MONITORING
PURGING
DISPOSING
SAMPLING

MPDS SERVICES, INCORPORATED

521

January 25, 1995

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

RE: Unocal Service Station #5043
449 Hegenberger Road
Oakland, California

Per the request of the Unocal Corporation Project Manager, Mr. David B. DeWitt, enclosed please find our report (MPDS-UN5043-04) dated December 9, 1994, for the above referenced site.

Should you have any questions regarding the reporting of data, please feel free to call our office at (510) 602-5120. Any other questions may be directed to the Project Manager at (510) 277-2384.

Sincerely,

MPDS Services, Inc.

Jarrel F. Crider

/jfc

Enclosure

cc: Mr. David B. DeWitt

2401 Stanwell Drive, Suite 300, Concord, CA 94520
TEL: (510) 602-5120 FAX: (510) 689-1918

MONITORING
PURGING
DISPOSING
SAMPLING

MPDS SERVICES, INCORPORATED

MPDS-UN5043-04
December 9, 1994

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

Attention: Mr. David B. DeWitt

RE: Quarterly Data Report
Unocal Service Station #5043
449 Hegenberger Road
Oakland, California

Dear Mr. DeWitt:

This data report presents the results of the most recent quarter of monitoring and sampling of the monitoring wells at the referenced site by MPDS Services, Inc.

RECENT FIELD ACTIVITIES

The monitoring wells that were monitored and sampled during this quarter are indicated in Table 1. A skimmer was present in well MW1. 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 directions during the most recent quarter are shown on the attached Figures 1, 2, and 3.

Ground water samples were collected on November 14, 1994. Prior to sampling, the wells were purged of between 6 and 9 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 Table 2. 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

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

attached Figure 4. 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
Location Map
Figures 1 through 4
Laboratory Analyses
Chain of Custody documentation

cc: Mr. Robert H. Kezerian, Kaprealian Engineering, Inc.

TABLE 1

SUMMARY OF MONITORING DATA

Well #	Ground Water Elevation (feet)	Depth to Water (feet)◆	Total Well Depth (feet)◆	Product Thick-ness (feet)	Sheen	Water Purged (gallons)	Product Purged (ounces)
(Monitored and Sampled on November 14, 1994)							
MW1*	4.50▲	2.97	12.71	0.12	N/A	9(5.0)	<1
MW2	6.45	2.13	14.36	0	No	8.5(4.5)	0
MW3	4.24	3.18	14.04	0	No	8	0
MW4	4.36	4.05	13.00	0	No	7	0
MW5	3.32	5.63	13.58	0	No	6	0
MW6	3.25	5.62	13.76	0	No	6	0
(Monitored on October 17, 1994)							
MW1	4.24▲	3.20	12.70	0.08	--	8	<1
MW2	4.94	3.64	14.38	0	--	8	0
MW3	2.66	4.76	14.04	0	--	0	0
MW4	3.61	4.80	12.98	0	--	0	0
MW5	2.49	6.46	13.57	0	--	0	0
MW6	2.57	6.30	13.78	0	--	0	0
(Monitored on September 13, 1994)							
MW1	4.27▲	3.17	12.68	0.08	--	8	<1
MW2	5.06	3.52	14.36	0	--	12	0
MW3	2.80	4.62	14.04	0	--	0	0
MW4	3.71	4.70	12.98	0	--	0	0
MW5	2.92	6.03	13.58	0	--	0	0
MW6	2.97	5.90	13.78	0	--	0	0
(Monitored and Sampled on August 15, 1994)							
MW1*	4.61▲	2.85	12.53	0.11	N/A	35	2
MW2	5.33	3.25	14.33	0	No	25	0
MW3	2.77	4.65	14.02	0	No	6.5	0
MW4	4.14	4.27	12.94	0	No	6	0
MW5	3.27	5.68	13.54	0	No	5.5	0
MW6	3.50	5.37	13.74	0	No	6	0

TABLE 1 (Continued)

SUMMARY OF MONITORING DATA

♦ The depth to water level and total well depth measurements were taken from the top of the well casings.

▲ The ground water elevation was corrected for the presence of free product (correction factor = 0.77).

* Monitored only.

** The elevations of the top of the well casings are relative to Mean Sea Level (MSL), per the City of Oakland Benchmark #3880 (elevation = 20.37 feet MSL).

(x) Amount of water purged after sampling.

-- Sheen determination was not performed.

N/A = Not applicable.

TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Well #	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes
8/04/93	MW1	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					
	MW2	1,800♦♦	45,000	2,100	6,600	1,400	12,000
	MW3	100	210**	ND	ND	ND	ND
	MW4	81	250**	ND	3.5	ND	4.1
	MW5▲	970♦♦	1,500	130	1.0	460	11
	MW6	1,100♦♦	3,400	390	ND	440	190
5/04/93	MW1	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					
	MW2	7,100♦	63,000	3,200	17,000	470	17,000
	MW3	250♦♦	1,800*	95	ND	ND	ND
	MW4	ND	110*	0.95	ND	ND	ND
	MW5▲	4,600♦	7,400	41	ND	1,000	35
	MW6	1,800♦	4,900	360	18	450	430
2/04/93	MW1	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					
	MW2	6,100♦	18,000	1,600	3,000	ND	6,900
	MW3	550♦♦	3,300	320	ND	96	6.1
	MW4	ND	ND	ND	ND	ND	ND
	MW5▲	5,500♦♦	5,700	38	ND	620	170
	MW6	890♦♦	3,600	340	ND	290	550
11/30/92	MW1	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					
	MW2	5,700♦	29,000	2,000	3,400	1,200	6,900
	MW3	94	790**	ND	ND	ND	ND
	MW4	61	420**	ND	ND	ND	ND
	MW5▲	470♦♦	930	70	290	0.79	14
	MW6	1,400♦	9,200	550	ND	740	1,600
8/31/92	MW1	8,900♦	64,000	13,000	12,000	2,500	22,000
	MW2	1,600♦	9,000	1,800	640	140	2,000
	MW3	92♦♦	210**	1.0	ND	ND	ND
	MW4	90♦♦	240**	ND	ND	ND	0.54
	MW5	690♦	78	0.89	ND	ND	13
	MW6	750♦♦	ND	ND	ND	ND	ND
5/20/92	MW1	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					
	MW2	4,300♦	24,000	2,200	7,600	630	11,000
	MW3	WELL WAS INACCESSIBLE					

TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Well #	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes
2/18/92	MW1	13,000	150,000	17,000	26,000	5,200	26,000
	MW2	4,300	29,000	1,000	5,300	260	7,900
	MW3	ND	230	4.8	22	1.8	33

♦ 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 appeared to be a gasoline and non-gasoline mixture.

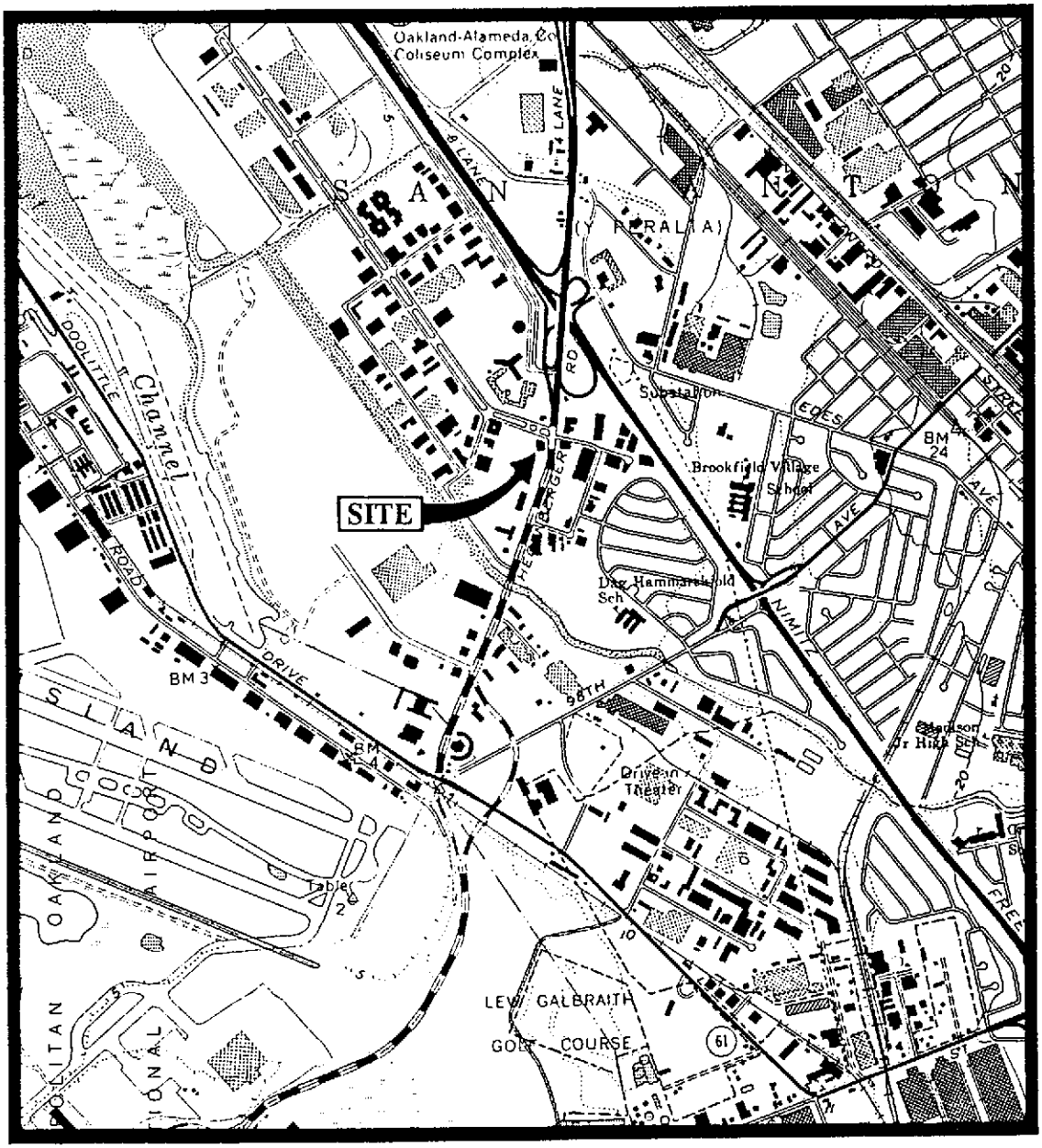
** Sequoia Analytical Laboratory reported that the hydrocarbons detected did not appear to be gasoline.

▲ Total Oil & Grease was non-detectable.

ND = Non-detectable.

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

Note: Laboratory analyses data prior to February 7, 1994, were provided by Kaprealian Engineering, Inc.

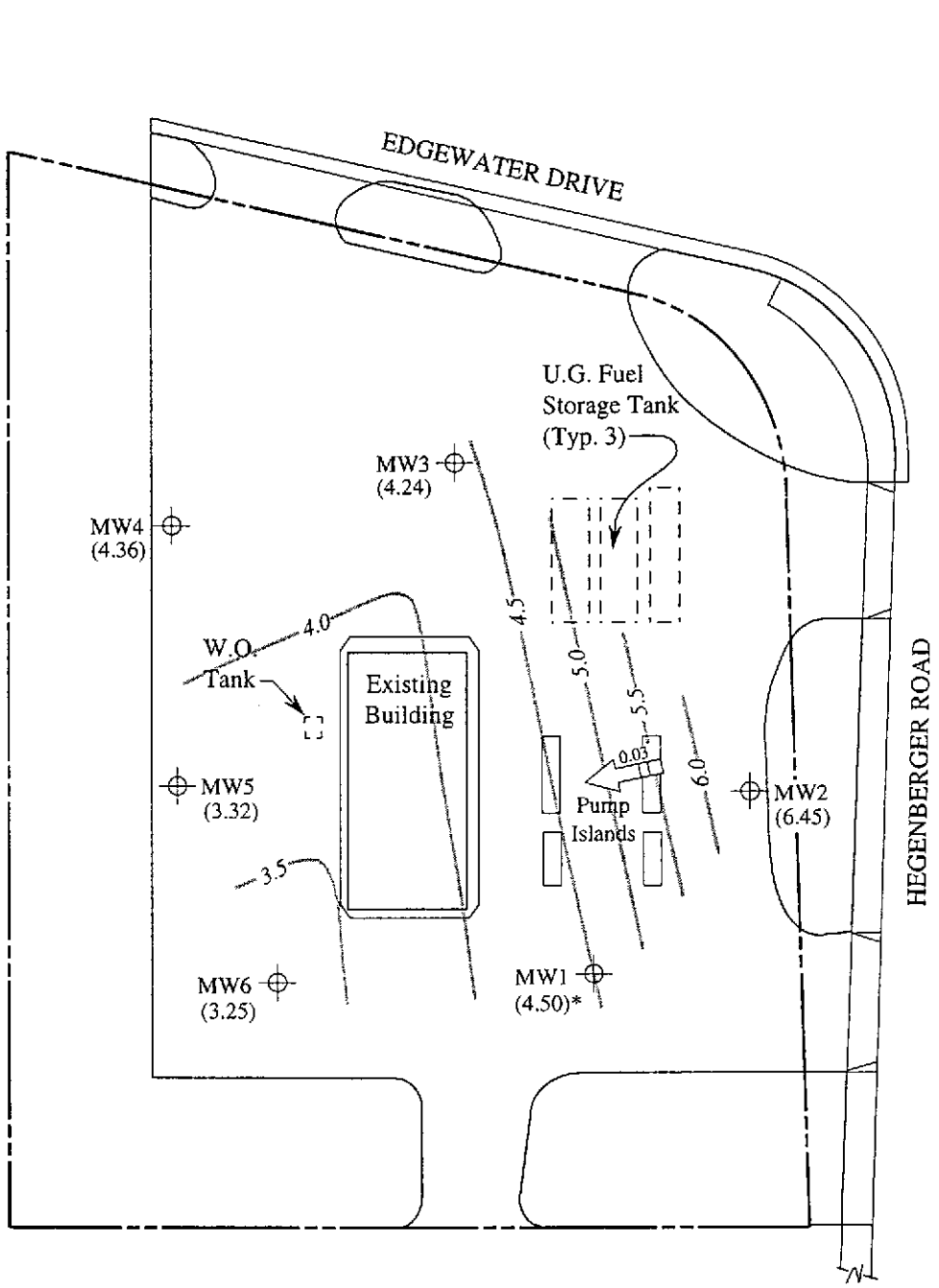


Base modified from 7.5 minute U.S.G.S. San Leandor Quadrangle
(photorevised 1980)

0 2000 4000

Approx. scale feet

mpds SERVICES, INCORPORATED	**UNOCAL SERVICE STATION #5043** **449 HEGENBERGER ROAD** **OAKLAND, CALIFORNIA**	**LOCATION MAP**



LEGEND

- Monitoring well
- ( ) Ground water elevation in feet above Mean Sea Level
- #.## Direction of ground water flow with approximate hydraulic gradient
- Contours of ground water elevation
- * Ground water elevation corrected due to the presence of free product.

0 40 80

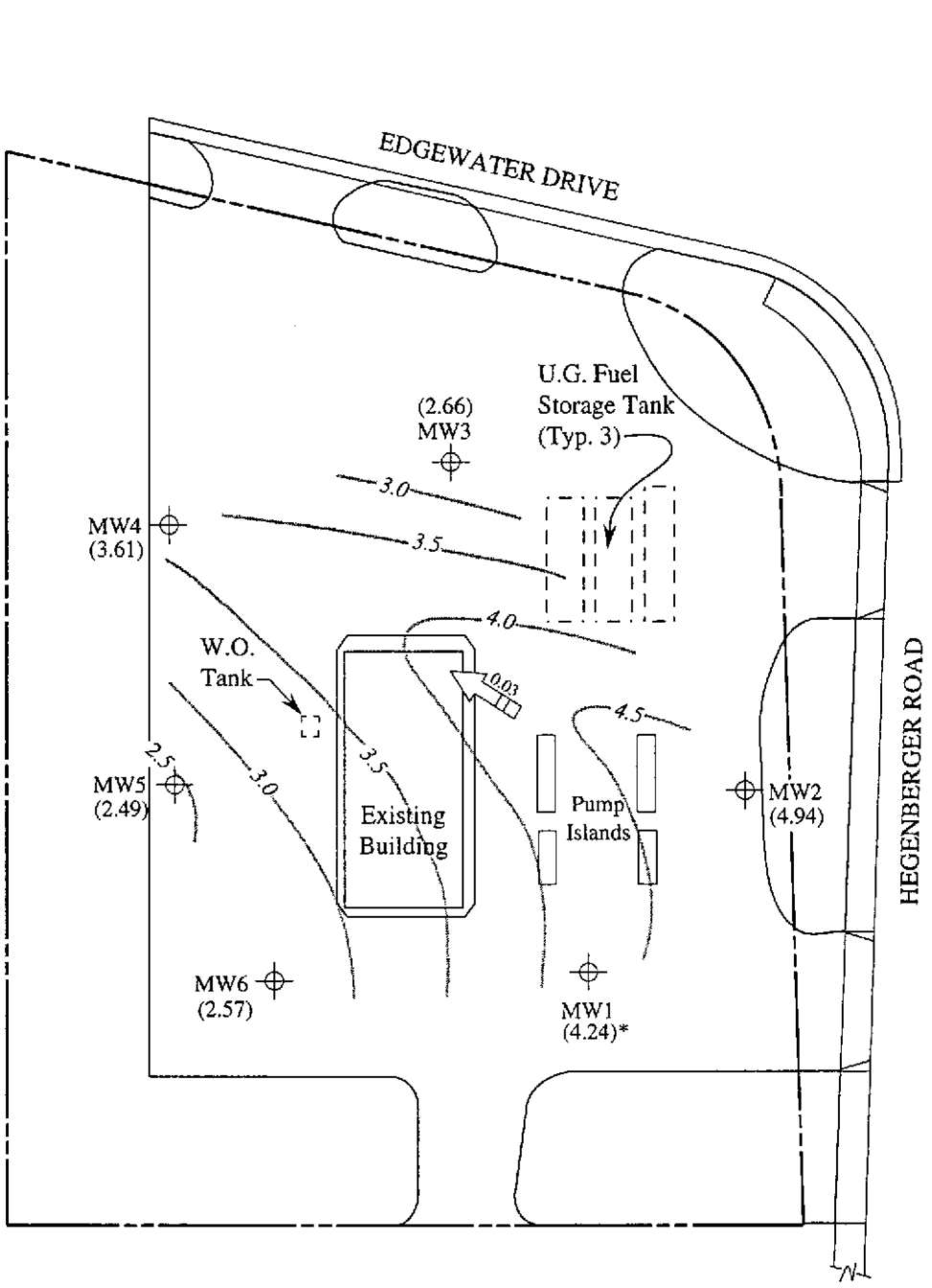
Approx. scale feet

POTENTIOMETRIC SURFACE MAP FOR THE NOVEMBER 14, 1994 MONITORING EVENT

mpds SERVICES, INCORPORATED

UNOCAL SERVICE STATION #5043
449 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

FIGURE
1



LEGEND

- Monitoring well
- ( ) Ground water elevation in feet above Mean Sea Level
- #.## Direction of ground water flow with approximate hydraulic gradient
- Contours of ground water elevation
- * Ground water elevation corrected due to the presence of free product.

0 40 80

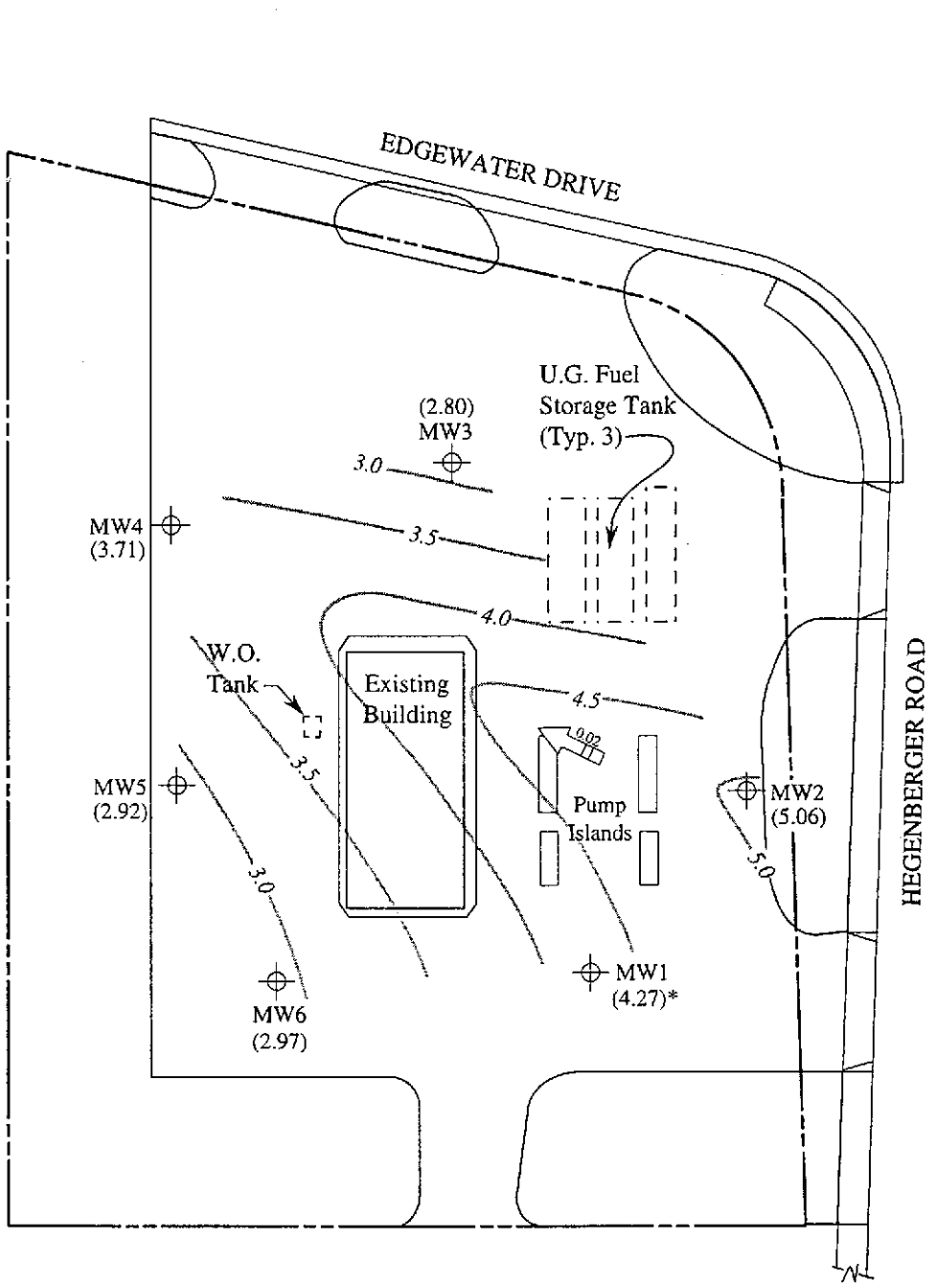
Approx. scale feet

POTENTIOMETRIC SURFACE MAP FOR THE OCTOBER 17, 1994 MONITORING EVENT

mpds SERVICES, INCORPORATED

UNOCAL SERVICE STATION #5043
449 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

FIGURE
2



LEGEND

- Monitoring well
- ( ) Ground water elevation in feet above Mean Sea Level
- #.## Direction of ground water flow with approximate hydraulic gradient
- Contours of ground water elevation
- * Ground water elevation corrected due to the presence of free product.

0 40 80

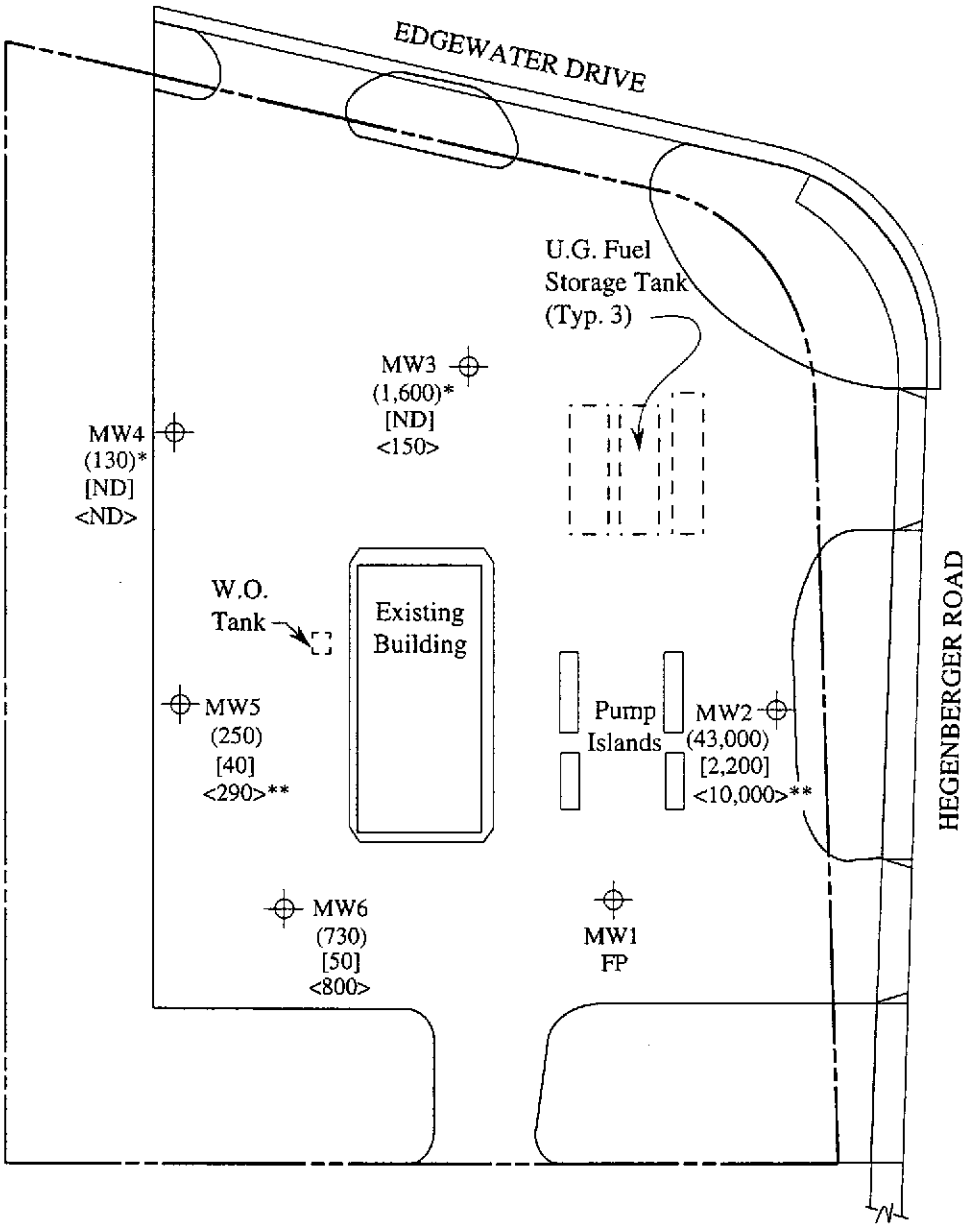
Approx. scale feet

POTENTIOMETRIC SURFACE MAP FOR THE SEPTEMBER 13, 1994 MONITORING EVENT

mpds SERVICES, INCORPORATED

UNOCAL SERVICE STATION #5043
449 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

FIGURE
3



LEGEND

- ⊕ Monitoring well
- ( ) Concentrations of TPH as gasoline in µg/L
- [ ] Concentrations of benzene in µg/L
- < > Concentrations of TPH as diesel in µg/L

ND = Non-detectable, FP = Free product

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

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

0 40 80

Approx. scale feet

PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON NOVEMBER 14, 1994

mpds SERVICES, INCORPORATED

UNOCAL SERVICE STATION #5043
449 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

FIGURE
4

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 #5043, 449 Hegenberger Rd, Oakland	Sampled:	Nov 14, 1994
2401 Stanwell Dr., Ste. 400	Matrix Descript:	Water	Received:	Nov 14, 1994
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported:	Dec 1, 1994
Attention: Avo Avedissian	First Sample #:	411-0636		

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
411-0636	MW 2	43,000	2,200	6,500	1,800	14,000
411-0637	MW 3	1,600*	ND	ND	ND	ND
411-0638	MW 4	130*	ND	ND	ND	ND
411-0639	MW 5	250	40	ND	ND	5.0
411-0640	MW 6	730	50	ND	ND	39

* Hydrocarbons detected did not appear to be gasoline.

Detection Limits:	**50**	**0.50**	**0.50**	**0.50**	**0.50**

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

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 #5043, 449 Hegenberger Rd,		Sampled:	Nov 14, 1994
2401 Stanwell Dr., Ste. 400	Matrix Descript:	Water	Oakland	Received:	Nov 14, 1994
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020		Reported:	Dec 1, 1994
Attention: Avo Avedissian	First Sample #:	411-0636			

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
411-0636	MW 2	Gasoline	100	11/17/94	HP-5	86
411-0637	MW 3	Discrete Peak*	10	11/21/94	HP-4	96
411-0638	MW 4	Discrete Peak*	1.0	11/17/94	HP-5	94
411-0639	MW 5	Gasoline	4.0	11/17/94	HP-5	81
411-0640	MW 6	Gasoline	5.0	11/17/94	HP-5	71

SEQUOIA ANALYTICAL, #1271

Signature on File

Alan B. Kemp
Project Manager

Please Note:
* "Discrete Peak" refers to an unidentified peak in the MTBE range.

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 #5043, 449 Hegenberger Rd, Oakland	Sampled:	Nov 14, 1994
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Water	Received:	Nov 14, 1994
Concord, CA 94520	Analysis Method:	EPA 3510/3520/8015	Reported:	Dec 1, 1994
Attention: Avo Avedissian	First Sample #:	411-0636		

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 411-0636 MW 2*	Sample I.D. 411-0637 MW 3^	Sample I.D. 411-0638 MW 4	Sample I.D. 411-0639 MW 5*	Sample I.D. 411-0640 MW 6^
Extractable Hydrocarbons	50	10,000	150	N.D.	290	800
Chromatogram Pattern:		Unidentified Hydrocarbons <C16	Diesel and Unidentified Hydrocarbons >C20	--	Unidentified Hydrocarbons <C16	Diesel and Unidentified Hydrocarbons <C16

Quality Control Data

Report Limit Multiplication Factor:	10	1.0	1.0	1.0	1.0
Date Extracted:	11/21/94	11/21/94	11/21/94	11/21/94	11/21/94
Date Analyzed:	11/28/94	11/22/94	11/22/94	11/22/94	11/22/94
Instrument Identification:	HP-3A	HP-3A	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

Signature on File

Alan B. Kemp
Project Manager

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

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 Avedissian

Client Project ID: Unocal #5043, 449 Hegenberger Rd, Oakland
Matrix: Liquid
QC Sample Group: 4110636-40

Reported: Dec 1, 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#:	4110671	4110671	4110671	4110671	BLK112194
Date Prepared:	11/17/94	11/17/94	11/17/94	11/17/94	11/21/94
Date Analyzed:	11/17/94	11/17/94	11/17/94	11/17/94	11/21/94
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5	HP-3A
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	300 µg/L
Matrix Spike % Recovery:	100	100	100	100	79
Matrix Spike Duplicate % Recovery:	100	105	105	102	71
Relative % Difference:	0.0	4.9	4.9	2.0	11
LCS Batch#:	3LCS111794	3LCS111794	3LCS111794	3LCS111794	BLK112194
Date Prepared:	11/17/94	11/17/94	11/17/94	11/17/94	11/21/94
Date Analyzed:	11/17/94	11/17/94	11/17/94	11/17/94	11/21/94
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5	HP-3A
LCS % Recovery:	96	100	101	98	79
% Recovery Control Limits:	71-133	72-128	72-130	71-120	28-122

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.

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 Avedissian

Client Project ID: Unocal #5043, 449 Hegenberger Rd, Oakland
Matrix: Liquid
QC Sample Group: 4110636-40
Reported: Dec 1, 1994

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#:	4110736	4110736	4110736	4110736
Date Prepared:	11/21/94	11/21/94	11/21/94	11/21/94
Date Analyzed:	11/21/94	11/21/94	11/21/94	11/21/94
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:	80	90	90	93
Matrix Spike Duplicate % Recovery:	85	95	100	102
Relative % Difference:	6.1	5.4	11	9.2
LCS Batch#:	2LCS112194	2LCS112194	2LCS112194	2LCS112194
Date Prepared:	11/21/94	11/21/94	11/21/94	11/21/94
Date Analyzed:	11/21/94	11/21/94	11/21/94	11/21/94
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4
LCS % Recovery:	78	89	92	93
% Recovery Control Limits:	71-133	72-128	72-130	71-120

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.