

MPDS-UN3690-05  
February 14, 1996

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

ENVIRONMENTAL  
PROTECTION  
95 MAR 19 PM 1:55  
MPDS

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 elevations during the most recent semi-annual period are shown on the attached Figure 1.

Ground water samples were collected on January 24, 1996. Prior to sampling, the wells were each purged of between 5 and 16 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 documentation. 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 Mr. Joel G. Greger at (510) 602-5120.

Sincerely,

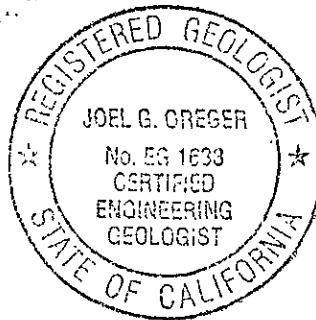
MPDS Services, Inc.



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

cc: Mr. Greg Gurss, GeoStrategies, Inc.

**TABLE 1**

**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>
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**(Monitored and Sampled on January 24, 1996)**

U-1	8.72	7.77	29.45	0	No	15
U-2	9.42	7.06	30.30	0	No	16
U-3	WELL WAS INACCESSIBLE					

**(Monitored and Sampled on July 25, 1995)**

U-1	7.12	9.37	29.89	0	No	14
U-2	8.48	8.00	30.34	0	No	16
U-3	8.44	8.88	29.50	0	No	14.5

**(Monitored and Sampled on January 24, 1995)**

U-1	9.10	7.39	29.49	0	No	15.5
U-2	9.84	6.64	30.34	0	No	16.5
U-3	9.54	7.78	29.89	0	No	15.5

**(Monitored and Sampled on July 20, 1994)**

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

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TABLE 1 (Continued)

SUMMARY OF MONITORING DATA

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

- ◆ The depth to water level and total well depth measurements were taken from the top of the well casings.
- \* The elevations of the top of the well casings have been surveyed 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 January 24, 1996)

<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	3.69	09:00	0	0	58.0	5.71	7.43
			4	1.08	64.3	5.47	7.41
			8	2.17	65.6	6.78	7.32
			12	3.25	67.3	6.59	7.31
			15	4.07	68.0	7.01	7.36
U-2	3.95	09:45	0	0	64.5	5.33	7.51
			4	1.01	67.7	5.43	7.50
			8	2.03	68.5	5.91	7.44
			12	3.04	69.0	5.92	7.41
			16	4.05	69.2	5.98	7.42

**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>
1/24/96	U-1▼	ND	ND	ND	ND	ND
	U-2	ND	ND	ND	ND	ND
	U-3	WELL WAS INACCESSIBLE				
7/25/95	U-1	ND	ND	ND	ND	ND
	U-2	ND	ND	ND	ND	ND
	U-3	ND	ND	ND	ND	ND
1/24/95	U-1	71**	ND	ND	ND	ND
	U-2	ND	ND	ND	ND	ND
	U-3	ND	ND	ND	ND	ND
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

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>
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
9/30/91	U-1	ND	ND	ND	ND	ND
	U-2	ND	ND	ND	ND	ND
	U-3▲	ND	ND	ND	ND	ND

▼ Sequoia Analytical Laboratory has identified the presence of MTBE at a level above or equal to the taste and odor threshold of 40 µg/L in the sample collected from this well.

\* 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.

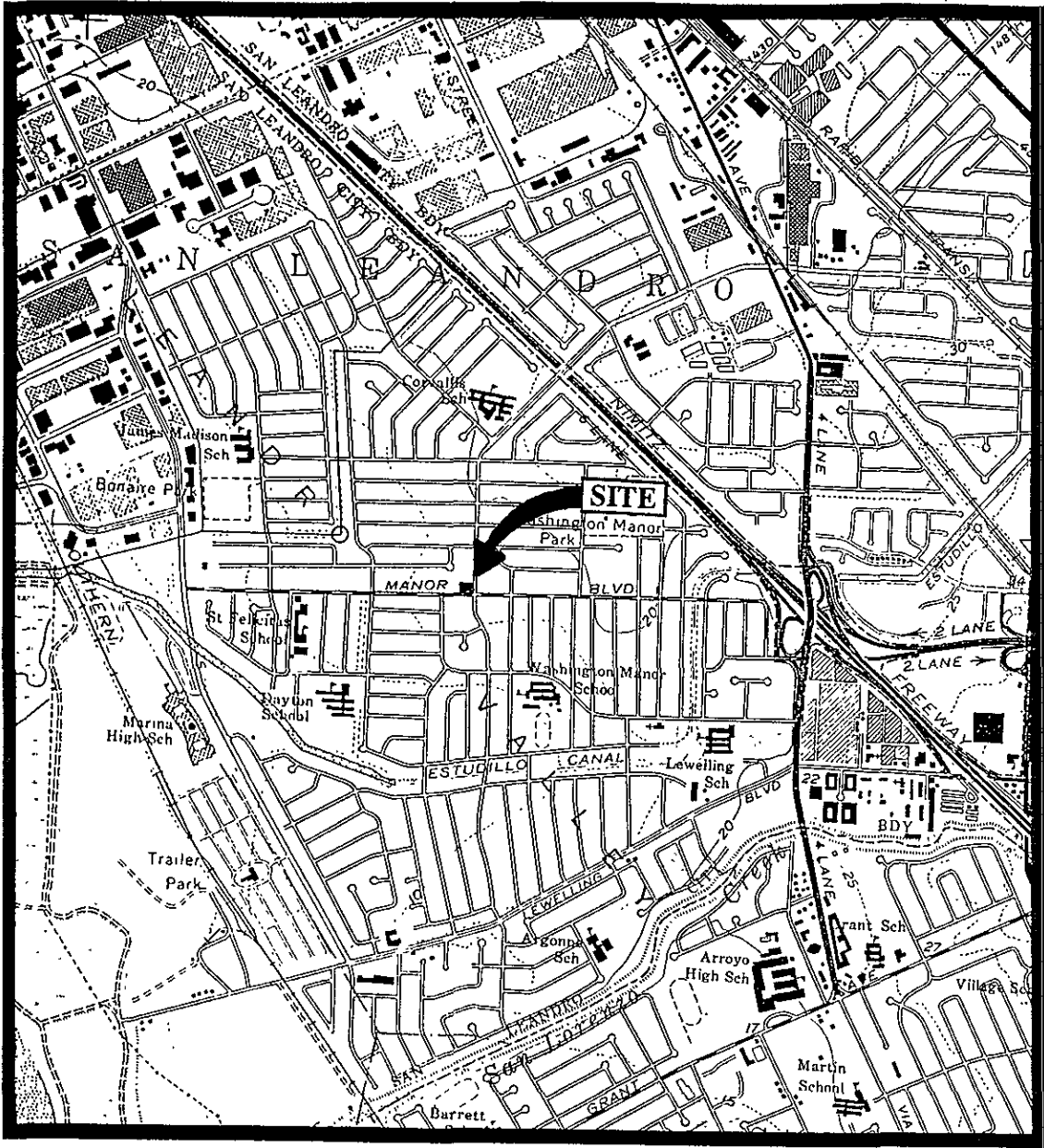
▲ Oil and Grease concentrations were non-detectable.

ND = Non-detectable.

-- Indicates analysis was not performed.

Results are in micrograms per liter (µg/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)

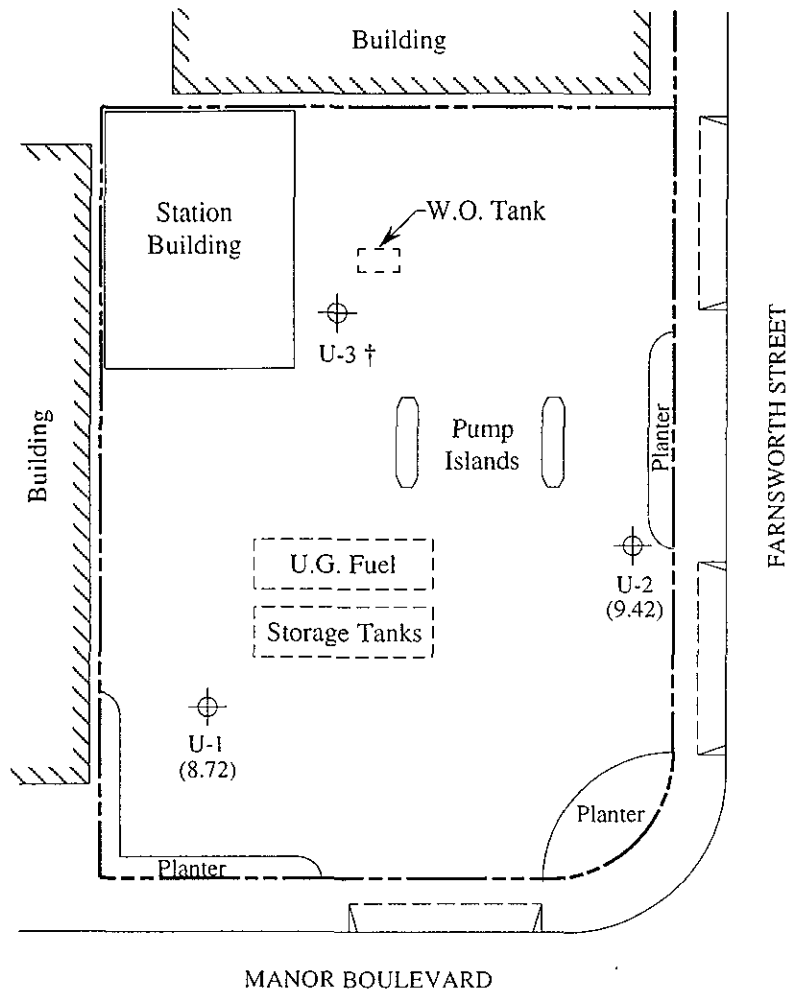


**mpds** SERVICES, INCORPORATED

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

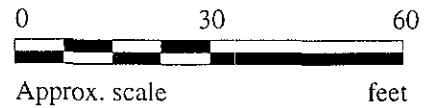
**LOCATION  
 MAP**





**LEGEND**

- Monitoring well
- Ground water elevation in feet above Mean Sea Level
- Well was inaccessible.

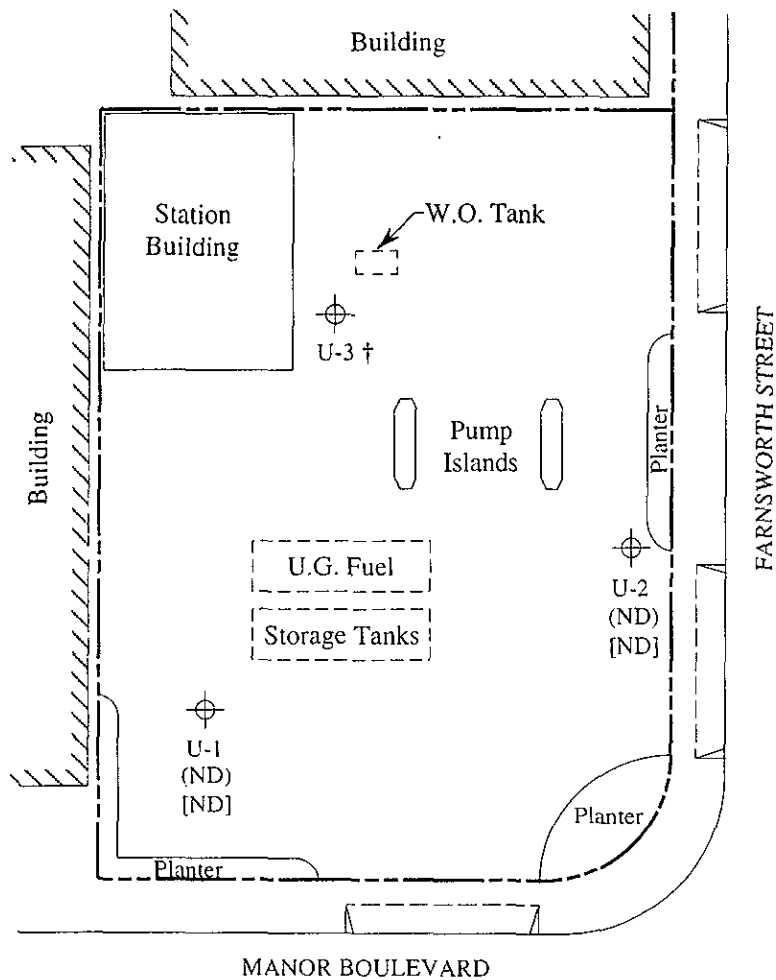


**GROUND WATER ELEVATION MAP FOR THE JANUARY 24, 1996 MONITORING EVENT**



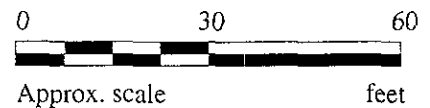
**UNOCAL SERVICE STATION #3690  
14999 FARNSWORTH STREET  
SAN LEANDRO, CALIFORNIA**

**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.



**PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON JANUARY 24, 1996**

**MPDS**  
SERVICES, INCORPORATED

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

FIGURE  
**2**



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

Client Project ID: Unocal #3690,14999 Farnsworth St.  
Matrix Descript: Water San Leandro  
Analysis Method: EPA 5030/8015 Mod./8020  
First Sample #: 601-1469

Sampled: Jan 24, 1996  
Received: Jan 24, 1996  
Reported: Feb 7, 1996

**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
601-1469	U-1	ND	ND	ND	ND	ND
601-1470	U-2	ND	ND	ND	ND	ND
601-1471	ES1	ND	ND	ND	ND	ND
601-1472	ES2	ND	ND	ND	ND	ND
601-1473	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





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

Client Project ID: Unocal #3690,14999 Farnsworth St.  
Matrix Descript: Water San Leandro  
Analysis Method: EPA 5030/8015 Mod./8020  
First Sample #: 601-1469

Sampled: Jan 24, 1996  
Received: Jan 24, 1996  
Reported: Feb 7, 1996

**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
601-1469	U-1	--	1.0	1/31/96	HP-5	87
601-1470	U-2	--	1.0	1/31/96	HP-5	88
601-1471	ES1	--	1.0	1/31/96	HP-5	90
601-1472	ES2	--	1.0	1/31/96	HP-5	90
601-1473	ES3	--	1.0	1/31/96	HP-5	90

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 #3690, 14999 Farnsworth St., San Leandro  
Matrix: Liquid

QC Sample Group: 6011469-473

Reported: Feb 7, 1996

**QUALITY CONTROL DATA REPORT**

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	M. Creusere	M. Creusere	M. Creusere	M. Creusere

<b>MS/MSD</b>				
Batch#:	6010803	6010803	6010803	6010803
Date Prepared:	1/31/96	1/31/96	1/31/96	1/31/96
Date Analyzed:	1/31/96	1/31/96	1/31/96	1/31/96
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Matrix Spike % Recovery:	105	100	100	103
Matrix Spike Duplicate % Recovery:	100	95	95	98
Relative % Difference:	4.9	5.1	5.1	5.0

LCS Batch#:	3LCS013196	3LCS013196	3LCS013196	3LCS013196
Date Prepared:	1/31/96	1/31/96	1/31/96	1/31/96
Date Analyzed:	1/31/96	1/31/96	1/31/96	1/31/96
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5
LCS % Recovery:	95	90	90	93

% 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





Sequoia  
Analytical

680 Chesapeake Drive  
404 N. Wiget Lane  
819 Striker Avenue, Suite 8

Redwood City, CA 94063  
Walnut Creek, CA 94598  
Sacramento, CA 95834

(415) 364-9600  
(510) 988-9600  
(916) 921-9600

FAX (415) 364-9233  
FAX (510) 988-9673  
FAX (916) 921-0100

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

Date: 2/8/96

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Sequoia Analytical has identified the presence of MTBE at a level above or equal to the taste and odor threshold of 40 µg/L in the following site(s):

Client Project I.D. - **Unocal #3690- San Leandro**

Sequoia Work Order # - **9601399**

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**Sample Number:**

6011469

**Sample Description:**

U-1

SEQUOIA ANALYTICAL, #1271

Alan B. Kemp  
Project Manager





CHAIN OF CUSTODY

9601399

SAMPLER			UNOCAL					ANALYSES REQUESTED							TURN AROUND TIME:	
STEVE BALIAN			SIS # 3690 CITY: SAN LEANDRO					TPH-GAS BTEX	TPH- DIESEL	TOG	8010					REGULAR
			ADDRESS: 14999 FARMWORTH ST													
SAMPLE ID NO	DATE	TIME	WATER	GRAB	COMP	NO OF CONT	SAMPLING LOCATION									
ES1	1-24-96		X	X		1		X		6011471						
ES2	"		X	X		1		X		6011472						
ES3	"		X	X		1		X		6011473						
RELINQUISHED BY:		DATE/TIME	RECEIVED BY:				DATE/TIME	THE FOLLOWING <u>MUST BE</u> COMPLETED BY THE LABORATORY ACCEPTING SAMPLES FOR ANALYSES:								
STEVE BALIAN		16.15 1-24-96					1/24 1615	1. HAVE ALL SAMPLES RECEIVED FOR ANALYSIS BEEN STORED ON ICE? _____								
(SIGNATURE)			(SIGNATURE)					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 TPH/G/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 preserved with HCL.