KAPREALIAN ENGINEERING
INCORPORATED

November 3, 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 October 15, 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

93 NOV -4 AM 11:02

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

KAPREALIAN ENGINEERING
INCORPORATED

KEI-P90-0806.QR9
October 15, 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 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, except for well MW6, which is sampled on a semi-annual basis. This report covers the work performed by KEI in September 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

Four of the five existing monitoring wells (MW2, MW4, MW5, and MW7) were monitored and sampled once during the quarter. MW6 was monitored once, but was not sampled (as previously stated, this well is sampled semi-annually). Prior to sampling, these wells were checked for depth to water and the presence of free product or

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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 wells MW2, MW4, MW5, and MW7 on September 9, 1993. Prior to sampling, the wells were each purged of between 7 and 29 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 September 9, 1993, ranged between 6.59 and 10.11 feet. The water levels in all five wells have shown net decreases ranging from 0.86 to 1.79 feet since June 9, 1993. Based on the water level data gathered on September 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 by KEI in May of 1991 (8 consecutive quarters). The hydraulic gradient at the site on September 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, ethylbenzene, and xylenes (BTEX) 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).

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 based on no evidence of free product or sheen in any of the existing wells, KEI recommends the continuation of the current ground water monitoring and sampling program. 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 are analyzed for TPH as gasoline and BTEX. In addition, the ground water samples collected from wells MW5 and MW7 are also analyzed for TPH as diesel and EPA method 8010 constituents, and the ground water sample collected from monitoring well MW7 is also analyzed for EPA method 8270 constituents.

DISTRIBUTION

A copy of this report should be sent to the Alameda County Health Care Services Agency, and to Mr. Lester Feldman 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.

for Thomas J. Berkins

Thomas J. Berkins
Senior Environmental 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, 2 & 3
Location Map
Potentiometric Surface Map - Figure 1
Concentrations of Petroleum Hydrocarbons - Figure 2
Laboratory Analyses
Chain of Custody documentation

KEI-P90-0806.QR9
October 15, 1993

TABLE 1

SUMMARY OF MONITORING DATA

Well #	Ground Water Elevation (feet)	Depth to Water (feet)♦	Product Thickness (feet)	Sheen	Water Purged (gallons)
(Monitored and Sampled on September 9, 1993)					
MW2	222.29	6.59	0	No	9
MW4	217.86	9.91	0	No	29
MW5	215.99	9.12	0	No	26
MW6*	232.22	6.82	0	--	0
MW7	221.29	10.11	0	No	7

Well #	Top of Casing Elevation in feet above Mean Sea Level (MSL)**
MW2	228.88
MW4	227.77
MW5	225.11
MW6	239.04
MW7	231.39

♦ The depth to water level measurement was taken from the top of the well casing. Prior to September 9, 1993, the water level measurement was taken from the top of the well cover.

* Monitored only.

** Based on Alameda County Benchmark (elevation = 219.68 MSL).

-- Sheen determination was not performed.

KEI-P90-0806.QR9
October 15, 1993

TABLE 2

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Sample Well #	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE
9/09/93	MW2	--	210*	ND	ND	ND	ND	--
	MW4	--	ND	ND	ND	ND	ND	--
	MW5	58**	ND	ND	ND	ND	ND	--
	MW6	SAMPLED ON A SEMI-ANNUAL BASIS						
	MW7	550**	2,600♦♦	160	19	250	120	--
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	510	430	--
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	300	330	--
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	37	13	--
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	140	150	--
6/18/92	MW2	--	140*	ND	ND	ND	ND	--
	MW4	--	ND	0.41	0.84	ND	0.55	--
	MW5	ND	ND	ND	ND	ND	ND	--
	MW6	--	ND	ND	ND	ND	ND	--
	MW7	990♦	5,500	340	4.2	380	410	--
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	990	1,600	--

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October 15, 1993

TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Sample Well #	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE
12/19/91	MW2	--	140	0.66	ND	0.64	1.2	--
	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	280	270	--
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	89	130	--
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	25	120	--

-- 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.

♦♦ 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

Date	Sample Well #	TOG (ppm)	bis(2-ethyl-hexyl) phthalate*	2-methyl-naphthalene*	naphthalene*	1,2-Dichloroethane**
9/09/93	MW5	--	--	--	--	ND
	MW7♦	--	ND	11	48	1.5
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

TABLE 3 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

* 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.

-- Indicates analysis was not performed.

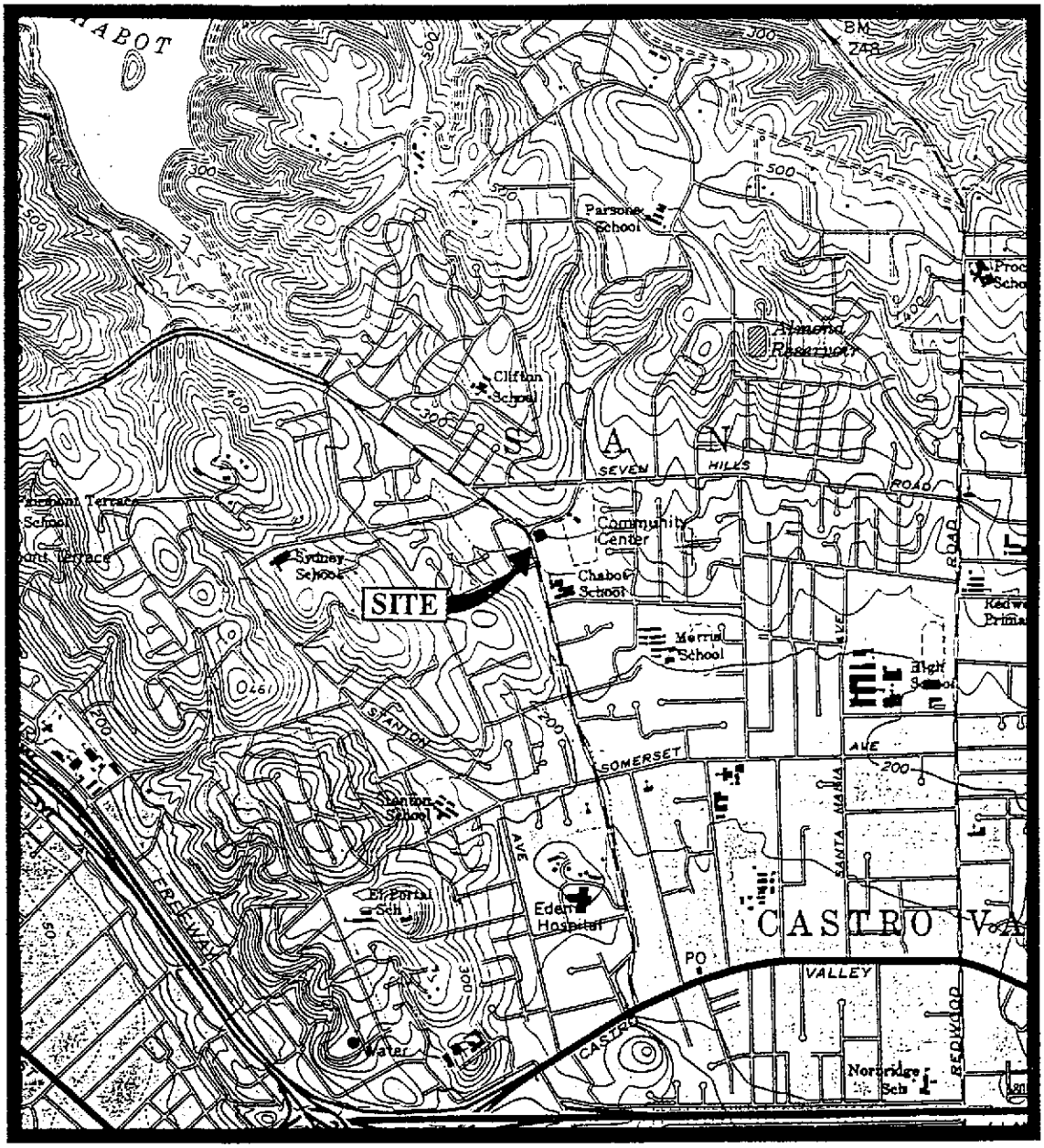
♦ Seven "tentatively identified compounds" were detected by the EPA method 8270 open scan at concentrations ranging 11 ppb to 88 ppb. Refer to laboratory analysis sheets for the specific compounds and concentrations.

♦♦ 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.

ND = Non-detectable.

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

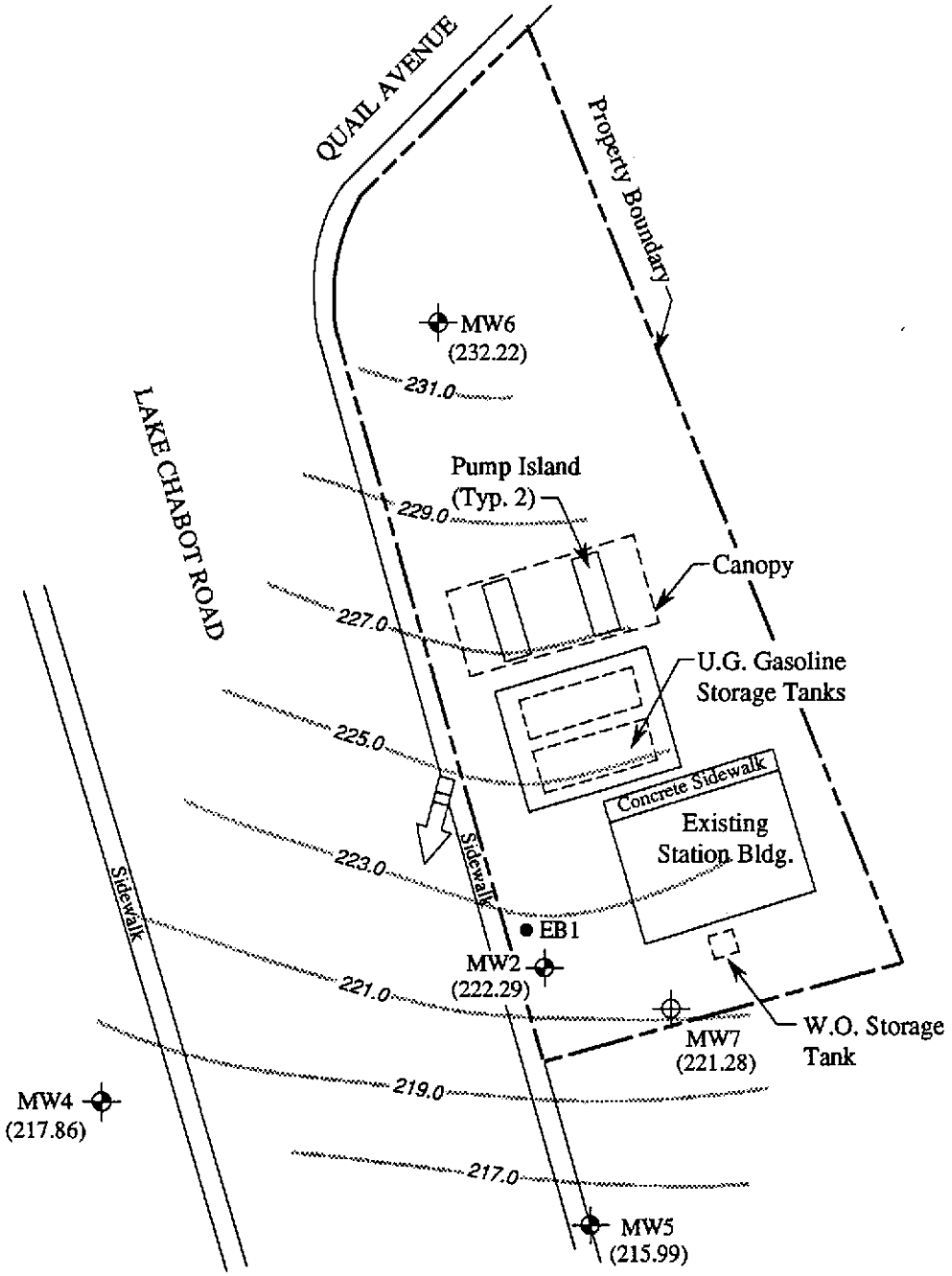


Base modified from 7.5 minute U.S.G.S. Hayward Quadrangle
(photorevised 1980)

0 2000 4000

Approx. scale feet

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 in feet above Mean Sea Level
- Contours of ground water elevation
- Direction of ground water flow

0 40 80

Approx. scale feet

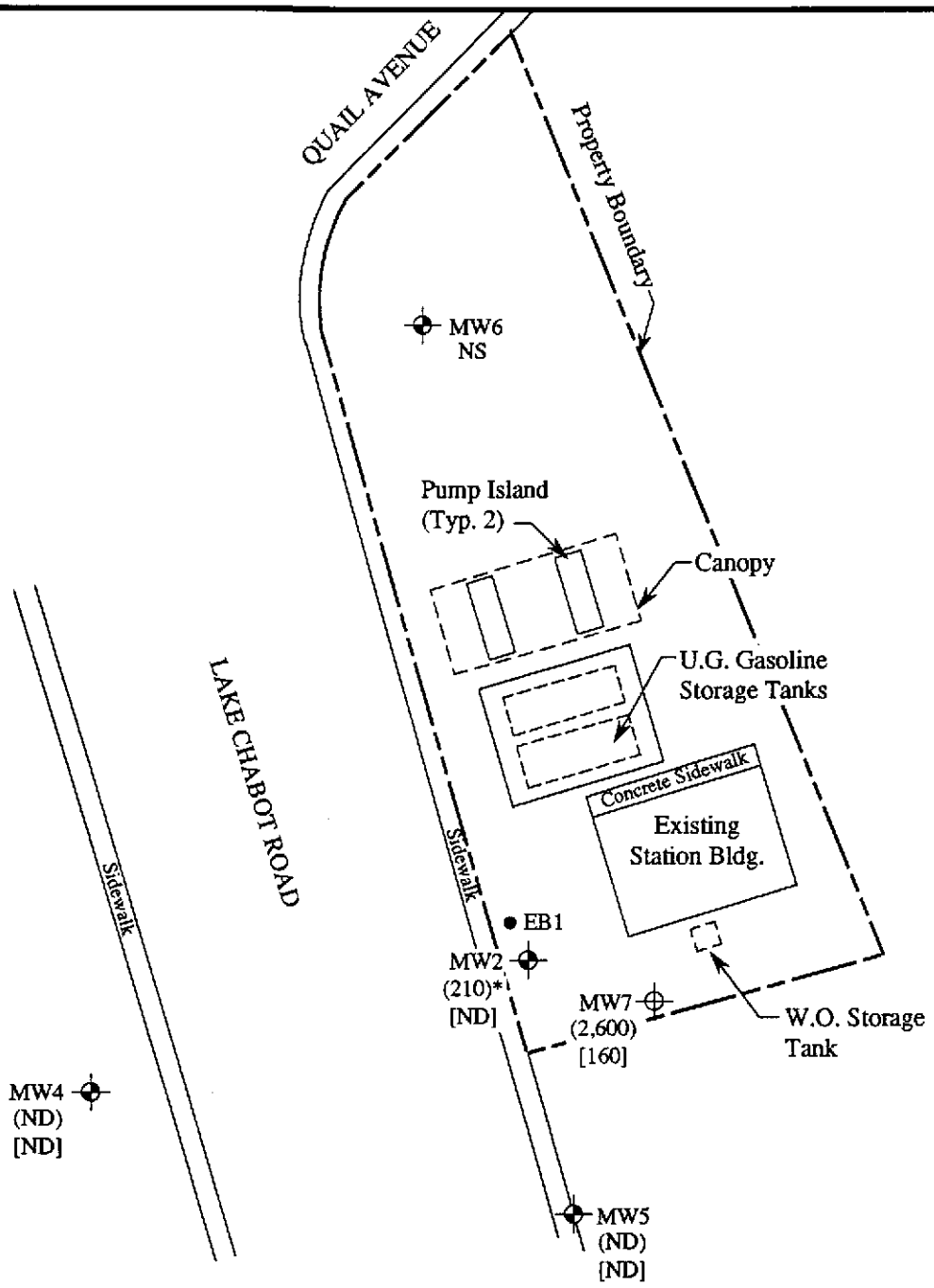
(Base modified from AGS report 18061-4 Plate P-2)

POTENTIOMETRIC SURFACE MAP FOR THE SEPTEMBER 9, 1993 MONITORING EVENT

KAPREALIAN ENGINEERING
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 HYDROCARBON CONCENTRATIONS IN GROUND WATER ON SEPTEMBER 9, 1993

KAPREALIAN ENGINEERING
INCORPORATED

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

FIGURE
2

SEQUOIA ANALYTICAL

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal #5484, 18950 Lake Chabot Rd., Castro Valley	Sampled:	Sep 9, 1993
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Water	Received:	Sep 9, 1993
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported:	Sep 23, 1993
Attention: Avo Avedessian	First Sample #:	309-0506		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 309-0506 MW 2*	Sample I.D. 309-0507 MW 4	Sample I.D. 309-0508 MW 5	Sample I.D. 309-0509 MW 7*	Sample I.D. Matrix Blank
Purgeable Hydrocarbons	50	210	N.D.	N.D.	2,600	N.D.
Benzene	0.5	N.D.	N.D.	N.D.	160	N.D.
Toluene	0.5	N.D.	N.D.	N.D.	19	N.D.
Ethyl Benzene	0.5	N.D.	N.D.	N.D.	250	N.D.
Total Xylenes	0.5	N.D.	N.D.	N.D.	120	N.D.
Chromatogram Pattern:		Discrete Peak	--	--	Gasoline & Discrete Peak	--

Quality Control Data

Report Limit Multiplication Factor:	2.0	1.0	1.0	10	1.0
Date Analyzed:	9/18/93	9/17/93	9/17/93	9/19/93	9/17/93
Instrument Identification:	HP-5	HP-4	HP-4	HP-5	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	97	98	99	97	96

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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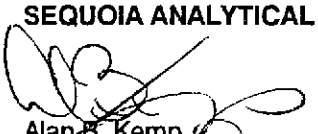

Alan B. Kemp
Project Manager

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

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal #5484, 18950 Lake Chabot Rd., Castro Valley	Sampled:	Sep 9, 1993
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Water	Received:	Sep 9, 1993
Concord, CA 94520	Analysis Method:	EPA 3510/3520/8015	Reported:	Sep 23, 1993
Attention: Avo Avedessian	First Sample #:	309-0508		

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 309-0508 MW 5*	Sample I.D. 309-0509 MW 7^	Sample I.D. Matrix Blank
Extractable Hydrocarbons	50	58	550	
Chromatogram Pattern:		Diesel & Discrete Peaks	Diesel & Non-Diesel Mixture (<C14)	

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0
Date Extracted:	9/15/93	9/15/93	9/15/93
Date Analyzed:	9/18/93	9/17/93	9/17/93
Instrument Identification:	HP-3B	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.

SEQUOIA ANALYTICAL

Alan B. Kemp
Project Manager

Please Note:
*Discrete Peaks refers to unidentified peaks in EPA 8270 Range.
^Non-Diesel Mixture, <C14, refers to unidentified peaks in the Kerosene/Stoddard Solvent Range.

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal #5484, 18950 Lake Chabot Rd., Castro Valley	Sampled:	Sep 9, 1993
2401 Stanwell Dr., Ste. 400	Sample Descript:	Water, MW5	Received:	Sep 9, 1993
Concord, CA 94520	Analysis Method:	EPA 5030/8010	Analyzed:	Sep 17, 1993
Attention: Avo Avedessian	Lab Number:	309-0508	Reported:	Sep 23, 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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Alan B. Kemp
Project Manager

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal #5484, 18950 Lake Chabot Rd., Castro Valley	Sampled:	Sep 9, 1993
2401 Stanwell Dr., Ste. 400	Sample Descript:	Water, MW7	Received:	Sep 9, 1993
Concord, CA 94520	Analysis Method:	EPA 5030/8010	Analyzed:	Sep 17, 1993
Attention: Avo Avedessian	Lab Number:	309-0509	Reported:	Sep 23, 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	1.5
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

Alan B. Kemp
Project Manager

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
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Kaprealian Engineering, Inc.	Client Project ID:	Unocal #5484, 18950 Lake Chabot Rd., Castro Valley	Sampled:	Sep 9, 1993
2401 Stanwell Dr., Ste. 400	Sample Descript:	Water, MW7	Received:	Sep 9, 1993
Concord, CA 94520	Analysis Method:	EPA 8270	Extracted:	Sep 10, 1993
Attention: Avo Avedessian	Lab Number:	309-0509	Analyzed:	Sep 16, 1993
			Reported:	Sep 23, 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	N.D.
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 #5484, 18950 Lake Chabot Rd., Castro Valley	Sampled:	Sep 9, 1993
2401 Stanwell Dr., Ste. 400	Sample Descript:	Water, MW7	Received:	Sep 9, 1993
Concord, CA 94520	Analysis Method:	EPA 8270	Extracted:	Sep 10, 1993
Attention: Avo Avedessian	Lab Number:	309-0509	Analyzed:	Sep 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	11
2-Methylphenol	2.0	N.D.
4-Methylphenol	2.0	N.D.
Naphthalene	2.0	48
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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Alan B. Kemp
Project Manager

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal #5484, 18950 Lake Chabot Rd., Castro Valley	Sampled:	Sep 9, 1993
2401 Stanwell Dr., Ste. 400	Sample Descript:	Water	Received:	Sep 9, 1993
Concord, CA 94520	Analysis Method:	EPA 8270 & "T.I.C."	Extracted:	Sep 10, 1993
Attention: Avo Avedessian	Lab Number:	309-0509	Analyzed:	Sep 16, 1993
			Reported:	Sep 23, 1993

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

Analyte	Detection Limit µg/L	Sample Results µg/L
Benzene, Ethyl	10	88
Benzene, 1,4-Dimethyl	10	20
Benzene, Propyl	10	16
Benzene, 1,3,5-Trimethyl	10	26
Benzene, 1-Ethenyl-2-Methyl	10	66
1H-Indene,2,3-Dihydro-4-Methyl	10	11
1H-Indene,2,3-Dihydro-5-Methyl	10	19

No additional peaks > 5 µg/L were identified by the Mass Spectral Library.

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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 #5484, 18950 Lake Chabot Rd.,, Castro Valley
2401 Stanwell Dr., Ste. 400	Matrix:	Water
Concord, CA 94520		
Attention: Avo Avedessian	QC Sample Group: 309-0506	Reported: Sep 23, 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#:	2LCS091793	2LCS091793	2LCS091793	2LCS091793	BLK091593
Date Prepared:	9/17/93	9/17/93	9/17/93	9/17/93	9/15/93
Date Analyzed:	9/17/93	9/17/93	9/17/93	9/17/93	9/17/93
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4	HP-3B
LCS % Recovery:	107	106	107	109	97
Control Limits:	70-130	70-130	70-130	70-130	80-120
MS/MSD Batch #:	3090609	3090609	3090609	3090609	BLK091593
Date Prepared:	9/17/93	9/17/93	9/17/93	9/17/93	9/15/93
Date Analyzed:	9/17/93	9/17/93	9/17/93	9/17/93	9/17/93
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4	HP-3B
Matrix Spike % Recovery:	105	105	105	105	97
Matrix Spike Duplicate % Recovery:	100	100	100	102	101
Relative % Difference:	4.9	4.9	4.9	2.9	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.

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Kapreallan Engineering, Inc.	Client Project ID:	Unocal #5484, 18950 Lake Chabot Rd.,, Castro Valley
2401 Stanwell Dr., Ste. 400	Matrix:	Water
Concord, CA 94520		
Attention: Avo Avedessian	QC Sample Goup:	3090506-509 Reported: Sep 23, 1993

QUALITY CONTROL DATA REPORT

ANALYTE:	1,1-Dichloro-ethene	Trichloroethene	Chloro-Benzene
Method:	EPA 8010	EPA 8240	EPA 8240
Analyst:	K.N.	K.N.	K.N.
Conc. Spiked:	10	10	10
Units:	µg/L	µg/L	µg/L
LCS Batch#:	LCS091793	LCS091793	LCS091793
Date Prepared:	9/17/93	9/17/93	9/17/93
Date Analyzed:	9/17/93	9/17/93	9/17/93
Instrument I.D.#:	HP-5890/1	HP-5890/1	HP-5890/1
LCS % Recovery:	86	89	76
Control Limits:	70-130	70-130	70-130
MS/MSD Batch #:	3090439	3090439	3090439
Date Prepared:	9/17/93	9/17/93	9/17/93
Date Analyzed:	9/17/93	9/17/93	9/17/93
Instrument I.D.#:	HP-5890/1	HP-5890/1	HP-5890/1
Matrix Spike % Recovery:	85	89	76
Matrix Spike Duplicate % Recovery:	99	99	89
Relative % Difference:	15	11	16

Please Note:
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Project Manager

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Kapreallan Engineering, Inc.	Client Project ID:	Unocal #5484, 18950 Lake Chabot Rd.,, Castro Valley
2401 Stanwell Dr., Ste. 400	Matrix:	Water
Concord, CA 94520		
Attention: Avo Avedessian	QC Sample Goup:	3090506-509

Reported: Sep 23, 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#:	LCS091093	LCS091093	LCS091093	LCS091093	LCS091093	LCS091093
Date Prepared:	9/10/93	9/10/93	9/10/93	9/10/93	9/10/93	9/10/93
Date Analyzed:	9/16/93	9/16/93	9/16/93	9/16/93	9/16/93	9/16/93
Instrument I.D.#:	GC/MS1	GC/MS1	GC/MS1	GC/MS1	GC/MS1	GC/MS1
LCS % Recovery:	52	74	64	90	68	88
Control Limits:	12-89	27-123	36-97	41-116	39-98	23-97
MS/MSD Batch #:	BLK091093	BLK091093	BLK091093	BLK091093	BLK091093	BLK091093
Date Prepared:	9/10/93	9/10/93	9/10/93	9/10/93	9/10/93	9/10/93
Date Analyzed:	9/16/93	9/16/93	9/16/93	9/16/93	9/16/93	9/16/93
Instrument I.D.#:	GC/MS1	GC/MS1	GC/MS1	GC/MS1	GC/MS1	GC/MS1
Matrix Spike % Recovery:	52	74	64	90	68	88
Matrix Spike Duplicate % Recovery:	59	79	68	96	76	93
Relative % Difference:	13	6.5	6.1	6.5	11	5.5

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Kapreallan Engineering, Inc.	Client Project ID:	Unocal #5484, 18950 Lake Chabot Rd.,, Castro Valley
2401 Stanwell Dr., Ste. 400	Matrix:	Water
Concord, CA 94520		
Attention: Avo Avedessian	QC Sample Group: 3090506-509	Reported: Sep 23, 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#:	LCS091093	LCS091093	LCS091093	LCS091093	LCS091093
Date Prepared:	9/10/93	9/10/93	9/10/93	9/10/93	9/10/93
Date Analyzed:	9/16/93	9/16/93	9/16/93	9/16/93	9/16/93
Instrument I.D.#:	GC/MS1	GC/MS1	GC/MS1	GC/MS1	GC/MS1
LCS % Recovery:	88	45	72	63	102
Control Limits:	46-118	10-80	24-96	9-103	26-127
MS/MSD Batch #:	BLK091093	BLK091093	BLK091093	BLK091093	BLK091093
Date Prepared:	9/10/93	9/10/93	9/10/93	9/10/93	9/10/93
Date Analyzed:	9/16/93	9/16/93	9/16/93	9/16/93	9/16/93
Instrument I.D.#:	GC/MS1	GC/MS1	GC/MS1	GC/MS1	GC/MS1
Matrix Spike % Recovery:	88	45	72	63	102
Matrix Spike Duplicate % Recovery:	92	45	82	62	102
Relative % Difference:	4.4	0.0	13	1.6	0.0

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Project Manager

Please Note:
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Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Avo Avedessian

Client Project ID: Unocal #5484, 18950 Lake Chabot Rd.,, Castro Valley

QC Sample Group: 3090508-509

Reported: Sep 23, 1993

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA 8015	EPA 8015	EPA 8015
Analyst:	K.W.	K.W.	K.W.
Reporting Units:	µg/L	µg/L	µg/L
Date Analyzed:	Sep 18, 1993	Sep 17, 1993	Sep 17, 1993
Sample #:	309-0508	309-0509	Matrix Blank
Surrogate % Recovery:	92	93	100

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Alan B. Kemp
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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Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Avo Avedessian

Client Project ID: Unocal #5484, 18950 Lake Chabot Rd.,, Castro Valley

QC Sample Group: 3090508-509

Reported: Sep 23, 1993

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA 8010	EPA 8010	EPA 8010
Analyst:	K.N.	K.N.	K.N.
Reporting Units:	µg/L	µg/L	µg/L
Date Analyzed:	Sep 17, 1993	Sep 17, 1993	Sep 17, 1993
Sample #:	309-0508	309-0509	Blank
Surrogate #1 % Recovery:	84	89	104
Surrogate #2 % Recovery:	95	99	87

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Alan B. Kemp
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: Varthes

WITNESSING AGENCY:

S/S # 5484 SITE NAME & ADDRESS: Unocal / Castro Valley, 18950 Lake Chabot Rd

TURN AROUND TIME: Regular

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPHG/BTXE	TPH D	8010	8270 (open scan)	REMARKS
MW2	9/9/93	11:00 am.		X	X		2	Monitoring Well	X				3090506 AB
MW4	"			X	X		2	" "	X				0507 ↓
MW5	"			X	X		5	" "	X	X	X		0508 A-E
MW7	"	12:50 pm.		X	X		6	" "	X	X	X	X	0509 A-F

Relinquished by: (Signature) W. Kaldjian — Date/Time 9/10/93 12:51 — Received by: (Signature)

Relinquished by: (Signature) — Date/Time 9-10-93 3:00 pm — Received by: (Signature) Melissa Cruse

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? 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 — Analyst (Title) — 9-9-93 (Date)