

MPDS-UN3690-02  
August 12, 1994

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

Attention: Mr. Edward C. Ralston

RE: Semi-Annual Data Report  
Unocal Service Station #3690  
14999 Farnsworth Street  
San Leandro, California

Dear Mr. Ralston:

This data report presents the results of the most recent 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 semi-annual period 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 semi-annual period is shown on the attached Figure 1.

Ground water samples were collected on July 20, 1994. Prior to sampling, the wells were each purged of between 14 and 15 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. 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 Table 3. The concentrations of Total Petroleum Hydrocarbons (TPH) as gasoline and benzene detected in the ground water samples collected during this semi-annual period 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

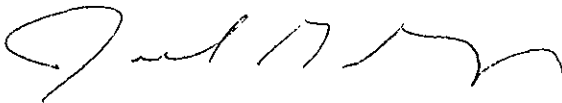
A copy of this report should be sent to Ms. Pamela Evans of the Alameda County Health Care Services Agency.

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

Sincerely,

MPDS Services, Inc.

  
Sarkis A. Karkarian  
Staff Engineer



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

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

/bp

Attachments: Tables 1, 2 & 3  
Location Map  
Figures 1 & 2  
Laboratory Analyses  
Chain of Custody documentation

cc: Mr. Cliff Garratt, GeoStrategies, Inc.



**TABLE 1**

**SUMMARY OF MONITORING DATA**

<u>Well #</u>	<u>Ground Water Elevation (feet)</u>	<u>Depth to Water (feet)◆</u>	<u>Product Thickness (feet)</u>	<u>Sheen</u>	<u>Water Purged (gallons)</u>	<u>Total Well Depth (feet)◆</u>
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(Monitored and Sampled on July 20, 1994)

U-1	7.14	9.35	0	No	14	29.50
U-2	7.92	8.56	0	No	15	30.34
U-3	7.46	9.86	0	No	14	29.88

(Monitored and Sampled on January 22, 1994)

U-1	7.39	9.10	0	No	14	29.45
U-2	8.26	8.22	0	No	15.5	30.30
U-3	7.68	9.64	0	No	14	29.80

(Monitored and Sampled on August 9, 1993)

U-1	6.90	10.34	0			
U-2	7.76	9.09	0			
U-3	7.19	10.57	0			

<u>Well #</u>	<u>Well Cover Elevation (feet)*</u>	<u>Well Casing Elevation (feet)**</u>
U-1	17.24	16.49
U-2	16.85	16.48
U-3	17.76	17.32

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TABLE 1 (Continued)

SUMMARY OF MONITORING DATA

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- ◆ The depth to water level and total well depth measurements were taken from the top of the well casings. Prior to January 22, 1994, the depth to water level and total well depth measurements were taken from the top of the well covers.
- \* The elevations of the top of the well covers have been surveyed relative to Mean Sea Level (MSL).
- \*\* Relative to MSL.

Note: Monitoring data prior to January 22, 1994, were provided by GeoStrategies, Inc.

**TABLE 2**

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

(Measured on July 20, 1994)

<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] x100)</u>	<u>pH</u>
U-1	3.43	9:30	0	0	65.7	6.23	7.24
			3.5	1.02	67.8	6.32	7.40
			7	2.04	68.3	6.74	7.47
			10.5	3.06	67.9	7.35	7.40
			14	4.08	67.8	8.32	7.48
U-2	3.70	10:25	0	0	66.0	6.04	7.95
			3.5	2.13	66.9	6.08	7.88
			7	3.20	67.8	6.30	7.70
			10.5	4.13	66.7	6.31	7.67
			15	4.05	67.0	6.28	7.63
U-3	3.40	11:20	0	0	66.3	6.99	8.00
			3.5	1.03	67.5	6.66	7.70
			7	2.06	68.2	7.05	7.50
			10.5	3.09	67.8	7.61	7.48
			14	4.12	67.6	7.90	7.49

**TABLE 3**

SUMMARY OF LABORATORY ANALYSES  
WATER

<u>Date</u>	<u>Well #</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl-benzene</u>	<u>Xylenes</u>
7/20/94	U-1	87**	ND	ND	ND	ND
	U-2	ND	ND	ND	ND	ND
	U-3	ND	3.2	ND	ND	ND
1/22/94	U-1	ND	ND	ND	ND	ND
	U-2	ND	ND	0.82	ND	2.1
	U-3	ND	0.92	ND	ND	ND
8/09/93	U-1	110*	ND	ND	ND	ND
	U-2	ND	ND	ND	ND	ND
	U-3	ND	1.0	ND	ND	ND
1/25/93	U-1	ND	13	ND	6.4	12
	U-2	ND	ND	ND	ND	ND
	U-3	ND	ND	ND	ND	ND
11/23/92	U-1	ND	ND	ND	ND	ND
	U-2	ND	ND	ND	ND	ND
	U-3	ND	2.4	ND	ND	ND
8/20/92	U-1	ND	ND	ND	ND	ND
	U-2	ND	ND	ND	ND	ND
	U-3	ND	3.6	ND	ND	ND
5/01/92	U-1	ND	0.8	ND	ND	ND
	U-2	ND	ND	ND	ND	ND
	U-3	ND	1.2	ND	ND	ND
2/12/92	U-1	ND	ND	ND	ND	ND
	U-2	ND	ND	ND	ND	ND
	U-3	ND	1.7	ND	ND	ND

TABLE 3 (Continued)

SUMMARY OF LABORATORY ANALYSES  
WATER

<u>Date</u>	<u>Well #</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl-benzene</u>	<u>Xylenes</u>
9/30/91	U-1	ND	ND	ND	ND	ND
	U-2	ND	ND	ND	ND	ND
	U-3▲	ND	ND	ND	ND	ND

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

\*\* Sequoia Analytical Laboratory reported that the hydrocarbons detected did not appear to be gasoline.

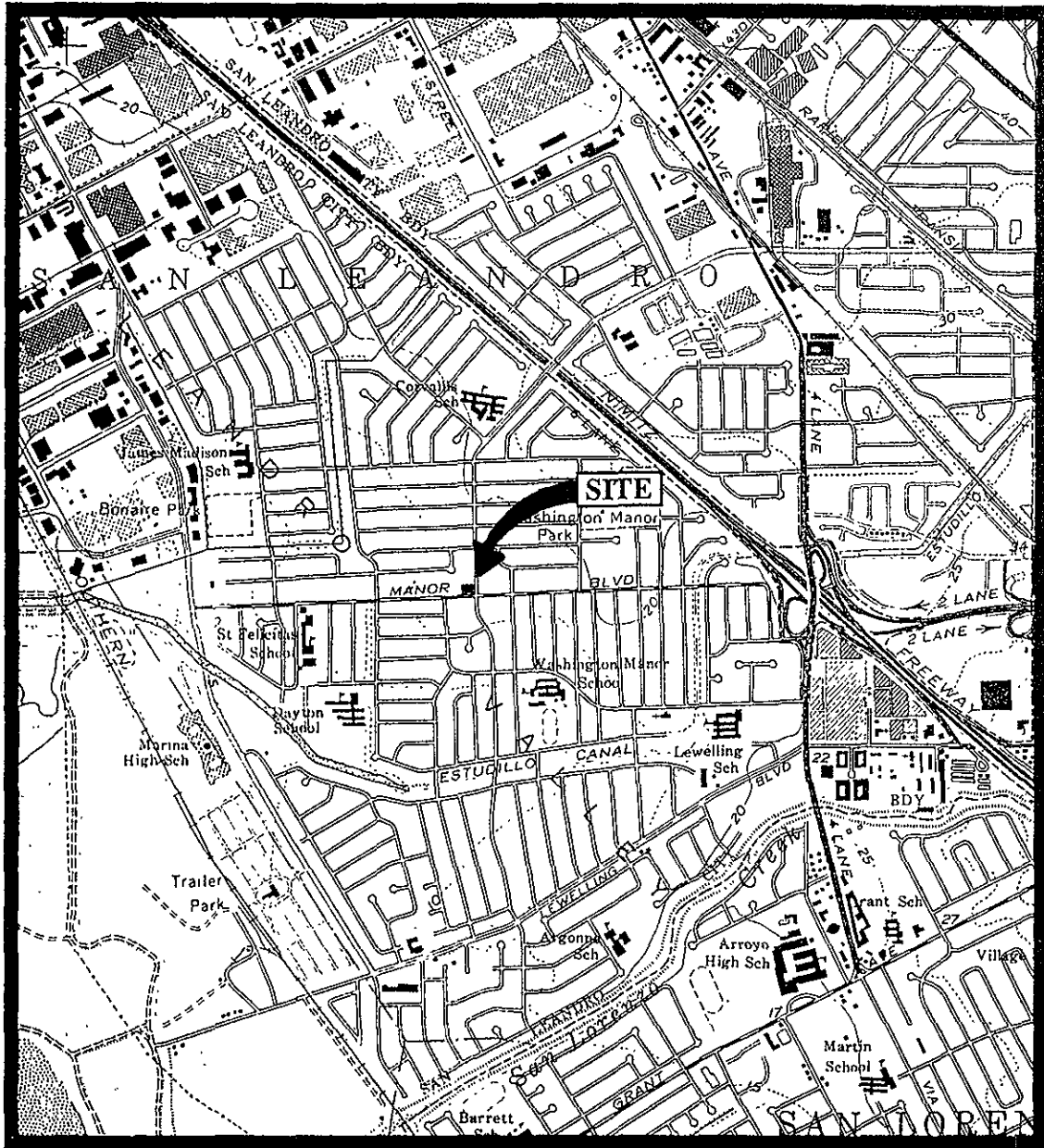
▲ Oil and Grease concentrations were non-detectable.

ND = Non-detectable.

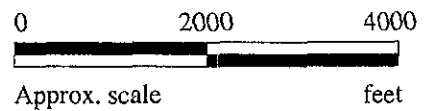
-- Indicates analysis was not performed.

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

Note: Laboratory analyses data prior to January 22, 1994, were provided by GeoStrategies, Inc.

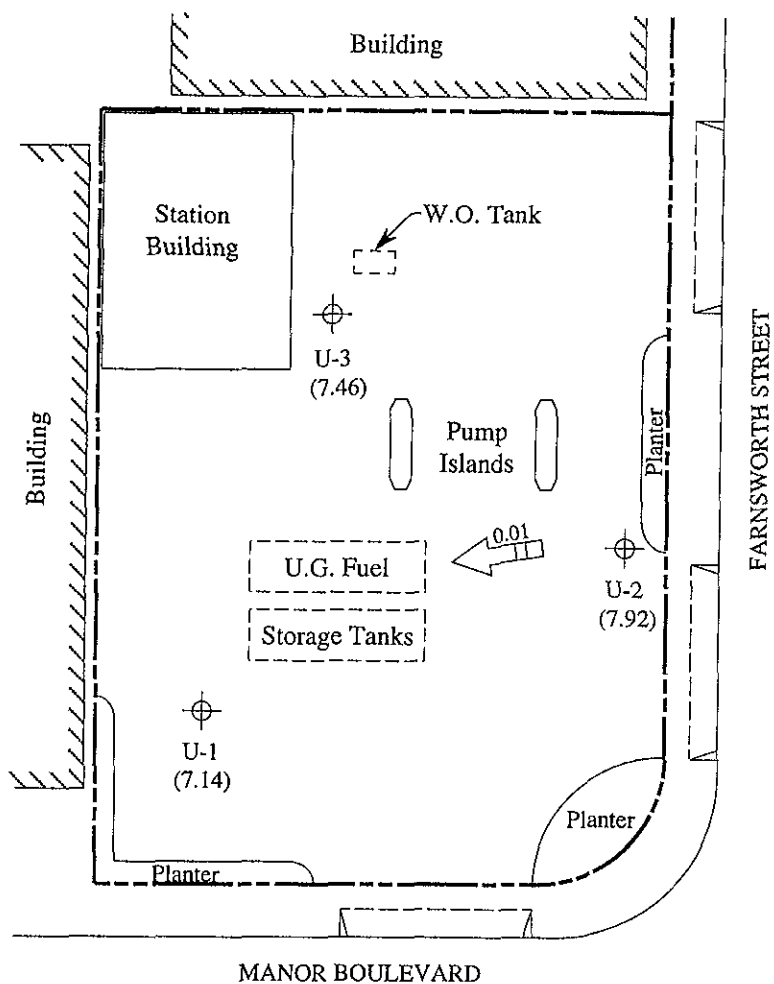


Base modified from 7.5 minute U.S.G.S. San Leandro Quadrangle  
 (photorevised 1980)



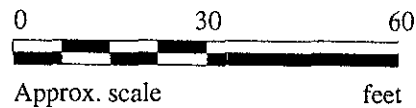
	<p><b>UNOCAL SERVICE STATION #3690</b>  <b>14999 FARNSWORTH STREET</b>  <b>SAN LEANDRO, CALIFORNIA</b></p>	<p><b>LOCATION</b>  <b>MAP</b></p>
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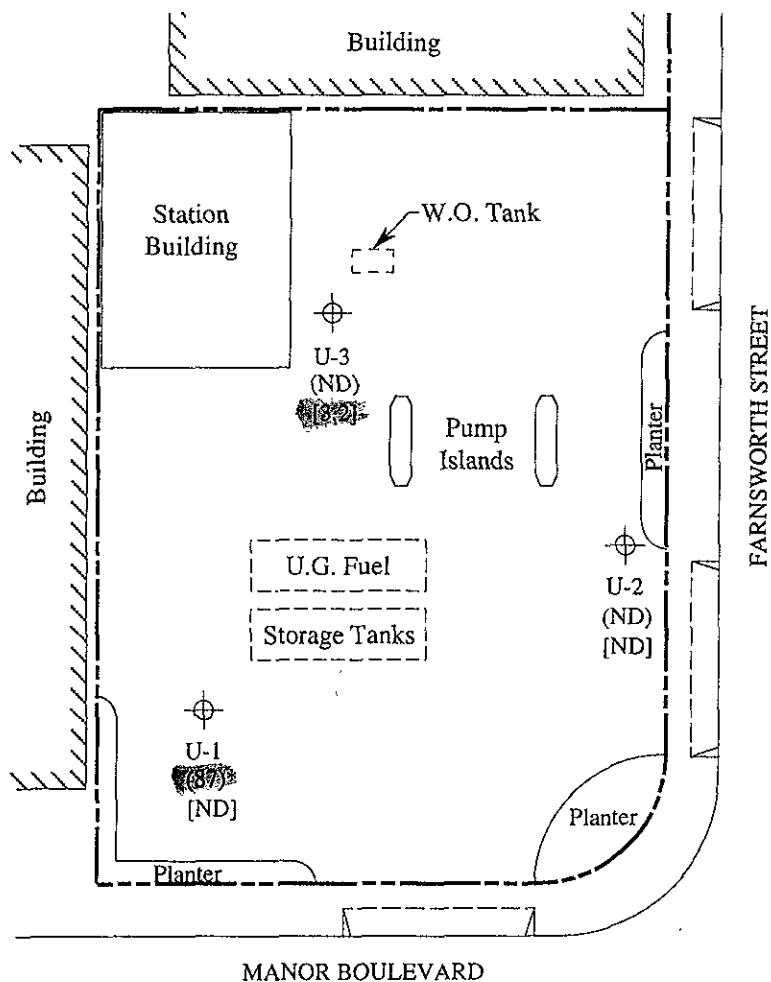


**LEGEND**

- Monitoring well
- ( ) Ground water elevation in feet above Mean Sea Level
- ###> Direction of ground water flow with approximate hydraulic gradient



**GROUND WATER FLOW DIRECTION MAP FOR THE JULY 20, 1994 MONITORING EVENT**



**LEGEND**

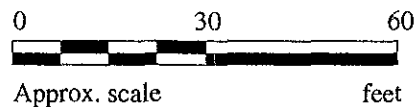
⊕ Monitoring well

( ) Concentration of TPH as gasoline in  $\mu\text{g/L}$

[ ] Concentration of benzene in  $\mu\text{g/L}$

ND = Non-detectable

\* The hydrocarbons detected did not appear to be gasoline



**PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON JULY 20, 1994**



**UNOCAL SERVICE STATION #3690  
14999 FARNSWORTH STREET  
SAN LEANDRO, CALIFORNIA**

**FIGURE  
2**



MPDS Services  
2401 Stanwell Dr., Ste. 400  
Concord, CA 94520  
Attention: Avo Avedissian

Client Project ID: Unocal #3690, 14999 Farnsworth Street,  
Matrix Descript: Water San Leandro  
Analysis Method: EPA 5030/8015/8020  
First Sample #: 407-1078

Sampled: Jul 20, 1994  
Received: Jul 20, 1994  
Reported: Aug 3, 1994

**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
407-1078	U1	87*	ND	ND	ND	ND
407-1079	U2	ND	ND	ND	ND	ND
407-1080	U3	ND	3.2	ND	ND	ND

\* Hydrocarbons detected did not appear to be gasoline.

<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 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 #3690, 14999 Farnsworth Street,	<b>Sampled:</b>	Jul 20, 1994
2401 Stanwell Dr., Ste. 400	<b>Matrix Descript:</b>	Water	<b>Received:</b>	Jul 20, 1994
Concord, CA 94520	<b>Analysis Method:</b>	EPA 5030/8015/8020	<b>Reported:</b>	Aug 3, 1994
<b>Attention: Avo Avedissian</b>	<b>First Sample #:</b>	407-1078		

**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%)
407-1078	U1	MTBE	1.0	7/29/94	HP-4	90
407-1079	U2	--	1.0	7/29/94	HP-4	95
407-1080	U3	--	1.0	7/29/94	HP-4	98

**SEQUOIA ANALYTICAL, #1271**

Signature on File

Alan B. Kemp  
Project Manager





MPDS Services  
2401 Stanwell Dr., Ste. 400  
Concord, CA 94520  
Attention: Avo Avedissian

Client Project ID: Unocal #3690, 14999 Farnsworth Street,, San Leandro  
Matrix: Liquid

QC Sample Group: 4071078-80

Reported: Aug 3, 1994

**QUALITY CONTROL DATA REPORT**

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
<b>Method:</b>	EPA 8020	EPA 8020	EPA 8020	EPA 8020
<b>Analyst:</b>	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha

<b>MS/MSD Batch#:</b>	BLK072994	BLK072994	BLK072994	BLK072994
<b>Date Prepared:</b>	7/29/94	7/29/94	7/29/94	7/29/94
<b>Date Analyzed:</b>	7/29/94	7/29/94	7/29/94	7/29/94
<b>Instrument I.D.#:</b>	HP-4	HP-4	HP-4	HP-4
<b>Conc. Spiked:</b>	20 µg/L	20 µg/L	20 µg/L	60 µg/L
<b>Matrix Spike % Recovery:</b>	97	97	101	104
<b>Matrix Spike Duplicate % Recovery:</b>	95	100	100	103
<b>Relative % Difference:</b>	2.1	3.1	1.0	1.0

<b>LCS Batch#:</b>	2LCS072994	2LCS072994	2LCS072994	2LCS072994
<b>Date Prepared:</b>	7/29/94	7/29/94	7/29/94	7/29/94
<b>Date Analyzed:</b>	7/29/94	7/29/94	7/29/94	7/29/94
<b>Instrument I.D.#:</b>	HP-4	HP-4	HP-4	HP-4
<b>LCS % Recovery:</b>	90	95	99	103

<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



# M P D S Services, Inc.

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

## CHAIN OF CUSTODY

SAMPLER <b>RAY MARANGOSIAN</b>			UNOCAL S/S # <u>3690</u> CITY: <u>SAN LEANARDO</u>					ANALYSES REQUESTED						TURN AROUND TIME: <u>REGULAR</u>		
WITNESSING AGENCY			ADDRESS: <u>14999 Farnsworth St</u>					TPH-GAS BTEX	TPH-DIESEL	TOG	8010					
SAMPLE ID NO.	DATE	TIME	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPH-GAS BTEX	TPH-DIESEL	TOG	8010					REMARKS
<u>U1</u>	<u>7.20.94</u>	<u>9:50</u>	<u>x</u>	<u>x</u>		<u>2</u>	<u>well</u>	<u>x</u>								<u>4071078A</u>
<u>U2</u>	<u>7</u>	<u>10:45</u>	<u>x</u>	<u>x</u>		<u>4</u>	<u>u</u>	<u>x</u>								<u>4071079</u>
<u>U3</u>	<u>7</u>	<u>11:40</u>	<u>x</u>	<u>x</u>		<u>4</u>	<u>x</u>	<u>x</u>								<u>4071080</u> ↓

RELINQUISHED BY: <u>Ray Marangosian</u> (SIGNATURE)	<u>13:45</u> DATE/TIME	RECEIVED BY:	THE FOLLOWING <u>MUST</u> BE COMPLETED BY THE LABORATORY ACCEPTING SAMPLES FOR ANALYSES:		
	<u>7.20.94</u> <u>4:00</u>	<u>[Signature]</u> (SIGNATURE)	1. HAVE ALL SAMPLES RECEIVED FOR ANALYSIS BEEN STORED ON ICE?	<u>Yes</u>	
	<u>7.20.94</u> <u>4:20</u>	<u>Melissa Creuser</u> (SIGNATURE)	2. WILL SAMPLES REMAIN REFRIGERATED UNTIL ANALYZED?	<u>Yes</u>	
			3. DID ANY SAMPLES RECEIVED FOR ANALYSIS HAVE HEAD SPACE?	<u>No</u>	
(SIGNATURE)		(SIGNATURE)	4. WERE SAMPLES IN APPROPRIATE CONTAINERS AND PROPERLY PACKAGED?	<u>Yes</u>	
(SIGNATURE)		(SIGNATURE)	SIGNATURE:	TITLE:	DATE: