KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P. O. BOX 913
BENICIA, CA 94510
(707) 746-6915 (707) 746-6916
FAX: (707) 746-5581

KEI-J89-0902.R2
October 9, 1989

Unocal Corporation
2175 N. California Blvd., Suite #650
Walnut Creek, CA 94596

Attention: Mr. Ron Bock

RE: Stockpiled Soil Sampling for
Unocal Service Station #6129
3420 - 35th Avenue
Oakland, California

Dear Mr. Bock:

This letter report summarizes the results of the stockpiled soil sampling and laboratory analyses for the referenced site. The soil analyses were conducted to comply with the County Health Department requirements for proper disposal of contaminated soil.

On September 13, 1989, soil samples from approximately 750 cubic yards of stockpiled soil at the referenced site were collected to determine proper disposal of the soil. Fifteen composite soil samples (designated as Comp 1 through Comp 5 and Comp A through Comp J) were taken. Each composite sample consisted of four individual grab samples taken at various locations and depths ranging from one to two feet. The samples were collected in 2" diameter, clean brass tubes, which were then sealed with aluminum foil, plastic caps and tape, and placed in a cooled ice chest for subsequent delivery to a certified laboratory for analysis. All samples were analyzed at Mobile Chem Labs, Inc., in Lafayette, California, and were accompanied by properly executed Chain of Custody documentation. Sample locations are as shown on the attached Site Plan.

The composite samples were analyzed to determine concentrations of total petroleum hydrocarbons (TPH) as gasoline using EPA method 5030 in conjunction with modified 8015, benzene, toluene, xylenes and ethylbenzene (BTX&E) using EPA method 8020. The results of the soil analyses showed concentrations of TPH as gasoline ranging from 15 to 150 ppm in Comp A through Comp J. Comp 1 through Comp 5 showed non-detectable levels of TPH as gasoline and BTX&E. Analytical results are summarized in Table 1. Copies of the laboratory analyses, and the Chain of Custody documentation are attached to this report.

Based on TPH levels found in the soil samples, stockpiled soil represented by Comp 1 through Comp 5, Comp A, Comp B, Comp C, Comp D, Comp F, Comp G, Comp I and Comp J of less than 100 ppm, the soil (approximately 650 cubic yards) can be disposed of at an approved Class III disposal site (based on Regional Water Quality Control Board guidelines). However, the stockpiled soil represented by Comp E and Comp H should be retained on-site for aeration and resampling.

A copy of this report should be sent to the Alameda County Department of Environmental Health, and to the Regional Water Quality Control Board (RWQCB), San Francisco Bay Region.

Should you have any questions on this report, please do not hesitate to contact me at (707) 746-6915.

Sincerely,

Kaprealian Engineering, Inc.

Christina L. Lecce

Christina L. Lecce

Attachments: Table 1
Site Plan
Laboratory Results
Chain of Custody documentation

KEI-J89-0902.R2
October 9, 1989

TABLE 1

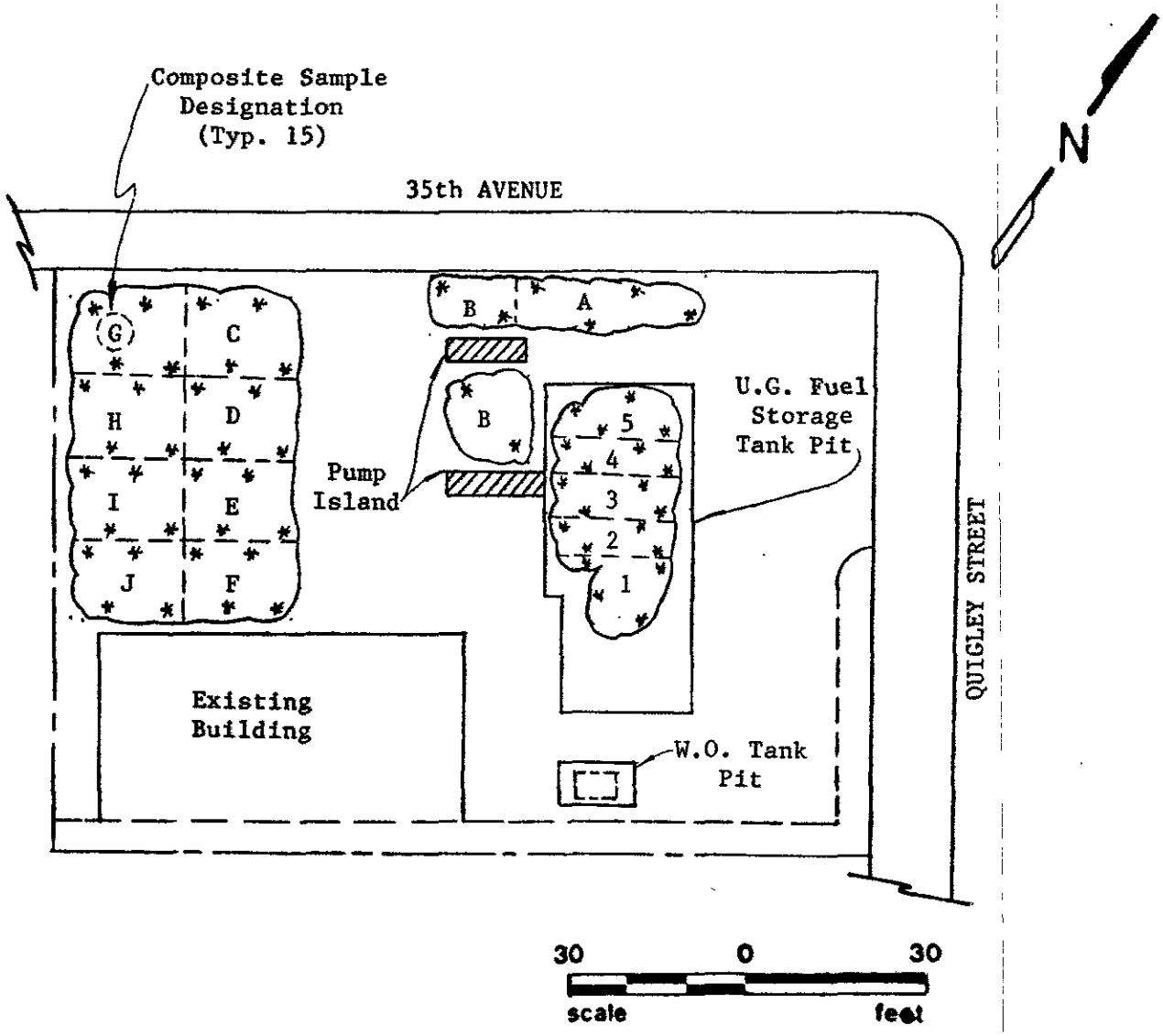
SUMMARY OF LABORATORY ANALYSES

(Results in ppm)
(Samples collected on September 13, 1989)

Sample	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethylbenzene
Comp A	35	ND	ND	10	1.5
Comp B	72	ND	0.5	54	11
Comp C	25	ND	0.2	17	1.8
Comp D	27	ND	0.1	12	1.0
Comp E	150	0.3	0.8	80	6.6
Comp F	39	ND	0.1	15	1.3
Comp G	38	0.2	0.3	8.4	ND
Comp H	150	0.1	5.1	100	14
Comp I	83	ND	ND	56	0.1
Comp J	15	ND	ND	1.1	ND
Comp 1	ND	ND	ND	ND	ND
Comp 2	ND	ND	ND	ND	ND
Comp 3	ND	ND	ND	ND	ND
Comp 4	ND	ND	ND	ND	ND
Comp 5	ND	ND	ND	ND	ND
Detection Limits	1.0	0.1	0.1	0.1	0.1

ND = Non-detectable.

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P. O BOX 913
BENICIA, CA 94510
(707) 746 - 6915



SITE PLAN

* Sample Point Location

Unocal S/S #6129
3420 - 35th Avenue
Oakland, California

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Kaprealian Engineering, Inc.
P O Box 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled: 09-13-89
Date Received:09-13-89
Date Reported:09-14-89

Sample Number	Sample Description
099098	Unocal - Oakland 35th Ave Comp 1 SOIL

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	<1.0
Benzene	0.1	<0.1
Toluene	0.1	<0.1
Xylenes	0.1	<0.1
Ethylbenzene	0.1	<0.1

Note: Analysis was performed using EPA methods 5020 and TPH LUFT with method 8020 used for BTX distinction.

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Rellez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Kaprealian Engineering, Inc.
P O Box 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled: 09-13-89
Date Received:09-13-89
Date Reported:09-14-89

Sample Number	Sample Description
099099	Unocal - Oakland 35th Ave Comp 2 SOIL

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	<1.0
Benzene	0.1	<0.1
Toluene	0.1	<0.1
Xylenes	0.1	<0.1
Ethylbenzene	0.1	<0.1

Note: Analysis was performed using EPA methods 5020 and TPH LUFT with method 8020 used for BTX distinction.

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Kaprealian Engineering, Inc.
P O Box 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled: 09-13-89
Date Received:09-13-89
Date Reported:09-14-89

Sample Number	Sample Description
099100	Unocal - Oakland 35th Ave Comp 3 SOIL

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	<1.0
Benzene	0.1	<0.1
Toluene	0.1	<0.1
Xylenes	0.1	<0.1
Ethylbenzene	0.1	<0.1

Note: Analysis was performed using EPA methods 5020 and TPH LUFT with method 8020 used for BTX distinction.

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Kaprealian Engineering, Inc.
P O Box 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled: 09-13-89
Date Received:09-13-89
Date Reported:09-14-89

Sample Number	Sample Description
099101	Unocal - Oakland 35th Ave Comp 4 SOIL

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	<1.0
Benzene	0.1	<0.1
Toluene	0.1	<0.1
Xylenes	0.1	<0.1
Ethylbenzene	0.1	<0.1

Note: Analysis was performed using EPA methods 5020 and TPH LUFT with method 8020 used for BTX distinction.

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Kaprealian Engineering, Inc.
P O Box 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled: 09-13-89
Date Received:09-13-89
Date Reported:09-14-89

Sample Number	Sample Description
099102	Unocal - Oakland 35th Ave Comp 5 SOIL

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	<1.0
Benzene	0.1	<0.1
Toluene	0.1	<0.1
Xylenes	0.1	<0.1
Ethylbenzene	0.1	<0.1

Note: Analysis was performed using EPA methods 5020 and TPH LUFT with method 8020 used for BTX distinction.

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P. O. BOX 913
BENICIA, CA 94510
(415) 676 - 9100 (707) 746 - 6915

CHAIN OF CUSTODY

SAMPLER: [signature] (Signature) DATE/TIME OF COLLECTION: 9/13/89 TURN AROUND TIME: 24 HRS

SAMPLE DESCRIPTION AND PROJECT NUMBER: Unocal - Oakland - 35 5th Ave.

SAMPLE #	ANALYSES	GRAB OR COMP.	NUMBER OF CONTAINERS	SOIL/ WATER
Comp 1	TPHG ; BTXE	Comp	2	S
Comp 2	TPHG ; BTXE	Comp	2	S
Comp 3	TPHG ; BTXE	Comp	2	S
Comp 4	TPHG ; BTXE	Comp	2	S
Comp 5	TPHG ; BTXE	Comp	2	S

RELINQUISHED BY*	TIME/DATE	RECEIVED BY*	TIME/DATE
1. [signature]	9/13/89 5:17 p.m.	B. Schreder	9/13/89 5:17 pm
2. B. Schreder	9/13/89 6:02 pm	Charles Morrow	9/13/89 6:30 p
3.			

* STATE AFFILIATION NEXT TO SIGNATURE

REMARKS: Need results by tomorrow morning 8:00 a.m.

NOTE: IF REGULAR TURNAROUND, SOIL ANALYSES MUST BE COMPLETED WITHIN 14 CALENDAR DAYS OF SAMPLE COLLECTION. WATER ANALYSES MUST BE COMPLETED WITHIN 7 CALENDAR DAYS FOR BTX&E (UNLESS SAMPLE HAS BEEN PRESERVED), AND 14 CALENDAR DAYS FOR TPH AS GASOLINE; EXTRACT TPH AS DIESEL WITHIN 14 CALENDAR DAYS.

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Kaprealian Engineering, Inc.
P.O. BOX 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled:09-13-89
Date Received:09-13-89
Date Reported:09-14-89

Sample Number	Sample Description
099103	Unocal - Oakland 35th Ave Comp. A SOIL

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	35
Benzene	0.1	<0.1
Toluene	0.1	<0.1
Xylenes	0.1	10
Ethylbenzene	0.1	1.5

Note: Analysis was performed using EPA methods 5020 and TPH LUFT with method 8020 used for BTX distinction.

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Kaprealian Engineering, Inc.
P.O. BOX 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled:09-13-89
Date Received:09-13-89
Date Reported:09-14-89

Sample Number	Sample Description
099104	Unocal - Oakland 35th Ave Comp. B SOIL

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	72
Benzene	0.1	<0.1
Toluene	0.1	0.5
Xylenes	0.1	54
Ethylbenzene	0.1	11

Note: Analysis was performed using EPA methods 5020 and TPH LUFT with method 8020 used for BTX distinction.

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Kaprealian Engineering, Inc.
P.O. BOX 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled:09-13-89
Date Received:09-13-89
Date Reported:09-14-89

Sample Number	Sample Description
099105	Unocal - Oakland 35th Ave Comp. C SOIL

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	25
Benzene	0.1	<0.1
Toluene	0.1	0.2
Xylenes	0.1	17
Ethylbenzene	0.1	1.8

Note: Analysis was performed using EPA methods 5020 and TPH LUFT with method 8020 used for BTX distinction.

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Kaprealian Engineering, Inc.
P.O. BOX 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled:09-13-89
Date Received:09-13-89
Date Reported:09-14-89

Sample Number	Sample Description
099106	Unocal - Oakland 35th Ave Comp. D SOIL

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	27
Benzene	0.1	<0.1
Toluene	0.1	0.1
Xylenes	0.1	12
Ethylbenzene	0.1	1.0

Note: Analysis was performed using EPA methods 5020 and TPH LUFT with method 8020 used for BTX distinction.

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Kaprealian Engineering, Inc.
P.O. BOX 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled: 09-13-89
Date Received: 09-13-89
Date Reported: 09-14-89

Sample Number	Sample Description
099107	Unocal - Oakland 35th Ave Comp. E SOIL

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	150
Benzene	0.1	0.3
Toluene	0.1	0.8
Xylenes	0.1	80
Ethylbenzene	0.1	6.6

Note: Analysis was performed using EPA methods 5020 and TPH LUFT with method 8020 used for BTX distinction.

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Kaprealian Engineering, Inc.
P.O. BOX 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled:09-13-89
Date Received:09-13-89
Date Reported:09-14-89

Sample Number	Sample Description
099108	Unocal - Oakland 35th Ave Comp. F SOIL

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	39
Benzene	0.1	<0.1
Toluene	0.1	0.1
Xylenes	0.1	15
Ethylbenzene	0.1	1.3

Note: Analysis was performed using EPA methods 5020 and TPH LUFT with method 8020 used for BTX distinction.

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Kaprealian Engineering, Inc.
P.O. BOX 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled: 09-13-89
Date Received: 09-13-89
Date Reported: 09-14-89

Sample Number	Sample Description
099109	Unocal - Oakland 35th Ave Comp. G SOIL

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	38
Benzene	0.1	0.2
Toluene	0.1	0.3
Xylenes	0.1	8.4
Ethylbenzene	0.1	<0.1

Note: Analysis was performed using EPA methods 5020 and TPH LUFT with method 8020 used for BTX distinction.

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Kaprealian Engineering, Inc.
P.O. BOX 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled:09-13-89
Date Received:09-13-89
Date Reported:09-14-89

Sample Number	Sample Description
099110	Unocal - Oakland 35th Ave Comp. H SOIL

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	150
Benzene	0.1	0.1
Toluene	0.1	5.1
Xylenes	0.1	100
Ethylbenzene	0.1	14

Note: Analysis was performed using EPA methods 5020 and TPH LUFT with method 8020 used for BTX distinction.

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Kaprealian Engineering, Inc.
P.O. BOX 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled:09-13-89
Date Received:09-13-89
Date Reported:09-14-89

Sample Number	Sample Description
099111	Unocal - Oakland 35th Ave Comp. I SOIL

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	83
Benzene	0.1	<0.1
Toluene	0.1	<0.1
Xylenes	0.1	56
Ethylbenzene	0.1	0.1

Note: Analysis was performed using EPA methods 5020 and TPH LUFT with method 8020 used for BTX distinction.

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Kaprealian Engineering, Inc.
P.O. BOX 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled:09-13-89
Date Received:09-13-89
Date Reported:09-14-89

Sample Number	Sample Description
099112	Unocal - Oakland 35th Ave Comp. J SOIL

ANALYSIS

	Detection Limit	Sample Results
	ppm	ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	15
Benzene	0.1	<0.1
Toluene	0.1	<0.1
Xylenes	0.1	1.1
Ethylbenzene	0.1	<0.1

Note: Analysis was performed using EPA methods 5020 and TPH LUFT with method 8020 used for BTX distinction.

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P. O. BOX 913
BENICIA, CA 94510
(415) 676 - 9100 (707) 746 - 6915

CHAIN OF CUSTODY

SAMPLER: _____ (Signature) DATE/TIME OF COLLECTION: 9/13/89 TURN AROUND TIME: 24 HRS

SAMPLE DESCRIPTION AND PROJECT NUMBER: Unocal - Oakland - 35th Ave.

SAMPLE #	ANALYSES	GRAB OR COMP.	NUMBER OF CONTAINERS	SOIL/ WATER
Comp A	TPHG, BTXE	Comp	2	S
Comp B	TPHG, BTXE	Comp	2	S
Comp C	TPHG, BTXE	Comp	2	S
Comp D	TPHG, BTXE	Comp	2	S
Comp E	TPHG, BTXE	Comp	2	S
Comp F	TPHG, BTXE	Comp	2	S
Comp G	TPHG, BTXE	Comp	2	S
Comp H	TPHG, BTXE	Comp	2	S

RELINQUISHED BY*	TIME/DATE	RECEIVED BY*	TIME/DATE
1.	9/13/89 5:20 p.m.	Schelker	9/13/89 5:20 pm
2.			
3.			

* STATE AFFILIATION NEXT TO SIGNATURE

REMARKS: _____

NOTE: IF REGULAR TURNAROUND, SOIL ANALYSES MUST BE COMPLETED WITHIN 14 CALENDAR DAYS OF SAMPLE COLLECTION. WATER ANALYSES MUST BE COMPLETED WITHIN 7 CALENDAR DAYS FOR BTX&E (UNLESS SAMPLE HAS BEEN PRESERVED), AND 14 CALENDAR DAYS FOR TPH AS GASOLINE; EXTRACT TPH AS DIESEL WITHIN 14 CALENDAR DAYS.

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P. O. BOX 913
BENICIA, CA 94510
(415) 676 - 9100 (707) 746 - 6915

CHAIN OF CUSTODY

SAMPLER: [signature] (Signature) [signature]

DATE/TIME OF COLLECTION: 9/13/89

TURN AROUND TIME: 24 Hrs.

SAMPLE DESCRIPTION AND PROJECT NUMBER: Unocal - Oakland 3rd Ave.

SAMPLE #	ANALYSES	GRAB OR COMP.	NUMBER OF CONTAINERS	SOIL/ WATER
Comp I	TPHG ; BTXE	Comp	2	S
Comp J.	TPHG ; BTXE	Comp	2	S

RELINQUISHED BY*	TIME/DATE	RECEIVED BY*	TIME/DATE
1. [signature]	9/13/89 ~ 5:20 p.m.	[signature] Schepler	9/13/89 5:20pm
2.			
3.			

* STATE AFFILIATION NEXT TO SIGNATURE

REMARKS:

NOTE: IF REGULAR TURNAROUND, SOIL ANALYSES MUST BE COMPLETED WITHIN 14 CALENDAR DAYS OF SAMPLE COLLECTION. WATER ANALYSES MUST BE COMPLETED WITHIN 7 CALENDAR DAYS FOR BTX&E (UNLESS SAMPLE HAS BEEN PRESERVED), AND 14 CALENDAR DAYS FOR TPH AS GASOLINE; EXTRACT TPH AS DIESEL WITHIN 14 CALENDAR DAYS.

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P. O. BOX 913
BENICIA, CA 94510
(707) 746-6915 (707) 746-6916
FAX: (707) 746-5581

KEI-J89-0902.R1
October 9, 1989

Unocal Corporation
2175 N. California Blvd., Suite #650
Walnut Creek, CA 94596

Attention: Mr. Ron Bock

RE: Soil Sampling Report
Unocal Service Station #6129
3420 - 35th Avenue
Oakland, California

Dear Mr. Bock:

This report summarizes the soil sampling performed by Kaprealian Engineering, Inc. (KEI) at the referenced site. All work was performed in compliance with the guidelines established by the Regional Water Quality Control Board (RWQCB), and the Alameda County Health Agency.

The scope of the work performed by KEI consisted of the following:

Coordination with regulatory agencies.

Collection of samples of native soil from beneath the fuel storage and waste oil tanks, and from the product pipe trenches.

Delivery of soil samples, including proper Chain of Custody documentation, to a certified analytical laboratory.

Technical review of laboratory analyses and preparation of this report.

SITE DESCRIPTION AND BACKGROUND

The subject site is presently used as a gasoline station. Site vicinity and site descriptions are shown on the attached sketch. No leaks or previous subsurface work performed at the site are known to KEI.

FIELD ACTIVITIES

KEI's field work was conducted on September 11, 1989. Two underground fuel storage tanks and one 550 gallon waste oil tank were removed from the site. The fuel tanks consisted of one 10,000 gallon unleaded gasoline tank, and one 10,000 gallon super unleaded gasoline tank. The tanks were made of steel and no apparent holes or cracks were observed in any of the tanks. Tank removal and soil sampling were performed in the presence of Mr. Larry Seto of the Alameda County Health Agency.

Four soil samples, labeled A1, A2, B1 and B2, were collected of the native soil from beneath the fuel storage tanks at a depth of approximately 14 feet. One soil sample, labeled WO1, was collected of the native soil from beneath the waste oil tank at a depth of approximately 9.5 feet. The undisturbed samples were collected from bulk material excavated by backhoe. All samples were placed in clean, 2" diameter brass tubes, sealed with aluminum foil, plastic caps and tape, and stored in a cooled ice chest for delivery to a state certified laboratory. Sample point locations are as shown on the attached Site Plan.

KEI returned to the site on September 26, 1989, in order to collect samples of the native soil from the product pipe trenches. Four samples, labeled P1 through P4, inclusive, were collected in clean 2" diameter brass tubes, as described above, at depths ranging from 3 to 3.5 feet. Following additional excavation, in an attempt to remove as much contaminated soil as possible, an additional sample, designated as P3(7.5), was collected at sample point location P3 at a depth of 7.5 feet. After sampling, the trenching was excavated to the sample depths. Samples were handled as described above. Pipe trench sample point locations are also shown on the attached Site Plan.

SUBSURFACE CONDITIONS

Subsurface soils exposed in the excavation consisted primarily of silty clay. No visual evidence of past high water was apparent in the pits. Excavated soil was stockpiled on the site.

ANALYTICAL RESULTS

All samples were analyzed by Sequoia Analytical Laboratory in Redwood City, California, and were accompanied by properly executed Chain of Custody documentation. All soil samples were analyzed for total petroleum hydrocarbon (TPH) as gasoline using EPA method 5030 in conjunction with modified 8015, and benzene, toluene, xylenes and ethylbenzene (BTX&E) using EPA method 8020.

The five pipe trench samples were also analyzed to determine organic lead concentrations. In addition, the sample from the waste oil tank pit, WO1, was analyzed for TPH as diesel by EPA method 3550 in conjunction with modified 8015, total oil and grease (TOG) by 503D&E, and purgeable halocarbons by EPA method 8010. Analytical results are summarized in Table 1. Copies of the laboratory analyses and the Chain of Custody documentation are attached to this report.

Analyses of soil samples taken from the fuel tank pit indicate TPH as gasoline concentrations ranging from 1.8 ppm to 10 ppm with non-detectable benzene levels for all samples. Analyses of pipe trench soil samples indicate a range in TPH as gasoline concentrations from non-detectable to 17 ppm for all samples except P3, which showed 690 ppm. The concentration of TPH as gasoline and BTX&E constituents at sample point location P3 were non-detectable levels following excavation to a depth of 7.5 feet, as indicated by analyses of sample P3(7.5). Organic lead levels were all non-detectable for the final pipe trench samples. Analyses of the sample collected from beneath the waste oil tank showed TOG at 58 ppm, TPH as diesel at 3.3 ppm, with non-detectable concentrations of TPH as gasoline, BTX&E and all 8010 constituents.

DISCUSSION AND RECOMMENDATIONS

In accordance with the guidelines established by the RWQCB, further work is necessary at the site because of the level of contamination found in the soil. To comply with the requirements of the RWQCB and the Alameda County Health Agency, KEI recommends the installation of three monitoring wells at the site to determine the ground water flow direction, and to determine if the ground water has been impacted. KEI's proposal for this work is attached for your review and consideration.

DISTRIBUTION

A copy of this report should be sent to the Mr. Larry Seto of the Alameda County Health Agency, and to the RWQCB, San Francisco Bay Region.

LIMITATIONS

The results of this study are based on the data obtained from the field work and laboratory analyses. We have analyzed this 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, except that our services have been performed in accordance with generally accepted professional principles and practices existing for such work.

Should you have any questions regarding this report, please feel free to call me at (707) 746-6915.

Sincerely,

Kaprealian Engineering, Inc.

Richard M. Bradish
Staff Engineer

Jae Yang, P.E.

License No. 25337
Exp. Date 12/31/89

Mardo Kaprealian
President

Attachments: Table 1
Site Plan
Location Map
Laboratory Analyses
Chain of Custody documentation

KEI-J89-0902.R1
October 9, 1989

TABLE 1

SUMMARY OF LABORATORY ANALYSES

(Results in ppm)
(Samples collected on September 11, 1989)

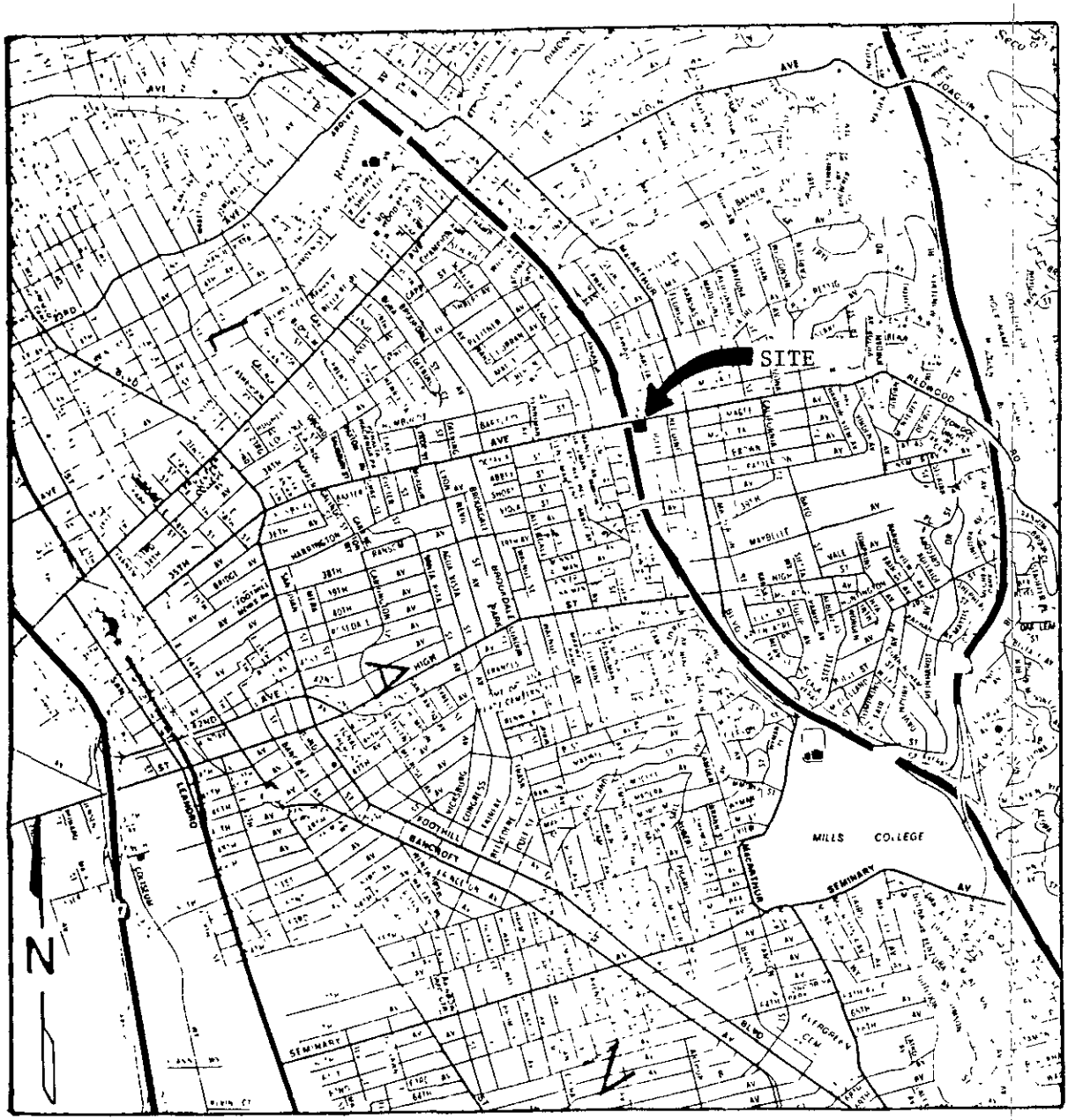
Sample	Depth (feet)	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene
A1	14	---	10	ND	ND	0.11	ND
A2	14	---	5.0	ND	ND	ND	ND
B1	14	---	3.0	ND	ND	ND	ND
B2	14	---	1.8	ND	ND	ND	ND
P1*	3	---	17	0.23	ND	ND	ND
P2*	3	---	ND	ND	ND	ND	ND
P3*	3.5	---	690	3.2	0.36	19	ND
P3(7.5)*	7.5	---	ND	ND	ND	ND	ND
P4*	3.5	---	5.0	ND	ND	ND	ND
WO1**	9.5	3.3	ND	ND	ND	ND	ND
Detection Limits		1.0	1.0	0.05	0.1	0.1	0.1

* Organic lead for these samples were all non-detectable, except for sample P3, which showed 0.058 ppm.

** TOG for this sample was 58 ppm, while all 8010 constituents were non-detectable.

ND = Non-detectable.

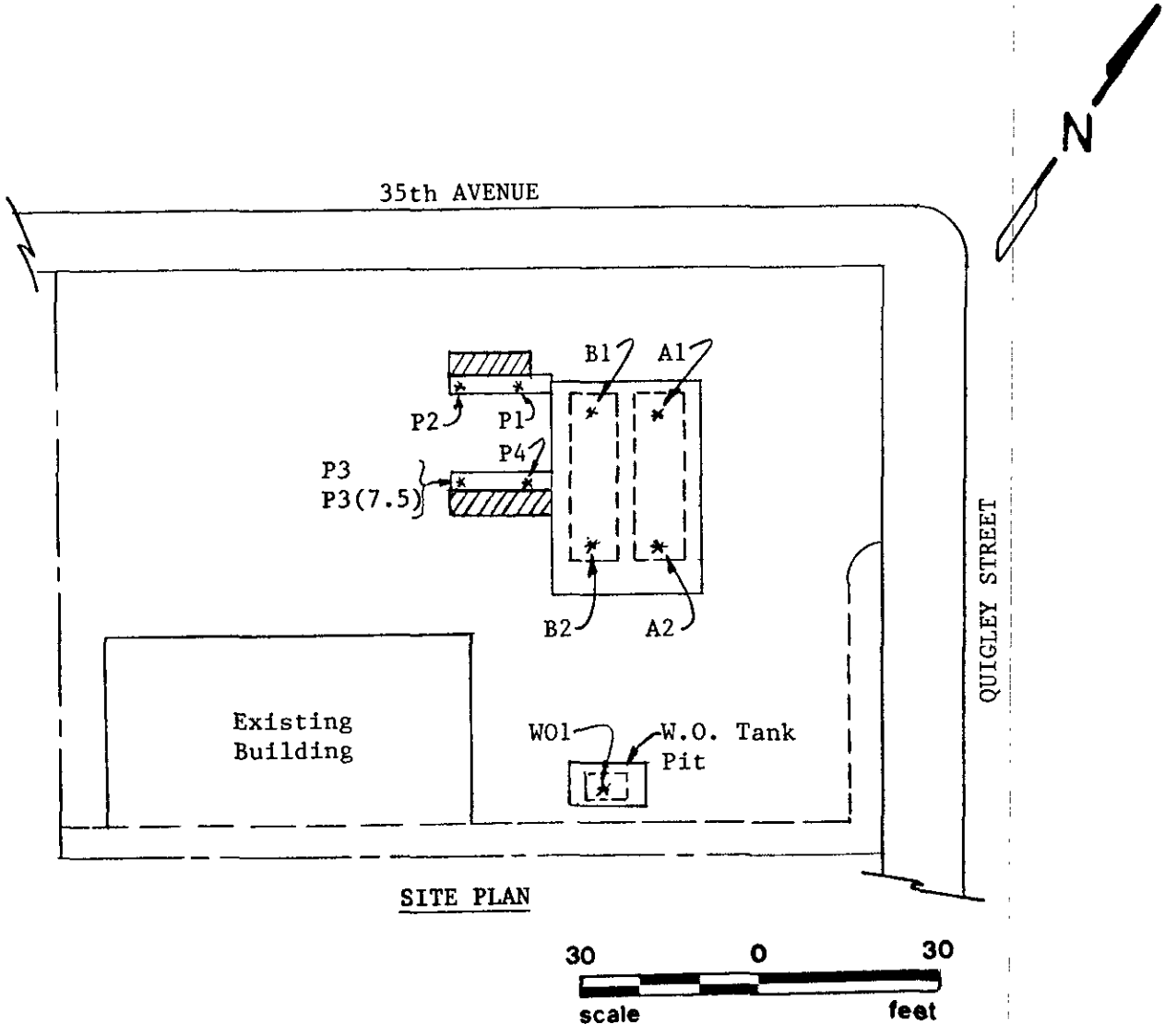
KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P O BOX 913
BENICIA, CA 94510
(707) 746-6915 (707) 746-6916
FAX: (707) 746-5581



LOCATION MAP

Unocal Service Station #6129
3420 - 35th Avenue
Oakland, California

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P. O BOX 913
BENICIA, CA 94510
(707) 746 - 6915



SITE PLAN

* Sample Point Location

Unocal S/S #6129
3420 - 35th Avenue
Oakland, California

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, Oakland, 35th Ave/Quigley	Sampled:	Sep 11, 1989
P.O. Box 913	Matrix Descript:	Soil	Received:	Sep 12, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Sep 12, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	909-1121	Reported:	Sep 13, 1989

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
909-1121	A1	10	N.D.	N.D.	N.D.	0.11
909-1122	A2	5.0	N.D.	N.D.	N.D.	N.D.
909-1123	B1	3.0	N.D.	N.D.	N.D.	N.D.
909-1124	B2	1.8	N.D.	N.D.	N.D.	N.D.
Detection Limits:		**1.0**	**0.05**	**0.1**	**0.1**	**0.1**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director

9091121.KEI <1>

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P. O BOX 913
BENICIA, CA 94510
(415) 676 · 9100 (707) 746 · 6915

CHAIN OF CUSTODY

SAMPLER: R. M. Bradish (Signature)
DATE/TIME OF COLLECTION: 9-11-89
TURN AROUND TIME: 24 Hr

SAMPLE DESCRIPTION AND PROJECT NUMBER: Unocal - Oakland
35th Ave. & Quigley

	SAMPLE #	ANALYSES	GRAB OR COMP.	NUMBER OF CONTAINERS	SOIL/ WATER
9091121	A1	TPH-G & BTXE	G	1	S
9091122	A2	" "	G	1	S
9091123	B1	" "	G	1	S
9091124	B2	" "	G	1	S

RELINQUISHED BY*	TIME/DATE	RECEIVED BY*	TIME/DATE
1. R. M. Bradish	8:12 9/12/89	Tom Bolan	8:12 9-12-89
2. Tom Bolan	9:12 9/12	B. L. Olive	9-12-89 10:00 am
3.			

* STATE AFFILIATION NEXT TO SIGNATURE

REMARKS:

NOTE: IF REGULAR TURNAROUND, SOIL ANALYSES MUST BE COMPLETED WITHIN 14 CALENDAR DAYS OF SAMPLE COLLECTION. WATER ANALYSES MUST BE COMPLETED WITHIN 7 CALENDAR DAYS FOR BTX&E (UNLESS SAMPLE HAS BEEN PRESERVED), AND 14 CALENDAR DAYS FOR TPH AS GASOLINE; EXTRACT TPH AS DIESEL WITHIN 14 CALENDAR DAYS.

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Kapreallan Engineering, Inc.	Client Project ID:	Unocal, Oakland, 3420 35th Ave.	Sampled:	Sep 26, 1989
P.O. Box 913	Matrix Descript:	Soil	Received:	Sep 27, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Sep 27, 1989
Attention: Mardo Kapreallan, P.E.	First Sample #:	909-3270	Reported:	Sep 28, 1989

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
909-3270	P1	17	0.23	N.D.	0.44	1.4
909-3271	P2	N.D.	N.D.	N.D.	N.D.	N.D.
909-3272	P3	690	3.2	0.36	19	5.5
909-3273	P4	5.0	N.D.	N.D.	N.D.	N.D.
909-3274	P3 (7.5)	N.D.	N.D.	N.D.	N.D.	N.D.
Detection Limits:		**1.0**	**0.05**	**0.1**	**0.1**	**0.1**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Belinda C. Vega
Project Manager

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, Oakland, 3420 35th Ave.	Sampled:	Sep 26, 1989
P.O. Box 913	Sample Descript:	Soil	Received:	Sep 27, 1989
Benicia, CA 94510	Analysis Method:	California LUFT Manual, 12/87	Analyzed:	Sep 28, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	909-3270	Reported:	Sep 28, 1989

ORGANIC LEAD

Sample Number	Sample Description	Sample Results mg/kg (ppm)
909-3270	P1	N.D.
909-3271	P2	N.D.
909-3272	P3	0.058
909-3273	P4	N.D.
909-3274	P3 (7.5)	N.D.

Detection Limits:	**0.05**

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Belinda C. Vega
Project Manager

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P O BOX 913
BENICIA, CA 94510
(415) 676 · 9100 (707) 746 · 6915

CHAIN OF CUSTODY

SAMPLER: HAGOP (Signature) DATE/TIME OF COLLECTION: 9-26-89 TURN AROUND TIME: 24 HRS

SAMPLE DESCRIPTION AND PROJECT NUMBER: UNOCAL - OAKLAND - 3420 - 35th Ave.

SAMPLE #	ANALYSES	GRAB OR COMP.	NUMBER OF CONTAINERS	SOIL/ WATER
P1	TPH-G/BTXE/Organic Lead	G	1	S
P2	TPH-G/BTXE/Organic Lead	G	1	S
P3	TPH-G/BTXE/Organic Lead	G	1	S
P4	TPH-G/BTXE/Organic Lead	G	1	S
P3(7.5)	TPH-G/BTXE/Organic Lead	G	1	S

RELINQUISHED BY*	TIME/DATE	RECEIVED BY*	TIME/DATE
1. Hagop Kevorkian	10:30 am 9/27/89	Priority Ben Romanek	9/27/89 10:30
2. Ben Romanek	12:55 9/27/89	B. L. Olivé	9/27 1:00 p.m.
3.			

* STATE AFFILIATION NEXT TO SIGNATURE

REMARKS:

NOTE: IF REGULAR TURNAROUND, SOIL ANALYSES MUST BE COMPLETED WITHIN 14 CALENDAR DAYS OF SAMPLE COLLECTION. WATER ANALYSES MUST BE COMPLETED WITHIN 7 CALENDAR DAYS FOR BTX&E (UNLESS SAMPLE HAS BEEN PRESERVED), AND 14 CALENDAR DAYS FOR TPH AS GASOLINE; EXTRACT TPH AS DIESEL WITHIN 14 CALENDAR DAYS.

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, Oakland, 35th Ave/Quigley	Sampled:	Sep 11, 1989
P.O. Box 913	Matrix Descript:	Soil, WO1	Received:	Sep 12, 1989
Benicia, CA 94510	Analysis Method:	SM 503 D&E (Gravimetric)	Extracted:	Sep 13, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	909-1125	Analyzed:	Sep 13, 1989
			Reported:	Sep 13, 1989

TOTAL RECOVERABLE OIL & GREASE

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
909-1125	WO1	58

Detection Limits:	**30.0**

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, Oakland, 35th Ave/Quigley	Sampled:	Sep 11, 1989
P.O. Box 913	Matrix Descript:	Soil, WO1	Received:	Sep 12, 1989
Benicia, CA 94510	Analysis Method:	EPA 3550/8015	Extracted:	Sep 12, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	909-1125	Analyzed:	Sep 12, 1989
			Reported:	Sep 13, 1989

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
909-1125	WO1	3.3

Detection Limits:	1.0

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, Oakland, 35th Ave/Quigley	Sampled:	Sep 11, 1989
P.O. Box 913	Sample Descript.:	Soil, WO1	Received:	Sep 12, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Sep 13, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	909-1125	Reported:	Sep 13, 1989

TOTAL PETROLEUM FUEL HYDROCARBONS WITH BTEX DISTINCTION (EPA 8015/8020)

Analyte	Detection Limit mg/kg (ppm)	Sample Results mg/kg (ppm)
Low to Medium Boiling Point Hydrocarbons	1.0	N.D.
Benzene	0.05	N.D.
Toluene	0.1	N.D.
Ethyl Benzene	0.1	N.D.
Xylenes	0.1	N.D.

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, Oakland, 35th Ave/Quigley	Sampled:	Sep 11, 1989
P.O. Box 913	Sample Descript:	Soil, WO1	Received:	Sep 12, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8010	Analyzed:	Sep 12, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	909-1125	Reported:	Sep 13, 1989

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Bromodichloromethane	5.0	N.D.
Bromoform	5.0	N.D.
Bromomethane	5.0	N.D.
Carbon tetrachloride	5.0	N.D.
Chlorobenzene	5.0	N.D.
Chloroethane	25.0	N.D.
2-Chloroethylvinyl ether	5.0	N.D.
Chloroform	5.0	N.D.
Chloromethane	5.0	N.D.
Dibromochloromethane	5.0	N.D.
1,2-Dichlorobenzene	10.0	N.D.
1,3-Dichlorobenzene	10.0	N.D.
1,4-Dichlorobenzene	10.0	N.D.
1,1-Dichloroethane	5.0	N.D.
1,2-Dichloroethane	5.0	N.D.
1,1-Dichloroethene	5.0	N.D.
Total 1,2-Dichloroethene	5.0	N.D.
1,2-Dichloropropane	5.0	N.D.
cis-1,3-Dichloropropene	5.0	N.D.
trans-1,3-Dichloropropene	5.0	N.D.
Methylene chloride	10.0	N.D.
1,1,2,2-Tetrachloroethane	5.0	N.D.
Tetrachloroethene	5.0	N.D.
1,1,1-Trichloroethane	5.0	N.D.
1,1,2-Trichloroethane	5.0	N.D.
Trichloroethene	5.0	N.D.
Trichlorofluoromethane	5.0	N.D.
Vinyl chloride	10.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P. O. BOX 913
BENICIA, CA 94510
(415) 676-9100 (707) 746-6915

CHAIN OF CUSTODY

SAMPLER: R.M. Bradish
(Signature)

DATE/TIME OF COLLECTION: 9-11-89

TURN AROUND TIME: 24 Hr

SAMPLE DESCRIPTION AND PROJECT NUMBER: Unocal - Oakland 35th Ave & Quigley

	SAMPLE #	ANALYSES	GRAB OR COMP.	NUMBER OF CONTAINERS	SOIL/ WATER
9091125	W01	TPH-G & BTXE; TPH-D; TOG (503D & E); 8010	G	1	S

	RELINQUISHED BY*	TIME/DATE	RECEIVED BY*	TIME/DATE
1.	R.M. Bradish	8:12 9/12/89	Tom Bakas	8:12 9-12-89
2.	Tom Bakas	9 12 945	B.L. Obrien	9/12/89 10:00a.m
3.				

* STATE AFFILIATION NEXT TO SIGNATURE

REMARKS:

NOTE: IF REGULAR TURNAROUND, SOIL ANALYSES MUST BE COMPLETED WITHIN 14 CALENDAR DAYS OF SAMPLE COLLECTION. WATER ANALYSES MUST BE COMPLETED WITHIN 7 CALENDAR DAYS FOR BTX&E (UNLESS SAMPLE HAS BEEN PRESERVED), AND 14 CALENDAR DAYS FOR TPH AS GASOLINE; EXTRACT TPH AS DIESEL WITHIN 14 CALENDAR DAYS.