MONITORING
PURGING
DISPOSING
SAMPLING

MPDS SERVICES, INCORPORATED

BC 1059
20279

May 18, 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-UN5325-02) dated March 22, 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) 277-2384.

Sincerely,

MPDS Services, Inc.

for Deanna L. Harding
Technical Assistant

/bp

Enclosure

cc: Mr. David B. DeWitt

ALCO
HAZMAT
94 MAY 20 PM 12:01

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

M P D S

SERVICES, INCORPORATED

MPDS-UN5325-02
March 22, 1994

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 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 February 16, 1994. Prior to sampling, the wells were each purged of between 9 and 17 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, 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

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

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 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.

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.

Talin Kaloustian
Staff Engineer

Joel G. Greger, C.E.G.
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. 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 February 16, 1994)						
U-1	-3.22	8.54	0	No	17	19.84
U-2	-3.20	7.73	0	No	10	19.53
U-3	-3.76	11.62	0	No	9	19.79
(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
(Monitored and Sampled on August 9, 1993)						
U-1	-3.31	9.06	0			
U-2	-3.19	8.13	0			
U-3	-4.25	12.39	0			
(Monitored and Sampled on May 7, 1993)						
U-1	-2.85	8.60	0			
U-2	-2.68	7.62	0			
U-3	-3.63	11.77	0			

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

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 November 16, 1993, 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 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 February 16, 1994)

Well #	Gallons per Casing Volume	Time	Gallons Purged	Casing Volumes Purged	Temperature (°F)	Conductivity ([μmhos/cm] x1000)	pH
U-1	4.18	10:52	0	0	66.9	2.05	7.55
			4	0.96	67.0	2.01	7.54
			8	1.91	66.9	1.75	7.47
			12	2.87	67.8	1.86	7.50
			16	3.83	67.6	1.86	7.52
		11:09	17	4.07			
U-2	4.37	10:16	0	0	68.6	3 23	7.38
			4.5	1.03	68.3	2.62	7.26
		10:23	8	1.83	67.1	1.88	7.08
			WELL DEWATERED				
		10:35	10	2.29	68.2	3.34	7.25
			WELL DEWATERED				
U-3	3.02	9:46	0	0	62.6	7.60	8.11
			3	0.99	64.2	7.76	7.96
		9:53	6	1.99	65.2	8.10	7.88
			WELL DEWATERED				
		10:05	9	2.98	66.6	8.07	7.79
			WELL DEWATERED				

TABLE 3

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Well #	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes
2/16/94	U-1	6,800♦♦	ND	ND	ND	ND
	U-2	980♦♦	49	13	2.7	40
	U-3	ND	ND	ND	ND	ND
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	1,200	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
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

TABLE 3 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Well #	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes
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

♦ 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 non-gasoline mixture.

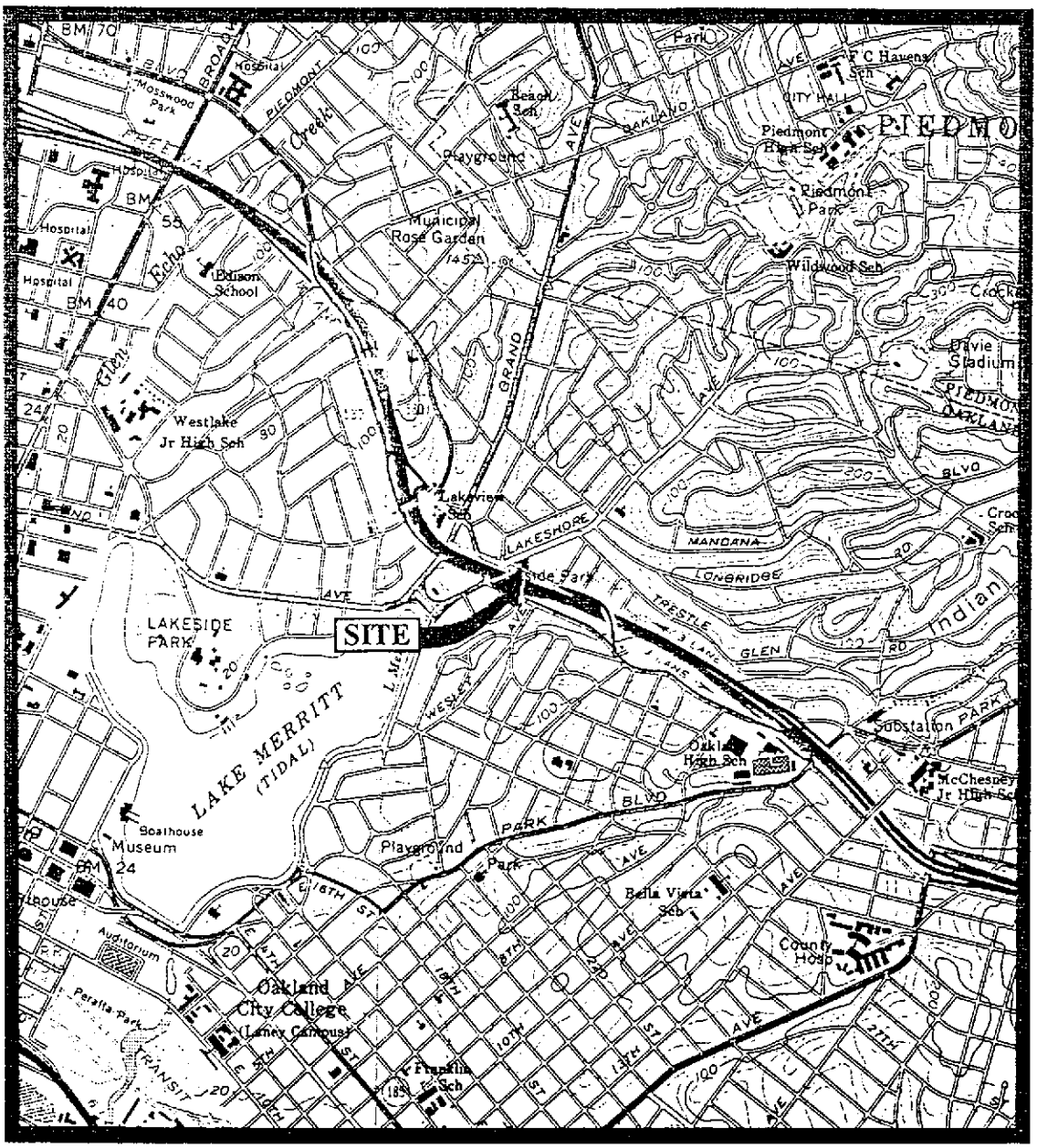
* The positive result for gasoline does not appear to have a typical gasoline pattern.

** 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.

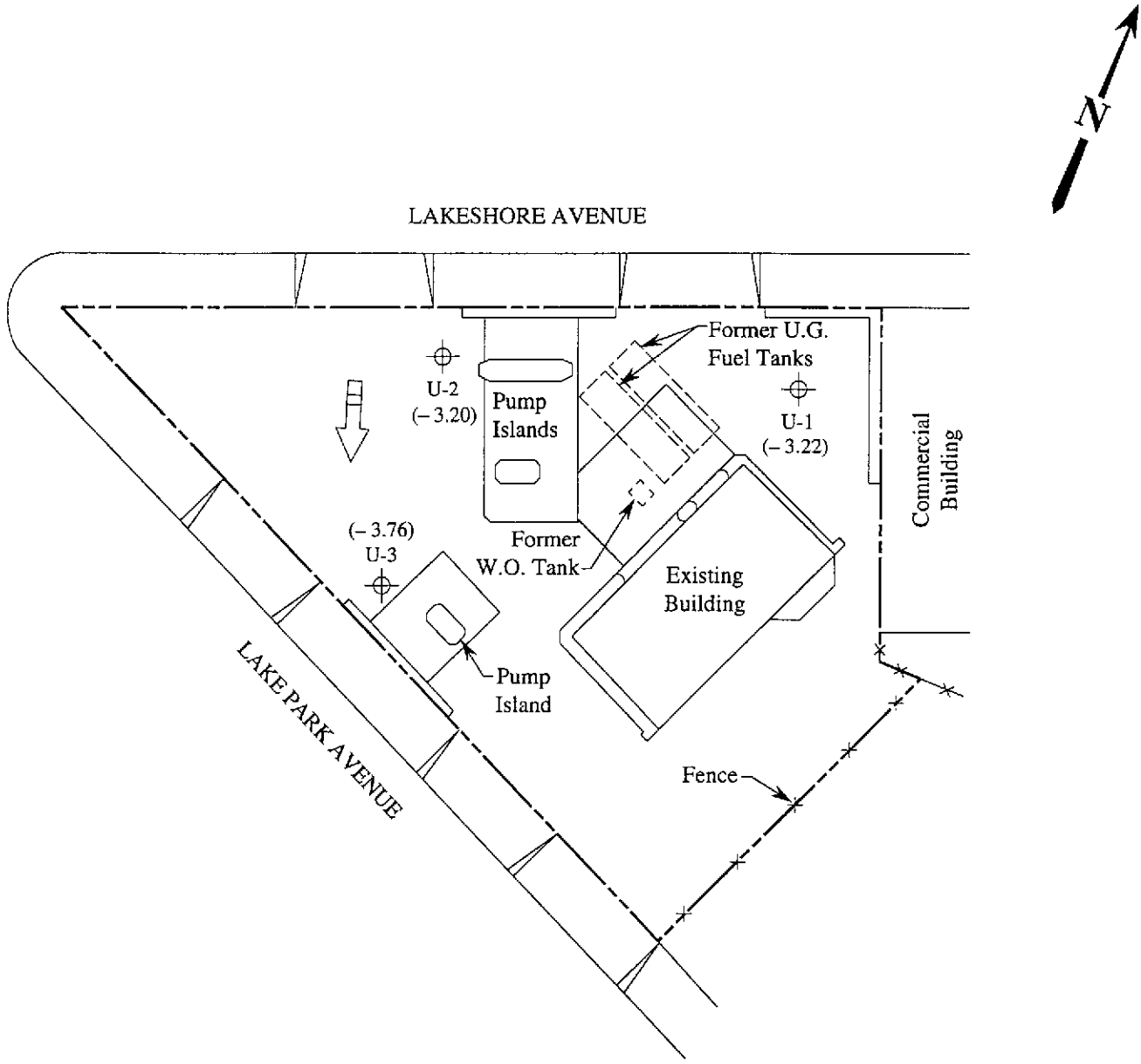


Base modified from 7.5 minute U.S.G.S.
Oakland East and West Quadrangles
(both photorevised 1980)

0 2000 4000

Approx. scale feet

MPDS SERVICES, INCORPORATED	**UNOCAL SERVICE STATION #5325** **3220 LAKESHORE AVENUE** **OAKLAND, CALIFORNIA**	**LOCATION MAP**



LEGEND

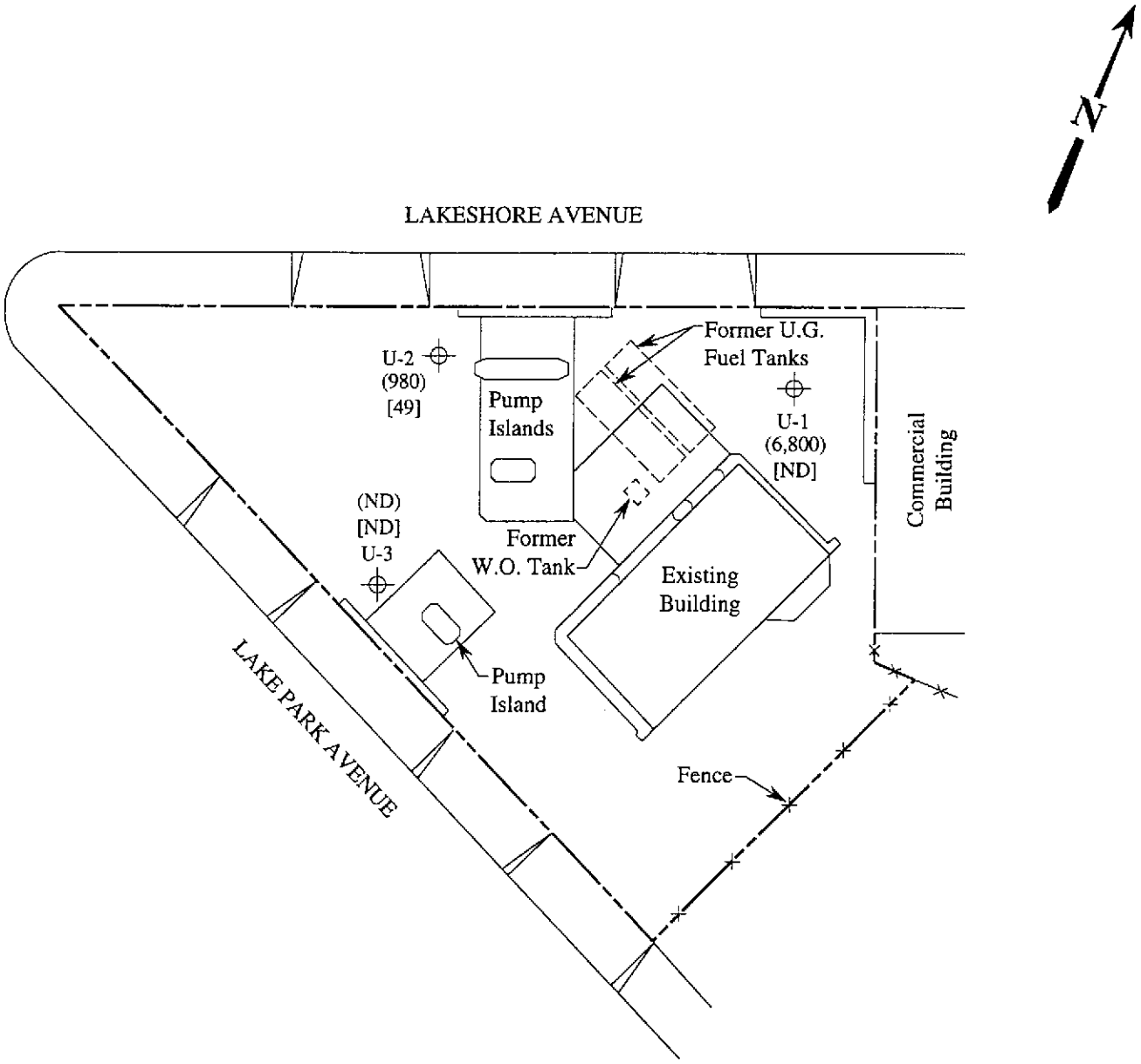
- Monitoring well
- ( ) Ground water elevation in feet relative to Mean Sea Level
- Direction of ground water flow

0 40 80

Approx. scale feet

GROUND WATER FLOW DIRECTION MAP FOR THE FEBRUARY 16, 1994 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 µg/L
- [ ] Concentration of benzene in µg/L
- ND = Non-detectable

0 40 80

Approx. scale feet

PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON FEBRUARY 16, 1994

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 Ave, Oakland	Sampled:	Feb 16, 1994
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Water	Received:	Feb 16, 1994
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported:	Mar 3, 1994
Attention: Avo Avedissian	First Sample #:	402-1198		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 402-1198 U1*	Sample I.D. 402-1199 U2*	Sample I.D. 402-1200 U3	Sample I.D. Matrix Blank
Purgeable Hydrocarbons	50	6,800	980	N.D.	
Benzene	0.5	N.D.	49	N.D.	
Toluene	0.5	N.D.	13	N.D.	
Ethyl Benzene	0.5	N.D.	2.7	N.D.	
Total Xylenes	0.5	N.D.	40	N.D.	
Chromatogram Pattern:		Gasoline and Discrete Peak	Gasoline and Discrete Peak	--	

Quality Control Data

Report Limit Multiplication Factor:	100	1.0	1.0	1.0
Date Analyzed:	2/28/94	2/25/94	2/25/94	2/25/94
Instrument Identification:	HP-2	ML-2	ML-2	ML-2
Surrogate Recovery, %: (QC Limits = 70-130%)	97	90	103	100

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:

* This sample appears to contain gasoline and a discrete peak. "Discrete Peak" refers to an unidentified peak in the MTBE 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 Ave, Oakland
2401 Stanwell Dr., Ste. 400	Matrix:	Liquid
Concord, CA 94520		
Attention: Avo Avedissian	QC Sample Group:	4021198-200

Reported: Mar 3, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	M. Nguyen	M. Nguyen	M. Nguyen	M. Nguyen
MS/MSD Batch#:	4021053	4021053	4021053	4021053
Date Prepared:	2/25/94	2/25/94	2/25/94	2/25/94
Date Analyzed:	2/25/94	2/25/94	2/25/94	2/25/94
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:	90	90	95	90
Matrix Spike Duplicate % Recovery:	100	100	103	100
Relative % Difference:	11	11	8.1	11
LCS Batch#:	LCS022594	LCS022594	LCS022594	LCS022594
Date Prepared:	2/25/94	2/25/94	2/25/94	2/25/94
Date Analyzed:	2/25/94	2/25/94	2/25/94	2/25/94
Instrument I.D.#:	ML-2	ML-2	ML-2	ML-2
LCS % Recovery:	85	85	90	89
% 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.

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 Ave, Oakland
2401 Stanwell Dr., Ste. 400	Matrix:	Liquid
Concord, CA 94520		
Attention: Avo Avedissian	QC Sample Group: 4021198-200	Reported: Mar 3, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha
MS/MSD Batch#:	4021048	4021048	4021048	4021048
Date Prepared:	2/28/94	2/28/94	2/28/94	2/28/94
Date Analyzed:	2/28/94	2/28/94	2/28/94	2/28/94
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Matrix Spike % Recovery:	110	105	105	107
Matrix Spike Duplicate % Recovery:	110	105	100	105
Relative % Difference:	0.0	0.0	4.9	1.9
LCS Batch#:	1LCS022894	1LCS022894	1LCS022894	1LCS022894
Date Prepared:	2/28/94	2/28/94	2/28/94	2/28/94
Date Analyzed:	2/28/94	2/28/94	2/28/94	2/28/94
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
LCS % Recovery:	88	92	94	96
% 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.