KAPREALIAN ENGINEERING
INCORPORATED

KEI-P90-1103.QR7
August 20, 1993

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

Attention: Ms. Tina Berry

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

Dear Ms. Berry:

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). The wells are currently monitored and sampled on a quarterly basis. This report covers the work performed by KEI from May through July of 1993.

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. Eight monitoring wells have been installed and two exploratory borings have been drilled 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.R6) dated May 24, 1993.

RECENT FIELD ACTIVITIES

[redacted] 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. [redacted] 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

Ground water samples were collected from all of the wells on July 23, 1993. Prior to sampling, the wells were each purged of between 8 and 10 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, labeled, 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 July 23, 1993, ranged between 18.17 and 20.13 feet below grade. The [redacted] ranging from 0.40 to 0.62 feet since April [redacted] Based on the water level data gathered during the quarter, the g[redacted] as shown on the attached Potentiometric Surface Maps, Figures 1, 2, and 3. The flow direction reported this quarter is [redacted] The average hydraulic gradient at the site on July 23, 1993, was approximately 0.008.

ANALYTICAL RESULTS

The ground water samples collected this quarter 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, ethylbenzene, and xylenes 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 analytical results of all of the ground water samples collected from the monitoring wells to date are summarized in Tables 2, 3, and 4. The concentrations of TPH as gasoline and benzene detected in the ground water samples collected this quarter are shown on the attached Figure 4. 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, [redacted] the confirmation of the current ground [redacted] program. The wells are currently monitored and sampled on a quarterly basis.

Recommendations for altering or terminating the monitoring and sampling program will be made as warranted.

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.

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

Sincerely,

Kaprealian Engineering, Inc.

Sarkis Soghomonian
Staff Engineer

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

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

Timothy R. Ross
Project Manager

/bp

Attachments: Tables 1 through 4
Location Map
Potentiometric Surface Maps - Figures 1, 2 & 3
Concentrations of Petroleum Hydrocarbons - Figure 4
Laboratory Analyses
Chain of Custody documentation

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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 July 23, 1993)					
MW1	14.81	20.13	0	No	10
MW2	15.16	19.81	0	No	8
MW3	14.39	19.00	0	No	9
MW4	14.40	18.72	0	No	10
MW5	14.51	18.74	0	No	10
MW6	14.25	18.17	0	No	10
MW7	13.89	18.60	0	No	10
MW8	13.88	18.45	0	No	8
(Monitored on June 29, 1993)					
MW1	14.95	19.99	0	--	0
MW2	15.29	19.68	0	--	0
MW3	14.52	18.87	0	--	0
MW4	14.54	18.58	0	--	0
MW5	14.65	18.60	0	--	0
MW6	14.38	18.04	0	--	0
MW7	14.05	18.44	0	--	0
MW8	14.04	18.29	0	--	0
(Monitored on May 27, 1993)					
MW1	15.08	19.86	0	--	0
MW2	15.38	19.59	0	--	0
MW3	14.66	18.73	0	--	0
MW4	14.69	18.43	0	--	0
MW5	14.79	18.46	0	--	0
MW6	14.52	17.90	0	--	0
MW7	14.20	18.29	0	--	0
MW8	14.20	18.13	0	--	0

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TABLE 1 (Continued)

SUMMARY OF GROUND WATER MONITORING AND PURGING DATA

Well #	Surface Elevation* (feet)
MW1	34.94
MW2	34.97
MW3	33.39
MW4	33.12
MW5	33.25
MW6	32.42
MW7	32.49
MW8	32.33

asked SS: means top of christy box

-- Sheen determination was not performed.

* The elevations of the tops of the well covers have been surveyed relative to Mean Sea Level (MSL), per the City of Oakland Benchmark disk stamped "25/A" at the northeast corner of 7th and Harrison (elevation = 28.81 MSL).

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TABLE 2

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Sample Number	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes
[redacted]	MW1	ND	ND	[redacted]	0.66	ND	ND
	MW2	--	[redacted]	[redacted]	ND	2.5	2.0
	MW3	--	[redacted]	[redacted]	26	160	82
	MW4	--	[redacted]	ND	ND	ND	ND
	MW5	--	[redacted]	[redacted]	8.0	68	47
	MW6	--	[redacted]	19	0.99	3.4	2.7
	MW7	--	[redacted]	[redacted]	3.3	28	5.4
	MW8	--	[redacted]	[redacted]	ND	0.60	ND
4/28/93	MW1	470♦	920	3.1	2.3	1.2	9.7
	MW2	--	1,300	76	1.9	130	87
	MW3	--	2,600	220	7.6	41	27
	MW4	--	ND	ND	ND	ND	ND
	MW5	--	6,700	200	190	250	430
	MW6	--	1,200	54	1.5	11	5.3
	MW7	--	110	2.8	1.3	1.4	1.7
	MW8	--	450	18	1.8	1.8	1.4
12/21/92	MW1	ND	95	0.69	ND	ND	1.0
	MW2	--	960	97	3.2	74	96
	MW3	--	8,500	1,500	150	310	330
	MW4	--	220*	ND	ND	0.97	0.74
	MW5	--	1,700	51	4.7	83	34
	MW6	--	2,300	370	11	39	15
10/19/92	MW4	--	480	0.51	2.1	2.8	6.8
	MW5	--	2,700	61	5.0	100	61
	MW6	--	3,900	420	12	60	28
9/15/92	MW1	ND	76	1.0	ND	ND	ND
	MW2	--	1,300	91	5.7	80	110
	MW3	--	10,000	1,900	330	400	580
6/30/92	MW1	120	ND	ND	ND	ND	ND
	MW2	--	76	9.3	0.76	4.8	6.9
	MW3	--	8,900	1,900	210	430	550
4/02/92	MW1	94	ND	ND	ND	ND	ND
	MW2	--	88	12	0.32	6.3	7.2
	MW3	--	8,000	1,400	200	300	310

TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Sample Number	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes
12/30/91	MW1	ND	ND	ND	ND	ND	ND
	MW2	--	91	16	0.89	11	1.9
	MW3	--	7,200	2,100	690	410	550
9/30/91	MW1	ND	ND	ND	ND	ND	ND
	MW2	--	130	18	0.53	14	9.6
	MW3	--	6,800	1,400	130	290	240
6/05/91	MW1	ND	47	ND	ND	ND	ND
	MW2	--	49	ND	ND	ND	ND
	MW3	--	5,800	1,200	40	140	97

♦ 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.

ND = Non-detectable.

-- Indicates analysis was not performed.

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

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TABLE 3

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Sample Number	Chloroform	Tetrachloroethene	Trichloroethene
7/23/93	MW1	16	1.3	0.91
4/28/93	MW1♦	12	0.89	0.85
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

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

♦ 1,2-Dichloroethane was detected at a concentration of 1.1 ppb.

-- Indicates analysis was not performed.

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

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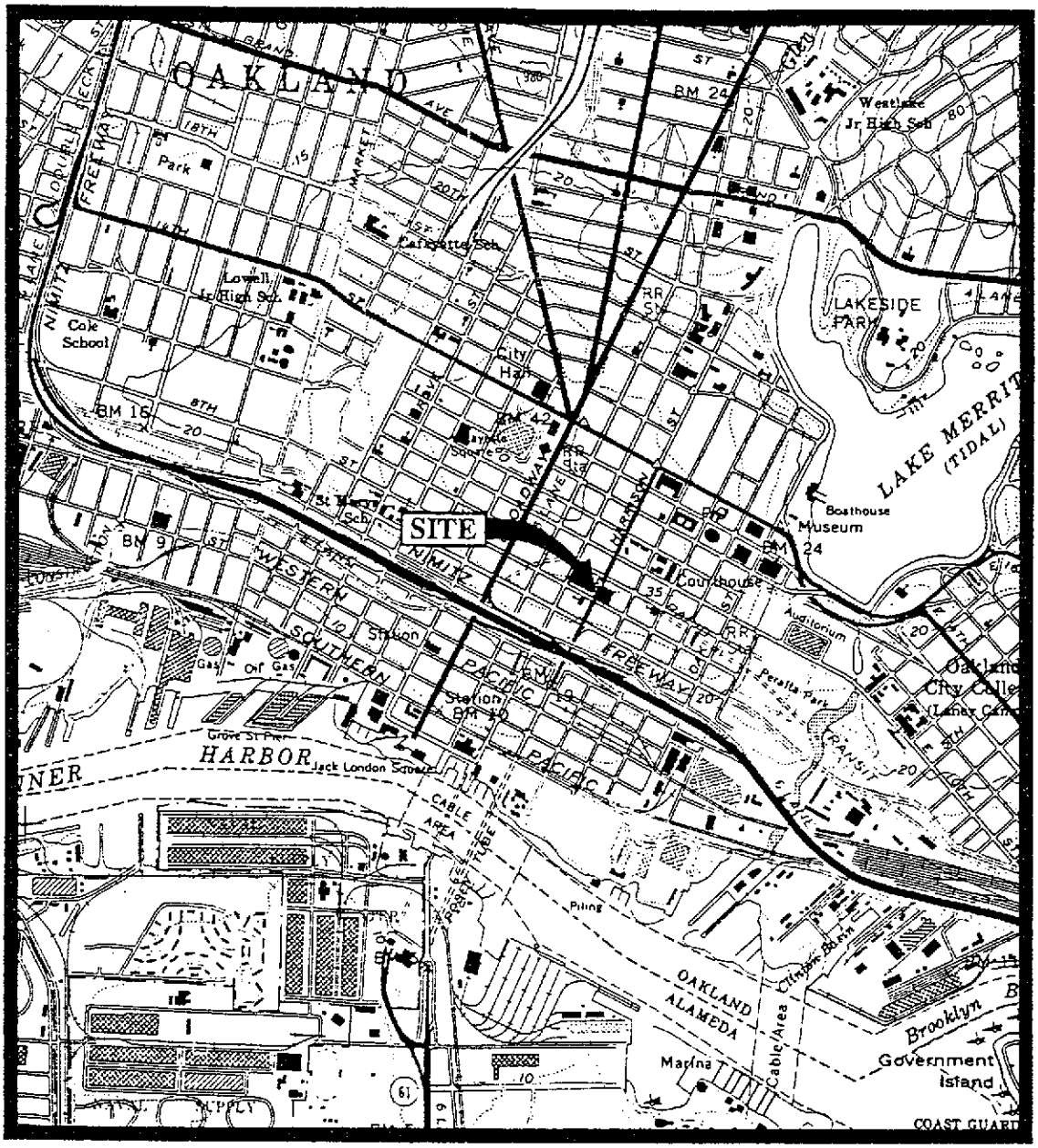
TABLE 4

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Sample Number	TOG	Cadmium	Chromium	Lead	Nickel	Zinc
4/02/92	MW1	ND	ND	0.015	0.016	ND	0.020
12/30/91	MW1	ND	ND	0.0078	0.0057	ND	0.046
9/30/91	MW1	ND	ND	0.019	ND	ND	0.11
6/05/91	MW1	ND	ND	0.0083	0.011	0.063	0.023

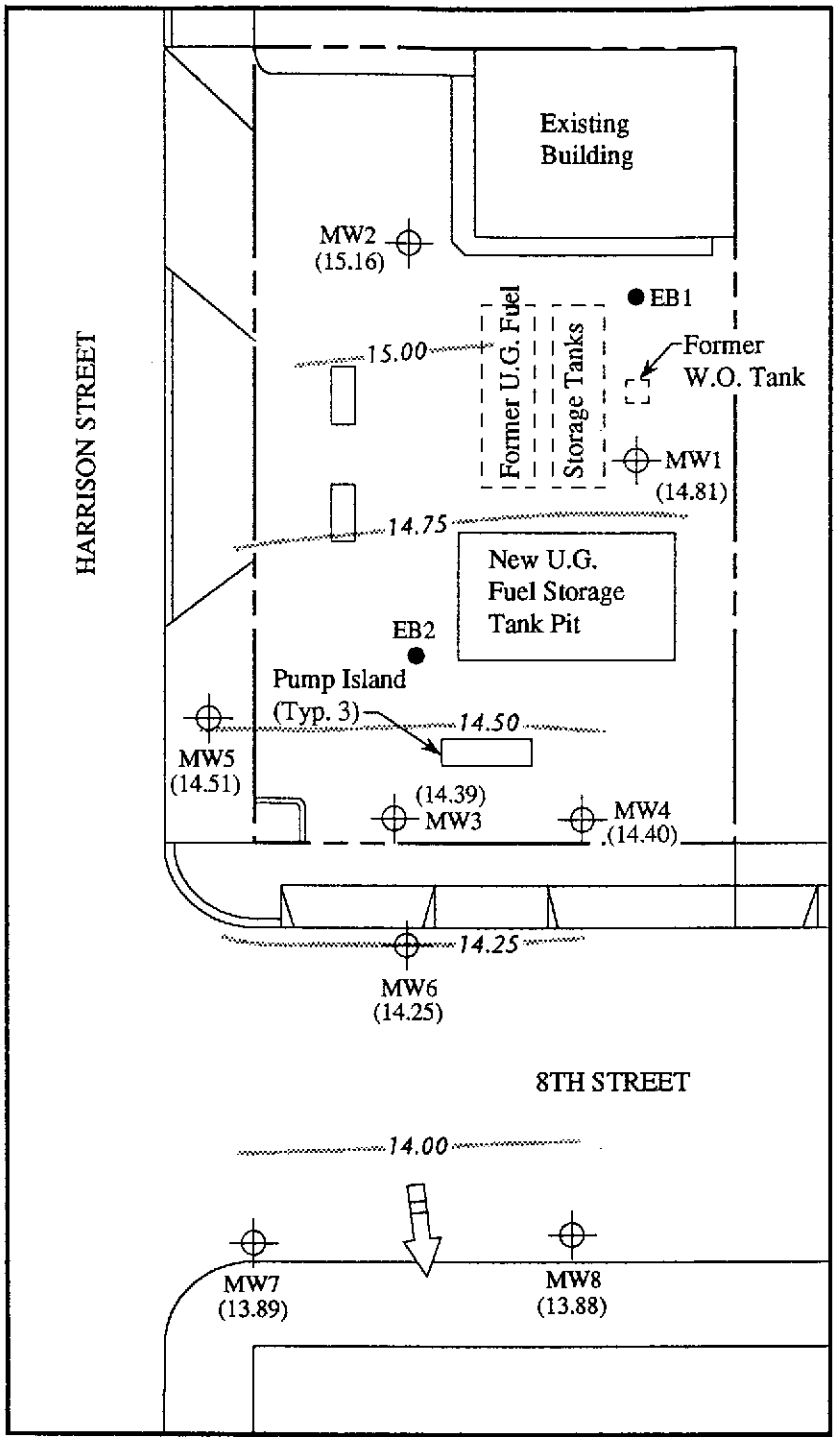
ND = Non-detectable.

Results in parts per million (ppm), unless otherwise indicated.



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

KAPREALIAN ENGINEERING INCORPORATED	UNOCAL SERVICE STATION #0752 800 HARRISON STREET OAKLAND, CALIFORNIA	LOCATION MAP



LEGEND

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

0 30 60

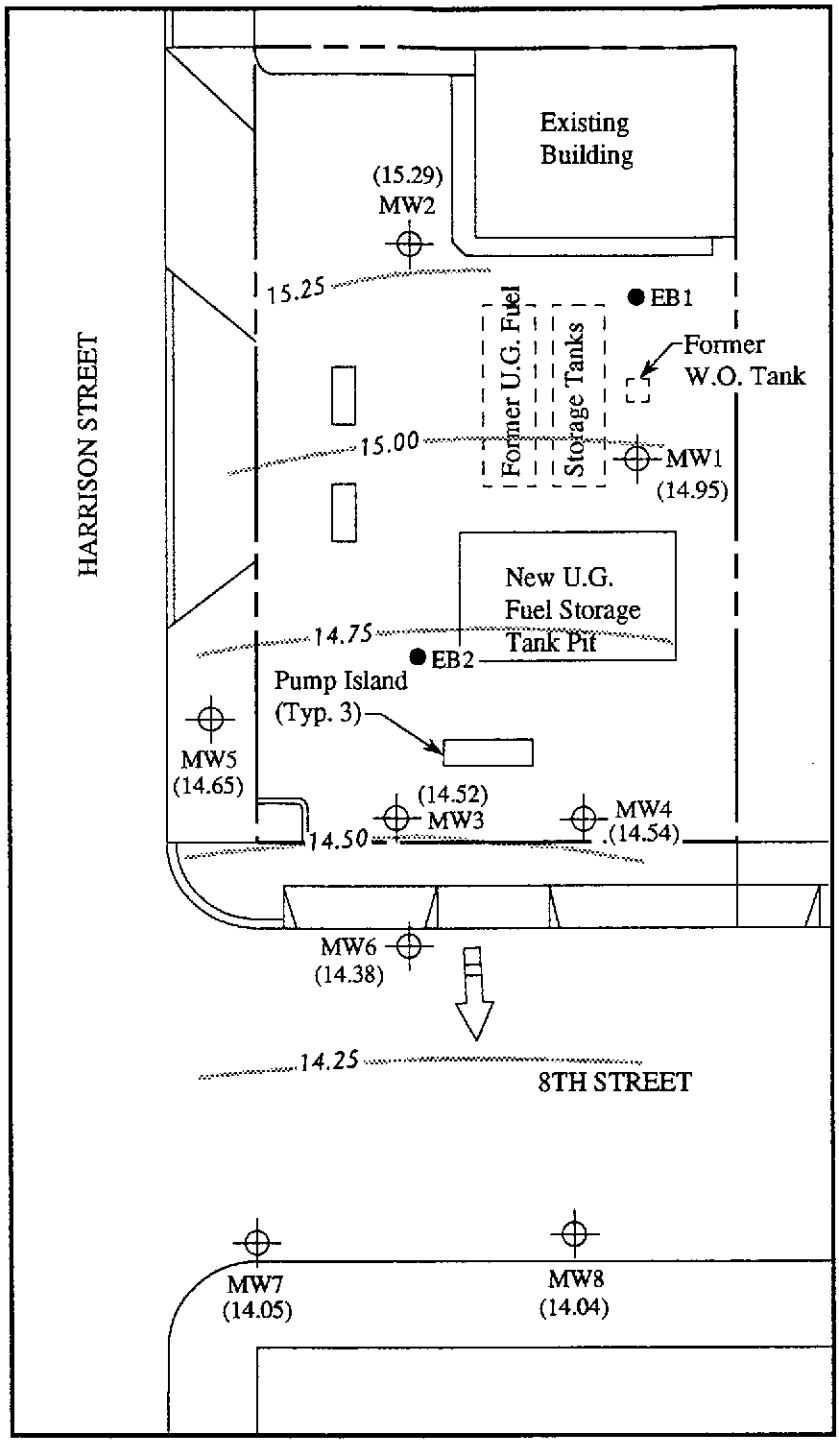
Approx. scale feet

POTENTIOMETRIC SURFACE MAP FOR THE JULY 23, 1993 MONITORING EVENT

KAPREALIAN ENGINEERING INCORPORATED

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
- Contours of ground water elevation
- Direction of ground water flow

0 30 60

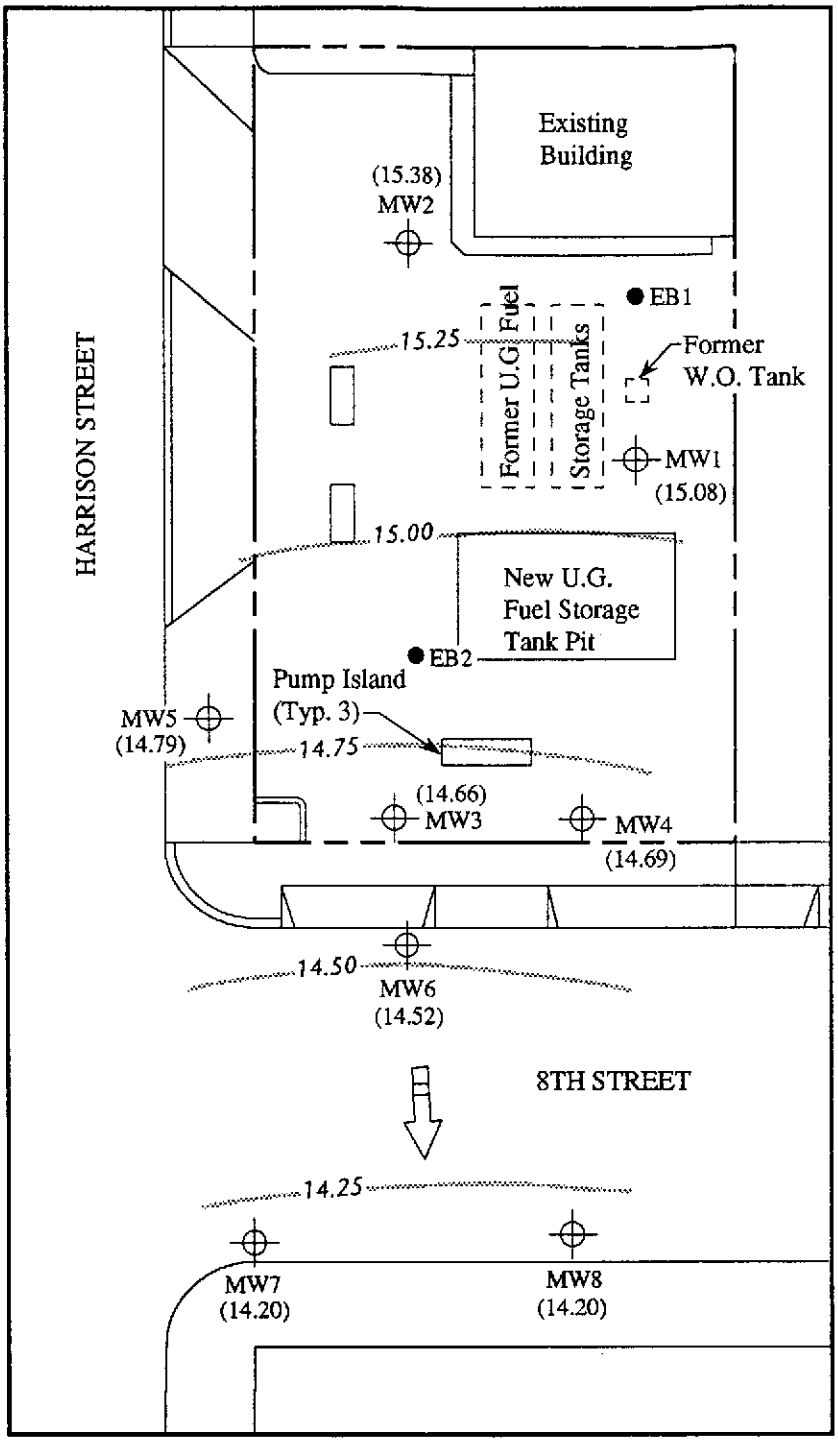
Approx. scale feet

POTENTIOMETRIC SURFACE MAP FOR THE JUNE 29, 1993 MONITORING EVENT

KAPREALIAN ENGINEERING
INCORPORATED

UNOCAL SERVICE STATION #0752
800 HARRISON STREET
OAKLAND, CA

FIGURE
2



LEGEND

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

0 30 60

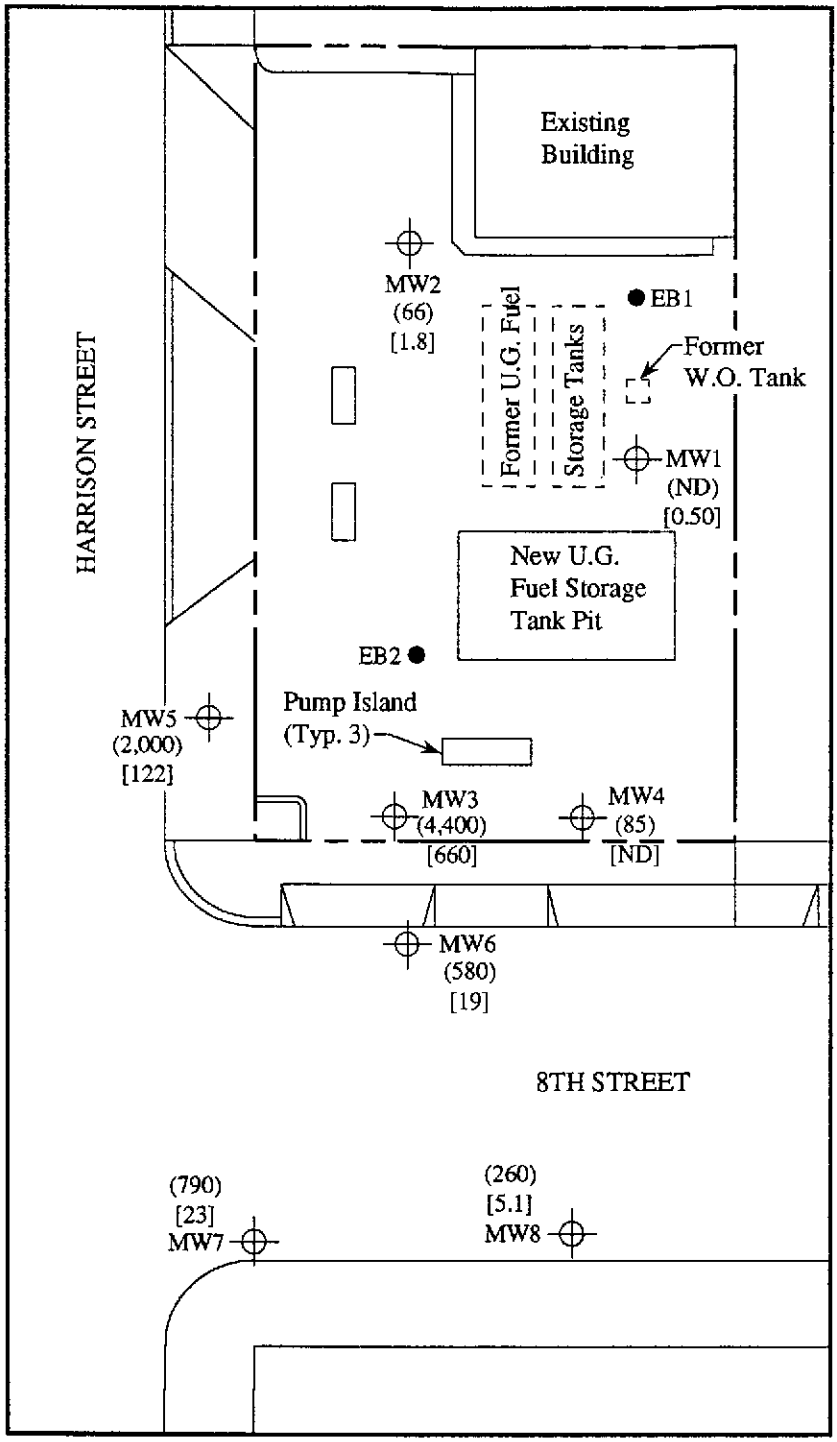
Approx. scale feet

POTENTIOMETRIC SURFACE MAP FOR THE MAY 27, 1993 MONITORING EVENT

KAPREALIAN ENGINEERING INCORPORATED

UNOCAL SERVICE STATION #0752
800 HARRISON STREET
OAKLAND, CA

FIGURE
3



LEGEND

- Monitoring well
- ● Exploratory boring
- ( ) Concentration of TPH as gasoline in ppb
- [ ] Concentration of benzene in ppb
- ND = Non-detectable

0 30 60

Approx. scale feet

PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON JULY 23, 1993

KAPREALIAN ENGINEERING
INCORPORATED

UNOCAL SERVICE STATION #0752
800 HARRISON STREET
OAKLAND, CA

FIGURE
4

SEQUOIA ANALYTICAL

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 800 Harrison St., Oakland	Sampled:	Jul 23, 1993
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Water	Received:	Jul 23, 1993
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported:	Aug 5, 1993
Attention: Avo Avedessian	First Sample #:	307-1185		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 307-1185 MW 1	Sample I.D. 307-1186 MW 2	Sample I.D. 307-1187 MW 3	Sample I.D. 307-1188 MW 4*	Sample I.D. 307-1189 MW 5	Sample I.D. 307-1190 MW 6
Purgeable Hydrocarbons	50	N.D.	66	4,400	85	2,000	580
Benzene	0.5	0.50	1.8	660	N.D.	122	19
Toluene	0.5	0.66	N.D.	26	N.D.	8.0	0.99
Ethyl Benzene	0.5	N.D.	2.5	160	N.D.	68	3.4
Total Xylenes	0.5	N.D.	2.0	82	N.D.	47	2.7
Chromatogram Pattern:		--	Gasoline	Gasoline	Gasoline & Discrete Peak	Gasoline	Gasoline

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	40	1.0	5.0	1.0
Date Analyzed:	8/3/93	8/2/93	8/2/93	8/3/93	8/3/93	8/3/93
Instrument Identification:	HP-2	HP-5	HP-5	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	98	96	112	99	89	92

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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Alan B. Kemp
Project Manager

Please Note:
*Discrete Peak refers to unidentified peak in MTBE Range.

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 800 Harrison St., Oakland	Sampled:	Jul 23, 1993
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Water	Received:	Jul 23, 1993
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported:	Aug 5, 1993
Attention: Avo Avedesslan	First Sample #:	307-1191		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 307-1191 MW 7	Sample I.D. 307-1192 MW 8	Sample I.D. Matrix Blank
Purgeable Hydrocarbons	50	790	260	
Benzene	0.5	23	5.1	
Toluene	0.5	3.3	N.D.	
Ethyl Benzene	0.5	28	0.60	
Total Xylenes	0.5	5.4	N.D.	
Chromatogram Pattern:		Gasoline	Gasoline	

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0
Date Analyzed:	8/3/93	8/3/93	8/3/93
Instrument Identification:	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	97	104	102

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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Alan B. Kemp
Project Manager

SEQUOIA ANALYTICAL
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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 800 Harrison St., Oakland	Sampled:	Jul 23, 1993
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Water	Received:	Jul 23, 1993
Concord, CA 94520	Analysis Method:	EPA 3510/3520/8015	Reported:	Aug 5, 1993
Attention: Avo Avedessian	First Sample #:	307-1185		

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 307-1185 MW1	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:	7/27/93	7/27/93
Date Analyzed:	7/29/93	7/29/93
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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Alan B. Kemp
Project Manager

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 800 Harrison St., Oakland	Sampled:	Jul 23, 1993
2401 Stanwell Dr., Ste. 400	Sample Descript:	Water; MW 1	Received:	Jul 23, 1993
Concord, CA 94520	Analysis Method:	EPA 5030/8010	Analyzed:	Aug 3, 1993
Attention: Avo Avedessian	Lab Number:	307-1185	Reported:	Aug 5, 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**	**16**
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**	**1.3**
1,1,1-Trichloroethane	0.50	N.D.
1,1,2-Trichloroethane	0.50	N.D.
Trichloroethene	**0.50**	**0.91**
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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Alan B. Kemp
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, 800 Harrison St., Oakland
2401 Stanwell Dr., Ste. 400	Matrix:	Water
Concord, CA 94520		
Attention: Avo Avedessian	QC Sample Group: 3071185-92	Reported: Aug 5, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes	Diesel
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015
Analyst:	J.F.	J.F.	J.F.	J.F.	K.Wimer
Conc. Spiked:	20	20	20	60	300
Units:	µg/L	µg/L	µg/L	µg/L	µg/L
LCS Batch#:	3LCS080293	3LCS080293	3LCS080293	3LCS080293	BLK072793
Date Prepared:	8/2/93	8/2/93	8/2/93	8/2/93	7/27/93
Date Analyzed:	8/2/93	8/2/93	8/2/93	8/2/93	7/29/93
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5	HP-3B
LCS % Recovery:	113	120	121	127	89
Control Limits:	70-130	70-130	70-130	70-130	80-120
MS/MSD Batch #:	3071082	3071082	3071082	3071082	BLK072793
Date Prepared:	8/2/93	8/2/93	8/2/93	8/2/93	7/27/93
Date Analyzed:	8/2/93	8/2/93	8/2/93	8/2/93	7/29/93
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5	HP-3B
Matrix Spike % Recovery:	110	120	120	125	89
Matrix Spike Duplicate % Recovery:	105	110	115	118	92
Relative % Difference:	4.7	8.7	4.3	5.8	3.7

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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 LCS % recovery data is used for validation of sample batch results. Due to matrix effects, the QC limits for MS/MSD's are advisory only and are not used to accept or reject batch results.

SEQUOIA ANALYTICAL

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 800 Harrison St., Oakland
2401 Stanwell Dr., Ste. 400	Matrix:	Water
Concord, CA 94520		
Attention: Avo Avedessian	QC Sample Goup: 307-1185	Reported: Aug 5, 1993

QUALITY CONTROL DATA REPORT

ANALYTE:	1,1-Dichloro-ethene	Trichloroethene	Chloro-Benzene
Method:	EPA 8010	EPA 8010	EPA 8010
Analyst:	K.N.	K.N.	K.N.
Conc. Spiked:	10	10	10
Units:	µg/L	µg/L	µg/L
LCS Batch#:	LCS080393	LCS080393	LCS080393
Date Prepared:	8/3/93	8/3/93	8/3/93
Date Analyzed:	8/3/93	8/3/93	8/3/93
Instrument I.D.#:	HP-5890/6	HP-5890/6	HP-5890/6
LCS % Recovery:	110	110	110
Control Limits:	70-130	70-130	70-130
MS/MSD Batch #:	3071185	3071185	3071185
Date Prepared:	8/3/93	8/3/93	8/3/93
Date Analyzed:	8/3/93	8/3/93	8/3/93
Instrument I.D.#:	HP-5890/6	HP-5890/6	HP-5890/6
Matrix Spike % Recovery:	110	120	110
Matrix Spike Duplicate % Recovery:	92	110	100
Relative % Difference:	18	8.7	9.5

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 LCS % recovery data is used for validation of sample batch results. Due to matrix effects, the QC limits for MS/MSD's are advisory only and are not used to accept or reject batch results.

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Alan B. Kemp
Project Manager

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QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA 8015	EPA 8015
Analyst:	K.Wimer	K.Wimer
Reporting Units:	µg/L	µg/L
Date Analyzed:	Jul 29, 1993	Jul 29, 1993
Sample #:	307-1185	Blank
Surrogate % Recovery:	97	100

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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

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Attention: Avo Avedessian

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QC Sample Group: 307-1185
Reported: Aug 5, 1993

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA 8010	EPA 8010
Analyst:	K.N.	K.N.
Reporting Units:	µg/L	µg/L
Date Analyzed:	Aug 3, 1993	Aug 3, 1993
Sample #:	307-1185	Blank
Surrogate #1 % Recovery:	120	121
Surrogate #2 % Recovery:	121	115

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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

KAPREALIAN ENGINEERING
INCORPORATED

CHAIN OF CUSTODY

SAMPLER: Ray (NEI)
WITNESSING AGENCY:
SITE NAME & ADDRESS: UNOCAL OAKLAND 800 HARRISON St.

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	ANALYSES REQUESTED: TPHG/BTXE	8010	TPHd					TURN AROUND TIME: REGULAR
MW1	7.23			x	x		4 1	VOA's AMB	x	x	x					REMARKS: 3071185 ABCD
MW2	"			x	x		2	VOA's	x							1186 AB
MW3	"			x	x		"	"	x							1187
MW4	"			x	x		"	"	x							1188
MW5	"			x	x		"	"	x							1189
MW6	"			x	x		"	"	x							1190
MW7	"			x	x		"	"	x							1191
MW8	"			x	x		"	"	x							1192

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Ray (NEI)	7-23-93	John Miller 7-23-93 16:15
John Miller	7/26/93 1300	
	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	7-26-93 2:10	Melissa Crumrine
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? Yes
2. Will samples remain refrigerated until analyzed? Yes
3. Did any samples received for analysis have head space? No
4. Were samples in appropriate containers and properly packaged? Yes

John Miller — Signature; Analyst — Title; 7-23-93 — Date

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