

NOV 15 1994

NOV 15 PM 4:32

November 14, 1994

Alameda County Health Care Services  
1131 Harbor Bay Parkway  
Alameda, California 94501


RE: Unocal Service Station #6419  
6401 Dublin Boulevard  
Dublin, California

Per the request of the Unocal Corporation Project Manager, Mr. Edward C. Ralston, enclosed please find our report (MPDS-UN6419-01) dated September 23, 1994 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) 277-2311.

Sincerely,

MPDS Services, Inc.



Jarrel F. Crider

/jfc

Enclosure

cc: Mr. Edward C. Ralston

*Need to put another MW further DG  
from MW-1*

*Need to do monthly BW elevation*

MPDS-UN6419-01  
September 23, 1994

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

Attention: Mr. Edward C. Ralston

RE: Quarterly Data Report  
Unocal Service Station #6419  
6401 Dublin Boulevard  
Dublin, California

Dear Mr. Ralston:

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 August 25, 1994. Prior to sampling, the wells were each purged of between 7 and 8 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 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, TPH as diesel, 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 the Alameda County Health Care Services.

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

Sincerely,

MPDS Services, Inc.



Talin Kaloustian  
Staff Engineer



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. Timothy R. Ross, Kaprealian Engineering, 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 August 25, 1994)**

MW1	321.88	8.57	19.34	0	No	8
MW2	321.99	8.41	19.81	0	No	8
MW3	321.91	9.20	19.02	0	No	7

**(Monitored and Sampled on March 14, 1994)**

MW1	323.18	7.27	19.38	0	No	10
MW2	323.17	7.23	19.85	0	No	10
MW3	323.18	7.93	19.06	0	No	10

<u>Well #</u>	<u>Well Casing Elevation (feet)*</u>
MW1	330.45
MW2	330.40
MW3	331.11

♦ 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, per the benchmark on the northwest corner of Dougherty Road and Sierra Way (elevation = 331.728 feet MSL).

Note: Monitoring data prior to August 25, 1994, were provided by Kaprealian Engineering, Inc.

**TABLE 2**

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

(Measured on August 25, 1994)

<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>
MW1	1.83	11:40 am	0	0	79.7	3.45	7.64
			2	1.09	76.1	2.94	7.45
			4	2.19	75.9	2.84	7.30
			6	3.28	74.7	2.87	7.27
		8	4.37	73.9	2.87	7.22	
		11:45 am	8	4.37	73.9	2.87	7.22
MW2	1.94	10:00 am	0	0	66.4	4.50	7.19
			2	1.03	70.5	4.93	7.06
			4	2.06	72.6	5.22	7.04
			6	3.09	72.8	5.48	7.03
			8	4.12	72.7	5.52	7.01
		10:05 am	8	4.12	72.7	5.52	7.01
MW3	1.67	10:40 am	0	0	78.4	4.91	7.28
			1.5	0.90	75.2	4.02	7.25
			3	1.80	74.3	3.94	7.20
			4.5	2.69	73.5	3.86	7.11
			7	4.19	73.2	3.82	7.09
		10:47 am	7	4.19	73.2	3.82	7.09

TABLE 3

SUMMARY OF LABORATORY ANALYSES  
WATER

Date	Well #	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes
8/25/94	MW1	910♦♦	9,200*	48	ND	540	ND
	MW2	--	ND	ND	ND	ND	ND
	MW3	--	130**	ND	ND	ND	ND
3/14/94	MW1	810♦	1,800*	17	ND	ND	ND
	MW2	--	ND	ND	2.8	1.1	8.0
	MW3	--	150**	ND	ND	ND	ND

- ♦ Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a diesel and non-diesel mixture.
- ♦♦ Sequoia Analytical Laboratory reported that the hydrocarbons detected did not appear to be diesel.
- \* Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a gasoline and non-gasoline mixture.
- \*\* Sequoia Analytical Laboratory reported that the hydrocarbons detected did not appear to be gasoline.

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 August 25, 1994, were provided by Kaprealian Engineering, Inc.

TABLE 4

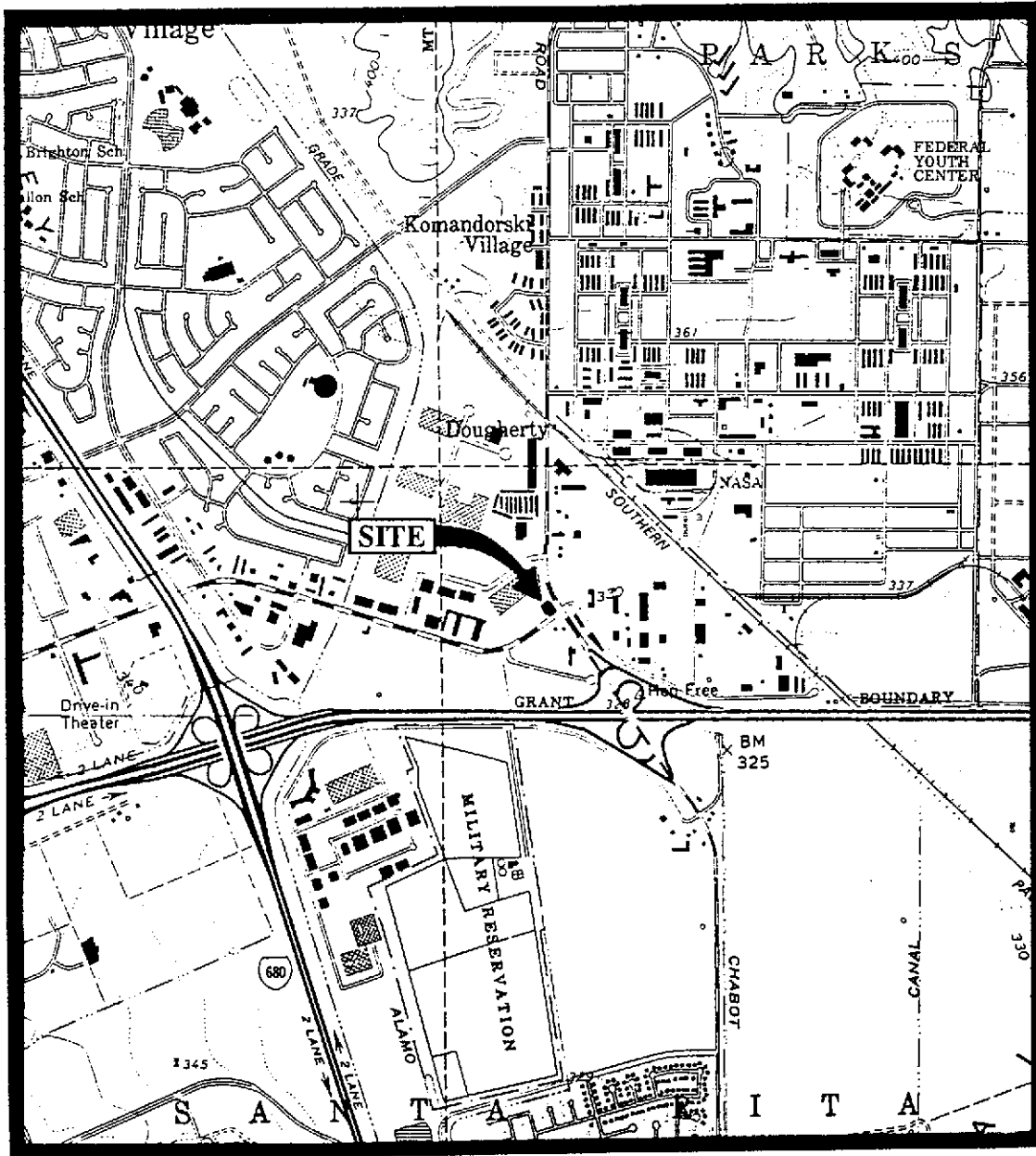
SUMMARY OF LABORATORY ANALYSES  
WATER

<u>Date</u>	<u>Well #</u>	<u>Cadmium</u>	<u>Chromium</u>	<u>Lead</u>	<u>Nickel</u>	<u>Zinc</u>
8/25/94	MW1	ND	ND	0.024	ND	ND
3/14/94	MW1	ND	0.012	ND	0.030	0.039

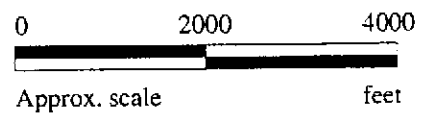
ND = Non-detectable.

Results are in micrograms per liter (mg/L), unless otherwise indicated.

**Note:** Laboratory analyses data prior to August 25, 1994, were provided by Kaprealian Engineering, Inc.



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

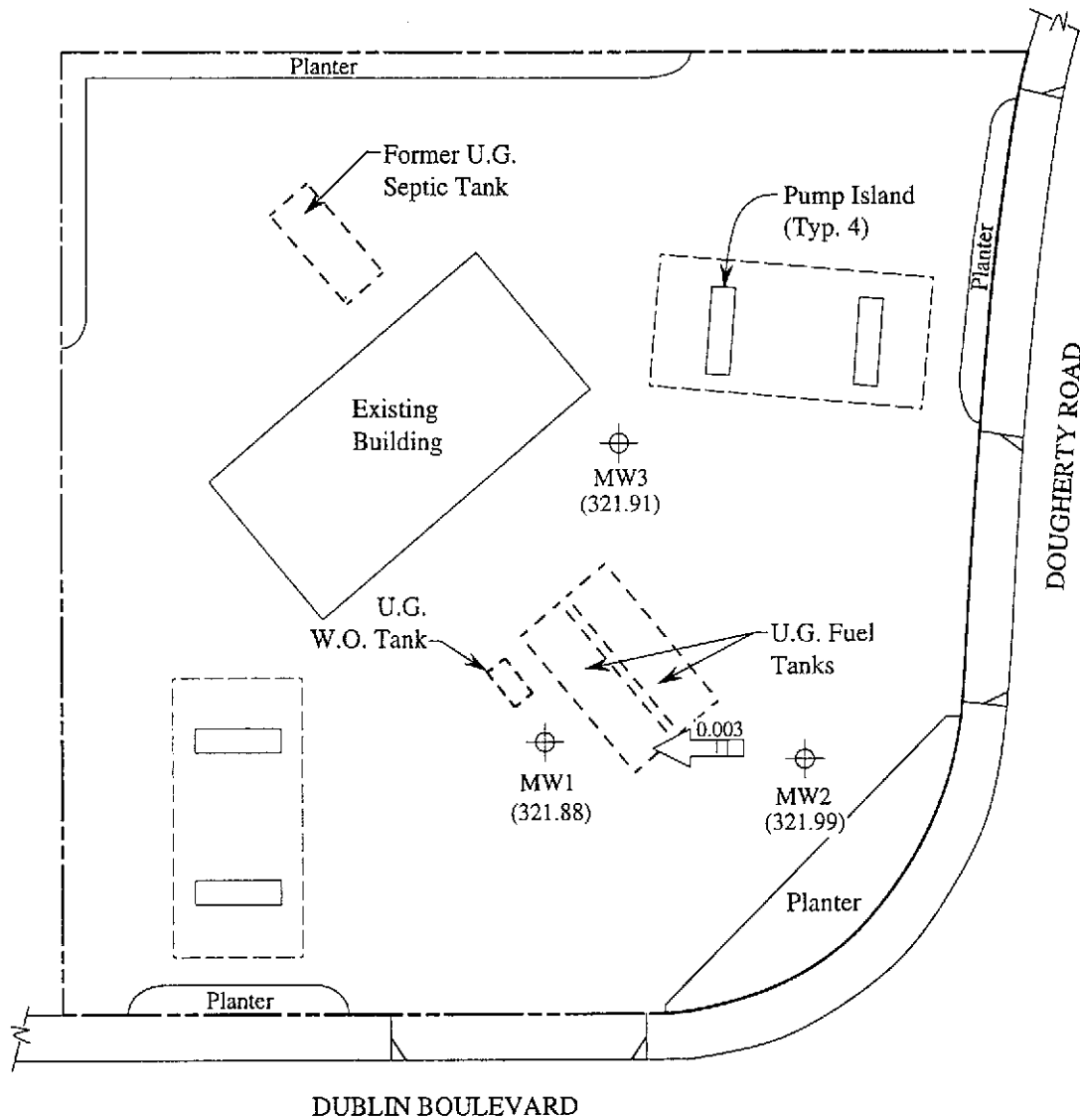
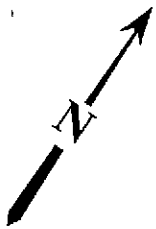


**MPDS**  
SERVICES, INCORPORATED

UNOCAL SERVICE STATION #6419  
6401 DUBLIN BOULEVARD  
DUBLIN, CALIFORNIA

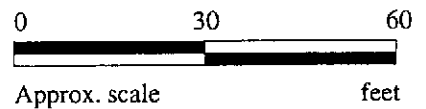
LOCATION  
MAP





**LEGEND**

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

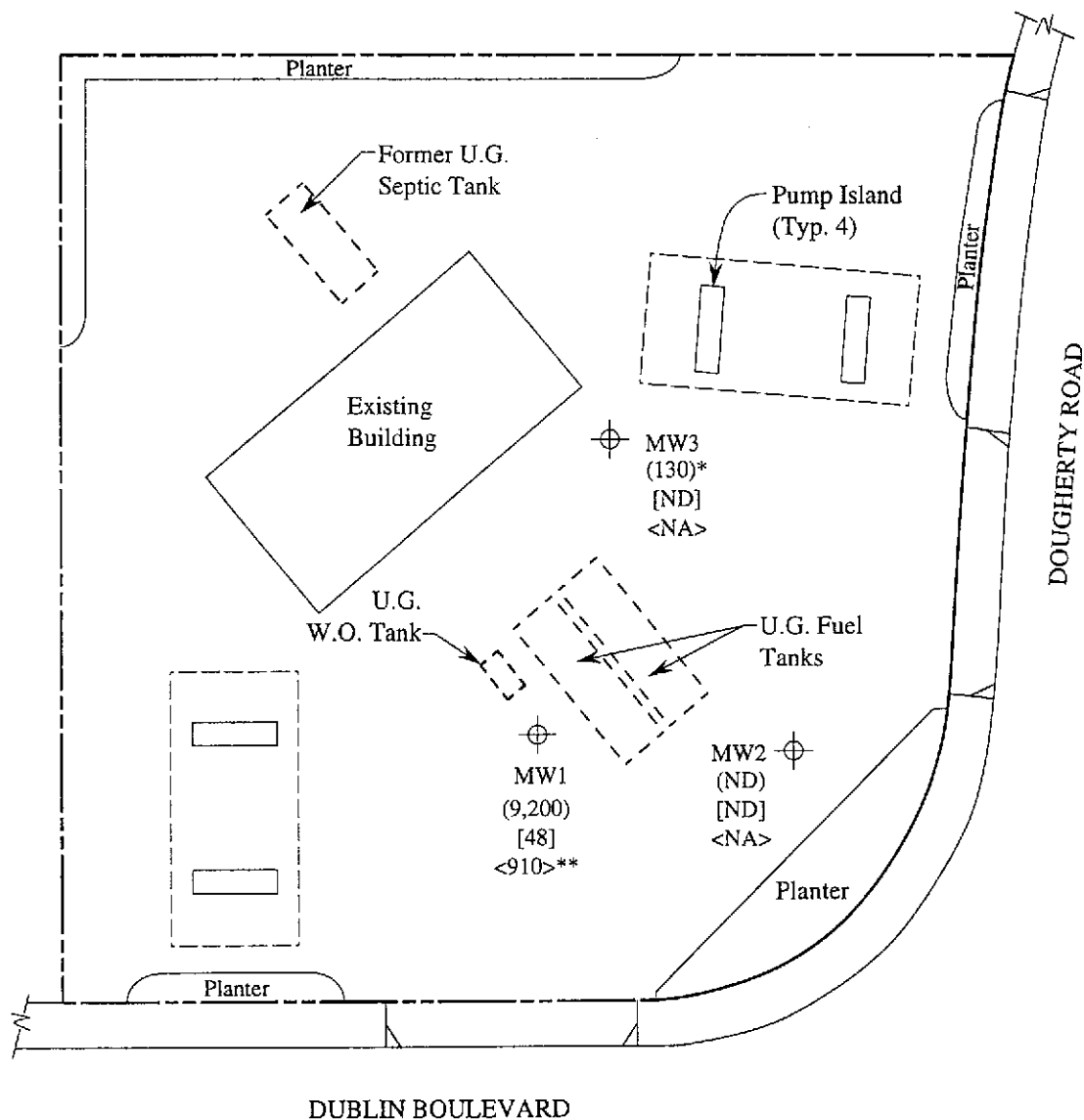


**GROUND WATER FLOW DIRECTION MAP FOR THE AUGUST 25, 1994 MONITORING EVENT**



**UNOCAL SERVICE STATION #6419  
6401 DUBLIN BOULEVARD  
DUBLIN, CALIFORNIA**

**FIGURE  
1**



**LEGEND**

⊕ Monitoring well

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

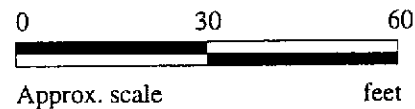
[ ] Concentration of benzene in  $\mu\text{g/L}$

< > Concentration of TPH as diesel in  $\mu\text{g/L}$

ND = Non-detectable, NA = Not analyzed

\* The lab reported that the hydrocarbons detected did not appear to be gasoline.

\*\* The lab reported that the hydrocarbons detected did not appear to be diesel.



**PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON AUGUST 25, 1994**



**UNOCAL SERVICE STATION #6419  
6401 DUBLIN BOULEVARD  
DUBLIN, CALIFORNIA**

**FIGURE  
2**



MPDS Services 2401 Stanwell Dr., Ste. 400 Concord, CA 94520 Attention: Avo Avedessian	Client Project ID: Unocal #6419, 6401 Dublin Blvd, Dublin Matrix Descript: Water Analysis Method: EPA 5030/8015/8020 First Sample #: 408-1650	Sampled: Aug 25, 1994 Received: Aug 25, 1994 Reported: Sep 8, 1994
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**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
408-1650	MW1	9,200 <sup>^</sup>	48	ND	540	ND
408-1651	MW2	ND	ND	ND	ND	ND
408-1652	MW3	130 <sup>*</sup>	ND	ND	ND	ND

\* Hydrocarbons detected did not appear to be gasoline.

<sup>^</sup> Hydrocarbons detected appeared to be a gasoline and non-gasoline mixture.

<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





# Sequoia Analytical

680 Chesapeake Drive Redwood City, CA 94063 (415) 364-9600 FAX (415) 364-9233  
1900 Bates Avenue, Suite L Concord, CA 94520 (510) 686-9600 FAX (510) 686-9689  
819 Striker Avenue, Suite 8 Sacramento, CA 95834 (916) 921-9600 FAX (916) 921-0100

MPDS Services	Client Project ID: Unocal #6419, 6401 Dublin Blvd, Dublin	Sampled: Aug 25, 1994
2401 Stanwell Dr., Ste. 400	Matrix Descript: Water	Received: Aug 25, 1994
Concord, CA 94520	Analysis Method: EPA 5030/8015/8020	Reported: Sep 8, 1994
Attention: Avo Avedessian	First Sample #: 408-1650	

## 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
408-1650	MW1	Gasoline and Discrete Peak <sup>^</sup>	100	9/1/94	HP-4	94
408-1651	MW2	--	1.0	8/31/94	HP-4	91
408-1652	MW3	Discrete Peak*	1.0	8/31/94	HP-4	97

SEQUOIA ANALYTICAL, #1271

Signature on File

Alan B. Kemp  
Project Manager

Please Note:

<sup>^</sup> \* "Discrete Peak" refers to an unidentified peak in the MTBE range.





<b>MPDS Services</b>	<b>Client Project ID:</b> Unocal #6419, 6401 Dublin Blvd, Dublin	<b>Sampled:</b> Aug 25, 1994
2401 Stanwell Dr., Ste. 400	<b>Sample Matrix:</b> Water	<b>Received:</b> Aug 25, 1994
Concord, CA 94520	<b>Analysis Method:</b> EPA 3510/3520/8015	<b>Reported:</b> Sep 8, 1994
Attention: Avo Avedessian	<b>First Sample #:</b> 408-1650	

**TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS**

Analyte	Reporting Limit µg/L	Sample I.D. 408-1650 MW1*
Extractable Hydrocarbons	50	910

Chromatogram Pattern: Unidentified Hydrocarbons <C14

**Quality Control Data**

Report Limit Multiplication Factor:	1.0
Date Extracted:	8/30/94
Date Analyzed:	9/2/94
Instrument Identification:	HP-3A

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

**SEQUOIA ANALYTICAL, #1271**

Signature on File  
Alan B. Kemp  
Project Manager

Please Note:  
\* This sample does not appear to contain diesel. "Unidentified Hydrocarbons <C14" are probably gasoline.





# Sequoia Analytical

680 Chesapeake Drive	Redwood City, CA 94063	(415) 364-9600	FAX (415) 364-9233
1900 Bates Avenue, Suite L	Concord, CA 94520	(510) 686-9600	FAX (510) 686-9689
819 Striker Avenue, Suite 8	Sacramento, CA 95834	(916) 921-9600	FAX (916) 921-0100

MPDS Services	Client Project ID: Unocal #6419, 6401 Dublin Blvd, Dublin	Sampled: Aug 25, 1994
2401 Stanwell Dr., Ste. 400	Sample Descript: Water, MW1	Received: Aug 25, 1994
Concord, CA 94520		Analyzed: Sep 1, 1994
Attention: Avo Avedessian	Lab Number: 408-1650	Reported: Sep 8, 1994

## LABORATORY ANALYSIS

Analyte	Detection Limit mg/L	Sample Results mg/L
Cadmium.....	0.010	N.D.
Chromium.....	0.010	N.D.
<b>Lead.....</b>	<b>0.020</b>	<b>0.024</b>
Nickel.....	0.020	N.D.
Zinc.....	0.020	N.D.

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

4081650.MPD <4>





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

Client Project ID: Unocal #6419, 6401 Dublin Blvd, Dublin  
Matrix: Liquid

QC Sample Group: 4081650-652

Reported: Sep 9, 1994

**QUALITY CONTROL DATA REPORT**

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	A. Tuzon	A. Tuzon	A. Tuzon	A. Tuzon

<b>MS/MSD</b>				
Batch#:	4081651	4081651	4081651	4081651
Date Prepared:	8/31/94	8/31/94	8/31/94	8/31/94
Date Analyzed:	8/31/94	8/31/94	8/31/94	8/31/94
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
<b>Matrix Spike</b>				
% Recovery:	70	85	85	90
<b>Matrix Spike Duplicate %</b>				
Recovery:	75	90	95	97
<b>Relative %</b>				
Difference:	6.9	5.6	11	7.7

<b>LCS Batch#:</b>	2LCS083194	2LCS083194	2LCS083194	2LCS083194
Date Prepared:	8/31/94	8/31/94	8/31/94	8/31/94
Date Analyzed:	8/31/94	8/31/94	8/31/94	8/31/94
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4
<b>LCS %</b>				
Recovery:	78	90	93	96

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

**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. 400  
Concord, CA 94520  
Attention: Avo Avedessian

Client Project ID: Unocal #6419, 6401 Dublin Blvd, Dublin  
Matrix: Liquid

QC Sample Group: 4081650-652

Reported: Sep 9, 1994

**QUALITY CONTROL DATA REPORT**

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel
<b>Method:</b>	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015 Mod
<b>Analyst:</b>	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha	K.V.S.

<b>MS/MSD Batch#:</b>	4081642	4081642	4081642	4081642	BLK083094
<b>Date Prepared:</b>	9/1/94	9/1/94	9/1/94	9/1/94	8/30/94
<b>Date Analyzed:</b>	9/1/94	9/1/94	9/1/94	9/1/94	9/1/94
<b>Instrument I.D.#:</b>	HP-4	HP-4	HP-4	HP-4	HP-3A
<b>Conc. Spiked:</b>	20 µg/L	20 µg/L	20 µg/L	60 µg/L	300 µg/L
<b>Matrix Spike % Recovery:</b>	80	95	95	102	94
<b>Matrix Spike Duplicate % Recovery:</b>	85	95	95	102	96
<b>Relative % Difference:</b>	6.1	0.0	0.0	0.0	2.1

<b>LCS Batch#:</b>	2LCS090194	2LCS090194	2LCS090194	2LCS090194	BLK083094
<b>Date Prepared:</b>	9/1/94	9/1/94	9/1/94	9/1/94	8/30/94
<b>Date Analyzed:</b>	9/1/94	9/1/94	9/1/94	9/1/94	9/1/94
<b>Instrument I.D.#:</b>	HP-4	HP-4	HP-4	HP-4	HP-3A
<b>LCS % Recovery:</b>	80	95	100	102	94

<b>% Recovery Control Limits:</b>	71-133	72-128	72-130	71-120	28-122
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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. 400  
Concord, CA 94520  
Attention: Avo Avedessian

Client Project ID: Unocal #6419, 6401 Dublin Blvd, Dublin  
Matrix: Water

QC Sample Group: 408-1650

Reported: Sep 9, 1994

**QUALITY CONTROL DATA REPORT**

ANALYTE	Cadmium	Chromium	Lead	Nickel	Zinc
<b>Method:</b>	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7
<b>Analyst:</b>	J. Dinsay	J. Dinsay	J. Dinsay	J. Dinsay	J. Dinsay

<b>MS/MSD Batch#:</b>	4081650	4081650	4081650	4081650	4081650
<b>Date Prepared:</b>	9/1/94	9/1/94	9/1/94	9/1/94	9/1/94
<b>Date Analyzed:</b>	9/1/94	9/1/94	9/1/94	9/1/94	9/1/94
<b>Instrument I.D.#:</b>	Liberty-100	Liberty-100	Liberty-100	Liberty-100	Liberty-100
<b>Conc. Spiked:</b>	1.0 mg/L	1.0 mg/L	1.0 mg/L	1.0 mg/L	1.0 mg/L
<b>Matrix Spike % Recovery:</b>	100	114	92	100	100
<b>Matrix Spike Duplicate % Recovery:</b>	102	97	91	91	97
<b>Relative % Difference:</b>	2.0	16	1.1	9.4	3.1

<b>LCS Batch#:</b>	BLK090194	BLK090194	BLK090194	BLK090194	BLK090194
<b>Date Prepared:</b>	9/1/94	9/1/94	9/1/94	9/1/94	9/1/94
<b>Date Analyzed:</b>	9/1/94	9/1/94	9/1/94	9/1/94	9/1/94
<b>Instrument I.D.#:</b>	Liberty-100	Liberty-100	Liberty-100	Liberty-100	Liberty-100
<b>LCS % Recovery:</b>	104	102	98	96	99

<b>% Recovery Control Limits:</b>	75-125	75-125	75-125	75-125	75-125
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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



