

MONITORING  
PURGING  
DISPOSING  
SAMPLING

**MPDS**

SERVICES, INCORPORATED

MAZ SAT

94 JUL 28 PM 4:34

July 26, 1994

SH

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-UN3538-02) dated May 10, 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.

  
Brenda Pepito

/bp

Enclosure

cc: Mr. Tim Howard

# MPDS

SERVICES, INCORPORATED

MPDS-UN3538-02  
May 10, 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 April 9, 1994. Prior to sampling, the wells were each purged of between 5 and 7 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. 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 2 and 3. The concentrations of Total Petroleum Hydrocarbons (TPH) as gasoline and benzene detected in the ground water samples collected this

MPDS-UN3538-02  
May 10, 1994  
Page 2

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.

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

Sincerely,

MPDS Services, Inc.

  
Sarkis Karkarian  
Staff Engineer

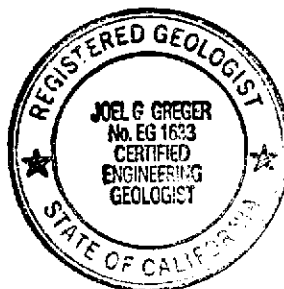
  
Joel G. Greger, C.E.G.  
Senior Engineering Geologist

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. Thomas Berkins, Kaprealian Engineering, 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)◆
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(Monitored on April 11, 1994)

MW1	54.30	17.80	0	--	0	27.30
MW2	53.50	17.88	0	--	0	27.90
MW3	53.74	18.12	0	--	0	25.08
MW4	53.94	17.70	0	--	0	28.73
MW5	53.67	17.56	0	--	0	30.13
MW6	57.78	13.66	0	--	0	30.06

(Monitored and Sampled on April 9, 1994)

MW2	53.41	17.97	0	--	7	27.93
MW3	53.67	18.19	0	--	5	25.11

(Monitored and Sampled on January 12, 1994)

MW1*	53.92	18.18	0	--	0	27.34
MW2	53.30	18.08	0	No	7	28.10
MW3	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

(Monitored and Sampled on October 14, 1993)

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	

TABLE 1 (Continued)

SUMMARY OF MONITORING DATA

<u>Well #</u>	<u>Ground Water Elevation (feet)</u>	<u>Depth to Water (feet)◆</u>	<u>Product Thickness (feet)</u>	<u>Sheen</u>	<u>Water Purged (gallons)</u>	<u>Total Well Depth (feet)◆</u>
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(Monitored 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	7.5	
MW5	53.49	18.02	0	No	8.5	
MW6	54.59	17.20	0	No	9	

<u>Well #</u>	<u>Well Cover Elevation (feet)**</u>	<u>Well Casing Elevation (feet)***</u>
MW1	72.43	72.10
MW2	71.63	71.38
MW3	72.06	71.86
MW4	71.98	71.64
MW5	71.51	71.23
MW6	71.79	71.44

◆ 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 depth to 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

Date	Well #	TPH as Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylenes	MTBE
4/09/94	MW2	120	10	0.88	1.1	4.9	--
	MW3	1,800	22	ND	140	280	--
1/12/94	MW2	300	7.8	3.8	1.8	10	--
	MW3	3,800	78	ND	180	390	--
	MW5	ND	ND	0.84	ND	1.6	--
	MW6	ND	ND	1.2	ND	2.9	--
10/14/93	MW2	230♦	5.3	ND	ND	2.1	--
	MW3	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	--
	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	--
	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	--
	MW6	ND	ND	ND	ND	ND	--
10/12/92	MW2	370	3.4	0.56	ND	11	--
	MW3	3,200	160	10	230	540	--

TABLE 2 (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>	<u>MTBE</u>
7/14/92	MW1	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	--
4/14/92	MW2	150	6.2	ND	ND	1.4	--
	MW3	14,000	660	48	560	2,000	--
1/15/92	MW2	220	37	0.52	1.1	7.0	--
	MW3	3,000	590	14	310	750	--
10/15/91	MW2	140	44	0.56	1.5	12	--
	MW3	3,100	390	34	150	390	--
7/15/91	MW1	ND	ND	ND	ND	ND	--
	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	MW1	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	--

TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES  
WATER

Date	Well #	TPH as Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylenes	MTBE
7/17/90	MW1	ND	ND	ND	ND	ND	--
	MW2	490	76	0.59	11	46	--
	MW3	4,000	270	48	130	250	--
	MW4	ND	ND	ND	ND	ND	--
4/19/90	MW1	ND	ND	ND	ND	ND	--
	MW2	3,900	550	5.1	91	390	--
	MW3	3,100	600	27	54	220	--
	MW4	ND	ND	0.48	ND	ND	--
1/23/90	MW1	ND	1.5	2.3	ND	4.3	--
	MW2	400	73	36	10	40	--
	MW3	450	110	1.2	4.4	11	--
	MW4	ND	ND	0.40	ND	ND	--
9/15/89	MW1	ND	ND	0.61	ND	ND	--
	MW2	290	ND	12	ND	ND	--
	MW3	32	ND	ND	ND	ND	--
	MW4	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 ( $\mu\text{g/L}$ ), 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

Date	Well #	TPH as Diesel	Total Oil & Grease (mg/L)	Tetrachloroethene*
7/14/93	MW1	--	--	0.95
7/14/92	MW1	--	--	1.4
7/15/91	MW1	ND	ND	1.8
4/12/91	MW1	ND	ND	2.0
1/15/91	MW1	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

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

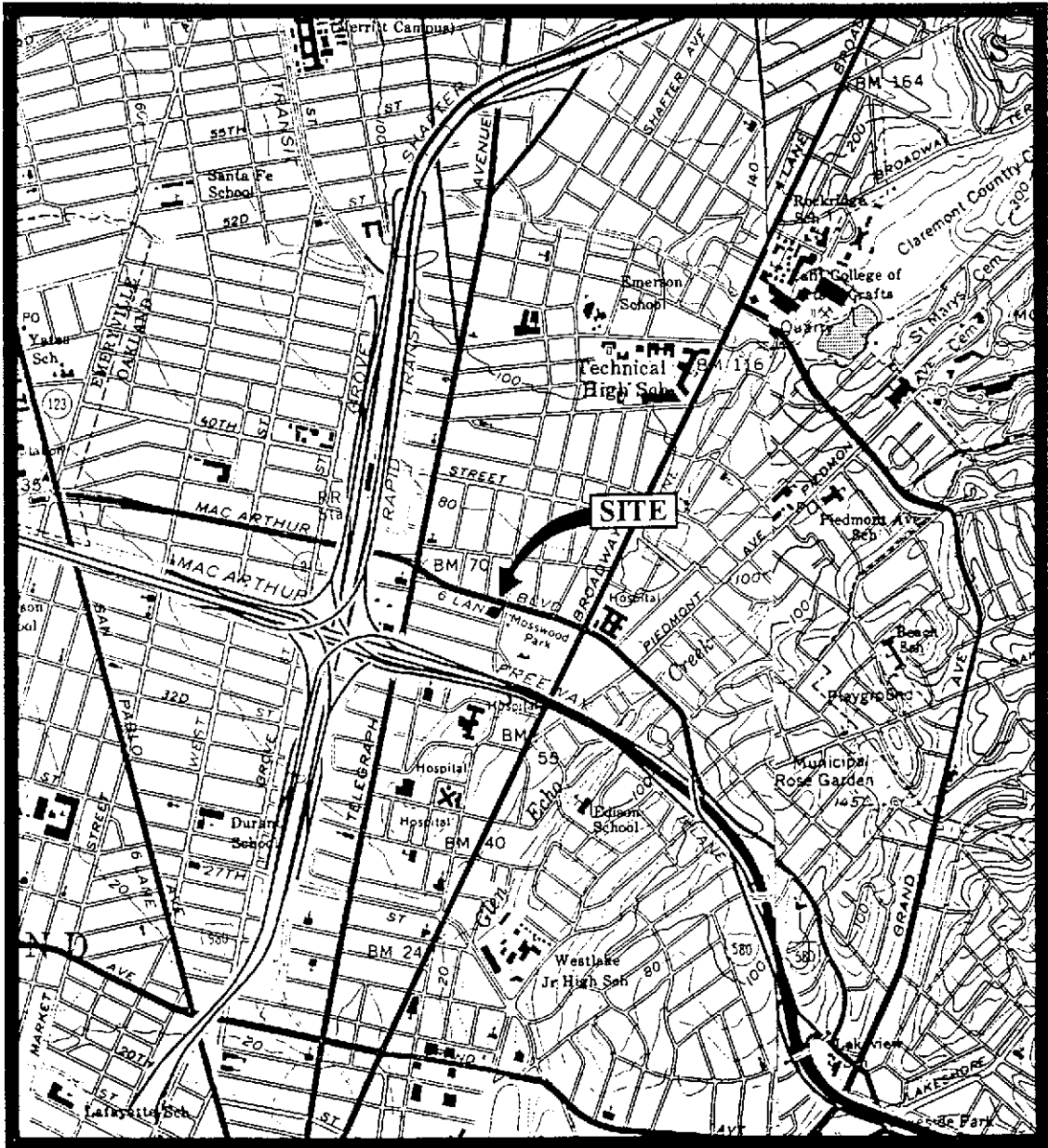
ND = Non-detectable.

-- Indicates analysis was not performed.

mg/L = milligrams per liter.

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

Note: Laboratory analyses data were provided by Kaprealian Engineering, Inc.



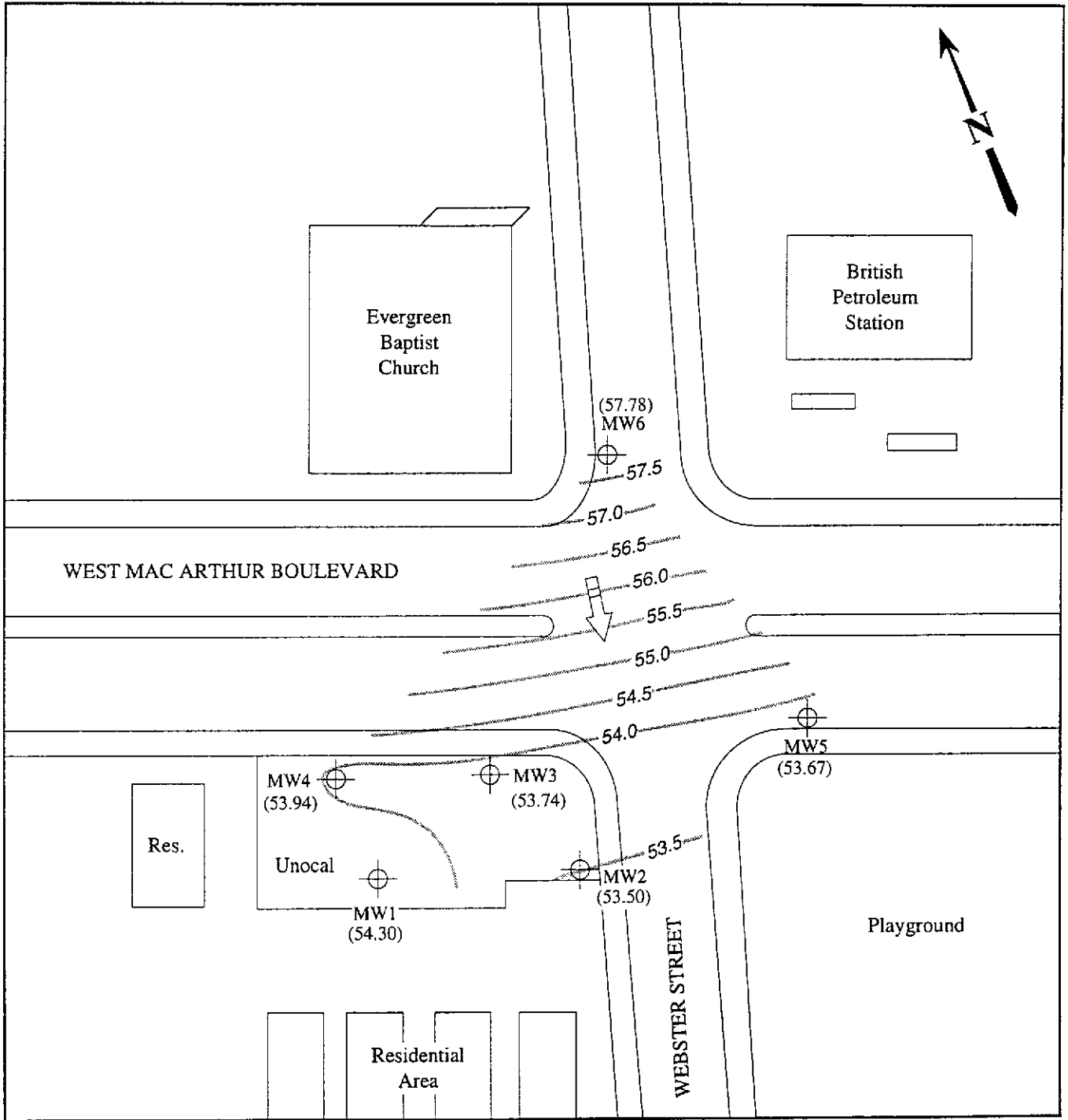
Base modified from 7.5 minute U.S.G.S. Oakland East & West Quadrangles  
(both photorevised 1980)







**MPDS**  
SERVICES, INCORPORATED

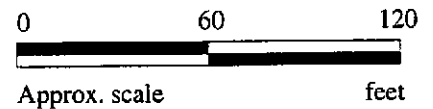
UNOCAL SERVICE STATION # 3538  
411 W. MACARTHUR BOULEVARD  
OAKLAND, CALIFORNIA

LOCATION  
MAP



**LEGEND**

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

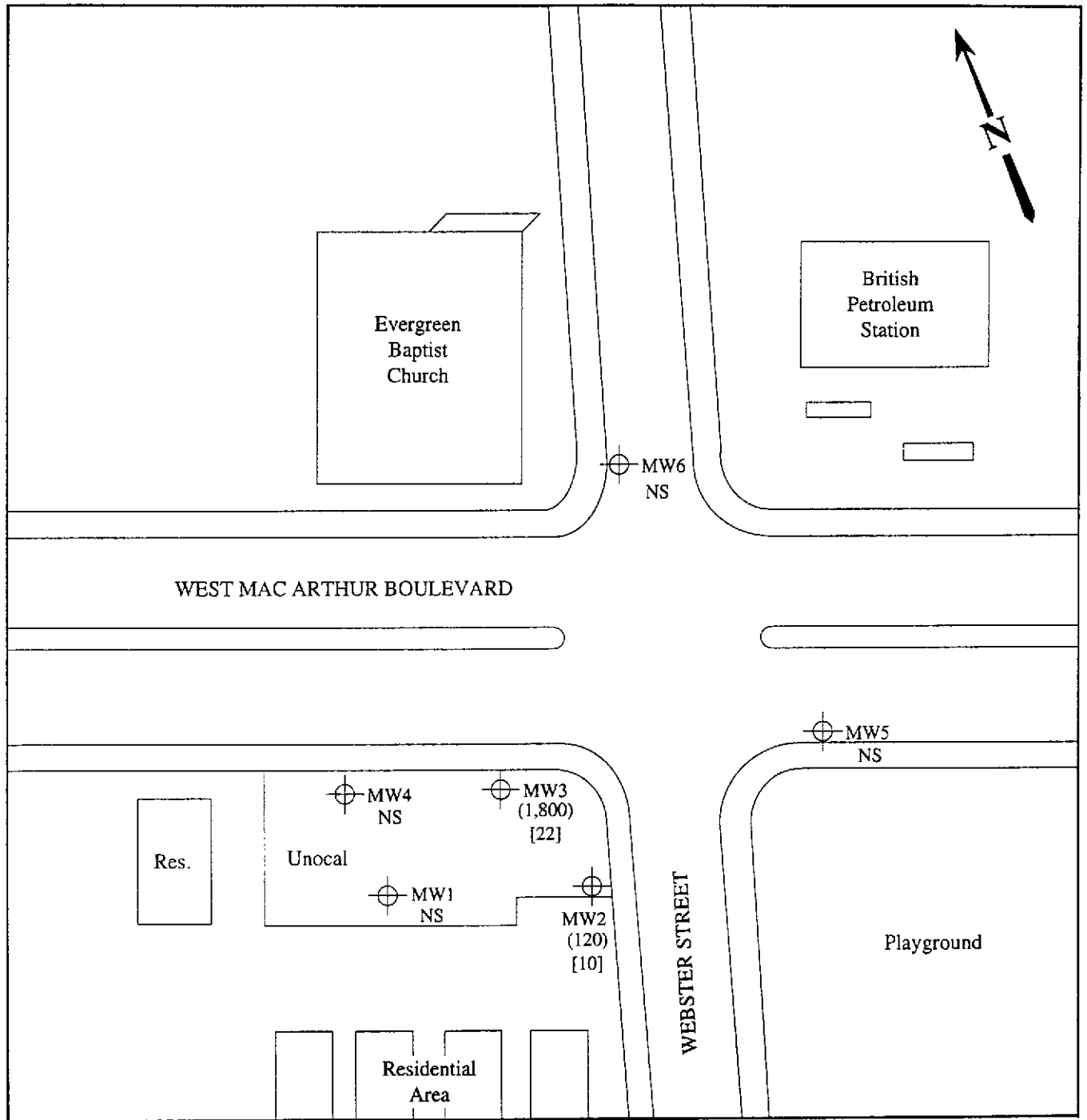


**POTENTIOMETRIC SURFACE MAP FOR THE APRIL 11, 1994 MONITORING EVENT**

**MPDS**  
SERVICES, INCORPORATED

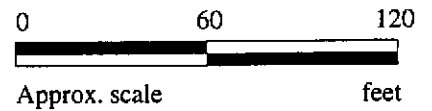
UNOCAL SERVICE STATION # 3538  
411 W. MACARTHUR BOULEVARD  
OAKLAND, CALIFORNIA

FIGURE  
**1**



**LEGEND**

- ⊕ Monitoring well
- ( ) Concentration of TPH as gasoline in  $\mu\text{g/L}$
- [ ] Concentration of benzene in  $\mu\text{g/L}$
- NS = Not sampled



**PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON APRIL 9, 1994**

**MPDS**  
 SERVICES, INCORPORATED

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

**FIGURE  
 2**



MPDS Services	Client Project ID: Unocal #3538, 411 W. MacArthur Blvd.,	Sampled: Apr 9, 1994
2401 Stanwell Dr., Ste. 400	Sample Matrix: Water	Received: Apr 11, 1994
Concord, CA 94520	Analysis Method: EPA 5030/8015/8020	Reported: Apr 21, 1994
Attention: Avo Avedessian	First Sample #: 404-0500	

**TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION**

Analyte	Reporting Limit µg/L	Sample I.D. 404-0500 MW-2	Sample I.D. 404-0501 MW-3	Sample I.D. Matrix Blank
Purgeable Hydrocarbons	50	120	1,800	
Benzene	0.5	10	22	
Toluene	0.5	0.88	N.D.	
Ethyl Benzene	0.5	1.1	140	
Total Xylenes	0.5	4.9	280	
Chromatogram Pattern:		Gasoline	Gasoline	

**Quality Control Data**

Report Limit Multiplication Factor:	1.0	10	1.0
Date Analyzed:	4/15/94	4/18/94	4/18/94
Instrument Identification:	HP-4	HP-2	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	97	111	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, #1271**

  
 Alan B. Kern  
 Project Manager





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

Client Project ID: Unocal #3538, 411 W. MacArthur Blvd., Oakland  
 Matrix: Liquid

QC Sample Group: 4040500-01

Reported: Apr 21, 1994

**QUALITY CONTROL DATA REPORT**

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
<b>Method:</b>	EPA 8020	EPA 8020	EPA 8020	EPA 8020
<b>Analyst:</b>	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha

**MS/MSD**

<b>Batch#:</b>	BLK041594	BLK041594	BLK041594	BLK041594
<b>Date Prepared:</b>	4/15/94	4/15/94	4/15/94	4/15/94
<b>Date Analyzed:</b>	4/15/94	4/15/94	4/15/94	4/15/94
<b>Instrument I.D.#:</b>	HP-4	HP-4	HP-4	HP-4
<b>Conc. Spiked:</b>	20 µg/L	20 µg/L	20 µg/L	60 µg/L
<b>Matrix Spike % Recovery:</b>	94	94	94	96
<b>Matrix Spike Duplicate % Recovery:</b>	93	93	94	95
<b>Relative % Difference:</b>	1.0	1.0	0.0	1.0

<b>LCS Batch#:</b>	2LCS041594	2LCS041594	2LCS041594	2LCS041594
<b>Date Prepared:</b>	4/15/94	4/15/94	4/15/94	4/15/94
<b>Date Analyzed:</b>	4/15/94	4/15/94	4/15/94	4/15/94
<b>Instrument I.D.#:</b>	HP-4	HP-4	HP-4	HP-4
<b>LCS % Recovery:</b>	110	114	117	116

<b>% Recovery Control Limits:</b>	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**

Alan B. Kemp  
 Project Manager





MPDS Services Client Project ID: Unocal #3538, 411 W. MacArthur Blvd., Oakland  
 2401 Stanwell Dr., Ste. 400 Matrix: Liquid  
 Concord, CA 94520  
 Attention: Avo Avedessian QC Sample Group: 4040500-01 Reported: Apr 21, 1994

**QUALITY CONTROL DATA REPORT**

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
<b>Method:</b>	EPA 8020	EPA 8020	EPA 8020	EPA 8020
<b>Analyst:</b>	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha

<b>MS/MSD Batch#:</b>	4040677	4040677	4040677	4040677
<b>Date Prepared:</b>	4/18/94	4/18/94	4/18/94	4/18/94
<b>Date Analyzed:</b>	4/18/94	4/18/94	4/18/94	4/18/94
<b>Instrument I.D.#:</b>	HP-2	HP-2	HP-2	HP-2
<b>Conc. Spiked:</b>	20 µg/L	20 µg/L	20 µg/L	60 µg/L
<b>Matrix Spike % Recovery:</b>	100	100	100	103
<b>Matrix Spike Duplicate % Recovery:</b>	95	95	95	98
<b>Relative % Difference:</b>	5.1	5.1	5.1	4.9

<b>LCS Batch#:</b>	1LCS041894	1LCS041894	1LCS041894	1LCS041894
<b>Date Prepared:</b>	4/18/94	4/18/94	4/18/94	4/18/94
<b>Date Analyzed:</b>	4/18/94	4/18/94	4/18/94	4/18/94
<b>Instrument I.D.#:</b>	HP-2	HP-2	HP-2	HP-2
<b>LCS % Recovery:</b>	119	106	109	109

<b>% Recovery Control Limits:</b>	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**

*Alan B. Kemp*  
 Alan B. Kemp  
 Project Manager

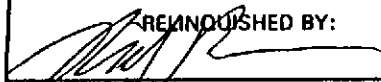


# M P D S Services, Inc.

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

## CHAIN OF CUSTODY

SAMPLER <b>NICHOLAS PERROW</b>			UNOCAL S/S # <u>3538</u> CITY: <u>OAKLAND</u>					ANALYSES REQUESTED							TURN AROUND TIME:	
WITNESSING AGENCY			ADDRESS: <u>411 W. MACARTHUR BLVD.</u>					TPH-GAS BTX	TPH-DIESEL	TOG	8010					REGULAR REMARKS
SAMPLE ID NO.	DATE	TIME	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION									
MW-2	4/9/94	9:5 AM	✓	✓		2 VOAs	WELL	✓							40405001A ↓ 0501 ↓	
MW-3	4/9/94	10:20 AM	✓	✓		2 VOAs	WELL	✓								

REMOVED BY: 	DATE/TIME 4/11/94 10:55 AM	RECEIVED BY: Melissa Crewse	THE FOLLOWING <u>MUST BE</u> COMPLETED BY THE LABORATORY ACCEPTING SAMPLES FOR ANALYSES:
(SIGNATURE)		(SIGNATURE)	1. HAVE ALL SAMPLES RECEIVED FOR ANALYSIS BEEN STORED ON ICE? yes
(SIGNATURE)		(SIGNATURE)	2. WILL SAMPLES REMAIN REFRIGERATED UNTIL ANALYZED? yes
(SIGNATURE)		(SIGNATURE)	3. DID ANY SAMPLES RECEIVED FOR ANALYSIS HAVE HEAD SPACE? no
(SIGNATURE)		(SIGNATURE)	4. WERE SAMPLES IN APPROPRIATE CONTAINERS AND PROPERLY PACKAGED? yes
(SIGNATURE)		(SIGNATURE)	SIGNATURE: Melissa Crewse TITLE: sample DATE: 4/11/94

Control