KAPREALIAN ENGINEERING
INCORPORATED

95 JAN 10 PM 3:19

January 3, 1995

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

Attention: Mr. Robert A. Boust

RE: Ground Water Data
Unocal Service Station #7376
4191 - 1st Street
Pleasanton, California

Dear Mr. Boust:

This letter summarizes Kaprealian Engineering, Inc's. (KEI) most recent field activities at the subject site, per your request.

RECENT FIELD ACTIVITIES

KEI conducted a site reconnaissance on November 22, 1994 in order to determine the status of the three previously existing monitoring wells at the subject site. Monitoring wells MW1 and MW3 appeared in satisfactory condition. However, the well casing in MW2 appeared to have been plugged with Seal-Kote during the recent paving activities. The locations of these wells are shown on the attached Figure 1.

On December 7, 1994, KEI returned to the site in order to collect ground water samples from MW1 and MW3. Prior to collecting ground water samples, the wells were monitored for the depth to ground water, and checked for the presence of free product and sheen. Prior to sampling, wells MW1 and MW3 were purged of 4 and 6 gallons of water, respectively. During purging operations, the field parameters pH, temperature, and electrical conductivity were recorded. Once the field parameters were observed to stabilize, and a minimum of four casing volumes had been removed from each well, samples were collected using a clean Teflon bailer. The samples were decanted into clean VOA vials, which were then sealed with Teflon-lined screw caps, labeled, and stored in a cooler, on ice, until delivery to a state-certified laboratory. Ground water monitoring and purging data are presented in the attached Tables 1 and 2.

Lastly, a sample of the Seal-Kote material was collected from MW2. The sample was sent to Unocal's research laboratory in Brea, California, for identification.

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

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 for benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA method 8020. The analytical results of the ground water samples are summarized in the attached Table 3.

DISCUSSION

As described in KEI's report (KEI-J94-0903.R1) dated October 21, 1994, soil contamination was encountered in the pipe trench soil samples collected at the southwest portion of the site. Additionally, KEI has reviewed the well installation report by Applied GeoSystems (AGS), Job No. 87086-3, that was conducted for the previous property owner, Armour Oil Company. As seen in the AGS report, ground water contamination was previously encountered in the monitoring wells MW1, MW2, and MW3.

Based on the soil and ground water contamination previously documented at the site, KEI recommends the reimplementation of a ground water monitoring and sampling program. Due to the damage to the well casing in MW2, KEI recommends the proper destruction and re-installation of the well. Additionally, KEI recommends the drilling of one exploratory boring in the area of the southwest portion of the site. KEI's work plan/proposal for the aforementioned work will be submitted in the near future.

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

Sincerely,

Kaprealian Engineering, Inc.

Robert H. Kezerian
Project Manager

rhk:jad\RAB0103

Attachments: Tables 1, 2 & 3
Figure 1
Laboratory Analytical Data

cc: Mr. Scott O. Seery, Alameda County Health Care Services Agency

TABLE 1

SUMMARY OF MONITORING DATA

Well	Ground Water Elevation (feet)	Total Depth (feet)	Depth to Water (feet)	Product Thickness (feet)	Sheen	Water Purged (gallons)
(Monitored and Sampled on December 7, 1994)						
MW1	N/A	86.46	81.04	0	No	4
MW2	WELL DAMAGED					
MW3	N/A	94.34	85.54	0	No	6

N/A = Not applicable.

TABLE 2

RECORD OF THE TEMPERATURE, CONDUCTIVITY, AND pH VALUES
IN THE MONITORING WELLS DURING PURGING AND PRIOR TO SAMPLING

(Measured on December 7, 1994)

Well #	Gallons per Casing Volume	Time	Gallons Purged	Casing Volumes Purged	Temperature (°F)	Conductivity ([µmhos/cm]x100)	pH
MW1	0.92	9:25	0.0	0.0	62.4	8.12	9.38
			1.0	1.1	62.3	8.10	8.95
			2.0	2.2	62.3	8.10	8.92
			3.0	3.3	61.9	8.70	8.87
		9:45	4.0	4.3	62.0	8.50	8.89
MW3	1.50	11:30	0.0	0.0	61.6	7.94	9.42
			1.5	1.0	62.3	8.15	9.11
			3.0	2.0	61.7	7.93	9.17
			4.5	3.0	61.6	7.93	9.15
		12:05	6.0	4.0	61.6	7.93	9.13

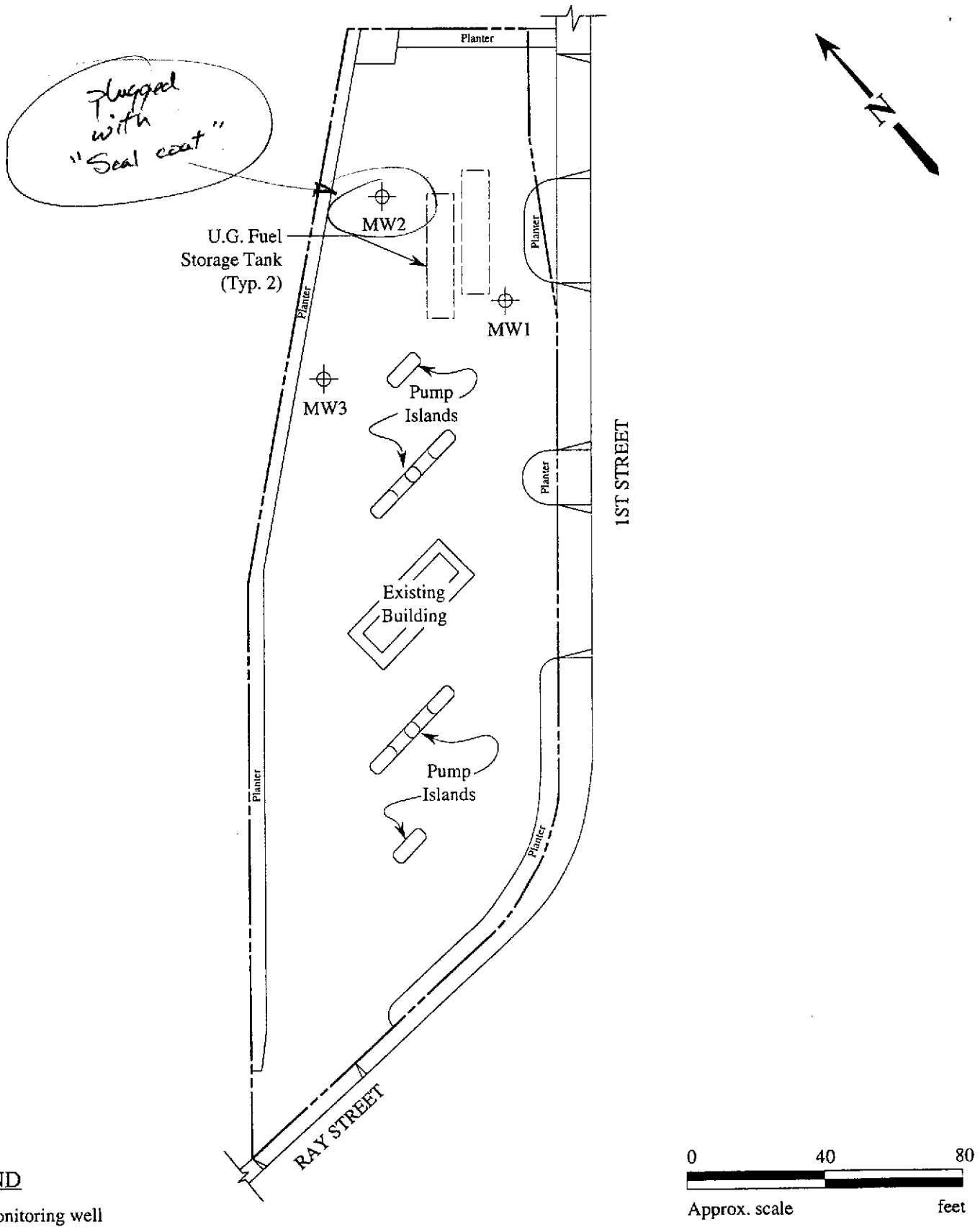
TABLE 3

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Sample Number	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes
12/07/94	MW1	ND	ND	ND	ND	ND
	MW2	WELL DAMAGED				
	MW3	ND	ND	ND	ND	ND

ND = Non-detectable.

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



MONITORING WELL LOCATION MAP

KAPREALIAN ENGINEERING
INCORPORATED

UNOCAL SERVICE STATION #7376
4191 1ST STREET
PLEASANTON, CALIFORNIA

FIGURE
1

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Kaprealian Engineering, Inc.	Client Project ID:	Unocal #7376, 4191 1st St, Pleasanton	Sampled: Dec 7, 1994
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Water	Received: Dec 8, 1994
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported: Dec 22, 1994
Attention: Avo Avedissian	First Sample #:	412-0550	

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 412-0550 MW-1	Sample I.D. 412-0551 MW-3
Purgeable Hydrocarbons	50	N.D.	N.D.
Benzene	0.50	N.D.	N.D.
Toluene	0.50	N.D.	N.D.
Ethyl Benzene	0.50	N.D.	N.D.
Total Xylenes	0.50	N.D.	N.D.
Chromatogram Pattern:		--	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0
Date Analyzed:	12/21/94	12/21/94
Instrument Identification:	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	91	92

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

SEQUOIA ANALYTICAL, #1271

Alan B. Kemp
Project Manager

Sequoia Analytical

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

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

Client Project ID: Unocal #7376, 4191 1st St, Pleasanton
Matrix: Liquid
QC Sample Group: 4120550-552

Reported: Dec 27, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	A. Tuzon	A. Tuzon	A. Tuzon	A. Tuzon
MS/MSD Batch#:	4120550	4120550	4120550	4120550
Date Prepared:	12/21/94	12/21/94	12/21/94	12/21/94
Date Analyzed:	12/21/94	12/21/94	12/21/94	12/21/94
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Matrix Spike % Recovery:	85	90	95	97
Matrix Spike Duplicate % Recovery:	85	90	95	95
Relative % Difference:	0.0	0.0	0.0	2.1
LCS Batch#:	2LCS122194	2LCS122194	2LCS122194	2LCS122194
Date Prepared:	12/21/94	12/21/94	12/21/94	12/21/94
Date Analyzed:	12/21/94	12/21/94	12/21/94	12/21/94
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4
LCS % Recovery:	85	90	90	95
% Recovery Control Limits:	71-133	72-128	72-130	71-120

SEQUOIA ANALYTICAL, #1271

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 matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

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Kaprealian Engineering, Inc.	Client Project ID: Unocal #7376, 4191 1st St., Pleasanton	Sampled: Dec 7, 1994
2401 Stanwell Dr., Ste. 400	Sample Descript: Water, MW-1-3	Received: Dec 8, 1994
Concord, CA 94520	Analysis Method: See below	
Attention: Avo Avedissian	Lab Number: 412-0552	Reported: Dec 28, 1994

HAZARDOUS ABBREVIATED SCREEN BIOASSAY

Static [X]
Cont. Flow [ ]

Screening [X]
Definitive [ ]

Species: Pimephales promelas
Common Name: Fat-Head Minnow
Mean length: 27 mm
Mean weight: 0.47 g
Supplier: Sticklebacks Unlimited
Acclimation Temp.: 19 degrees C

Organisms/Tank: 10
Replicates: 2
Organisms/Conc.: 20
Tank Depth: 13 cm
Tank Volume: 10 L

Dilution Water: Synthetic Softwater

	Alkalinity, mg/L	Hardness, mg/L
Control	31	40
750 ppm	33	43
Duplicate 750 ppm	31	43

	Initial	24 Hr	48 Hr	72 Hr	96 Hr
DATE	12/9/94	12/10/94	12/11/94	12/12/94	12/13/94

	Initial			24 Hr				48 Hr				72 Hr				96 Hr				Total
	DO mg/L	C Temp	pH Units	DO mg/L	C Temp	pH Units	# M Dead	DO mg/L	C Temp	pH Units	# M Dead	DO mg/L	C Temp	pH Units	# M Dead	DO mg/L	C Temp	pH Units	# M Dead	Dead
Control	8.8	18	7.8	7.8	18	7.7	0	6.1	20	7.3	0	6.0	19	7.2	0	6.0	18	7.2	0	0
250 ppm	8.8	18	7.4	8.1	18	7.4	0	6.3	20	7.3	0	6.1	19	7.2	0	6.0	18	7.2	0	0
750 ppm	8.6	18	7.5	8.0	18	7.3	0	6.2	20	7.3	1	6.0	19	7.2	1	5.8	18	7.4	1	1
Duplicate																				
250 ppm	8.9	18	7.4	8.1	18	7.4	0	6.5	20	7.3	0	6.3	19	7.2	0	6.1	18	7.2	0	0
750 ppm	8.6	18	7.5	8.0	18	7.3	0	6.3	20	7.3	0	6.1	19	7.2	0	6.0	18	7.2	0	0

Remarks:

Analyst: K. Anderson

Method Reference: Static Acute Bioassay Procedures for Hazardous Waste Samples, September 1987, California Department of Fish and Game WPCL

SEQUOIA ANALYTICAL, #1271

Alan B. Kemp
Project Manager

UNOCAL 76

❑ 680 Chesapeake Drive • Redwood City, CA 94063 • (415) 364-9600
❑ 819 Striker Ave., Suite 8 • Sacramento, CA 95834 • (916) 921-9600
❑ 1900 Bates Ave., Suite LM • Concord, CA 94520 • (510) 686-9600
❑ 18939 120th Ave., N.E., Suite 101 • Bothell, WA 98011 • (206) 481-9200
❑ East 11115 Montgomery, Suite B • Spokane, WA 99206 • (509) 924-9200
❑ 15055 S.W. Sequoia Pkwy, Suite 110 • Portland, OR 97222 • (503) 624-9800

Company Name: Kaprealian Engineering Inc.	Project Name: 4191 1st street, Pleasanton
Address: 2401 Stanwell Dr. #400	UNOCAL Project Manager:
City: Concord State: CA Zip Code: 94520	Release #:
Telephone: 510-602-5100 FAX #: 510-687-0602	Site #: Unocal s/s # 7376
Report To: Avo Avedissian Sampler: Diran Melkoum	QC Data: ❑ Level D (Standard) ❑ Level C ❑ Level B ☑ Level A

Turnaround Time: ☑ 10 Work Days ❑ 5 Work Days ❑ 3 Work Days ❑ 2 Work Days ❑ 1 Work Day ❑ 2-8 Hours

CODE: ❑ Misc. ❑ Detect. ❑ Eval. ☑ Remed. ❑ Demol. ❑ Closure

❑ Drinking Water ❑ Waste Water ☑ Other

Analyses Requested

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	TPH G	BTXE	96 Hour Fish Bioassay							Comments
1. MW-1	12/7/94, 10:30	Water	2	VOA's		✓	✓					4120550			A,B
2. MW-3	12/7/94, 12:30	"	2	"		✓	✓					4120551			↓
3. MW-1-3	12/7/94, 12:30	"	1	Amber				✓				4120552			
4.															
5.															
6.															
7.															
8.															
9.															
10.															

Relinquished By: Diran Melkoum	Date: 12/8/94	Time: 10:47	Received By:	Date: 12/8/94	Time: 1047
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab:	Date:	Time:

Were Samples Received in Good Condition? ❑ Yes ❑ No Samples on Ice? ❑ Yes ❑ No Method of Shipment _____ Page __ of __

To be completed upon receipt of report:

1) Were the analyses requested on the Chain of Custody reported? ❑ Yes ❑ No If no, what analyses are still needed? _____

2) Was the report issued within the requested turnaround time? ❑ Yes ❑ No If no, what was the turnaround time? _____

Approved by: _____ Signature: _____ Company: _____ Date: _____

Pink - Client

Yellow - Laboratory

White - Laboratory