

June 28, 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 June 9, 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: Ed Ralston, Unocal Corporation

KEI-P91-0102.QR6 June 9, 1993

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

Attention: Mr. Edward C. 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 March through May of 1993.

#### BACKGROUND

The subject site contains a Unocal service station facility. Two underground gasoline storage tanks, one waste oil tank, and the product piping were removed from the site in 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 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 monitoring 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 March 1993 monitoring event. 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

KEI-P91-0102.QR6 June 9, 1993 Page 2

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 May 21, 1993. Prior to sampling, the wells were each purged of between 6.5 and 9 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 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 May 21, 1993, ranged between 8.83 and 10.40 feet below grade. The water levels in all of the wells have shown net decreases ranging from 0.59 and 1.20 feet since the February 20, 1993, monitoring event. Based on the water level data gathered during the quarter, the ground water flow direction appeared to be predominantly to the south during the May 21, 1993, and April 20, 1993, monitoring events, and to the southeast during the March 18, 1993, monitoring event, as shown on the attached Potentiometric Surface Maps, Figures 1, 2, and 3. addition, a northern direction of ground water flow was observed at the northern portion of the site and vicinity during the March 18, 1993, monitoring event. The flow direction has been predominantly to the south (varying from the southeast to the southwest) since the inception of the monitoring program in May of 1991 (eight consecutive quarters). The average hydraulic gradient across the site on May 21, 1993, was approximately 0.003.

#### 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 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 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.

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#### DISCUSSION AND RECOMMENDATIONS

Based on the analytical results of the ground water samples 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 ground water 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 previously reported in KEI's quarterly report (KEI-P91-0102.QR5) dated April 6, 1993, KEI has obtained file review information for several nearby sites. This information indicated that two sites (the former Mobil and Philips service stations) may possibly be contributing to the contaminant levels observed in the Unocal wells. Therefore, KEI recommended that Unocal request that Mr. Scott Seery of the Alameda County Health Care Services (ACHCS) Agency contact the responsible parties for these sites, so that these potential responsible parties can instigate investigations for their sites. Unocal subsequently sent a letter dated April 14, 1993, to the ACHCS formally requesting the ACHCS to require investigations at the former Mobil and Philips service station sites. To date, KEI has not been notified by the ACHCS regarding the status of any investigation at these sites.

#### DISTRIBUTION

A copy of this report should be sent to Mr. Scott Seery of the ACHCS, and to the Regional Water Quality Control Board, San Francisco Bay Region.

#### LIMITATIONS

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

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

The results of this study are based on the data obtained from the field and laboratory analyses obtained from a state-certified laboratory. We have analyzed these data using what we believe to be currently applicable engineering techniques and principles in the Northern California region. We make no warranty, either

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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. Beckers

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)
	(Monito	ored and Sa	mpled on Ma	y 21, 1	993)
MWl	26.92	9.80	0	No	6.5
MW2	27.05	9.84	0	ЙO	7
MW3	27.14	9.70	0	No	9
MW4	27.08	10.32	0	No	7
MW5	26.84	9.56	0	No	9
MW6	27.20	8.83	0	No	8
MW7	27.24	9.16	0	No	8.5
8WM	26.74	10.40	0	No	<b>6.</b> 5
MW9	26.76	10.16	0	No	6.5
MW10	26.63	9.63	0	No	7.5
MW11	26.43	9.40	0	No	7
	(1)	Monitored o	n April 20,	1993)	
MW1	27.57	9.15	0		0
MW2	27.70	9.19	0		0
EWM.	27.82	9.02	0		0
MW4	27.73	9.67	0		0
MW5	27.52	8.88	0		0
MW6	27.91	8.12	0		0
MW7	27.88	8.52	0		0
MW8	27.23	9.91	0		0
MW9	27.30	9.62	0		0
MW10	27.17	9.09	0		0
MW11	26.97	8.86	0		0
	(1	Monitored o	n March 18,	1993)	
MW1	27.24	9.48	0		50
MW2	27.34	9.55	0		0
EWM	27.34	9.50	0		0
MW4	27.43	9.97	0		0
MW5	27.24	9.16	0		50
MW6	27.29	8.74	0		0
MW7	27.42	8.98	0		0
8WM	27.25	9.89	0		0
MW9	27.37	9.55	0		0
MW10	27.23	9.03	0		0
MW11	27.06	8.77	o		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 a benchmark located at the northwest corner of East 14th Street and 150th Avenue (elevation = 36.88 MSL).

TABLE 2
SUMMARY OF LABORATORY ANALYSES
WATER

<u>Date</u>	Sample Well #	TPH as <u>Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethylbenzene</u>
5/21/93	MW1	27,000	150	200	950	1,200
• •	MW2	9,500	37	ND	62	470
	MW3	2,600	42	ND	15	43
	MW4	1,900	31	ND	4.5	20
	MW5	55,000	ND	160	12,000	3,500
	MW6	940	18	1.0	2.7	7.1
	MW7	22,000	330	37	2,900	2,100
	8WM	2,500	44	ND	ИД	ИD
	MW9	3,200	32	ND	ND	8.1
	MW10	23,000	250	ND	240	3,000
	MW11	7,100	64	ND	120	340
2/20/93	MW1	19,000	190	ND	620	880
•	MW2	1,500	2.9	3.8	ND	9.1
	EWM	1,600	12	18	12	8.9
	MW4	2,400	40	2.1	ND	33
	MW5	17,000	75	ND	620	1,000
	МWб	2,400	43	ND	2.0	33
	MW7	1,800	37	4.6	7.7	11
	8WM	2,200	32	ND	5.0	42
	MW9	2,300	47	ND	ИD	32
	MW10	17,000	74	ИD	620	1,000
	MW11	18,000	76	ND	630	1,000
11/10/92	MW1	18,000	220	ИD	830	690
	MW2	11,000	36	7.2	45	5 <b>7</b> 0
	MW3	3,400	37	ND	34	85
	MW4	690	9.1	ND	2.8	16
	MW5	57,000	800	1,800	18,000	4,400
	MW6	490	7.0	1.2	ND	1.7
	MW7	1,800	74	ND	350	230
	MW8	1,800	20	ND	ИD	ND
	MW9	4,200	ND	ND	23	21
	MW10	15,000	300	42	330	3,500
	MW11	5,800	130	ND	42	260

TABLE 2 (Continued)
SUMMARY OF LABORATORY ANALYSES

WATER

<u>Date</u>	Sample Well #	TPH as <u>Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethylbenzene</u>
8/20/92	MW1	18,000	230	22	950	640
	MW2	13,000	52	ND	70	660
	EWM	4,500	58	ND	35	65
	MW4	1,000	15	ND	3.0	11
	MW5	58,000	660	1,700	19,000	4,200
	MW6	280	8.4	ND	0.84	
	MW7	13,000	460	54	3,100	ND
	8WM	3,500*	67	11	ND	ND
	MW9	3,800*	37	ND	ND	ND
	MW10	15,000	230	ND	350	1,000
	MW11	4,600*	62	ND	54	ND
5/19/92	MW1	29,000	650	370	1,200	1,100
• •	SWM	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
	8WM	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
12/18/91		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
	EWM	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

KEI-P91-0102.QR6 June 9, 1993

#### TABLE 2 (Continued)

# SUMMARY OF LABORATORY ANALYSES WATER

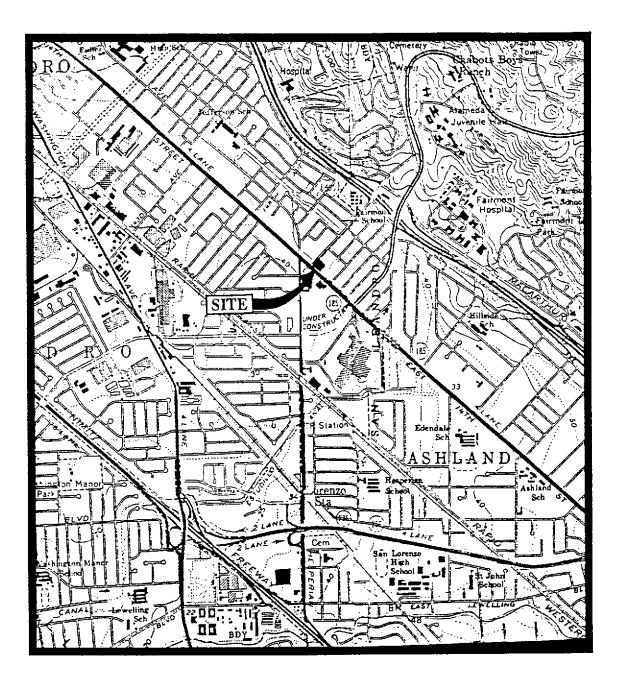
<u>Date</u>	Sample Well #	TPH as <u>Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	Ethylbenzene
5/04/91	MW1	31,000	74	20	1,500	920
	MW2	19,000	6.6	1.4	630	460
	MW3	9,100	2.0	ND	180	55
	MW4	6,300	ND	ND	61	2.8
	MW5	69,000	1,400	2,500	15,000	3,500

ND = Non-detectable.

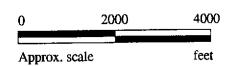
\* Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a gasoline and non-gasoline mixture.

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



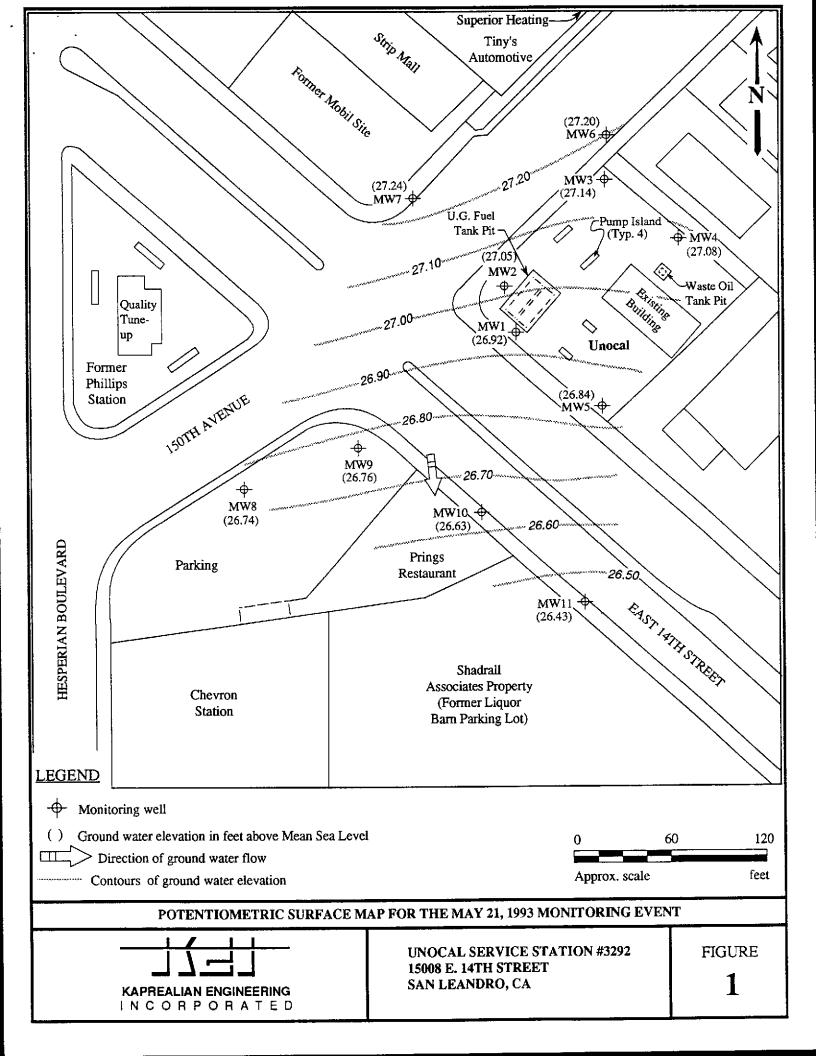


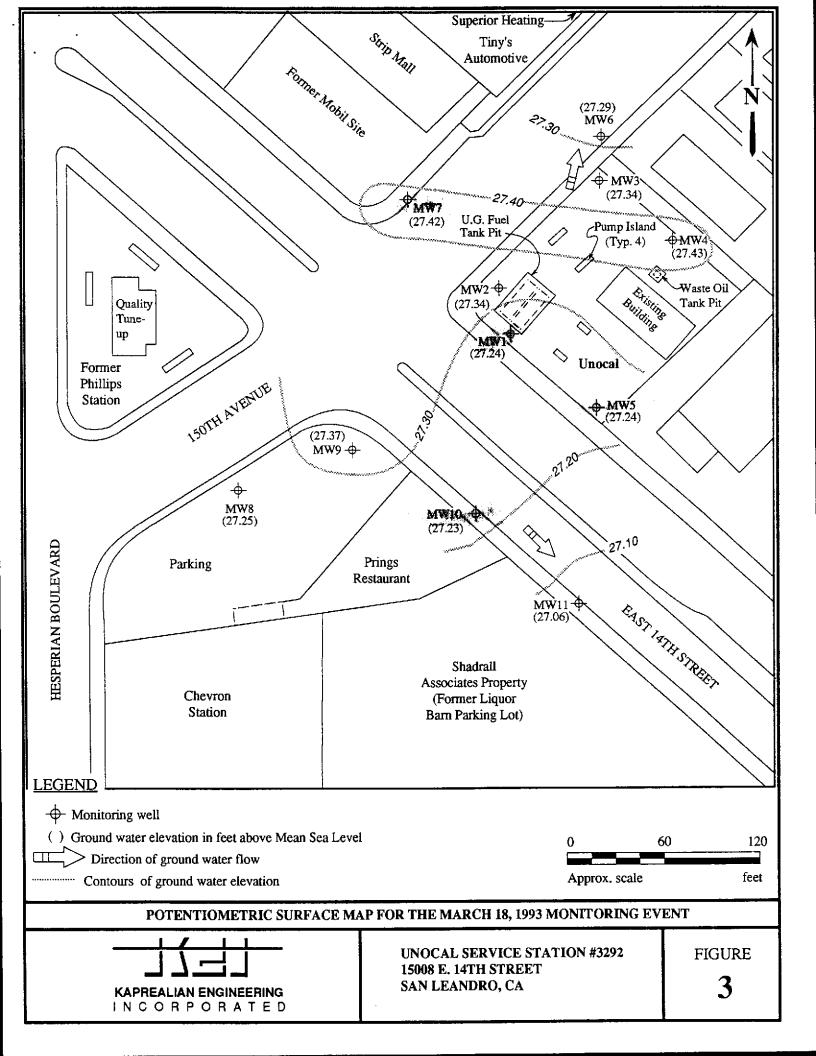
Base modified from 7.5 minute U.S.G.S. Hayward and San Leandro Quadrangle (both photorevised 1980)

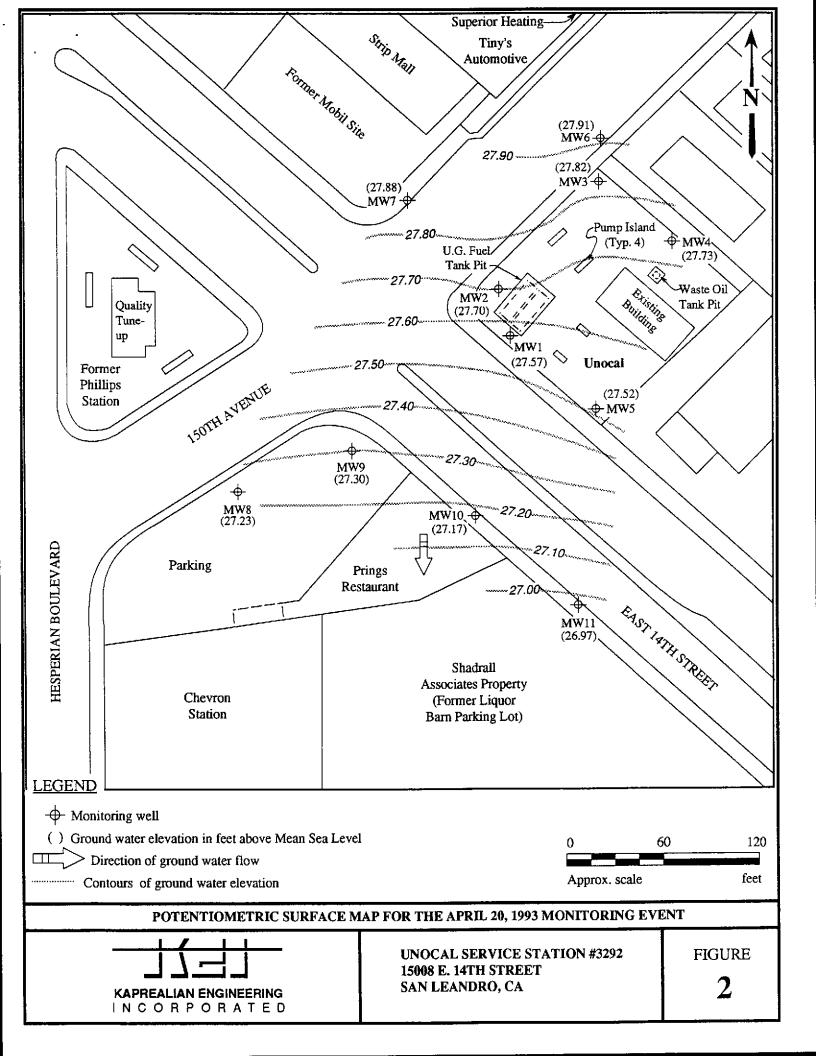


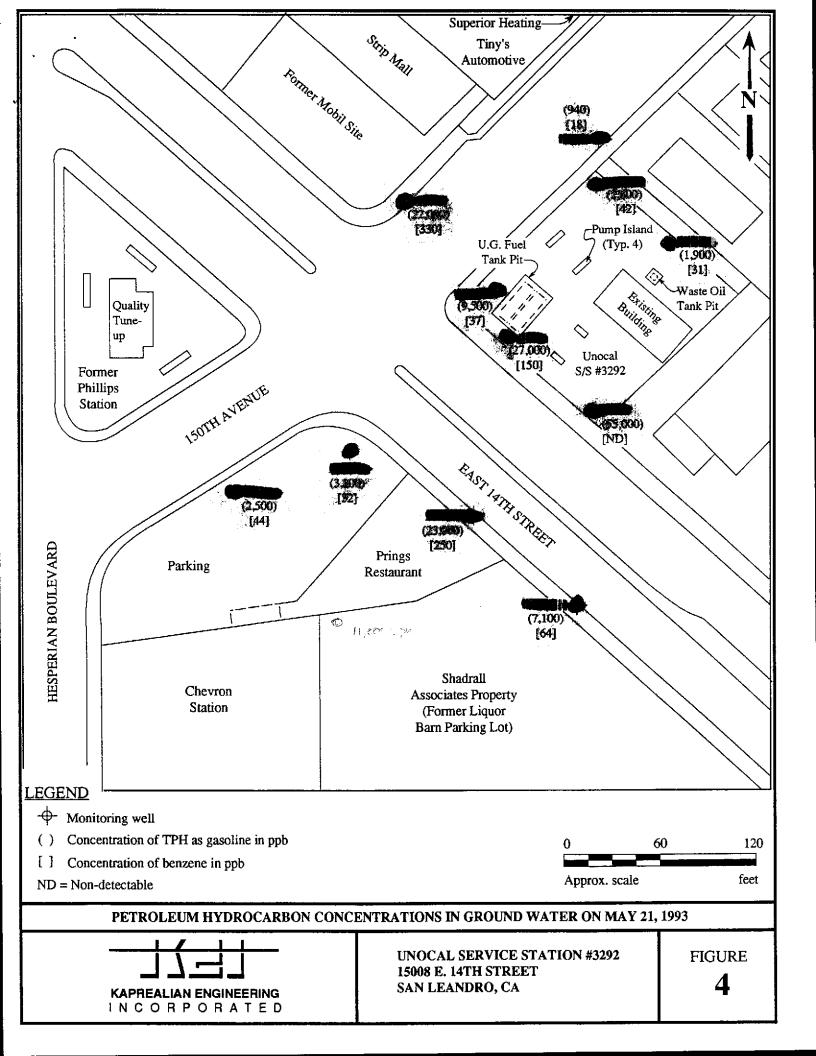


UNOCAL SERVICE STATION #3292 15008 E. 14TH STREET SAN LEANDRO, CALIFORNIA LOCATION MAP









Kaprealian Engineering, Inc. 2401 Stanwell Dr., Ste. 400

Concord, CA 94520

Attention: Mardo Kaprealian, P.E.

Client Project ID: Sample Matrix:

Analysis Method:

First Sample #:

Unocal #3292, 15008 E 14th St., San Leandro

Water

EPA 5030/8015/8020 305-1203 Sampled: Received: May 21, 1993 May 24, 1993

Reported:

Jun 1, 1993

# TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit μg/L	<b>Sample</b> I.D. 305-1203 MW-1	Sample I.D. 305-1204 MW-2	Sample I.D. 305-1205 MW-3	Sample I.D. 305-1206 MW-4	Sample I.D. 305-1207 MW-5	Sample I.D. 305-1208 MW-6
Purgeable Hydrocarbons	50	27,000	9,500	2,600	1,900	55,000	940
Benzene	0.5	150	37	42	31	N.D.	18
Toluene	0.5	200	N.D.	N.D.	N.D.	160	1.0
Ethyl Benzene	0.5	1,200	470	43	20	3,500	7.1
Total Xylenes	0.5	950	62	15	4.5	12,000	2.7
Chromatogram Pat	tern:	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline

**Quality Control Data** 

Report Limit Multiplication Factor:	100	20	5.0	4.0	200	1.0
Date Analyzed:	5/27/93	5/27/93	5/31/93	5/31/93	5/27/93	5/27/93
Instrument Identification:	HP-2	HP-2	HP-4	HP-4	HP-2	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	111	120	88	82	96	120

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 Dr., Ste. 400

Concord, CA 94520 Attention: Mardo Kaprealian, P.E. Client Project ID: Sample Matrix:

First Sample #:

Unocal #3292, 15008 E 14th St., San Leandro

Water

Analysis Method: EPA 5030/8015/8020 305-1209

Sampled: Received: May 21, 1993 May 24, 1993

Reported:

Jun 1, 1993

#### TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit μg/L	<b>Sample</b> I.D. 305-1209 MW-7	Sample I.D. 305-1210 MW-8	Sample I.D. 305-1211 MW-9	Sample I.D. 305-1212 MW-10	Sample I.D. 305-1213 MW-11	Sample I.D. Matrix Blank
Purgeable Hydrocarbons	50	22,000	2,500	3,200	23,000	7,100	
Benzene	0.5	330	44	32	250	64	
Toluene	0.5	37	N.D.	N.D.	N.D.	N.D.	
Ethyl Benzene	0.5	2,100	N.D.	8.1	3,000	340	
Total Xylenes	0.5	2,900	N.D.	N.D.	240	120	
Chromatogram Pat	tern:	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	

**Quality Control Data** 

Report Limit Multiplication Factor:	100	10	10	200	20	1.0
Date Analyzed:	5/27/93	5/31/93	5/31/93	5/27/93	5/27/93	5/27/93
Instrument Identification:	HP-4	HP-2	HP-2	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	88	111	127	92	82	103

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.

Attention: Mardo Kaprealian, P.E.

Client Project ID:

Unocal #3292, 15008 E 14th St., San Leandro

2401 Stanwell Dr., Ste. 400

Matrix: Water

Concord, CA 94520

QC Sample Group 3051203-1213

Reported: Jun 1, 1993

#### **QUALITY CONTROL DATA REPORT**

ANALYTE		·	Ethyl-		1
ANALTIE	Benzene	Toluene	Ethyl- Benzene	Xylenes	
<u></u>	Denzene	roluene	berizene	Aylenes	
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	
Analyst:	J.F.	J.F.	J.F.	J.F.	
Conc. Spiked:	20	20	20	60	
Units:	μg/L	μg/L	μg/L	μg/L	
LCS Batch#:	1LCS052793	1LCS052793	1LCS052793	1LCS052793	
Date Prepared:	5/27/93	5/27/93	5/27/93	5/27/93	
Date Analyzed:	5/27/93	5/27/93	5/27/93	5/27/93	
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	
LCS %					
Recovery:	101	100	102	112	
Control Limits:	70-130	70-130	70-130	70-130	
MS/MSD Batch #:	3050984	3050984	3050984	3050984	
	000000	0000304	3030304	0000304	
Date Prepared:	5/27/93	5/27/93	5/27/93	5/27/93	
Date Analyzed:	5/27/93	5/27/93	5/27/93	5/27/93	
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	
Matrix Spike					•
% Recovery:	105	100	105	113	
Matrix Spike					
Duplicate % Recovery:	105	105	105	113	
Relative %					
Difference:	0.0	4.6	0.0	0.0	

SEQUOIA ANALYTICAL

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.

Scott A. Chieffo Project Manager



## CHAIN OF CUSTODY

SAMPLER	STE	VE	UNC	OCAL	£,#	32	92	HE & ADDRESS ANALYSES REQUEST  SAN LEANDRO							1.	TURN AROUND TIME:
WITHESSING A	AGENCY		/5	5008	E	. /	y ±4	STREE T	رخ	w						
SAMPLE 1D NO.	DATE	TIME	solt	WATER	GRAB	СОНР	NO. OF CONT.	SAMPLING LOCATION	Hd	BTX						REMARKS
MW-1	5/21/93	6:30 p.m		X	X		2	Mω	X	X						3051203AB
MW-2	"	1:30 PM		X	X	 	2	: #	X	X						1 1204 AB
ми-3	"	2:25 P.M		X	X		ぇ	"	X	X						1205 AB
MW-4	u	4:00 P.M		X	X		2	1/	X	X				:		1206AB
MW-5		5:50 Am		X	X		2	"	X	X				\ <u></u>		1207AB
Mw- 6	*	4:35 pm		X	X		a	V	X	X						1208AB
Δω-7	ı	3:30 p.m		X	Χ		a	,	X	X						120x13
Mii- 8		3:00 PM		X	X		2	11	X	X						Q IDAB
MW- 9	"	5:05 P.M	-	X	X		2	"	X	X						1211AB
Relinquished		gnature)	5/29	ate/Ti	3:10			ediby: (Signoture)	73	or	malys	\$ :				the laboratory accepting samples
Relinquished	d by: (\$1	gnature)	6	nte/Ti	me		Récetv	ed by: (Signature)		Have all samples received for analysis been stored in ice?  2. Will samples remain refrigerated until analyzed?						
Relinquished	d by: (Si	gnature)	D	ate/fi	me		Receiv	ed by: (Signature)		3. Did any samples received for analysis have head space?					·	
Relinquished	d by: {Si	gnature)	D	ate/Ii	пю		Receiv	ed by: (Signature)		4. Were samples in appropriate containers and properly packaged?  Society  Signature:  Title  Date					when 5/21/4	

KAPREALIAN ENGINEERING INCORPORATED

## CHAIN OF CUSTODY

SAMPLER	STE	VE		UNA	AL			HE & ADDRESS 72 SAN LEANORO		I	ANAL YSI	S REOL	JESTED		r	TURN AROUND TIME:
WITHESSING /	AGENCY							STREET	4	T					ļ	
SAMPLE ID NO.	DATE	TIME	\$01L	WATER	GRAÐ	COMP	NO. OF CONT.	SAMPLING LOCATION	-#d	カナメ						REMARKS
MW_ 10	5/21/93	5:35 PM		X	X		2	Nu	X	X						3051212AB
MW-11	"	6:10pm		X	X		2	: 1/	X	X						L 1213AB
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Relinquished		gnature) 15v6	5/2	ote/11	m/ <i>37</i> 3		Receiv	ed by (Signature)	2.10	for a	nelysi	s:	_	-		the laboratory accepting samples nalysis been stored in ice?
Relinquishe	d by: {Si	gnature)	'	ate/1i	ine		Recetv	ed/by: (Signature)	2. Will samples demain refrigerated until analyzed?							
Retinquishe	d by: (Si	gnature)		ate/[i	me		Receiv	red by: (Signature)	3. Did any samples received for analysis have head space?  4. Were samples in appropriate containers and properly packaged?							
Retinquishe	d by: (Si	gnature)		ate/[i	пю		Recelv	red by: (Signature)	4. Were samples in appropriate containers and properly packaged.  Signature little Date					stan 5/25/3		