



KAPREALIAN ENGINEERING
INCORPORATED

KEI-P90-1103.QR6
January 21, 1993

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

Attention: Mr. Edward C. Ralston

RE: Quarterly Report
Unocal Service Station #0752
800 Harrison Street
Oakland, California

Dear Mr. Ralston:

This report presents the results of the most recent quarter of monitoring and sampling of the monitoring wells at the referenced site by Kaprealian Engineering, Inc. (KEI), per KEI's proposal (KEI-P90-1103.P2) dated November 13, 1991, and as modified in KEI's quarterly report (KEI-P90-1103.QR4) dated July 27, 1992. The wells are currently monitored monthly and sampled on a quarterly basis. This report covers the work performed by KEI from November through December of 1992.

BACKGROUND

The subject site contains a Unocal service station facility. Two underground gasoline storage tanks, one waste oil tank, and the product piping were removed from the site in November and December of 1990 during tank replacement activities. The fuel tank pit, waste oil tank pit, and one pump island were subsequently overexcavated in order to remove contaminated soil. Six monitoring wells and two exploratory borings have been installed at and in the vicinity of the site.

A site description, detailed background information including a summary of all of the soil and ground water subsurface investigation/remediation work conducted to date, site hydrogeologic conditions, and tables that summarize all of the soil and ground water sample analytical results are presented in KEI's report (KEI-P90-1103.R5) dated November 17, 1992.

RECENT FIELD ACTIVITIES

The six wells (MW1 through MW6) were monitored twice and were sampled once during the quarter. During monitoring, the wells were checked for depth to water and the presence of free product. Prior to sampling, the wells were also checked for the presence of a

sheen. No free product or sheen was noted in any of the wells during the quarter. The monitoring data collected this quarter are summarized in Table 1.

Water samples were collected from the wells on December 21, 1992. Prior to sampling, the wells were each purged of between 7 and 9 gallons of water by the use of a surface pump. The samples were collected by the use of 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 and stored in a cooler, on ice, until delivery to a state-certified laboratory.

HYDROLOGY

The measured depth to ground water at the site on December 21, 1992, ranged between 19.17 and 21.17 feet below grade. The water levels in all of the wells have shown net increases ranging from 0.04 to 0.10 feet since September 15, 1992. Based on the water level data gathered during the quarter, the ground water flow direction appeared to be to the south-southwest, as shown on the attached Potentiometric Surface Maps, Figures 1 and 2. The flow direction reported this quarter is similar to the south-southwesterly flow direction reported in the previous five quarters. The average hydraulic gradient across the site on December 21, 1992, was approximately 0.008.

ANALYTICAL RESULTS

The ground water samples were analyzed at Sequoia Analytical Laboratory and were accompanied by properly executed Chain of Custody documentation. The samples were analyzed for total petroleum hydrocarbons (TPH) as gasoline by EPA method 5030/modified 8015, and benzene, toluene, xylenes, and ethylbenzene (BTX&E) by EPA method 8020. In addition, the ground water sample collected from monitoring well MW1 was analyzed for TPH as diesel by EPA method 3510/modified 8015, and for EPA method 8010 constituents.

The ground water sample analytical results are summarized in Tables 2 and 3. The concentrations of TPH as gasoline and benzene detected in the ground water samples collected this quarter are shown on the attached Figure 3. Copies of the laboratory analytical results and the Chain of Custody documentation are attached to this report.

DISCUSSION AND RECOMMENDATIONS

Based on the analytical results for the ground water samples collected and evaluated to date, and no evidence of free product or sheen in any of the wells, KEI recommends the continuation of the current ground water monitoring and sampling program, per KEI's proposal (KEI-P90-1103.P2) dated November 13, 1991, and as modified in KEI's quarterly report (KEI-P90-1103.QR4) dated July 27, 1992.

As shown on the attached Figure 3, the extent of ground water contamination has not been defined in the vicinity of the site. Therefore, KEI recommends the installation of two additional monitoring wells in order to further define the extent of ground water contamination. The locations of the existing and proposed monitoring wells are shown on the attached Figure 4. Our work plan/proposal for this work is attached for your review and consideration.

DISTRIBUTION

A copy of this report should be sent to Ms. Jennifer Eberle of the Alameda County Health Care Services Agency, and to the Regional Water Quality Control Board, San Francisco Bay Region.

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.

Our studies assume that the field and laboratory data are reasonably representative of the site as a whole, and assume that subsurface conditions are reasonably conducive to interpolation and extrapolation.

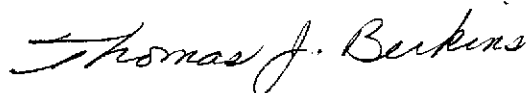
The results of this study are based on the data obtained from the field and laboratory analyses obtained from a state-certified laboratory. We have analyzed these data using what we believe to be currently applicable engineering techniques and principles in the Northern California region. We make no warranty, either expressed or implied, regarding the above, including laboratory analyses, except that our services have been performed in accordance with generally accepted professional principles and practices existing for such work.

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January 21, 1993
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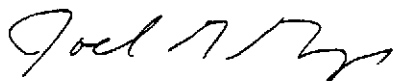
If you have any questions regarding this report, please do not hesitate to call at (510) 602-5100.

Sincerely,

Kaprealian Engineering, Inc.



Thomas J. Berkins
Senior Environmental Engineer



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

License No. 1633
Exp. Date 6/30/94



Timothy R. Ross
Project Manager

/bp

Attachments: Tables 1, 2 & 3
Location Map
Potentiometric Surface Maps - Figures 1 & 2
Concentrations of Petroleum Hydrocarbons - Figure 3
Existing and Proposed Monitoring Well Location Map -
Figure 4
Laboratory Analyses
Chain of Custody documentation
Work Plan/Proposal

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TABLE 1

SUMMARY OF GROUND WATER MONITORING AND PURGING DATA

<u>Well #</u>	<u>Ground Water Elevation (feet)</u>	<u>Depth to Water (feet)</u>	<u>Product Thickness (feet)</u>	<u>Sheen</u>	<u>Water Purged (gallons)</u>
---------------	--	--------------------------------------	---	--------------	---------------------------------------

(Monitored and Sampled on December 21, 1992)

MW1	13.77	21.17	0	No	9
MW2	14.12	20.85	0	No	7
MW3	13.37	20.02	0	No	7
MW4	13.39	19.73	0	No	9
MW5	13.50	19.75	0	No	9
MW6	13.25	19.17	0	No	9

(Monitored on November 16, 1992)

MW1	13.45	21.49	0	--	0
MW2	13.81	21.16	0	--	0
MW3	13.01	20.38	0	--	0
MW4	13.02	20.10	0	--	0
MW5	13.17	20.08	0	--	0
MW6	12.89	19.53	0	--	0

<u>Well #</u>	<u>Surface Elevation* (feet)</u>
MW1	34.94
MW2	34.97
MW3	33.39
MW4	33.12
MW5	33.25
MW6	32.42

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TABLE 1 (Continued)

SUMMARY OF GROUND WATER MONITORING AND PURGING DATA

- Sheen determination was not performed.
- * The elevations of the tops of the well covers have been surveyed relative to Mean Sea Level, per the City of Oakland Benchmark 25/A, which is located at the northeast corner of 7th Street and Harrison Street.

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TABLE 2

SUMMARY OF LABORATORY ANALYSES
WATER

<u>Date</u>	<u>Sample Number</u>	<u>TPH as Diesel</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethyl-benzene</u>
12/21/92 ✓	MW1	ND ✓	95 ✓	0.69 ✓	ND	1.0	ND
	MW2	--	960 ✓	97 ✓	3.2	96	74
	MW3	--	8,500 ✓	1,500 ✓	150	330	310
	MW4	--	220* ✓	ND ✓	ND	0.74	0.97
	MW5	--	1,700 ✓	51 ✓	4.7	34	83
	MW6	--	2,300 ✓	370 ✓	11	15	39
10/19/92	MW4	--	480	0.51	2.1	6.8	2.8
	MW5	--	2,700	61	5.0	61	100
	MW6	--	3,900	420	12	28	60
9/15/92	MW1	ND	76	1.0	ND	ND	ND
	MW2	--	1,300	91	5.7	110	80
	MW3	--	10,000	1,900	330	580	400
6/30/92	MW1	120	ND	ND	ND	ND	ND
	MW2	--	76	9.3	0.76	6.9	4.8
	MW3	--	8,900	1,900	210	550	430
4/02/92	MW1	94	ND	ND	ND	ND	ND
	MW2	--	88	12	0.32	7.2	6.3
	MW3	--	8,000	1,400	200	310	300
12/30/91	MW1	ND	ND	ND	ND	ND	ND
	MW2	--	91	16	0.89	1.9	11
	MW3	--	7,200	2,100	690	550	410
9/30/91	MW1	ND	ND	ND	ND	ND	ND
	MW2	--	130	18	0.53	9.6	14
	MW3	--	6,800	1,400	130	240	290
6/05/91	MW1	ND	47	ND	ND	ND	ND
	MW2	--	49	ND	ND	ND	ND
	MW3	--	5,800	1,200	40	97	140

ND = Non-detectable.

-- Indicates analysis was not performed.

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

Results in parts per billion (ppb), unless otherwise indicated.

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TABLE 3

SUMMARY OF LABORATORY ANALYSES
WATER

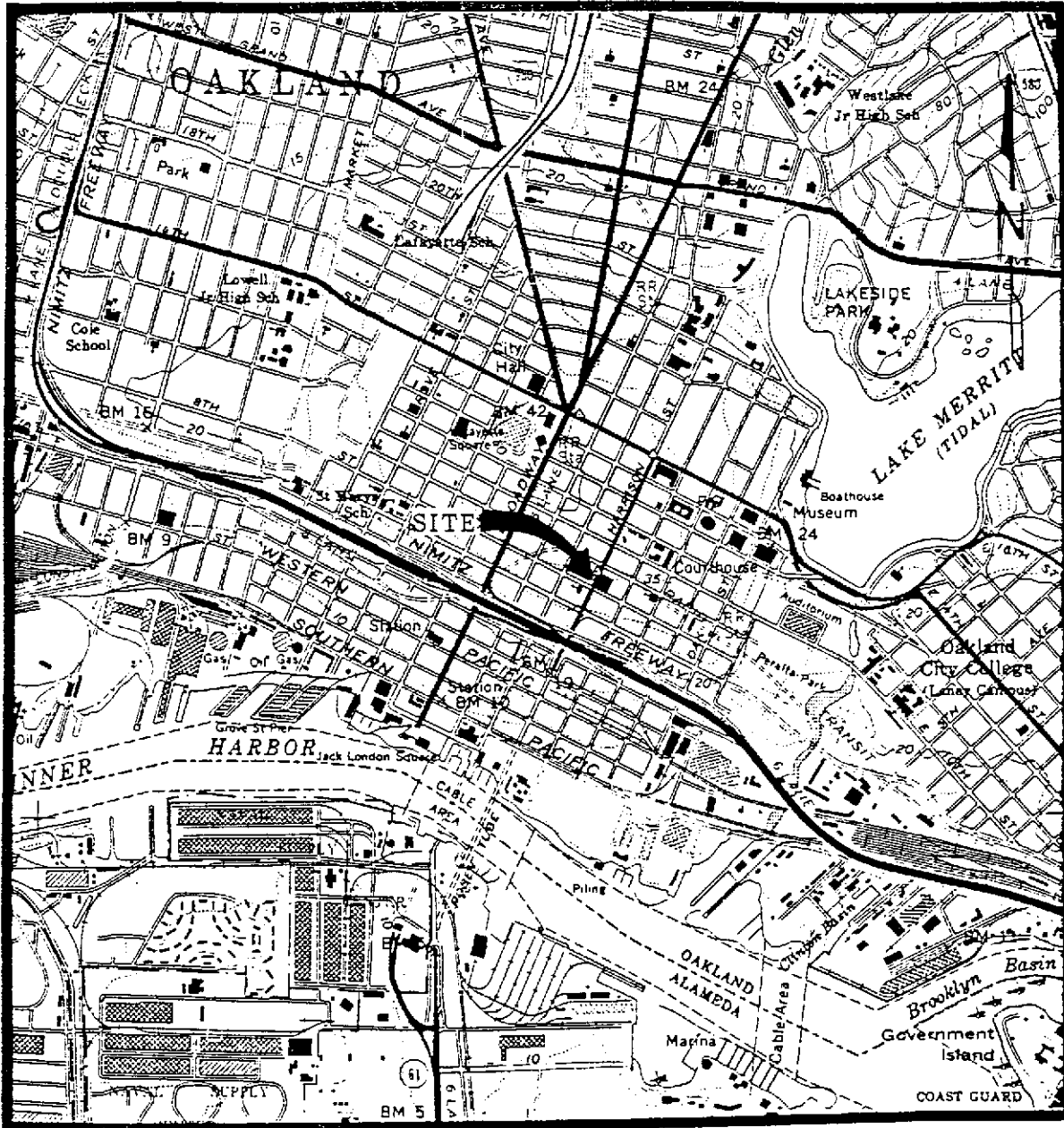
(ppb)

<u>Date</u>	<u>Sample Number</u>	<u>Chloroform</u>	<u>Tetrachloroethene</u>	<u>Trichloroethene</u>
12/21/92	MW1*	12 ✓	1.4 ✓	0.83 ✓
9/15/92	MW1*	12	2.2	1.3
6/30/92	MW1*	9.5	2.2	1.3
4/02/92	MW1*	7.1	2.6	1.4
12/30/91	MW1*	6.4	2.1	0.9
9/30/91	MW1	--	--	--
6/04/91	MW1*	7.8	2.9	1.3

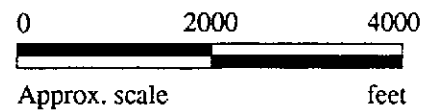
* All EPA method 8010 constituents were non-detectable, except for the above compounds.

-- Indicates analysis was not performed.

Results in parts per billion (ppb), unless otherwise indicated.



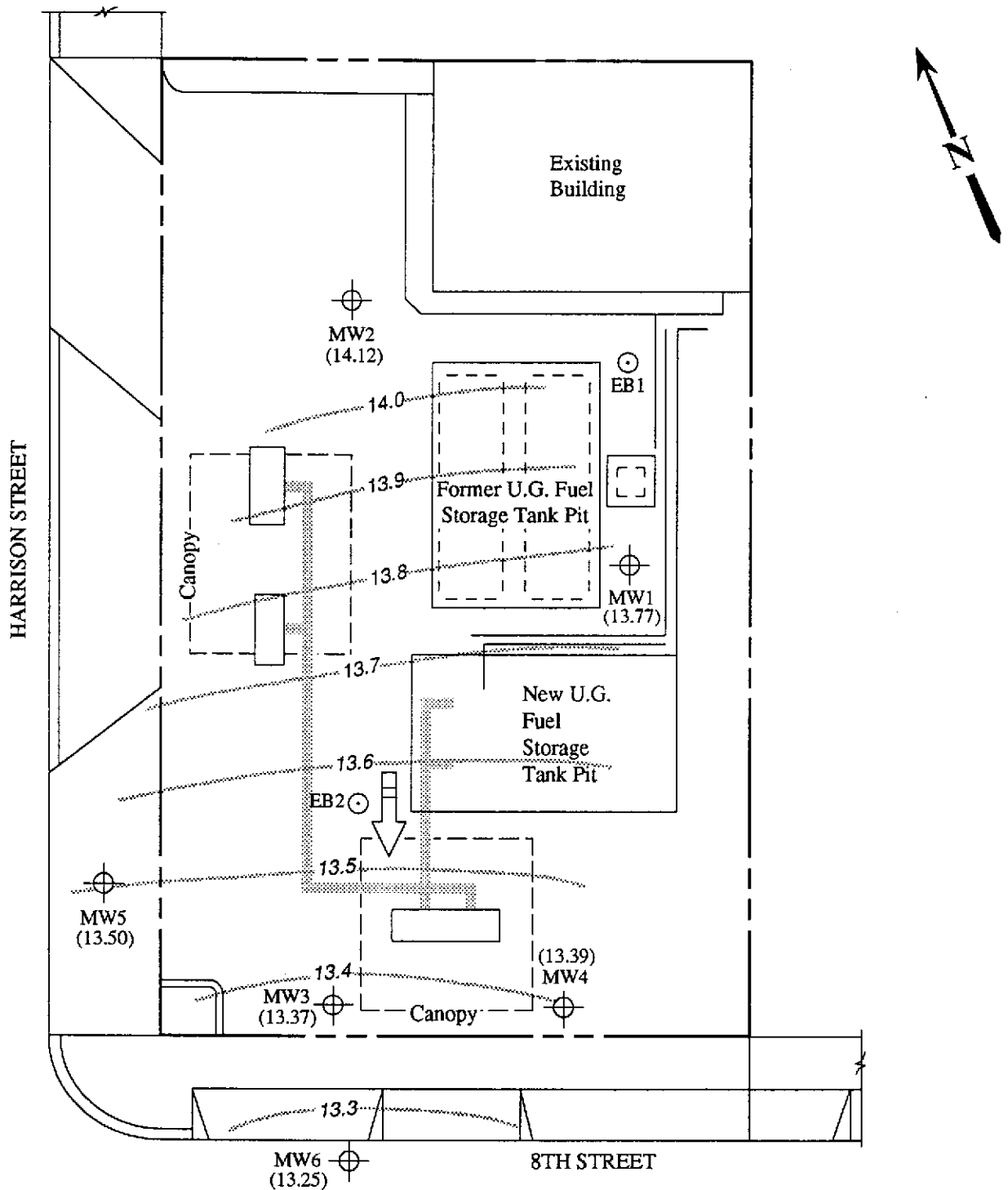
Base modified from 7.5 minute U.S.G.S. Oakland West Quadrangle
 (photorevised 1980)



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 INCORPORATED

UNOCAL SERVICE STATION #0752
800 HARRISON STREET
OAKLAND, CA

LOCATION
MAP



LEGEND

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

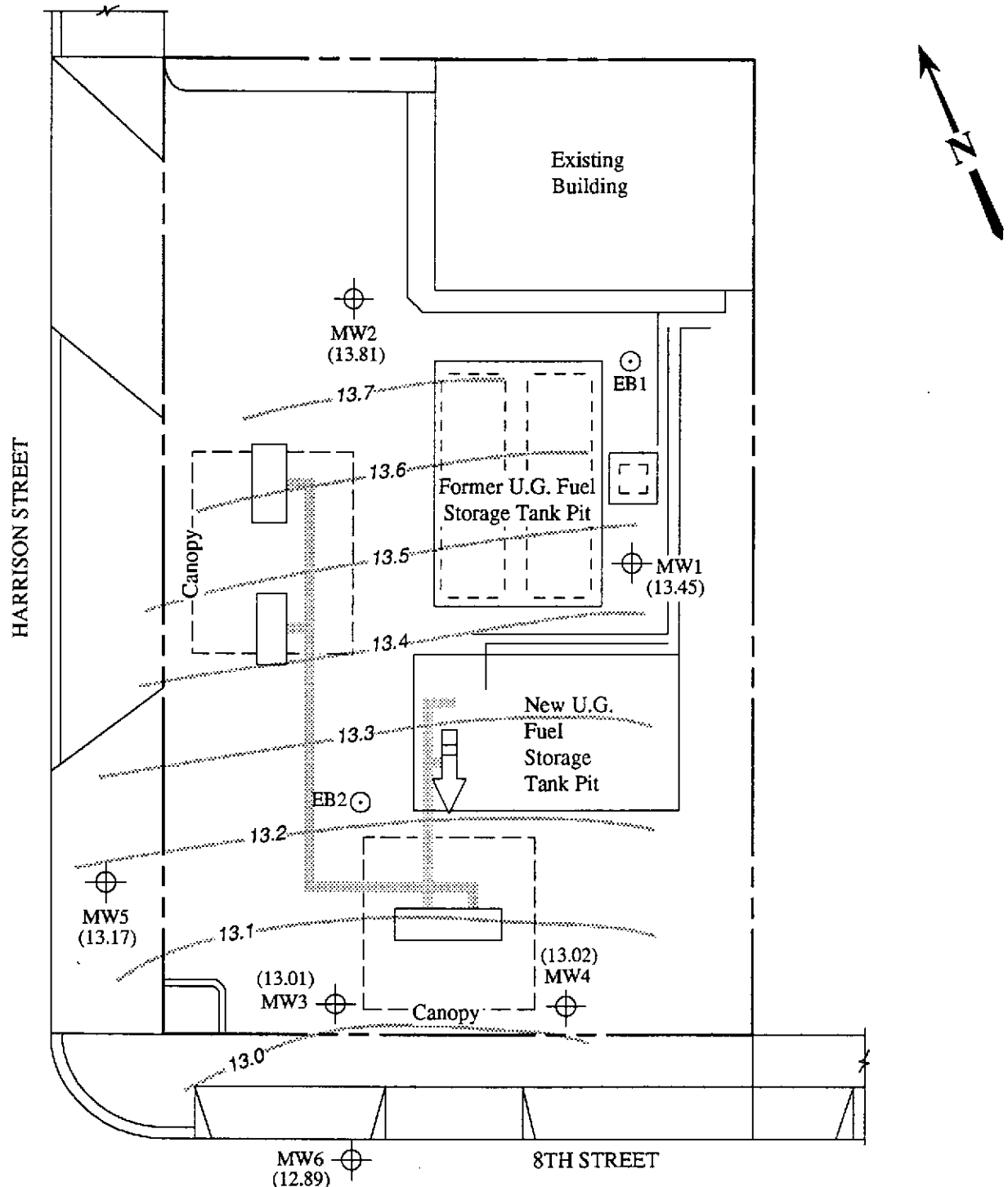


POTENTIOMETRIC SURFACE MAP FOR THE DECEMBER 21, 1992 MONITORING EVENT



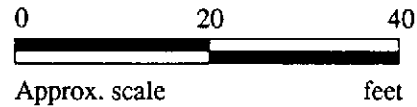
**UNOCAL SERVICE STATION #0752
800 HARRISON STREET
OAKLAND, CA**

**FIGURE
1**



LEGEND

- ⊕ Monitoring well
- ⊙ Exploratory boring
- () Ground water elevation in feet above Mean Sea Level
- ➡ Direction of ground water flow
- Contours of ground water elevation

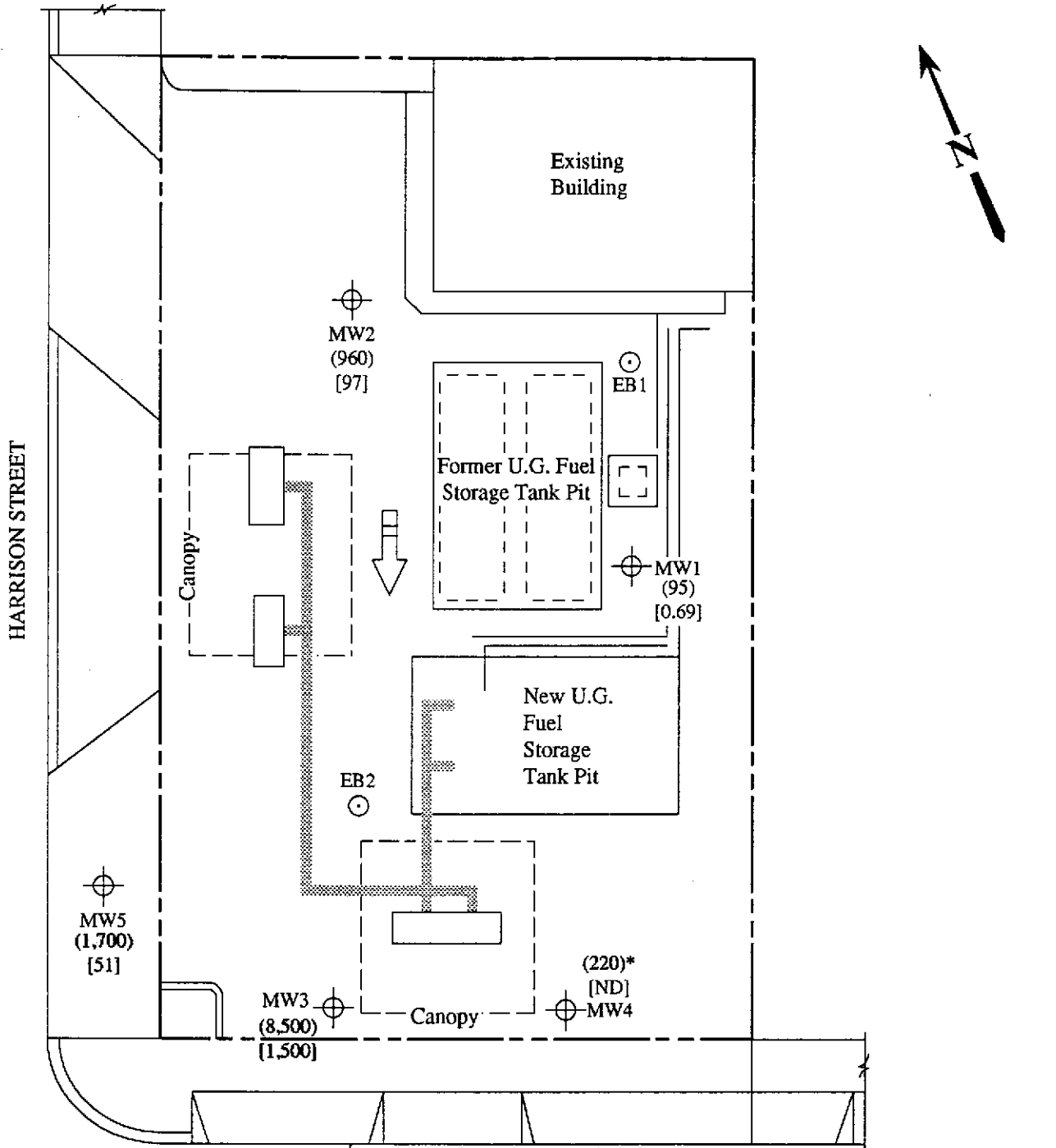


POTENTIOMETRIC SURFACE MAP FOR THE NOVEMBER 16, 1992 MONITORING EVENT



**UNOCAL SERVICE STATION #0752
800 HARRISON STREET
OAKLAND, CA**

**FIGURE
2**



LEGEND

- ⊕ Monitoring well
- ⊙ Exploratory boring
- () Concentration of TPH as gasoline in ppb
- [] Concentration of benzene in ppb
- ND = Non-detectable
- ➡ Direction of ground water flow

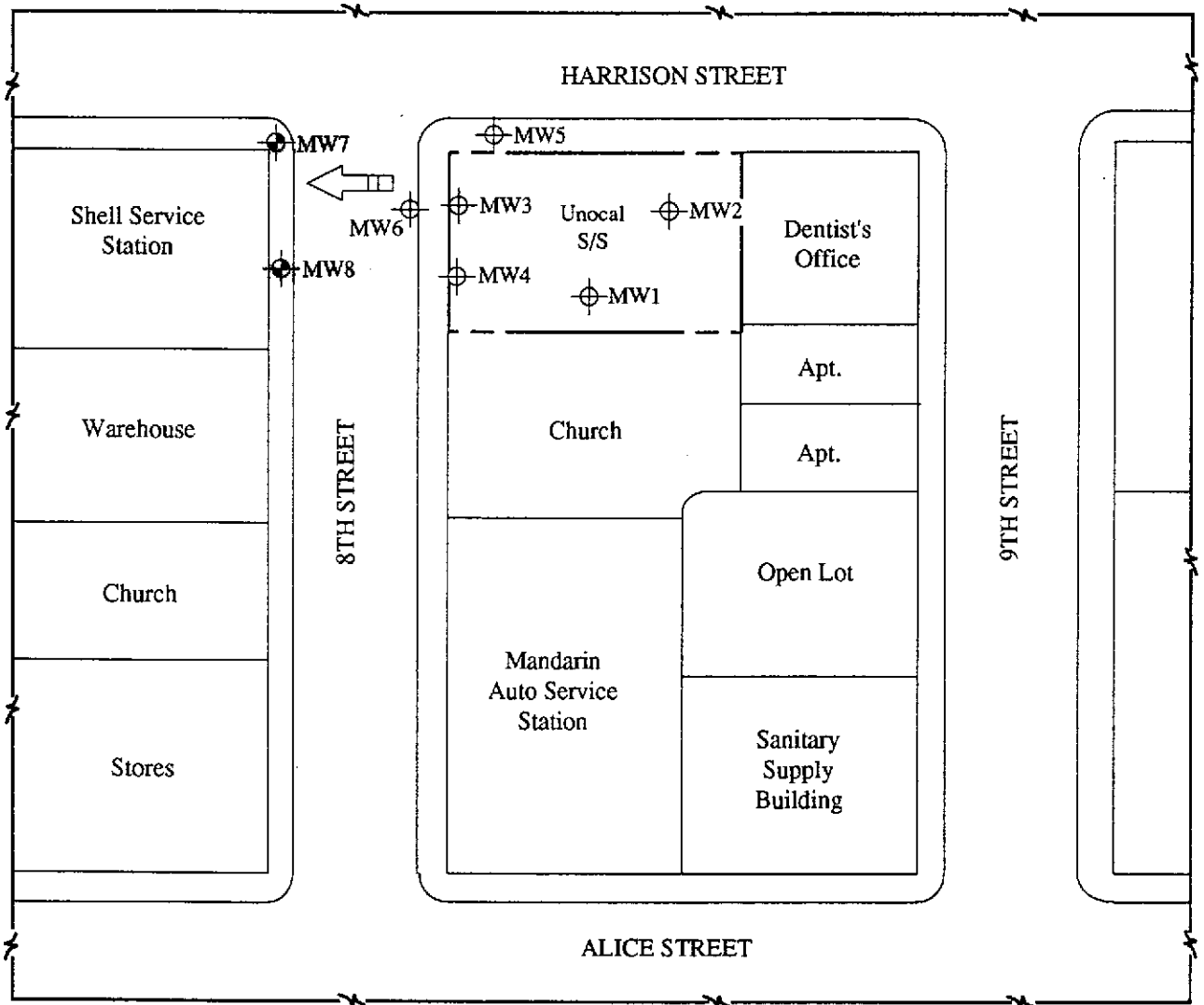
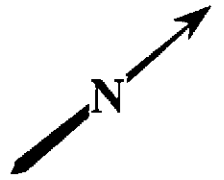
* The lab reported the hydrocarbons detected appeared to be a gasoline and non-gasoline mixture.

PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON DECEMBER 21, 1992



**UNOCAL SERVICE STATION #0752
800 HARRISON STREET
OAKLAND, CA**

**FIGURE
3**

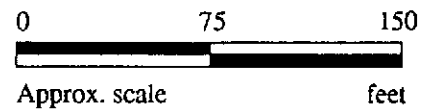


LEGEND

⊕ Monitoring well (existing)

⊙ Monitoring well (proposed)

→ Direction of ground water flow



EXISTING AND PROPOSED MONITORING WELL LOCATION MAP



**UNOCAL SERVICE STATION #0752
800 HARRISON STREET
OAKLAND, CA**

**FIGURE
4**



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1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Kaprealian Engineering, Inc. 2401 Stanwell Drive, Suite 400 Concord, CA 94520 Attention: Mardo Kaprealian, P.E.	Client Project ID: Unocal, 800 Harrison St., Oakland ✓ Sample Matrix: Water Analysis Method: EPA 5030/8015/8020 First Sample #: 212-0945	Sampled: Dec 21, 1992 ✓ Received: Dec 22, 1992 Reported: Jan 6, 1993
--	---	--

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

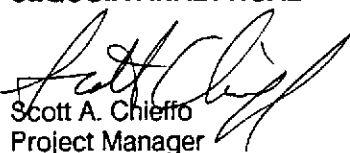
Analyte	Reporting Limit µg/L	Sample I.D. 212-0945 MW 1	Sample I.D. 212-0946 MW 2	Sample I.D. 212-0947 MW 3	Sample I.D. 212-0948 MW 4*	Sample I.D. 212-0949 MW 5	Sample I.D. 212-0950 MW 6
Purgeable Hydrocarbons	50	95 ✓	960 ✓	8,500 ✓	220 ✓	1,700 ✓	2,300 ✓
Benzene	0.5	0.69 ✓	97 ✓	1,500 ✓	N.D. ✓	51 ✓	370 ✓
Toluene	0.5	N.D.	3.2	150	N.D.	4.7	11
Ethyl Benzene	0.5	N.D.	74	310	0.97	83	39
Total Xylenes	0.5	1.0	96	330	0.74	34	15
Chromatogram Pattern:		Gasoline	Gasoline	Gasoline	Gasoline and Discrete Peak	Gasoline	Gasoline

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	50	1.0	5.0	5.0
Date Analyzed:	12/30/92	12/29/92	12/29/92	12/29/92	12/29/92	12/29/92
Instrument Identification:	HP-2	HP-4	HP-4	HP-4	HP-2	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	102	93	101	100	125	106

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

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Scott A. Chieffo
Project Manager

Please Note:

* In the above sample, Purgeable Hydrocarbons are partially due to an unidentified peak in the MTBE range.



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Kapreallian Engineering, Inc. 2401 Stanwell Drive, Suite 400 Concord, CA 94520 Attention: Mardo Kapreallian, P.E.	Client Project ID: Unocal, 800 Harrison St., Oakland Sample Matrix: Water Analysis Method: EPA 5030/8015/8020 First Sample #: Matrix Blank	Sampled: Dec 21, 1992 Received: Dec 22, 1992 Reported: Jan 6, 1993
--	---	--

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit $\mu\text{g/L}$	Sample I.D. Matrix Blank
Purgeable Hydrocarbons	50	
Benzene	0.5	
Toluene	0.5	
Ethyl Benzene	0.5	
Total Xylenes	0.5	

Chromatogram Pattern:

Quality Control Data

Report Limit Multiplication Factor:	1.0
Date Analyzed:	12/29/92
Instrument Identification:	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	104

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

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Scott A. Chieffo
Project Manager

2120945.KEI <2>



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1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Kaprealian Engineering, Inc. 2401 Stanwell Drive, Suite 400 Concord, CA 94520 Attention: Mardo Kaprealian, P.E.	Client Project ID: Unocal, 800 Harrison St., Oakland Sample Matrix: Water Analysis Method: EPA 3510/3520/8015 First Sample #: 212-0945	Sampled: Dec 21, 1992 Received: Dec 22, 1992 Reported: Jan 6, 1993
--	---	--

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 212-0945 MW 1	Sample I.D. Matrix Blank
Extractable Hydrocarbons	50	N.D. ✓	

Chromatogram Pattern: --

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0
Date Extracted:	12/28/92	12/28/92
Date Analyzed:	1/4/93	1/4/93
Instrument Identification:	HP-3B	HP-3B

Extractable Hydrocarbons are quantitated against a fresh diesel standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

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Scott A. Chieffo
Project Manager

2120945.KEI <3>



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1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Kaprealian Engineering, Inc. 2401 Stanwell Drive, Suite 400 Concord, CA 94520 Attention: Mardo Kaprealian, P.E.	Client Project ID: Unocal, 800 Harrison St., Oakland Sample Descript: Water, MW 1 Analysis Method: EPA 5030/8010 Lab Number: 212-0945	Sampled: Dec 21, 1992 Received: Dec 22, 1992 Analyzed: Dec 30, 1992 Reported: Jan 6, 1993
--	--	--

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	12 ✓
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	1.4 ✓
1,1,1-Trichloroethane.....	0.50	N.D.
1,1,2-Trichloroethane.....	0.50	N.D.
Trichloroethene.....	0.50	0.83 ✓
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.

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Scott A. Chieffo
 Scott A. Chieffo
 Project Manager



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Kaprealian Engineering, Inc.
2401 Stanwell Drive, Suite 400
Concord, CA 94520

Client Project ID: Unocal, 800 Harrison St., Oakland

Attention: Mardo Kaprealian, P.E. QC Sample Group: 2120945-950

Reported: Jan 6, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes	Diesel
Method:	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020	EPA8015
Analyst:	A.T.	A.T.	A.T.	A.T.	K.Wimer
Reporting Units:	µg/L	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Dec 29, 1992	Dec 29, 1992	Dec 29, 1992	Dec 29, 1992	Jan 4, 1993
QC Sample #:	212-0924	212-0924	212-0924	212-0924	Matrix Blank
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	20	20	20	60	300
Conc. Matrix Spike:	22	21	22	68	291
Matrix Spike % Recovery:	110	105	110	113	97
Conc. Matrix Spike Dup.:	21	21	21	68	289
Matrix Spike Duplicate % Recovery:	105	105	105	113	96
Relative % Difference:	4.6	0.0	4.6	0.0	0.70

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met. Laboratory Blank contained the following analytes: None detected.

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Scott A. Chieffo
Project Manager

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



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Kaprealian Engineering, Inc.
2401 Stanwell Drive, Suite 400
Concord, CA 94520

Client Project ID: Unocal, 800 Harrison St., Oakland

Attention: Mardo Kaprealian, P.E. QC Sample Group: 2120945-950

Reported: Jan 6, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	1,1-Dichloroethene	Trichloro-ethene	Chloro-benzene
---------	--------------------	------------------	----------------

Method:	EPA 8010	EPA 8010	EPA 8010
Analyst:	K. Nill	K. Nill	K. Nill
Reporting Units:	µg/L	µg/L	µg/L
Date Analyzed:	Dec 30, 1992	Dec 30, 1992	Dec 30, 1992
QC Sample #:	212-1091	212-1091	212-1091

Sample Conc.: N.D. N.D. N.D.

Spike Conc. Added: 10 10 10

Conc. Matrix Spike: 8.9 10 10

Matrix Spike % Recovery: 89 100 100

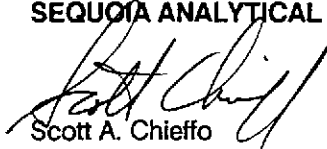
Conc. Matrix Spike Dup.: 9.2 10 11

Matrix Spike Duplicate % Recovery: 92 100 110

Relative % Difference: 3.3 0.0 9.5

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met. Laboratory Blank contained the following analytes: None detected.

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Scott A. Chieffo
Project Manager

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

2120945.KEI <6>



SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Kaprealian Engineering, Inc.
P.O. Box 996
Benicia, CA 94510

Client Project ID: Unocal, 800 Harrison St., Oakland

Attention: Mardo Kaprealian, P.E. QC Sample Group: 2120945-950

Reported: Jan 6, 1993

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA 8015	EPA 8015
Analyst:	K. Wimer	K. Wimer
Reporting Units:	µg/L	µg/L
Date Analyzed:	Jan 4, 1993	Jan 4, 1993
Sample #:	212-0945	Matrix Blank

Surrogate		
% Recovery:	113	114

SEQUOIA ANALYTICAL

Scott A. Chieffo
Scott A. Chieffo
Project Manager

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



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Client Project ID: Unocal, 800 Harrison St., Oakland

Attention: Mardo Kaprealian, P.E. QC Sample Group: 2120945-950

Reported: Jan 6, 1993

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA 8010	EPA 8010
Analyst:	K.Nill	K.Nill
Reporting Units:	µg/L	µg/L
Date Analyzed:	Dec 30, 1992	Dec 30, 1992
Sample #:	212-0945	Matrix Blank

Surrogate #1

% Recovery:	113	117
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Surrogate #2

% Recovery:	101	110
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SEQUOIA ANALYTICAL

Scott A. Chieffo
Scott A. Chieffo
Project Manager

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



KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER <i>Vartkes</i>		SITE NAME & ADDRESS <i>Unocal / Oakland</i>				ANALYSES REQUESTED				TURN AROUND TIME: <i>Regular</i>
WITNESSING AGENCY		<i>800 Harrison st.</i>				TPHG+BTXE TPHD BOIO				REMARKS <i>2120945AE</i> <i>946AB</i> <i>947AB</i> <i>948AB</i> <i>949AB</i> <i>950AB</i>
SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	CONT.	NO. OF	SAMPLING LOCATION	
<i>MW 1</i>	<i>12/19/92</i>	<i>2:30 pm.</i>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<i>5</i>	<i>Monitoring well</i>	
<i>MW 2</i>	<i>"</i>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<i>2</i>	<i>" "</i>	
<i>MW 3</i>	<i>"</i>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<i>2</i>	<i>" "</i>	
<i>MW 4</i>	<i>"</i>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<i>2</i>	<i>" "</i>	
<i>MW 5</i>	<i>"</i>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<i>2</i>	<i>" "</i>	
<i>MW 6</i>	<i>"</i>	<i>5:05 pm.</i>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<i>2</i>	<i>" "</i>	
Relinquished by: (Signature) <i>W. Paulson</i>		Date/Time <i>12/22/92 8:20</i>		Received by: (Signature) <i>Sophia Fatiga</i>		Date <i>12-22-92</i>		The following MUST BE completed by the laboratory accepting samples for analysis: 1. Have all samples received for analysis been stored in ice? <u>YES</u> 2. Will samples remain refrigerated until analyzed? <u>YES</u> 3. Did any samples received for analysis have head space? <u>NONE</u> 4. Were samples in appropriate containers and properly packaged? <u>YES</u>		
Relinquished by: (Signature) <i>Sophia Fatiga</i>		Date/Time <i>12-22-92 3:00</i>		Received by: (Signature) <i>[Signature]</i>		Date <i>12-22-92</i>				
Relinquished by: (Signature) <i>[Signature]</i>		Date/Time <i>12-22-92 14:15</i>		Received by: (Signature) <i>[Signature]</i>		Date <i>12-22-92</i>				
Relinquished by: (Signature)		Date/Time		Received by: (Signature)		Date				
				<i>Sophia Fatiga</i>		<i>LOG-IN</i>		<i>12-22-92</i>		
				Signature		Title		Date		