

MONITORING  
PURGING  
DISPOSING  
SAMPLING

**MPDS**

SERVICES, INCORPORATED

Should any problems occur in receiving, please call the number listed below.

ALCO  
HAZMAT

94 JUN 17 AM 11:38

June 14, 1994

Alameda County Health Care Services  
80 Swan Way, Room 200  
Oakland, CA 94261

RE: Unocal Service Station #5484  
18950 Lake Chabot Road  
Castro Valley, California

Per the request of the Unocal Corporation Project Manager, Ms. Tina R. Berry, enclosed please find our report (MPDS-UN5484-02) dated April 4, 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) 277-2321.

Sincerely,

MPDS Services, Inc.

*Deanna L. Harding*  
Deanna L. Harding  
Technical Assistant

/bp

Enclosure

cc: Ms. Tina R. Berry

**MPDS**  
SERVICES, INCORPORATED

ALCO  
HAZMAT  
94 JUN 17 AM 11:38

MPDS-UN5484-02  
April 4, 1994

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

Attention: Ms. Tina R. Berry

RE: Quarterly Data Report  
Unocal Service Station #5484  
18950 Lake Chabot Road  
Castro Valley, California

Dear Ms. Berry:

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 March 3, 1994. Prior to sampling, the wells were each purged of between 8 and 55 gallons of water. 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 2 and 3. The concentrations of Total Petroleum Hydrocarbons (TPH) as gasoline,

MPDS-UN5484-02  
April 4, 1994  
Page 2

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.

DISTRIBUTION

A copy of this report should be sent to the Alameda County Health Care Services Agency, and to Mr. Lester Feldman of 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.



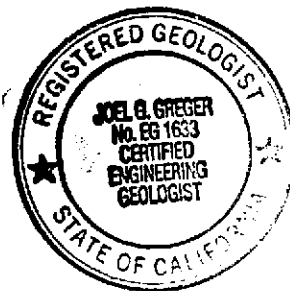
Joel G. Greger, C.E.G.  
Senior Engineering Geologist

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)◆
--------	-------------------------------	------------------------	--------------------------	-------	------------------------	--------------------------

**(Monitored and Sampled on March 3, 1994)**

MW2	223.97	4.91	0	No	10	19.21
MW4	220.79	6.98	0	No	55	27.31
MW5	217.24	7.87	0	No	42	23.78
MW6*	232.59	6.45	0	--	0	26.98
MW7	223.22	8.17	0	No	8	19.58

**(Monitored and Sampled on December 9, 1993)**

MW2	221.94	6.94	0	No	8.5	19.20
MW4	WELL WAS INACCESSIBLE					
MW5	215.14	9.97	0	No	36	23.85
MW6	231.61	7.43	0	--	51	27.00
MW7	220.74	10.65	0	No	6.5	19.56

**(Monitored and Sampled on September 9, 1993)**

MW2	222.29	6.59	0	No	9	
MW4	217.86	9.91	0	No	29	
MW5	215.99	9.12	0	No	26	
MW6*	232.22	6.82	0	--	0	
MW7	221.29	10.11	0	No	7	

**(Monitored and Sampled on June 9, 1993)**

MW2	223.62	5.85	0	No	10	
MW4	219.29	8.79	0	No	32	
MW5	216.85	8.57	0	No	29	
MW6	233.44	5.94	0	No	41	
MW7	223.07	8.59	0	No	8	

---

---

TABLE 1 (Continued)

SUMMARY OF MONITORING DATA

---

---

<u>Well #</u>	<u>Well Cover Elevation (feet)**</u>	<u>Well Casing Elevation (feet)***</u>
MW2	229.47	228.88
MW4	228.08	227.77
MW5	225.42	225.11
MW6	239.38	239.04
MW7	231.66	231.39

◆ The depth to water level and total well depth measurements were taken from the top of the well casings. Prior to September 9, 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 surveyed relative to Mean Sea Level (MSL), per the Alameda County Benchmark (elevation = 219.68 MSL).

\*\*\* Relative to MSL.

-- Sheen determination was not performed.

Note: Monitoring data prior to December 9, 1993, were provided by Kaprealian Engineering, Inc.

**TABLE 2**

SUMMARY OF LABORATORY ANALYSES  
WATER

Date	Well #	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE	
3/03/94	MW2	--	240*	ND	ND	ND	ND	--	
	MW4	--	ND	ND	ND	ND	ND	--	
	MW5	ND	ND	ND	ND	0.71	1.7	ND	
	MW6	SAMPLED SEMI-ANNUALLY							
	MW7	1,400♦	9,300	290	ND	590	400	1.7	
12/09/93	MW2	--	96*	ND	ND	ND	ND	--	
	MW4	WELL WAS INACCESSIBLE							
	MW5	87**	ND	ND	ND	ND	ND	--	
	MW6	--	150	ND	ND	ND	1.7	--	
	MW7	250♦	980	54	4.6	71	5.6	--	
9/09/93	MW2	--	210*	ND	ND	ND	ND	--	
	MW4	--	ND	ND	ND	ND	ND	--	
	MW5	58**	ND	ND	ND	ND	ND	--	
	MW6	SAMPLED SEMI-ANNUALLY							
	MW7	550**	2,600♦♦	160	19	250	120	--	
6/09/93	MW2	--	120*	ND	ND	ND	ND	300	
	MW4	--	ND	ND	ND	ND	ND	--	
	MW5	64	ND	ND	ND	ND	ND	--	
	MW6	--	ND	ND	ND	ND	ND	--	
	MW7	830**	4,600	430	ND	510	430	--	
3/10/93	MW2	--	110*	ND	ND	ND	ND	350	
	MW4	--	ND	ND	ND	ND	ND	--	
	MW5	69♦	ND	ND	ND	ND	ND	--	
	MW6	SAMPLED SEMI-ANNUALLY							
	MW7	1,100♦	4,400	310	ND	300	330	--	
12/10/92	MW2	--	100*	ND	ND	ND	ND	170	
	MW4	--	ND	ND	ND	ND	ND	--	
	MW5	83**	ND	ND	ND	ND	ND	--	
	MW6	--	ND	ND	ND	ND	ND	--	
	MW7	200**	1,200	28	ND	37	13	--	

**TABLE 2 (Continued)**

SUMMARY OF LABORATORY ANALYSES  
WATER

Date	Well #	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE
9/10/92	MW2	--	61*	ND	ND	ND	ND	110
	MW4	SAMPLED	SEMI-ANNUALLY					
	MW5	110♦	ND	ND	ND	ND	ND	--
	MW6	SAMPLED	SEMI-ANNUALLY					
	MW7	290♦	2,100	160	1.9	140	150	--
6/18/92	MW2	--	140*	ND	ND	ND	ND	--
	MW4	--	ND	0.41	0.84	ND	0.55	--
	MW5	ND	ND	ND	ND	ND	ND	--
	MW6	--	ND	ND	ND	ND	ND	--
	MW7	990♦	5,500	340	4.2	380	410	--
3/20/92	MW2	--	120	ND	ND	ND	ND	--
	MW4	SAMPLED	SEMI-ANNUALLY					
	MW5	170	ND	ND	ND	ND	ND	--
	MW6	SAMPLED	SEMI-ANNUALLY					
	MW7	3,200	11,000	980	ND	990	1,600	--
12/19/91	MW2	--	140	0.66	ND	0.64	1.2	--
	MW4	--	ND	ND	ND	ND	ND	--
	MW5	--	ND	ND	ND	ND	ND	--
	MW6	--	ND	ND	ND	ND	ND	--
	MW7	770	3,900	240	2.4	280	270	--
10/10/91	MW5	ND	--	--	--	--	--	--
9/20/91	MW2	--	ND	ND	ND	ND	ND	--
	MW4	SAMPLED	SEMI-ANNUALLY					
	MW5	450	ND	ND	ND	ND	ND	--
	MW6	SAMPLED	SEMI-ANNUALLY					
	MW7	580	1,400	160	0.75	89	130	--
5/23/91	MW2	--	ND	ND	ND	ND	ND	--
	MW4	--	ND	ND	ND	ND	ND	--
	MW5	--	ND	ND	ND	ND	ND	--
	MW6	--	ND	ND	ND	ND	ND	--
	MW7	540	3,000	160	1.2	25	120	--

---

---

TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES  
WATER

---

---

- ◆ 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.
- \*\* Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a diesel and non-diesel 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 December 9, 1993, were provided by Kaprealian Engineering, Inc.



**TABLE 3**

**SUMMARY OF LABORATORY ANALYSES  
WATER**

<u>Date</u>	<u>Well #</u>	<u>TOG (mg/L)</u>	<u>Bis(2- ethylhexyl) phthalate</u>	<u>2-Methyl- naphthalene</u>	<u>Naphthalene</u>	<u>1,2- Dichloro- ethane</u>
3/03/94	MW5	--	--	--	--	ND
	MW7	--	ND	34	130	1.7
12/09/93	MW5	--	--	--	--	ND
	MW7	--	ND	ND	15	1.5
9/09/93	MW5	--	--	--	--	ND
	MW7♦	--	ND	11	48	1.5
6/09/93	MW5	--	--	--	--	ND
	MW7♦♦	--	13	19	83	1.3
3/10/93	MW5	--	ND	ND	ND	ND
	MW7♦♦♦	--	13	19	83	1.3
12/10/92	MW7	--	--	--	--	2.0
9/10/92	MW7	--	--	--	--	2.3
6/18/92	MW7	ND	--	--	--	ND
3/20/92	MW7	ND	--	--	--	ND
12/19/91	MW7	ND	--	--	--	3.1
9/20/91	MW7	ND	--	--	--	ND
5/23/91	MW7	ND	--	--	--	3.4

---

---

TABLE 3 (Continued)

SUMMARY OF LABORATORY ANALYSES  
WATER

---

---

- ◆ Seven "tentatively identified compounds" were detected by the EPA method 8270 open scan at concentrations ranging 11  $\mu\text{g/L}$  to 88  $\mu\text{g/L}$ . Refer to laboratory analysis sheets for the specific compounds and concentrations.
- ◆◆ Ten "tentatively identified compounds" were detected by the EPA method 8270 open scan at concentrations ranging from 14  $\mu\text{g/L}$  to 150  $\mu\text{g/L}$ . Refer to laboratory analysis sheets for the specified compounds and concentrations.
- ◆◆◆ Nine "tentatively identified compounds" were detected by the EPA method 8270 open scan at concentrations ranging from 10  $\mu\text{g/L}$  to 59  $\mu\text{g/L}$ . Refer to laboratory analysis sheets for the specific compounds and concentrations.

ND = Non-detectable.

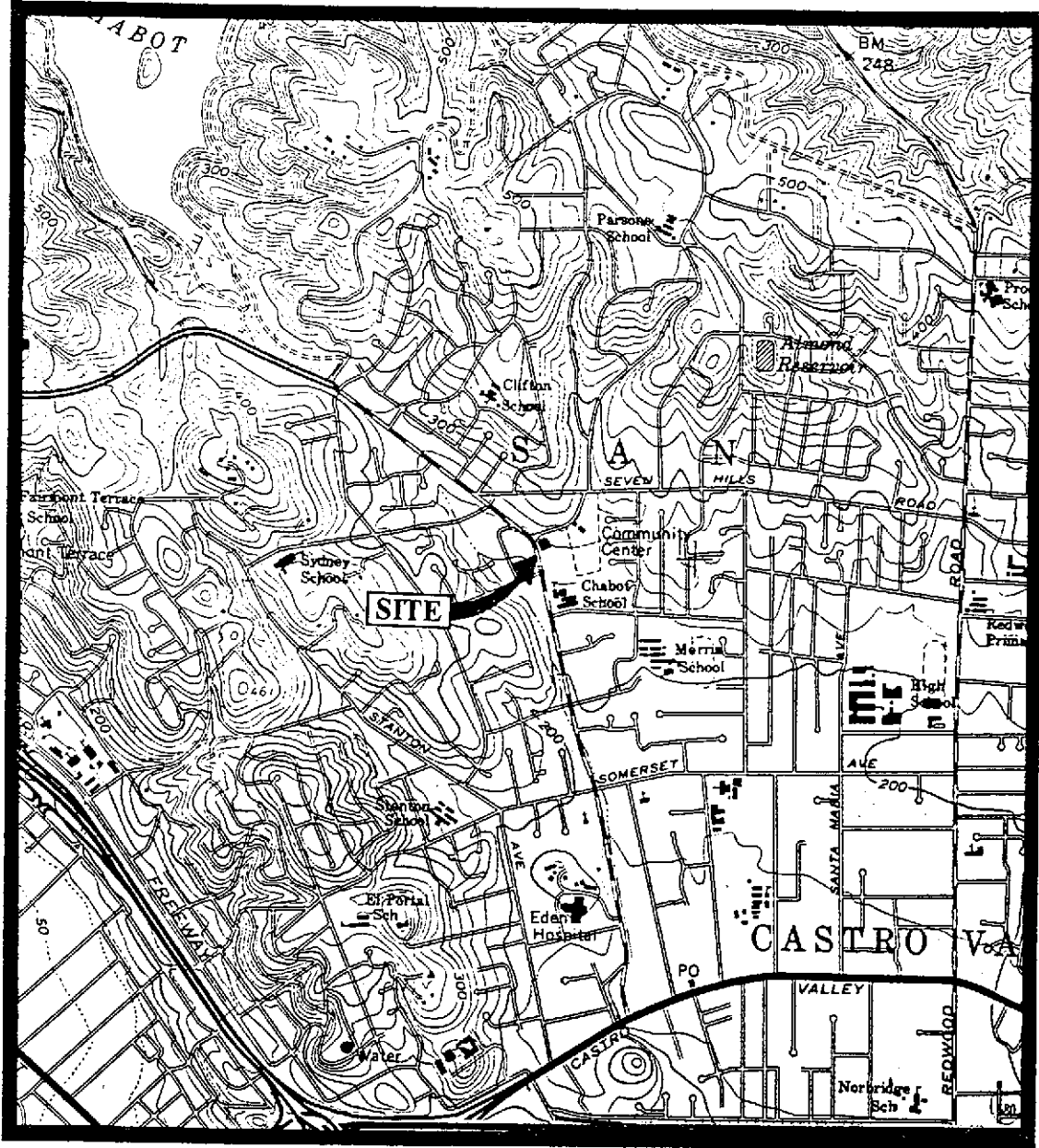
-- Indicates analysis was not performed.

mg/L = milligrams per liter.

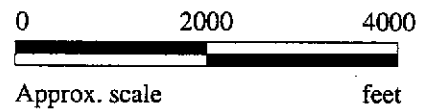
Results are in micrograms per liter ( $\mu\text{g/L}$ ), unless otherwise indicated.

Note: - All EPA methods 8010 and 8270 compounds were non-detectable, except for the compounds listed.

- Laboratory analyses data prior to December 9, 1993, were provided by Kaprealian Engineering, Inc.



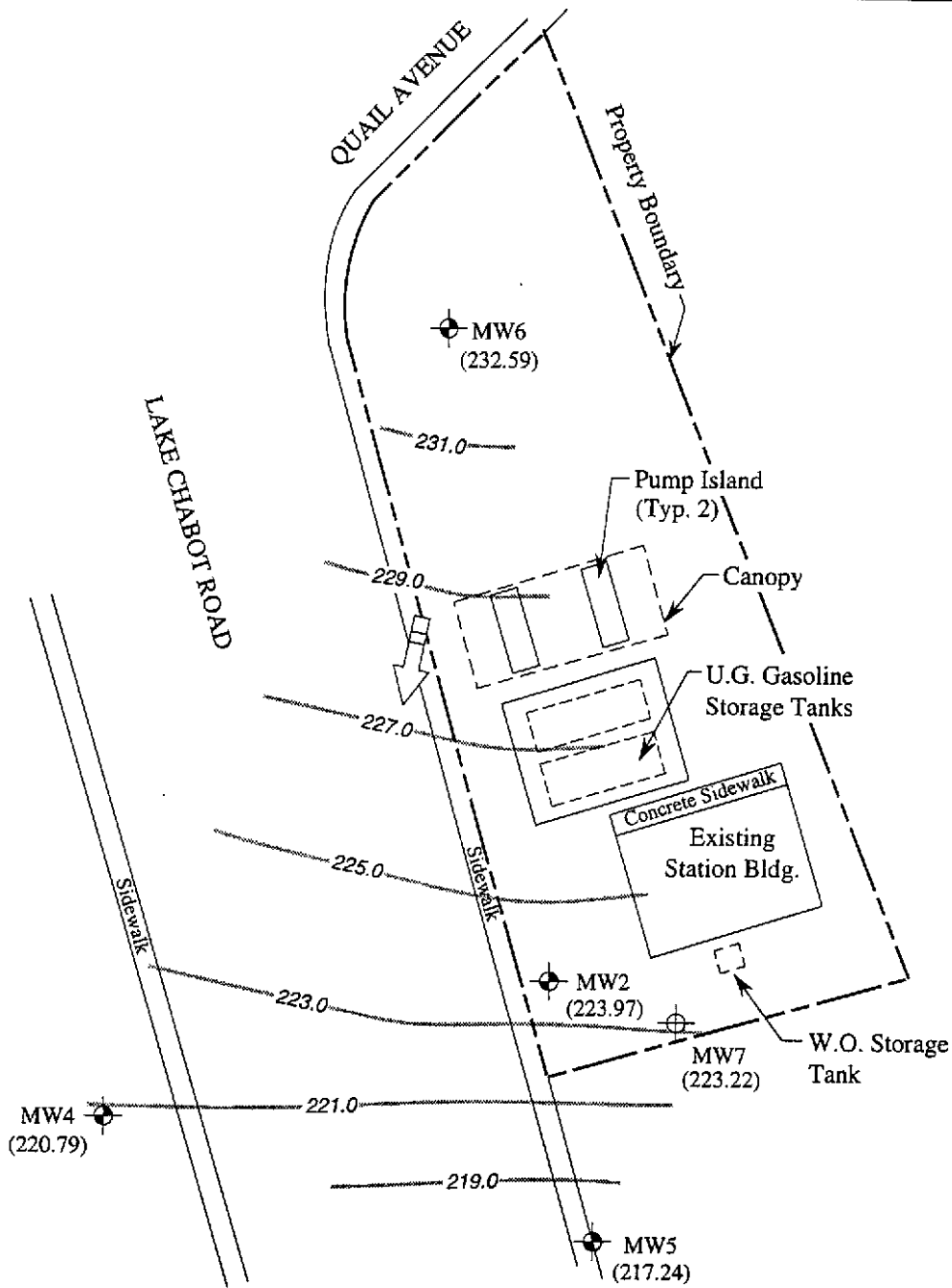
Base modified from 7.5 minute U.S.G.S. Hayward Quadrangle  
(photorevised 1980)



**MPDS**  
SERVICES, INCORPORATED

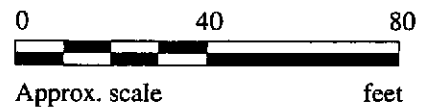
UNOCAL SERVICE STATION #5484  
18950 LAKE CHABOT ROAD  
CASTRO VALLEY, CALIFORNIA

LOCATION  
MAP



**LEGEND**

- ⊕ Monitoring well (by KEI)
- ⊙ Monitoring well (by AGS)
- ( ) Ground water elevation in feet above Mean Sea Level
- Contours of ground water elevation
- ➔ Direction of ground water flow

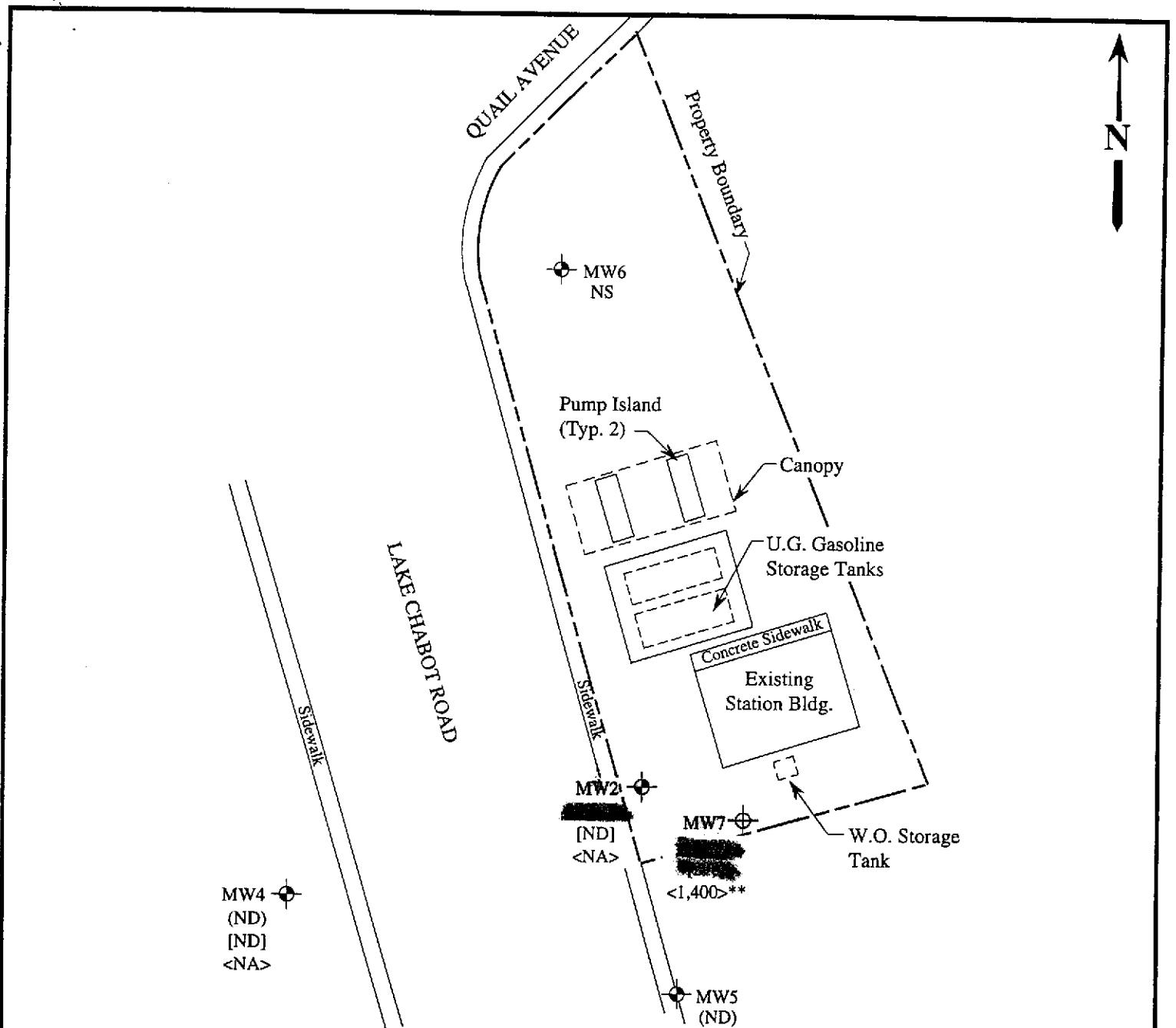


**POTENTIOMETRIC SURFACE MAP FOR THE MARCH 3, 1994 MONITORING EVENT**

**MPDS**  
SERVICES, INCORPORATED

UNOCAL SERVICE STATION #5484  
18950 LAKE CHABOT ROAD  
CASTRO VALLEY, CALIFORNIA

FIGURE  
**1**



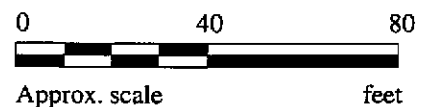
**LEGEND**

- ⊕ Monitoring well (by KEI)
- ⊙ Monitoring well (by AGS)
- ( ) [Redacted]
- [ ] [Redacted]
- < > Concentration of TPH as diesel in  $\mu\text{g/L}$

ND = Non-detectable, NA = Not analyzed, NS = Not sampled

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

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



**PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON MARCH 3, 1994**

**MPDS**  
SERVICES, INCORPORATED

UNOCAL SERVICE STATION #5484  
18950 LAKE CHABOT ROAD  
CASTRO VALLEY, CA

FIGURE  
**2**



MPDS Services, Inc. 2401 Stanwell Dr., Ste. 400 Concord, CA 94520 Attention: Avo Avedissian	Client Project ID: Unocal #5484, 18950 Lake Chabot Rd., Sample Matrix: Water Analysis Method: EPA 5030/8015/8020 First Sample #: 403-0207	Castro Valley Sampled: Mar 3, 1994 Received: Mar 4, 1994 Reported: Mar 18, 1994
--	--	--

**TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION**

Analyte	Reporting Limit µg/L	Sample I.D. 403-0207 MW-2*	Sample I.D. 403-0208 MW-4	Sample I.D. 403-0209 MW-5	Sample I.D. 403-0210 MW-7	Sample I.D. Matrix Blank
Purgeable Hydrocarbons	50	240	N.D.	N.D.	9,300	
Benzene	0.5	N.D.	N.D.	N.D.	290	
Toluene	0.5	N.D.	N.D.	N.D.	N.D.	
Ethyl Benzene	0.5	N.D.	N.D.	0.71	590	
Total Xylenes	0.5	N.D.	N.D.	1.7	400	
Chromatogram Pattern:		Discrete Peak	--	--	Gasoline	

**Quality Control Data**

Report Limit Multiplication Factor:	4.0	1.0	1.0	40	1.0
Date Analyzed:	3/16/94	3/15/94	3/15/94	3/16/94	3/15/94
Instrument Identification:	HP-4	HP-4	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	99	102	100	90	104

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. Kemp  
 Project Manager

Please Note:  
 \*This sample does not appear to contain gasoline. Discrete peak refers to an unidentified peak in the MTBE range.





MPDS Services, Inc.	Client Project ID: Unocal #5484, 18950 Lake Chabot Rd.,	Sampled: Mar 3, 1994
2401 Stanwell Dr., Ste. 400	Sample Matrix: Water	Received: Mar 4, 1994
Concord, CA 94520	Analysis Method: EPA 3510/3520/8015	Reported: Mar 18, 1994
Attention: Avo Avedissian	First Sample #: 403-0209	

## TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 403-0209 MW-5	Sample I.D. 403-0210 MW-7*	Sample I.D. Matrix Blank
Extractable Hydrocarbons	50	N.D.	1400	

Chromatogram Pattern: -- Unidentified Hydrocarbons <C14

### Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0
Date Extracted:	3/10/94	3/10/94	3/10/94
Date Analyzed:	3/15/94	3/15/94	3/15/94
Instrument Identification:	HP-3A	HP-3A	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

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

  
Alan B. Kemp  
Project Manager





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

Client Project ID: Unocal #5484, 18950 Lake Chabot Rd.,  
Sample Descript: Water, MW-5 Castro Valley  
Analysis Method: EPA 5030/8010  
Lab Number: 403-0209

Sampled: Mar 3, 1994  
Received: Mar 4, 1994  
Analyzed: Mar 9, 1994  
Reported: Mar 18, 1994

**HALOGENATED VOLATILE ORGANICS (EPA 8010)**

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane.....	0.50	N.D.
Bromoform.....	0.50	N.D.
Bromomethane.....	1.0	N.D.
Carbon tetrachloride.....	0.50	N.D.
Chlorobenzene.....	0.50	N.D.
Chloroethane.....	1.0	N.D.
2-Chloroethylvinyl ether.....	1.0	N.D.
Chloroform.....	0.50	N.D.
Chloromethane.....	1.0	N.D.
Dibromochloromethane.....	0.50	N.D.
1,3-Dichlorobenzene.....	0.50	N.D.
1,4-Dichlorobenzene.....	0.50	N.D.
1,2-Dichlorobenzene.....	0.50	N.D.
1,1-Dichloroethane.....	0.50	N.D.
1,2-Dichloroethane.....	0.50	N.D.
1,1-Dichloroethene.....	0.50	N.D.
cis-1,2-Dichloroethene.....	0.50	N.D.
trans-1,2-Dichloroethene.....	0.50	N.D.
1,2-Dichloropropane.....	0.50	N.D.
cis-1,3-Dichloropropene.....	0.50	N.D.
trans-1,3-Dichloropropene.....	0.50	N.D.
Methylene chloride.....	5.0	N.D.
1,1,2,2-Tetrachloroethane.....	0.50	N.D.
Tetrachloroethene.....	0.50	N.D.
1,1,1-Trichloroethane.....	0.50	N.D.
1,1,2-Trichloroethane.....	0.50	N.D.
Trichloroethene.....	0.50	N.D.
Trichlorofluoromethane.....	0.50	N.D.
Vinyl chloride.....	1.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL #1271**

Alan B. Kemp  
Project Manager







MPDS Services, Inc.	Client Project ID: Unocal #5484, 18950 Lake Chabot Rd.,	Sampled: Mar 3, 1994
2401 Stanwell Dr., Ste. 400	Sample Descript: Water, MW-7 Castro Valley	Received: Mar 4, 1994
Concord, CA 94520	Analysis Method: EPA 5030/8010	Analyzed: Mar 9, 1994
Attention: Avo Avedissian	Lab Number: 403-0210	Reported: Mar 18, 1994

**HALOGENATED VOLATILE ORGANICS (EPA 8010)**

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane.....	0.50	N.D.
Bromoform.....	0.50	N.D.
Bromomethane.....	1.0	N.D.
Carbon tetrachloride.....	0.50	N.D.
Chlorobenzene.....	0.50	N.D.
Chloroethane.....	1.0	N.D.
2-Chloroethyl/vinyl ether.....	1.0	N.D.
Chloroform.....	0.50	N.D.
Chloromethane.....	1.0	N.D.
Dibromochloromethane.....	0.50	N.D.
1,3-Dichlorobenzene.....	0.50	N.D.
1,4-Dichlorobenzene.....	0.50	N.D.
1,2-Dichlorobenzene.....	0.50	N.D.
1,1-Dichloroethane.....	0.50	N.D.
<b>1,2-Dichloroethane.....</b>	<b>0.50</b>	<b>1.7</b>
1,1-Dichloroethene.....	0.50	N.D.
cis-1,2-Dichloroethene.....	0.50	N.D.
trans-1,2-Dichloroethene.....	0.50	N.D.
1,2-Dichloropropane.....	0.50	N.D.
cis-1,3-Dichloropropene.....	0.50	N.D.
trans-1,3-Dichloropropene.....	0.50	N.D.
Methylene chloride.....	5.0	N.D.
1,1,2,2-Tetrachloroethane.....	0.50	N.D.
Tetrachloroethene.....	0.50	N.D.
1,1,1-Trichloroethane.....	0.50	N.D.
1,1,2-Trichloroethane.....	0.50	N.D.
Trichloroethene.....	0.50	N.D.
Trichlorofluoromethane.....	0.50	N.D.
Vinyl chloride.....	1.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL #1271**

  
 Alan B. Kemp  
 Project Manager





MPDS Services, Inc. 2401 Stanwell Dr., Ste. 400 Concord, CA 94520 Attention: Avo Avedissian	Client Project ID: Unocal #5484, 18950 Lake Chabot Rd., Sample Descript: Water, MW-7 Analysis Method: EPA 8270 Lab Number: 403-0210	Castro Valley	Sampled: Mar 3, 1994 Received: Mar 4, 1994 Extracted: Mar 9, 1994 Analyzed: Mar 10, 1994 Reported: Mar 18, 1994
--	--	---------------	---

**SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)**

Analyte	Detection Limit µg/L	Sample Results µg/L
Acenaphthene.....	2.0	N.D.
Acenaphthylene.....	2.0	N.D.
Aniline.....	2.0	N.D.
Anthracene.....	2.0	N.D.
Benzidine.....	50	N.D.
Benzoic Acid.....	10	N.D.
Benzo(a)anthracene.....	2.0	N.D.
Benzo(b)fluoranthene.....	2.0	N.D.
Benzo(k)fluoranthene.....	2.0	N.D.
Benzo(g,h,i)perylene.....	2.0	N.D.
Benzo(a)pyrene.....	2.0	N.D.
Benzyl alcohol.....	2.0	N.D.
Bis(2-chloroethoxy)methane.....	2.0	N.D.
Bis(2-chloroethyl)ether.....	2.0	N.D.
Bis(2-chloroisopropyl)ether.....	2.0	N.D.
Bis(2-ethylhexyl)phthalate.....	10	N.D.
4-Bromophenyl phenyl ether.....	2.0	N.D.
Butyl benzyl phthalate.....	2.0	N.D.
4-Chloroaniline.....	2.0	N.D.
2-Chloronaphthalene.....	2.0	N.D.
4-Chloro-3-methylphenol.....	2.0	N.D.
2-Chlorophenol.....	2.0	N.D.
4-Chlorophenyl phenyl ether.....	2.0	N.D.
Chrysene.....	2.0	N.D.
Dibenz(a,h)anthracene.....	2.0	N.D.
Dibenzofuran.....	2.0	N.D.
Di-N-butyl phthalate.....	10	N.D.
1,3-Dichlorobenzene.....	2.0	N.D.
1,4-Dichlorobenzene.....	2.0	N.D.
1,2-Dichlorobenzene.....	2.0	N.D.
3,3-Dichlorobenzidine.....	10	N.D.
2,4-Dichlorophenol.....	2.0	N.D.
Diethyl phthalate.....	2.0	N.D.
2,4-Dimethylphenol.....	2.0	N.D.
Dimethyl phthalate.....	2.0	N.D.
4,6-Dinitro-2-methylphenol.....	10	N.D.
2,4-Dinitrophenol.....	10	N.D.





MPDS Services, Inc. 2401 Stanwell Dr., Ste. 400 Concord, CA 94520 Attention: Avo Avedissian	Client Project ID: Unocal #5484, 18950 Lake Chabot Rd., Sample Descript: Water, MW-7 Analysis Method: EPA 8270 Lab Number: 403-0210	Castro Valley	Sampled: Mar 3, 1994 Received: Mar 4, 1994 Extracted: Mar 9, 1994 Analyzed: Mar 10, 1994 Reported: Mar 18, 1994
--	--	---------------	---

**SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)**

Analyte	Detection Limit µg/L	Sample Results µg/L
2,4-Dinitrotoluene.....	2.0	N.D.
2,6-Dinitrotoluene.....	2.0	N.D.
Di-N-octyl phthalate.....	2.0	N.D.
Fluoranthene.....	2.0	N.D.
Fluorene.....	2.0	N.D.
Hexachlorobenzene.....	2.0	N.D.
Hexachlorobutadiene.....	2.0	N.D.
Hexachlorocyclopentadiene.....	2.0	N.D.
Hexachloroethane.....	2.0	N.D.
Indeno(1,2,3-cd)pyrene.....	2.0	N.D.
Isophorone.....	2.0	N.D.
<b>2-Methylnaphthalene.....</b>	<b>2.0</b>	<b>34</b>
2-Methylphenol.....	2.0	N.D.
4-Methylphenol.....	2.0	N.D.
<b>Naphthalene.....</b>	<b>2.0</b>	<b>130</b>
2-Nitroaniline.....	10	N.D.
3-Nitroaniline.....	10	N.D.
4-Nitroaniline.....	10	N.D.
Nitrobenzene.....	2.0	N.D.
2-Nitrophenol.....	2.0	N.D.
4-Nitrophenol.....	10	N.D.
N-Nitrosodiphenylamine.....	2.0	N.D.
N-Nitroso-di-N-propylamine.....	2.0	N.D.
Pentachlorophenol.....	10	N.D.
Phenanthrene.....	2.0	N.D.
Phenol.....	2.0	N.D.
Pyrene.....	2.0	N.D.
1,2,4-Trichlorobenzene.....	2.0	N.D.
2,4,5-Trichlorophenol.....	10	N.D.
2,4,6-Trichlorophenol.....	2.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL #1271

Alan B. Kemp  
Project Manager





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

Client Project ID: Unocal #5484, 18950 Lake Chabot Rd., Castro Valley  
 Matrix: Liquid

QC Sample Group: 4030207-10

Reported: Mar 24, 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
<b>Analyst:</b>	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha	K. Wimer

<b>MS/MSD Batch#:</b>	4030612	4030612	4030612	4030612	BLK031094
<b>Date Prepared:</b>	3/15/94	3/15/94	3/15/94	3/15/94	3/10/94
<b>Date Analyzed:</b>	3/15/94	3/15/94	3/15/94	3/15/94	3/15/94
<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>	95	100	95	98	81
<b>Matrix Spike Duplicate % Recovery:</b>	100	100	95	97	76
<b>Relative % Difference:</b>	5.1	0.0	0.0	1.0	6.0

<b>LCS Batch#:</b>	2LCS031594	2LCS031594	2LCS031594	2LCS031594	BLK031094
<b>Date Prepared:</b>	3/15/94	3/15/94	3/15/94	3/15/94	3/10/94
<b>Date Analyzed:</b>	3/15/94	3/15/94	3/15/94	3/15/94	3/15/94
<b>Instrument I.D.#:</b>	HP-4	HP-4	HP-4	HP-4	HP-3A
<b>LCS % Recovery:</b>	99	97	98	99	81

<b>% Recovery Control Limits:</b>	71-133	72-128	72-130	71-120	28-122
-----------------------------------	--------	--------	--------	--------	--------

**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, Inc. Client Project ID: Unocal #5484, 18950 Lake Chabot Rd., Castro Valley  
 2401 Stanwell Dr., Ste. 400 Matrix: Liquid  
 Concord, CA 94520  
 Attention: Avo Avedissian QC Sample Group: 4030207-10 Reported: Mar 24, 1994

**QUALITY CONTROL DATA REPORT**

<b>ANALYTE</b>	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>	4030228	4030228	4030228	4030228
<b>Date Prepared:</b>	3/16/94	3/16/94	3/16/94	3/16/94
<b>Date Analyzed:</b>	3/16/94	3/16/94	3/16/94	3/16/94
<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>	135	135	135	132
<b>Matrix Spike Duplicate % Recovery:</b>	130	130	135	128
<b>Relative % Difference:</b>	3.8	3.8	0.0	3.1

<b>LCS Batch#:</b>	2LCS031694	2LCS031694	2LCS031694	2LCS031694
<b>Date Prepared:</b>	3/16/94	3/16/94	3/16/94	3/16/94
<b>Date Analyzed:</b>	3/16/94	3/16/94	3/16/94	3/16/94
<b>Instrument I.D.#:</b>	HP-4	HP-4	HP-4	HP-4
<b>LCS % Recovery:</b>	98	99	100	100

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

Alan B. Kemp  
 Project Manager





MPDS Services, Inc. Client Project ID: Unocal #5484, 18950 Lake Chabot Rd., Castro Valley  
 2401 Stanwell Dr., Ste. 400 Matrix: Liquid  
 Concord, CA 94520  
 Attention: Avo Avedissian QC Sample Group: 4030209-10 Reported: Mar 24, 1994

**QUALITY CONTROL DATA REPORT**

<b>ANALYTE</b>	1,1-Dichloro-ethene	Trichloro-ethene	Chloro-benzene
<b>Method:</b>	EPA 8010	EPA 8010	EPA 8010
<b>Analyst:</b>	K. Nill	K. Nill	K. Nill

<b>MS/MSD Batch#:</b>	4030202	4030202	4030202
<b>Date Prepared:</b>	3/9/94	3/9/94	3/9/94
<b>Date Analyzed:</b>	3/9/94	3/9/94	3/9/94
<b>Instrument I.D.#:</b>	HP5890/1	HP5890/1	HP5890/1
<b>Conc. Spiked:</b>	10 µg/L	10 µg/L	10 µg/L
<b>Matrix Spike % Recovery:</b>	92	110	120
<b>Matrix Spike Duplicate % Recovery:</b>	86	110	110
<b>Relative % Difference:</b>	6.7	0.0	8.7

<b>LCS Batch#:</b>	LCS030994	LCS030994	LCS030994
<b>Date Prepared:</b>	3/9/94	3/9/94	3/9/94
<b>Date Analyzed:</b>	3/9/94	3/9/94	3/9/94
<b>Instrument I.D.#:</b>	HP5890/1	HP5890/1	HP5890/1
<b>LCS % Recovery:</b>	120	110	110

<b>% Recovery Control Limits:</b>	28-167	35-146	38-150
-----------------------------------	--------	--------	--------

**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, Inc. Client Project ID: Unocal #5484, 18950 Lake Chabot Rd., Castro Valley  
 2401 Stanwell Dr., Ste. 400 Matrix: Liquid  
 Concord, CA 94520  
 Attention: Avo Avedissian QC Sample Group: 403-0207 Reported: Mar 24, 1994

**QUALITY CONTROL DATA REPORT**

ANALYTE	Phenol	2-Chlorophenol	1,4-Dichloro-benzene	N-Nitroso-Di-N-propylamine	1,2,4-Trichloro-benzene	4-Chloro-3-Methylphenol
Method:	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270
Analyst:	S. Le	S. Le	S. Le	S. Le	S. Le	S. Le

MS/MSD Batch#:	BLK030994	BLK030994	BLK030994	BLK030994	BLK030994	BLK030994
Date Prepared:	3/9/94	3/9/94	3/9/94	3/9/94	3/9/94	3/9/94
Date Analyzed:	3/17/94	3/17/94	3/17/94	3/17/94	3/17/94	3/17/94
Instrument I.D.#:	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1
Conc. Spiked:	200 µg/L	200 µg/L	100 µg/L	100 µg/L	100 µg/L	200 µg/L
Matrix Spike % Recovery:	71	74	72	78	74	70
Matrix Spike Duplicate % Recovery:	75	77	76	82	76	72
Relative % Difference:	5.5	4.0	5.4	5.0	2.7	2.8

LCS Batch#:	LCS030994	LCS030994	LCS030994	LCS030994	LCS030994	LCS030994
Date Prepared:	3/9/94	3/9/94	3/9/94	3/9/94	3/9/94	3/9/94
Date Analyzed:	3/17/94	3/17/94	3/17/94	3/17/94	3/17/94	3/17/94
Instrument I.D.#:	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1
LCS % Recovery:	71	74	72	78	74	70

% Recovery Control Limits:	12-89	27-123	36-97	41-116	39-98	23-97
----------------------------	-------	--------	-------	--------	-------	-------

SEQUOIA ANALYTICAL, #1271

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. Client Project ID: Unocal #5484, 18950 Lake Chabot Rd., Castro Valley  
 2401 Stanwell Dr., Ste. 400 Matrix: Liquid  
 Concord, CA 94520  
 Attention: Avo Avedissian QC Sample Group: 403-0207 Reported: Mar 24, 1994

**QUALITY CONTROL DATA REPORT**

ANALYTE	Acenaphthene	4-Nitrophenol	2,4-Dinitro-toluene	Pentachloro-phenol	Pyrene
Method:	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270
Analyst:	S. Le	S. Le	S. Le	S. Le	S. Le

MS/MSD Batch#:	BLK030994	BLK030994	BLK030994	BLK030994	BLK030994
Date Prepared:	3/9/94	3/9/94	3/9/94	3/9/94	3/9/94
Date Analyzed:	3/17/94	3/17/94	3/17/94	3/17/94	3/17/94
Instrument I.D.#:	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1
Conc. Spiked:	100 µg/L	200 µg/L	100 µg/L	200 µg/L	100 µg/L
Matrix Spike % Recovery:	72	56	64	68	80
Matrix Spike Duplicate % Recovery:	76	58	68	71	82
Relative % Difference:	5.4	3.5	6.1	4.3	2.5

LCS Batch#:	LCS030994	LCS030994	LCS030994	LCS030994	LCS030994
Date Prepared:	3/9/94	3/9/94	3/9/94	3/9/94	3/9/94
Date Analyzed:	3/17/94	3/17/94	3/17/94	3/17/94	3/17/94
Instrument I.D.#:	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1
LCS % Recovery:	72	56	64	68	80

% Recovery Control Limits:	46-118	10-80	24-96	9-103	26-127
----------------------------	--------	-------	-------	-------	--------

**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







# 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, Inc.  
 2401 Stanwell Dr., Ste. 400  
 Concord, CA 94520  
 Attention: Avo Avedissian

Client Project ID: Unocal #5484, 18950 Lake Chabot Rd., Castro Valley

QC Sample Group: 4030209-10

Reported: Mar 24, 1994

## QUALITY CONTROL DATA REPORT

### SURROGATE

Method:	EPA 8015	EPA 8015	EPA 8015
Analyst:	K. Wimer	K. Wimer	K. Wimer
Reporting Units:	µg/L	µg/L	µg/L
Date Analyzed:	3/15/94	3/15/94	3/15/94
Sample #:	403-0209	403-0210	Matrix Blank

<b>Surrogate</b>			
<b>% Recovery:</b>	101	100	96

SEQUOIA ANALYTICAL #1271

  
 Alan B. Kemp  
 Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$





# 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, Inc. 2401 Stanwell Dr., Ste. 400 Concord, CA 94520 Attention: Avo Avedissian	Client Project ID: Unocal #5484, 18950 Lake Chabot Rd., Castro Valley	QC Sample Group: 4030209-10	Reported: Mar 24, 1994
--	---	-----------------------------	------------------------

## QUALITY CONTROL DATA REPORT

### SURROGATE

Method:	EPA 8010	EPA 8010	EPA 8010
Analyst:	K.Nill	K.Nill	K.Nill
Reporting Units:	µg/L	µg/L	µg/L
Date Analyzed:	3/9/94	3/9/94	3/9/94
Sample #:	403-0209	403-0210	Matrix Blank

<b>Surrogate #1</b>			
% Recovery:	127	93	121

<b>Surrogate #2</b>			
% Recovery:	128	99	109

SEQUOIA ANALYTICAL #1271

  
Alan B. Kemp  
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$



# 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			UNOCAL					ANALYSES REQUESTED							TURN AROUND TIME:
NICHOLAS PERROW			S/S # <u>5484</u> CITY: <u>CASPER VALLEY</u>					TPH-GAS BTEX	TPH-DIESEL	TOG	8010	8270			
WITNESSING AGENCY			ADDRESS: <u>18950 LAKE CREST RD</u>												
SAMPLE ID NO.	DATE	TIME	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION								
MW-2	3/3/94		X	Y		2 VOLS		X							40
MW-4	3/3/94		X	Y		2 VOLS		X							
MW-5	3/3/94		X	X		5 <sup>4-VOL</sup> 1 AMPLES		X	X		X				
MW-7	3/3/94		X	Y		6 <sup>4-VOL</sup> 2 AMPLES		X	X		X	X			
RELINQUISHED BY: <i>[Signature]</i>			DATE/TIME 3/3/94		RECEIVED BY: 8:35 <i>[Signature]</i> 3-4-94			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: <i>[Signature]</i>				TITLE: R-S		DATE: 3-4-94	