KAPREALIAN ENGINEERING
INCORPORATED

93 OCT 13 AM 9:12

October 4, 1993

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

BC Shid # 3693

Attention: Ms. ~~Cynthia Chapman~~ Barney

RE: Unocal Service Station #3135
845 - 66th Avenue
Oakland, California

Dear Ms. Chapman:

Per the request of Mr. Tim Howard of Unocal Corporation, enclosed please find our report dated September 3, 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.

Brenda M. Pepito

bmp/82

Enclosure

cc: Mr. Tim Howard, Unocal Corporation

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

KAPREALIAN ENGINEERING
INCORPORATED

KEI-P88-1203.QR9
September 3, 1993

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

Attention: Mr. Tim Howard

RE: Quarterly Report
Unocal Service Station #3135
845 - 66th Avenue
Oakland, California

Dear Mr. Howard:

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 monthly and sampled on a quarterly basis. This report covers the work performed by KEI from June through August of 1993.

BACKGROUND

The subject site contains a Unocal service station facility. Two underground fuel storage tanks, one waste oil tank, and the product piping were removed from the site in November and December of 1989 during tank replacement activities. During March and April of 1991, approximately 2,000 cubic yards of contaminated soil were excavated from the area in the vicinity of the former (pre-1967) fuel tank pit. The soil excavation was conducted to a depth of approximately 1 foot below ground water (11 feet below grade). Ten monitoring wells, two exploratory borings, and a Hydropunch study (seven probe locations) have been installed/performed 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 quarterly report (KEI-P88-1203.R14) dated June 10, 1993.

RECENT FIELD ACTIVITIES

The ten monitoring wells (MW1 through MW10) were monitored three times and were sampled once during the quarter, except well MW1, which was not monitored during the June 15, 1993, monitoring event

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because it was inaccessible. 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.

Ground water samples were collected from all of the wells on August 13, 1993. Prior to sampling, the wells were each purged of between 8 and 12 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 August 13, 1993, ranged between 7.85 and 10.23 feet below grade. The water levels in all of the wells have shown net decreases ranging from 1.38 to 2.38 feet since May 17, 1993. Based on the water level data gathered during the quarter, the ground water flow direction appeared to be complex, but predominantly to the northeast over the majority of the site, as shown on the attached Potentiometric Surface Maps, Figures 1, 2, and 3. The hydraulic gradient at the site on August 13, 1993, was approximately 0.003.

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, TPH as diesel by EPA method 3510/modified 8015, and benzene, toluene, ethylbenzene, and xylenes by EPA method 8020.

The analytical results of all of the ground water samples collected from the monitoring wells to date are summarized in Table 2. The concentrations of TPH as gasoline, benzene, and TPH as diesel 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 based on no evidence of free

product in any of the wells, KEI recommends the continuation of the current ground water monitoring and sampling program. The wells are currently monitored monthly and sampled on a quarterly basis.

DISTRIBUTION

A copy of this report should be sent to Ms. Cynthia Chapman of the Alameda County Health Care Services Agency, and to Mr. Lester Feldman of 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 A. Soghomonian
Staff Engineer

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

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

Robert H. Kezerian
Project Engineer

/jad

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

KEI-P88-1203.QR9
September 3, 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 August 13, 1993)			
MW1	-4.82	10.00	0	No	9
MW2	-4.81	8.64	0	No	10
MW3	-4.55	7.85	0	No	10
MW4	-4.96	10.23	0	No	11
MW5	-4.88	9.49	0	No	12
MW6	-4.89	9.20	0	No	12
MW7	-4.39	9.23	0	No	8
MW8	-4.88	10.00	0	No	10
MW9	-4.85	9.69	0	No	10
MW10	-5.08	8.42	0	No	11
		(Monitored on July 14, 1993)			
MW1	-4.30	9.48	0	--	0
MW2	-4.30	8.13	0	--	0
MW3	-3.62	6.92	0	--	0
MW4	-4.47	9.74	0	--	0
MW5	-4.37	8.98	0	--	0
MW6	-4.38	8.69	0	--	0
MW7	-3.71	8.55	0	--	0
MW8	-4.35	9.47	0	--	0
MW9	-4.29	9.13	0	--	0
MW10	-4.67	8.01	0	--	0
		(Monitored on June 15, 1993)			
MW1	WELL WAS INACCESSIBLE				
MW2	-3.19	7.02	0	--	0
MW3	-2.27	5.57	0	--	0
MW4	-3.73	9.00	0	--	0
MW5	-3.57	8.18	0	--	0
MW6	-3.45	7.76	0	--	0
MW7	-2.63	7.47	0	--	0
MW8	-3.55	8.67	0	--	0
MW9	-3.50	8.34	0	--	0
MW10	-3.88	7.22	0	--	0

KEI-P88-1203.QR9
September 3, 1993

TABLE 1 (Continued)

SUMMARY OF MONITORING DATA

Well #	Well Cover Elevation* (feet)
MW1	5.18
MW2	3.83
MW3	3.30
MW4	5.27
MW5	4.61
MW6	4.31
MW7	4.84
MW8	5.12
MW9	4.84
MW10	3.34

-- Sheen determination was not performed.

* The elevations of the tops of the well covers have been surveyed relative to Mean Sea Level, per the City of Oakland Benchmark No. 3881 (elevation = 4.72 MSL).

KEI-P88-1203.QR9
September 3, 1993

TABLE 2

SUMMARY OF LABORATORY ANALYSES
WATER

Sample Number	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	TOG
			(Collected on August 13, 1993)				
MW1	170♦♦	860	3.5	ND	17	20	--
MW2	2,800♦♦	44,000	5,100	600	2,900	8,500	--
MW3	ND	ND	ND	ND	ND	ND	--
MW4	2,000♦♦	19,000	ND	ND	1,600	4,100	--
MW5	ND	ND	ND	ND	ND	ND	--
MW6	440♦♦	2,300	330	ND	95	40	--
MW7	ND	ND	ND	ND	ND	ND	--
MW8	ND	ND	ND	ND	ND	ND	--
MW9	ND	ND	ND	ND	ND	ND	--
MW10	97♦♦	1,500**	ND	ND	41	21	--
			(Collected on May 17, 1993)				
MW1	490♦♦	960**	39	ND	57	60	--
MW2	5,500♦♦	46,000	4,400	510	2,900	9,900	--
MW3	53	ND	ND	ND	ND	ND	--
MW4	3,100♦	2,500	ND	ND	170	410	--
MW5	ND	ND	ND	ND	ND	ND	--
MW6	1,400♦	4,900	890	46	210	530	--
MW7	ND	ND	ND	ND	ND	ND	--
MW8	ND	ND	ND	ND	ND	ND	--
MW9	ND	ND	ND	ND	ND	ND	--
MW10	ND	1,200*	ND	ND	ND	ND	--
			(Collected on February 3, 1993)				
MW1	ND	94**	ND	ND	1.4	1.6	--
MW2	3,900♦	9,300	780	68	830	1,200	ND
MW3	ND	ND	ND	ND	ND	ND	--
MW4	720♦♦	370	2.6	ND	1.2	53	--
MW5	ND	ND	ND	ND	ND	ND	--
MW6	ND	ND	1.2	ND	ND	ND	ND
MW8	ND	ND	ND	ND	ND	ND	--
MW9	ND	ND	ND	ND	ND	ND	--
MW10	ND	1,200*	ND	ND	ND	ND	--

TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

Sample Number	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	TOG
			(Collected on November 3, 1992)				
MW1	400♦	1,100	28	ND	80	78	--
MW2	9,600♦	40,000	5,600	130	3,000	6,100	ND
MW3	52♦	ND	ND	ND	ND	ND	--
MW4	8,300♦	36,000	69	ND	3,000	7,400	--
MW5	ND	ND	ND	ND	ND	ND	--
MW6	220♦	920	45	0.76	12	110	ND
MW8	ND	ND	ND	ND	ND	ND	--
MW9	ND	ND	ND	ND	ND	ND	--
MW10	160♦	740	11	2.1	32	56	--
			(Collected on August 3, 1992)				
MW1	220♦	980	22	0.69	77	82	--
MW2	3,300♦♦	37,000	4,500	480	3,300	9,700	ND
MW3	58	ND	ND	ND	ND	ND	--
MW4	2,400♦	24,000	61	ND	2,100	5,400	--
MW5	ND	ND	ND	ND	ND	ND	--
MW6	170♦	1,100	180	1.1	62	78	ND
			(Collected on May 5, 1992)				
MW1	120	310	5.7	ND	7.1	15	--
MW2	4,600	26,000	2,300	110	2,700	6,900	ND
MW3	56	ND	ND	ND	0.43	1.8	--
MW4	3,200	15,000	82	12	2,000	5,600	--
MW5	72	ND	ND	ND	0.42	1.4	--
MW6	47	ND	ND	ND	ND	1.3	ND
			(Collected on February 7, 1992)				
MW1	ND	220	2.1	ND	10	16	--
MW2	2,300	11,000	1,400	30	1,900	1,400	ND
MW3	ND	ND	ND	ND	ND	ND	--
MW4	2,300	8,100	24	4.9	1,800	3,200	--
MW5	ND	ND	ND	ND	0.36	0.94	--
MW6	ND	180	22	0.68	22	20	ND

TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

Sample Number	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	TOG
(Collected on November 5, 1991)							
MW1	260	4,900	80	ND	150	160	--
MW2	3,900	110,000	4,200	200	3,400	8,600	78
MW3	ND	31	ND	ND	ND	0.65	--
MW4	7,700	140,000	320	ND	4,800	13,000	--
MW5	ND	ND	ND	ND	ND	ND	--
MW6	300	7,100	200	ND	190	580	ND
(Collected on August 5, 1991)							
MW1	200	1,200	95	6.2	230	80	--
MW2	4,200	33,000	2,900	190	3,400	7,900	ND
MW3	63	ND	ND	ND	ND	ND	--
MW4	6,200	37,000	310	70	3,600	9,700	--
MW5	ND	ND	ND	ND	ND	ND	--
MW6	130	860	130	11	92	150	ND
(Collected on February 21, 1991)							
MW1	690	26,000	280	39	1,200	1,900	--
MW2	7,000	3,400	160	61	200	490	ND
MW3	--	ND	ND	ND	ND	0.64	--
MW4	4,100	33,000	210	21	3,800	12,000	--
MW5	--	56	ND	ND	ND	4.7	--
MW6	160	750	77	14	23	140	ND
MWD (MW6 duplicate)	--	740	74	12	33	140	--
(Collected on November 26, 1990)							
MW1	--	2,900	160	2.3	330	320	--
MW2	3,800	15,000	1,600	450	1,100	2,100	ND
MW3	--	ND	ND	ND	ND	ND	--
MW4	--	49,000	360	36	3,800	11,000	--
MW5	--	ND	ND	ND	ND	ND	--
MW6	320	4,800	1,000	200	340	650	ND
MW7 (MW6 duplicate)	--	4,000	800	120	250	440	--

KEI-P88-1203.QR9
September 3, 1993

TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

Sample Number	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	TOG
(Collected on August 28, 1990)							
MW1	--	1,700	140	1.4	180	150	--
MW2	3,100	27,000	2,600	1,300	1,900	3,000	ND
MW3	--	ND	ND	ND	ND	0.70	--
MW4	--	62,000	810	72	4,400	4,600	--
MW5	--	ND	ND	ND	ND	1.2	--
MW6	1,000	12,000	1,700	1,400	230	2,100	16
MW7	--	2,600	180	3.0	810	270	--
(MW1 duplicate)							
(Collected on May 11, 1990)							
MW1	--	22,000	590	42	1,200	3,600	--
MW2	--	65,000	3,300	3,300	4,100	12,000	--
MW3	--	ND	ND	ND	ND	ND	--

* 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 gasoline and non-gasoline mixture.

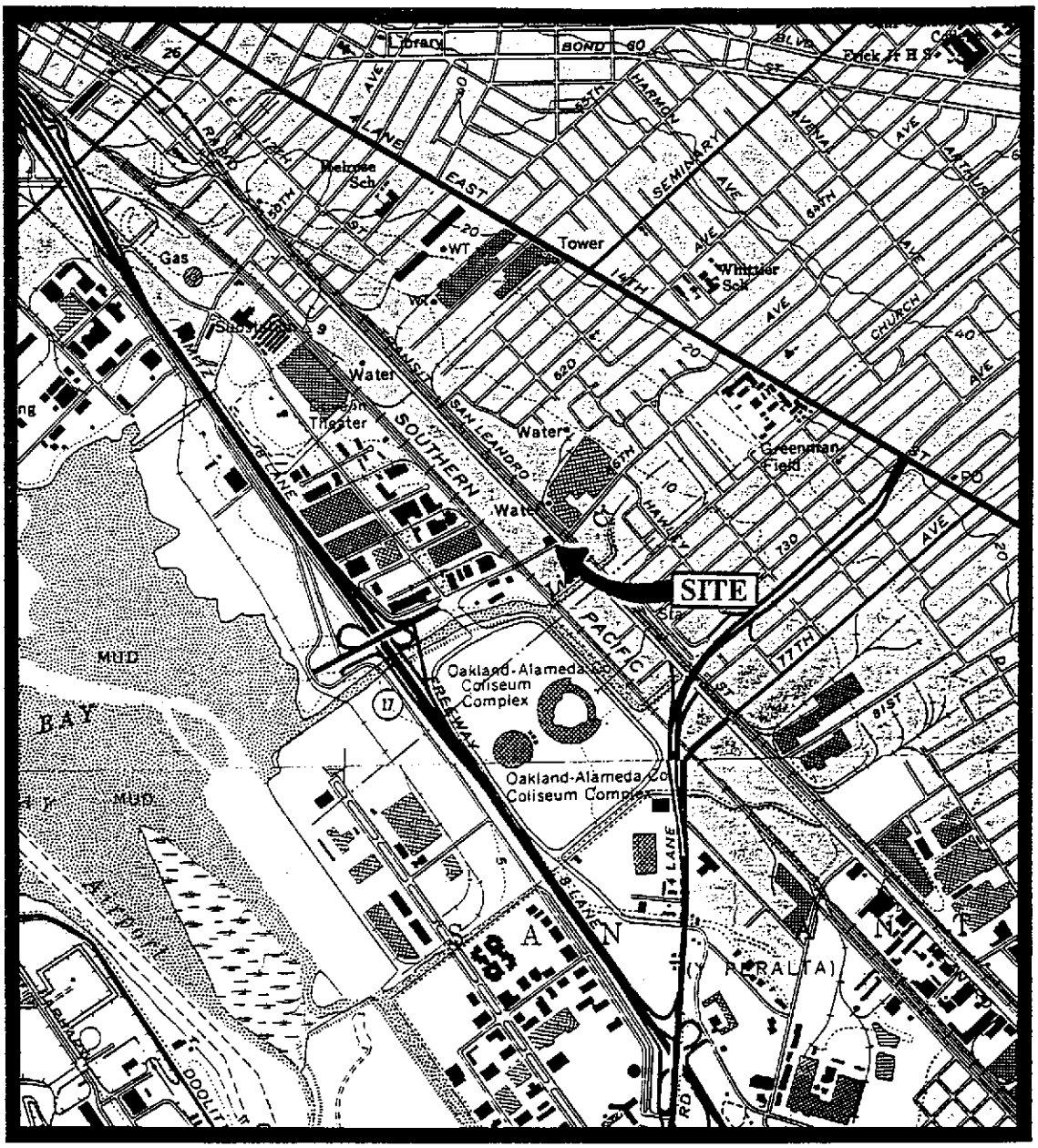
♦ Sequoia Analytical Laboratory reported that the hydrocarbons detected did not appear to be diesel.

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

ND = Non-detectable.

-- Indicates analysis was not performed.

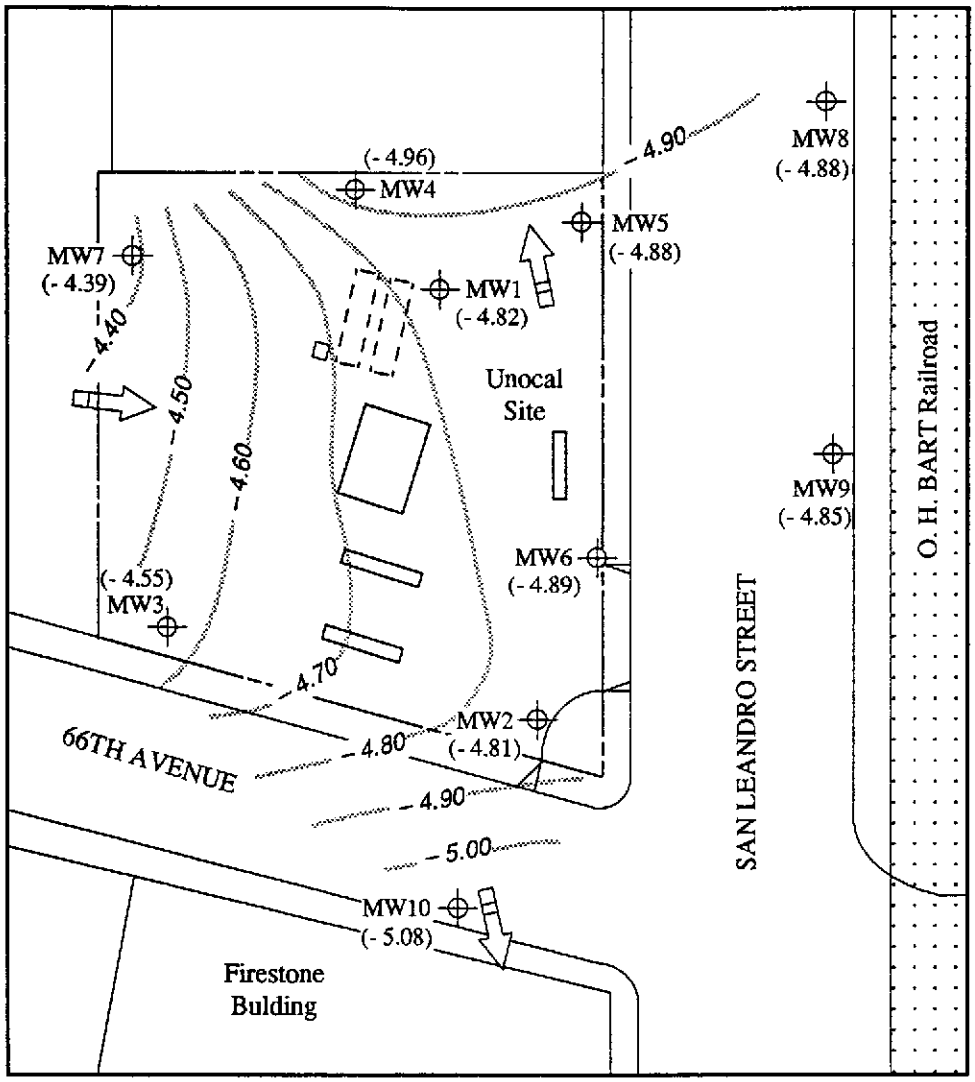
Results in parts per billion (ppb), unless otherwise indicated.



Base modified from 7.5 minute U.S.G.S.
Oakland East and San Leandro Quadrangles
(both photorevised 1980)

0 2000 4000
Approx. scale feet

KAPREALIAN ENGINEERING INCORPORATED	UNOCAL SERVICE STATION #3135 845 - 66TH AVENUE OAKLAND, CALIFORNIA	LOCATION MAP



LEGEND

- Monitoring well
- Direction of ground water flow
- ( ) Ground water elevation in feet relative to Mean Sea Level
- Contours of ground water elevation

0 60 120

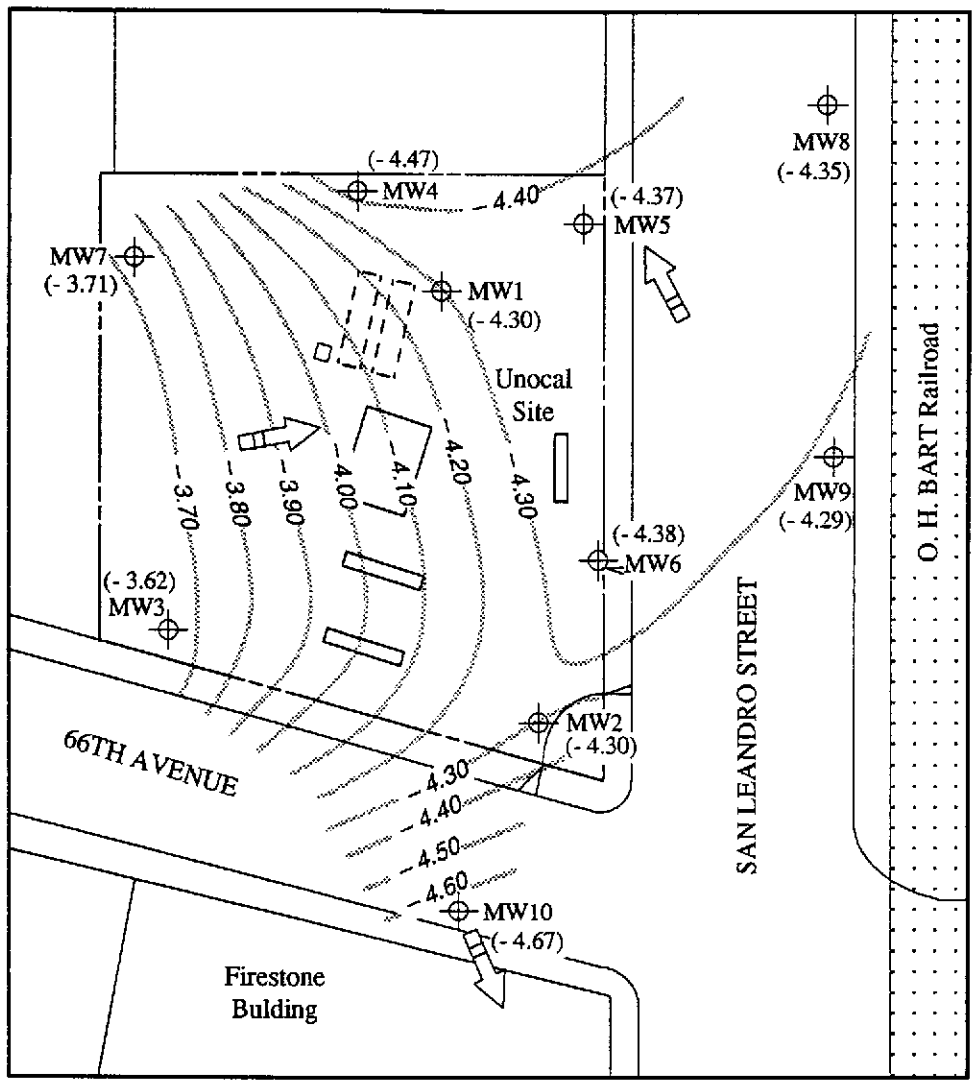
Approx. scale feet

POTENTIOMETRIC SURFACE MAP FOR THE AUGUST 13, 1993 MONITORING EVENT

KAPREALIAN ENGINEERING
INCORPORATED

UNOCAL SERVICE STATION #3135
845 - 66TH AVENUE
OAKLAND, CA

FIGURE
1



LEGEND

- Monitoring well
- Direction of ground water flow
- ( ) Ground water elevation in feet relative to Mean Sea Level
- Contours of ground water elevation

0 60 120

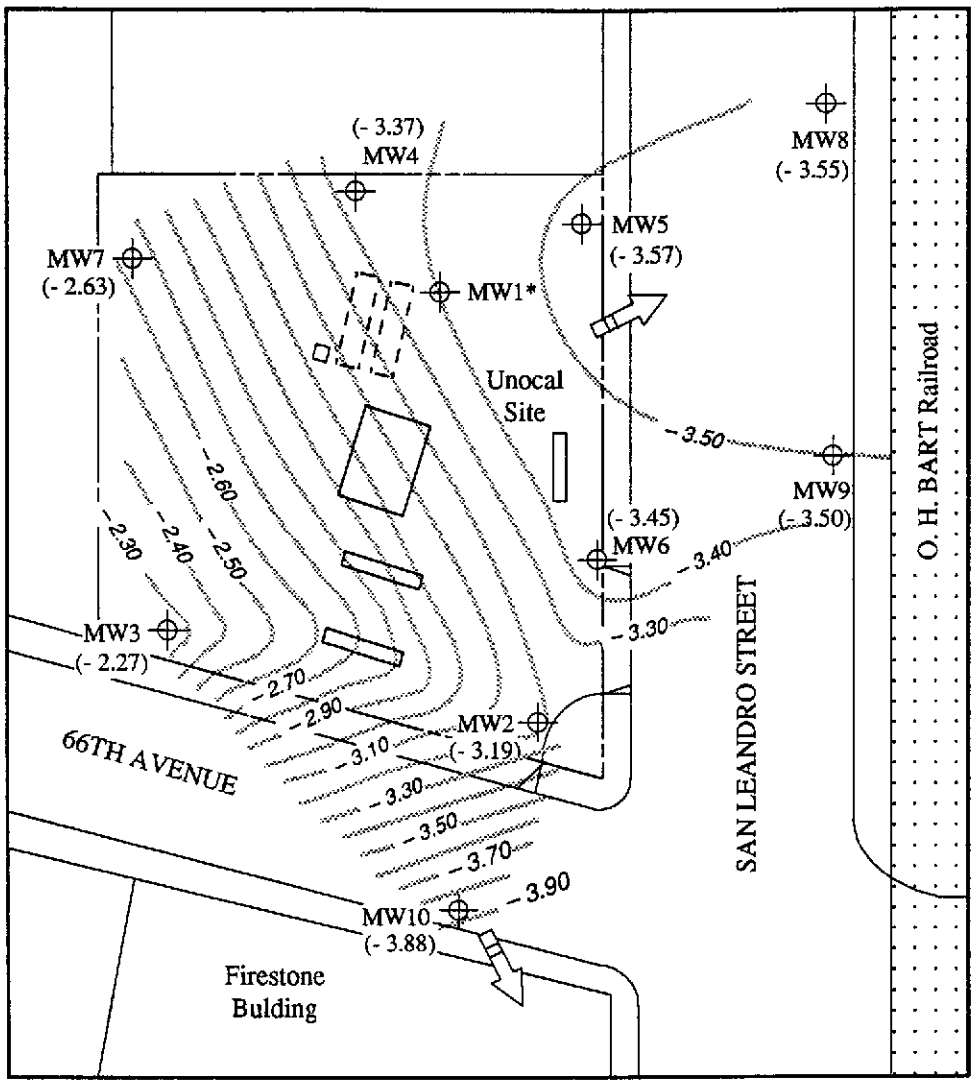
Approx. scale feet

POTENTIOMETRIC SURFACE MAP FOR THE JULY 14, 1993 MONITORING EVENT

KAPREALIAN ENGINEERING
INCORPORATED

UNOCAL SERVICE STATION #3135
845 - 66TH AVENUE
OAKLAND, CA

FIGURE
2



LEGEND

- Monitoring well
- Direction of ground water flow
- ( ) Ground water elevation in feet relative to Mean Sea Level
- Contours of ground water elevation
- * Not accessible

0 60 120

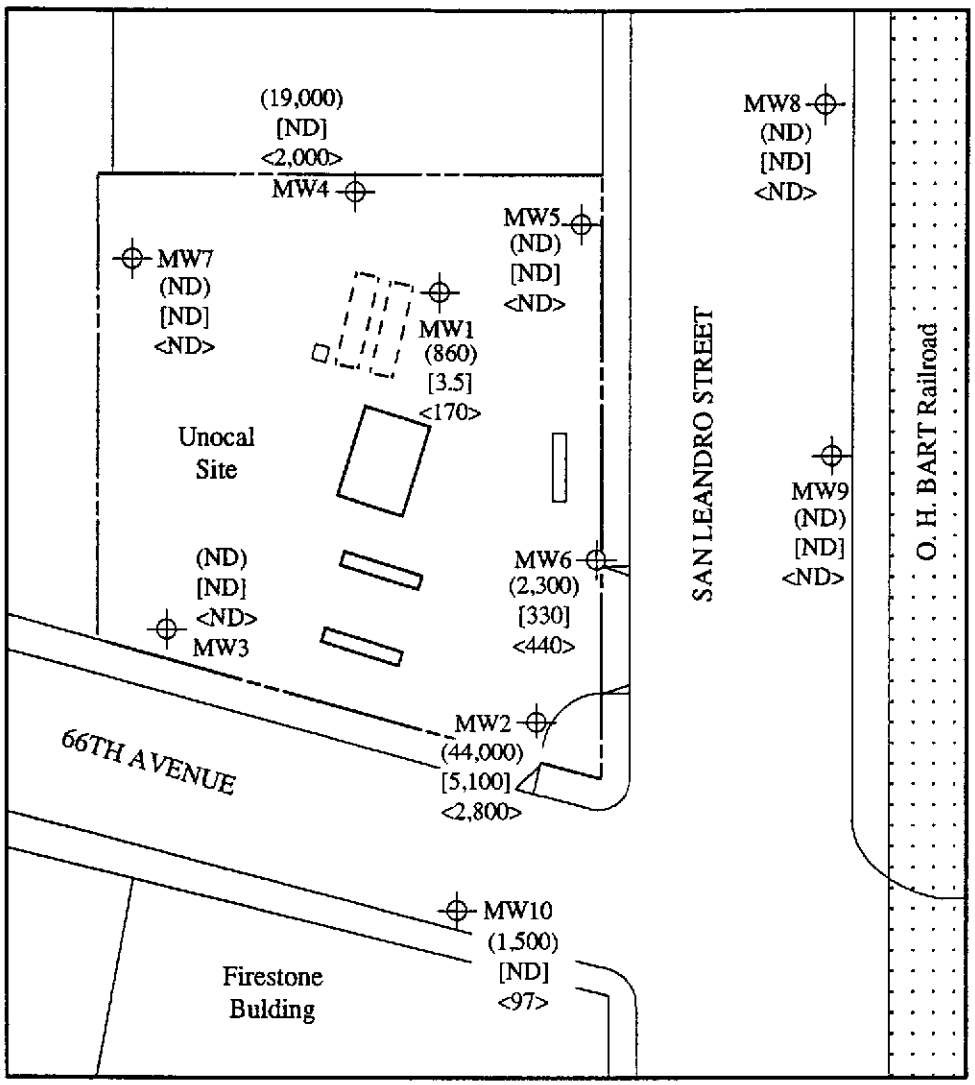
Approx. scale feet

POTENTIOMETRIC SURFACE MAP FOR THE JUNE 15, 1993 MONITORING EVENT

KAPREALIAN ENGINEERING
INCORPORATED

UNOCAL SERVICE STATION #3135
845 - 66TH AVENUE
OAKLAND, CA

FIGURE
3



LEGEND

- ⊕ Monitoring well
- ( ) Concentration of TPH as gasoline in ppb
- [ ] Concentration of benzene in ppb
- < > Concentration of TPH as diesel in ppb
- ND= Non-detectable

0 60 120

Approx. scale feet

PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON AUGUST 13, 1993

KAPREALIAN ENGINEERING
INCORPORATED

UNOCAL SERVICE STATION #3135
845 - 66TH AVENUE
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 #3135, 845 66th Avenue, Oakland	Sampled:	Aug 13, 1993
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Water	Received:	Aug 13, 1993
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported:	Aug 25, 1993
Attention: Avo Avedessian	First Sample #:	308-0589		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 308-0589 MW-1	Sample I.D. 308-0590 MW-2	Sample I.D. 308-0591 MW-3	Sample I.D. 308-0592 MW-4	Sample I.D. 308-0593 MW-5	Sample I.D. 308-0594 MW-6
Purgeable Hydrocarbons	50	860	44,000	N.D.	19,000	N.D.	2,300
Benzene	0.5	3.5	5,100	N.D.	N.D.	N.D.	330
Toluene	0.5	N.D.	600	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.5	17	2,900	N.D.	1,600	N.D.	95
Total Xylenes	0.5	20	8,500	N.D.	4,100	N.D.	40
Chromatogram Pattern:		Gasoline	Gasoline	--	Gasoline	--	Gasoline

Quality Control Data

Report Limit Multiplication Factor:	4.0	200	1.0	100	1.0	10
Date Analyzed:	8/24/93	8/20/93	8/18/93	8/18/93	8/18/93	8/19/93
Instrument Identification:	HP-2	HP-4	HP-2	HP-2	HP-2	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	117	92	101	108	98	94

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

SEQUOIA ANALYTICAL

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 #3135, 845 66th Avenue, Oakland	Sampled:	Aug 13, 1993
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Water	Received:	Aug 13, 1993
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported:	Aug 25, 1993
Attention: Avo Avedessian	First Sample #:	308-0595		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 308-0595 MW-7	Sample I.D. 308-0596 MW-8	Sample I.D. 308-0597 MW-9	Sample I.D. 308-0598 MW-10*	Sample I.D. Matrix Blank
Purgeable Hydrocarbons	50	N.D.	N.D.	N.D.	1,500	
Benzene	0.5	N.D.	N.D.	N.D.	N.D.	
Toluene	0.5	N.D.	N.D.	N.D.	N.D.	
Ethyl Benzene	0.5	N.D.	N.D.	N.D.	41	
Total Xylenes	0.5	N.D.	N.D.	N.D.	21	
Chromatogram Pattern:		--	--	--	Gasoline & Discrete Peak	

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	10	1.0
Date Analyzed:	8/19/93	8/19/93	8/19/93	8/19/93	8/19/93
Instrument Identification:	HP-4	HP-4	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	105	98	99	99	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

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 #3135, 845 66th Avenue, Oakland	Sampled: Aug 13, 1993
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Water	Received: Aug 13, 1993
Concord, CA 94520	Analysis Method:	EPA 3510/3520/8015	Reported: Aug 25, 1993
Attention: Avo Avedessian	First Sample #:	308-0589	

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 308-0589 MW-1*	Sample I.D. 308-0590 MW-2*	Sample I.D. 308-0591 MW-3	Sample I.D. 308-0592 MW-4*	Sample I.D. 308-0593 MW-5	Sample I.D. 308-0594 MW-6*
Extractable Hydrocarbons	50	170	2800	N.D.	2000	N.D.	440
Chromatogram Pattern:		Diesel & Non-Diesel Mixture (<C14)	Diesel & Non-Diesel Mixture (<C14)	--	Diesel & Non-Diesel Mixture (<C14)	--	Diesel & Non-Diesel Mixture (<C14)

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Extracted:	8/18/93	8/18/93	8/18/93	8/18/93	8/18/93	8/18/93
Date Analyzed:	8/24/93	8/24/93	8/24/93	8/24/93	8/24/93	8/24/93
Instrument Identification:	HP-3A	HP-3B	HP-3A	HP-3B	HP-3A	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

Alan B. Kemp
Project Manager

Please Note:
*Non-Diesel Mixture, < C14, is probably Gasoline.

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal #3135, 845 66th Avenue, Oakland	Sampled:	Aug 13, 1993
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Water	Received:	Aug 13, 1993
Concord, CA 94520	Analysis Method:	EPA 3510/3520/8015	Reported:	Aug 25, 1993
Attention: Avo Avedessian	First Sample #:	308-0595		

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 308-0595 MW-7	Sample I.D. 308-0596 MW-8	Sample I.D. 308-0597 MW-9	Sample I.D. 308-0598 MW-10*	Sample I.D. Matrix Blank
Extractable Hydrocarbons	50	N.D.	N.D.	N.D.	97	
Chromatogram Pattern:		--	--	--	Diesel & Non-Diesel Mixture (<C14)	

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0
Date Extracted:	8/18/93	8/18/93	8/18/93	8/18/93	8/18/93
Date Analyzed:	8/24/93	8/24/93	8/24/93	8/24/93	8/24/93
Instrument Identification:	HP-3B	HP-3A	HP-3A	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:
*Non-Diesel Mixture, <C14, is probably Gasoline.

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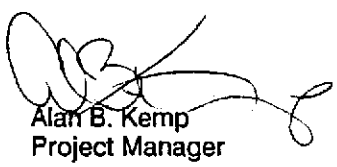
Kaprealian Engineering, Inc.	Client Project ID:	Unocal #3135, 845 66th Avenue, Oakland
2401 Stanwell Dr., Ste. 400	Matrix:	Water
Concord, CA 94520		
Attention: Avo Avedessian	QC Sample Group: 3080589-598	Reported: Aug 25, 1993

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	20	300
Units:	µg/L	µg/L	µg/L	µg/L	µg/L
LCS Batch#:	1LCS081983	1LCS081983	1LCS081983	1LCS081983	BLK081893
Date Prepared:	8/18/93	8/18/93	8/18/93	8/18/93	8/18/93
Date Analyzed:	8/18/93	8/18/93	8/18/93	8/18/93	8/24/93
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	HP-3B
LCS % Recovery:	103	100	100	103	91
Control Limits:	70-130	70-130	70-130	70-130	80-120
MS/MSD Batch #:	3080587	3080587	3080587	3080587	BLK081893
Date Prepared:	8/18/93	8/18/93	8/18/93	8/18/93	8/18/93
Date Analyzed:	8/18/93	8/18/93	8/18/93	8/18/93	8/24/93
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	HP-3B
Matrix Spike % Recovery:	105	105	105	107	91
Matrix Spike Duplicate % Recovery:	105	105	100	103	96
Relative % Difference:	0.0	0.0	4.9	3.8	5.0

SEQUOIA ANALYTICAL



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

Client Project ID: Unocal #3135, 845 66th Avenue, Oakland
QC Sample Group: 3080589-595
Reported: Aug 25, 1993

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA 8015	EPA 8015	EPA 8015	EPA 8015	EPA 8015	EPA 8015	EPA 8015
Analyst:	K.Wimer	K.Wimer	K.Wimer	K.Wimer	K.Wimer	K.Wimer	K.Wimer
Reporting Units:	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Aug 24, 1993	Aug 24, 1993	Aug 24, 1993	Aug 24, 1993	Aug 24, 1993	Aug 24, 1993	Aug 24, 1993
Sample #:	308-0589	308-0590	308-0591	308-0592	308-0593	308-0594	308-0595
Surrogate % Recovery:	91	94	103	100	105	119	95

SEQUOIA ANALYTICAL

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 #3135, 845 66th Avenue, Oakland
QC Sample Group: 3080596-598
Reported: Aug 25, 1993

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA 8015	EPA 8015	EPA 8015	EPA 8015
Analyst:	K.Wimer	K.Wimer	K.Wimer	K.Wimer
Reporting Units:	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Aug 24, 1993	Aug 24, 1993	Aug 24, 1993	Aug 24, 1993
Sample #:	308-0596	308-0597	308-0598	Blank
Surrogate % Recovery:	103	105	91	94

SEQUOIA ANALYTICAL

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: Vartkes

WITNESSING AGENCY:

S/S# 3135 SITE NAME & ADDRESS: Unocal / Oakland, 845 66th Ave.

ANALYSES REQUESTED: TPHG ; BTXE | TPHD

TURN AROUND TIME: Regular

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPHG ; BTXE	TPHD	REMARKS
MW 1	8/13/93	11:55 am.		X	X		3	Monitoring well	X	X	3080589 A-C
MW 2	"			X	X		3	" "	X	X	0590
MW 3	"			X	X		3	" "	X	X	0591
MW 4	"			X	X		3	" "	X	X	0592
MW 5	"			X	X		3	" "	X	X	0593
MW6	"			X	X		3	" "	X	X	0594
MW7	"			X	X		3	" "	X	X	0595
MW 8	"			X	X		3	" "	X	X	0596
MW9	"			X	X		3	" "	X	X	0597

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
W. Parkin	8/13/93 6:10	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	/	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	8-16-93 1530	Melissa Crewes
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
		8/13/93 1810

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? N/A
4. Were samples in appropriate containers and properly packaged?

Signature | Title | Date: 8/13/93

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: Vartkes

WITNESSING AGENCY:

S/S #2135 SITE NAME & ADDRESS: Unocal / Oakland, 845 66th Ave.

ANALYSES REQUESTED: TPHG & BTXE; TPHD

TURN AROUND TIME: Regular

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPHG & BTXE	TPHD	REMARKS
MW10	8/13/93	5:10 pm.		X	X		3	Monitoring well	X	X	3080598 A-C

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
W. Chelger	8/13/93 6:10	
	Date/Time	Received by: (Signature)
	Date/Time	Received by: (Signature)
	8/16/93 1345	Melissa Crenshaw
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
		8/13/93 1810

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: 8/13/93