KAPREALIAN ENGINEERING
INCORPORATED

February 1, 1993

Alameda County Health Care Services
80 Swan Way, Room 200
Oakland, CA 94621

RE: Former Unocal Service Station #5847
2701 East Avenue
Hayward, California

Gentlemen:

Per the request of Ms. Penny Silzer of Unocal Corporation, enclosed please find our report dated November 5, 1992, for the above referenced site.

If you should have any questions, please feel free to call our office at (510) 602-5100.

Sincerely,

Kaprealian Engineering, Inc.

Judy A. Dewey

jad\82

Enclosure

cc: Penny Silzer, Unocal Corporation

2401 Stanwell Drive, Suite 400
Concord, California 94520
Tel: 510.602.5100 Fax: 510.687.0602

KAPREALIAN ENGINEERING
INCORPORATED

KEI-P91-1101.QR2
November 5, 1992

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

Attention: Ms. Penny Silzer

RE: Quarterly Report
Former Unocal Service Station #5847
2701 East Avenue
Hayward, California

Dear Ms. Silzer:

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-P91-1101.P1) dated December 6, 1991. The wells are currently monitored monthly and sampled on a quarterly basis. This report covers the work performed by KEI from August through October of 1992.

BACKGROUND

The subject site formerly contained a Unocal service station facility. The site is currently vacant and all improvements have been demolished. Two underground gasoline storage tanks and one waste oil tank were removed from the site in September of 1985 during demolition activities. Nine monitoring wells and ten exploratory borings have been installed at 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-P91-1101.R1) dated April 15, 1992.

RECENT FIELD ACTIVITIES

The nine wells (MW1B, MW2B, and MW3 through MW9) were monitored three times 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.

2401 Stanwell Drive, Suite 400
Concord, California 94520
Tel: 510.602.5100 Fax: 510.687.0602

Water samples were collected from the wells on October 15, 1992. Prior to sampling, the wells were each purged of between 9 and 12 gallons of water by the use of a surface pump. 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 October 15, 1992, ranged between 20.74 and 26.45 feet below grade. The water levels in all of the wells have shown net decreases ranging from 1.30 to 1.42 feet since July 15, 1992. Based on the water level data gathered during the quarter, the ground water flow direction appeared to be to the northwest, as shown on the attached Potentiometric Surface Maps, Figures 1, 2, and 3. The flow direction reported this quarter is relatively similar to the north-northwesterly flow direction reported in the previous quarter. The average hydraulic gradient across the site on October 15, 1992, was approximately 0.06.

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 samples collected from monitoring wells MW2B and MW8 were analyzed for TPH as diesel by EPA method 3510/modified 8015, total oil and grease (TOG) by Standard Methods 5520B&F, and for EPA method 8010 constituents.

The ground water samples collected from all nine monitoring wells showed non-detectable concentrations of TPH as gasoline and BTX&E. In addition, the ground water samples collected from wells MW2B and MW8 showed non-detectable concentrations of TPH as diesel, TOG, and all EPA method 8010 constituents. The ground water sample analytical results are summarized in Table 2. Copies of the laboratory analytical results and 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 for one additional quarter, per KEI's proposal (KEI-P91-1101.P1) dated December 6, 1991. Recommendations for altering or terminating the program will be made based upon the analytical results collected from the next quarter of monitoring and sampling.

DISTRIBUTION

A copy of this report should be sent to 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.

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

Sincerely,

Kaprealian Engineering, Inc.

Thomas J. Berkins
Senior Environmental Engineer

Jae Yang, P.E.

License No. 25337
Exp. Date 12/31/93

Timothy R. Ross
Project Manager

/bp

Attachments: Tables 1 & 2
Location Map
Potentiometric Surface Maps - Figures 1, 2 & 3
Laboratory Analyses
Chain of Custody documentation

KEI-P91-1101.QR2
November 5, 1992

TABLE 1

SUMMARY OF GROUND WATER MONITORING AND PURGING DATA

Well #	Ground Water Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Sheen	Water Purged (gallons)
(Monitored and Sampled on October 15, 1992)					
MW1B	423.51	22.29	0	No	9
MW2B	423.70	24.91	0	No	10
MW3	423.47	23.53	0	No	9
MW4	423.52	23.50	0	No	9
MW5	426.09	20.74	0	No	10
MW6	424.21	26.45	0	No	10
MW7	426.66	21.08	0	No	10
MW8	425.85	25.86	0	No	10
MW9	428.04	22.94	0	No	12
(Monitored on September 15, 1992)					
MW1B	424.13	21.67	0	--	0
MW2B	424.24	24.37	0	--	0
MW3	424.05	22.95	0	--	0
MW4	424.15	22.87	0	--	0
MW5	426.13	20.70	0	--	0
MW6	424.53	26.13	0	--	0
MW7	426.63	21.11	0	--	0
MW8	426.24	25.47	0	--	0
MW9	428.29	22.69	0	--	0
(Monitored on August 14, 1992)					
MW1B	424.50	21.30	0	--	0
MW2B	424.57	24.04	0	--	0
MW3	424.42	22.58	0	--	0
MW4	424.52	22.50	0	--	0
MW5	426.75	20.08	0	--	0
MW6	424.98	25.68	0	--	0
MW7	427.28	20.46	0	--	0
MW8	426.67	25.04	0	--	0
MW9	428.78	22.20	0	--	0

TABLE 1 (Continued)

SUMMARY OF GROUND WATER MONITORING AND PURGING DATA

Well	Well Cover Elevation* (feet)
MW1B	445.80
MW2B	448.61
MW3	447.00
MW4	447.02
MW5	446.83
MW6	450.66
MW7	447.74
MW8	451.71
MW9	450.98

-- Sheen determination was not performed.

* The elevations of the tops of the well covers have been surveyed relative to Mean Sea Level, per the County of Alameda Benchmark "HAN-E 1980."

KEI-P91-1101.QR2
November 5, 1992

TABLE 2

SUMMARY OF LABORATORY ANALYSES
WATER

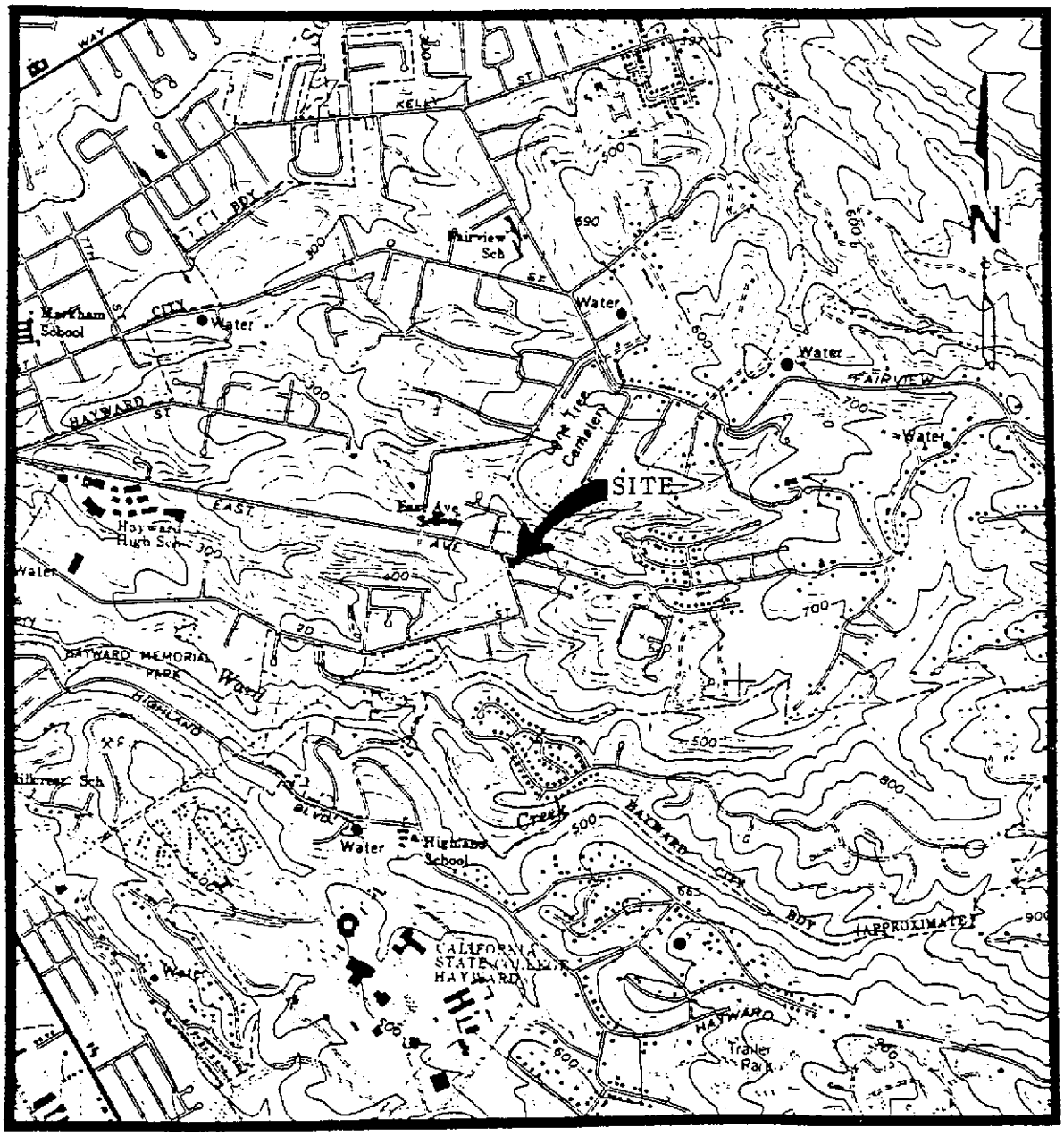
Date	Sample Number	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene
10/15/92	MW1B	--	ND	ND	ND	ND	ND
	MW2B*	ND	ND	ND	ND	ND	ND
	MW3	--	ND	ND	ND	ND	ND
	MW4	--	ND	ND	ND	ND	ND
	MW5	--	ND	ND	ND	ND	ND
	MW6	--	ND	ND	ND	ND	ND
	MW7	--	ND	ND	ND	ND	ND
	MW8*	ND	ND	ND	ND	ND	ND
	MW9	--	ND	ND	ND	ND	ND
7/15/92	MW1B	--	ND	ND	ND	ND	ND
	MW2B*	ND	ND	ND	ND	ND	ND
	MW3	--	ND	ND	ND	ND	ND
	MW4	--	ND	ND	ND	ND	ND
	MW5	--	ND	ND	ND	ND	ND
	MW6	--	ND	ND	ND	ND	ND
	MW7	--	ND	ND	ND	ND	ND
	MW8*	ND	ND	ND	ND	ND	ND
	MW9	--	ND	ND	ND	ND	ND
3/14/92	MW1B	--	240	ND	ND	4.4	20
	MW2B*	ND	ND	ND	ND	ND	ND
	MW3	--	ND	ND	ND	ND	ND
	MW4	--	ND	ND	ND	ND	ND
	MW5	--	ND	ND	ND	ND	ND
	MW6	--	ND	ND	ND	ND	ND
	MW7	--	ND	ND	ND	ND	ND
	MW8*	ND	ND	ND	ND	ND	ND
	MW9	--	ND	ND	ND	ND	ND

* TOG and all EPA method 8010 constituents were non-detectable.

ND = Non-detectable.

-- Indicates analysis was not performed.

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

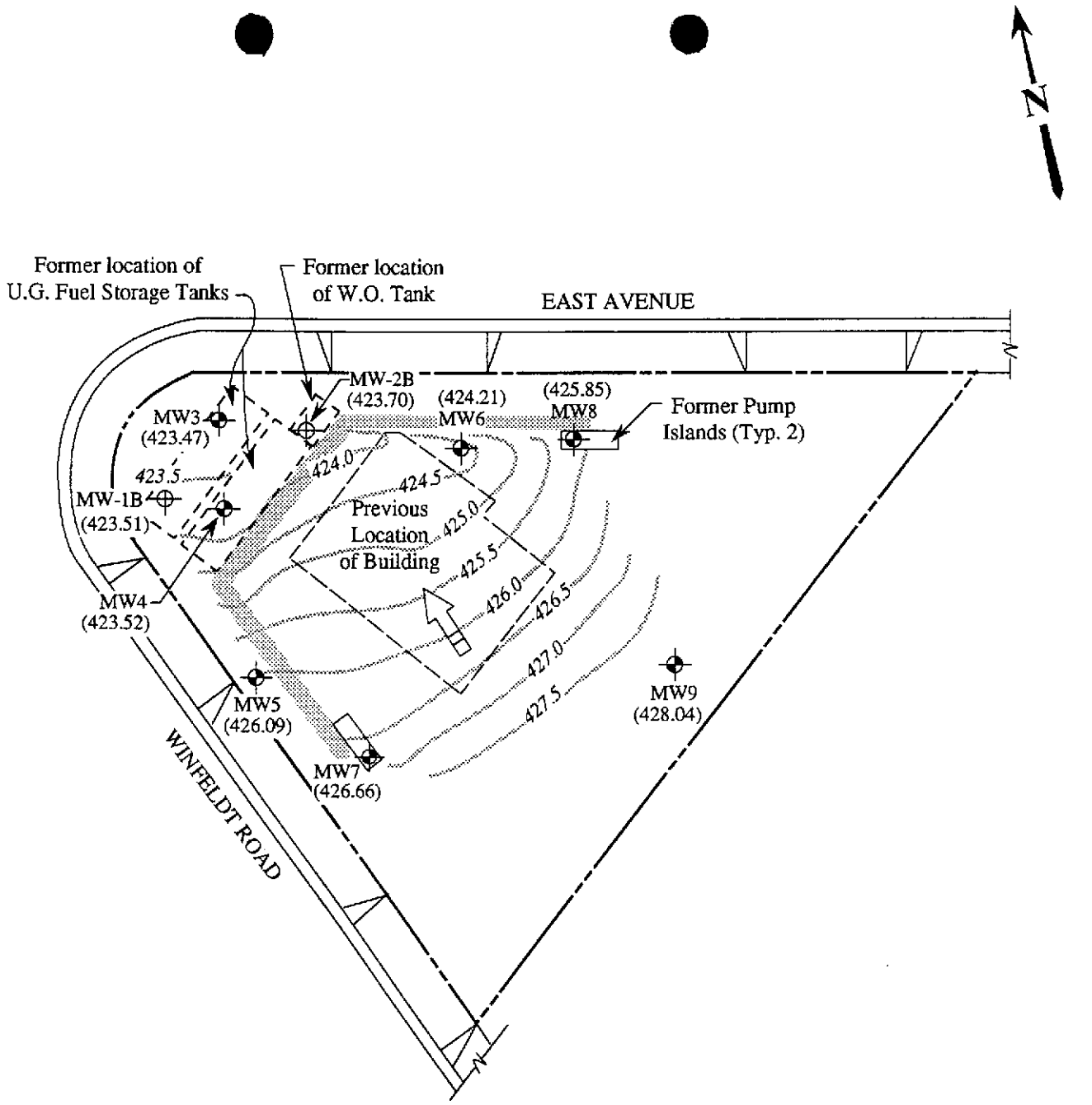


Base modified from 7.5 minute U.S.G.S. Hayward Quadrangle
(photorevised 1980)

0 2000 4000

Approx. scale feet

KAPREALIAN ENGINEERING INCORPORATED	FORMER UNOCAL S/S #5847 2701 EAST AVENUE HAYWARD, CA	LOCATION MAP



LEGEND

- Monitoring well (by KEI)
- Monitoring well (by AGS, 1986)
- ( ) Ground water elevation in feet above Mean Sea Level
- Direction of ground water flow
- Contours of ground water elevation

0 30 60

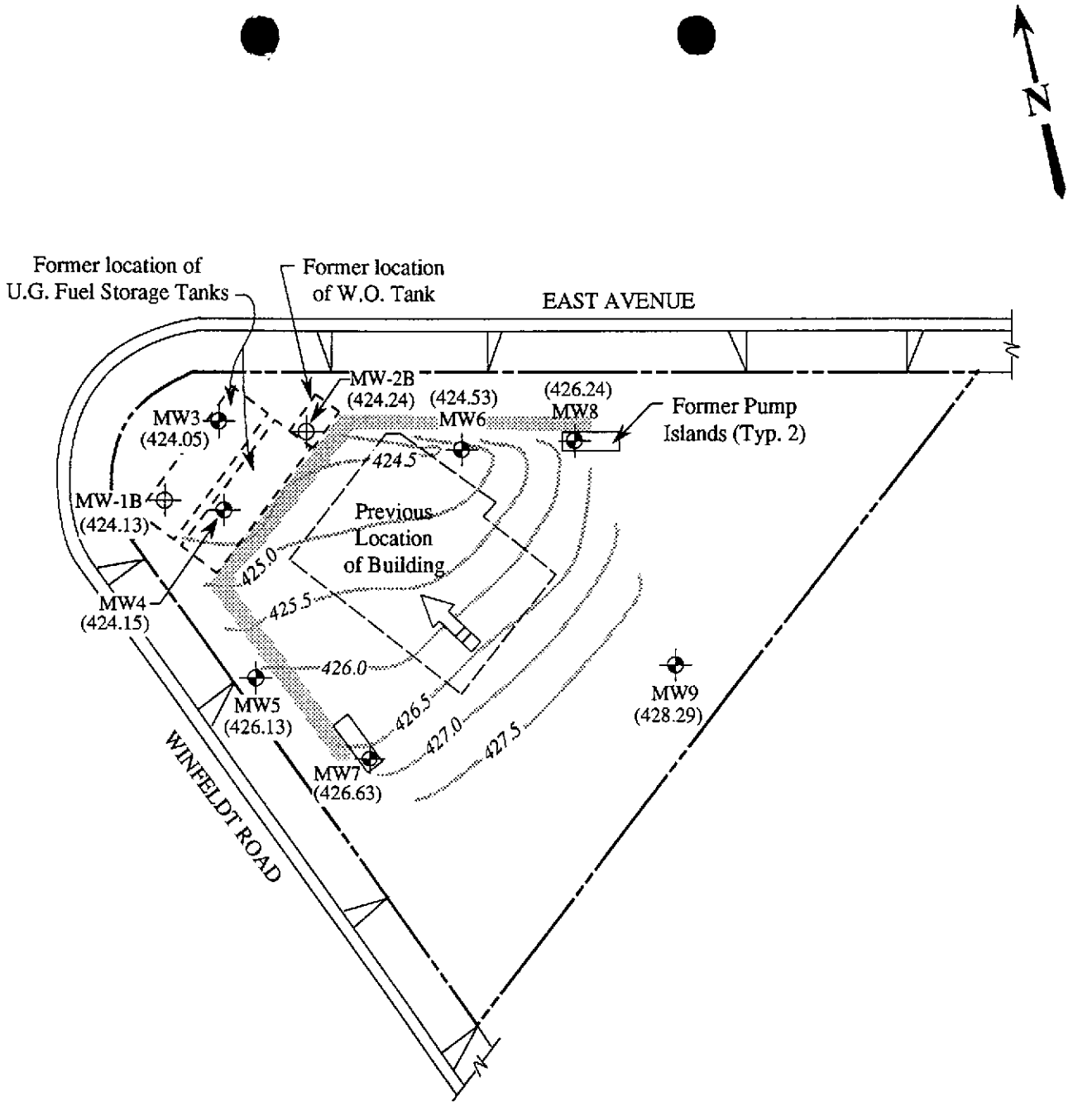
Approx. scale feet

POTENTIOMETRIC SURFACE MAP FOR THE OCTOBER 15, 1992 MONITORING EVENT

KAPREALIAN ENGINEERING
INCORPORATED

UNOCAL SERVICE STATION # 5847
2701 EAST AVENUE
HAYWARD, CA

FIGURE
1



LEGEND

- Monitoring well (by KEI)
- Monitoring well (by AGS, 1986)
- ( ) Ground water elevation in feet above Mean Sea Level
- Direction of ground water flow
- Contours of ground water elevation

0 30 60

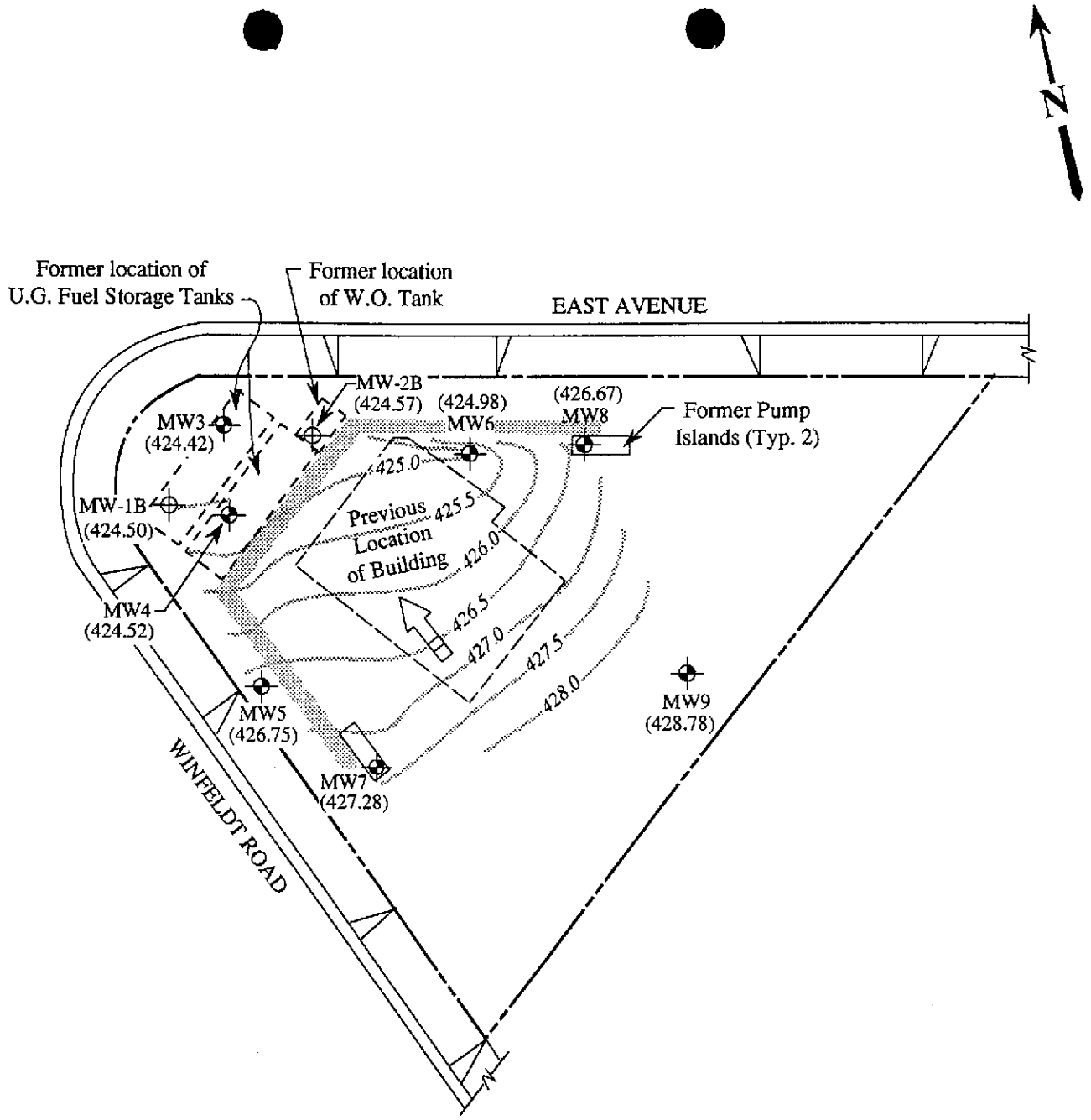
Approx. scale feet

POTENTIOMETRIC SURFACE MAP FOR THE SEPTEMBER 15, 1992 MONITORING EVENT

KAPREALIAN ENGINEERING
INCORPORATED

UNOCAL SERVICE STATION # 5847
2701 EAST AVENUE
HAYWARD, CA

FIGURE
2



LEGEND

- Monitoring well (by KEI)
- Monitoring well (by AGS, 1986)
- ( ) Ground water elevation in feet above Mean Sea Level
- Direction of ground water flow
- Contours of ground water elevation

0 30 60

Approx. scale feet

POTENTIOMETRIC SURFACE MAP FOR THE AUGUST 14, 1992 MONITORING EVENT

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INCORPORATED

UNOCAL SERVICE STATION # 5847
2701 EAST AVENUE
HAYWARD, CA

FIGURE
3

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 2701 E. Avenue, Hayward	Sampled:	Oct 15, 1992
2401 Stanwell Drive, Suite 400	Sample Matrix:	Water	Received:	Oct 15, 1992
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported:	Oct 29, 1992
Attention: Mardo Kaprealian, P.E.	First Sample #:	210-0505		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 210-0505 MW-1B	Sample I.D. 210-0506 MW-2B	Sample I.D. 210-0507 MW-3	Sample I.D. 210-0508 MW-4	Sample I.D. 210-0509 MW-5	Sample I.D. 210-0510 MW-6
Purgeable Hydrocarbons	50	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Benzene	0.5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Toluene	0.5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Total Xylenes	0.5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Chromatogram Pattern:		--	--	--	--	--	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Analyzed:	10/19/92	10/19/92	10/19/92	10/19/92	10/19/92	10/19/92
Instrument Identification:	HP-4	HP-4	HP-4	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	100	100	102	102	101	102

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

SEQUOIA ANALYTICAL

Scott A. Chieffo
Project Manager

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 2701 E. Avenue, Hayward	Sampled: Oct 15, 1992
2401 Stanwell Drive, Suite 400	Sample Matrix:	Water	Received: Oct 15, 1992
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported: Oct 29, 1992
Attention: Mardo Kaprealian, P.E.	First Sample #:	210-0511	

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 210-0511 MW-7	Sample I.D. 210-0512 MW-8	Sample I.D. 210-0513 MW-9	Sample I.D. Matrix Blank
Purgeable Hydrocarbons	50	N.D.	N.D.	N.D.	
Benzene	0.5	N.D.	N.D.	N.D.	
Toluene	0.5	N.D.	N.D.	N.D.	
Ethyl Benzene	0.5	N.D.	N.D.	N.D.	
Total Xylenes	0.5	N.D.	N.D.	N.D.	
Chromatogram Pattern:		--	--	--	

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0
Date Analyzed:	10/19/92	10/19/92	10/19/92	10/19/92
Instrument Identification:	HP-4	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	100	100	100	101

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

SEQUOIA ANALYTICAL

Scott A. Chieffo
Project Manager

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 2701 E. Avenue, Hayward	Sampled:	Oct 15, 1992
2401 Stanwell Drive, Suite 400	Sample Matrix:	Water	Received:	Oct 15, 1992
Concord, CA 94520	Analysis Method:	EPA 3510/3520/8015	Reported:	Oct 29, 1992
Attention: Mardo Kaprealian, P.E.	First Sample #:	210-0506		

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 210-0506 MW-2B	Sample I.D. 210-0512 MW-8	Sample I.D. Matrix Blank
Extractable Hydrocarbons	50	N.D.	N.D.	
Chromatogram Pattern:		--	--	

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0
Date Extracted:	10/20/92	10/20/92	10/20/92
Date Analyzed:	10/22/92	10/22/92	10/22/92
Instrument Identification:	HP-3B	HP-3B	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

Scott A. Chieffo
Project Manager

SEQUOIA ANALYTICAL

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 2701 E. Avenue, Hayward	Sampled:	Oct 15, 1992
2401 Stanwell Drive, Suite 400	Matrix Descript:	Water	Received:	Oct 15, 1992
Concord, CA 94520	Analysis Method:	SM 5520 B&F (Gravimetric)	Extracted:	Oct 16, 1992
Attention: Mardo Kaprealian, P.E.	First Sample #:	210-0506	Analyzed:	Oct 22, 1992
			Reported:	Oct 29, 1992

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/L (ppm)
210-0506	MW-2B	N.D.
210-0512	MW-8	N.D.

Detection Limits:	**5.0**

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

SEQUOIA ANALYTICAL

Scott A. Chieffo
Project Manager

2100505.KEI <4>

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 2701 E. Avenue, Hayward	Sampled:	Oct 15, 1992
2401 Stanwell Drive, Suite 400	Sample Descript:	Water, MW-2B	Received:	Oct 15, 1992
Concord, CA 94520	Analysis Method:	EPA 5030/8010	Analyzed:	Oct 19, 1992
Attention: Mardo Kaprealian, P.E.	Lab Number:	210-0506	Reported:	Oct 29, 1992

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

Scott A. Chieffo
Project Manager

SEQUOIA ANALYTICAL

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 2701 E. Avenue, Hayward	Sampled:	Oct 15, 1992
2401 Stanwell Drive, Suite 400	Sample Descript:	Water, MW-8	Received:	Oct 15, 1992
Concord, CA 94520	Analysis Method:	EPA 5030/8010	Analyzed:	Oct 19, 1992
Attention: Mardo Kaprealian, P.E.	Lab Number:	210-0512	Reported:	Oct 29, 1992

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

Scott A. Chieffo
Project Manager

SEQUOIA ANALYTICAL
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, 2701 E. Avenue, Hayward
QC Sample Group: 2100505-513
Reported: Oct 29, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes	Diesel	Oil and Grease
Method:	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020	EPA 8015	SM 5520
Analyst:	A.P.	A.P.	A.P.	A.P.	K.Wimer	D. Newcomb
Reporting Units:	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L
Date Analyzed:	Oct 19, 1992	Oct 19, 1992	Oct 19, 1992	Oct 19, 1992	Oct 22, 1992	Oct 16, 1992
QC Sample #:	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	20	20	20	60	300	100
Conc. Matrix Spike:	20	20	21	67	287	90
Matrix Spike % Recovery:	100	100	105	112	96	90
Conc. Matrix Spike Dup.:	18	18	19	61	295	93
Matrix Spike Duplicate % Recovery:	90	90	95	102	98	93
Relative % Difference:	10	10	10	9.4	2.7	3.0

Laboratory blank contained the following analytes: None Detected

SEQUOIA ANALYTICAL

Scott A. Chieffo
Project Manager

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

SEQUOIA ANALYTICAL
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, 2701 E. Avenue, Hayward
QC Sample Group: 2100505-513
Reported: Oct 29, 1992

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:	Oct 16, 1992	Oct 16, 1992	Oct 16, 1992
QC Sample #:	Matrix Blank	Matrix Blank	Matrix Blank
Sample Conc.:	N.D.	N.D.	N.D.
Spike Conc. Added:	10	10	10
Conc. Matrix Spike:	11	11	9.1
Matrix Spike % Recovery:	110	110	91
Conc. Matrix Spike Dup.:	11	11	8.9
Matrix Spike Duplicate % Recovery:	110	110	89
Relative % Difference:	0.0	0.0	2.2

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

SEQUOIA ANALYTICAL

Scott A. Chieffo
Project Manager

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

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QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA 8015	EPA 8015	EPA 8015
Analyst:	K. Wimer	K. Wimer	K. Wimer
Reporting Units:	µg/L	µg/L	µg/L
Date Analyzed:	Oct 22, 1992	Oct 22, 1992	Oct 22, 1992
Sample #:	210-0506	210-0512	Matrix Blank
Surrogate % Recovery:	107	98	103

SEQUOIA ANALYTICAL

Scott A. Chieffo
Project Manager

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

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QC Sample Group: 2100505-513
Reported: Oct 29, 1992

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA 8010	EPA 8010	EPA 8010
Analyst:	K. Nill	K. Nill	K. Nill
Reporting Units:	µg/L	µg/L	µg/L
Date Analyzed:	Oct 19, 1992	Oct 19, 1992	Oct 19, 1992
Sample #:	210-0506	210-0512	Matrix Blank
Surrogate #1 % Recovery:	118	125	126
Surrogate #2 % Recovery:	108	110	100

SEQUOIA ANALYTICAL

Scott A. Chieffo
Project Manager

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

KAPREALIAN ENGINEERING
INCORPORATED

CHAIN OF CUSTODY

SAMPLER: JOE

WITNESSING AGENCY:

SITE NAME & ADDRESS: Unocal / Hayward
2701 E. Ave.

TURN AROUND TIME: Regular

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPHG, BTXE	8010	TOG (5520 B&F)	TPHD				REMARKS
MW-1B	10/15/92	9:00 A.M.		✓	✓		2	MW	✓				2100525AB			One Voa of mw-8 broken.
MW-2B	"			✓	✓		6	"	✓	✓	✓	✓			526AE	
MW-3	"			✓	✓		2	"	✓						507AB	
MW-4	"			✓	✓		2	"	✓						508AB	
MW-5	"			✓	✓		2	"	✓						509AB	
MW-6	"			✓	✓		2	"	✓						510AB	
MW-7	"			✓	✓		2	"	✓						511AB	
MW-8	"			✓	✓		6	"	✓	✓	✓	✓			512AE	
MW-9	"	4:50 P.M.		✓	✓		2	"	✓					✓	513AB	

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Joe Kenian	10/15/92	MW 10/15/92 1800
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[illegible]	10-16-92	[illegible] 2:55 AM
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received by: (Signature)

The following MUST BE completed by the laboratory accepting samples for analysis:

1. Have all samples received for analysis been stored in ice? Y
2. Will samples remain refrigerated until analyzed? Y
3. Did any samples received for analysis have head space? N
4. Were samples in appropriate containers and properly packaged? Y

MW — analyst — 10/15/92
Signature — Title — Date

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Concord, California 94520
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