

MONITORING
PURGING
DISPOSING
SAMPLING

MPDS

SERVICES, INCORPORATED

January 13, 1995

SCOTT SEERY

Alameda County Health Care Services
1131 Harbor Bay Parkway
Alameda, CA 94501

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-UN5484-05) dated December 21, 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.

Jarrel F. Crider

Jarrel F. Crider

/jfc

Enclosure

cc: Ms. Tina R. Berry

MPDS-UN5484-05
December 21, 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 December 1, 1994. Prior to sampling, the wells were each purged of between 6 and 25 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, 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.

LIMITATIONS

Environmental changes, either naturally-occurring or artificially-induced, may cause changes in ground water levels and flow paths, thereby changing the extent and concentration of any contaminants.

DISTRIBUTION

A copy of this report should be sent to the Alameda County Health Care Services Agency.

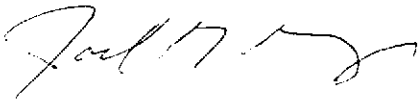
If you have any questions regarding this report, please do not hesitate to call Mr. Nubar Srabian at (510) 602-5120.

Sincerely,

MPDS Services, Inc.



Sarkis A. Karkarian
Staff Engineer



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

License No. EG 1633
Exp. Date 8/31/96

/bp

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**

<u>Well #</u>	<u>Ground Water Elevation (feet)</u>	<u>Depth to Water (feet)◆</u>	<u>Total Well Depth (feet)◆</u>	<u>Product Thickness (feet)</u>	<u>Sheen</u>	<u>Water Purged (gallons)</u>
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(Monitored and Sampled on December 1, 1994)

MW2	221.90	6.98	19.18	0	No	8.5
MW4	217.76	10.01	27.31	0	No	25
MW5	215.93	9.18	23.87	0	No	24
MW6	232.12	6.92	26.96	0	No	22
MW7	220.44	10.95	19.53	0	No	6

(Monitored and Sampled on September 2, 1994)

MW2	221.83	7.05	19.20	0	No	8.5
MW4	217.69	10.08	27.29	0	No	26
MW5	215.88	9.23	23.85	0	No	25
MW6*	232.06	6.98	26.98	0	--	0
MW7	220.39	11.00	19.55	0	No	6

(Monitored and Sampled on June 3, 1994)

MW2	223.17	5.71	19.23	0	No	9.5
MW4	219.51	8.26	27.32	0	No	50
MW5	216.10	9.01	23.80	0	No	38.5
MW6	233.23	5.81	27.00	0	No	55.5
MW7	222.66	8.73	19.60	0	No	7.5

(Monitored and Sampled on March 3, 1994)

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

TABLE 1 (Continued)

SUMMARY OF MONITORING DATA

<u>Well #</u>	<u>Well Casing Elevation (feet)**</u>
MW2	228.88
MW4	227.77
MW5	225.11
MW6	239.04
MW7	231.39

- ◆ The depth to water level and total well depth measurements were taken from the top of the well casings.
- * Monitored only.
- ** The elevations of the top of the well casings are relative to Mean Sea Level (MSL), per the Alameda County Benchmark (elevation = 219.68 feet MSL).
- Sheen determination was not performed.

TABLE 2

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Well #	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE
12/01/94	MW2	--	200	0.70	ND	0.58	ND	--
	MW4	--	ND	ND	ND	ND	ND	--
	MW5	79♦	ND	ND	ND	ND	ND	--
	MW6	--	ND	ND	ND	ND	ND	--
	MW7	260♦	8,100	80	ND	250	190	--
	9/02/94	MW2	--	720	ND	ND	ND	4.6
MW4		--	ND	ND	ND	ND	ND	--
MW5		130♦	ND	ND	ND	ND	ND	--
MW6		SAMPLED SEMI-ANNUALLY						
MW7		490♦	3,800	77	ND	180	42	--
6/03/94		MW2	--	190*	ND	ND	ND	ND
	MW4	--	ND	ND	ND	ND	ND	--
	MW5	80♦♦	ND	ND	ND	ND	ND	--
	MW6	--	ND	ND	ND	ND	ND	--
	MW7	2,000♦	9,400	380	5.0	820	240	--
	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
	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	--

TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

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

TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

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

MTBE = Methyl tert butyl ether.

- ◆ 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 diesel and non-diesel 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 gasoline and 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 December 9, 1993, were provided by Kaprealian Engineering, Inc.

TABLE 3

SUMMARY OF LABORATORY ANALYSES
WATER

<u>Date</u>	<u>Well #</u>	<u>Total Oil & Grease (mg/L)</u>	<u>Bis(2-ethylhexyl) phthalate</u>	<u>2-Methyl-naphthalene</u>	<u>Naphthalene</u>	<u>1,2-Dichloroethane</u>
12/01/94	MW5	--	--	--	--	ND
	MW7	--	ND	ND	2.5	1.0
9/02/94	MW5	--	--	--	--	ND
	MW7	--	ND	ND	ND	1.1
6/03/94	MW5	--	--	--	--	ND
	MW7	--	ND	18	61	1.4
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

TABLE 3 (Continued)

**SUMMARY OF LABORATORY ANALYSES
 WATER**

<u>Date</u>	<u>Well #</u>	<u>Total Oil & Grease (mg/L)</u>	<u>Bis(2-ethylhexyl) phthalate</u>	<u>2-Methyl-naphthalene</u>	<u>Naphthalene</u>	<u>1,2-Dichloroethane</u>
9/20/91	MW7	ND	--	--	--	ND
5/23/91	MW7	ND	--	--	--	3.4

- ◆ Seven "tentatively identified compounds" were detected by the EPA method 8270 open scan at concentrations ranging 11 µg/L to 88 µg/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 µg/L to 150 µg/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 µg/L to 59 µg/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 (µg/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.



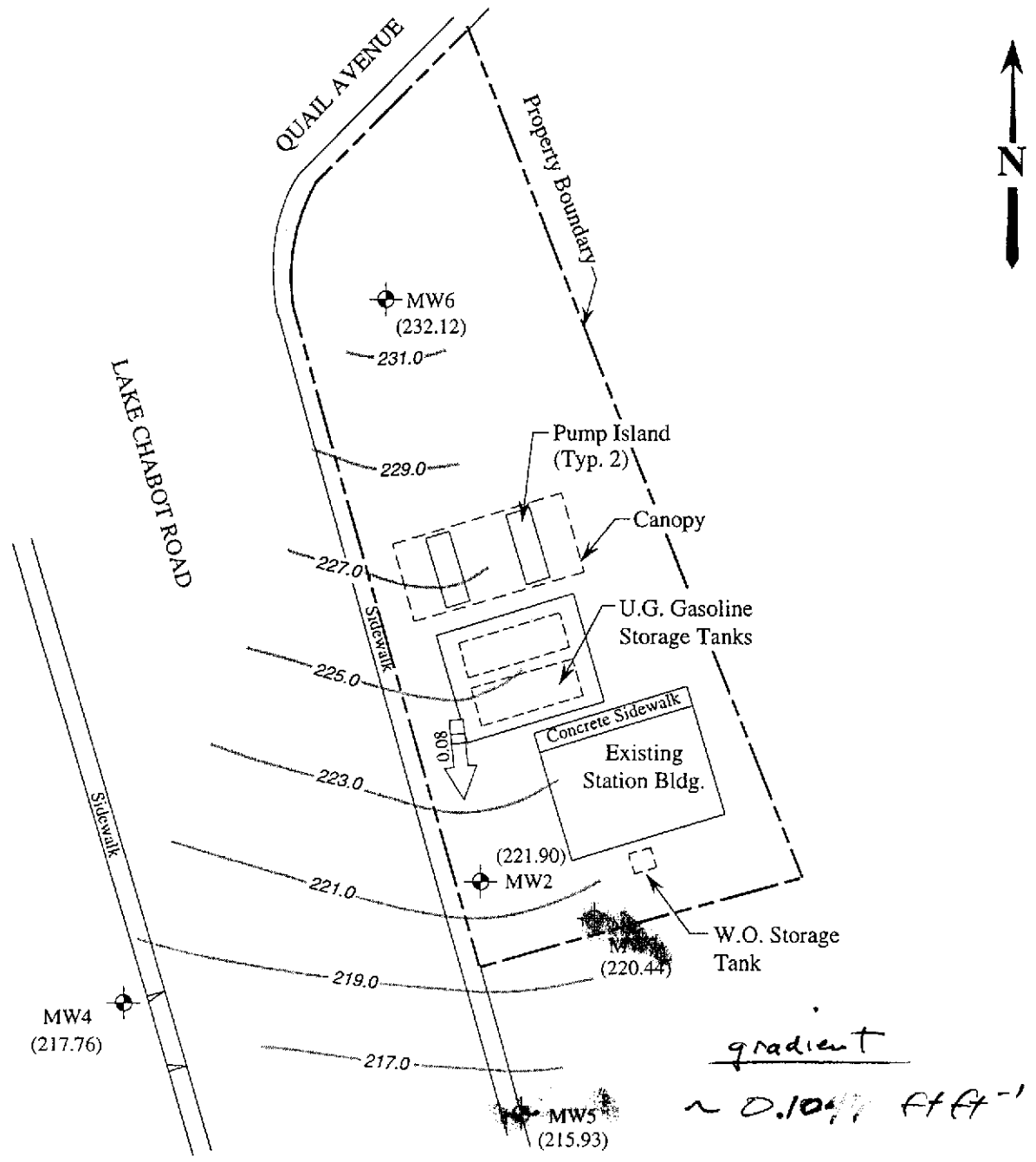
Base modified from 7.5 minute U.S.G.S. Hayward Quadrangle
(photorevised 1980)



mpds SERVICES, INCORPORATED

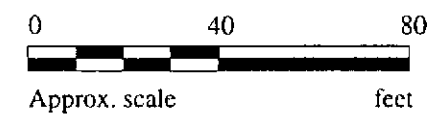
**UNOCAL SERVICE STATION #5484
18950 LAKE CHABOT ROAD
CASTRO VALLEY, CALIFORNIA**

**LOCATION
MAP**



LEGEND

- ⊕ Monitoring well (by KEI)
- ⊙ Monitoring well (by AGS)
- () Ground water elevation in feet above Mean Sea Level
- ### → Direction of ground water flow with approximate hydraulic gradient
- Contours of ground water elevation

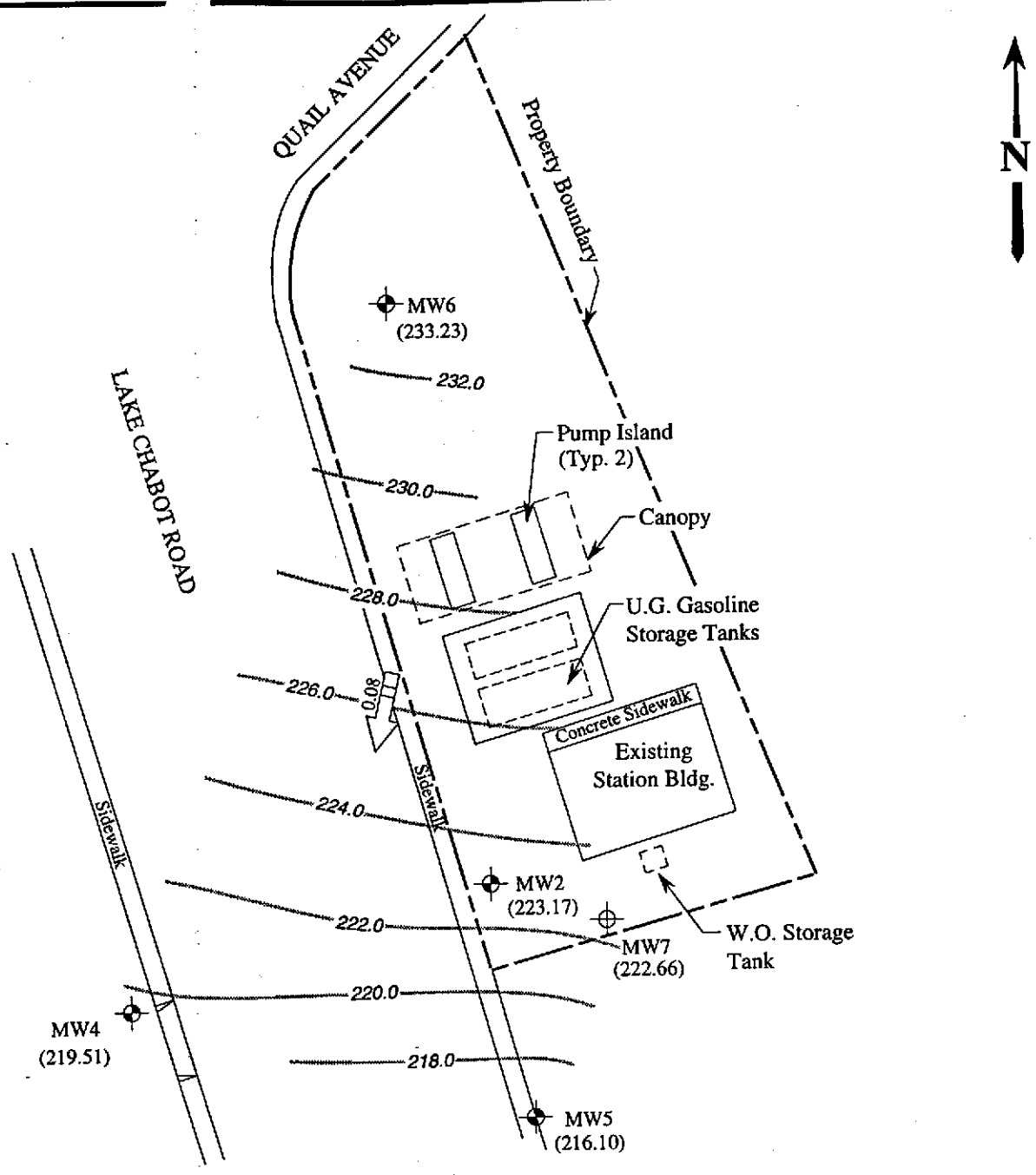


POTENTIOMETRIC SURFACE MAP FOR THE DECEMBER 1, 1994 MONITORING EVENT

mpds SERVICES, INCORPORATED

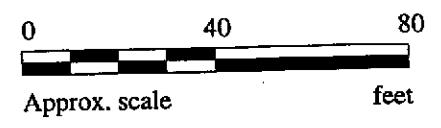
UNOCAL SERVICE STATION #5484
18950 LAKE CHABOT ROAD
CASTRO VALLEY, CALIFORNIA

FIGURE
1



LEGEND

- ⊕ Monitoring well (by KEI)
- ⊙ Monitoring well (by AGS)
- () Ground water elevation in feet above Mean Sea Level
- ### → Direction of ground water flow with approximate hydraulic gradient
- Contours of ground water elevation

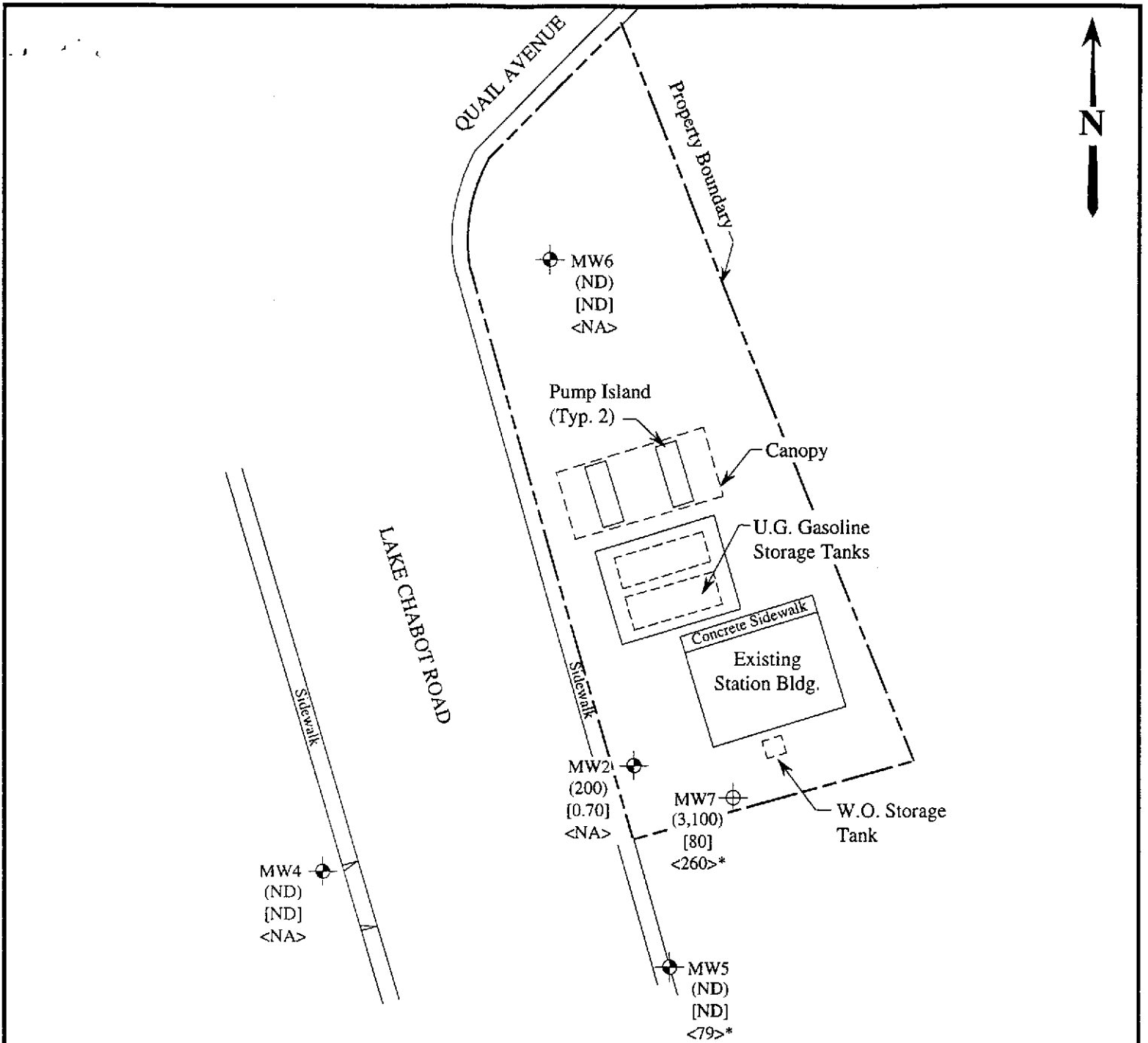


POTENTIOMETRIC SURFACE MAP FOR THE JUNE 3, 1994 MONITORING EVENT



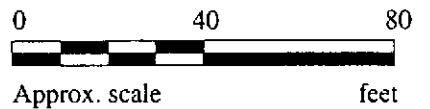
**UNOCAL SERVICE STATION #5484
18950 LAKE CHABOT ROAD
CASTRO VALLEY, CALIFORNIA**

**FIGURE
1**



LEGEND

- ⊕ Monitoring well (by KEI)
- ⊙ Monitoring well (by AGS)
- () Concentration of TPH as gasoline in µg/L
- [] Concentration of benzene in µg/L
- < > Concentration of TPH as diesel in µg/L
- ND = Non-detectable, NA = Not analyzed



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

PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON DECEMBER 1, 1994



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

**FIGURE
2**



MPDS Services	Client Project ID: Unocal #5484, 18950 Lake Chabot Rd.,	Sampled: Dec 1, 1994
2401 Stanwell Dr., Ste. 400	Matrix Descript: Water	Received: Dec 1, 1994
Concord, CA 94520	Castro Valley	Reported: Dec 15, 1994
Attention: Avo Avedissian	Analysis Method: EPA 5030/8015/8020	
	First Sample #: 412-0083	

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Sample Number	Sample Description	Purgeable Hydrocarbons µg/L	Benzene µg/L	Toluene µg/L	Ethyl Benzene µg/L	Total Xylenes µg/L
412-0083	MW-2	200	0.70	ND	0.58	ND
412-0084	MW-4	ND	ND	ND	ND	ND
412-0085	MW-5	ND	ND	ND	ND	ND
412-0086	MW-6	ND	ND	ND	ND	ND
412-0087	MW-7	3,100	80	ND	250	190

Detection Limits:	50	0.50	0.50	0.50	0.50
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Total Purgeable Petroleum Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as ND were not present above the stated limit of detection.

SEQUOIA ANALYTICAL, #1271

Signature on File

Alan B. Kemp
Project Manager





MPDS Services	Client Project ID: Unocal #5484, 18950 Lake Chabot Rd.,	Sampled: Dec 1, 1994
2401 Stanwell Dr., Ste. 400	Matrix Descript: Water	Received: Dec 1, 1994
Concord, CA 94520	Castro Valley	Reported: Dec 15, 1994
Attention: Avo Avedissian	Analysis Method: EPA 5030/8015/8020	
	First Sample #: 412-0083	

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Sample Number	Sample Description	Chromatogram Pattern	DL Mult. Factor	Date Analyzed	Instrument ID	Surrogate Recovery, % QC Limits: 70-130
412-0083	MW-2	Gasoline	1.0	12/11/94	HP-5	97
412-0084	MW-4	--	1.0	12/11/94	HP-5	97
412-0085	MW-5	--	1.0	12/11/94	HP-5	97
412-0086	MW-6	--	1.0	12/11/94	HP-5	94
412-0087	MW-7	Gasoline	5.0	12/13/94	HP-4	83

SEQUOIA ANALYTICAL, #1271

Signature on File

Alan B. Kemp
Project Manager





MPDS Services	Client Project ID: Unocal #5484, 18950 Lake Chabot Rd.,	Sampled: Dec 1, 1994
2401 Stanwell Dr., Ste. 400	Sample Matrix: Water	Received: Dec 1, 1994
Concord, CA 94520	Castro Valley	Reported: Dec 15, 1994
Attention: Avo Avedissian	Analysis Method: EPA 3510/3520/8015	
	First Sample #: 412-0085	

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 412-0085 MW-5*	Sample I.D. 412-0087 MW-7*
Extractable Hydrocarbons	50	79	260
Chromatogram Pattern:		Unidentified Hydrocarbons <C16 & >C18	Unidentified Hydrocarbons <C16

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0
Date Extracted:	12/8/94	12/8/94
Date Analyzed:	12/12/94	12/12/94
Instrument Identification:	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

Signature on File
Alan B. Kemp
Project Manager

Please Note:
* This sample does not appear to contain diesel. "Unidentified Hydrocarbons <C16" are probably gasoline; ">C20" refers to unidentified peaks in the total oil & grease range.





MPDS Services 2401 Starwell Dr., Ste. 400 Concord, CA 94520 Attention: Avo Avedissian	Client Project ID: Unocal #5484, 18950 Lake Chabot Rd., Sample Descript: Water, MW-5 Analysis Method: EPA 5030/8010 Lab Number: 412-0085	Castro Valley	Sampled: Dec 1, 1994 Received: Dec 1, 1994 Analyzed: Dec 8, 1994 Reported: Dec 15, 1994
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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

Signature on File

Alan B. Kemp
Project Manager





MPDS Services 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 5030/8010 Lab Number: 412-0087	Castro Valley	Sampled: Dec 1, 1994 Received: Dec 1, 1994 Analyzed: Dec 8, 1994 Reported: Dec 15, 1994
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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	1.0
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

Signature on File

Alan B. Kemp
Project Manager





MPDS Services
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 Castro Valley
Analysis Method: EPA 8270
Lab Number: 412-0087

Sampled: Dec 1, 1994
Received: Dec 1, 1994
Extracted: Dec 4, 1994
Analyzed: Dec 9, 1994
Reported: Dec 15, 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.
2,4-Dinitrotoluene.....	2.0	N.D.
2,6-Dinitrotoluene.....	2.0	N.D.
Di-N-octyl phthalate.....	2.0	N.D.





MPDS Services
 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 Castro Valley
 Analysis Method: EPA 8270
 Lab Number: 412-0087

Sampled: Dec 1, 1994
 Received: Dec 1, 1994
 Extracted: Dec 4, 1994
 Analyzed: Dec 9, 1994
 Reported: Dec 15, 1994

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

Analyte	Detection Limit µg/L	Sample Results µg/L
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.
2-Methylnaphthalene.....	2.0	N.D.
2-Methylphenol.....	2.0	N.D.
4-Methylphenol.....	2.0	N.D.
Naphthalene.....	2.0	2.5
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

Signature on File

Alan B. Kemp
 Project Manager





MPDS Services 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: 4120083-87	Reported: Dec 15, 1994
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QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	A. Tuzon	A. Tuzon	A. Tuzon	A. Tuzon

MS/MSD				
Batch#:	4120484	4120484	4120484	4120484
Date Prepared:	12/13/94	12/13/94	12/13/94	12/13/94
Date Analyzed:	12/13/94	12/13/94	12/13/94	12/13/94
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:	85	90	90	92
Matrix Spike Duplicate %				
Recovery:	90	90	90	93
Relative %				
Difference:	5.7	0.0	0.0	1.1

LCS Batch#:	2LCS121394	2LCS121394	2LCS121394	2LCS121394
Date Prepared:	12/13/94	12/13/94	12/13/94	12/13/94
Date Analyzed:	12/13/94	12/13/94	12/13/94	12/13/94
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4
LCS %				
Recovery:	95	95	94	81

% Recovery				
Control Limits:	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

Signature on File

Alan B. Kemp
Project Manager





MPDS Services
 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: 4120083-87

Reported: Dec 15, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015 Mod.
Analyst:	A. Tuzon	A. Tuzon	A. Tuzon	A. Tuzon	K.V.S.

MS/MSD Batch#:	4120083	4120083	4120083	4120083	BLK120894
Date Prepared:	12/11/94	12/11/94	12/11/94	12/11/94	12/8/94
Date Analyzed:	12/11/94	12/11/94	12/11/94	12/11/94	12/9/94
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5	HP-3B
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	300 µg/L
Matrix Spike % Recovery:	110	105	105	102	73
Matrix Spike Duplicate % Recovery:	110	110	110	103	71
Relative % Difference:	0.0	4.7	4.7	0.98	2.8

LCS Batch#:	3LCS121194	3LCS121194	3LCS121194	3LCS121194	BLK120894
Date Prepared:	12/11/94	12/11/94	12/11/94	12/11/94	12/8/94
Date Analyzed:	12/11/94	12/11/94	12/11/94	12/11/94	12/9/94
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5	HP-3B
LCS % Recovery:	101	101	99	96	73

% Recovery Control Limits:	71-133	72-128	72-130	71-120	28-122
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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

Signature on File

Alan B. Kemp
 Project Manager





MPDS Services
 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: 412-0087

Reported: Dec 15, 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	Phenol	2-Chlorophenol	1,4-Dichloro-benzene	N-Nitroso-Di-N-propylamine	1,2,4-Trichloro-benzene	4-Chloro-3-Methylphenol
Batch#:	BLK120694	BLK120694	BLK120694	BLK120694	BLK120694	BLK120694
Date Prepared:	12/6/94	12/6/94	12/6/94	12/6/94	12/6/94	12/6/94
Date Analyzed:	12/12/94	12/12/94	12/12/94	12/12/94	12/12/94	12/12/94
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:	56	58	62	58	58	51
Matrix Spike Duplicate % Recovery:	69	70	70	70	68	61
Relative % Difference:	21	19	12	19	16	18

LCS Batch#:	LCS120694	LCS120694	LCS120694	LCS120694	LCS120694	LCS120694
Date Prepared:	12/6/94	12/6/94	12/6/94	12/6/94	12/6/94	12/6/94
Date Analyzed:	12/12/94	12/12/94	12/12/94	12/12/94	12/12/94	12/12/94
Instrument I.D.#:	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1
LCS % Recovery:	56	58	62	58	58	51

% Recovery Control Limits:	Phenol	2-Chlorophenol	1,4-Dichloro-benzene	N-Nitroso-Di-N-propylamine	1,2,4-Trichloro-benzene	4-Chloro-3-Methylphenol
	12-89	27-123	36-97	41-116	39-98	23-97

SEQUOIA ANALYTICAL, #1271

Signature on File

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 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: 412-0087 Reported: Dec 15, 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#:	BLK120694	BLK120694	BLK120694	BLK120694	BLK120694
Date Prepared:	12/6/94	12/6/94	12/6/94	12/6/94	12/6/94
Date Analyzed:	12/12/94	12/12/94	12/12/94	12/12/94	12/12/94
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:	64	26	36	32	68
Matrix Spike Duplicate % Recovery:	72	37	44	45	80
Relative % Difference:	12	35	20	34	16

LCS Batch#:	LCS120694	LCS120694	LCS120694	LCS120694	LCS120694
Date Prepared:	12/6/94	12/6/94	12/6/94	12/6/94	12/6/94
Date Analyzed:	12/12/94	12/12/94	12/12/94	12/12/94	12/12/94
Instrument I.D.#:	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1
LCS % Recovery:	64	26	36	32	68

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

Signature on File

Alan B. Kemp
 Project Manager



M P D S Services, Inc.

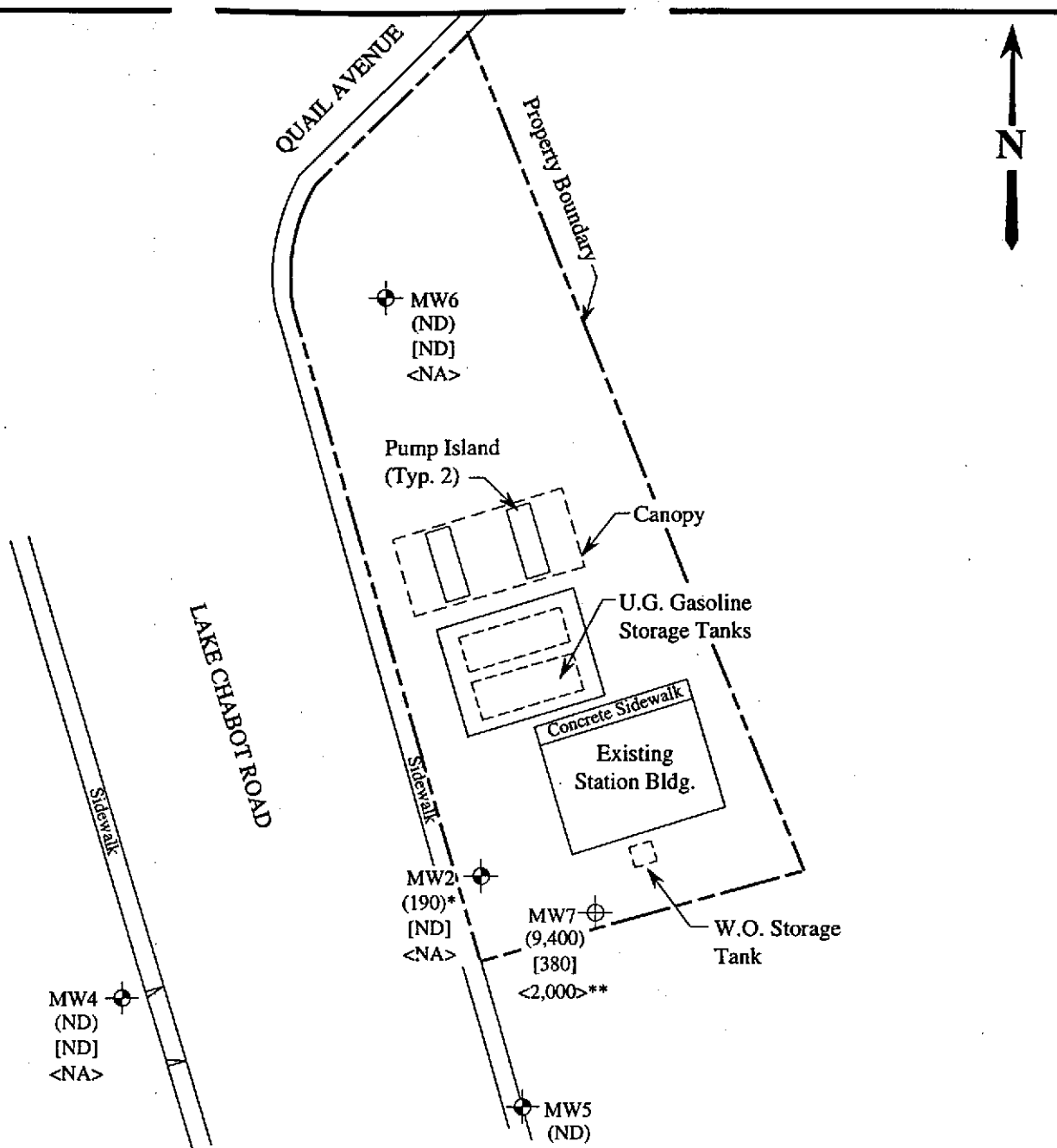
2401 Stanwell Drive, Suite 400, Concord, CA 94520

Tel: (510) 602-5120 Fax: (510) 689-1918

CHAIN OF CUSTODY

SAMPLER (JOE) HOVSIA AJEMIAN			UNOCAL S/S # <u>5484</u> CITY: <u>Castro Valley</u>					ANALYSES REQUESTED							TURN AROUND TIME: Regular		
WITNESSING AGENCY			ADDRESS: <u>18950 Lake Chabot Rd</u>					TPH-GAS BTEX	TPH-DIESEL	TOG	8010	5270					REMARKS
SAMPLE ID NO.	DATE	TIME	WATER	URAB	COMP	NO. OF CONT.	SAMPLING LOCATION										
MW-2	12-1-94	11:10 A.M.	✓	✓		2 (VOA)	Wells	✓						4120083	A,B	VOA-s preserved	
MW-4	"	10:30 A.M.	✓	✓		2 (VOA)	"	✓					4120084		↓		
MW-5	"	10:45 A.M.	✓	✓		4 (VOA) 1 Amber	"	✓	✓		✓		4120085		A-E		
MW-6	"	10:55 A.M.	✓	✓		2 (VOA)	"	✓					4120086		A,B		
MW-7	"	11:20 A.M.	✓	✓		4 (VOA) 2 Amber	"	✓	✓		✓	✓	4120087		A-F		

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	THE FOLLOWING <u>MUST</u> BE COMPLETED BY THE LABORATORY ACCEPTING SAMPLES FOR ANALYSES:
(SIGNATURE) Joe Ajemian	12-1-94 3:50	(SIGNATURE) Charlie Q	1. HAVE ALL SAMPLES RECEIVED FOR ANALYSIS BEEN STORED ON ICE? Yes
(SIGNATURE) Charlie Q	12-1-94 4:40	(SIGNATURE) Rob Kelley 12/01/94	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: Rob Kelley TITLE: Sample Control DATE: 12/01/94



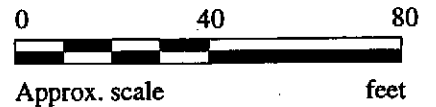
LEGEND

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

ND = Non-detectable, NA = Not analyzed

* 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 JUNE 3, 1994

MPDS SERVICES, INCORPORATED

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

**FIGURE
2**