

March 30, 1994

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

Attention: Mr. Tim Howard

Unocal Service Station #3538 RE: 411 W. MacArthur Boulevard

Oakland, California

Dear Mr. Howard:

Kaprealian Engineering, Inc. (KEI) has received MPDS Services, Inc's. Quarterly Data Report (MPDS-UN3538-01) dated February 9, 1994, for the above referenced site. Based upon KEI's review of the MPDS report, KEI recommends a modification to the current ground water monitoring and sampling program.

The analytical results of the ground water samples collected from monitoring wells MW5 and MW6 during the past six consecutive quarters of sampling (November of 1992 through January of 1994) have shown no detectable concentrations of total petroleum hydrocarbons (TPH) as gasoline, and benzene concentrations less Therefore, KEI recommends that the sampling than 1.0 ppb. frequency for wells MW5 and MW6 be reduced from quarterly to annually. Monitoring wells MW1 and MW4 are currently sampled on an annual basis.

In summary, all of the monitoring wells will be monitored quarterly, monitoring wells MW2 and MW3 will be sampled quarterly, and monitoring wells MW1, MW4, MW5, and MW6 will be sampled annually.

If you have any questions, please do not hesitate to call me at (510) 602-5100.

Sincerely,

Kaprealian Engineering, Inc.

Tromas J. Beckers

Thomas J. Berkins Project Manager

TJB: jad\TH0330

Alameda County Health Care Services Agency

Regional Water Quality Control Board, San Francisco Bay Region

MPDS Services, Inc.

# MPDS SERVICES, INCORPORATED

ALCO HAZMAT

94 MAR 30 PM 2: 24

March 29, 1994

Alameda County Health Care Services 80 Swan Way, Room 200 Oakland, CA 94621

RE: Unocal Service Station #3538 411 W. MacArthur Boulevard Oakland, California

Per the request of the Unocal Corporation Project Manager, Mr. Tim Howard, enclosed please find our report (MPDS-UN3538-01) dated February 9, 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) 277-2354.

Sincerely,

MPDS Services, Inc.

/bp

Enclosure

cc: Mr. Tim Howard

Technical Assistant

MPDS-UN3538-01 February 9, 1994

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

Attention: Mr. Tim Howard

RE: Quarterly Data Report

Unocal Service Station #3538 411 W. MacArthur Boulevard Oakland, California

Dear Mr. Howard:

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 January 12, 1994. Prior to sampling, the wells were each purged of between 5 and 9 gallons of water. Samples were then collected using a clean Teflon bailer. The samples were decanted into clean VOA vials, which were then sealed with Teflon-lined screw caps, labeled, and stored in a cooler, on ice, until delivery to a state-certified laboratory.

#### 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 2 and 3. 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.

MPDS-UN3538-01 February 9, 1994 Page 2

#### DISTRIBUTION

A copy of this report should be sent to the Alameda County Health Care Services Agency, and to the Regional Water Quality Control Board, San Francisco Bay Region.

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

Sincerely,

MPDS Services, Inc.

Joel G. Greger, C.E.G.

Joel 1 M

Senior Engineering Geologist

License No. EG 1633 Exp. Date 6/30/94

/dlh

Attachments: Tables 1, 2 & 3

Location Map Figures 1 & 2

Laboratory Analyses

Chain of Custody documentation

cc: Mr. Thomas Berkins, Kaprealian Engineering, Inc.



TABLE 1
SUMMARY OF MONITORING DATA

Well #	Ground Water Elevation (feet)	Depth to Water (feet)◆	Product Thickness (feet)	<u>Sheen</u>	Water Purged (gallons)	Total Well Depth (feet)◆
	(Mon:	itored and S	ampled on Ja	nuary 1	2, 1994)	
MW1*	53.92	18.18	0		0	27.34
MW2	53.30	18.08	0	No	7	28.10
ММЗ	53.52	18.34	0	No	5	25.12
MW4*	53.67	17.97	0		0	28.75
MW5	53.49	17.74	0	No	8.5	30.14
MW6	54.00	17.44	0	No	9	30.07
		itored and S	_	tober 1		
MW1*	53.78	18.32	0		0	
MW2	53.18	18.20	0	No	6.5	
MW3	53.41	18.45	0	No	5	
MW4 *	53.56	18.08	0		0	
MW5	53.41	17.82	0	No	8.5	
MW6	54.23	17.21	0	No	9	
	(Mc	onitored and	Sampled on	July 14,	, 1993)	
MW1	53.94	18.49	0	No	6.5	
MW2	53.25	18.38	0	No	6.5	
MW3	53.52	18.54	0	No	5	
MW4	53.67	18.31	0	No	<b>7.</b> 5	
MW5	53.49	18.02	0	No	8.5	
MW6	54.59	17.20	0	No	9	

TABLE 1 (Continued)

# SUMMARY OF MONITORING DATA

<u>Well_#</u>	Ground Wat Elevation (feet)	ı Water	Thickness	s Sheen	Water Purged (gallons)	Total Well Depth (feet)◆
	(	Monitored and	Sampled on	April 13,	1993)	
MW1*	54.73	17.70	0	44 44	0	
MW2	53.77	17.86	0	No	7	
MW3	54.10	17.96	0	No	5	
MW4 *	54.31	17.67	0		0	
MW5	54.02	17.49	0	No	9	
MW6	59.85	11.94	0	No	13	
		<u>Well #</u>	Well Cover Elevatior (feet)**		Well Casing Elevation (feet)***	
		MW1	72.43		72.10	
		MW2	71.63		71.38	
		MW3	72.06		71.86	•
		MW4	71.98		71.64	

71.51

71.79

MW5

MW6

71.23

71.44

## TABLE 1 (Continued)

### SUMMARY OF MONITORING DATA

- ◆ The depth to water level and total well depth measurements were taken from the top of the well casings Prior to October 14, 1993, the water level and total well depth measurements were taken from the top of the well covers.
- \* Monitored only.
- \*\* The elevations of the top of the well covers have been surveyed relative to Mean Sea Level (MSL), per the City of Oakland Benchmark #9NW10 (elevation = 75.50 MSL).
- \*\*\* Relative to MSL.
- -- Sheen determination was not performed.

Note: Monitoring data prior to January 12, 1994, were provided by Kaprealian Engineering, Inc.

· .

TABLE 2
SUMMARY OF LABORATORY ANALYSES
WATER

indica concornator del principio por pri	anaanaanaan waanan yo		AMAMA AMA				
Data	Well #	TPH as <u>Gasoline</u>	Банна	malities o	Ethyl-	W7	MODE
<u>Date</u>	MCTT H	Gasortife	<u>Benzene</u>	<u>Toluene</u>	<u>Benzene</u>	<u>Xylenes</u>	MTBE
1/12/94	MW2	300	7.8	3.8	1.8	10	
	MW3	3,800	78	ND	180	390	
	MW5	ND	ND	0.84	${f N}{f D}$	1.6	** **
	MW6	ND	ND	1.2	ND	2.9	
10/14/93	MW2	230♦	5.3	ND	ND	2.1	
, ,	EWM.	2,500	52	ND	110	250	
	MW5	ND	ND	ND	ND	ND	
	MW6	ND	ND	0.64	ND	ND	
7/14/93	MW1	ND	2.2	2.1	1.1	6.2	
,, , _ 0	MW2	110◆	6.5	ND	ND	1.1	250
	MW3	6,300	190	ND	430	1,000	860
	MW4	ND	ND	ND	ND	ND	
	MW5	ND	ND	0.57	ND	ND	
	MW6	ND	0.99	2.4	ND	1.9	
4/13/93	MW2	410♦♦	42	7.7	6.4	28	200
-,,	MW3	12,000♦♦	290	38	760	2,300	1,400
	MW5	ND	ND	ND	ND	ND	<i>-</i> -
	MW6	ND	ND	ND	ND	ND	
1/08/93	MW2	510♦	ND	ND	ND	ND	
, ,	MW3	1,100♦♦	48	0.99	0.90	93	
	MW5	ND	ND	ND	ND	ND	
	MW6	ND	ND	ND	ND	ND	
11/30/92	MW5	ND	ND	ND ·	ND	ND	
• •	MMe	ND	ND	ND	ND	ND	
10/12/92	MW2	370	3.4	0.56	ND	11	
,,	MW3	3,200	160	10	230	540	
7/14/92	MWl	ND	ND	ND	ND	ND	
., ,	MW2	130	3.7	ND	ND	ND	
	MW3	21,000	890	200	1,200	4,300	
	MW4	ND	1.3	2.5	ND	1.0	

5 <sub>4</sub>

TABLE 2 (Continued)

# SUMMARY OF LABORATORY ANALYSES WATER

		TPH as			Ethyl-		
<u>Date</u>	Well #	<u>Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Benzene</u>	<u>Xylenes</u>	MTBE
4/14/92	MW2 MW3	150 14,000	6.2 660	ND 48	<b>N</b> D 560	1.4 2,000	
. / /							
1/15/92	MW2 MW3	220 3,000	37 590	0.52 14	1.1 3 <b>1</b> 0	7.0 750	
10/15/01							
10/15/91	MW2 MW3	140 3,100	44 390	0.56 34	1.5 150	12 390	
7/15/91	MW1	ND	ND	ND	ND	ND	
1/13/51	MW2	2,200	770	12	72	370	
	MW3	9,200	1,300	230	490	1,900	
	MW4	ND	ND	ND	ND	ND	
4/12/91	MW1	ND	ND	ND	ND	ND	
	MW2	2,200	160	4.3	23	62	
	MW3	880	170	1.1	34	110	
	MW4	ND	ND	ND	ND	ND	
1/15/91	MW1	ND	ND	ND	ND	ND	
	MW2	680	170	0.7	19	81	
	MW3	3,200	460	1.5	120	270	
	MW4	ND	ND	ND		ND	
10/16/90	MWl	ND	ND	ND	ND	ND	
	MW2	1,400	430	2.0	48	240	
	MW3	740	210	1.4	2.5	82	
	MW4	ND	ND	ND	ND	ND	
7/17/90	MW1	ND	ND	ND	ND	ND	
	MW2	490	76	0.59	11	46	
	MW3 MW4	4,000 ND	270 ND	48 ND	130 ND	250 ND	 
4/19/90	MWl	ND	ND	ND			
*/ ± 2 / 3 U	MW2	3,900	550	5.1	ND 91	ND 390	
	MW3	3,100	600	27	5 <b>4</b>	220	<b>-</b> -
	MW4	ND	ND	0.48	ND	ND	
		* * *				=	

TABLE 2 (Continued)

# SUMMARY OF LABORATORY ANALYSES WATER

<u>Date</u>	Well #	TPH as <u>Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	Ethyl- <u>Benzene</u>	Xylenes	<u>MTBE</u>
1/23/90	MW1 MW2 MW3 MW4	ND 400 450 ND	1.5 73 110 ND	2.3 36 1.2 0.40	ND 10 4.4 ND	4.3 40 11 ND	  
9/15/89	MW1 MW2 MW3 MW4	ND 290 32 ND	ND ND ND	0.61 12 ND ND	ND ND ND ND	ND ND ND ND	·

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

ND = Non-detectable.

-- Indicates analysis was not performed.

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

Note: Laboratory analyses data prior to January 12, 1994, were provided by Kaprealian Engineering, Inc.

TABLE 3
SUMMARY OF LABORATORY ANALYSES
WATER

<u>Date</u>	Well #	TPH as <u>Diesel</u>	TOG (mg/L)	<u>Tetrachloroethene*</u>
7/14/93	MW1			0.95
7/14/92	MW1			1.4
7/15/91	MW1	ND	ND	1.8
4/12/91	MWl	ND	ND	2.0
1/15/91	MWl	ND	ND	2.1
10/16/90	MW1	ND	ND	2.0
7/17/90	MW1	ND	ND	1.7
4/19/90	MW1	ND	ND	2.2
1/23/90	MW1	ND	1.5	2.1
9/15/89	MW1	ND	ND	2.7

ND = Non-detectable.

-- Indicates analysis was not performed.

mg/L = milligrams per liter.

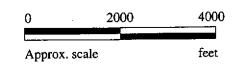
Results are in micrograms per liter ( $\mu g/L$ ), unless otherwise indicated.

Note: Laboratory analyses data prior to January 12, 1994, were provided by Kaprealian Engineering, Inc.

<sup>\*</sup> All EPA method 8010 constituents were non-detectable, except for tetrachloroethene as indicated.

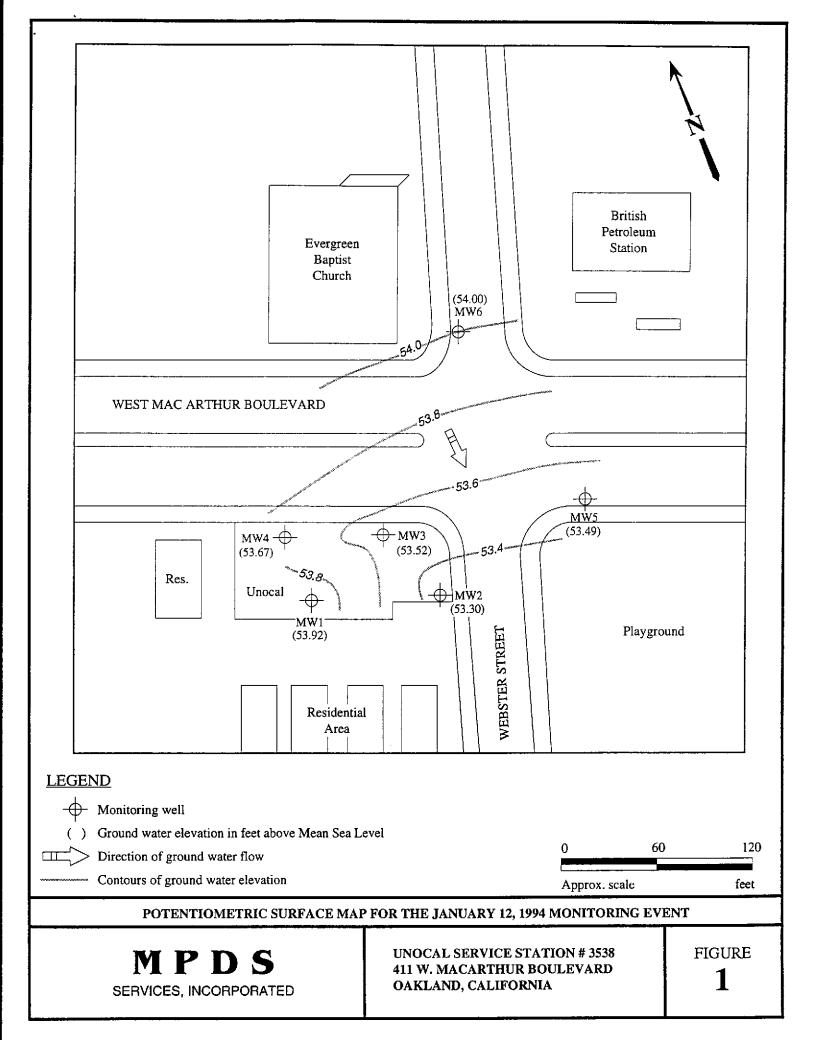


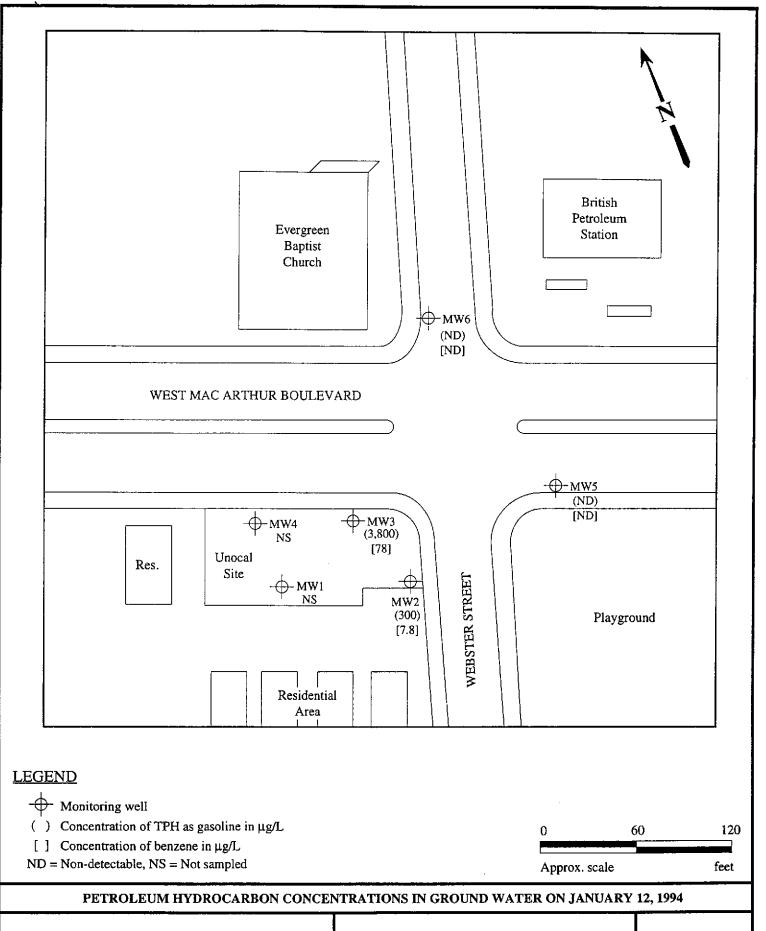
Base modified from 7.5 minute U.S.G.S. Oakland East & West Quadrangles (both photorevised 1980)



MPDS
SERVICES, INCORPORATED

UNOCAL SERVICE STATION # 3538 411 W. MACARTHUR BOULEVARD OAKLAND, CALIFORNIA LOCATION MAP





MPDS

SERVICES, INCORPORATED

UNOCAL SERVICE STATION # 3538 411 W. MACARTHUR BOULEVARD OAKLAND, CALIFORNIA FIGURE

2

MPDS Services, Inc. 2401 Stanwell Dr., Ste. 400 Concord, CA 94520

Client Project ID:

Unocal #3538, 411 W. McArthur Blvd, Oakland

Sampled:

Jan 12, 1994

Attention: Avo Avedissian

Sample Matrix: Analysis Method: Water EPA 5030/8015/8020

Received: Reported: Jan 12, 1994 Jan 26, 1994

First Sample #:

401-0474

# TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit μg/L	<b>Sample</b> I.D. 401-0474 MW2	Sample I.D. 401-0475 MW3	Sample I.D. 401-0476 MW5	Sample I.D. 401-0477 MW6	Sample I.D. Method Blank	s.	
Purgeable . Hydrocarbons	50	300	3,800	N.D.	N.D.			
Benzene	0.5	7.8	78	N.D.	N.D.			
Toluene	0.5	3.8	N.D.	0.84	1.2			
Ethyl Benzene	0.5	1.8	180	N.D.	N.D.		•	
Total Xylenes	0.5	10	390	1.6	2.9			
Chromatogram Pat	tern:	Gasoline	Gasoline		<del></del> .			

# **Quality Control Data**

Report Limit Multiplication Factor:	2.0	20	1.0	1.0	1.0	
Date Analyzed:	1/21/94	1/20/94	1/18/94	1/18/94	1/18/94	
Instrument Identification:	HP-2	HP-4	HP-2	HP-2	HP-2	
Surrogate Recovery, %: (QC Limits = 70-130%)	99	94	105	104	108	• .

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

**SEQUOIA ANALYTICAL** 

Alan B. Kemp Project Manager MPDS Services, Inc.

2401 Stanwell Dr., Ste. 400

Concord, CA 94520 Attention: Avo Avedissian Client Project ID: U

Unocal #3538, 411 W. McArthur Blvd, Oakland

Matrix: Liquid

QC Sample Group: 4010474-477

Reported:

Jan 26, 1994

## **QUALITY CONTROL DATA REPORT**

ANALYTE	Benzene	Toluene	Ethyl	Xylenes	
			Benzene		
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	
Analyst:	A.T.	A.T.	A.T.	A.T.	
MS/MSD					
Batch#:	4010460	4010460	4010460	4010460	÷
Date Prepared:	1/18/94	1/18/94	1/18/94	1/18/94	•
Date Analyzed:	1/18/94	1/18/94	1/18/94	1/18/94	
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	
Conc. Spiked:	20 μg/L	$20\mu\mathrm{g/L}$ .	20 μg/L	60 μg/L	
Matrix Spike		·			
% Recovery:	87	105	107	103	
Matrix Spike Duplicate % Recovery:	82	105	. 102	103	
Relative % Difference:	5.9	0.0	4.9	0.0	
LCS Batch#:	1LCS011894	1LCS011894	1LCS011894	1LCS011894	
Date Prepared:	1/18/94	1/18/94	1/18/94	1/18/94	
Date Analyzed:	1/18/94	1/18/94	1/18/94	1/18/94	
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	
LCS %					

99

72-130

# SEQUOIA ANALYTICAL

103

71-133

Recovery:

% Recovery Control Limits:

Alans Kemp Project Manager Please Note:

100

72-128

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.

101

71-120

MPDS Services, Inc. 2401 Stanwell Dr., Ste. 400

Concord, CA 94520

Client Project ID: Unocal #3538, 411 W. McArthur Blvd, Oakland

Matrix: Liquid

Attention: Avo Avedissian QC Sample Group: 4010474-477

Reported:

Jan 26, 1994

### **QUALITY CONTROL DATA REPORT**

ANALYTE	Benzene	Toluene	Ethyl	Xylenes	
			Benzene	-	
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	
Analyst:	J.F.	J.F.	J.F.	J.F.	
			5.11.	5.11.	·
MS/MSD					
Batch#:	4010701	4010701	4010701	4010701	
Date Prepared:	1/21/94	1/21/94	1/21/94	1/21/94	
Date Analyzed:	1/21/94	1/21/94	1/21/94	1/21/94	
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	
Conc. Spiked:	$20\mu\mathrm{g/L}$	20 μg/L	20 μg/L	60 μg/L	
Matrix Spike					
% Recovery:	100	100	100	100	•
Matrix Spike Duplicate % Recovery:	100	100	100	103	
Relative % Difference:	0.0	0.0	0.0	3.0	
LCS Batch#:	1LCS012194	1LCS012194	1LCS012194	1LCS012194	
Date Prepared:	1/21/94	1/21/94	1/21/94	1/21/94	
Date Analyzed:	1/21/94	1/21/94	1/21/94	1/21/94	
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	
LCS %	103	. 98	97	100	•

72-130

71-133

**SEQUOIA ANALYTICAL** 

% Recovery Control Limits:

Alar B. Kemp Project Manager Please Note:

72-128

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.

71-120

MPDS Services, Inc.

2401 Stanwell Dr., Ste. 400

Concord, CA 94520

Attention: Avo Avedissian

Client Project ID:

Unocal #3538, 411 W. McArthur Blvd, Oakland

Matrix:

Liquid

inc. Eigi

QC Sample Group: 4010474-477

Reported:

Jan 26, 1994

### QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl	Xylenes	
		•	Benzene		-
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	
Analyst:	A.T.	A.T.	A.T.	A.T.	
MS/MSD					
Batch#:	4010441	4010441	4010441	4010441	
Date Prepared:	1/20/94	1/20/94	1/20/94	1/20/94	
Date Analyzed:	1/20/94	1/20/94	1/20/94	1/20/94	•
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	
Matrix Spike					
% Recovery:	100	95	97	98	
Matrix Spike Duplicate % Recovery:	100	100	97	99	
Relative % Difference:	0.0	5.1	0.0	1.0	
LCS Batch#:	2LCS012094	2LCS012094	2LCS012094	2LCS012094	
Date Prepared:	1/20/94	1/20/94	1/20/94	1/20/94	•
Date Analyzed:	1/20/94	1/20/94	1/20/94	1/20/94	
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4	
LCS %					

105

72-130

Please Note:

100

72-128

100

71-133

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.

102

71-120

**SEQUOIA ANALYTICAL** 

Recovery:

% Recovery Control Limits:

Alan Breenp Project Manager

# MPDS

Services, Inc.

# CHAIN OF CUSTODY

SAMPLER	11/				111	y o	TE HAI	HE & ADDRESS			AHAL	YSES R	EQUESTE	) 	· · · · ·	TURN AROUND TIME:		
WITHESSING A	GENCY			<u>ر</u>	211		A-1	AC Arthur Blu	ر (الم	<u>\</u>					İ	REGICHA		
SAMPLE ID NO.	DATE	TIME	SOIL	VATER	GRÁB	COMP	NO. OF CONT.	SAMPLING LOCATION	FOL L	0						REMARKS		
MW2	1-12			×	×		2	V5A	۶							4010474 A-B 0475 0476 0477		
MW3	и			×	×		v	υ	X	_			_	<u> </u>		0475		
MWS	4			1	×		и	4	×				_			0476		
MWG	4			^	^		ч	ч	<u> </u>							1 0477 V		
			   							_				<u> </u>				
. v													_	_				
				<u> </u>						_	_	_						
			<u> </u>			<u> </u>				<u>l</u>	l_							
Rel inquished	<u> </u>			1 2 ~				eduby: (signature)			r analı	/sis:		·	-	the laboratory accepting samples malysis been stored in ice?		
Ret inquished	i by:\ (\$i	gnature)	1/12	194 194	8'3	-#		ed by: Isignaryre)	مبيد	1			-		-	d until analyzed?		
Relinquished	d by: (Si	gnature)	<u> </u>	ate/Ti	me		Receiv	ed by: (Signature)		3.			レカー			alysis have head space?		
Relinquished	i by: (S	gnature)	t	ate/Ti	ine		Receiv	ed by: (Signature)				7 (2 ignatur				itle Date		