

MONITORING  
PURGING  
DISPOSING  
SAMPLING

**MPDS**

SERVICES, INCORPORATED

*✓*  
*5/1/96*

February 1, 1996

Ms. Amy Leech  
Alameda County Health Care Services  
1131 Harbor Bay Parkway  
Alameda, CA 94501

RE: Unocal Service Station #5760  
376 Lewelling Boulevard  
San Lorenzo, California

Dear Ms. Leech:

Per the request of the Unocal Corporation Project Manager, Ms. Tina R. Berry, enclosed please find our report (MPDS-UN5760-09) dated January 18, 1996 for the above referenced site.

Should you have any questions regarding the reporting of data, please feel free to call our office at (510) 602-5120. Any other questions may be directed to the Project Manager at (510) 277-2321.

Sincerely,

MPDS Services, Inc.



Jarrel F. Crider

/jfc

Enclosure

cc: Ms. Tina R. Berry

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MPDS-UN5760-09  
January 18, 1996

Unocal Corporation  
2000 Crow Canyon Place, Suite 400  
P.O. Box 5155  
San Ramon, California 94583

Attention: Ms. Tina R. Berry

RE: Quarterly Data Report  
Unocal Station Service #5760  
376 Lewelling Boulevard  
San Lorenzo, California

Dear Ms. Berry:

This data report presents the results of the most recent quarter of monitoring and sampling of the monitoring wells at the referenced site by MPDS Services, Inc.

#### RECENT FIELD ACTIVITIES

The monitoring wells that were monitored and sampled during this quarter are indicated in Table 1. Prior to sampling, the wells were checked for depth to water and the presence of free product or sheen. The monitoring data and the ground water elevations are summarized in Table 1. The ground water flow direction during the most recent quarter is shown on the attached Figure 1.

Ground water samples were collected on December 14, 1995. Prior to sampling, the wells were each purged of between 8.5 and 17.5 gallons of water. During purging operations, the field parameters pH, temperature, and electrical conductivity were recorded and are presented in Table 2. Once the field parameters were observed to stabilize, and where possible, a minimum of approximately four casing volumes had been removed from each well, samples were then collected using a clean Teflon bailer. The samples were decanted into clean VOA vials and/or one-liter amber bottles, as appropriate, which were then sealed with Teflon-lined screw caps, labeled, and stored in a cooler, on ice, until delivery to a state-certified laboratory. Field blank, Trip blank and Equipment blank samples (denoted as ES1, ES2 and ES3, respectively) were also collected for quality assurance and control. MPDS Services, Inc. transported the purged ground water to the Unocal Refinery located in Rodeo, California, for treatment and discharge to San Pablo Bay under NPDES permit.

#### ANALYTICAL RESULTS

The ground water samples were analyzed at Sequoia Analytical Laboratory and were accompanied by properly executed Chain of Custody documenta-

tion. The analytical results of the ground water samples collected to date are summarized in Tables 3 and 4. The concentrations of Total Petroleum Hydrocarbons (TPH) as gasoline and benzene detected in the ground water samples collected this quarter are shown on the attached Figure 2. Copies of the laboratory analytical results and the Chain of Custody documentation are attached to this report.

LIMITATIONS

Environmental changes, either naturally-occurring or artificially-induced, may cause changes in ground water levels and flow paths, thereby changing the extent and concentration of any contaminants.

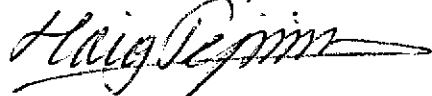
DISTRIBUTION

A copy of this report should be sent to Ms. Amy Leech of the Alameda County Health Care Services Agency.

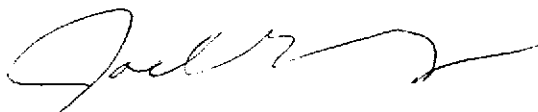
If you have any questions regarding this report, please do not hesitate to call Mr. Nubar Srabian at (510) 602-5120.

Sincerely,

MPDS Services, Inc.

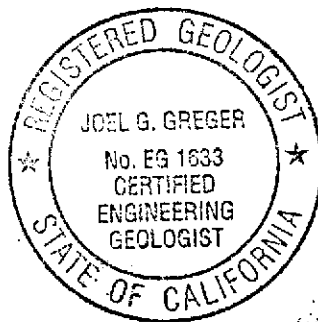


Haig (Gary) Tejirian  
Senior Staff Geologist



Joel G. Greger, C.E.G.  
Senior Engineering Geologist

License No. EG 1633  
Exp. Date 8/31/96



/bp

Attachments: Tables 1 through 4  
Location Map  
Figures 1 & 2  
Laboratory Analyses  
Chain of Custody documentation

cc: Mr. Joe Muzzio, Pacific Environmental Group, Inc.

**TABLE 1**  
**SUMMARY OF MONITORING DATA**

Well #	Ground Water Elevation (feet)	Depth to Water (feet)◆	Total Well Depth (feet)◆	Product Thickness (feet)	Sheen	Water Purged (gallons)
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**(Monitored and Sampled on December 14, 1995)**

U-1	WELL WAS INACCESSIBLE - CONNECTED TO VAPOR EXTRACTION SYSTEM					
U-2	23.08	18.18	29.92	0	No	17.5
U-3	WELL WAS INACCESSIBLE - CONNECTED TO VAPOR EXTRACTION SYSTEM					
U-4	22.82	17.43	27.88	0	No	15.5
U-5	22.75	16.56	28.56	0	No	8.5
U-6	22.79	14.89	28.30	0	No	9.5
U-7	22.72	14.39	34.85	0	No	14
U-8	22.90	15.67	29.85	0	No	10
U-9	22.64	14.67	28.20	0	No	9.5

**(Monitored and Sampled on September 12, 1995)**

U-1	23.43	16.77	30.10	0	No	20
U-2	23.46	17.80	29.96	0	No	18
U-3	23.15	16.11	24.95	0	No	13.5
U-4	23.15	17.10	27.95	0	No	16.5
U-5	23.01	16.30	28.61	0	No	8.5
U-6	22.83	14.85	28.35	0	No	9.5
U-7	22.71	14.40	34.95	0	No	14
U-8	23.07	15.50	29.90	0	No	10
U-9	22.58	14.73	28.26	0	No	9.5

**(Monitored and Sampled on June 13, 1995)**

U-1	25.50	14.70	30.10	0	No	23
U-2	24.55	16.71	29.95	0	No	20
U-3	24.15	15.11	25.05	0	No	16
U-4	24.30	15.95	27.90	0	No	18
U-5	24.15	15.16	28.60	0	No	10
U-6	23.95	13.73	28.31	0	No	10
U-7	23.78	13.33	35.00	0	No	15
U-8	24.17	14.40	29.85	0	No	11
U-9	23.68	13.63	28.23	0	No	10

**TABLE 1 (Continued)**

**SUMMARY OF MONITORING DATA**

<u>Well #</u>	<u>Ground Water Elevation (feet)</u>	<u>Depth to Water (feet)♦</u>	<u>Total Well Depth (feet)♦</u>	<u>Product Thickness (feet)</u>	<u>Sheen</u>	<u>Water Purged (gallons)</u>
<b>(Monitored and Sampled on March 9, 1995)</b>						
U-1	24.38	15.82	30.10	0	No	22
U-2	24.30	16.96	30.00	0	No	20
U-3	24.05	15.20	25.02	0	No	15
U-4	24.12	16.16	27.92	0	No	17
U-5	23.96	15.35	28.46	0	No	9
U-6	23.94	13.74	28.34	0	No	10
U-7	23.75	13.36	35.00	0	No	15
U-8	24.01	14.56	29.90	0	No	11
U-9	23.81	13.50	28.26	0	No	11

<u>Well #</u>	<u>Well Casing Elevation (feet)*</u>
U-1	40.20
U-2	41.26
U-3	39.26
U-4	40.25
U-5	39.31
U-6	37.68
U-7	37.11
U-8	38.57
U-9	37.31

♦ The depth to water level and total depth measurements were taken from the top of the well casings.

\* The elevation of the top of the well casing are relative to Mean Sea Level.

**TABLE 2**

RECORD OF THE TEMPERATURE, CONDUCTIVITY, AND pH VALUES  
 IN THE MONITORING WELLS DURING PURGING AND PRIOR TO SAMPLING

(Measured on December 14, 1995)

<u>Well #</u>	<u>Gallons per Casing Volume</u>	<u>Time</u>	<u>Gallons Purged</u>	<u>Casing Volumes Purged</u>	<u>Temperature (°F)</u>	<u>Conductivity ([μmhos/cm] x1000)</u>	<u>pH</u>
U-2	4.34	11:00	0	0	59.1	3.00	6.86
			4.5	1.04	68.6	0.96	7.01
			9	2.07	69.7	0.95	6.90
		13.5	3.11	69.9	0.95	6.89	
		11:15	17.5	4.03	70.0	0.96	6.88
U-4	3.87	11:45	0	0	72.2	1.00	7.13
			4	1.03	73.0	1.38	6.92
			8	2.07	73.0	1.37	6.87
			12	3.10	73.2	1.39	6.87
		12:00	15.5	4.01	73.4	1.41	6.86
U-5	2.04	12:25	0	0	74.2	1.36	7.09
			2	0.98	74.0	1.35	7.02
			4	1.96	73.6	1.37	6.96
			6	2.94	73.6	1.38	6.94
		12:35	8.5	4.17	73.6	1.38	6.93
U-6	2.28	13:00	0	0	74.7	1.18	7.19
			2.5	1.10	72.7	1.08	7.07
			4.5	1.97	72.8	1.08	6.92
			7	3.07	73.0	1.10	6.89
		13:10	9.5	4.17	73.1	1.10	6.88
U-7	3.48	13:35	0	0	75.8	1.03	7.14
			3.5	1.01	71.3	0.92	7.11
			7	2.01	70.9	0.93	7.01
			10.5	3.02	71.1	0.93	6.99
		13:50	14	4.02	71.1	0.95	6.99

**TABLE 2 (Continued)**

RECORD OF THE TEMPERATURE, CONDUCTIVITY, AND pH VALUES  
 IN THE MONITORING WELLS DURING PURGING AND PRIOR TO SAMPLING

(Measured on December 14, 1995)

<u>Well #</u>	<u>Gallons per Casing Volume</u>	<u>Time</u>	<u>Gallons Purged</u>	<u>Casing Volumes Purged</u>	<u>Temper- ature (°F)</u>	<u>Conductivity ([μmhos/cm] x1000)</u>	<u>pH</u>
U-8	2.41	14:15	0	0	73.8	0.97	7.14
			2.5	1.04	70.8	0.93	7.07
			5	2.07	70.3	0.92	7.00
			7.5	3.11	70.2	0.92	6.99
			10	4.15	70.2	0.91	6.98
		14:25					
U-9	2.30	14:50	0	0	75.0	0.99	7.14
			2.5	1.09	72.5	1.09	7.11
			4.5	1.96	72.1	1.12	7.02
			7.0	3.04	71.8	1.12	6.96
			9.5	4.13	71.6	1.12	6.96
		15:00					

**TABLE 3**

**SUMMARY OF LABORATORY ANALYSES  
 WATER**

<u>Well #</u>	<u>Date</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl- benzene</u>	<u>Xylenes</u>
U-1	12/14/95	NOT SAMPLED - WELL CONNECTED TO VAPOR EXTRACTION SYSTEM				
	9/12/95	43,000	910	2,700	1,700	9,600
	6/13/95	53,000	1,400	5,000	2,500	14,000
	3/09/95	49,000	860	3,200	1,900	10,000
	12/05/94	1,300	55	20	16	330
	9/07/94	41,000	1,600	6,200	3,100	16,000
	6/09/94	59,000	5,200	1,300	5,200	15,000
	3/09/94	45,000	930	4,100	2,000	11,000
	12/02/93	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT				
	9/09/93	67,000	2,900	18,000	6,200	32,000
	6/04/93	35,000	1,300	5,700	900	9,200
	2/12/93	70,000	2,200	8,400	3,100	18,000
	11/20/92	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT				
	8/06/92	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT				
	4/07/92	▲	▲	▲	▲	▲
	3/05/92	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT				
	12/04/91	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT				
	9/19/91	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT				
	6/03/91	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT				
	3/04/91	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT				
	12/05/90	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT				
	8/24/90	27,000	1,200	1,800	1,400	5,500
	6/05/90	46,000	2,300	5,500	2,500	11,000
	3/20/90	36,000	2,100	5,500	1,900	9,300
	2/09/88	93,000	3,600	11,000	▲▲	20,000
U-2	12/14/95	ND	ND	ND	ND	ND
	9/12/95	ND	ND	ND	ND	ND
	6/13/95	ND	ND	ND	ND	ND
	3/09/95	ND	ND	ND	ND	ND
	12/05/94	ND	ND	ND	ND	ND
	9/07/94	ND	ND	0.63	ND	0.61
	6/09/94	ND	ND	ND	ND	ND
	4/13/94	ND	ND	ND	ND	ND
	3/09/94	62	1.1	5.4	1.1	9.7
	12/02/93	ND	ND	ND	ND	ND



**TABLE 3 (Continued)**

**SUMMARY OF LABORATORY ANALYSES  
 WATER**

<u>Well #</u>	<u>Date</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl- benzene</u>	<u>Xylenes</u>
U-2	9/09/93	ND	ND	ND	ND	ND
(Continued)	6/04/93	ND	ND	ND	ND	ND
	2/12/93	ND	ND	ND	ND	ND
	11/20/92	ND	ND	ND	ND	ND
	8/06/92	ND	ND	ND	ND	ND
	4/07/92	ND	ND	ND	ND	ND
	3/05/92	ND	ND	0.36	ND	ND
	12/04/91	ND	ND	ND	ND	ND
	9/19/91	ND	ND	ND	ND	ND
	6/03/91	ND	ND	ND	ND	ND
	3/04/91	ND	ND	0.9	ND	2.6
	12/05/90	ND	ND	ND	ND	ND
	8/23/90	ND	ND	ND	ND	ND
U-3	12/14/95	NOT SAMPLED - WELL CONNECTED TO VAPOR EXTRACTION SYSTEM				
	9/12/95	69,000	1,700	820	4,000	19,000
	6/13/95	64,000	1,700	1,500	3,800	18,000
	3/09/95	100,000	2,300	3,300	4,800	21,000
	12/05/94	140,000	3,100	5,100	4,900	21,000
	9/07/94	100,000	2,400	4,900	4,200	21,000
	6/09/94	120,000*	3,300	6,100	5,200	26,000
	3/09/94	120,000	4,500	8,300	5,600	28,000
	12/02/93	110,000	3,200	7,700	5,600	26,000
	9/09/93	110,000	2,800	10,000	6,500	31,000
	6/04/93	92,000	2,900	8,700	4,300	20,000
	2/12/93	80,000	3,700	9,400	3,700	18,000
	11/20/92	50,000	3,200	4,700	1,900	10,000
	8/06/92	140,000	5,100	13,000	5,000	23,000
	4/07/92	97,000	6,100	16,000	5,400	28,000
	3/05/92	160,000	5,300	15,000	5,400	26,000
	12/04/91	75,000	2,500	6,100	1,900	11,000
	9/19/91	61,000	3,300	9,700	2,800	15,000
	6/03/91	130,000	5,800	19,000	4,600	24,000
	3/04/91	84,000	1,400	10,000	2,900	17,000
	1/18/91	51,000	1,700	3,100	1,500	7,500
	12/05/90	69,000	1,900	3,500	1,600	9,800
	8/23/90	110,000	4,400	13,000	2,800	17,000

**TABLE 3 (Continued)**

SUMMARY OF LABORATORY ANALYSES  
 WATER

Well #	Date	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes
U-4	12/14/95	ND	ND	ND	ND	ND
	9/12/95	ND	ND	ND	ND	ND
	6/13/95	ND	ND	ND	ND	ND
	3/09/95	ND	ND	ND	ND	ND
	12/05/94	ND	ND	ND	ND	ND
	9/07/94	ND	ND	1.1	ND	1.0
	6/09/94	ND	ND	ND	ND	ND
	4/13/94	ND	ND	ND	ND	ND
	3/09/94	ND	1.4	4.7	1.1	8.1
	12/02/93	ND	ND	ND	ND	2.6
	9/09/93	ND	ND	ND	ND	ND
	6/04/93	ND	ND	ND	ND	ND
	2/12/93	ND	ND	ND	ND	ND
	11/20/92	ND	ND	2.5	ND	ND
	8/06/92	ND	ND	ND	ND	ND
	4/07/92	ND	ND	ND	ND	ND
	3/05/92	ND	ND	ND	ND	ND
	12/04/91	ND	ND	ND	ND	ND
	9/19/91	ND	ND	ND	ND	ND
	6/03/91	ND	ND	ND	ND	ND
3/04/91	ND	ND	ND	ND	ND	
1/18/91	ND	ND	ND	ND	ND	
12/05/90	ND	ND	ND	ND	ND	
8/23/90	ND	ND	ND	1.0	ND	1.8
U-5	12/14/95	ND	ND	ND	ND	ND
	9/12/95	ND	ND	ND	ND	ND
	6/13/95	ND	ND	ND	ND	ND
	3/09/95	ND	ND	ND	ND	ND
	12/05/94	ND	ND	ND	ND	ND
	9/07/94	ND	ND	0.73	ND	0.84
	6/09/94	ND	ND	ND	ND	ND
	4/13/94	ND	ND	ND	ND	ND
	3/09/94	71	1.7	6.3	1.5	10
	12/02/93	ND	ND	ND	ND	ND
	9/09/93	ND	ND	ND	ND	ND
	6/04/93	ND	ND	ND	ND	ND

**TABLE 3 (Continued)**

**SUMMARY OF LABORATORY ANALYSES  
 WATER**

<u>Well #</u>	<u>Date</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl- benzene</u>	<u>Xylenes</u>
U-5	2/12/93	ND	ND	ND	ND	ND
(Continued)	11/20/92	ND	ND	ND	ND	ND
	8/06/92	ND	ND	ND	ND	ND
	4/07/92	ND	ND	ND	ND	ND
U-6	12/14/95	760	ND	ND	7.0	8.4
	9/12/95	ND	ND	ND	ND	ND
	6/13/95	1,300	ND	ND	20	46
	3/09/95	2,500	29	ND	70	120
	12/05/94	450**	ND	ND	ND	ND
	9/07/94	1,600*	ND	ND	ND	ND
	6/09/94	2,600*	16	ND	29	ND
	3/09/94	2,200	11	8.2	24	16
	12/02/93	2,100	12	1.6	21	1.1
	9/09/93	6,300◆◆	29	ND	120	34
	6/04/93	13,000	100	38	450	320
	2/12/93	2,600	27	ND	120	51
	11/20/92	WELL WAS INACCESSIBLE				
	8/06/92	9,200	160	ND	360	150
	4/07/92	6,600	90	ND	820	1,200
U-7	12/14/95	ND	ND	ND	ND	ND
	9/12/95	ND	ND	ND	ND	ND
	6/13/95	ND	ND	ND	ND	ND
	3/09/95	ND	ND	ND	ND	ND
	12/05/94	ND	ND	ND	ND	ND
	9/07/94	ND	ND	ND	ND	ND
	6/09/94	ND	ND	ND	ND	ND
	4/13/94	ND	ND	ND	ND	ND
	3/09/94	ND	1.4	4.4	0.96	7.5
	12/02/93	ND	ND	ND	ND	ND
	9/09/93	ND	ND	ND	ND	ND
	6/04/93	ND	ND	ND	ND	ND
	2/12/93	ND	ND	ND	ND	ND
	11/20/92	ND	ND	ND	ND	ND
	8/06/92	ND	ND	ND	ND	ND
	4/07/92	ND	ND	ND	ND	ND

TABLE 3 (Continued)

SUMMARY OF LABORATORY ANALYSES  
 WATER

<u>Well #</u>	<u>Date</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl-benzene</u>	<u>Xylenes</u>
U-8	12/14/95	ND	ND	ND	ND	ND
	9/12/95	ND	ND	ND	ND	ND
	6/13/95	ND	ND	ND	ND	ND
	3/09/95	ND	ND	ND	ND	ND
	12/05/94	ND	ND	ND	ND	ND
	9/07/94	ND	ND	ND	ND	ND
	6/09/94	ND	ND	ND	ND	ND
	4/13/94	ND	ND	0.78	ND	0.98
	3/09/94	ND	1.2	3.7	0.79	6.1
	12/02/93	ND	ND	ND	ND	ND
	9/09/93	ND	ND	ND	ND	ND
	6/04/93	ND	ND	ND	ND	ND
	2/12/93	ND	ND	ND	ND	ND
	8/06/92	ND	ND	ND	ND	ND
	4/07/92	ND	ND	ND	ND	ND
U-9	12/14/95	ND	ND	ND	ND	ND
	9/12/95	ND	ND	ND	ND	ND
	6/13/95	ND	ND	ND	ND	ND
	3/09/95	2,500**	ND	ND	ND	ND
	12/05/94	3,700**	ND	ND	ND	ND
	9/07/94	2,700**	ND	ND	ND	ND
	6/09/94	2,900**	ND	ND	ND	ND
	4/13/94	ND	ND	ND	ND	ND
	3/09/94	5,700*	ND	ND	ND	ND
	12/02/93	ND	ND	ND	ND	ND
	9/09/93	1,200◆	ND	ND	ND	ND
6/04/93	2,100◆	ND	ND	ND	ND	

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TABLE 3 (Continued)

SUMMARY OF LABORATORY ANALYSES  
WATER

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- \* Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be gasoline and non-gasoline mixture.
- \*\* Sequoia Analytical Laboratory reported that the hydrocarbon detected did not appear to be gasoline.
- ▲ Product Skimmer installed in well
- ▲▲ Ethylbenzene and xylenes were combined prior to March 1990.
- ◆ The concentration reported as gasoline is primarily due to the presence of a discrete hydrocarbon peak not indicative of standard gasoline.
- ◆◆ The concentration reported as gasoline is primarily due to the presence of a combination of gasoline and a discrete peak not indicative of gasoline.

ND = Non-detectable.

Results are in micrograms per liter ( $\mu\text{g/L}$ ), unless otherwise indicated.

Notes: Laboratory analyses data prior to December 2, 1993, were provided by GeoStrategies, Inc.

**TABLE 4**

**SUMMARY OF LABORATORY ANALYSES  
WATER**

<u>Well #</u>	<u>Date</u>	<u>MTBE µg/L</u>
U-1	9/12/95	1,400
	6/13/95	2,800
	3/09/95	1,500
U-2	12/14/95	ND
	9/12/95	ND
	6/13/95	ND
	3/09/95	ND
U-3	9/12/95	29,000
	6/13/95	900
	3/09/95	54,000
U-4	12/14/95	1.3
	9/12/95	ND
	6/13/95	2.7
	3/09/95	ND
U-5	12/14/95	ND
	9/12/95	ND
	6/13/95	0.87
	3/09/95	ND
U-6	12/14/95	1,100
	9/12/95	6,600
	6/13/95	5,400
	3/09/95	320
U-7	12/14/95	1.4
	9/12/95	ND
	6/13/95	3.5
	3/09/95	ND

TABLE 4 (Continued)

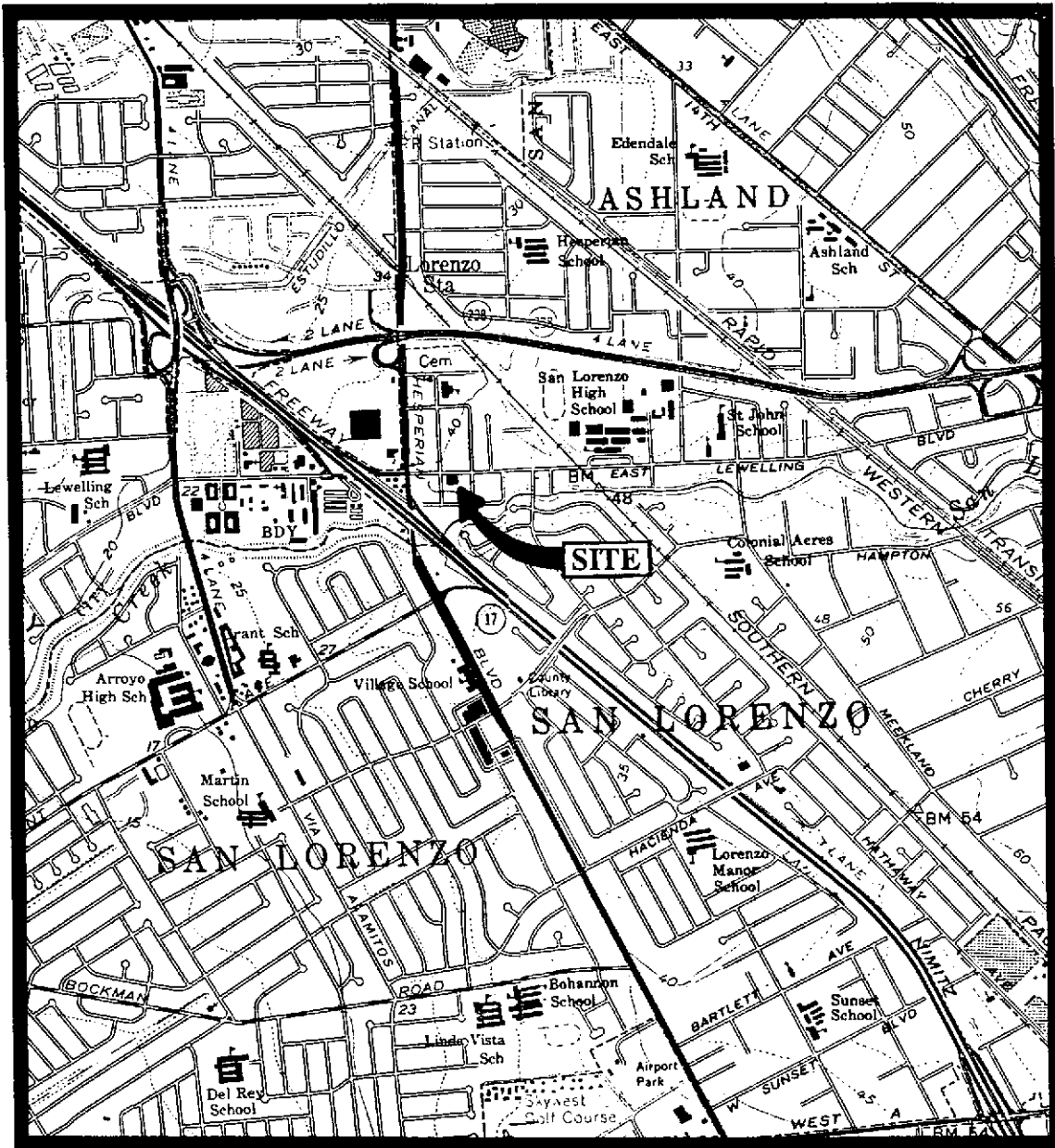
SUMMARY OF LABORATORY ANALYSES  
WATER

<u>Well #</u>	<u>Date</u>	<u>MTBE µg/L</u>
U-8	12/14/95	ND
	9/12/95	ND
	6/13/95	ND
	3/09/95	ND
U-9	12/14/95	4,400 ✓
	9/12/95	1,600
	6/13/95	1,200
	3/09/95	5,800

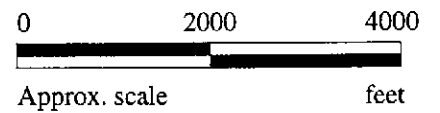
MTBE = methyl tert butyl ether

ND = Non-detectable.

µg/L = micrograms per liter.



Base modified from 7.5 minute U.S.G.S.  
Hayward and San Leandro Quadrangles  
(both photorevised 1980)

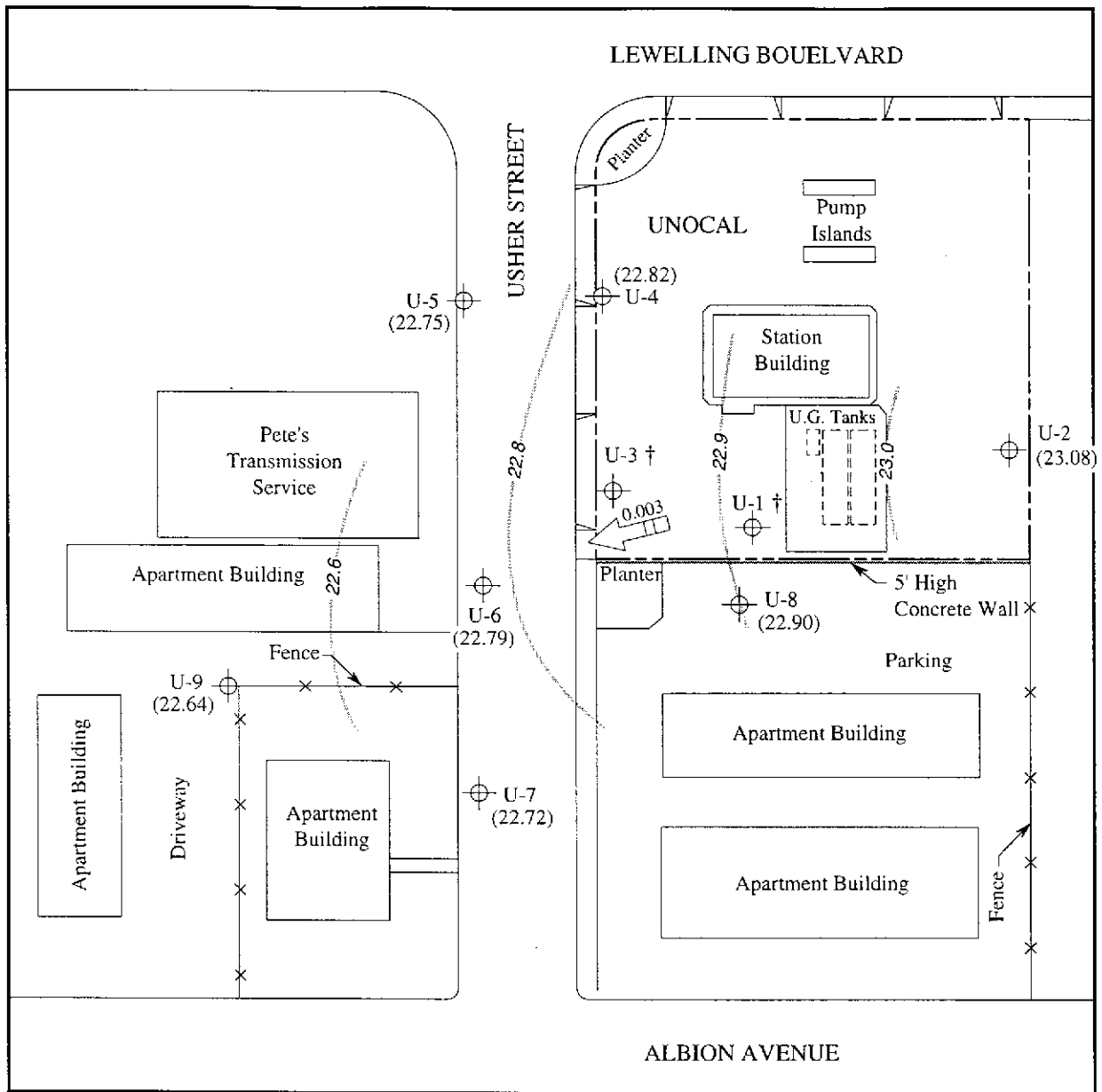


**MPDS** SERVICES, INCORPORATED

**UNOCAL SERVICE STATION #5760  
376 LEWELLING BOULEVARD  
SAN LORENZO, CALIFORNIA**

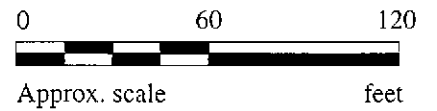
**LOCATION  
MAP**





**LEGEND**

- ⊕ Monitoring well
- ( ) Ground water elevation in feet above Mean Sea Level
- ### → Direction of ground water flow with approximate hydraulic gradient
- Contours of ground water elevation
- † Well was inaccessible, attached to remediation system.

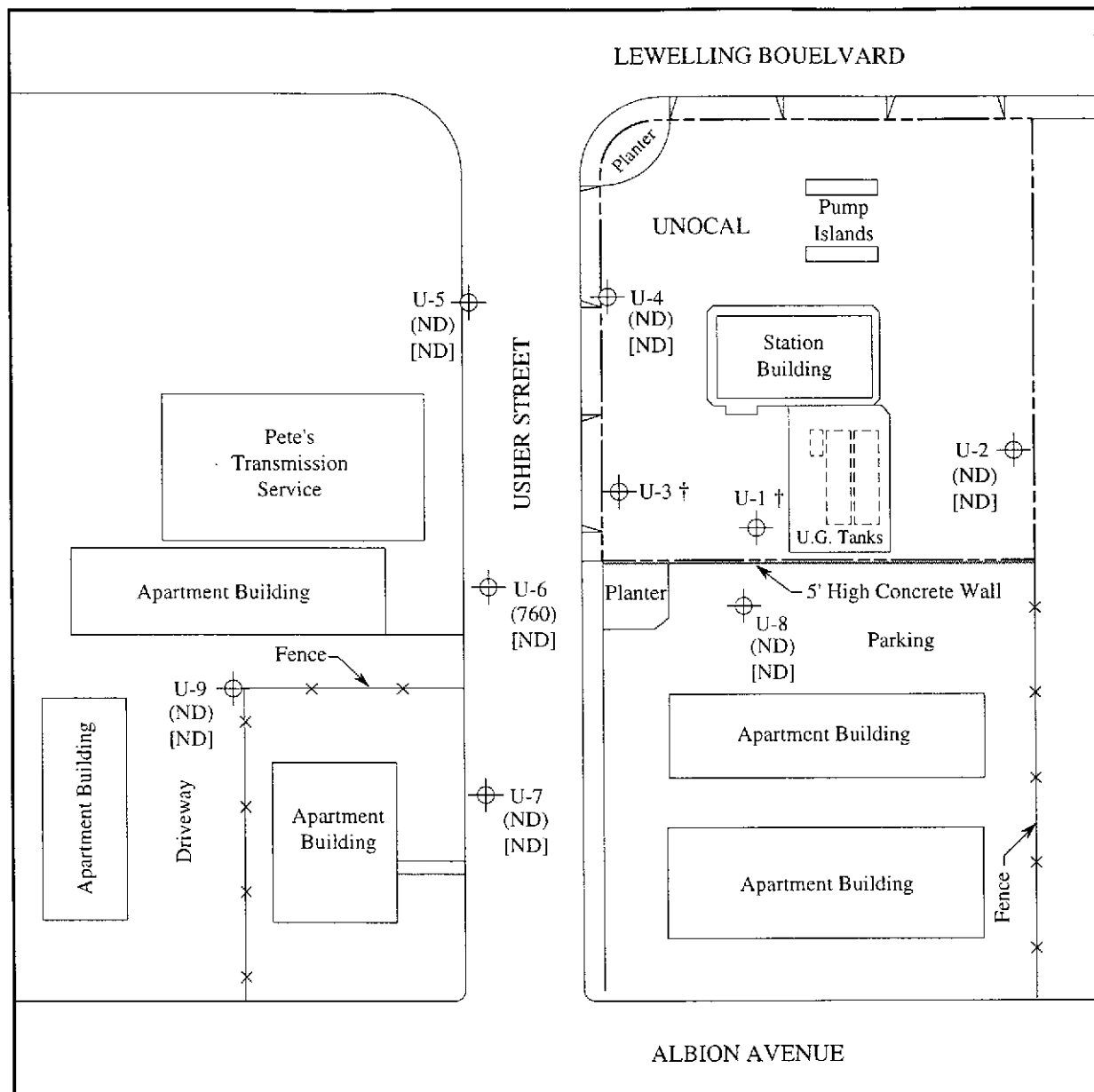


**POTENTIOMETRIC SURFACE MAP FOR THE DECEMBER 14, 1995 MONITORING EVENT**



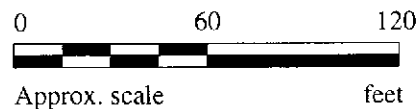
**UNOCAL SERVICE STATION #5760  
376 LEWELLING BOULEVARD  
SAN LORENZO, CALIFORNIA**

**FIGURE  
1**



**LEGEND.**

- ⊕ Monitoring well
- ( ) Concentration of TPH as gasoline in  $\mu\text{g/L}$
- [ ] Concentration of benzene in  $\mu\text{g/L}$
- ND Non-detectable
- † Well was inaccessible, attached to remediation system.



**PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON DECEMBER 14, 1995**



MPDS Services	Client Project ID: Unocal #5760, 376 Lewelling Blvd.	Sampled: Dec 14, 1995
2401 Stanwell Dr., Ste. 300	Matrix Descript: Water	Received: Dec 14, 1995
Concord, CA 94520	Analysis Method: EPA 5030/8015 Mod./8020	Reported: Jan 12, 1996
Attention: Jarrel Crider	First Sample #: 512-1756	

**TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION**

Sample Number	Sample Description	Purgeable Hydrocarbons µg/L	Benzene µg/L	Toluene µg/L	Ethyl Benzene µg/L	Total Xylenes µg/L
512-1756	U-2	ND	ND	ND	ND	ND
512-1757	U-4	ND	ND	ND	ND	ND
512-1758	U-5	ND	ND	ND	ND	ND
512-1759	U-6	760	ND	ND	7.0	8.4
512-1760	U-7	ND	ND	ND	ND	ND
512-1761	U-8	ND	ND	ND	ND	ND
512-1762	U-9	ND	ND	ND	ND	ND
512-1763	ES1	ND	ND	ND	ND	ND
512-1764	ES2	ND	ND	ND	ND	ND
512-1765	ES3	ND	ND	ND	ND	ND

<b>Detection Limits:</b>	<b>50</b>	<b>0.50</b>	<b>0.50</b>	<b>0.50</b>	<b>0.50</b>
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Total Purgeable Petroleum Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as ND were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL, #1271**

Signature on File

Alan B. Kemp  
Project Manager





<b>MPDS Services</b>	<b>Client Project ID:</b> Unocal #5760, 376 Lewelling Blvd.	<b>Sampled:</b> Dec 14, 1995
2401 Stanwell Dr., Ste. 300	<b>Matrix Descript:</b> Water San Lorenzo	<b>Received:</b> Dec 14, 1995
Concord, CA 94520	<b>Analysis Method:</b> EPA 5030/8015 Mod./8020	<b>Reported:</b> Jan 12, 1996
<b>Attention:</b> Jarrel Crider	<b>First Sample #:</b> 512-1756	

**TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION**

Sample Number	Sample Description	Chromatogram Pattern	DL Mult. Factor	Date Analyzed	Instrument ID	Surrogate Recovery, % QC Limits: 70-130
512-1756	U-2	--	1.0	12/25/95	HP-2	100
512-1757	U-4	--	1.0	12/25/95	HP-2	101
512-1758	U-5	--	1.0	12/25/95	HP-2	99
512-1759	U-6	Gasoline	10	12/28/95	HP-5	86
512-1760	U-7	--	1.0	12/25/95	HP-2	102
512-1761	U-8	--	1.0	12/25/95	HP-2	102
512-1762	U-9	--	10	12/28/95	HP-5	77
512-1763	ES1	--	1.0	12/25/95	HP-2	102
512-1764	ES2	--	1.0	12/25/95	HP-4	93
512-1765	ES3	--	1.0	12/25/95	HP-4	93

**SEQUOIA ANALYTICAL, #1271**

Signature on File

Alan B. Kemp  
Project Manager





MPDS Services  
2401 Stanwell Dr., Ste. 300  
Concord, CA 94520  
Attention: Jarrel Crider

Client Project ID: Unocal #5760, 376 Lewelling Blvd.  
Sample Descript: Water San Lorenzo  
Analysis for: MTBE (Modified EPA 8020)  
First Sample #: 512-1756

Sampled: Dec 14, 1995  
Received: Dec 14, 1995  
Analyzed: Dec 25-28, 1995  
Reported: Jan 12, 1996

**LABORATORY ANALYSIS FOR: MTBE (Modified EPA 8020)**

Sample Number	Sample Description	Detection Limit µg/L	Sample Result µg/L
512-1756	U-2	0.60	N.D.
512-1757	U-4	0.60	1.3
512-1758	U-5	0.60	N.D.
512-1759	U-6	6.0	1,100
512-1760	U-7	0.60	1.4
512-1761	U-8	0.60	N.D.
512-1762	U-9	6.0	4,400

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

**SEQUOIA ANALYTICAL, #1271**

Signature on File

Alan B. Kemp  
Project Manager





MPDS Services  
2401 Stanwell Dr., Ste. 300  
Concord, CA 94520  
Attention: Jarrel Crider

Client Project ID: Unocal #5760, 376 Lewelling Blvd., San Lorenzo  
Matrix: Liquid

QC Sample Group: 5121756-765

Reported: Jan 12, 1996

**QUALITY CONTROL DATA REPORT**

<b>ANALYTE</b>	Benzene	Toluene	Ethyl Benzene	Xylenes
<b>Method:</b>	EPA 8020	EPA 8020	EPA 8020	EPA 8020
<b>Analyst:</b>	N. Beaman	N. Beaman	N. Beaman	N. Beaman

<b>MS/MSD Batch#:</b>	5121763	5121763	5121763	5121763
<b>Date Prepared:</b>	12/25/96	12/25/96	12/25/96	12/25/96
<b>Date Analyzed:</b>	12/25/96	12/25/96	12/25/96	12/25/96
<b>Instrument I.D.#:</b>	HP-2	HP-2	HP-2	HP-2
<b>Conc. Spiked:</b>	20 µg/L	20 µg/L	20 µg/L	60 µg/L
<b>Matrix Spike % Recovery:</b>	115	120	120	122
<b>Matrix Spike Duplicate % Recovery:</b>	115	120	120	125
<b>Relative % Difference:</b>	0.0	0.0	0.0	2.7

<b>LCS Batch#:</b>	1LCS122595	1LCS122595	1LCS122595	1LCS122595
<b>Date Prepared:</b>	12/25/96	12/25/96	12/25/96	12/25/96
<b>Date Analyzed:</b>	12/25/96	12/25/96	12/25/96	12/25/96
<b>Instrument I.D.#:</b>	HP-2	HP-2	HP-2	HP-2
<b>LCS % Recovery:</b>	115	110	115	117

<b>% Recovery Control Limits:</b>	71-133	72-128	72-130	71-120
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**Please Note:**

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

**SEQUOIA ANALYTICAL, #1271**

Signature on File

Alan B. Kemp  
Project Manager





MPDS Services  
2401 Stanwell Dr., Ste. 300  
Concord, CA 94520  
Attention: Jarrel Crider

Client Project ID: Unocal #5760, 376 Lewelling Blvd., San Lorenzo  
Matrix: Liquid

QC Sample Group: 5121756-762

Reported: Jan 12, 1996

**QUALITY CONTROL DATA REPORT**

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
<b>Method:</b>	EPA 8020	EPA 8020	EPA 8020	EPA 8020
<b>Analyst:</b>	N. Beaman	N. Beaman	N. Beaman	N. Beaman

MS/MSD	Benzene	Toluene	Ethyl Benzene	Xylenes
<b>Batch#:</b>	5121805	5121805	5121805	5121805
<b>Date Prepared:</b>	12/28/95	12/28/95	12/28/95	12/28/95
<b>Date Analyzed:</b>	12/28/95	12/28/95	12/28/95	12/28/95
<b>Instrument I.D.#:</b>	HP-5	HP-5	HP-5	HP-5
<b>Conc. Spiked:</b>	20 µg/L	20 µg/L	20 µg/L	60 µg/L
<b>Matrix Spike % Recovery:</b>	105	100	100	103
<b>Matrix Spike Duplicate % Recovery:</b>	95	95	95	97
<b>Relative % Difference:</b>	10	5.1	5.1	6.7

LCS Batch#:	3LCS122895	3LCS122895	3LCS122895	3LCS122895
<b>Date Prepared:</b>	12/28/95	12/28/95	12/28/95	12/28/95
<b>Date Analyzed:</b>	12/28/95	12/28/95	12/28/95	12/28/95
<b>Instrument I.D.#:</b>	HP-5	HP-5	HP-5	HP-5
<b>LCS % Recovery:</b>	90	90	90	95

% Recovery Control Limits:	71-133	72-128	72-130	71-120
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**Please Note:**  
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.



**SEQUOIA ANALYTICAL, #1271**

Signature on File  
  
Alan B. Kemp  
Project Manager



**CHAIN OF CUSTODY**

9012312


SAMPLER			UNOCAL					ANALYSES REQUESTED							TURN AROUND TIME:	
STEVE BALIAN			S/S # <u>5760</u> CITY: <u>SAN LORENZO</u>					TPH-GAS BTEX	TPH- DIESEL	TOG	8010	MTBE				REGULAR
			ADDRESS: <u>376 CRAWLING BLV.</u>													REMARKS
SAMPLE ID NO.	DATE	TIME	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION									
U-2	12-14-95	11:30	X	X		4	WELL	X		5121758	A-D	X				
U-4	"	12:15	X	X		4	"	X		5121757		X				
U-5	"	12:50	X	X		4	"	X		5121758		X				
U-6	"	13:25	X	X		4	"	X		5121759		X				
U-7	"	14:05	X	X		4	"	X		5121760		X				
U-8	"	14:40	X	X		4	"	X		5121761		X				
U-9	"	15:15	X	X		4	"	X		5121762	V	X				
RELINQUISHED BY:		DATE/TIME		RECEIVED BY:			DATE/TIME		THE FOLLOWING <u>MUST BE</u> COMPLETED BY THE LABORATORY ACCEPTING SAMPLES FOR ANALYSES:							
STEVE BALIAN		16:35					12/14		1. HAVE ALL SAMPLES RECEIVED FOR ANALYSIS BEEN STORED ON ICE? <u>Y</u>							
(SIGNATURE)		12-14-95		(SIGNATURE)			1635		2. WILL SAMPLES REMAIN REFRIGERATED UNTIL ANALYZED? <u>Y</u>							
(SIGNATURE)				(SIGNATURE)					3. DID ANY SAMPLES RECEIVED FOR ANALYSIS HAVE HEAD SPACE? <u>N</u>							
(SIGNATURE)				(SIGNATURE)					4. WERE SAMPLES IN APPROPRIATE CONTAINERS AND PROPERLY PACKAGED? <u>Y</u>							
(SIGNATURE)				(SIGNATURE)					SIGNATURE:  TITLE: DATE: 12/14							

Notes: All water containers to be sampled for TPHG/BTEX, 8010 & 8240 are preserved with HCL. All water containers to be sampled for Lead or Metals are preserved with HNO3. All other containers are



**CHAIN OF CUSTODY**

03-23-12

SAMPLER		UNOCAL					ANALYSES REQUESTED							TURN AROUND TIME:	
STEVE BALIAN		SIS # <u>5760</u> CITY: <u>SAN LORENZO</u>					TPH-GAS BTEX	TPH-DIESEL	TOG	8010					REGULAR
		ADDRESS: <u>376 LEWELLING BLVD.</u>													REMARKS
SAMPLE ID NO.	DATE	TIME	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION								
ES1	12-14-95		X	X		1		X						5121763	
ES2	"		X	X		1		X						5121764	
ES3	"		X	X		1		X						5121765	
RELINQUISHED BY:		DATE/TIME		RECEIVED BY:			DATE/TIME		THE FOLLOWING <u>MUST BE</u> COMPLETED BY THE LABORATORY ACCEPTING SAMPLES FOR ANALYSES:						
STEVE BALIAN		16:35					12/14		1. HAVE ALL SAMPLES RECEIVED FOR ANALYSIS BEEN STORED ON ICE? _____						
(SIGNATURE)		12-14-95		(SIGNATURE)			1635		2. WILL SAMPLES REMAIN REFRIGERATED UNTIL ANALYZED? _____						
(SIGNATURE)				(SIGNATURE)					3. DID ANY SAMPLES RECEIVED FOR ANALYSIS HAVE HEAD SPACE? _____						
(SIGNATURE)				(SIGNATURE)					4. WERE SAMPLES IN APPROPRIATE CONTAINERS AND PROPERLY PACKAGED? _____						
(SIGNATURE)				(SIGNATURE)					SIGNATURE:		TITLE:		DATE:		

Note: All water containers to be sampled for TPHG/BTEX, 8010 & 8240 are preserved with HCL. All water containers to be sampled for Lead or Metals are preserved with HNO3. All other containers are unpreserved.