MPDS

SERVICES, INCORPORATED

JE

1059

V BE

March 4, 1994

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

RE: Unocal Service Station #5325
3220 Lakeshore Avenue
Oakland, California

Per the request of the Unocal Corporation Project Manager, Mr. David B. DeWitt, enclosed please find our report (MPDS-UN5325-01) dated December 30, 1993, 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) 277-2384.

Sincerely,

MPDS Services, Inc.

Deanna L. Harding

Deanna L. Harding
Technical Assistant

/dlh

Enclosure

cc: Mr. David B. DeWitt

ALCO
HAZMAT
94 MAR -7 PM 12:43

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

M P D S
SERVICES, INCORPORATED

MPDS-UN5325-01
December 30, 1993

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

Attention: Mr. David DeWitt

RE: Quarterly Data Report
Unocal Service Station #5325
3220 Lakeshore Avenue
Oakland, California

Dear Mr. DeWitt:

This 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. The wells are currently monitored and sampled on a quarterly basis. This report covers the work performed by MPDS Services, Inc. in November of 1993.

RECENT FIELD ACTIVITIES

The three monitoring wells (U-1, U-2, and U-3) were monitored and sampled once during the quarter. Prior to sampling, the wells were checked for depth to water and the presence of free product or sheen. The monitoring data collected this quarter are summarized in Table 1.

Ground water samples were collected from all of the wells on November 16, 1993. Prior to sampling, the wells were each purged of between 10 and 16.5 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 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 that were then sealed with Teflon-lined screw caps, labeled, and stored in a cooler, on ice, until delivery to a state-certified laboratory.

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

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

REGISTERED GEOLOGIST
JOEL G. GREGER
No. EG 1633
CERTIFIED
ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

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

/dlh

Attachments: Tables 1, 2, & 3
Location Map
Ground Water Flow Direction Map - Figure 1
Concentrations of Petroleum Hydrocarbons - Figure 2
Laboratory Analyses
Chain of Custody documentation

cc: Mr. Cliff Garratt, GeoStrategies, Inc.

TABLE 1

SUMMARY OF MONITORING DATA

Well #	Ground Water Elevation (feet)	Depth to Water (feet)◆	Product Thickness (feet)	Sheen	Water Purged (gallons)	Total Well Depth (feet)◆
(Monitored and Sampled on November 16, 1993)						
U-1	-3.29	8.61	0	No	16.5	11.60
U-2	-3.64	8.17	0	No	10	11.60
U-3	-3.96	11.82	0	No	12	15.80

Well #	Well Cover Elevation (feet)*	Well Casing Elevation (feet)**
U-1	5.75	5.32
U-2	4.94	4.53
U-3	8.14	7.86

◆ The depth to water level and total well depth measurements were taken from the top of the well casing. Prior to November 16, 1993, the water level and total well depth measurements were taken from the top of the well cover.

* 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 November 16, 1993, 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 November 16, 1993)

Well #	Gallons per Casing Volume	Time	Gallons Purged	Casing Volumes Purged	Temperature (°F)	Conductivity ([μmhos/cm] x1000)	pH
U-1	4.16	10:45	0	0.00	73.1	2.14	8.25
			4	0.96	73.1	1.91	7.93
			8	1.92	71.9	2.69	7.92
			12	2.88	72.1	2.73	7.84
		10:55	16.5	3.97	72.3	2.79	7.80
U-2	4.21	11:15	0	0.00	72.2	4.52	7.91
			4	0.95	75.2	4.86	7.36
			6	1.43	75.6	4.04	7.29
		11:25	WELL DEWATERED				
			8	1.90	75.9	4.43	7.51
		11:45	WELL DEWATERED				
		12:15	10	2.38	82.1	5.87	7.35
U-3	2.96	9:30	0	0.00	51.1	10.28	8.28
			3	1.01	74.7	9.61	8.43
			4	1.35	78.5	9.95	8.36
		9:40	WELL DEWATERED				
			6	2.03	78.1	10.84	8.17
		9:50	WELL DEWATERED				
			8	2.70	79.1	10.94	8.17
		10:15	12	4.05	81.3	11.04	8.13

TABLE 3

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Well #	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes
11/16/93	U-1	690♦	ND	ND	ND	ND
	U-2	510♦	ND	ND	ND	ND
	U-3	ND	ND	ND	ND	ND
8/08/93	U-1	4,900**	79	ND	832	270
&	U-2	5,600**	420	ND	410	670
8/09/93	U-3	210	5.0	9.7	0.7	4.1
5/07/93	U-1	8,700	600	240	650	3,300
	U-2	17,000	1,800	660	1,700	4,000
	U-3	ND	ND	ND	ND	ND
2/22/93	U-1	34,000	1,400	5,500	910	7,300
	U-2	3,400	2,400	2,100	1200	5,800
	U-3	ND	ND	ND	ND	ND
6/11/92	U-1	1,000	80	1.4	6.7	41
	U-2	620	17	2.1	ND	37
	U-3	ND	ND	ND	ND	ND
8/20/92	U-1	400*	1	ND	ND	0.6
	U-2	700	28	6.5	1.3	4.6
	U-3	ND	ND	ND	ND	ND

TABLE 3 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Well #	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes
5/05/92	U-1	230	1.2	ND	ND	ND
	U-2	1,600	120	52	6.2	290
	U-3	ND	ND	ND	ND	ND
2/12/92	U-1	250	ND	ND	ND	ND
	U-2	410	1.9	ND	0.36	0.40
	U-3	ND	ND	ND	ND	ND
10/09/91	U-1	ND	ND	ND	ND	ND
	U-2	230	7.1	ND	ND	11
	U-3	ND	ND	ND	ND	ND
7/03/91	U-1	140	21	4.3	0.36	17
	U-2	2,100	150	25	3.1	290
	U-3	ND	ND	ND	ND	ND
4/01/91	U-1	160	13	8.6	1.0	15
	U-2	1,700	250	89	34	190
	U-3	ND	1.0	2.9	0.53	5.4
1/07/91	U-1	250	22	16	4.2	17
	U-2	1,900	67	5.8	58	69
	U-3	ND	ND	ND	ND	1.8
8/10/90	U-1	690	38	75	8.6	130
	U-2	780	27	46	15	130
	U-3	ND	ND	ND	ND	ND

TABLE 3 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

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

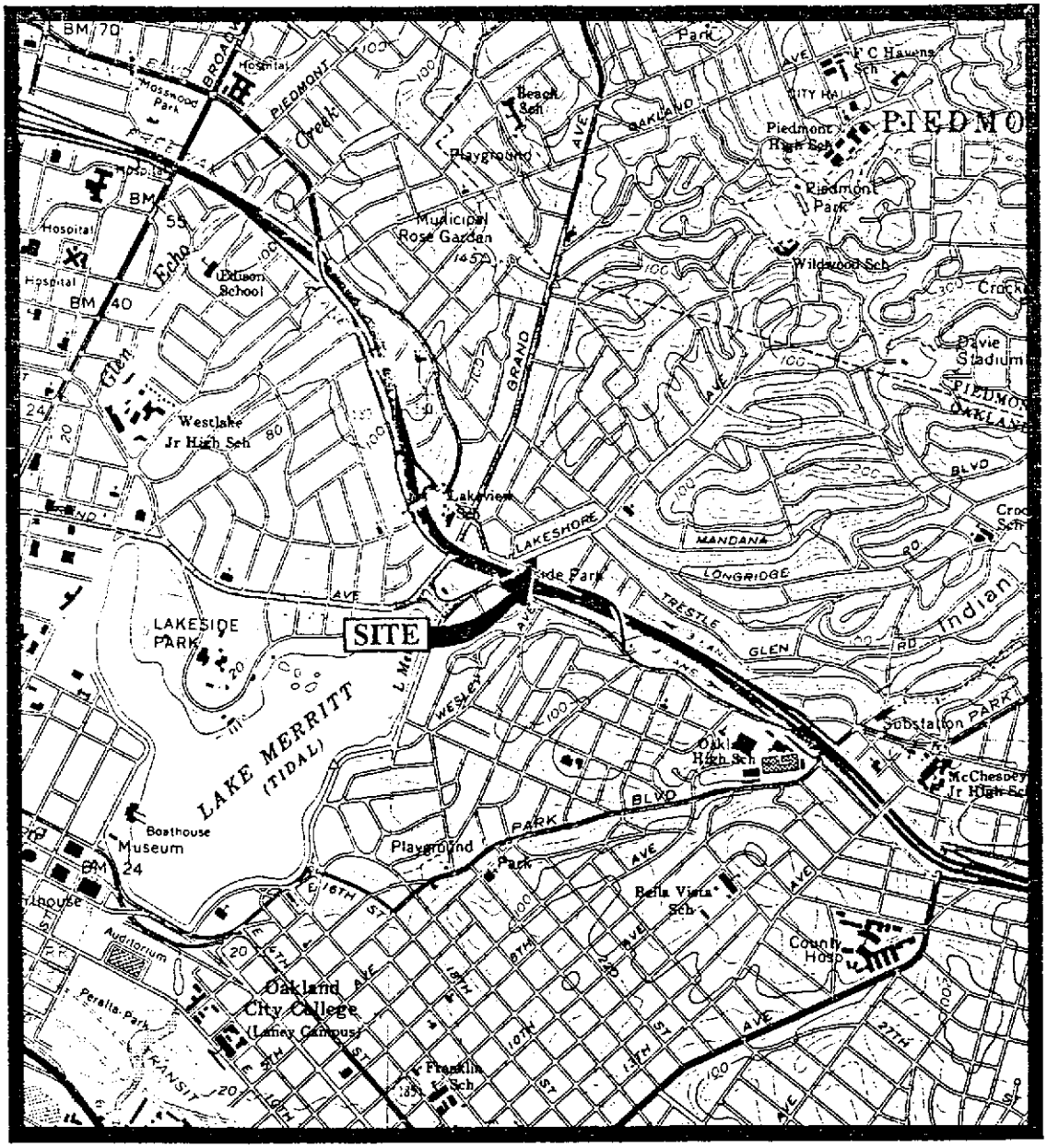
* The positive result for gasoline does not appear to have a typical gasoline pattern.

** 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 (µg/L), unless otherwise indicated.

Note: Laboratory analyses data prior to November 16, 1993, were provided by GeoStrategies, Inc.

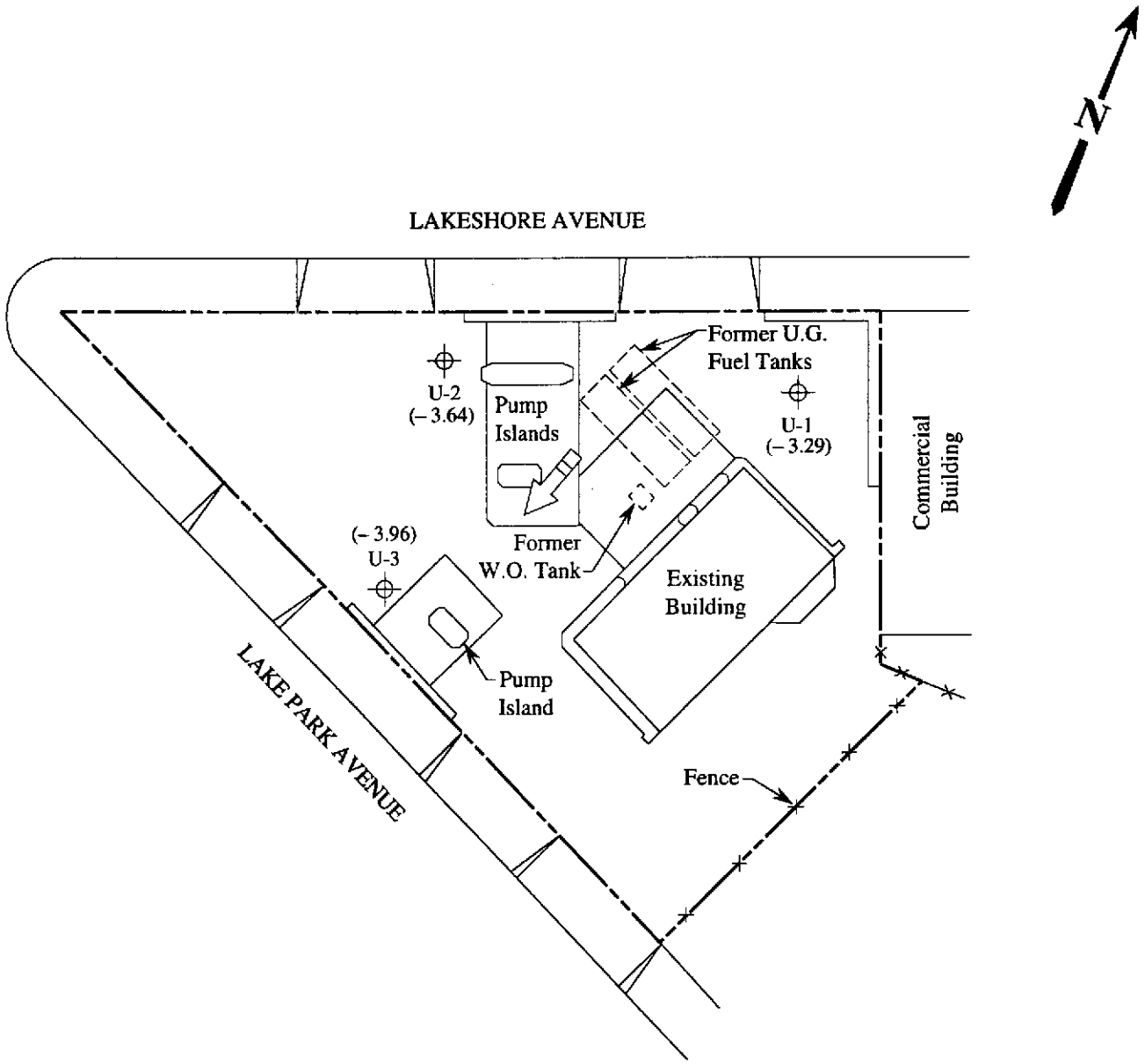


Base modified from 7.5 minute U.S.G.S.
Oakland East and West Quadrangles
(both photorevised 1980)

0 2000 4000

Approx. scale feet

M P D S SERVICES, INC.	**UNOCAL SERVICE STATION #5325** **3220 LAKESHORE AVENUE** **OAKLAND, CALIFORNIA**	**LOCATION MAP**



LEGEND

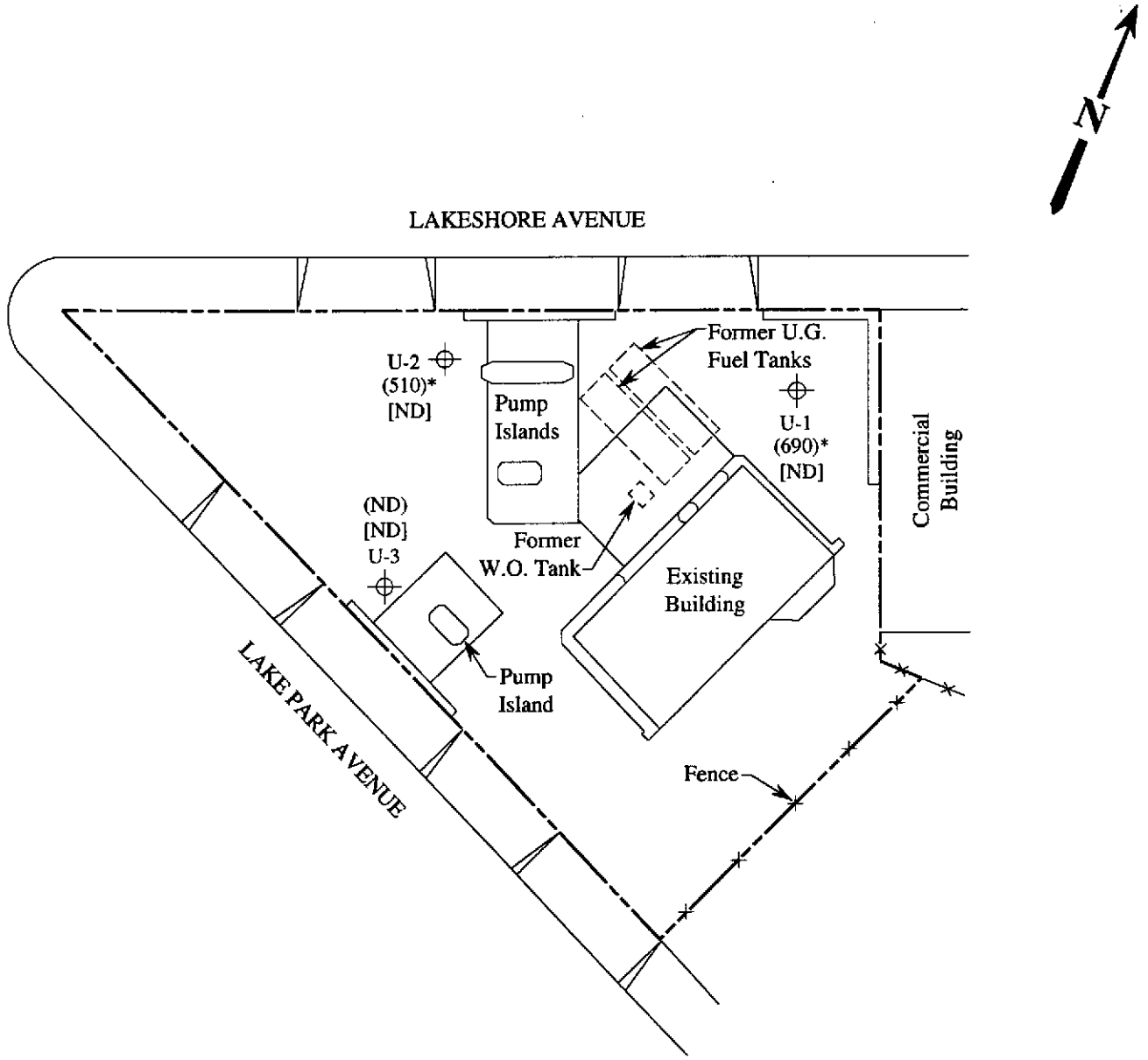
- Monitoring well
- ( ) Ground water elevation in feet relative to Mean Sea Level
- Direction of ground water flow

0 40 80

Approx. scale feet

GROUND WATER FLOW DIRECTION MAP FOR THE NOVEMBER 16, 1993 MONITORING EVENT

M P D S SERVICES, INCORPORATED	**UNOCAL SERVICE STATION #5325** **3220 LAKESHORE AVENUE** **OAKLAND, CALIFORNIA**	FIGURE **1**



LEGEND

- ⊕ Monitoring well
- ( ) Concentration of TPH as gasoline in ppb
- [ ] Concentration of benzene in ppb

ND = Non-detectable

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

0 40 80

Approx. scale feet

PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON NOVEMBER 16, 1993

M P D S SERVICES, INCORPORATED	**UNOCAL SERVICE STATION #5325** **3220 LAKESHORE AVENUE** **OAKLAND, CALIFORNIA**	FIGURE **2**

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

MPDS Services, Inc.	Client Project ID:	Unocal 5325, 3220 Lakeshore, Oakland	Sampled:	Nov 16, 1993
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Water	Received:	Nov 16, 1993
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported:	Dec 3, 1993
Attention: Avo Avedissian	First Sample #:	311-1898		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 311-1898 U1*	Sample I.D. 311-1899 U2*	Sample I.D. 311-1900 U3	Sample I.D. Method Blank
Purgeable Hydrocarbons	50	690	510	N.D.	
Benzene	0.5	N.D.	N.D.	N.D.	
Toluene	0.5	N.D.	N.D.	N.D.	
Ethyl Benzene	0.5	N.D.	N.D.	N.D.	
Total Xylenes	0.5	N.D.	N.D.	N.D.	
Chromatogram Pattern:		Discrete Peaks	Discrete Peaks	--	

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0
Date Analyzed:	11/30/93	11/30/93	11/29/93	11/29/93
Instrument Identification:	ML #2	ML #2	ML #2	ML #2
Surrogate Recovery, %: (QC Limits = 70-130%)	113	103	105	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

Please Note:
Discrete peaks refers to unidentified peaks in the MTBE and EPA 8010 range.

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

MPDS Services, Inc.	Client Project ID:	Unocal 5325, 3220 Lakeshore, Oakland	
2401 Stanwell Dr., Ste. 400	Matrix:	Liquid	
Concord, CA 94520			
Attention: Avo Avedissian	QC Sample Group: 311-1898		Reported: Dec 9, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	J. Dinsay	J. Dinsay	J. Dinsay	J. Dinsay
MS/MSD Batch#:	GBLK112993	GBLK112993	GBLK112993	GBLK112993
Date Prepared:	11/29/93	11/29/93	11/29/93	11/29/93
Date Analyzed:	11/29/93	11/29/93	11/29/93	11/29/93
Instrument I.D.#:	ML #2	ML #2	ML #2	ML #2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Matrix Spike % Recovery:	115	110	115	115
Matrix Spike Duplicate % Recovery:	109	105	110	112
Relative % Difference:	5.4	4.7	4.4	2.6
LCS Batch#:	GBLK112993	GBLK112993	GBLK112993	GBLK112993
Date Prepared:	11/29/93	11/29/93	11/29/93	11/29/93
Date Analyzed:	11/29/93	11/29/93	11/29/93	11/29/93
Instrument I.D.#:	ML #2	ML #2	ML #2	ML #2
LCS % Recovery:	100	97	100	102
% Recovery Control Limits:	71-133	72-128	72-130	71-120

SEQUOIA ANALYTICAL

Alan B. Kemp
Project Manager

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.

MPDS
Services, Inc.

CHAIN OF CUSTODY

SAMPLER: Ray

WITNESSING AGENCY:

SITE NAME & ADDRESS: UNOCAL # 5325
OAKLAND - 3220 LAKESHORE

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPH6 BTXE
U1	11-16	9:30-12:30		X	X		2		X
U2	11	"		X	X		4		X
U3	4	4		X	X		4		X

ANALYSES REQUESTED: TPH6 BTXE

TURN AROUND TIME: REGULAR

REMARKS:
3111898 A-B
1899
1900

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
Ray	11-16-93	[signature]	11-16-93 16:25
[signature]	11/17/93 12:00	Melissa Creuzer	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	

The following MUST BE completed by the laboratory accepting samples for analysis:

1. Have all samples received for analysis been stored in ice? Yes
2. Will samples remain refrigerated until analyzed? Yes
3. Did any samples received for analysis have head space? No
4. Were samples in appropriate containers and properly packaged? Yes

[signature] — Signature; Analyst — Title; 11-26-93 — Date

2401 Stanwell Drive, Suite 400
Concord, California 94520
Tel: 510 602 5100 Fax: 510 687 0602