KAPREALIAN ENGINEERING
INCORPORATED

July 7, 1993

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

RE: Unocal Service Station #5484
18950 Lake Chabot Road
Castro Valley, California

Gentlemen:

Per the request of Ms. Tina Berry of Unocal Corporation, enclosed please find our report dated June 23, 1993, 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: Tina Berry, Unocal Corporation

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

KAPREALIAN ENGINEERING
INCORPORATED

KEI-P90-0806.QR8
June 23, 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 #5484
18950 Lake Chabot Road
Castro Valley, California

Dear Mr. 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), per KEI's proposal (KEI-P90-0806.P1) dated January 9, 1991, and as modified in KEI's reports (KEI-P90-0806.R2) dated June 27, 1991, and (KEI-P90-0806.QR6) dated January 15, 1993. The wells are currently monitored and sampled on a quarterly basis, except for well MW6, which is sampled on a semi-annual basis. This report covers the work performed by KEI in June of 1993.

BACKGROUND

The subject site contains a Unocal service station facility. Two underground gasoline storage tanks and one waste oil tank were removed from the site in June of 1989 during tank replacement activities. The fuel tank pit and the waste oil tank pit were subsequently overexcavated in order to remove contaminated soil. Seven monitoring wells have been installed and six exploratory borings have been previously drilled at and in the vicinity of the site; however, two of the monitoring wells (MW1 and MW3) were destroyed during tank replacement activities.

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 quarterly report (KEI-P90-0806.QR3) dated April 27, 1992.

RECENT FIELD ACTIVITIES

The five existing monitoring wells (MW2 and MW4 through MW7) were monitored and sampled once during the quarter. Prior to sampling,

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the wells were checked for depth to water and the presence of free product or 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.

Ground water samples were collected from all of the wells on June 9, 1993. Prior to sampling, the wells were each purged of between 8 and 41 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 June 9, 1993, ranged between 5.85 and 8.79 feet below grade. The water levels in all five wells have shown net decreases ranging from 0.62 to 1.55 feet since March 10, 1993. Based on the water level data gathered on June 9, 1993, the ground water flow direction appeared to be to the south-southwest, as shown on the attached Potentiometric Surface Map, Figure 1. The flow direction has been to the south-southwest since the inception of the monitoring program in May of 1991 (7 consecutive quarters). The hydraulic gradient at the site on June 9, 1993, was approximately 0.08.

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, xylenes, and ethylbenzene (BTX&E) by EPA method 8020. The ground water samples collected from monitoring wells MW5 and MW7 were also analyzed for TPH as diesel by EPA method 3510/modified 8015, and for EPA method 8010 constituents. In addition, the ground water sample collected from well MW7 was analyzed for EPA method 8270 compounds (including the open scan). Lastly, the ground water sample collected from well MW2 was also analyzed for methyl tert butyl ether (MTBE) by EPA method 8020/modified.

The analytical results of all of the ground water samples collected from the monitoring wells to date 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 2. 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-P90-0806.P1) dated January 9, 1991, and as modified in KEI's reports (KEI-P90-0806.R2) dated June 27, 1991, and (KEI-P90-0806.QR6) dated January 15, 1993. All of the wells are currently monitored and sampled on a quarterly basis, except for well MW6, which is sampled on a semi-annual basis. The ground water samples collected from all of the wells will be analyzed for TPH as gasoline and BTX&E. In addition, the ground water samples collected from wells MW5 and MW7 will also be analyzed for TPH as diesel and EPA method 8010 constituents, and the ground water sample collected from monitoring well MW7 will also be analyzed for EPA method 8270 constituents. Lastly, the ground water sample collected from well MW2 will also continue to be analyzed for MTBE.

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 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.

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

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

KEI-P90-0806.QR8
June 23, 1993

TABLE 1

SUMMARY OF MONITORING DATA

Well No.	Ground Water Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Sheen	Water Purged (gallons)
(Monitored and Sampled on June 9, 1993)					
MW2	223.62	5.85	0	No	10
MW4	219.29	8.79	0	No	32
MW5	216.85	8.57	0	No	29
MW6	233.44	5.94	0	No	41
MW7	223.07	8.59	0	No	8

Well	Well Cover Elevation* (feet)
MW2	229.47
MW4	228.08
MW5	225.42
MW6	239.38
MW7	231.66

* The elevations of the tops of the well covers have been surveyed relative to Mean Sea Level (MSL), per an Alameda County Benchmark (elevation = 219.68 MSL).

KEI-P90-0806.QR8
June 23, 1993

TABLE 2

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Sample Well #	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene	MTBE
6/09/93	MW2	--	120*	ND	ND	ND	ND	300
	MW4	--	ND	ND	ND	ND	ND	--
	MW5	64	ND	ND	ND	ND	ND	--
	MW6	--	ND	ND	ND	ND	ND	--
	MW7	830**	4,600	430	ND	430	510	--
3/10/93	MW2	--	110*	ND	ND	ND	ND	350
	MW4	--	ND	ND	ND	ND	ND	--
	MW5	69♦	ND	ND	ND	ND	ND	--
	MW6	SAMPLED ON A SEMI-ANNUAL BASIS						
	MW7	1,100♦	4,400	310	ND	330	300	--
12/10/92	MW2	--	100*	ND	ND	ND	ND	170
	MW4	--	ND	ND	ND	ND	ND	--
	MW5	83**	ND	ND	ND	ND	ND	--
	MW6	--	ND	ND	ND	ND	ND	--
	MW7	200**	1,200	28	ND	13	37	--
9/10/92	MW2	--	61*	ND	ND	ND	ND	110
	MW4	SAMPLED ON A SEMI-ANNUAL BASIS						
	MW5	110♦	ND	ND	ND	ND	ND	--
	MW6	SAMPLED ON A SEMI-ANNUAL BASIS						
	MW7	290♦	2,100	160	1.9	150	140	--
6/18/92	MW2	--	140*	ND	ND	ND	ND	--
	MW4	--	ND	0.41	0.84	0.55	ND	--
	MW5	ND	ND	ND	ND	ND	ND	--
	MW6	--	ND	ND	ND	ND	ND	--
	MW7	990♦	5,500	340	4.2	410	380	--
3/20/92	MW2	--	120	ND	ND	ND	ND	--
	MW4	SAMPLED ON A SEMI-ANNUAL BASIS						
	MW5	170	ND	ND	ND	ND	ND	--
	MW6	SAMPLED ON A SEMI-ANNUAL BASIS						
	MW7	3,200	11,000	980	ND	1,600	990	--
12/19/91	MW2	--	140	0.66	ND	1.2	0.64	--
	MW4	--	ND	ND	ND	ND	ND	--
	MW5	--	ND	ND	ND	ND	ND	--
	MW6	--	ND	ND	ND	ND	ND	--
	MW7	770	3,900	240	2.4	270	280	--

KEI-P90-0806.QR8
June 23, 1993

TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Sample Well #	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene	MTBE
10/10/91	MW5	ND	--	--	--	--	--	--
9/20/91	MW2	--	ND	ND	ND	ND	ND	--
	MW4	SAMPLED ON A SEMI-ANNUAL BASIS						
	MW5	450	ND	ND	ND	ND	ND	--
	MW6	SAMPLED ON A SEMI-ANNUAL BASIS						
	MW7	580	1,400	160	0.75	130	89	--
5/23/91	MW2	--	ND	ND	ND	ND	ND	--
	MW4	--	ND	ND	ND	ND	ND	--
	MW5	--	ND	ND	ND	ND	ND	--
	MW6	--	ND	ND	ND	ND	ND	--
	MW7	540	3,000	160	1.2	120	25	--

-- Indicates analysis was not performed.

ND = Non-detectable.

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

** 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 did not appear to be diesel.

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

KEI-P90-0806.QR8
June 23, 1993

TABLE 3

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Sample Well #	TOG (ppm)	bis(2-ethyl-hexyl) phthalate*	2-methyl naphthalene*	naphthalene*	1,2-Dichloroethane**
6/09/93	MW5	--	--	--	--	ND
	MW7♦	--	13	19	83	1.3
3/10/93	MW5	--	ND	ND	ND	ND
	MW7♦♦	--	16	11	54	1.7
12/10/92	MW7	--	--	--	--	2.0
9/10/92	MW7	--	--	--	--	2.3
6/18/92	MW7	ND	--	--	--	ND
3/20/92	MW7	ND	--	--	--	ND
12/19/91	MW7	ND	--	--	--	3.1
9/20/91	MW7	ND	--	--	--	ND
5/23/91	MW7	ND	--	--	--	3.4

* All EPA method 8270 compounds were non-detectable, except for the compounds listed.

** All EPA method 8010 compounds were non-detectable, except for 1,2-dichloroethane.

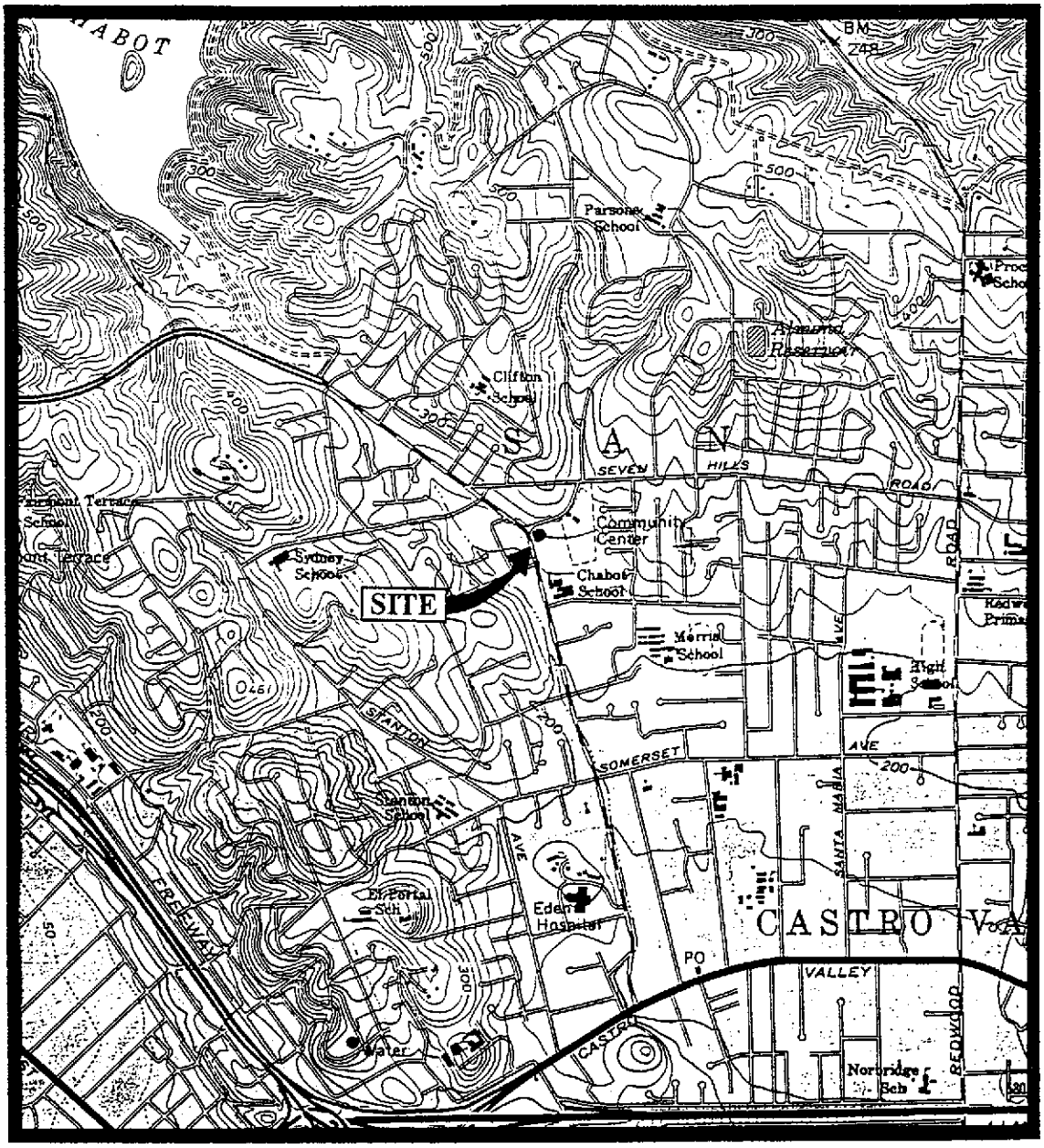
♦ Ten "tentatively identified compounds" were detected by the EPA method 8270 open scan at concentrations ranging from 14 ppb to 150 ppb. Refer to laboratory analysis sheets for the specified compounds and concentrations.

♦♦ Nine "tentatively identified compounds" were detected by the EPA method 8270 open scan at concentrations ranging from 10 ppb to 59 ppb. Refer to laboratory analysis sheets for the specific compounds and concentrations.

-- Indicates analysis was not performed.

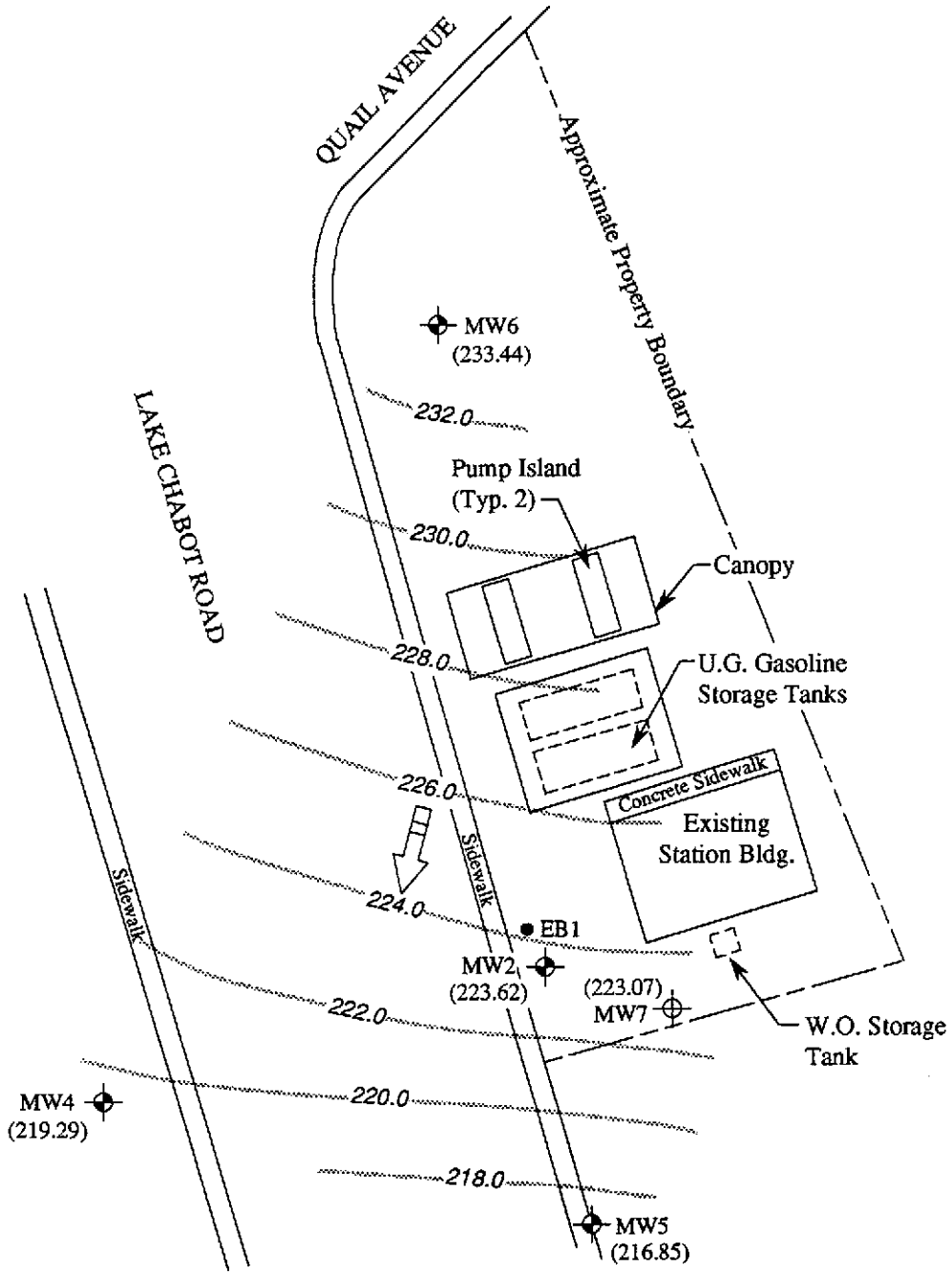
ND = Non-detectable.

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



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

KAPREALIAN ENGINEERING INCORPORATED	UNOCAL SERVICE STATION #5484 18950 LAKE CHABOT ROAD CASTRO VALLEY, CA	LOCATION MAP



LEGEND

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

0 40 80

Approx. scale feet

(Base modified from AGS report 18061-4 Plate P-2)

POTENTIOMETRIC SURFACE MAP FOR THE JUNE 9, 1993 MONITORING EVENT

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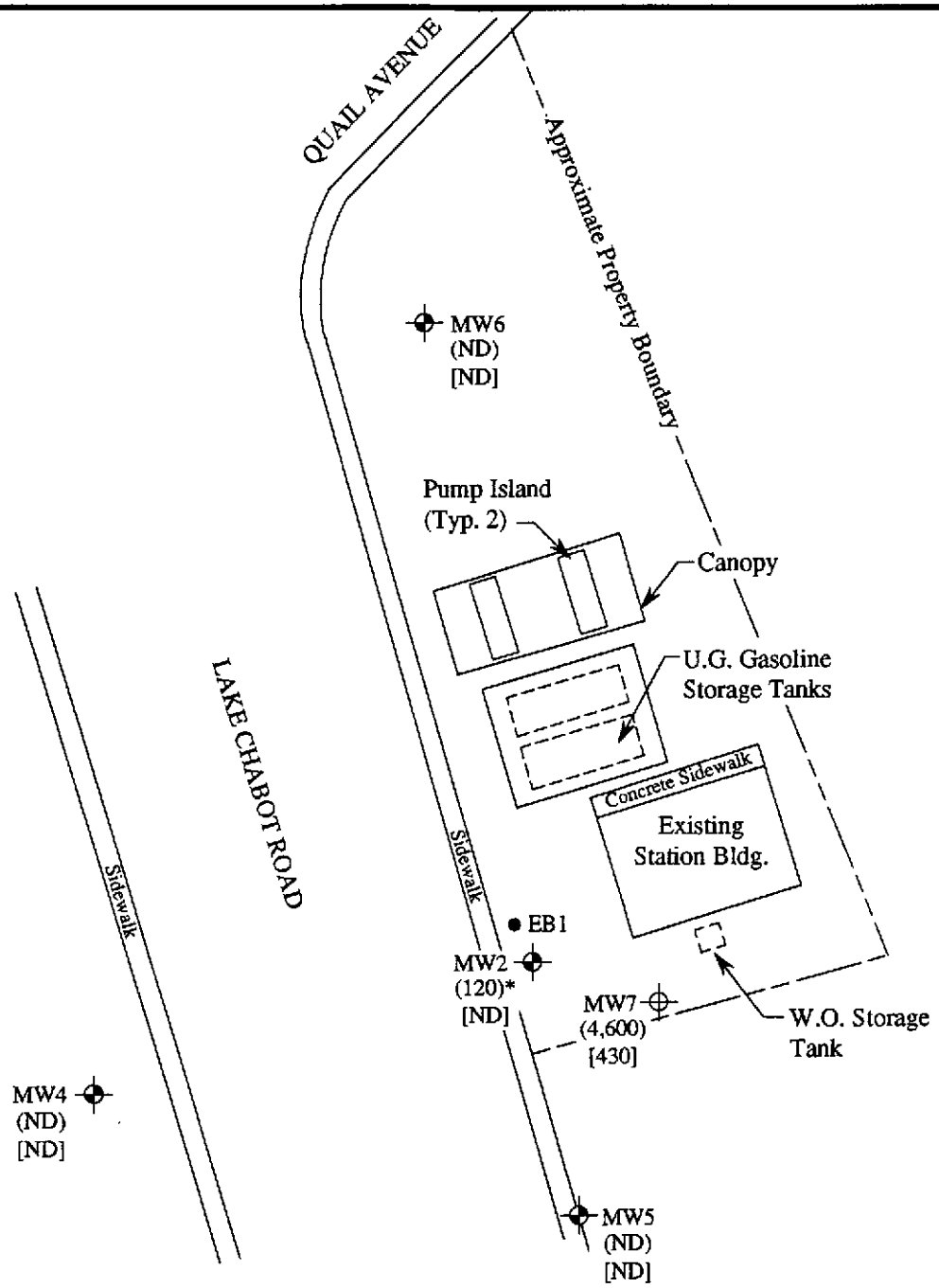
INCORPORATED

UNOCAL SERVICE STATION #5484
18950 LAKE CHABOT ROAD
CASTRO VALLEY, CA

FIGURE
1



LEGEND

- ⊕ Monitoring well (by KEI)
- ⊕ Monitoring well (by AGS)
- • Exploratory boring (by KEI)
- ( ) Concentration of TPH as gasoline in ppb
- [ ] Concentration of benzene in ppb

ND = Non-detectable

NS = Not sampled

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

0 40 80

Approx. scale feet

(Base modified from AGS report 18061-4 Plate P-2)

PETROLEUM HYDROCARBONS DETECTED IN GROUND WATER ON JUNE 9, 1993

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INCORPORATED

UNOCAL SERVICE STATION #5484
18950 LAKE CHABOT ROAD
CASTRO VALLEY, CA

FIGURE
2

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal,18950 Lake Chabot Rd.,Castro Valley	Sampled:	Jun 9, 1993
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Water	Received:	Jun 9, 1993
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported:	Jun 16, 1993
Attention: Mardo Kaprealian, P.E.	First Sample #:	306-0476		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 306-0476 MW 2*	Sample I.D. 306-0477 MW 4	Sample I.D. 306-0478 MW 5	Sample I.D. 306-0479 MW 6	Sample I.D. 306-0480 MW 7	Sample I.D. Matrix Blank
Purgeable Hydrocarbons	50	120	N.D.	N.D.	N.D.	4,600	
Benzene	0.5	N.D.	N.D.	N.D.	N.D.	430	
Toluene	0.5	N.D.	N.D.	N.D.	N.D.	N.D.	
Ethyl Benzene	0.5	N.D.	N.D.	N.D.	N.D.	510	
Total Xylenes	0.5	N.D.	N.D.	N.D.	N.D.	430	
Chromatogram Pattern:		Discrete Peak	--	--	--	Gasoline	

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	20	1.0
Date Analyzed:	6/14/93	6/14/93	6/14/93	6/14/93	6/15/93	6/15/93
Instrument Identification:	HP-5	HP-5	HP-5	HP-5	HP-2	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	108	109	112	105	103	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

Please Note: * " Discrete Peak" refers to MTBE peak.

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal,18950 Lake Chabot Rd.,Castro Valley	Sampled:	Jun 9, 1993
2401 Stanwell Dr., Ste. 400	Sample Descript:	Water	Received:	Jun 9, 1993
Concord, CA 94520	Analysis for:	MTBE (Modified EPA 8020)		
Attention: Mardo Kaprealian, P.E.	First Sample #:	306-0476	Analyzed:	Jun 14, 1993
			Reported:	Jun 16, 1993

LABORATORY ANALYSIS FOR: MTBE (Modified EPA 8020)

Sample Number	Sample Description	Detection Limit µg/L	Sample Result µg/L
306-0476	MW 2	0.60	300

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

SEQUOIA ANALYTICAL

Scott A. Chierro
Project Manager

SEQUOIA ANALYTICAL
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(510) 686-9600 • FAX (510) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal,18950 Lake Chabot Rd.,Castro Valley	Sampled:	Jun 9, 1993
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Water	Received:	Jun 9, 1993
Concord, CA 94520	Analysis Method:	EPA 3510/3520/8015	Reported:	Jun 16, 1993
Attention: Mardo Kaprealian, P.E.	First Sample #:	306-0478		

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 306-0478 MW 5	Sample I.D. 306-0480 MW 7*	Sample I.D. Matrix Blank
Extractable Hydrocarbons	50	64	830	
Chromatogram Pattern:		Diesel	Diesel & Non Diesel Mixture (<C14)	

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0
Date Extracted:	6/14/93	6/14/93	6/14/93
Date Analyzed:	6/15/93	6/15/93	6/15/93
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

Please Note:
* "Non-Diesel Mixture" is probably gasoline.

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal,18950 Lake Chabot Rd.,Castro Valley	Sampled:	Jun 9, 1993
2401 Stanwell Dr., Ste. 400	Sample Descript:	Water: MW 5	Received:	Jun 9, 1993
Concord, CA 94520	Analysis Method:	EPA 5030/8010	Analyzed:	Jun 14, 1993
Attention: Mardo Kaprealian, P.E.	Lab Number:	306-0478	Reported:	Jun 16, 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	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.

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Scott A. Chieffo
Project Manager

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal,18950 Lake Chabot Rd.,Castro Valley	Sampled:	Jun 9, 1993
2401 Stanwell Dr., Ste. 400	Sample Descript:	Water: MW 7	Received:	Jun 9, 1993
Concord, CA 94520	Analysis Method:	EPA 5030/8010	Analyzed:	Jun 14, 1993
Attention: Mardo Kaprealian, P.E.	Lab Number:	306-0480	Reported:	Jun 16, 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	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**	**1.3**
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

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal,18950 Lake Chabot Rd.,Castro Valley	Sampled:	Jun 9, 1993
2401 Stanwell Dr., Ste. 400	Sample Descript:	Water: MW 7	Received:	Jun 9, 1993
Concord, CA 94520	Analysis Method:	EPA 8270	Extracted:	Jun 15, 1993
Attention: Mardo Kaprealian, P.E.	Lab Number:	306-0480	Analyzed:	Jun 16, 1993
			Reported:	Jun 16, 1993

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/L	Sample Results µg/L
Acenaphthene	2.0	N.D.
Acenaphthylene	2.0	N.D.
Aniline	2.0	N.D.
Anthracene	2.0	N.D.
Benzidine	50	N.D.
Benzoic Acid	10	N.D.
Benzo(a)anthracene	2.0	N.D.
Benzo(b)fluoranthene	2.0	N.D.
Benzo(k)fluoranthene	2.0	N.D.
Benzo(g,h,i)perylene	2.0	N.D.
Benzo(a)pyrene	2.0	N.D.
Benzyl alcohol	2.0	N.D.
Bis(2-chloroethoxy)methane	2.0	N.D.
Bis(2-chloroethyl)ether	2.0	N.D.
Bis(2-chloroisopropyl)ether	2.0	N.D.
Bis(2-ethylhexyl)phthalate	**10**	**13**
4-Bromophenyl phenyl ether	2.0	N.D.
Butyl benzyl phthalate	2.0	N.D.
4-Chloroaniline	2.0	N.D.
2-Chloronaphthalene	2.0	N.D.
4-Chloro-3-methylphenol	2.0	N.D.
2-Chlorophenol	2.0	N.D.
4-Chlorophenyl phenyl ether	2.0	N.D.
Chrysene	2.0	N.D.
Dibenz(a,h)anthracene	2.0	N.D.
Dibenzofuran	2.0	N.D.
Di-N-butyl phthalate	10	N.D.
1,3-Dichlorobenzene	2.0	N.D.
1,4-Dichlorobenzene	2.0	N.D.
1,2-Dichlorobenzene	2.0	N.D.
3,3-Dichlorobenzidine	10	N.D.
2,4-Dichlorophenol	2.0	N.D.
Diethyl phthalate	2.0	N.D.
2,4-Dimethylphenol	2.0	N.D.
Dimethyl phthalate	2.0	N.D.
4,6-Dinitro-2-methylphenol	10	N.D.
2,4-Dinitrophenol	10	N.D.

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal,18950 Lake Chabot Rd.,Castro Valley	Sampled:	Jun 9, 1993
2401 Stanwell Dr., Ste. 400	Sample Descript:	Water: MW 7	Received:	Jun 9, 1993
Concord, CA 94520	Analysis Method:	EPA 8270	Extracted:	Jun 15, 1993
Attention: Mardo Kaprealian, P.E.	Lab Number:	306-0480	Analyzed:	Jun 16, 1993
			Reported:	Jun 16, 1993

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/L	Sample Results µg/L
2,4-Dinitrotoluene	2.0	N.D.
2,6-Dinitrotoluene	2.0	N.D.
Di-N-octyl phthalate	2.0	N.D.
Fluoranthene	2.0	N.D.
Fluorene	2.0	N.D.
Hexachlorobenzene	2.0	N.D.
Hexachlorobutadiene	2.0	N.D.
Hexachlorocyclopentadiene	2.0	N.D.
Hexachloroethane	2.0	N.D.
Indeno(1,2,3-cd)pyrene	2.0	N.D.
Isophorone	2.0	N.D.
2-Methylnaphthalene	2.0	19
2-Methylphenol	2.0	N.D.
4-Methylphenol	2.0	N.D.
Naphthalene	2.0	83
2-Nitroaniline	10	N.D.
3-Nitroaniline	10	N.D.
4-Nitroaniline	10	N.D.
Nitrobenzene	2.0	N.D.
2-Nitrophenol	2.0	N.D.
4-Nitrophenol	10	N.D.
N-Nitrosodiphenylamine	2.0	N.D.
N-Nitroso-di-N-propylamine	2.0	N.D.
Pentachlorophenol	10	N.D.
Phenanthrene	2.0	N.D.
Phenol	2.0	N.D.
Pyrene	2.0	N.D.
1,2,4-Trichlorobenzene	2.0	N.D.
2,4,5-Trichlorophenol	10	N.D.
2,4,6-Trichlorophenol	2.0	N.D.

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

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Scott A. Chieffo
Project Manager

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal,18950 Lake Chabot Rd.,Castro Valley	Sampled:	Jun 9, 1993
2401 Stanwell Dr., Ste. 400	Sample Descript:	Water: MW 7	Received:	Jun 9, 1993
Concord, CA 94520	Analysis Method:	EPA 8270 & "T.I.C."	Extracted:	Jun 15, 1993
Attention: Mardo Kaprealian, P.E.	Lab Number:	306-0480	Analyzed:	Jun 16, 1993
			Reported:	Jun 16, 1993

SEMI-VOLATILE ORGANICS by GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS

Analyte	Detection Limit µg/L	Sample Results µg/L
Benzene, Ethyl	10	150
Benzene, 1,3-Dimethyl	10	22
Benzene, 1,2-Dimethyl	10	77
Benzene, 1,4-Dimethyl	10	14
Benzene, Propyl	10	19
Benzene, 1-Ethyl-4-Methyl	10	27
Benzene, 1,2,4-Trimethyl	10	110
Benzene, 1,2,3-Trimethyl	10	47
1 H - Indene, 2,3-Dihydro	10	94
1 H - Indene, 2,3-Dihydro-4-Methyl	10	18

No additional peaks > 10 µg/L were identified by the Mass Spectral Library.

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Scott A. Chieffo
Project Manager

Please Note:
All identifications are tentative and concentrations are estimates based upon spectral comparison to the EPA NIST library. Positive identification or specification between isomers cannot be made without retention time standards.

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal,18950 Lake Chabot Rd.,Castro Valley
2401 Stanwell Dr., Ste. 400	Matrix:	Water
Concord, CA 94520		
Attention: Mardo Kaprealian, P.E.	QC Sample Group	3060476-480

Reported: Jun 16, 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#:	3LCS061493	3LCS061493	3LCS061493	3LCS061493	BLK061493
Date Prepared:	6/14/93	6/14/93	6/14/93	6/14/93	6/14/93
Date Analyzed:	6/14/93	6/14/93	6/14/93	6/14/93	6/15/93
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5	HP-3A
LCS % Recovery:	110	104	103	99	87
Control Limits:	70-130	70-130	70-130	70-130	80-120
MS/MSD Batch #:	3060490	3060490	3060490	3060490	061493
Date Prepared:	6/14/93	6/14/93	6/14/93	6/14/93	6/14/93
Date Analyzed:	6/14/93	6/14/93	6/14/93	6/14/93	6/15/93
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5	HP-3A
Matrix Spike % Recovery:	115	110	105	102	87
Matrix Spike Duplicate % Recovery:	105	100	105	100	99
Relative % Difference:	9.1	9.5	0.0	0.99	13

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Scott A. Chieffo
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.

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal,18950 Lake Chabot Rd.,Castro Valley
2401 Stanwell Dr., Ste. 400	Matrix:	Water
Concord, CA 94520		
Attention: Mardo Kaprealian, P.E.	QC Sample Goup: 3060476-480	Reported: Jun 16, 1993

QUALITY CONTROL DATA REPORT

ANALYTE:	1,1-Dichloro-ethene	Trichloroethene	Chloro-benzene
Method:	EPA 8010	EPA 8010	EPA 8010
Analyst:	K.Nill	K.Nill	K.Nill
Conc. Spiked:	10	10	10
Units:	µg/L	µg/L	µg/L
LCS Batch#:	LCS061493	LCS061493	LCS061493
Date Prepared:	6/14/93	6/14/93	6/14/93
Date Analyzed:	6/14/93	6/14/93	6/14/93
Instrument I.D.#:	HP5890/6	HP5890/6	HP5890/6
LCS % Recovery:	110	110	99
Control Limits:	70-130	70-130	70-130
MS/MSD Batch #:	3060480	3060480	3060480
Date Prepared:	6/14/93	6/14/93	6/14/93
Date Analyzed:	6/14/93	6/14/93	6/14/93
Instrument I.D.#:	HP5890/6	HP5890/6	HP5890/6
Matrix Spike % Recovery:	110	110	98
Matrix Spike Duplicate % Recovery:	93	97	96
Relative % Difference:	17	13	14

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal,18950 Lake Chabot Rd.,Castro Valley
2401 Stanwell Dr., Ste. 400	Matrix:	Water
Concord, CA 94520		
Attention: Mardo Kaprealian, P.E.	QC Sample Goup: 3060476-480	Reported: Jun 16, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Phenol	2-Chlorophenol	1,4-Dichloro-benzene	N-Nitroso-Di-N-propylamine	1,2,4-Trichloro-benzene	4-Chloro-3-Methylphenyl
Method:	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270
Analyst:	Son Le	Son Le	Son Le	Son Le	Son Le	Son Le
Conc. Spiked:	200	200	100	100	100	200
Units:	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LCS Batch#:	LCS061593	LCS061593	LCS061593	LCS061593	LCS061593	LCS061593
Date Prepared:	6/15/93	6/15/93	6/15/93	6/15/93	6/15/93	6/15/93
Date Analyzed:	6/15/93	6/15/93	6/15/93	6/15/93	6/15/93	6/15/93
Instrument I.D.#:	GC/MS1	GC/MS1	GC/MS1	GC/MS1	GC/MS1	GC/MS1
LCS % Recovery:	70	66	68	72	72	74
Control Limits:	12-89	27-123	36-97	41-116	39-98	23-97
MS/MSD Batch #:	BLK061593	BLK061593	BLK061593	BLK061593	BLK061593	BLK061593
Date Prepared:	6/15/93	6/15/93	6/15/93	6/15/93	6/15/93	6/15/93
Date Analyzed:	6/15/93	6/15/93	6/15/93	6/15/93	6/15/93	6/15/93
Instrument I.D.#:	GC/MS1	GC/MS1	GC/MS1	GC/MS1	GC/MS1	GC/MS1
Matrix Spike % Recovery:	70	66	68	72	72	74
Matrix Spike Duplicate % Recovery:	70	65	68	70	70	72
Relative % Difference:	0.0	1.5	0.0	2.8	2.8	2.7

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal,18950 Lake Chabot Rd.,Castro Valley
2401 Stanwell Dr., Ste. 400	Matrix:	Water
Concord, CA 94520		
Attention: Mardo Kaprealian, P.E.	QC Sample Group: 3060476-480	Reported: Jun 16, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Acenaphthene	4-Nitrophenol	2,4-Dinitro-toluene	Pentachloro-phenol	Pyrene
Method:	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270
Analyst:	Son Le	Son Le	Son Le	Son Le	Son Le
Conc. Spiked:	100	200	100	200	100
Units:	µg/L	µg/L	µg/L	µg/L	µg/L
LCS Batch#:	LCS061593	LCS061593	LCS061593	LCS061593	LCS061593
Date Prepared:	6/15/93	6/15/93	6/15/93	6/15/93	6/15/93
Date Analyzed:	6/15/93	6/15/93	6/15/93	6/15/93	6/15/93
Instrument I.D.#:	GC/MS1	GC/MS1	GC/MS1	GC/MS1	GC/MS1
LCS % Recovery:	70	67	66	57	84
Control Limits:	46-118	10-80	24-96	9-103	26-127
MS/MSD Batch #:	BLK061593	BLK061593	BLK061593	BLK061593	BLK061593
Date Prepared:	6/15/93	6/15/93	6/15/93	6/15/93	6/15/93
Date Analyzed:	6/15/93	6/15/93	6/15/93	6/15/93	6/15/93
Instrument I.D.#:	GC/MS1	GC/MS1	GC/MS1	GC/MS1	GC/MS1
Matrix Spike % Recovery:	70	67	66	57	84
Matrix Spike Duplicate % Recovery:	70	59	64	48	96
Relative % Difference:	0.0	13	3.1	17	13

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Scott A. Chierro
Project Manager

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Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal,18950 Lake Chabot Rd.,Castro Valley
QC Sample Group: 3060476-480
Reported: Jun 16, 1993

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:	Jun 15, 1993	Jun 15, 1993	Jun 15, 1993
Sample #:	306-0478	306-0480	Blank
Surrogate % Recovery:	111	115	91

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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Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal,18950 Lake Chabot Rd.,Castro Valley
QC Sample Group: 3060476-480
Reported: Jun 16, 1993

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA 8010	EPA 8010	EPA 8010
Analyst:	K.Nill	K.Nill	K.Nill
Reporting Units:	ug/L	ug/L	ug/L
Date Analyzed:	Jun 14, 1993	Jun 14, 1993	Jun 14, 1993
Sample #:	306-0478	306-0480	Blank
Surrogate #1 % Recovery:	86	89	110
Surrogate #2 % Recovery:	86	101	90

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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, INC.

CHAIN OF CUSTODY

SAMPLER	SITE NAME & ADDRESS	ANALYSES REQUESTED	TURN AROUND TIME:
Varthes	Unocal / Castro Valley 18950 Lake Chabot Rd.		1 week.
WITNESSING AGENCY			

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPHG & BTXE	TPHD	8010	MTBE	8270 (open scan)		REMARKS
MW 2	6/9/93	10:55 am.		X	X		4	Monitoring Well	X			X			3060476AD
MW 4	"			X	X		2	" "	X						477A-B
MW 5	"			X	X		5	" "	X	X	X				478AE
MW 6	"			X	X		2	" "	X						479AB
MW 7	"	1:50 pm.		X	X		6	" "	X	X	X		X		480AF

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
W. Varthes	6/9/93 3:02	Colin Miller
Colin Miller	6/9/93 14:45	Nima Ghor
[illegible]	[illegible]	
	6/9/93 3:05	Steve Gu

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

Signature	Title	Date
SG	Analyst	6/9/93