MONITORING PURGING DISPOSING SAMPLING mpds SERVICES, INCORPORATED

MPDS-UN5366-02
June 29, 1994

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

Attention: Mr. Edward C. Ralston

RE: Quarterly Data Report
Unocal Service Station #5366
7375 Amador Valley Boulevard
Dublin, California

Dear Mr. Ralston:

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 Unocal monitoring wells that were monitored and sampled during this quarter are indicated in Table 1. Prior to sampling, the Unocal wells were checked for depth to water and the presence of free product or sheen. The monitoring data and the ground water elevations for the Unocal wells are summarized in Table 1. The ground water flow direction at the Unocal site during the most recent quarter is shown on the attached Figure 1.

A joint monitoring and sampling event was conducted with the consultants for the nearby former Shell, BP, and Arco service station sites on May 17, 1994. The monitoring data collected for the former Shell and BP service stations are summarized in Tables 2 and 3, respectively. In spite of our many attempts, we were not able to collect the monitoring data of the Arco service station wells. The ground water flow direction in the vicinity of these sites during the most recent quarter is also shown on the attached Figure 1.

Ground water samples were collected from the Unocal wells on May 17, 1994. Prior to sampling, the Unocal wells were each purged of 8 gallons of water. 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.

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

ANALYTICAL RESULTS

The ground water samples collected from the Unocal wells 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 from the Unocal wells to date are summarized in Tables 4 and 5. The concentrations of Total Petroleum Hydrocarbons (TPH) as gasoline, TPH as diesel, and benzene detected in the ground water samples collected from the Unocal wells this quarter are shown on the attached Figure 2. Copies of the laboratory analytical results and the Chain of Custody documentation for the Unocal wells are attached to this report.

DISTRIBUTION

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

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.

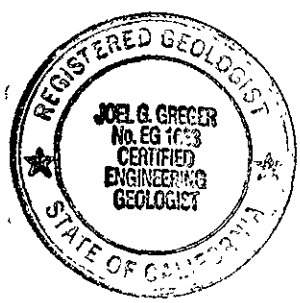
If you have any questions regarding this report, please do not hesitate to call at (510) 602-5120.

Sincerely,

MPDS Services, Inc.

Sarkis A. Karkarian
Staff Engineer

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



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Exp. Date 8/31/96

/dlh

Attachments: Tables 1 through 5
Location Map
Figures 1 & 2
Laboratory Analyses
Chain of Custody documentation

cc: Mr. Thomas Berkins, Kaprealian Engineering, Inc.

TABLE 1

SUMMARY OF MONITORING DATA
UNOCAL MONITORING WELLS

Well #	Ground Water Elevation (feet)	Depth to Water (feet)◆	Product Thickness (feet)	Sheen	Water Purged (gallons)	Total Well Depth (feet)◆
(Monitored and Sampled on May 17, 1994)						
MW1	326.81	9.26	0	No	8	19.50
MW2*	327.47	9.31	0	--	0	19.26
MW3*	327.49	9.49	0	--	0	18.94
MW4*	326.80	9.63	0	--	0	19.44
MW5	326.72	9.24	0	No	8	20.00
(Monitored and Sampled on February 11, 1994)						
MW1	326.35	9.72	0	No	7	19.46
MW2	326.93	9.85	0	No	6.5	19.23
MW3	326.97	10.01	0	No	6.5	18.90
MW4	326.33	10.10	0	No	6.5	19.40
MW5	325.88	10.08	0	No	7	19.96
(Monitored and Sampled on November 11, 1993)						
MW1	325.90	10.17	0	No	7	
MW2*	326.27	10.51	0	--	0	
MW3*	326.34	10.64	0	--	0	
MW4*	325.95	10.48	0	--	0	
(Monitored and Sampled on August 12, 1993)						
MW1	326.16	9.91	0	No	6.5	
MW2*	326.67	10.11	0	--	0	
MW3*	326.64	10.34	0	--	0	
MW4*	326.11	10.32	0	--	0	

TABLE 1 (Continued)

SUMMARY OF MONITORING DATA
UNOCAL MONITORING WELLS

Well #	Well Casing Elevation (feet)**
MW1	336.07
MW2	336.78
MW3	336.98
MW4	336.43
MW5	335.96

♦ 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 covers and well casings have been surveyed relative to Mean Sea Level (MSL), per the County of Alameda Benchmark, standard brass disk in the westerly center island of Amador Valley Boulevard at Village Parkway, 15 feet from the nose and 0.8 feet from the northerly curb, stamped "VL PK AM VY, 1977" (elevation = 337.40 MSL).

-- Sheen determination was not performed.

Note: Monitoring data prior to February 11, 1994, were provided by Kaprealian Engineering, Inc.

TABLE 2

SUMMARY OF MONITORING DATA
Shell Service Station Wells
(Provided by Pacific Environmental Group, Inc.)

Well #	Ground Water Elevation (feet)	Depth to Water (feet)	Well Casing Elevation (feet)*
	(Monitored on May 17, 1994)		
MW1	326.87	7.96	334.83
MW2	326.67	10.29	336.96
MW3	327.01	9.92	336.93
MW4	326.84	10.30	337.14
MW5	326.84	8.12	334.96
MW6	326.84	8.58	335.42
MW7	327.17	6.06	333.23
MW8	327.59	8.21	335.80
MW9	326.51	8.06	334.57
MW11	326.59	7.61	334.20
MW12	325.73	6.80	332.53
MW13	327.02	8.62	335.64
RW1	N/A	9.29	N/A

* Relative to Mean Sea Level (MSL).

N/A = Not Applicable.

TABLE 3

SUMMARY OF MONITORING DATA
BP Service Station Wells
(Provided by Alisto Engineering Group)

Well #	Ground Water Elevation (feet)	Depth to Water (feet)	Well Casing Elevation (feet)*
	(Monitored on May 17, 1994)		
MW1	327.00	8.17	335.17
MW2	326.87	7.71	334.58
MW3	326.79	8.34	335.13
AW4	326.87	6.54	333.41
AW5	326.65	8.16	334.81
AW6	327.22	7.68	334.90

* Relative to Mean Sea Level (MSL).

TABLE 4

SUMMARY OF LABORATORY ANALYSES
UNOCAL MONITORING WELLS
WATER

Date	Well #	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes
5/17/94	MW1	1,000	41	ND	49	32
	MW2	SAMPLED ANNUALLY				
	MW3	SAMPLED ANNUALLY				
	MW4	SAMPLED ANNUALLY				
	MW5	20,000	4,300	ND	2,300	130
2/11/94	MW1	970	40	3.2	2.8	15
	MW2	ND	ND	ND	ND	ND
	MW3	ND	ND	ND	ND	ND
	MW4	ND	ND	ND	ND	ND
	MW5	18,000	2,400	140	920	3,100
11/11/93	MW1	350	19	2.5	2.7	3.4
8/12/93	MW1	1,000	46	ND	29	6.3
5/10/93	MW1	1,600	39	0.40	25	3.3
2/10/93	MW1	3,000	230	ND	340	200
	MW2	ND	ND	ND	ND	ND
	MW3	ND	ND	ND	ND	ND
	MW4	ND	ND	ND	ND	ND
11/10/92	MW1	1,100	49	ND	71	21
8/12/92	MW1	1,700	51	ND	93	21
5/22/92	MW1	2,500	120	ND	230	37
	MW2	ND	ND	ND	ND	ND
2/25/92	MW1	3,900	500	ND	450	400
11/13/91	MW1	860	40	ND	11	2.5
8/12/91	MW1	1,100	68	2.6	210	9.3

TABLE 4 (Continued)

SUMMARY OF LABORATORY ANALYSES
UNOCAL MONITORING WELLS
WATER

Date	Well #	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes
5/15/91	MW1	2,100	220	ND	360	27
2/14/91	MW1	1,900	150	2.9	340	43
11/14/90	MW1	2,000	110	0.52	410	16
8/15/90	MW1	2,200	160	ND	570	45
5/18/90	MW1	2,000	140	1.8	460	19
	MW2	ND	ND	ND	ND	ND
	MW3	ND	ND	ND	ND	ND
	MW4	ND	ND	ND	ND	ND
2/06/90	MW1	2,700	170	ND	350	29
	MW2	ND	ND	ND	ND	ND
	MW3	ND	ND	ND	ND	ND
	MW4	ND	ND	ND	ND	ND
10/20/89	MW1	ND	ND	ND	ND	ND
	MW2	ND	ND	ND	ND	ND
	MW3	ND	ND	ND	0.38	ND
	MW4	ND	ND	ND	ND	ND
7/27/89	MW1	1,900	130	6.3	ND	68
	MW2	ND	ND	ND	ND	ND
	MW3	ND	ND	ND	ND	ND
	MW4	ND	0.34	ND	ND	ND
5/22/89	MW3	ND	ND	ND	ND	ND
4/28/89	MW1	1,000	97	0.8	170	24
	MW2	ND	ND	ND	ND	ND
	MW3	880	9.6	9.7	19	12.7
	MW4	ND	0.3	ND	ND	ND

TABLE 4 (Continued)

SUMMARY OF LABORATORY ANALYSES
UNOCAL MONITORING WELLS
WATER

Date	Well #	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes
1/26/89	MW1	1,900	240	1.8	81	30
	MW2	ND	ND	ND	ND	ND
	MW3	ND	ND	ND	ND	ND
	MW4	ND	0.67	ND	ND	ND
10/28/88	MW1	5,200	150	ND	250	12
	MW2	ND	ND	ND	ND	ND
	MW3	--	ND	ND	ND	ND
	MW4	ND	ND	ND	ND	ND
7/25/88	MW1	6,100	170	2.1	94	94
	MW2	ND	ND	ND	ND	ND
	MW3	--	ND	ND	ND	ND
	MW4	ND	ND	ND	ND	ND
4/29/88	MW1	10,000	960	17	870	1,500
	MW2	170	2.7	0.6	ND	13
	MW3	ND	ND	ND	ND	ND
	MW4	ND	ND	ND	ND	ND

ND = Non-detectable.

-- Indicates that analysis was not performed.

Results are in micrograms per liter (µg/L), unless otherwise indicated.

Note: Laboratory analyses data prior to February 11, 1994, were provided by Kaprealian Engineering, Inc.

TABLE 5

SUMMARY OF LABORATORY ANALYSES
UNOCAL MONITORING WELLS
WATER

Date	Well #	TPH as Diesel	Total Oil & Grease (mg/L)	EPA 8010 Constituents
5/17/94	MW5	2,500*	--	--
2/11/94	MW3	ND	ND	--
	MW5	2,300*	--	--
5/10/93	MW1	730*	--	--
2/10/93	MW3	200	ND	--
5/18/90	MW3	ND	ND	ND
2/06/90	MW3	ND	ND	ND
10/20/89	MW3	ND	2.5	ND
7/27/89	MW3	ND	1.6	ND
5/22/89	MW3	--	--	--
4/28/89	MW3	72	ND	ND
1/26/89	MW3	ND	--	ND
10/28/88	MW3	ND	--	ND
7/25/88	MW3	ND	--	ND
4/29/88	MW3	ND	--	ND

TABLE 5 (Continued)

SUMMARY OF LABORATORY ANALYSES
UNOCAL MONITORING WELLS
WATER

* Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a diesel and non-diesel mixture.

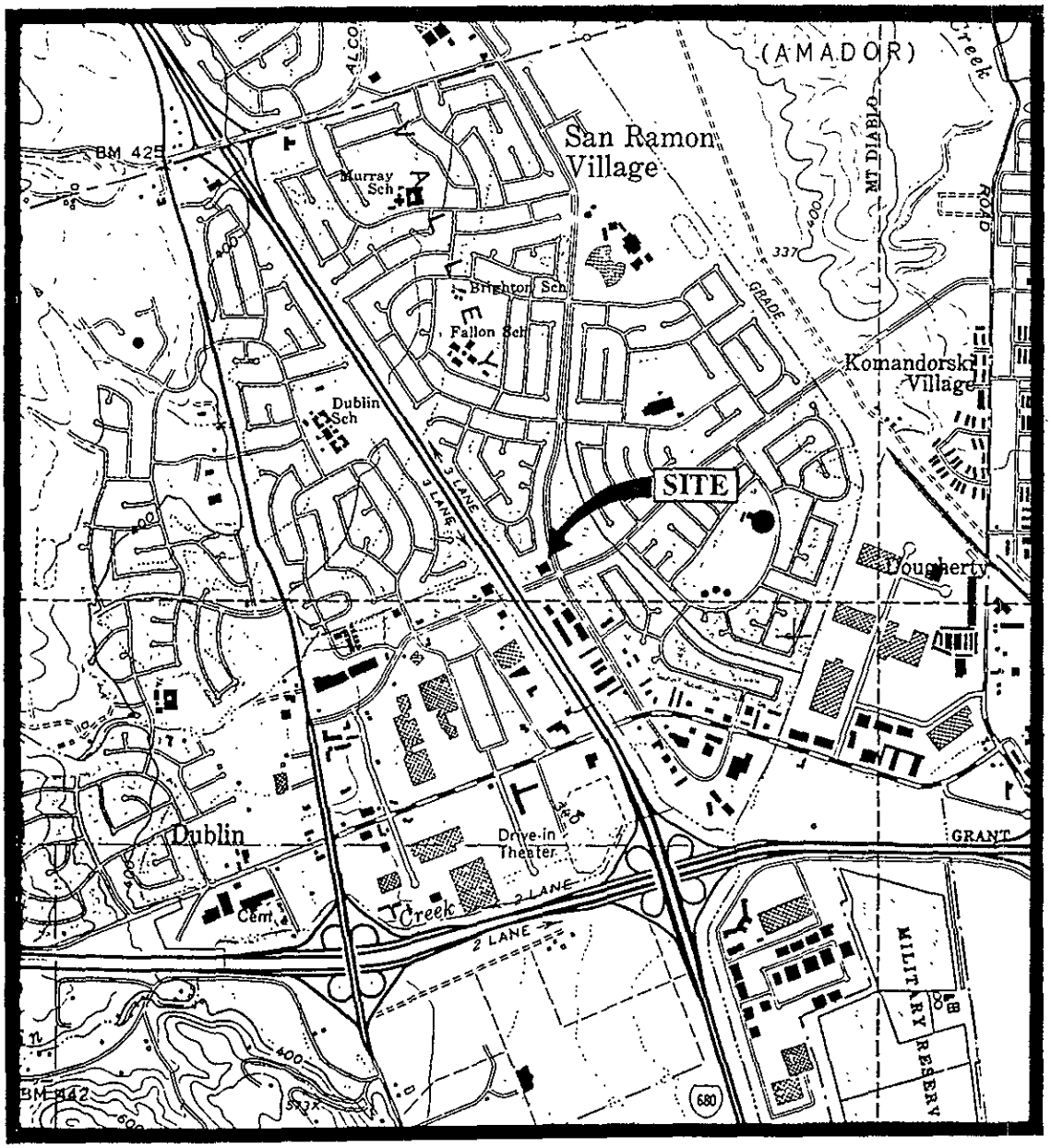
ND = Non-detectable.

-- Indicates analysis was not performed.

mg/L = milligrams per liter.

Results are in micrograms per liter (µg/L), unless otherwise indicated.

Note: Laboratory analyses data prior to February 11, 1994, were provided by Kaprealian Engineering, Inc.

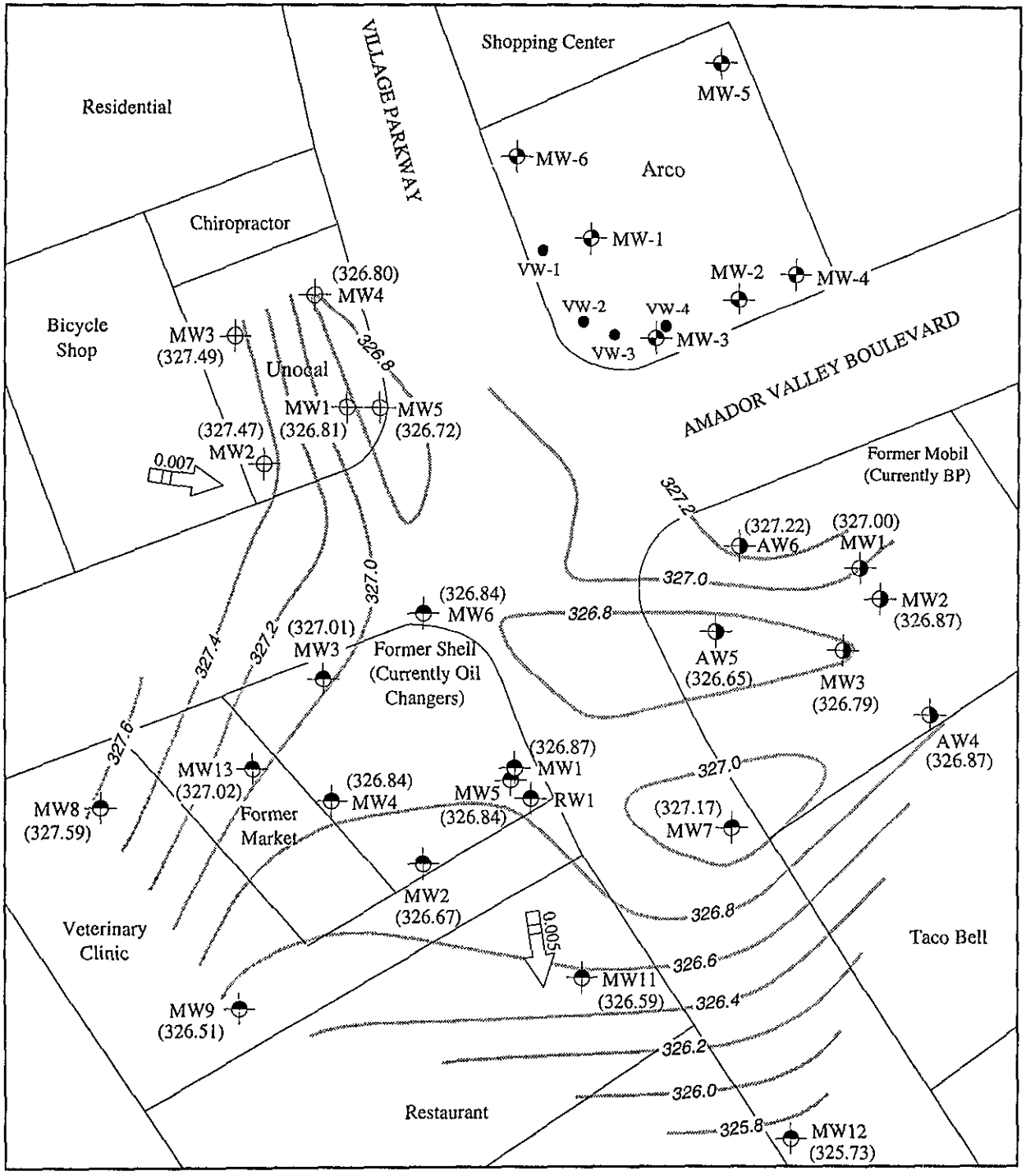


0 2000 4000

Approx. scale feet

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

mpds SERVICES, INCORPORATED	**UNOCAL SERVICE STATION #5366** **7375 AMADOR VALLEY BLVD.** **DUBLIN, CALIFORNIA**	**LOCATION MAP**



LEGEND

- Monitoring well (Unocal)
- Monitoring well (BP)
- Monitoring well (Shell)
- Monitoring well (Arco)
- Vapor extraction well (Arco)

( ) Ground water elevation in feet above Mean Sea Level

#.## Direction of ground water flow with approximate hydraulic gradient

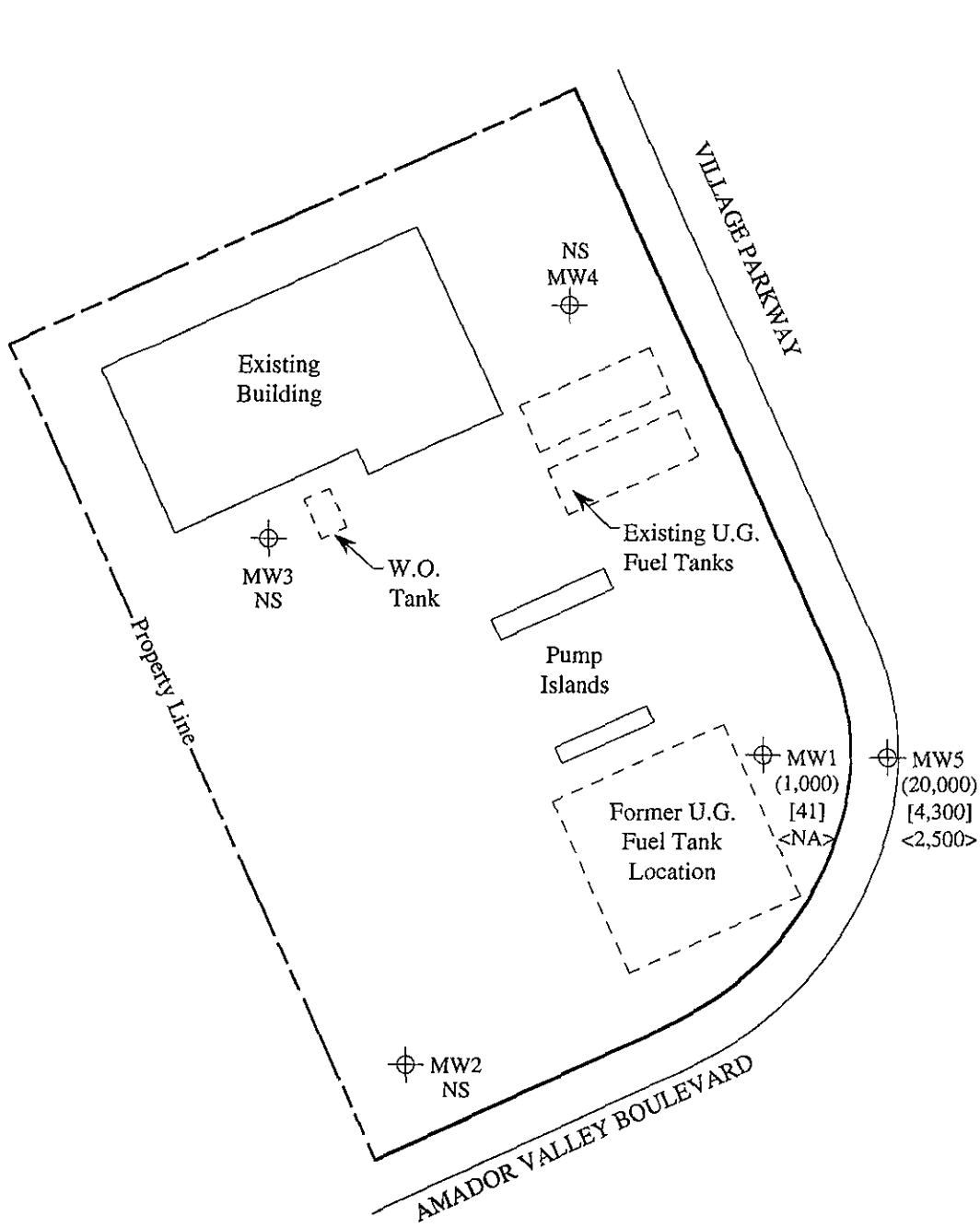
Contours of ground water elevation

0 100 200

Approx. scale feet

POTENTIOMETRIC SURFACE MAP FOR THE MAY 17, 1994 JOINT MONITORING EVENT

mpds SERVICES, INCORPORATED	**UNOCAL SERVICE STATION #5366** **7375 AMADOR VALLEY BLVD.** **DUBLIN, CALIFORNIA**	FIGURE **1**



LEGEND

- ⊕ Monitoring well
- ( ) 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, NS = Not sampled, NA = Not analyzed

0 30 60

Approx. scale feet

PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON MAY 17, 1994

mpds SERVICES, INCORPORATED

UNOCAL SERVICE STATION #5366
7375 AMADOR VALLEY BLVD.
DUBLIN, CALIFORNIA

FIGURE
2

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

Client Project ID: Unocal #5366, 7375 Amador Valley Rd., Dublin
Sample Matrix: Water
Analysis Method: EPA 5030/8015/8020
First Sample #: 405-0818

Sampled: May 17, 1994
Received: May 17, 1994
Reported: Jun 1, 1994

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 405-0818 MW1	Sample I.D. 405-0819 MW5
Purgeable Hydrocarbons	50	1,000	20,000
Benzene	0.5	41	4,300
Toluene	0.5	N.D.	N.D.
Ethyl Benzene	0.5	49	2,300
Total Xylenes	0.5	32	130
Chromatogram Pattern:		Gasoline	Gasoline

Quality Control Data

Report Limit Multiplication Factor:	5.0	100
Date Analyzed:	5/27/94	5/28/94
Instrument Identification:	HP-4	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	114	106

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

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	Client Project ID:	Unocal #5366, 7375 Amador Valley Rd., Dublin	Sampled: May 17, 1994
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Water	Received: May 17, 1994
Concord, CA 94520	Analysis Method:	EPA 3510/3520/8015	Reported: Jun 1, 1994
Attention: Avo Avedessian	First Sample #:	405-0819	

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 405-0819 MW5*
Extractable Hydrocarbons	50	2500
Chromatogram Pattern:		Diesel and Unidentified Hydrocarbons <C16

Quality Control Data

Report Limit Multiplication Factor:	1.0
Date Extracted:	5/23/94
Date Analyzed:	5/27/94
Instrument Identification:	HP-3B

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

Alan B. Kemp
Project Manager

Please Note:

*This sample appears to contain Diesel and non-Diesel mixtures.
"Unidentified Hydrocarbons <C16" are probably Gasoline.

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

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

Client Project ID: Unocal #5366, 7375 Amador Valley Rd., Dublin
Matrix: Liquid
QC Sample Group: 4050818-19
Reported: Jun 3, 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:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha	K. Wimer
MS/MSD Batch#:	4050722	4050722	4050722	4050722	BLK052394
Date Prepared:	5/28/94	5/28/94	5/28/94	5/28/94	5/23/94
Date Analyzed:	5/28/94	5/28/94	5/28/94	5/28/94	5/26/94
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	HP-3B
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	300 µg/L
Matrix Spike % Recovery:	90	100	105	105	95
Matrix Spike Duplicate % Recovery:	85	100	105	105	99
Relative % Difference:	5.7	0.0	0.0	0.0	3.8
LCS Batch#:	1LCS052894	1LCS052894	1LCS052894	1LCS052894	BLK052394
Date Prepared:	5/28/94	5/28/94	5/28/94	5/28/94	5/23/94
Date Analyzed:	5/28/94	5/28/94	5/28/94	5/28/94	5/26/94
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	HP-3B
LCS % Recovery:	108	104	105	105	95
% Recovery Control Limits:	71-133	72-128	72-130	71-120	28-122

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.

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

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

Client Project ID: Unocal #5366, 7375 Amador Valley Rd., Dublin
Matrix: Liquid

QC Sample Group: 4050818-19

Reported: Jun 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#:	4050894	4050894	4050894	4050894
Date Prepared:	5/28/94	5/28/94	5/28/94	5/28/94
Date Analyzed:	5/28/94	5/28/94	5/28/94	5/28/94
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:	77	90	94	94
Matrix Spike Duplicate % Recovery:	77	85	89	89
Relative % Difference:	0.0	5.7	5.5	5.5
LCS Batch#:	2LCS052794	2LCS052794	2LCS052794	2LCS052794
Date Prepared:	5/27/94	5/27/94	5/27/94	5/27/94
Date Analyzed:	5/27/94	5/27/94	5/27/94	5/27/94
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4
LCS % Recovery:	88	93	95	96
% Recovery Control Limits:	71-133	72-128	72-130	71-120

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.

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: RAY MARANGOSIAN
WITNESSING AGENCY:
UNOCAL S/S # 5366 CITY: DUBLIN
ADDRESS: 7375 AMADOR VALLEY RD

SAMPLE ID NO.	DATE	TIME	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	ANALYSES REQUESTED: TPH-GAS BTEX	TPH-DIESEL	TOG	8010					TURN AROUND TIME: REGULAR / REMARKS
MW1	5-17 94	9:50	x	x		2	well	x								405C818 AB
MW5	"	10:25	x	x		3	well	x	x							↓ 0819 AC

RELINQUISHED BY: Ray Marangosian (SIGNATURE) — DATE/TIME: 5.17.94 11:35
(SIGNATURE) — 5.17.94 14:20
(SIGNATURE)
(SIGNATURE)
(SIGNATURE)

RECEIVED BY: (SIGNATURE) — 5.17.94 11:35
(SIGNATURE)
(SIGNATURE)
(SIGNATURE)

THE FOLLOWING MUST BE COMPLETED BY THE LABORATORY ACCEPTING SAMPLES FOR ANALYSES:

1. HAVE ALL SAMPLES RECEIVED FOR ANALYSIS BEEN STORED ON ICE? YES
2. WILL SAMPLES REMAIN REFRIGERATED UNTIL ANALYZED? YES
3. DID ANY SAMPLES RECEIVED FOR ANALYSIS HAVE HEAD SPACE?
4. WERE SAMPLES IN APPROPRIATE CONTAINERS AND PROPERLY PACKAGED?

SIGNATURE: TITLE: DATE: