

PACIFIC
ENVIRONMENTAL
GROUP, INC.

CM
8/14/96

July 19, 1996
Project 310-058.5A

Mr. Richard Hiatt
Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Suite 500
Oakland, California 94612

Re: Unocal Corporation
Quarterly Summary Report
Second Quarter 1996

Dear Mr. Hiatt:

As directed by Ms. Tina Berry of Unocal Corporation, Pacific Environmental Group, Inc. is forwarding the quarterly summary report for the following location:

<u>Service Station</u>	<u>Location</u>
5760	376 Lewelling Boulevard, San Lorenzo

If you have questions or comments, please do not hesitate to contact our office at (408) 441-7500.

Sincerely,

Pacific Environmental Group, Inc.

Joseph Muzzio
Project Geologist

Enclosure

cc: Ms. Tina Berry, Unocal Corporation
✓ Ms. Amy Leech, Alameda County Environmental Health Care Services

Quarterly Summary Report Second Quarter 1996

Unocal Service Station 5760
376 Lewelling Boulevard
San Lorenzo, California

City/County ID #: None
County: Alameda

BACKGROUND

The underground storage tanks were removed and replaced in November 1987. Currently, there are nine monitoring wells on site. Groundwater monitoring and sampling of wells began in February 1988. A remedial action plan was submitted during the third quarter 1994. A groundwater extraction system and soil vapor extraction system was installed in August and September 1995. In February 1996, modifications to the present sampling and monitoring activities were presented in a letter to Unocal and Alameda County, recommending a reduction to semiannual groundwater sampling for some of the monitoring wells.

RECENT QUARTER ACTIVITIES

Quarterly groundwater monitoring and sampling were conducted in July 1996. Monthly monitoring of soil and groundwater remedial systems were performed and appropriate reports documenting findings were submitted, as well as a quarterly performance report.

NEXT QUARTER ACTIVITIES

Unocal will submit proposed revisions to the current groundwater monitoring program. Operation of soil vapor and groundwater extraction and treatment system will continue.

CHARACTERIZATION/REMEDIAL STATUS

Soil contamination delineated? Yes.

Dissolved groundwater delineated? No.

Free product delineated? Yes.

Amount of groundwater contaminant recovered this quarter? Approximately 8 pounds.

Soil remediation in progress? Yes.

Start? October 1995.

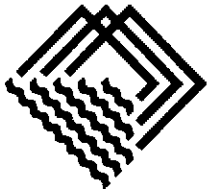
Anticipated completion date? Unknown.

Dissolved/free product remediation in progress? Yes.

Start? October 1995.

Anticipated completion? Unknown.

CONSULTANT: Pacific Environmental Group, Inc.



PACIFIC
ENVIRONMENTAL
GROUP, INC.

COG
8/14/96

May 17, 1996
Project 310-058.5A

Ms. Susan Keach
Oro Loma Sanitary District
2600 Grant Avenue
San Lorenzo, California 94580

Re: Wastewater Discharge Permit 024 - Notice of Exceedance
Unocal Service Station 5760
376 Lewelling Boulevard at Usher Street
San Lorenzo, California

Dear Ms. Keach:

On behalf of Unocal Corporation, Pacific Environmental Group, Inc. (PACIFIC) is operating a groundwater extraction (GWE) and treatment system at the site referenced above. This letter is being sent to notify you of the current GWE system status and plans to correct the permit exceedance which was noted in the latest sample results. Toluene and Xylenes were noted in the treatment system effluent at concentrations of 0.80 micrograms per liter ($\mu\text{g/L}$) and 2.0 $\mu\text{g/L}$, respectively; please note that although a concentration of 83 $\mu\text{g/L}$ was reported for total purgeable petroleum hydrocarbons (TPPH) as gasoline, our permit allows a maximum TPPH limitation of 15 milligrams per liter (mg/L), so we are well under the allowable concentration for this constituent.

After one of the two carbon vessels was changed out on March 25, 1996, and the system restarted, PACIFIC made a regular site visit on April 5, 1996 and found the GWE system down. After restarting the system, samples were taken along with operational data. Approximately 340 gallons of extracted groundwater had been cycled through the treatment system and discharged to the sewer between the samples taken on March 11 and April 5. During a return visit to the site on April 16, the system was once again found down. Upon investigation, it was found that one of the carbon vessel lids was not sealing properly, so the system was left down and a replacement lid was ordered. According to field data, approximately 49,930 gallons were discharged through the treatment system between the April 5 and April 16 site visits. PACIFIC is currently investigating the cause of the unusually high discharge volume.

May 17, 1996

Page 2

The carbon vessel lid was replaced on May 15, and the system was restarted and samples collected. The system was deactivated after sample collection and will remain deactivated until receipt of sample analytical results. If results confirm breakthrough, the second carbon vessel will be scheduled for replacement. If the results indicate permit compliance, the system will be restarted. If you have any questions regarding this project or require further information, please do not hesitate to call.

Sincerely,

Pacific Environmental Group, Inc.



Suzanne McClurkin-Nelson
Staff Scientist



Steven D. Clark
Project Hydrogeologist

Attachments: Notice of Discharge Violation dated May 13, 1996

cc: Ms. Tina Berry, Unocal Corporation
Mr. Richard Hiatt, Regional Water Quality Control Board - S.F. Bay Region
Ms. Amy Leech, Alameda County Health Care Services



ORO LOMA SANITARY DISTRICT

2001 GRANT AVENUE
SAN LORENZO, CALIF. 94588-0800
TELEPHONE (925) 276-4700
ADMINISTRATION FAX (925) 276-4701
PLANT FAX (925) 276-4702

Director
Edward A. Heuer, President
Richard G. Kern, Vice President
L. Frank A. Landis, Engineer
Harold G. Strawn, Engineer
Frank A. Stone, Director
John M. Smith
Thomas C. Campbell

MAY 17 1996
FACILITY ADDRESS

May 13, 1996

Ms. Suzanne McClurkin-Nelson
Pacific Environmental Group
2025 Gateway Place, Suite 440
San Jose, CA 95110

Subject: Unocal Station #5760, Notice of Discharge Violation

Dear Ms. McClurkin-Nelson:

The monitoring report of the remediation site referenced above indicates two violations of the Special Discharge Permit No. 024.

SAMPLE	PARAMETER	RESULTS	OLSD LIMIT
04/05/96	TPH	83 ug/L	15 ug/L
	Benzene	<0.50	Non Detect
	Toluene	0.80	ND
	Ethylbenzene	<0.50	ND
	Xylene	2.0	ND

No!!
per violation w/
Susan Keach
5/17/96 and
Permits
OLSD limit
is 15 mg/L.
No
Violation

Within seven (7) days of receipt of this letter, please provide a written explanation describing the cause of the violations and the corrective actions taken to prevent future violations.

You may reach us at (510) 276-4700, extension 149, with any questions.

Sincerely,

Edward A. Heuer
Director, Water Quality Services

Susan Keach
Industrial Waste Inspector

MPDS-UN5760-10
April 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. Oxygen Release Compound (ORC) filter socks were present in monitoring wells U-6 and U-9. 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 March 20 and 22, 1996. Prior to sampling, the wells were each purged of 11 gallons of water. In addition, dissolved oxygen concentrations were also measured and are presented in Table 5. 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. Equipment blank, Field blank and Trip 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 documentation. 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.

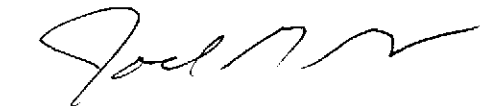
If you have any questions regarding this report, please do not hesitate to call Mr. Joel G. Greger at (510) 602-5120.

Sincerely,

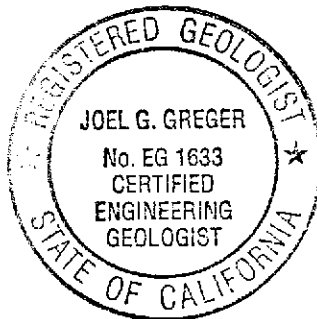
MPDS Services, Inc.



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 5
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 March 20, 1996)

U-1★	WELL WAS INACCESSIBLE FOR MONITORING AND PURGING - CONNECTED TO VAPOR EXTRACTION SYSTEM					
U-2	26.24	15.02	29.90	0	--	0
U-3★	WELL WAS INACCESSIBLE FOR MONITORING AND PURGING- CONNECTED TO VAPOR EXTRACTION SYSTEM					
U-4	25.32	14.93	27.86	0	--	0
U-5	25.24	14.07	28.40	0	--	0
U-6	25.27	12.41	28.27	0	No	11
U-7	25.15	11.96	34.97	0	--	0
U-8	25.32	13.25	29.82	0	--	0
U-9	25.04	12.27	28.20	0	No	11

(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

TABLE 1 (Continued)

SUMMARY OF MONITORING DATA

Well #	Ground Water Elevation (feet)	Depth to Water (feet)◆	Total Well Depth (feet)◆	Product Thickness (feet)	Sheen	Water Purged (gallons)
(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

Well #	Well Casing Elevation (feet)*
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.
- * Well was sampled on March 22, 1996.

TABLE 2

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

(Measured on March 20, 1996)

Well #	Gallons per Casing Volume	Time	Gallons Purged	Casing Volumes Purged	Temper- ature (°F)	Conductivity ([μmhos/cm] x1000)	pH
U-6	2.70	10:30	0	0	69.2	1.45	7.82
			3	1.11	72.1	1.50	7.51
			6	2.22	72.3	1.46	7.40
			9	3.33	73.5	1.46	7.32
			11	4.07	73.5	1.48	7.21
U-9	2.70	09:45	0	0	70.5	1.36	7.67
			3	1.11	72.6	1.30	7.40
			6	2.22	73.0	1.29	7.31
			9	3.33	73.0	1.28	7.28
		09:58	11	4.07	73.2	1.26	7.17

TABLE 3

**SUMMARY OF LABORATORY ANALYSES
 WATER**

Well #	Date	TPH as Gasoline	Benzene	Toluene	Ethyl- benzene	Xylenes
U-1	3/22/96	13,000	200	590	640	4,000
	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	NOT SAMPLED - PRODUCT SKIMMER INSTALLED IN WELL				
	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	3/20/96	SAMPLED ANNUALLY				
	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

TABLE 3 (Continued)

**SUMMARY OF LABORATORY ANALYSES
 WATER**

Well #	Date	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes
U-2						
(Continued)	3/09/94	62	1.1	5.4	1.1	9.7
	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
	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	3/22/96	15,000	150	490	480	3,100
	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

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-3	6/03/91	130,000	5,800	19,000	4,600	24,000
(Continued)	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
U-4	3/20/96	SAMPLED ANNUALLY				
	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	1.0	ND	1.8
U-5	3/20/96	SAMPLED ANNUALLY				
	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

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						
(Continued)	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
	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
U-6	3/20/96	52	1.1	0.98	ND	0.75
	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	3/20/96	SAMPLED ANNUALLY				
	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

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-7						
(Continued)	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
U-8	3/20/96	SAMPLED ANNUALLY				
	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	3/20/96	ND	ND	ND	ND	ND
	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

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-9						
(Continued)	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

* 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.

▲▲ 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.

Note: - The detection limit for results reported as ND by Sequoia Analytical Laboratory is equal to the stated detection limit times the dilution factor indicated on the laboratory analytical sheets.

- Prior to August 1, 1995, the total purgeable petroleum hydrocarbon (TPH as gasoline) quantification range used by Sequoia Analytical Laboratory was C4 - C12. Since August 1, 1995, the quantification range used by Sequoia Analytical Laboratory is C6 - C12.

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

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	3/20/96	480
	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.

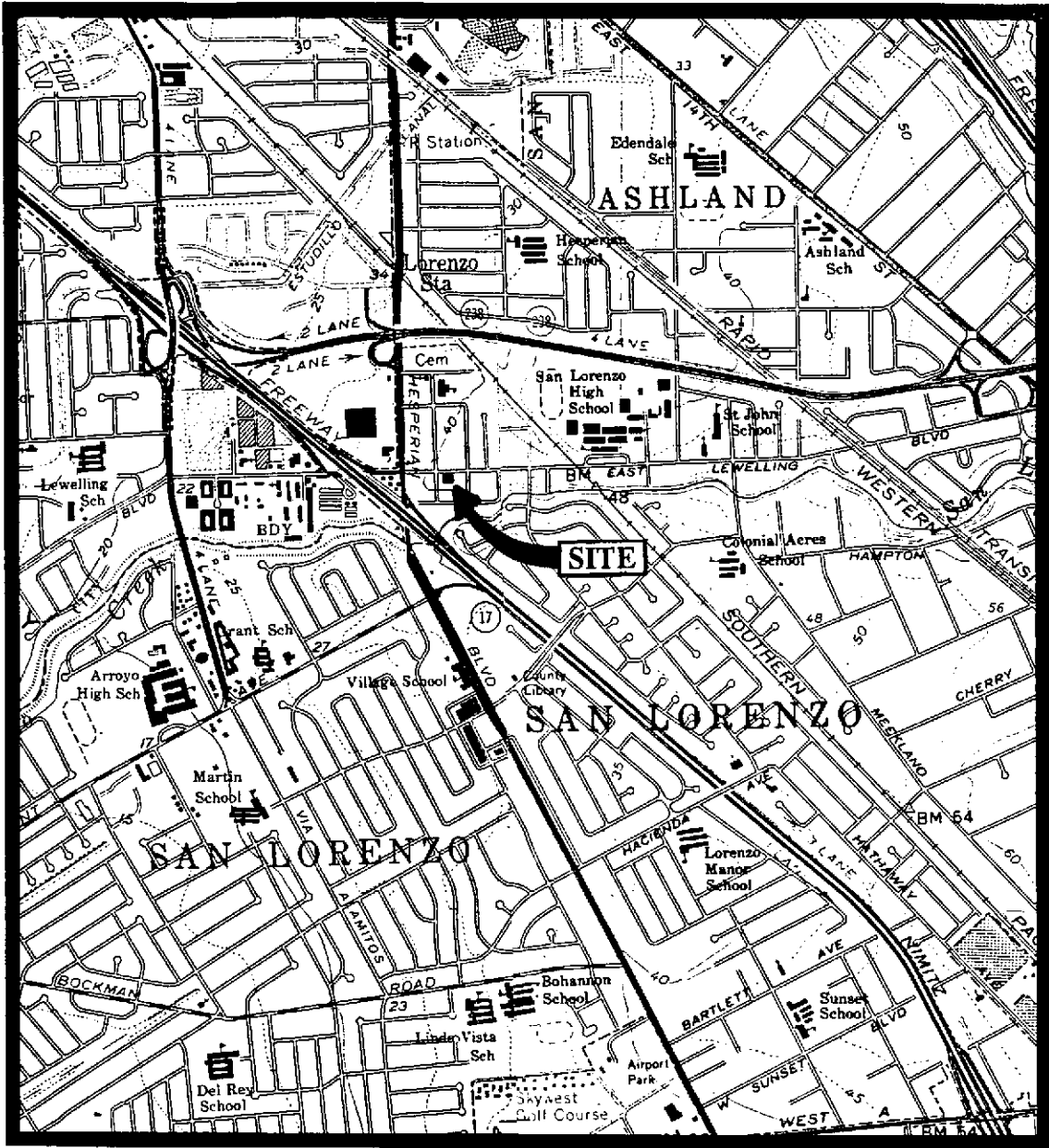
TABLE 5

SUMMARY OF MONITORING DATA

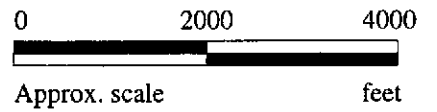
Dissolved Oxygen Concentration (DO) Measurement

<u>Date</u>	<u>Well #</u>	<u>DO (mg/L)</u>	
		<u>Before Purging</u>	<u>After Purging</u>
3/20/96	U-6	3.85	3.89
	U-9	4.02	4.00

Did they implement ORC augmentation @ this site?
mg/L = milligrams per liter



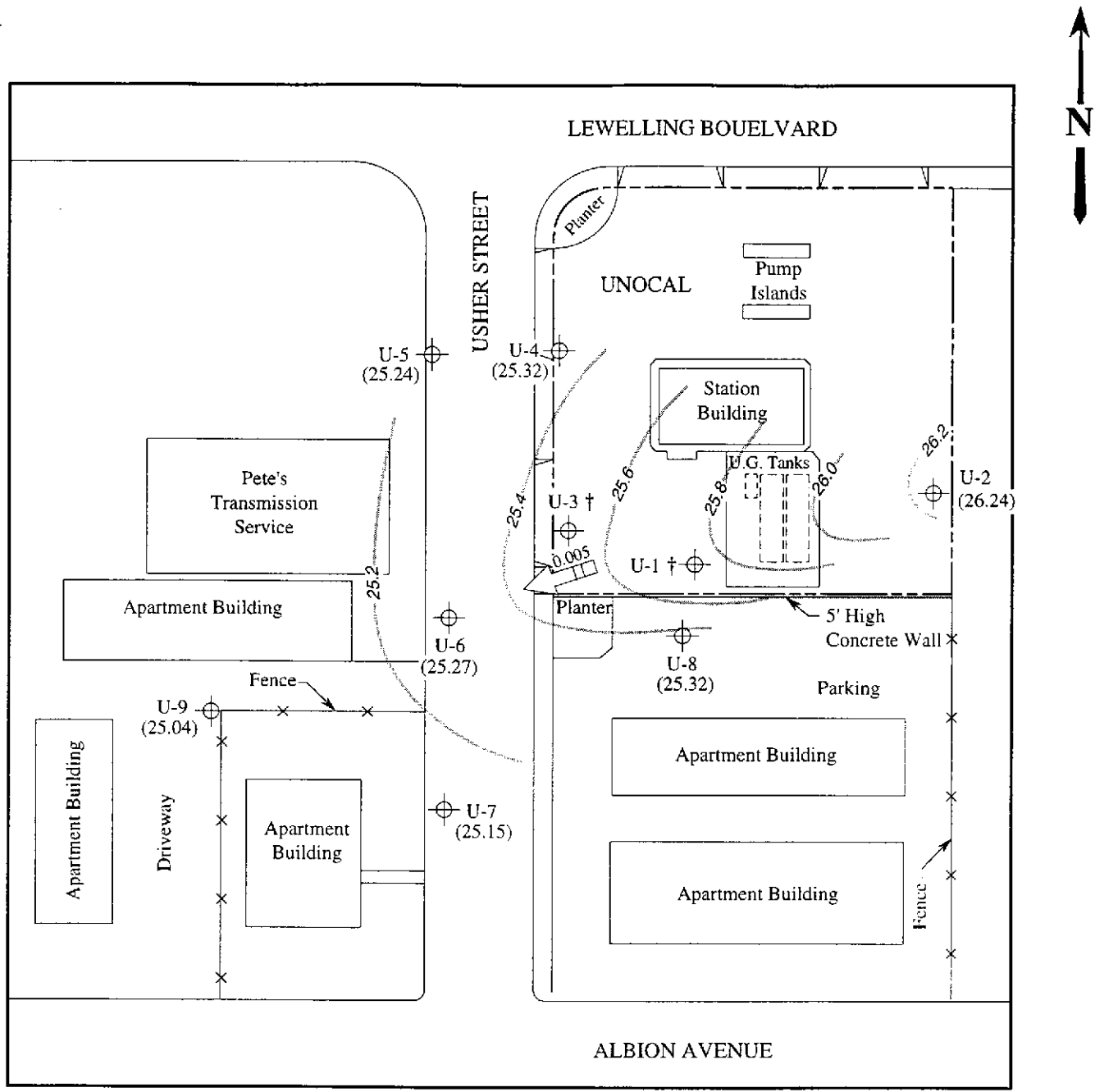
Base modified from 7.5 minute U.S.G.S.
Hayward and San Leandro Quadrangles
(both photorevised 1980)



mpds SERVICES, INCORPORATED

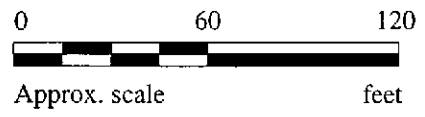
**UNOCAL SERVICE STATION #5760
376 LEWELLING BOULEVARD
SAN LORENZO, CALIFORNIA**

**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.

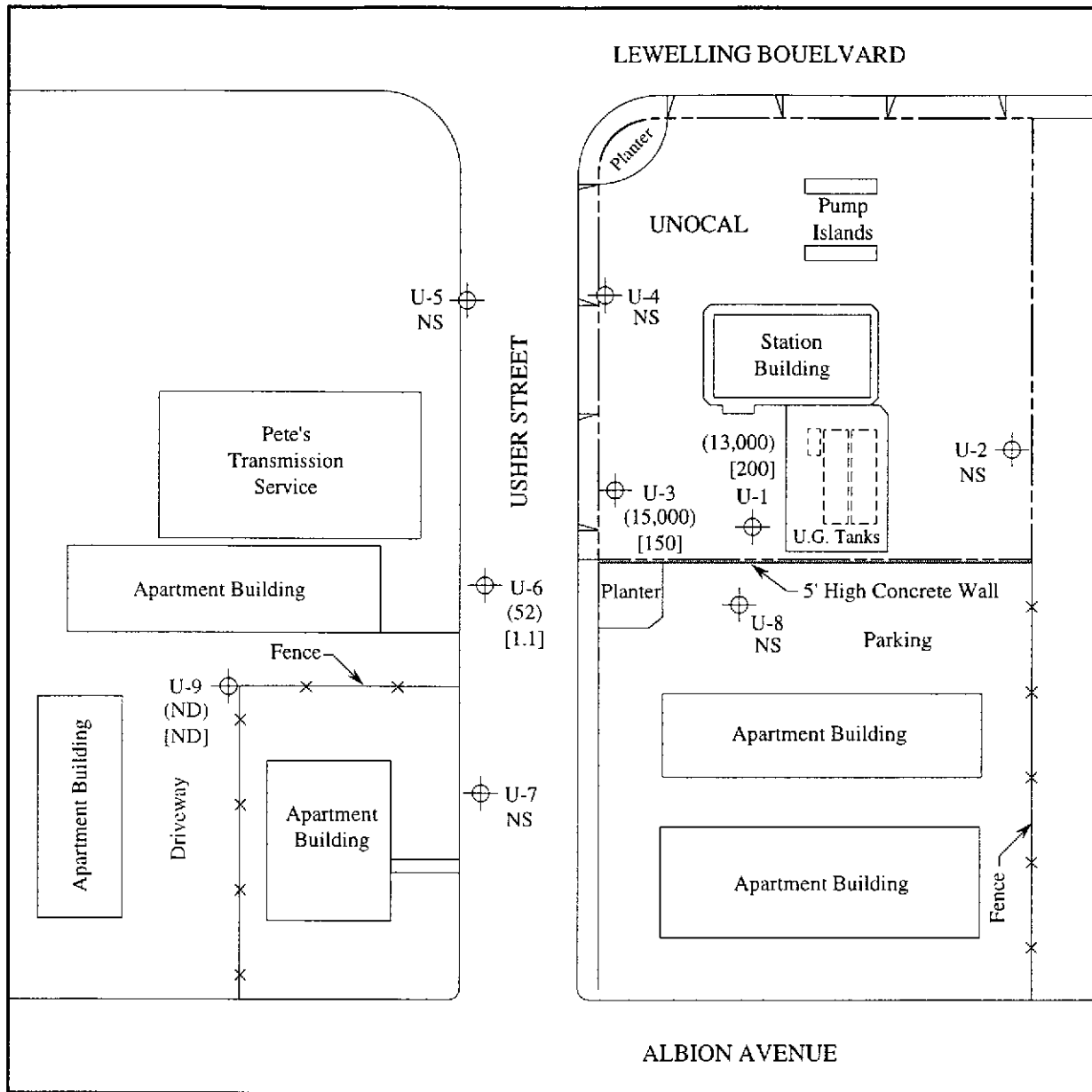


POTENTIOMETRIC SURFACE MAP FOR THE MARCH 20, 1996 MONITORING EVENT



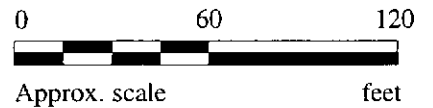
**UNOCAL SERVICE STATION #5760
376 LEWELLING BOULEVARD
SAN LORENZO, CALIFORNIA**

**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, NS Not sampled



PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON MARCH 20 AND 22, 1996



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

**FIGURE
2**



MPDS Services	Client Project ID: Unocal #5760, 376 Llewelling, San Lorenzo	Sampled: Mar 20, 1996
2401 Stanwell Dr., Ste. 300	Matrix Descript: Water	Received: Mar 20, 1996
Concord, CA 94520	Analysis Method: EPA 5030/8015 Mod./8020	Reported: Apr 9, 1996
Attention: Jarrel Crider	First Sample #: 603-1768	

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	MTBE µg/L
603-1768	U-6	52	1.1	0.98	ND	0.75	1,200
603-1769	U-9	ND	ND	ND	ND	ND	480
603-1770	ES1	ND	ND	ND	ND	ND	-
603-1771	ES2	ND	ND	ND	ND	ND	-
603-1772	ES3	ND	ND	ND	ND	ND	-

Detection Limits:	50	0.50	0.50	0.50	0.50	40
--------------------------	-----------	-------------	-------------	-------------	-------------	-----------

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





MPDS Services	Client Project ID: Unocal #5760, 376 Llewelling, San Lorenzo	Sampled: Mar 20, 1996
2401 Stanwell Dr., Ste. 300	Matrix Descript: Water	Received: Mar 20, 1996
Concord, CA 94520	Analysis Method: EPA 5030/8015 Mod./8020	Reported: Apr 9, 1996
Attention: Jarrel Crider	First Sample #: 603-1768	

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
603-1768	U-6	Gasoline	1.0	4/3/96	HP-11	105
603-1769	U-9	--	1.0	4/3/96	HP-11	99
603-1770	ES1	--	1.0	4/3/96	HP-2	109
603-1771	ES2	--	1.0	4/3/96	HP-2	85
603-1772	ES3	--	1.0	4/3/96	HP-2	100

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 Llewelling, San Lorenzo
Matrix: Liquid

QC Sample Group: 6031768-772

Reported: Apr 9, 1996

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	L. Huang	L. Huang	L. Huang	L. Huang

MS/MSD	Benzene	Toluene	Ethyl Benzene	Xylenes
Batch#:	6031835	6031835	6031835	6031835
Date Prepared:	4/3/96	4/3/96	4/3/96	4/3/96
Date Analyzed:	4/3/96	4/3/96	4/3/96	4/3/96
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Matrix Spike % Recovery:	125	120	125	122
Matrix Spike Duplicate % Recovery:	110	105	105	107
Relative % Difference:	13	13	17	13

LCS Batch#:	2LCS040396	2LCS040396	2LCS040396	2LCS040396
Date Prepared:	4/3/96	4/3/96	4/3/96	4/3/96
Date Analyzed:	4/3/96	4/3/96	4/3/96	4/3/96
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
LCS % Recovery:	110	105	110	110

% Recovery Control Limits:	Benzene	Toluene	Ethyl Benzene	Xylenes
	70-130	70-130	70-130	70-130

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	Client Project ID: Unocal #5760, 376 Lleweling, San Lorenzo	Sampled: Mar 22, 1996
2401 Stanwell Dr., Ste. 300	Matrix Descript: Water	Received: Mar 22, 1996
Concord, CA 94520	Analysis Method: EPA 5030/8015 Mod./8020	Reported: Apr 11, 1996
Attention: Jarrel Crider	First Sample #: 603-1945	

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	MTBE µg/L
603-1945	U-1	13,000	200	590	640	4,000	790
603-1946	U-3	15,000	150	490	480	3,100	400

Detection Limits:	50	0.50	0.50	0.50	0.50	40
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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





MPDS Services	Client Project ID: Unocal #5760, 376 Lleweling, San Lorenzo	Sampled: Mar 22, 1996
2401 Stanwell Dr., Ste. 300	Matrix Descript: Water	Received: Mar 22, 1996
Concord, CA 94520	Analysis Method: EPA 5030/8015 Mod./8020	Reported: Apr 11, 1996
Attention: Jarrel Crider	First Sample #: 603-1945	

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
603-1945	U-1	Gasoline	20	4/5/96	HP-11	90
603-1946	U-3	Gasoline	20	4/5/96	HP-11	99

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 Lleweling, San Lorenzo Matrix: Liquid QC Sample Group: 6031945-946	Reported: Apr 11, 1996
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QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	L. Huang	L. Huang	L. Huang	L. Huang

MS/MSD Batch#:	6032168	6032168	6032168	6032168
Date Prepared:	4/5/96	4/5/96	4/5/96	4/5/96
Date Analyzed:	4/5/96	4/5/96	4/5/96	4/5/96
Instrument I.D.#:	HP-11	HP-11	HP-11	HP-11
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Matrix Spike % Recovery:	115	97	105	103
Matrix Spike Duplicate % Recovery:	125	102	115	113
Relative % Difference:	8.3	5.0	9.1	9.2

LCS Batch#:	1LCS040596	1LCS040596	1LCS040596	1LCS040596
Date Prepared:	4/5/96	4/5/96	4/5/96	4/5/96
Date Analyzed:	4/5/96	4/5/96	4/5/96	4/5/96
Instrument I.D.#:	HP-11	HP-11	HP-11	HP-11
LCS % Recovery:	105	95	105	103

% 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



M P D S Services, Inc.

2401 Stanwell Drive, Suite 400, Concord, CA 94520
Tel: (510) 602-5120 Fax: (510) 689-1918

9603388

CHAIN OF CUSTODY

SAMPLER			UNOCAL					ANALYSES REQUESTED							TURN AROUND TIME:		
(JOE) HOVSIA AJEMIAN			S/S # <u>5760</u> CITY: <u>San Lorenzo</u>					TPH-GAS BTX	TPH-DIESEL	TOG	8010	MTBE					Regular
WITNESSING AGENCY			ADDRESS: <u>376 Lewelling</u>														REMARKS
SAMPLE ID NO.	DATE	TIME	(WATER)	(GDAR)	COMP	NO. OF CONT.	SAMPLING LOCATION										
U-6	3-20-96	10:35 A.M.	✓	✓		2(50A)	Wells	✓					✓			6031768 AB	
U-9	"	10:15 A.M.	✓	✓		"	"	✓					✓			6031769 ↓	

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	THE FOLLOWING MUST BE COMPLETED BY THE LABORATORY ACCEPTING SAMPLES FOR ANALYSES:			
(SIGNATURE) Joe Ajemian	3-20-96 11:25 A.M.	(SIGNATURE) <i>[Signature]</i> 3/20/96	1. HAVE ALL SAMPLES RECEIVED FOR ANALYSIS BEEN STORED ON ICE?			
(SIGNATURE)	1500 3-20-96	(SIGNATURE) <i>[Signature]</i>	2. WILL SAMPLES REMAIN REFRIGERATED UNTIL ANALYZED?			
(SIGNATURE) <i>[Signature]</i>	1730 3-20	(SIGNATURE) <i>[Signature]</i>	3. DID ANY SAMPLES RECEIVED FOR ANALYSIS HAVE HEAD SPACE?			W
(SIGNATURE)		(SIGNATURE)	4. WERE SAMPLES IN APPROPRIATE CONTAINERS AND PROPERLY PACKAGED?			✓
(SIGNATURE)		(SIGNATURE)	SIGNATURE: <i>[Signature]</i>	TITLE: ANALYST	DATE: 3/20/96	

M P D S Services, Inc.

2401 Stanwell Drive, Suite 400, Concord, CA 94520
Tel: (510) 602-5120 Fax: (510) 689-1918

9603388

CHAIN OF CUSTODY

SAMPLER (JOE) HOVSIA AJEMIAN			UNOCAL S/S # <u>5760</u> CITY: <u>San Lorenzo</u>					ANALYSES REQUESTED								TURN AROUND TIME:			
WITNESSING AGENCY			ADDRESS: <u>376 Levellong</u>					TPH-GAS BTEX	TPH-DIESEL	TOG	8010							Regular	REMARKS
SAMPLE ID NO.	DATE	TIME	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION												
ES1	3-20-96					150A		✓										6031770	
ES2								✓										6031771	
ES3								✓										6031772	
RELINQUISHED BY:			DATE/TIME		RECEIVED BY:		THE FOLLOWING MUST BE COMPLETED BY THE LABORATORY ACCEPTING SAMPLES FOR ANALYSES:												
(SIGNATURE) Joe Demian			1125 P.M. 3-20-96		(SIGNATURE) [Signature] 3/20/96		1. HAVE ALL SAMPLES RECEIVED FOR ANALYSIS BEEN STORED ON ICE? <input type="checkbox"/>												
(SIGNATURE) [Signature]			1500 3-20		(SIGNATURE) [Signature]		2. WILL SAMPLES REMAIN REFRIGERATED UNTIL ANALYZED? <input type="checkbox"/>												
(SIGNATURE) [Signature]			1730		(SIGNATURE) [Signature]		3. DID ANY SAMPLES RECEIVED FOR ANALYSIS HAVE HEAD SPACE? <input checked="" type="checkbox"/>												
(SIGNATURE) [Signature]			3-20		(SIGNATURE) [Signature]		4. WERE SAMPLES IN APPROPRIATE CONTAINERS AND PROPERLY PACKAGED? <input type="checkbox"/>												
(SIGNATURE) [Signature]							SIGNATURE: [Signature] TITLE: ANALYST DATE: 3/20/96												

M P D S Services, Inc.

2401 Stanwell Drive, Suite 400, Concord, CA 94520
 Tel: (510) 602-5120 Fax: (510) 689-1918

9603426

CHAIN OF CUSTODY

SAMPLER (JOE) HOVSIA AJEMIAN			UNOCAL SIS # 5760 CITY: S. Lorenzo				ANALYSES REQUESTED						TURN AROUND TIME:	
WITNESSING AGENCY			ADDRESS: 376 Lewelling				TPH-GAS BTEX	TPH-DIESEL	TOG	8010	MTBE			Regular
SAMPLE ID NO.	DATE	TIME	WATCH	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPH-GAS BTEX	TPH-DIESEL	TOG	8010	MTBE	REMARKS	
U-1	3-22-96	10:15 A.M.	✓	-		2 (VOA)	wells	✓				✓	6031945 13°C	
U-3	"	10:25 A.M.	✓	-		"	"	✓					6031946	

RELINQUISHED BY:		DATE/TIME	RECEIVED BY:	THE FOLLOWING <u>MUST BE</u> COMPLETED BY THE LABORATORY ACCEPTING SAMPLES FOR ANALYSES:	
(SIGNATURE)	Joe Demian	11:00 A.M. 3-22-96	(SIGNATURE)	1. HAVE ALL SAMPLES RECEIVED FOR ANALYSIS BEEN STORED ON ICE?	Yes
(SIGNATURE)		3-22	(SIGNATURE)	2. WILL SAMPLES REMAIN REFRIGERATED UNTIL ANALYZED?	Yes
(SIGNATURE)		3/22 520	(SIGNATURE)	3. DID ANY SAMPLES RECEIVED FOR ANALYSIS HAVE HEAD SPACE?	NO
(SIGNATURE)		11:03 AM 3/22/96	(SIGNATURE)	4. WERE SAMPLES IN APPHOPRIATE CONTAINERS AND PROPERLY PACKAGED?	Yes
(SIGNATURE)			(SIGNATURE)	SIGNATURE: Diane Sawyer	TITLE: Vice President
					DATE: 3/22/96