--	--	C6 - C12	C6 - C12

**Quality Control Data**

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	100	50
Date Analyzed:	5/11/94	5/11/94	5/11/94	5/11/94	5/13/94	5/12/94
Instrument Identification:	GCHP-2	GCHP-2	GCHP-2	GCHP-2	GCHP-3	GCHP-17
Surrogate Recovery, %: (QC Limits = 70-130%)	93	90	93	83	130	122

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

**SEQUOIA ANALYTICAL**

  
Suzanne Chin  
Project Manager







Blaine Tech Services, Inc. 985 Timothy Drive San Jose, CA 95133 Attention: Jim Keller	Client Project ID: 940505-K1, Shell, 15275 Washington Sample Matrix: Water Analysis Method: EPA 5030/8015 Mod./8020 First Sample #: 4E39119	Sampled: May 5, 1994 Received: May 6, 1994 Reported: May 17, 1994
--	--	---

**TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION**

Analyte	Reporting Limit µg/L	Sample I.D. 4E39119 EB	Sample I.D. 4E39220 TB
Purgeable Hydrocarbons	50	N.D.	N.D.
Benzene	0.50	N.D.	N.D.
Toluene	0.50	N.D.	N.D.
Ethyl Benzene	0.50	N.D.	N.D.
Total Xylenes	0.50	N.D.	N.D.
Chromatogram Pattern:		--	--

**Quality Control Data**

Report Limit Multiplication Factor:	1.0	1.0
Date Analyzed:	5/11/94	5/9/94
Instrument Identification:	GCHP-17	GCHP-17
Surrogate Recovery, %: (QC Limits = 70-130%)	86	102

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

**SEQUOIA ANALYTICAL**

  
Suzanne Chin  
Project Manager





Blaine Tech Services, Inc.  
985 Timothy Drive  
San Jose, CA 95133  
Attention: Jim Keller

Client Project ID: 940505-K1, Shell, 15275 Washington  
Matrix: Liquid

QC Sample Group: 4E39101

Reported: May 17, 1994

**QUALITY CONTROL DATA REPORT**

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	J. Minkel	J. Minkel	J. Minkel	J. Minkel

**MS/MSD**

Batch#: 4E41404      4E41404      4E41404      4E41404

Date Prepared: -      -      -      -  
Date Analyzed: 5/10/94      5/10/94      5/10/94      5/10/94  
Instrument I.D.#: GCHP-17      GCHP-17      GCHP-17      GCHP-17  
Conc. Spiked: 10 µg/L      10 µg/L      10 µg/L      30 µg/L

Matrix Spike % Recovery: 97      94      95      97

Matrix Spike Duplicate % Recovery: 90      87      86      90

Relative % Difference: 7.5      7.7      9.9      7.5

LCS Batch#: -      -      -      -

Date Prepared: -      -      -      -  
Date Analyzed: -      -      -      -  
Instrument I.D.#: -      -      -      -

LCS % Recovery: -      -      -      -

% Recovery Control Limits:	71-133	72-128	72-130	71-120
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SEQUOIA ANALYTICAL

Suzanne Chin  
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.





Blaine Tech Services, Inc.  
985 Timothy Drive  
San Jose, CA 95133  
Attention: Jim Keller

Client Project ID: 940505-K1, Shell, 15275 Washington  
Matrix: Liquid

QC Sample Group: 4E39102-03, 07, 10-11, 18, 19

Reported: May 17, 1994

**QUALITY CONTROL DATA REPORT**

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	J. Minkel	J. Minkel	J. Minkel	J. Minkel

**MS/MSD**

Batch#: 4E39115      4E39115      4E39115      4E39115

Date Prepared: -      -      -      -  
Date Analyzed: 5/11/94      5/11/94      5/11/94      5/11/94  
Instrument I.D.#: GCHP-17      GCHP-17      GCHP-17      GCHP-17  
Conc. Spiked: 10 µg/L      10 µg/L      10 µg/L      30 µg/L

**Matrix Spike**

% Recovery: 100      100      99      100

**Matrix Spike Duplicate %**

Recovery: 89      89      90      90

**Relative %**

Difference: 12      12      9.5      11

LCS Batch#: -      -      -      -

Date Prepared: -      -      -      -  
Date Analyzed: -      -      -      -  
Instrument I.D.#: -      -      -      -

**LCS %**

Recovery: -      -      -      -

% Recovery Control Limits:	71-133	72-128	72-130	71-120
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**SEQUOIA ANALYTICAL**

  
Suzanne Chin  
Project Manager

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Blaine Tech Services, Inc.  
985 Timothy Drive  
San Jose, CA 95133  
Attention: Jim Keller

Client Project ID: 940505-K1, Shell, 15275 Washington  
Matrix: Liquid

QC Sample Group: 4E39104-06, 08-09, 13-16

Reported: May 17, 1994

**QUALITY CONTROL DATA REPORT**

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	J. Minkel	J. Minkel	J. Minkel	J. Minkel

**MS/MSD**

Batch#: 4E11402      4E11402      4E11402      4E11402

Date Prepared: -      -      -      -  
Date Analyzed: 5/10/94      5/10/94      5/10/94      5/10/94  
Instrument I.D.#: GCHP-2      GCHP-2      GCHP-2      GCHP-2  
Conc. Spiked: 10 µg/L      10 µg/L      10 µg/L      30 µg/L

Matrix Spike  
% Recovery: 100      100      100      103

Matrix Spike  
Duplicate %  
Recovery: 110      110      110      110

Relative %  
Difference: 9.5      9.5      9.5      6.6

LCS Batch#: -      -      -      -  
Date Prepared: -      -      -      -  
Date Analyzed: -      -      -      -  
Instrument I.D.#: -      -      -      -  
LCS %  
Recovery: -      -      -      -

% Recovery Control Limits:	71-133	72-128	72-130	71-120
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SEQUOIA ANALYTICAL

*Suzanne Chin*  
Suzanne Chin  
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.





Blaine Tech Services, Inc.  
985 Timothy Drive  
San Jose, CA 95133  
Attention: Jim Keller

Client Project ID: 940505-K1, Shell, 15275 Washington  
Matrix: Liquid

QC Sample Group: 4E39112, 17

Reported: May 17, 1994

**QUALITY CONTROL DATA REPORT**

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	J. Minkel	J. Minkel	J. Minkel	J. Minkel

**MS/MSD**

Batch#: 4E36707      4E36707      4E36707      4E36707

Date Prepared: -      -      -      -  
Date Analyzed: 5/12/94      5/12/94      5/12/94      5/12/94  
Instrument I.D.#: GCHP-3      GCHP-3      GCHP-3      GCHP-3  
Conc. Spiked: 10 µg/L      10 µg/L      10 µg/L      30 µg/L

Matrix Spike  
% Recovery: 100      100      100      103

Matrix Spike  
Duplicate %  
Recovery: 100      110      100      107

Relative %  
Difference: 0.0      9.5      0.0      3.8

LCS Batch#: -      -      -      -  
Date Prepared: -      -      -      -  
Date Analyzed: -      -      -      -  
Instrument I.D.#: -      -      -      -  
LCS %  
Recovery: -      -      -      -

% Recovery Control Limits:	71-133	72-128	72-130	71-120
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SEQUOIA ANALYTICAL

Suzanne Chin  
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.





Blaine Tech Services, Inc.  
985 Timothy Drive  
San Jose, CA 95133  
Attention: Jim Keller

Client Project ID: 940505-K1, Shell, 15275 Washington  
Matrix: Liquid

QC Sample Group: 4E39220

Reported: May 17, 1994

**QUALITY CONTROL DATA REPORT**

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	J. Minkel	J. Minkel	J. Minkel	J. Minkel

**MS/MSD**

Batch#: 4DH7901      4DH7901      4DH7901      4DH7901

Date Prepared: -      -      -      -  
Date Analyzed: 5/9/94      5/9/94      5/9/94      5/9/94  
Instrument I.D.#: GCHP-17      GCHP-17      GCHP-17      GCHP-17  
Conc. Spiked: 10 µg/L      10 µg/L      10 µg/L      30 µg/L

Matrix Spike  
% Recovery: 99      100      98      100

Matrix Spike  
Duplicate %  
Recovery: 94      94      91      93

Relative %  
Difference: 5.2      6.2      7.4      7.3

LCS Batch#: -      -      -      -

Date Prepared: -      -      -      -  
Date Analyzed: -      -      -      -  
Instrument I.D.#: -      -      -      -

LCS %  
Recovery: -      -      -      -

% Recovery Control Limits:	71-133	72-128	72-130	71-120
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**SEQUOIA ANALYTICAL**

*Suzanne Chin*  
Suzanne Chin  
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.



## WELL GAUGING DATA

Project # 940606F3 Date 6-6-94 Client Shell

Site 15275 WASHINGTON SAN LEANDRO CA.

Well I.D.	Well Size (in.)	Sheen/Odor	Depth to Immiscible Liquid (feet)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to Water (feet)	Depth to Well Bottom (feet)	Survey Point: TOB or TOC
S 1	3"	ODOR				7.40	19.74	TOC
S 3						6.64	14.85	
S 5		ODOR				7.18	17.83	
S 6		ODOR				8.60	24.13	
S 7						7.20	23.74	
S 8						6.85	23.82	
S 9						7.03	17.65	
S 10						6.84	17.70	
S 11						7.43	23.28	
S 12						7.21	23.56	
S 13						7.01	23.29	
S 14						6.91	22.65	
S 15						8.35	22.65	
S 16						7.36	23.58	
S 17	✓					7.06	23.87	





## WELL GAUGING DATA

Project # 940505-K1      Date 5/5/94      Client Shell

Site 15275 Washington, San Leandro

Well I.D.	Well Size (in.)	Sheen/Odor	Depth to Immiscible Liquid (feet)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to Water (feet)	Depth to Well Bottom (feet)	Survey Point: TOB or TOC
S-1	3					763	1997	TOB
S-3	3	odor				735	1549	
S-5	4	odor				7.80	1846	
S-6	3					828	2469	
S-7	3					9.99	24.31	
S-8	3					7.20	2420	
S-9	3	odor				7.26	17.91	
S-10	3					7.31	18.19	
S-11	3					8.24	24.00	
S-12	3					7.97	24.06	
S-13	3					7.45	23.94	
S-14	3	odor				7.01	22.94	
S-15	3					8.37	23.55	
S-16	3					8.31	24.24	
S-17	3					7.45	24.36	↓



# SHELL WELL MONITORING DATA SHEET

Project #: <u>940505-K1</u>	Wic # <u>204-6852-1008</u>
Sampler: <u>KCA/KEB</u>	Date Sampled: <u>5/5</u>
Well I.D.: <u>S-1</u>	Well Diameter: (circle one) 2 <u>(3)</u> 4 6
Total Well Depth: Before <u>1997</u> After	Depth to Water: Before <u>763</u> After
Depth to Free Product: _____	Thickness of Free Product (feet): _____
Measurements referenced to:	PVC <input type="checkbox"/> <u>Grade</u> <input checked="" type="checkbox"/> Other -- <input type="checkbox"/>

Volume Conversion Factor (VCF):  
 $(12 \times (d^2/n) \times \pi) / 231$   
 Where:  
 12 = in./foot  
 d = diameter (in.)  
 n = 3.1416  
 231 = gal./cu ft

Well dia.	VCF
2"	0.24
3"	0.27
4"	0.45
6"	1.02
8"	1.36
10"	1.57

<u>4.5</u>	x	<u>3</u>	=	<u>13.5</u>
1 Case Volume		Specified Volumes		gallons

Purging: Bailer  Middleburg  Electric Submersible  Suction Pump  Type of Installed Pump \_\_\_\_\_

Sampling: Bailer  Middleburg  Electric Submersible  Suction Pump  Installed Pump

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
<u>1143</u>	<u>72.6</u>	<u>7.2</u>	<u>1200</u>	<u>7200</u>	<u>4.5</u>	
<u>1145</u>	<u>70.8</u>	<u>7.2</u>	<u>1200</u>	<u>7200</u>	<u>9.0</u>	
<u>1147</u>	<u>70.2</u>	<u>7.2</u>	<u>1200</u>	<u>7200</u>	<u>14.</u>	

Did Well Dewater? No if yes, gals. Gallons Actually Evacuated: 14.

Sampling Time: 1735

Sample I.D.: S-1 Laboratory: Suf

Analyzed for: TPHC, BTEX

Duplicate I.D.: \_\_\_\_\_ Cleaning Blank I.D.: \_\_\_\_\_

Analyzed for: \_\_\_\_\_

Shipping Notations: \_\_\_\_\_

Additional Notations: \_\_\_\_\_

# SHELL WELL MONITORING DATA SHEET

Project #: <u>94055-K1</u>	Wic # <u>204-6852-1008</u>
Sampler: <u>KEB, KEB</u>	Date Sampled: <u>5/5/94</u>
Well I.D.: <u>5-3</u>	Well Diameter: (circle one) 2 <u>(3)</u> 4 6
Total Well Depth: Before <u>15.49</u> After	Depth to Water: Before <u>7.35</u> After
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to:	PVC <input type="checkbox"/> <u>Grade</u> <input checked="" type="checkbox"/> Other -- <input type="checkbox"/>

Volume Conversion Factor (VCF):  
 $VCF = (d^2/4) \times \pi / 2.31$   
 where:  
 V = Volume (gals)  
 d = diameter (in.)  
 h = height (ft)  
 2.31 = conversion factor

Well dia.	VCF
2"	0.16
3"	0.37
4"	0.68
6"	1.49
8"	2.68
10"	4.04
12"	6.07

<u>3.0</u>	x	<u>3</u>	=	<u>9.0</u>
1 Case Volume		Specified Volumes		gallons

Purging: Bailer  Middleburg  Electric Submersible  Suction Pump  Type of Installed Pump \_\_\_\_\_

Sampling: Bailer  Middleburg  Electric Submersible  Suction Pump  Installed Pump

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
<u>1534</u>	<u>43.4</u>	<u>6.7</u>	<u>1200</u>	<u>104.1</u>	<u>3.0</u>	<u>GAS ODOR</u>
<u>1536</u>	<u>41.8</u>	<u>6.7</u>	<u>1100</u>	<u>112.3</u>	<u>6.0</u>	<u>GREEN</u>
<u>1538</u>	<u>40.8</u>	<u>6.6</u>	<u>1200</u>	<u>185.5</u>	<u>9.0</u>	

Did Well Dewater?  If yes, gals. \_\_\_\_\_ Gallons Actually Evacuated: 9

Sampling Time: 1542

Sample I.D.: 5-3 Laboratory: SEG

Analyzed for: TPH-6, BTEX

Duplicate I.D.: DUP Cleaning Blank I.D.: \_\_\_\_\_

Analyzed for: TPH-6, BTEX DUP AT 5-3

Shipping Notations: 1542

Additional Notations: \_\_\_\_\_

# SHELL WELL MONITORING DATA SHEET

Project #: <u>94055-K1</u>	Wic # <u>94055-204-6852-1004</u>
Sampler: <u>KCB, KEB</u>	Date Sampled: <u>5/5/94</u>
Well I.D.: <u>S-5</u>	Well Diameter: (circle one) 2 3 <u>4</u> 6
Total Well Depth: Before <u>18.46</u> After	Depth to Water: Before <u>7.80</u> After
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to:	PVC <input type="checkbox"/> <u>Grade</u> <input checked="" type="checkbox"/> Other -- <input type="checkbox"/>

Volume Conversion Factor (VCF):  
 $(\pi \times (d^2/4) \times n) / 231$   
 Where  
 $\pi = 3.1416$   
 $d = \text{diameter (in.)}$   
 $n = 2.31 \text{ ft/gal}$   
 $231 = \text{gal/cu ft}$

Well dia.	VCF
2"	0.16
3"	0.37
4"	0.48
6"	1.17
10"	4.68
12"	8.37

<u>6.9</u>	x	<u>3</u>	=	<u>20.8</u>
1 Case Volume		Specified Volumes		gallons

Purging: Bailer  Middleburg  Electric Submersible  Suction Pump  Type of Installed Pump \_\_\_\_\_

Sampling: Bailer  Middleburg  Electric Submersible  Suction Pump  Installed Pump

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
<u>1449</u>	<u>71.6</u>	<u>6.8</u>	<u>1200</u>	<u>104.7</u>	<u>7.</u>	<u>GAS ODOR</u>
<u>1451</u>	<u>70.6</u>	<u>6.7</u>	<u>1200</u>	<u>145.4</u>	<u>14.</u>	
<u>1453</u>	<u>70.8</u>	<u>6.7</u>	<u>1200</u>	<u>7200</u>	<u>21.</u>	

Did Well Dewater?  If yes, gals. \_\_\_\_\_ Gallons Actually Evacuated: 21

Sampling Time: 1458

Sample I.D.: S-5 Laboratory: 619

Analyzed for: PH-6, BTEX

Duplicate I.D.: \_\_\_\_\_ Cleaning Blank I.D.: \_\_\_\_\_

Analyzed for: \_\_\_\_\_

Shipping Notations: \_\_\_\_\_

Additional Notations: \_\_\_\_\_

# SHELL WELL MONITORING DATA SHEET

Project #: <u>940505-1C1</u>	Wic # <u>204-6852-1008</u>
Sampler: <u>1C1B/1C1B</u>	Date Sampled: <u>5/5</u>
Well I.D.: <u>S-6</u>	Well Diameter: (circle one) 2 <u>(3)</u> 4 6
Total Well Depth: Before <u>24.64</u> After	Depth to Water: Before <u>8.28</u> After
Depth to Free Product: _____	Thickness of Free Product (feet): _____
Measurements referenced to:	PVC <input type="checkbox"/> <u>Grade</u> <input checked="" type="checkbox"/> Other -- <input type="checkbox"/>

Volume Conversion Factor (VCF):  
 $(\pi \times (d^2/4) \times h) / 231$   
 where  
 $\pi = 3.1416$   
 $d = \text{diameter (in.)}$   
 $h = \text{height (ft)}$

Well dia.	VCF
2"	0.24
3"	0.37
4"	0.49
6"	1.47
8"	4.08
12"	1.17

<u>6.0</u>	$\times$	<u>3</u>	$=$	<u>18</u>
1 Case Volume		Specified Volumes		gallons

Purging: Bailer  Middleburg  Electric Submersible  Suction Pump  Type of Installed Pump \_\_\_\_\_

Sampling: Bailer  Middleburg  Electric Submersible  Suction Pump  Installed Pump

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
<u>1110</u>	<u>69.0</u>	<u>7.4</u>	<u>1200</u>	<u>&gt;200</u>	<u>6</u>	
<u>1112</u>	<u>68.8</u>	<u>7.3</u>	<u>1200</u>	<u>&gt;200</u>	<u>12</u>	
<u>1114</u>	<u>68.8</u>	<u>7.3</u>	<u>1200</u>	<u>&gt;200</u>	<u>18</u>	

Did Well Dewater?  If yes, gals. ← Gallons Actually Evacuated: 18

Sampling Time: 1120

Sample I.D.: S-6 Laboratory: Scy

Analyzed for: TPHC, BTEX

Duplicate I.D.: \_\_\_\_\_ Cleaning Blank I.D.: \_\_\_\_\_

Analyzed for: \_\_\_\_\_

Shipping Notations: \_\_\_\_\_

Additional Notations: \_\_\_\_\_

# SHELL WELL MONITORING DATA SHEET

Project #: <u>94055-K1</u>	Wic # <u>204-6852-1000</u>
Sampler: <u>KLB, KEB</u>	Date Sampled: <u>5/5/94</u>
Well I.D.: <u>S-M</u>	Well Diameter: (circle one) 2 <u>3</u> 4 6
Total Well Depth: Before <u>24.31</u> After	Depth to Water: Before <u>9.99</u> After
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to: PVC <u>grade</u> Other --	

Volume Conversion Factor (VCF):  
 $(\pi \times (d^2/4) \times n) / 231$   
 where:  
 $\pi = 3.1416$   
 $d = \text{diameter (in.)}$   
 $n = 1.3148$   
 $231 = \text{in}^3/\text{gal}$

Well dia.	VCF
2"	0.26
3"	0.37
4"	0.48
6"	0.67
8"	0.90
10"	1.17

<u>5.3</u>	x	<u>3</u>	=	<u>15.9</u>
1 Case Volume		Specified Volumes		gallons

Purging: Bailer <input type="checkbox"/> Middleburg <input type="checkbox"/> Electric Submersible <input checked="" type="checkbox"/> Suction Pump <input type="checkbox"/> Type of Installed Pump _____	Sampling: Bailer <input checked="" type="checkbox"/> Middleburg <input type="checkbox"/> Electric Submersible <input type="checkbox"/> Suction Pump <input type="checkbox"/> Installed Pump <input type="checkbox"/>
--	--

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
<u>1201</u>	<u>74.6</u>	<u>7.0</u>	<u>1400</u>	<u>7200</u>	<u>5.5</u>	
<u>1203</u>	<u>74.2</u>	<u>7.0</u>	<u>1400</u>	<u>7200</u>	<u>11.0</u>	
<u>1206</u>	<u>73.2</u>	<u>7.0</u>	<u>1400</u>	<u>7200</u>	<u>16.0</u>	

Did Well Dewater? NO If yes, gals.      Gallons Actually Evacuated: 16.0

Sampling Time: 1208

Sample I.D.: S-17      Laboratory: sequoia

Analyzed for: BPH-6, BTEX

Duplicate I.D.:      Cleaning Blank I.D.:

Analyzed for:

Shipping Notations:

Additional Notations:

# SHELL WELL MONITORING DATA SHEET

Project #: <u>Q4055-K1</u>	Wic # <u>204-6852-1008</u>
Sampler: <u>KCB, KEB</u>	Date Sampled: <u>5/5/94</u>
Well I.D.: <u>5-8</u>	Well Diameter: (circle one) 2 <u>(3)</u> 4 6
Total Well Depth: Before <u>24.20</u> After	Depth to Water: Before <u>7.20</u> After
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to:	PVC <input type="checkbox"/> <u>Grade</u> <input checked="" type="checkbox"/> Other -- <input type="checkbox"/>

Volume Conversion Factor (VCF):  
 $VCF = (d^2/4) \times \pi / 2.31$   
 where:  
 d = diameter (in.)  
 $\pi = 3.1416$   
 2.31 = ft<sup>3</sup>/gal

Well dia.	VCF
2"	0.16
3"	0.37
4"	0.61
6"	1.47
8"	3.28
10"	5.17

<u>6.3</u>	x	<u>3</u>	=	<u>18.9</u>
1 Case Volume		Specified Volumes		gallons

Purging: Bailer  Middleburg  Electric Submersible  Suction Pump  Type of Installed Pump \_\_\_\_\_

Sampling: Bailer  Middleburg  Electric Submersible  Suction Pump  Installed Pump

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
<u>1344</u>	<u>72.6</u>	<u>6.8</u>	<u>1600</u>	<u>7200</u>	<u>6.5</u>	
<u>1346</u>	<u>73.8</u>	<u>6.8</u>	<u>1800</u>	<u>7200</u>	<u>13</u>	
<u>1348</u>	<u>73.4</u>	<u>7.0</u>	<u>1600</u>	<u>7200</u>	<u>19.</u>	

Did Well Dewater? NO If yes, gals. Gallons Actually Evacuated: 19

Sampling Time: 1352

Sample I.D.: 5-8 Laboratory: 629.

Analyzed for: TPH-G, BTEX

Duplicate I.D.: \_\_\_\_\_ Cleaning Blank I.D.: \_\_\_\_\_

Analyzed for: \_\_\_\_\_

Shipping Notations: \_\_\_\_\_

Additional Notations: \_\_\_\_\_



# SHELL WELL MONITORING DATA SHEET

Project #: <u>94055-K1</u>	Wic # <u>204-6852-1008</u>
Sampler: <u>KCB, LEB</u>	Date Sampled: <u>5/5/94</u>
Well I.D.: <u>5-9</u>	Well Diameter: (circle one) 2 <u>(3)</u> 4 6
Total Well Depth: Before <u>17.91</u> After	Depth to Water: Before <u>7.26</u> After
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to:	PVC <input type="checkbox"/> <u>Grade</u> <input checked="" type="checkbox"/> Other -- <input type="checkbox"/>

Volume Conversion Factor (VCF):  
 $VCF = (d^2/4) \times \pi / 2.31$   
 Where:  
 $d = \text{in./feet}$   
 $d = \text{diameter (in.)}$   
 $\pi = 3.1416$   
 $2.31 = \text{in./ft}$

Well dia.	VCF
2"	0.24
3"	0.37
4"	0.51
6"	1.17
8"	2.04
12"	4.17

<u>3.9</u>	x	<u>3</u>	=	<u>11.8</u>
1 Case Volume		Specified Volumes		gallons

Purging: Bailer  Middleburg  Electric Submersible  Suction Pump  Type of Installed Pump \_\_\_\_\_

Sampling: Bailer  Middleburg  Electric Submersible  Suction Pump  Installed Pump

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
<u>1427</u>	<u>72.2</u>	<u>6.8</u>	<u>1400</u>	<u>7200</u>	<u>4</u>	<u>GAS ODOR</u>
<u>1429</u>	<u>72.6</u>	<u>6.8</u>	<u>1500</u>	<u>7200</u>	<u>8</u>	
<u>1431</u>	<u>72.2</u>	<u>6.8</u>	<u>1600</u>	<u>7200</u>	<u>12</u>	

Did Well Dewater? NO If yes, gals. Gallons Actually Evacuated: 12

Sampling Time: 1435

Sample I.D.: 5-9 Laboratory: 509.

Analyzed for: TPH-G, BTEX

Duplicate I.D.: \_\_\_\_\_ Cleaning Blank I.D.: \_\_\_\_\_

Analyzed for: \_\_\_\_\_

Shipping Notations: \_\_\_\_\_

Additional Notations: \_\_\_\_\_

# SHELL WELL MONITORING DATA SHEET

Project #: 94055-21	Wic # 204-6852-1008
Sampler: KEB, KEB	Date Sampled: 5/5/94
Well I.D.: 5-10	Well Diameter: (circle one) 2 <u>3</u> 4 6
Total Well Depth: Before 18.19 After	Depth to Water: Before 7.31 After
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to:	PVC <u>Grade</u> Other --

Volume Conversion Factor (VEF):  
 $VEF = (d^2/4) \times \pi / 2.31$   
 where:  
 V = Volume  
 d = diameter (in.)  
 π = 3.1416  
 2.31 = ft<sup>2</sup>/gal

Well dia.	VEF
2"	0.26
3"	0.37
4"	0.48
6"	1.07
8"	1.66
12"	3.17

4.0	x	3	=	12.0
1 Case Volume		Specified Volumes		gallons

Purging: Bailer  Middleburg  Electric Submersible  Suction Pump  Type of Installed Pump \_\_\_\_\_

Sampling: Bailer  Middleburg  Electric Submersible  Suction Pump  Installed Pump

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
1321	70.6	7.2	1000	7200	4	
1322	68.2	7.1	1000	7200	8	
1324	69.6	7.0	1000	7200	12	

Did Well Dewater? NO If yes, gals. Gallons Actually Evacuated: 12.

Sampling Time: 1330

Sample I.D.: 5-10 Laboratory: Seq.

Analyzed for: TPH-6, BTEX

Duplicate I.D.: \_\_\_\_\_ Cleaning Blank I.D.: \_\_\_\_\_

Analyzed for: \_\_\_\_\_

Shipping Notations: \_\_\_\_\_

Additional Notations: \_\_\_\_\_

# SHELL WELL MONITORING DATA SHEET

Project #: <u>940505-1C1</u>	Wic # <u>204-6852-1008</u>
Sampler: <u>1CGB/1CER</u>	Date Sampled: <u>5/5</u>
Well I.D.: <u>S-11</u>	Well Diameter: (circle one) 2 <u>3</u> 4 6
Total Well Depth: Before <u>24.00</u> After	Depth to Water: Before <u>8.24</u> After
Depth to Free Product: _____	Thickness of Free Product (feet): _____
Measurements referenced to: PVC <u>Grade</u> Other --	

Volume Conversion Factor (VCF):  
 $VCF = (d^2/n) \times 7.48$   
 where  
 $d = \text{in./foot}$   
 $n = \text{diameter (in.)}$   
 $n = 3.1416$   
 $7.48 = \text{gal./cu. ft.}$

Well dia.	VCF
2"	0.26
3"	0.37
4"	0.48
6"	1.07
8"	1.66
12"	3.87

4.3      x      3      =      12.9  
 1 Case Volume                      Specified Volumes                      gallons

Purging: Bailer                       Sampling: Bailer   
 Middleburg                                       Middleburg   
 Electric Submersible                       Electric Submersible   
 Suction Pump                                       Suction Pump   
 Type of Installed Pump \_\_\_\_\_                      Installed Pump

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
<u>1047</u>	<u>67.8</u>	<u>7.4</u>	<u>1400</u>	<u>&gt;200</u>	<u>5</u>	
<u>1049</u>	<u>67.6</u>	<u>7.4</u>	<u>1400</u>	<u>&gt;200</u>	<u>9</u>	
<u>1051</u>	<u>68.0</u>	<u>7.3</u>	<u>1200</u>	<u>&gt;200</u>	<u>13</u>	

Did Well Dewater? Y If yes, gals. \_\_\_\_\_ Gallons Actually Evacuated: 13

Sampling Time: 1100

Sample I.D.: S-11                      Laboratory: S&W

Analyzed for: TPHC, BTEX

Duplicate I.D.: \_\_\_\_\_                      Cleaning Blank I.D.: \_\_\_\_\_

Analyzed for: \_\_\_\_\_

Shipping Notations: \_\_\_\_\_

Additional Notations: \_\_\_\_\_

# SHELL WELL MONITORING DATA SHEET

Project #: <u>94055-K1</u>	Wic # <u>204-6852-1008</u>
Sampler: <u>KCB, KEB</u>	Date Sampled: <u>5/5/94</u>
Well I.D.: <u><del>5-8</del> 5-12</u>	Well Diameter: (circle one) 2 <u>3</u> 4 6
Total Well Depth: Before <u>24.06</u> After	Depth to Water: Before <u>1.97</u> After
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to: PVC <u>Grade</u> Other --	

Volume Conversion Factor (VCF):  
 $VCF = (d^2/A) \times \pi / 2.31$   
 Where:  
 d = diameter (in.)  
 A = diameter (sq. in.)  
 $\pi = 3.1416$   
 2.31 = ft/in

Well Dia.	VCF
2"	0.16
3"	0.37
4"	0.68
6"	1.47
8"	2.68
10"	4.08
12"	6.17

<u>5.9</u>	<u>x</u>	<u>3</u>	<u>=</u>	<u>17.7</u>
1 Case Volume		Specified Volumes		gallons

Purging: Bailer <input type="checkbox"/> Middleburg <input type="checkbox"/> Electric Submersible <input checked="" type="checkbox"/> Suction Pump <input type="checkbox"/> Type of Installed Pump _____	Sampling: Bailer <input checked="" type="checkbox"/> Middleburg <input type="checkbox"/> Electric Submersible <input type="checkbox"/> Suction Pump <input type="checkbox"/> Installed Pump <input type="checkbox"/>
--	--

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
1222	74.0	7.2	1400	>200	6.	
1224	72.6	7.2	1400	7200	12.	
1226	71.6	7.2	1400	7200	18.	

Did Well Dewater? NO If yes, gals. Gallons Actually Evacuated: 18.0

Sampling Time: 1230

Sample I.D.: 5-12 Laboratory: SLC

Analyzed for: PH-6

Duplicate I.D.: \_\_\_\_\_ Cleaning Blank I.D.: \_\_\_\_\_

Analyzed for: \_\_\_\_\_

Shipping Notations: \_\_\_\_\_

Additional Notations: \_\_\_\_\_

# SHELL WELL MONITORING DATA SHEET

Project #: <u>94055-K1</u>	Wic # <u>204-6852-100B</u>
Sampler: <u>KLB, KEB</u>	Date Sampled: <u>5/5/94</u>
Well I.D.: <u>5-13</u>	Well Diameter: (circle one) 2 <u>(3)</u> 4 6
Total Well Depth: Before <u>23.94</u> After	Depth to Water: Before <u>4.45</u> After
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to:	PVC <input type="checkbox"/> <u>Grade</u> <input checked="" type="checkbox"/> Other -- <input type="checkbox"/>

Volume Conversion Factor (VCF):  
 $(\pi \times (d^2/4) \times h) / 231$   
 Where:  
 d = diameter (in.)  
 h = height (in.)  
 231 = in<sup>3</sup>/gal

Well dia.	VCF
2"	0.16
3"	0.22
4"	0.48
6"	1.42
8"	1.94
12"	1.77

<u>6.1</u>	x	<u>3</u>	=	<u>18.3</u>
1 Case Volume		Specified Volumes		gallons

Purging: Bailer  Middleburg  Electric Submersible  Suction Pump  Type of Installed Pump \_\_\_\_\_

Sampling: Bailer  Middleburg  Electric Submersible  Suction Pump  Installed Pump

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
<u>1258</u>	<u>71.4</u>	<u>7.0</u>	<u>1600</u>	<u>7200</u>	<u>6.5</u>	
<u>1300</u>	<u>70.8</u>	<u>7.1</u>	<del>1600</del> <u>1600</u>	<u>7200</u>	<u>13.</u>	
<u>1302</u>	<u>71.6</u>	<u>7.1</u>	<u>1600</u>	<u>7200</u>	<u>18.5</u>	

Did Well Dewater? NO If yes, gals. Gallons Actually Evacuated: 18.5

Sampling Time: 1307

Sample I.D.: 5-13 Laboratory: Geq.

Analyzed for: TPH-6, BTEX

Duplicate I.D.: \_\_\_\_\_ Cleaning Blank I.D.: \_\_\_\_\_

Analyzed for: \_\_\_\_\_

Shipping Notations: \_\_\_\_\_

Additional Notations: \_\_\_\_\_

# SHELL WELL MONITORING DATA SHEET

Project #: <u>94055-K1</u>	Wic # <u>204-6852-1008</u>
Sampler: <u>KCB, KEB</u>	Date Sampled: <u>5/5</u>
Well I.D.: <u>5-14</u>	Well Diameter: (circle one) 2 <u>(3)</u> 4 6
Total Well Depth: Before <u>22.94</u> After	Depth to Water: Before <u>7.01</u> After
Depth to Free Product: <u>                    </u>	Thickness of Free Product (feet):
Measurements referenced to:	PVC <input type="checkbox"/> <u>Grade</u> <input checked="" type="checkbox"/> Other -- <input type="checkbox"/>

Volume Conversion Factor (VCF):  
 $(2.31 \times d^2) \times n / 2.31$   
 where:  
 2.31 = in./foot  
 d = diameter (in.)  
 n = 2.3116  
 2.31 = in./foot

Well dia.	VCF
2"	0.24
3"	0.37
4"	0.48
5"	0.67
6"	0.94
8"	1.57

<u>5.9</u>	x	<u>3</u>	=	<u>17.7</u>
1 Case Volume		Specified Volumes		gallons

Purging: Bailer <input type="checkbox"/> Middleburg <input type="checkbox"/> Electric Submersible <input checked="" type="checkbox"/> Suction Pump <input type="checkbox"/> Type of Installed Pump _____	Sampling: Bailer <input checked="" type="checkbox"/> Middleburg <input type="checkbox"/> Electric Submersible <input type="checkbox"/> Suction Pump <input type="checkbox"/> Installed Pump <input type="checkbox"/>
--	--

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
<u>1407</u>	<u>70.6</u>	<u>7.0</u>	<u>1600</u>	<u>&gt;200</u>	<u>6.</u>	<u>gas color</u>
<u>1409</u>	<u>70.2</u>	<u>7.0</u>	<u>1500</u>	<u>&gt;200</u>	<u>12.</u>	
<u>1411</u>	<u>70.0</u>	<u>7.2</u>	<u>1600</u>	<u>&gt;200</u>	<u>18.</u>	

Did Well Dewater?  If yes, gals. — Gallons Actually Evacuated: 18

Sampling Time: 1415

Sample I.D.: 5-14 Laboratory: 509.

Analyzed for: PH-C, BTEX

Duplicate I.D.: \_\_\_\_\_ Cleaning Blank I.D.: \_\_\_\_\_

Analyzed for: \_\_\_\_\_

Shipping Notations: \_\_\_\_\_

Additional Notations: \_\_\_\_\_

# SHELL WELL MONITORING DATA SHEET

Project #: <u>940505-K1</u>	Wic # <u>204-6852-1008</u>
Sampler: <u>KCB</u>	Date Sampled: <u>5/5</u>
Well I.D.: <u>5-15</u>	Well Diameter: (circle one) <u>2</u> 3 4 6
Total Well Depth: Before <u>23.55</u> After	Depth to Water: Before <u>8.37</u> After
Depth to Free Product: _____	Thickness of Free Product (feet): _____
Measurements referenced to:	PVC <input type="checkbox"/> <u>Grade</u> <input checked="" type="checkbox"/> Other -- <input type="checkbox"/>

Volume Conversion Factor (VCF):  
 $(V = (\frac{d^2}{4}) \times \pi) / 2.31$   
 where  
 V = in<sup>3</sup>/foot  
 d = diameter (in.)  
 π = 3.1416  
 2.31 = in<sup>2</sup>/ft

Well dia.	VCF
2"	0.21
3"	0.32
4"	0.45
6"	1.07
10"	1.04
12"	1.17

5.6      x      3      =      16.8  
 1 Case Volume                      Specified Volumes                      =                      gallons

Purging: Bailer  Middleburg  Electric Submersible  Suction Pump  Type of Installed Pump \_\_\_\_\_  
 Sampling: Bailer  Middleburg  Electric Submersible  Suction Pump  Installed Pump

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
<u>1023</u>	<u>68.6</u>	<u>7.2</u>	<u>1000</u>	<u>7200</u>	<u>6</u>	
<u>1025</u>	<u>68.4</u>	<u>7.3</u>	<u>1000</u>	<u>7200</u>	<u>12</u>	
<u>1027</u>	<u>68.4</u>	<u>7.3</u>	<u>1000</u>	<u>7200</u>	<u>17</u>	

Did Well Dewater? N If yes, gals. \_\_\_\_\_ Gallons Actually Evacuated: 17

Sampling Time: 1035  
 Sample I.D.: S 15                      Laboratory: Seq  
 Analyzed for: TPH, BTEX  
 Duplicate I.D.: \_\_\_\_\_                      Cleaning Blank I.D.: \_\_\_\_\_  
 Analyzed for: \_\_\_\_\_  
 Shipping Notations: \_\_\_\_\_  
 Additional Notations: \_\_\_\_\_

# SHELL WELL MONITORING DATA SHEET

Project #: <u>94055-K1</u>	Wic # <u>204-6852-1008</u>
Sampler: <u>KCB, KEB</u>	Date Sampled: <u>5/5/94</u>
Well I.D.: <u>5-16</u>	Well Diameter: (circle one) 2 <u>(3)</u> 4 6
Total Well Depth: Before <u>24.24</u> After	Depth to Water: Before <u>8.31</u> After
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to:	PVC      Grade      Other --

Volume Conversion Factor (VCF):  
 $VCF = (d^2/4) \times \pi / 2.31$   
 where:  
 d = dia./ft.  
 d = diameter (in.)  
 $\pi = 3.1416$   
 $2.31 = 2.31/ft$

Well Dia.	VCF
2"	0.14
3"	0.37
4"	0.68
6"	1.47
8"	2.96
10"	4.96
12"	7.37

<u>5.9</u>	x	<u>3</u>	=	<u>17.7</u>
1 Case Volume		Specified Volumes		gallons

Purging: Bailer   
 Middleburg   
 Electric Submersible   
 Suction Pump   
 Type of Installed Pump \_\_\_\_\_

Sampling: Bailer   
 Middleburg   
 Electric Submersible   
 Suction Pump   
 Installed Pump

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
<u>1240</u>	<u>71.0</u>	<u>6.8</u>	<u>1800</u>	<u>7200</u>	<u>6.</u>	
<u>1242</u>	<u>71.4</u>	<u>6.9</u>	<u>1600</u>	<u>7200</u>	<u>12</u>	
<u>1244</u>	<u>71.0</u>	<u>6.8</u>	<u>1700</u>	<u>7200</u>	<u>18.</u>	

Did Well Dewater? NO If yes, gals.

Gallons Actually Evacuated: 18

Sampling Time: 1250

Sample I.D.: 5-16

Laboratory: SEG.

Analyzed for: TPH-G, BTEX

Duplicate I.D.:

Cleaning Blank I.D.:

Analyzed for:

Shipping Notations:

Additional Notations:



# SHELL WELL MONITORING DATA SHEET

Project #: <u>940505-1C1</u>	Wic # <u>204-6852-1008</u>
Sampler: <u>1095/KEB</u>	Date Sampled: <u>5/5</u>
Well I.D.: <u>S-17</u>	Well Diameter: (circle one) 2 <input checked="" type="radio"/> 4 6
Total Well Depth: Before <u>2436</u> After	Depth to Water: Before <u>7.45</u> After
Depth to Free Product: _____	Thickness of Free Product (feet): _____
Measurements referenced to:	PVC <input type="checkbox"/> <u>Grade</u> <input checked="" type="checkbox"/> Other -- <input type="checkbox"/>

Volume Conversion Factor (VCF):  
 $VCF = (d^2/4) \times \pi / 2.31$   
 where  
 d = diameter (in.)  
 $\pi = 3.1416$   
 $2.31 = 2.31 \text{ ft/in.}$

Well dia.	VCF
2"	0.26
3"	0.37
4"	0.48
5"	0.67
6"	0.84
8"	1.17

63                      x                      3                      =                      18.9  
 1 Case Volume                      Specified Volumes                      gallons

Purging: Bailer  Middleburg  Electric Submersible  Suction Pump  Type of Installed Pump \_\_\_\_\_  
 Sampling: Bailer  Middleburg  Electric Submersible  Suction Pump  Installed Pump

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
<u>1000</u>	<u>68.8</u>	<u>7.1</u>	<u>1000</u>	<u>7200</u>	<u>7</u>	
<u>1002</u>	<u>67.6</u>	<u>7.1</u>	<u>1000</u>	<u>7200</u>	<u>13</u>	
<u>1004</u>	<u>67.6</u>	<u>7.0</u>	<u>1100</u>	<u>7200</u>	<u>19</u>	

Did Well Dewater? N If yes, gals. \_\_\_\_\_ Gallons Actually Evacuated: 19

Sampling Time: 1010

Sample I.D.: S-17 Laboratory: SEI

Analyzed for: TPHC, BTEX

Duplicate I.D.: \_\_\_\_\_ Cleaning Blank I.D.: EB-935

Analyzed for: TPHC, BTEX

Shipping Notations: \_\_\_\_\_

Additional Notations: \_\_\_\_\_

# SHELL WELL MONITORING DATA SHEET

Project #: <u>940505-1K1</u>	Wic # <u>204-1052-1008</u>
Sampler: <u>1KCB / 1KEB</u>	Date Sampled: <u>5/5</u>
Well I.D.: <u>5-18</u>	Well Diameter: (circle one) 2 <input checked="" type="radio"/> 4 <input type="radio"/> 6 <input type="radio"/>
Total Well Depth: Before <u>18.40</u> After _____	Depth to Water: Before <u>7.45</u> After _____
Depth to Free Product: _____	Thickness of Free Product (feet): _____
Measurements referenced to: PVC <input type="checkbox"/> <u>Grade</u> <input checked="" type="checkbox"/> Other -- <input type="checkbox"/>	

Volume Conversion Factor (VCF):  
 $VCF = (d^2/4) \times \pi \times H / 2.31$   
 where  
 H = in./feet  
 d = diameter (in.)  
 π = 3.1416  
 2.31 = in./gal

Well Dia.	VCF
2"	0.24
3"	0.37
4"	0.49
6"	1.17
8"	1.58
10"	2.44
12"	3.52

<u>4.0</u>	<u>x</u>	<u>3</u>	<u>=</u>	<u>12</u>
1 Case Volume		Specified Volumes		gallons

Purging: Bailer <input type="checkbox"/> Middleburg <input type="checkbox"/> Electric Submersible <input checked="" type="checkbox"/> Suction Pump <input type="checkbox"/> Type of Installed Pump _____	Sampling: Bailer <input checked="" type="checkbox"/> Middleburg <input type="checkbox"/> Electric Submersible <input type="checkbox"/> Suction Pump <input type="checkbox"/> Installed Pump <input type="checkbox"/>
--	--

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
<u>936</u>	<u>68.0</u>	<u>7.8</u>	<u>1400</u>	<u>46.7</u>	<u>4</u>	
<u>939</u>	<u>68.6</u>	<u>7.1</u>	<u>1300</u>	<u>86.2</u>	<u>8</u>	
<u>943</u>	<u>68.8</u>	<u>7.0</u>	<u>1200</u>	<u>58.9</u>	<u>12</u>	

Did Well Dewater?  If yes, gals. \_\_\_\_\_ Gallons Actually Evacuated: 12

Sampling Time: 955

Sample I.D.: 5-18 Laboratory: Seq

Analyzed for: TPH, BTEX

Duplicate I.D.: \_\_\_\_\_ Cleaning Blank I.D.: \_\_\_\_\_

Analyzed for: \_\_\_\_\_

Shipping Notations: \_\_\_\_\_

Additional Notations: \_\_\_\_\_

# SHELL WELL MONITORING DATA SHEET

Project #: <u>94055-21</u>	Wic # <u>204-6852-1008</u>
Sampler: <u>KCB, KEB</u>	Date Sampled: <u>5/5/94</u>
Well I.D.: <u>SR-1</u>	Well Diameter: (circle one) 2 3 4 <u>5</u>
Total Well Depth: Before <u>21.23</u> After	Depth to Water: Before <u>7.34</u> After
Depth to Free Product:	Thickness of Free Product (feet):
Measurements referenced to: PVC <u>Grade</u> Other --	

Volume Conversion Factor (VCF):  
 $VCF = (d^2/n) \times \pi/224$   
 where  
 $d = \text{in./foot}$   
 $d = \text{diameter (in.)}$   
 $n = 2.31$   
 $\pi = 3.1416$

Well dia.	VCF
2"	0.14
3"	0.32
4"	0.56
5"	0.87
6"	1.24
8"	2.16
10"	3.49

<u>13.9</u> <u>20.4</u>	x	<u>3</u>	=	<u>61.3</u>
1 Case Volume		Specified Volumes		gallons

Purging: Bailer  Middleburg  Electric Submersible  Suction Pump  Type of Installed Pump \_\_\_\_\_

Sampling: Bailer  Middleburg  Electric Submersible  Suction Pump  Installed Pump

TIME	TEMP. (F)	pH	COND.	TURBIDITY:	VOLUME REMOVED:	OBSERVATIONS:
<u>1516</u>	<u>72.0</u>	<u>6.7</u>	<u>1000</u>	<u>20.7</u>	<u>20.5</u>	<u>Gas odor</u>
<u>1519</u>	<u>69.4</u>	<u>6.6</u>	<u>1100</u>	<u>16.1</u>	<u>41.0</u>	
<u>1522</u>	<u>71.4</u>	<u>6.6</u>	<u>1200</u>	<u>90.2</u>	<u>61.5</u>	

Did Well Dewater? NO If yes, gals. Gallons Actually Evacuated: 61.5

Sampling Time: 1528

Sample I.D.: SR-1 Laboratory: Seq.

Analyzed for: TPH-6, BTEX

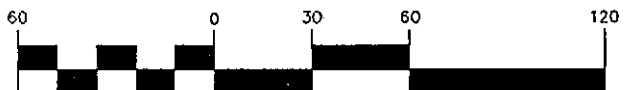
Duplicate I.D.: \_\_\_\_\_ Cleaning Blank I.D.: \_\_\_\_\_

Analyzed for: \_\_\_\_\_

Shipping Notations: \_\_\_\_\_

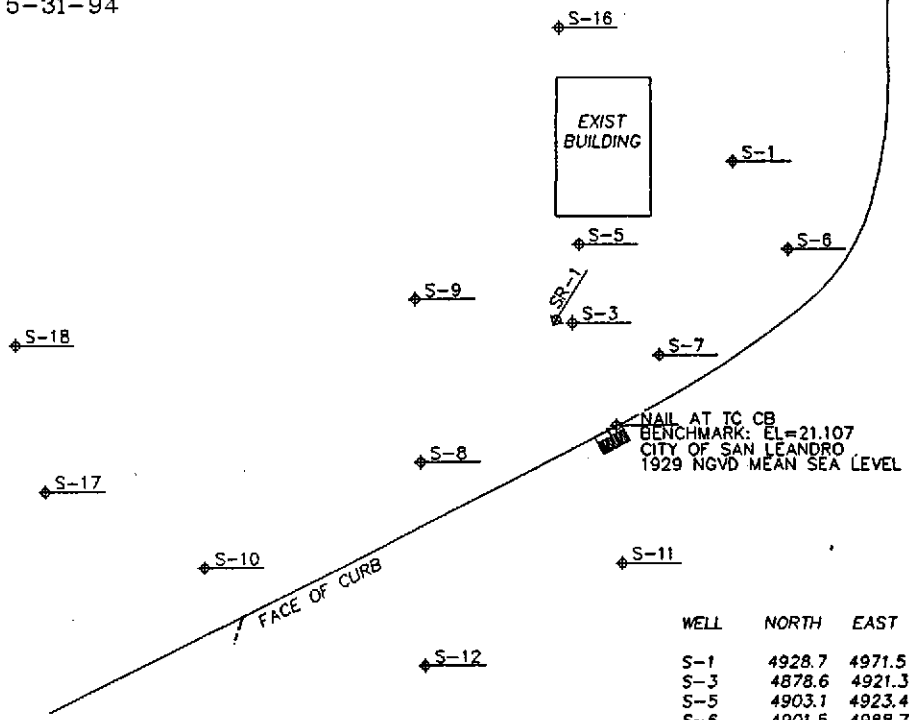
Additional Notations: \_\_\_\_\_

# GRAPHIC SCALE



( IN FEET )  
1 inch = 60 ft.

5-31-94



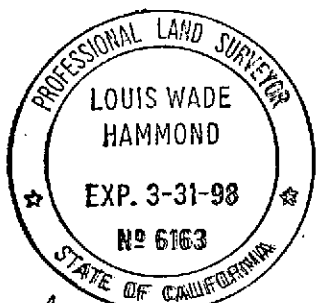
LEWELLING BLVD.

WASHINGTON AVE.

WELL	NORTH	EAST
S-1	4928.7	4971.5
S-3	4878.6	4921.3
S-5	4903.1	4923.4
S-6	4901.5	4988.7
S-7	4868.7	4948.2
S-8	4835.3	4874.5
S-9	4886.1	4873.3
S-10	4803.1	4808.1
S-11	4804.2	4936.3
S-12	4771.9	4875.4
S-13	4741.3	4809.8
S-14	4745.6	4900.2
S-15	4919.1	5032.2
S-16	4970.3	4917.4
S-17	4826.5	4759.7
S-18	4872.0	4750.9
SR-1	4879.7	4916.3

Well Name	Metal or PVC Casing Elevation	Rim Elevation	Ground Elevation
S 1	21.27	21.52	21.49
S 3	20.48	21.08	21.06
S 5	21.03	21.63	21.58
S 6	21.40	21.97	21.84
S 7	20.85	21.39	21.34
S 8	20.32	20.68	20.58
S 9	20.68	20.95	20.84
S 10	20.15	20.64	20.34
S 11	21.24	21.75	21.76
S 12	20.71	21.19	21.19
S 13	20.16	20.70	20.71
S 14	19.99	20.52	20.51
S 15	21.42	22.22	22.24
S 16	21.24	21.79	21.75
S 17	20.45	20.91	20.86
S 18	20.57	20.97	20.95
SR 1	20.57	21.10	21.09

**WELL SURVEY**  
**SHELL OIL COMPANY**  
**FORMER SHELL STATION**  
**15275 WASHINGTON AVE.**  
**SAN LEANDRO, CALIFORNIA**



*Louis Wade Hammond*

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