

January 11, 1993

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

Attention: Mr. Scott Seery

RE: Unocal Service Station #3292

15008 E. 14th Street San Leandro, California

Dear Mr. Seery:

Per the request of Mr. Ed Ralston of Unocal Corporation, enclosed please find our report dated December 11, 1992, for the above referenced site.

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

Sincerely,

Kaprealian Engineering, Inc.

Judy A. Dewey

jad\82

Enclosure

cc: Ed Ralston, Unocal Corporation

KEI-P91-0102.QR4 December 11, 1992

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

Attention: Mr. Ed Ralston

RE: Quarterly Report

Unocal Service Station #3292

15008 E. 14th Street San Leandro, California

Dear Mr. Ralston:

This report presents the results of the most recent quarter of monitoring and sampling of the monitoring wells at the referenced site by Kaprealian Engineering, Inc. (KEI), per KEI's proposal (KEI-P91-0102.P3) dated August 6, 1991. The wells are currently monitored monthly and sampled on a quarterly basis. This report covers the work performed by KEI from September through November of 1992.

BACKGROUND

The subject site contains a Unocal service station facility. Two underground gasoline storage tanks, one waste oil tank, and the product piping were removed from the site in January and February of 1991 during tank replacement activities. Contaminated soil detected beneath the fuel tanks was overexcavated to a depth of approximately 17.5 feet below grade (i.e., one foot below the depth to ground water at that time). Eleven monitoring wells have been installed at and in the vicinity of the site.

A site description, detailed background information including a summary of all of the soil and ground water subsurface investigation/remediation work conducted to date, site hydrogeologic conditions, and tables that summarize all of the soil and ground water sample analytical results are presented in KEI's report (KEI-P91-0102.R6) dated October 5, 1992.

RECENT FIELD ACTIVITIES

The 11 wells (MW1 through MW11) were monitored three times and were sampled once during the quarter. In addition, wells MW1 and MW5 were each purged of 50 gallons of water during the September and October 1992 monitoring events. 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.

Water samples were collected from the wells on November 10, 1992. Prior to sampling, the wells were each purged of between 4 and 6 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 that were then sealed with Teflonlined screw caps and stored in a cooler, on ice, until delivery to a state-certified laboratory.

HYDROLOGY

The measured depth to ground water at the site on November 10, 1992, ranged between 13.18 and 14.57 feet below grade. The water levels in all of the wells have shown net decreases ranging from 0.70 to 0.76 feet since August 20, 1992. Based on the water level data gathered during the quarter, the ground water flow direction appeared to be to the south-southeast, as shown on the attached Potentiometric Surface Map, Figures 1, 2, and 3. The flow direction reported this quarter is relatively unchanged from the flow direction reported in the previous three quarters. The average hydraulic gradient across the site was approximately 0.0008.

ANALYTICAL RESULTS

The ground water samples were analyzed at Sequoia Analytical Laboratory and were accompanied by properly executed Chain of Custody documentation. The samples were analyzed for total petroleum hydrocarbons (TPH) as gasoline by EPA method 5030/modified 8015, and benzene, toluene, xylenes, and ethylbenzene (BTX&E) by EPA method 8020.

The ground water sample analytical results are summarized in Table 2. The concentrations of TPH as gasoline and benzene detected in the ground water samples collected this quarter are shown on the attached Figure 4. Copies of the laboratory analytical results and the Chain of Custody documentation are attached to this report.

DISCUSSION AND RECOMMENDATIONS

Based on the analytical results collected and evaluated to date, KEI recommends the continuation of the existing ground water monitoring and sampling program, per KEI's proposal (KEI-P91-0102.P3) dated August 6, 1991. The wells are currently monitored

monthly and sampled quarterly. The results of the monitoring and sampling program will be documented and evaluated after each monitoring and sampling event. Recommendations for altering or terminating the program will be made as warranted.

As shown on Figure 4, the extent of ground water contamination has not been defined in the vicinity of the Unocal site. The off-site monitoring wells that are located both upgradient and downgradient of the Unocal site currently show elevated concentrations of petroleum hydrocarbons; therefore, KEI previously recommended that a file review be performed at the Regional Water Quality Control Board's (RWQCB) office for the following sites:

- Former Mobil service station site (presently a shopping center)
- Former Phillips service station site (presently a Quality Tune-Up)
- Shandrell property (Liquor Barn)
- Chevron service station

KEI conducted a file review at the RWQCB's office in November of 1992. No information was found in the RWQCB's files for the former Phillips site. The most recent information found in the RWQCB's files for the former Mobil site and Shandrell property was from April 1988 and November 1990, respectively. Eight monitoring wells have been installed at and in the vicinity of the Chevron site. The most recent ground water sample analytical results (July 1992) reviewed by KEI showed TPH as gasoline concentrations ranging from non-detectable to 2,100 ppb. Based on the limited information found in the RWQCB's files, KEI recommends that additional file reviews be performed at the appropriate City of San Leandro and Alameda County offices. KEI will perform these file reviews during the upcoming quarter. Recommendations for any additional warranted work will be made after the completion of the additional file reviews.

DISTRIBUTION

A copy of this report should be sent to Mr. Scott Seery of the Alameda County Health Care Services Department, and to the RWQCB, San Francisco Bay Region.

LIMITATIONS

Environmental changes, either naturally-occurring or artificially-induced, may cause changes in ground water levels and flow paths, thereby changing the extent and concentration of any contaminants.

Our studies assume that the field and laboratory data are reasonably representative of the site as a whole, and assume that subsurface conditions are reasonably conducive to interpolation and extrapolation.

The results of this study are based on the data obtained from the field and laboratory analyses obtained from a state-certified laboratory. We have analyzed these data using what we believe to be currently applicable engineering techniques and principles in the Northern California region. We make no warranty, either expressed or implied, regarding the above, including laboratory analyses, except that our services have been performed in accordance with generally accepted professional principles and practices existing for such work.

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

Sincerely,

Kaprealian Engineering, Inc.

Thomas J. Berkins

Senior Environmental Engineer

Joel G. Greger, C.E.G.

Senior Engineering Geologist

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

Timothy R. Ross Project Manager

/bp

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

TABLE 1
SUMMARY OF MONITORING DATA

Well No.	Ground Water Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	<u>Sheen</u>	Water Purged (gallons)	
	(Monitored	and Sampl	led on Nover	mber 10,	1992)	
MW1	22.76	13.96	0	No	4	
MW2	22.83	14.06	0	No	4	
MW3	22.81	14.03	0	No	6	
MW4	22.83	14.57	0	No	4	
MW5	22.72	13.68	0	No	· 6	
MW6	22.85	13.18	0	Ио	5	
MW7	22.86	13.54	0	No	4.5	
8WM	22.68	14.46	0	No	4	
MW9	22.70	14.22	0	No	4	
MW10	22.67	13.59	0	No	5	
MW11	22.63	13.20	0	No	4	
	(Mon	itored on	October 12	, 1992)		
MW1	22.65	14.07	0		50	
MW2	22.70	14.19	0		0	
MW3	22.71	14.13	0		0	
MW4	22.68	14.72	0		0	
MW5	22.65	13.75	0		50	
MW6	22.75	13.28	0		0	
MW7	22.75	13.65	0		0	
8WM	22.63	14.51	0		0	
MW9	22.64	14.28	0		0	
MW10	22.59	13.67	0		0	
MW11	22.53	13.30	0		0	
	(Moni	tored on	September 1	6, 1992)	
MW1	23.05	13.67	0		50	
MW2	23.09	13.80	0		0	
MW3	23.10	13.74	0		0	
MW4	23.09	14.31	0		0	
MW5	23.03	13.37	0		50	
MW6	23.12	12.91	0		O	
MW7	23.17	13.23	0		9	
MW8	23.01	14.13	0		0	
MW9	23.02	13.90	0		0	
MW10	22.98	13.28	0		0	
MW11	22.90	12.93	0		0	

TABLE 1 (Continued) SUMMARY OF MONITORING DATA

Well #	Well Cover Elevation* <u>(feet)</u>
MW1	36.72
MW2	36.89
MW3	36.84
MW4	37.40
MW5	36.40
MW6	36.03
MW7	36.40
MW8	37.14
MW9	36.92
MW10	36.26
MW11	35.83

- -- Sheen determination was not performed.
- * The elevations of the tops of the well covers have been surveyed relative to Mean Sea Level (MSL), per the benchmark (Elevation = 36.88 MSL) located at the northwest corner of East 14th Street and 150th Avenue.

TABLE 2
SUMMARY OF LABORATORY ANALYSES
WATER

<u>Date</u>	Sample Well #	TPH as <u>Gasoline</u>	<u>Benzene</u>	Toluene	Xylenes	Ethylbenzene
11/10/92	MW1 MW2 MW3 MW4 MW5 MW6 MW7 MW8 MW8	18,000 11,000 3,400 690 57,000 490 1,800 1,800 4,200	220 36 37 9.1 800 7.0 74 20 ND	ND 7.2 ND ND 1,800 1.2 ND ND	830 45 34 2.8 18,000 ND 350 ND 23	690 570 85 16 4,400 1.7 230 ND 21
	MW10	15,000	300	42	330	3,500
	MW11	5,800	130	ND	42	260
8/20/92	MW1 MW2 MW3 MW4 MW5 MW6 MW7 MW8 MW9 MW10 MW11	18,000 13,000 4,500 1,000 58,000 280 13,000 3,500* 3,800* 15,000 4,600*	230 52 58 15 660 8.4 460 67 37 230 62	22 ND ND ND 1,700 ND 54 11 ND ND	950 70 35 3.0 19,000 0.84 3,100 ND ND ND 350 54	640 660 65 11 4,200 0.51 ND ND ND ND
5/19/92	MW1	29,000	650	370	1,200	1,100
	MW2	17,000	140	87	170	680
	MW3	3,400	25	3.6	41	66
	MW4	2,000	20	3.5	8.3	42
	MW5	84,000	760	1,500	17,000	4,000
	MW6	1,300	2.0	2.1	2.7	ND
	MW7	17,000	540	90	1,900	1,200
	MW8	5,300	28	3.3	2.1	2.6
	MW9	8,100	11	ND	5.8	25
3/17/92	MW1	23,000	320	19	940	1,000
	MW2	16,000	110	ND	220	730
	MW3	5,800	66	7.5	58	100
	MW4	1,800	3.7	1.4	21	90
	MW5	81,000	850	1,600	18,000	4,800

KEI-P91-0102.QR4 December 11, 1992

TABLE 2 (Continued)
SUMMARY OF LABORATORY ANALYSES

WATER

<u>Date</u>	Sample Well #	TPH as <u>Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	Xylenes	Ethylbenzene
12/18/91	MW1	17,000	160	20	1,600	1,400
	MW2	10,000	110	5.1	96	420
	MW3	5,900	54	6.4	64	110
	MW4	2,500	28	2.5	22	54
	MW5	31,000	1,600	3,100	19,000	4,800
9/19/91	MW1	26,000	130	16	1,800	1,300
	MW2	19,000	100	6.8	310	790
	MW3	7,600	· ND	13	170	190
	MW4	1,800	0.83	ND	46	54
	MW5	57,000	1,600	2,700	20,000	5,200
5/04/91	MW1	31,000	74	20	1,500	920
	MW2	19,000	6.6	1.4	630	460
	МWЗ	9,100	2.0	ND	180	55
	MW4	6,300	ND	ND	61	2.8
	MW5	69,000	1,400	2,500	15,000	3,500

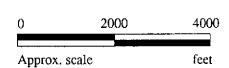
ND = Non-detectable.

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

^{*} Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a gasoline and non-gasoline mixture.

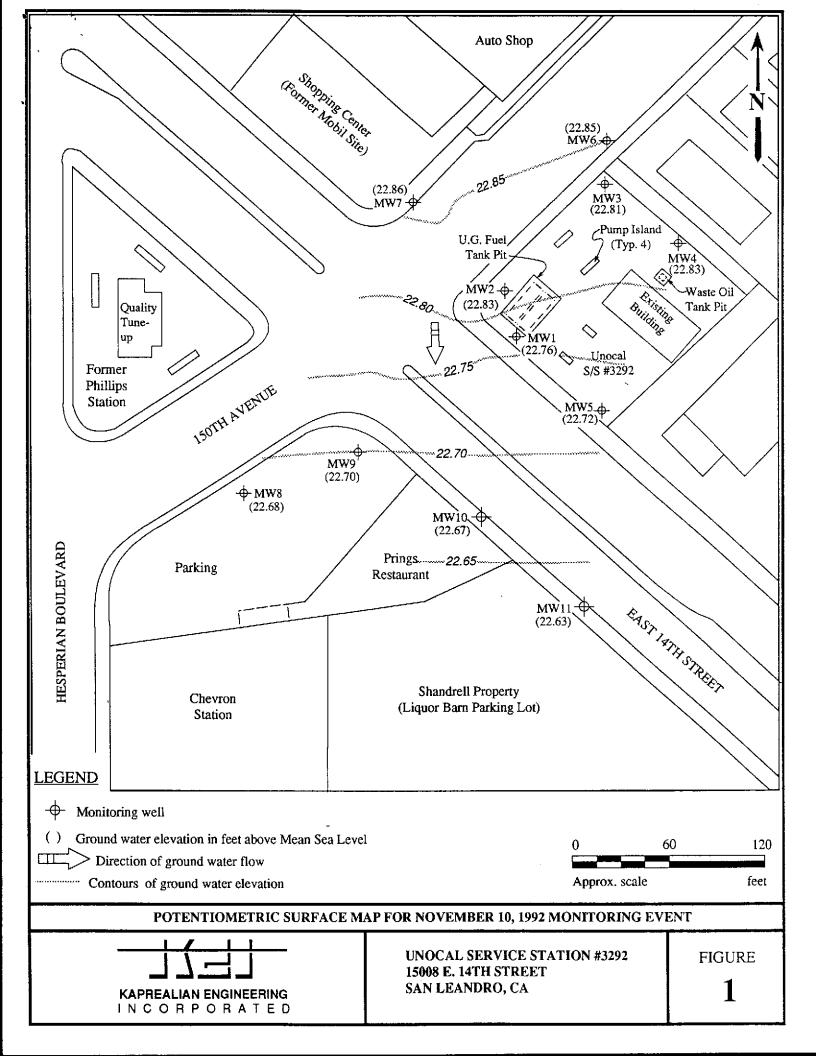


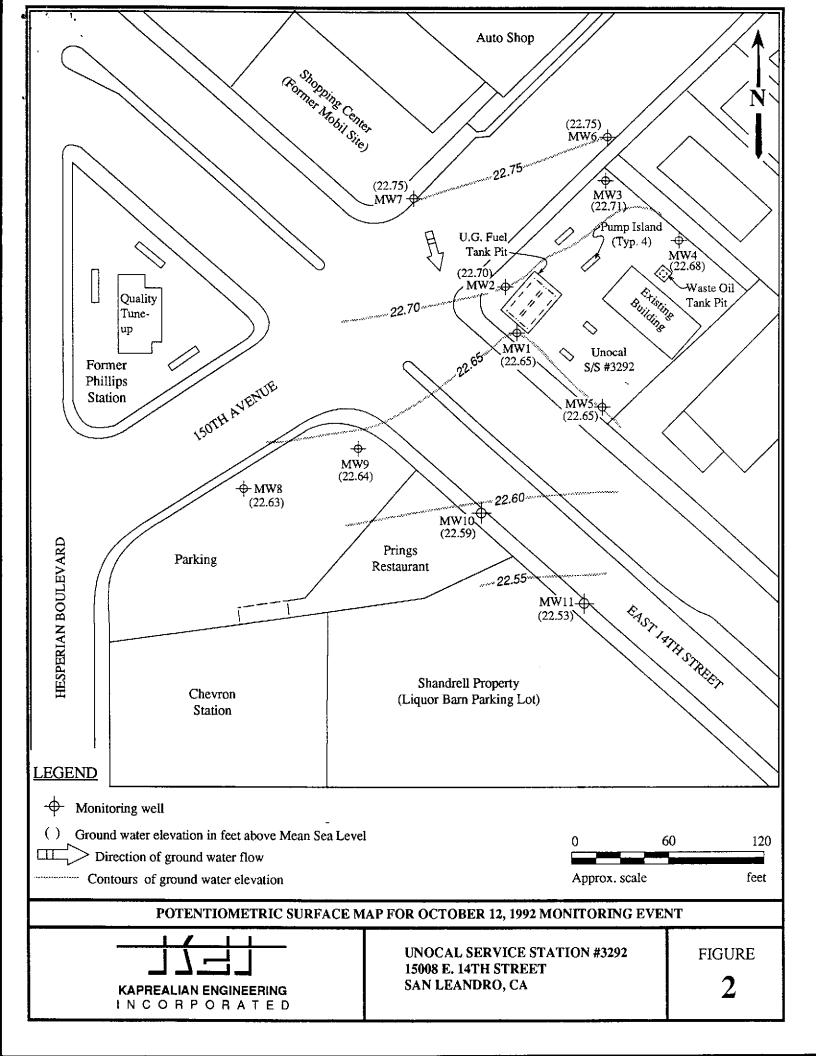
Base modified from 7.5 minute U.S.G.S. Hayward and San Leandro Quadrangles (both photorevised 1980)

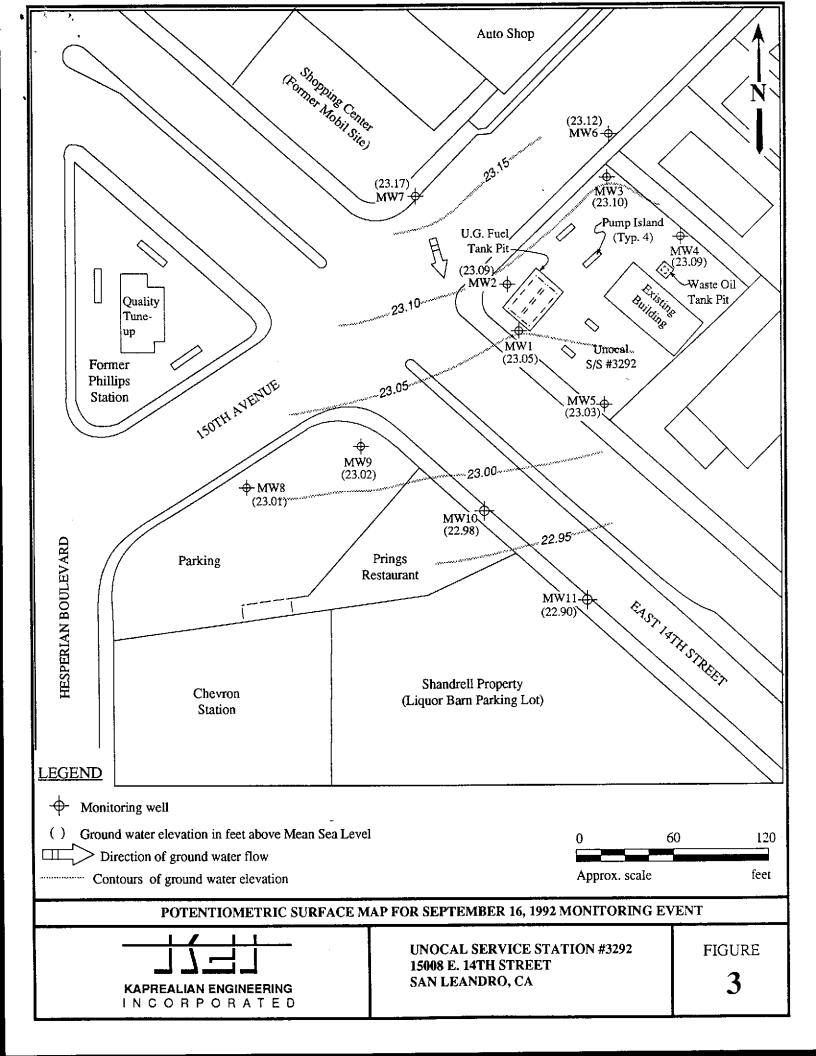


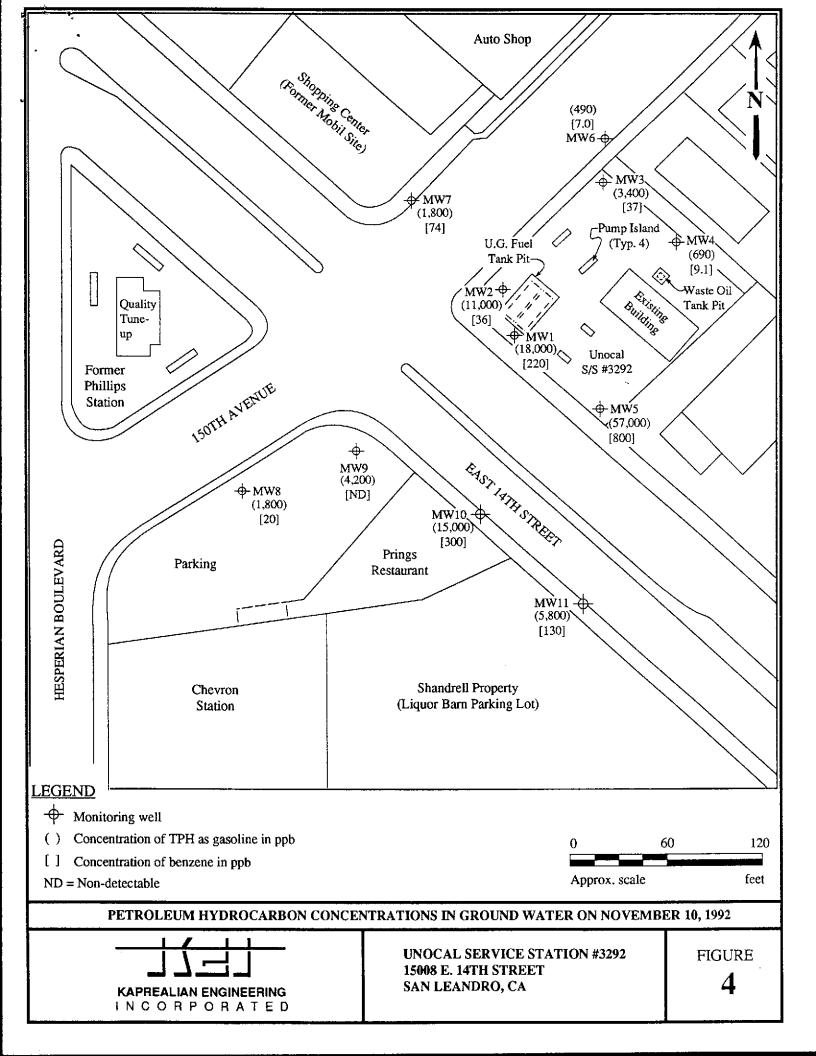


UNOCAL SERVICE STATION #3292 15008 EAST 14TH STREET SAN LEANDRO, CA LOCATION MAP









Kaprealian Engineering, Inc.

Client Project ID: Unocal, 15008 E. 14th St., San Leandro

Sampled: Nov 10, 1992

2401 Stanwell Drive, Suite 400 Concord, CA 94520

Sample Matrix: Analysis Method: Water EPA 5030/8015/8020

Received: Nov 11, 1992 Reported: Nov 23, 1992

Attention: Mardo Kaprealian, P.E.

First Sample #:

211-0543

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit μg/L	Sample i.D. 211-0543 MW-1	Sample I.D. 211-0544 MW-2	Sample I.D. 211-0545 MW-3	Sample I.D. 211-0546 MW-4	Sample I.D. 211-0547 MW-5	Sample I.D. 211-0548 MW-6
Purgeable Hydrocarbons	50	18,000	11,000	3,400	690	57,000	490
Benzene	0.5	220	36	37	9.1	800	7.0
Toluene	0.5	N.D.	7.2	N.D.	N.D.	1,800	1.2
Ethyl Benzene	0.5	690	570	85	16	4,400	1.7
Total Xylenes	0.5	830	45	34	2.8	18,000	N.D.
Chromatogram Pat	tern:	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline

Quality Control Data

Report Limit Multiplication Factor:	20	10	40	1.0	100	1.0
Date Analyzed:	11/16/92	11/16/92	11/18/92	11/18/92	11/18/92	11/17/92
Instrument identification:	HP-5	HP-5	HP-4	HP-5	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	97	86	96	84	93	115

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

SEQUOIA ANALYTICAL

Project Manager

Kaprealian Engineering, Inc. 2401 Stanwell Drive, Suite 400

Concord, CA 94520

Attention: Mardo Kaprealian, P.E.

Client Project ID: Sample Matrix: Analysis Method:

First Sample #:

Unocal, 15008 E. 14th St., San Leandro

: Water

EPA 5030/8015/8020

211-0549

Sampled: Received:

Nov 10, 1992 Nov 11, 1992

Reported: Nov 23, 1992

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit μg/L	Sample I.D. 211-0549 MW-7	Sample I.D. 211-0550 MW-8	Sample I.D. 211-0551 MW-9	Sample I.D. 211-0552 MW-10	Sample I.D. 211-0553 MW-11	Sample I.D. Matrix Blank
Purgeable Hydrocarbons	50	1,800	1,800	4,200	15,000	5,800	
Benzene	0.5	74	20	N.D.	300	130	
Toluene	0.5	N.D.	N.D.	N.D.	42	N.D.	
Ethyl Benzene	0.5	230	N.D.	21	3,500	260	
Total Xylenes	0.5	350	N.D.	23	330	42	
Chromatogram Pat	tern:	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	

Quality Control Data

Report Limit Multiplication Factor:	20	10	40	20	10	1.0
Date Analyzed:	11/17/92	11/19/92	11/18/92	11/16/92	11/16/92	11/16/92
Instrument Identification:	HP-5	HP-2	HP-5	HP-5	HP-5	HP-5
Surrogate Recovery, %: (QC Limits = 70-130%)	104	112	95	97	87	113

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

SEQUOIA ANALYTICAL

Scott A. Chieffo Project Manager

Kaprealian Engineering, Inc. Client Project ID: Unocal, 15008 E. 14th St., San Leandro

2401 Stanwell Drive, Suite 400

Concord, CA 94520

Attention: Mardo Kaprealian, P.E. QC Sample Group: 2110543-553

Reported: Nov 23, 1992

QUALITY CONTROL DATA REPORT

ANALYTE			Ethyl-	
	Benzene	Toluene	Benzene	Xylenes
	EPA	EPA	EPA	EPA
Method:	8015/8020	8015/8020	8015/8020	8015/8020
Analyst:	A.P.	A.P.	A.P.	A.P.
Reporting Units:	μg/L	μg/L	µg/L	μg/L
Date Analyzed:	Nov 18, 1992	Nov 18, 1992		Nov 18, 1992
QC Sample #:	211-0754	211-0754	211-0754	211-0754
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc.				
Added:	20	20	20	60
Conc. Matrix				
Spike:	18	19	20	68
Matrix Spike				
% Recovery:	90	95	100	113
Conc. Matrix Spike Dup.:	18	19	20	67
	. 5	.5		~ ·
Matrix Spike Duplicate				
% Recovery:	90	95	100	112
-				
Relative				
% Difference:	0.0	0.0	0.0	1.5

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

SEQUOIA ANALYTICAL

Project Manager

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

2110543.KEI <3>



KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

 SAMPLER Va	atkes					Uno			4E & ADDRESS an Leandro		ANALYSES REQUESTED			· · ·	TURN AROUND TIME:				
 MITHESSING 	AGENCY	-		 					14# sp.		87XE				 		- Janar		
SAMPLE 10 NO.	DATE		IME	 SOIL	I I I	GRAB	COMP	NO. OF CONT.	SAMPLIN LOCATIO		 TPHG + 6	 -		 		† -	1		REMARKS
MW I	11/10/92	2:	: 35 Pm.	 !	X 1	İΧ		2	Monitoring	well	X	 			- !	 -	 	2	110543AB
MWZ	 1]	 	X	X	 	2 ا	et	3	X							1	544 AB
MW 3	<u> </u>	<u> </u>		 	X	ļχ	 	2	1	<u> </u>	X	<u> </u>			 	}	1	1 	545AB
MW4	.	! !		 	X	X	; 	2	ધ	7	ļχ		1				 	1 	546AB
MW5		 		1	X	ן א	 	2	4	Ł	X							1 	547 AB
MW6	1				X	ļх	 	2	ų.	પ	X							1 	548AB
Mw7				 	×	K	 	٢	•	٣	X	-						! /	549 AB
MW8					1 1	X	 	2	4	ť	X	1	ļ					1	550AB
NW9	4				X	X	 	1 2		C	ļχ	1						1 4 !	551AB
Relinquishe			(ure)	11/11/	ate/Ii 92 4.	me 35			ed 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?							
Relinguishe		gnat	ture)	11-i.	ate/Ti 2-42	ne 134	 - 	Receive	ed by?) (Signature))	Will samples remain refrigerated until analyzed?				<u> </u>				
Relinquishe	12) (¥d-b4	gnat	ure)	1 0	3te/[]	me,	,	Recolive	ed by: (Signature)] 	3.							ve head space?
Retinquishe 	ed by: (Si	gnat	ure)		ate/Ti	me		Receive	ed by: (Signature)		1	7.		プリ(、 gnature			<i>-</i> -}ı	nalys)	11.11.9Z Date