KAPREALIAN ENGINEERING, INC.
Consulting Engineers
PO. BOX 996 • BENICIA, CA 94510
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581

May 30, 1991

Larry
Is this your site?
Paul

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

Attention: ~~Mr. Gil Wistar~~ PS

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

Dear Mr. Wistar:

Per the request of Mr. Ron Bock of Unocal Corporation, enclosed please find our report dated April 25, 1991, for the above referenced site.

Should you have any questions, please feel free to call our office at (707) 746-6915.

Sincerely,

Kaprealian Engineering, Inc.

Judy A. Dewey

jad\82

Enclosure

cc: Ron Bock, Unocal Corporation

91 MAY 31 AM 11:21

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P.O. BOX 996 • BENICIA, CA 94510
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KEI-J89-0902.R7
April 25, 1991

Unocal Corporation
2000 Crow Canyon Place, Suite 400
San Ramon, CA 94583

867-0760

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. The soil sampling was performed in conjunction with the excavation of contaminated soil in the vicinity of the pump island and exploratory boring EB3, as initially recommended in KEI's subsurface investigation report (KEI-P89-0902.R6) dated April 23, 1990. All work was performed in compliance with the guidelines established by the Regional Water Quality Control Board (RWQCB), and Alameda County Health Care Services.

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

Coordination with regulatory agencies.

Collection of soil samples from the sidewalls and bottom of the excavation.

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. The site is situated on gently sloping, southwest trending topography, and is located approximately 600 feet southeast of Peralta Creek. A Location Map and Site Plans are attached to this report.

On September 11, 1989, KEI collected soil samples following the removal of two fuel storage tanks (one 10,000 gallon unleaded gasoline, and one 10,000 gallon super unleaded gasoline) and one waste oil tank (550 gallon) at the site. The tanks were made of steel and no apparent holes or cracks were observed in any of the tanks. Four soil samples (designated as A1, A2, B1 and B2) were collected at a depth of 14 feet from the fuel tank pit and one sample (designated as WO1) was collected at a depth of 9.5 feet from the waste oil tank pit. In addition, five piping trench samples (designated as P1, P2, P3, P3{7.5} and P4) were collected at depths ranging from 3 to 7.5 feet. The locations of the samples are shown on the attached Site Plan, Figure 3.

All soil samples were analyzed by Sequoia Analytical Laboratory in Redwood City, California, for total petroleum hydrocarbons (TPH) as gasoline, and benzene, toluene, xylenes and ethylbenzene (BTX&E). In addition, the sample collected from the waste oil tank pit was analyzed for TPH as diesel, total oil and grease (TOG) and EPA method 8010 compounds.

Analytical results of the soil samples collected from the fuel storage tank pit showed TPH as gasoline levels ranging from 1.8 ppm to 10 ppm. Analytical results of pipe trench soil samples indicated levels of TPH as gasoline ranging from non-detectable to 17 ppm for all samples, except for one sample (labeled P3) from a depth of 3.5 feet, which showed 690 ppm. After further excavation, the analytical results of soil sample P3 at a depth of 7.5 feet indicated non-detectable levels of TPH as gasoline and BTX&E. The analytical results of the soil sample collected from the waste oil tank pit indicated levels of TPH as diesel at 3.3 ppm, and TOG at 58 ppm. Documentation of soil sample collection and analytical results were presented in KEI's report (KEI-J89-0902.R1) dated October 9, 1989. Results of the soil sample analyses from that report are summarized in Table 4.

Based on these analytical results, KEI recommended installation of three monitoring wells, which were constructed on December 12, 1989 and are designated as MW1, MW2 and MW3 on the attached Site Plan, Figure 2. The three wells were each drilled and completed to total depths of 44 feet and ground water was encountered at a depth of about 35 feet beneath the surface during drilling. The wells were developed on December 28 and 29, 1989, and were initially sampled on January 5, 1990.

Water and selected soil samples were analyzed at Sequoia Analytical Laboratory in Redwood City, California, for TPH as gasoline and BTX&E.

Analytical results of the soil samples, collected from the borings for monitoring wells MW1 through MW3, indicated non-detectable levels of TPH as gasoline and BTX&E in all samples except in MW3 at 5 feet, which showed levels of TPH as gasoline at 1,200 ppm, and benzene at 4.5 ppm. Analytical results of the water samples collected from the wells showed non-detectable levels of TPH as gasoline and BTX&E in all wells. Documentation of monitoring well installation, sampling and sample results were presented in KEI's report (KEI-P89-0902.R5) dated February 5, 1990. Results of the water sample analyses are summarized in Table 3, and the soil sample analyses in Table 4.

Due to the levels of TPH as gasoline (1,200 ppm) encountered in the soil sample collected from well MW3 at a depth of 5 feet, KEI recommended the installation of four exploratory borings to define the extent of the soil contamination. These exploratory borings were drilled on March 14, 1990, and are designated as EB1, EB2, EB3 and EB4 on the attached Site Plan, Figure 2. The four borings were drilled to depths of 10.5 to 11 feet. Samples were analyzed for TPH as gasoline and BTX&E. The analytical results of soil samples collected from the borings indicated non-detectable levels of TPH as gasoline in all soil samples except EB1(5), EB3(5) and EB3(10), which showed levels of TPH as gasoline at 1,100 ppm, 58 ppm and 3.0 ppm, respectively. In addition, the analytical results indicated non-detectable levels of benzene in all soil samples except EB1(5), EB1(10), EB3(10) and EB4(5), which showed levels of benzene at 1.8 ppm, 0.0050 ppm, 0.12 ppm and 0.010 ppm, respectively. Also, toluene was detected in all soil samples at level ranging from 0.034 ppm to 2.5 ppm. Documentation of sample collection and sample results were presented in KEI's report (KEI-P89-0902.R6) dated April 23, 1990. Soil sample results are summarized in Table 4. Based on these analytical results, KEI recommended the excavation of the contaminated soil between the pump island and exploratory boring EB3, as indicated on the attached Site Plan, Figure 2.

RECENT FIELD ACTIVITIES

On April 8 and 9, 1991, the soil in the vicinity of monitoring well MW3 was excavated to a depth of approximately 6 feet below grade. The excavation was conducted primarily within the boundaries of the pump islands and the four exploratory borings (EB1 through EB4), as shown on the attached Site Plan, Figure 1. In an attempt not to destroy or jeopardize the integrity of well MW3, the soil within 3 feet radially of well MW3 was not excavated.

Upon completion of the soil excavation activities, on April 8, 1991, three soil samples, labeled SW1, SW2 and SW3, were collected

from the sidewalls of the excavation at a depth of 4.5 feet. In addition, two soil samples, labeled BT1 and BT2, were collected from the bottom of the excavation at a depth of 6 feet. KEI returned to the site on April 9, 1991, and one additional soil sample, labeled SW4, was collected at a depth of 4.5 feet from the sidewall of the excavation closest to the pump island (see the attached Site Plan, Figure 1).

The undisturbed samples were collected from bulk material excavated by backhoe. Samples were placed in clean, two-inch 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 locations are as shown on the attached Site Plan, Figure 1. Excavated soil was stockpiled on-site for further sampling.

HYDROLOGY AND GEOLOGY

Based on the water level data gathered during the most recent quarter of monitoring, the ground water flow direction appeared to be to the southwest on February 12, 1991, as shown on the attached Site Plan, Figure 4, with an approximate hydraulic gradient of .018. The measured depth to ground water at the site on February 12, 1991 ranged from 32.05 to 33.15 feet. Monitoring data collected between December, 1990 and February, 1991 is summarized in Table 2.

Based on review of regional geologic maps (U.S. Geological Survey Map GQ-769, "Areal and Engineering Geology of the Oakland East Quadrangle, California" by Dorothy H. Radbruch, 1969), the site is underlain by the lower member of the Quaternary-age San Antonio Formation (Qsl). This unit typically consists of gravel with a silty clay matrix.

The results of our most recent subsurface exploration (exploratory borings EB1 through EB4) indicates that the site is underlain by artificial fill materials varying in thickness from about 4 to 6 feet. The native earth material at the site typically consists of clayey gravel with sand to the maximum depth explored (11 feet), with exception of the vicinity of boring EB1, where a 2-1/2 foot thick lens of clay materials was encountered directly below the fill materials.

ANALYTICAL RESULTS

All samples were analyzed by Sequoia Analytical Laboratory in Concord, California, and were accompanied by properly executed Chain of Custody documentation. Samples were analyzed for TPH as gasoline using EPA method 5030 in conjunction with modified 8015,

and BTX&E using EPA method 8020. Analytical results are summarized in Table 1. Copies of the laboratory analyses and the Chain of Custody documentation are attached to this report.

Analytical results of the soil samples, (SW1 through SW4, and BT1 and BT2) collected from the sidewalls and bottom of the excavation pit indicate non-detectable levels of TPH as gasoline and benzene for all samples, except for 3.0 ppm of TPH as gasoline detected in sidewall sample SW4.

DISCUSSION AND RECOMMENDATIONS

As indicated above, analytical results of the soil samples, collected after excavation of contaminated soil within the vicinity of MW3 and EB1 through EB4, indicated non-detectable levels of TPH as gasoline in all samples except for sample SW4, which showed 3.0 ppm of TPH as gasoline.

In addition, as shown in Table 3, the analytical results of ground water samples collected from monitoring wells MW1, MW2 and MW3, during five rounds of sampling (January, 1990 to February, 1991) consistently showed non-detectable levels of TPH as gasoline and benzene, except for benzene detected at a level of 0.32 ppb in monitoring well MW1 on February 12, 1991. Thus, upon completion of one additional quarter of monitoring and sampling of the existing wells, KEI intends to recommend termination of any additional sampling and for Unocal to file for site closure.

DISTRIBUTION

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

LIMITATIONS

Soil deposits and rock formations may vary in thickness, lithology, saturation, strength and other properties across any site. In addition, environmental changes, either naturally-occurring or artificially-induced, may cause changes in 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 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, 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.

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

Sincerely,

Kaprealian Engineering, Inc.

Thomas J. Berkins

Thomas J. Berkins
Senior Environmental Engineer

Don R Braun

Don R. Braun
Certified Engineering Geologist

License No. 1310
Exp. Date 6/30/92

Timothy R. Ross

Timothy R. Ross
Project Manager

\bam:jad

Attachments: Tables 1 through 4
Location Map
Site Plans - Figures 1 through 4
Laboratory Analyses
Chain of Custody documentation

KEI-J89-0902.R7
April 25, 1991

TABLE 1

SUMMARY OF LABORATORY ANALYSES
SOIL

(Collected on April 8 & 9, 1991)

Sample	Depth (feet)	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethylbenzene
SW1	4.5	ND	ND	ND	ND	0.068
SW2	4.5	ND	ND	ND	ND	ND
SW3	4.5	ND	ND	ND	ND	ND
SW4	4.5	3.0	ND	ND	ND	ND
BT1	6	ND	ND	ND	0.012	ND
BT2	6	ND	ND	ND	ND	ND
Detection Limits		1.0	0.0050	0.0050	0.0050	0.0050

ND = Non-detectable.

Results in parts per million (ppm), unless otherwise indicated.

KEI-J89-0902.R7
April 25, 1991

TABLE 2

SUMMARY OF MONITORING DATA

Date	Well No.	Ground Water Elevation (feet)	Depth to Water (feet)	Product Thickness	Sheen	Water Bailed (gallons)
2/12/91	MW1	69.22	33.02	0	None	15
	MW2	69.01	33.15	0	None	15
	MW3	67.95	32.05	0	None	15
1/10/91	MW1	68.93	33.31	0	None	0
	MW2	68.69	33.47	0	None	0
	MW3	67.66	32.34	0	None	0
12/11/90	MW1	68.89	33.35	0	None	0
	MW2	68.66	33.50	0	None	0
	MW3	67.65	32.35	0	None	0

Well #	Surface Elevation* (feet)
MW1	102.24
MW2	102.16
MW3	100.00

* Elevation of top of well covers surveyed to an assumed datum of 100.00 feet at top of MW3 well cover.

KEI-J89-0902.R7
April 25, 1991

TABLE 3

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Sample Well #	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethylbenzene
2/12/91	MW1	ND	0.32	ND	ND	ND
	MW2	ND	ND	0.42	0.51	ND
	MW3	ND	ND	ND	ND	ND
11/14/90	MW1	ND	ND	ND	ND	ND
	MW2	ND	ND	ND	ND	ND
	MW3	ND	ND	ND	ND	ND
8/09/90	MW1	ND	ND	ND	ND	ND
	MW2	ND	ND	ND	ND	ND
	MW3	ND	ND	ND	ND	ND
5/11/90	MW1	ND	ND	7.1	ND	ND
	MW2	ND	ND	ND	ND	ND
	MW3	ND	ND	ND	ND	ND
1/05/90	MW1	ND	ND	ND	ND	ND
	MW2	ND	ND	ND	ND	ND
	MW3	ND	ND	ND	ND	ND
Detection Limits		30	0.3	0.3	0.3	0.3

ND = Non-detectable.

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

KEI-J89-0902.R7
April 25, 1991

TABLE 4

SUMMARY OF LABORATORY ANALYSES
SOIL

Sample Number	Depth (feet)	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethylbenzene
		(Collected on March 14, 1990)				
EB1(5)	5	1,100	1.8	2.5	7.0	10
EB1(10)	10	ND	0.0050	0.034	ND	ND
EB2(8)	8	ND	ND	0.080	ND	ND
EB2(10)	10	ND	ND	0.070	ND	ND
EB3(5)	5	58	ND	0.068	0.31	0.090
EB3(10)	10	3.0	0.12	0.036	0.0072	ND
EB4(5)	5	ND	0.10	0.060	0.024	0.013
EB4(10)	10	ND	ND	0.055	ND	ND
		(Collected on December 12, 1989)				
MW1(5)	5	ND	ND	ND	ND	ND
MW1(10)	10	ND	ND	ND	ND	ND
MW1(15)	15	ND	ND	ND	ND	ND
MW1(20)	20	ND	ND	ND	ND	ND
MW1(25)	25	ND	ND	ND	ND	ND
MW1(29.5)	29.5	ND	ND	ND	ND	ND
MW1(34.5)	34.5	ND	ND	ND	ND	ND
MW2(5)	5	ND	ND	ND	ND	ND
MW2(10)	10	ND	ND	ND	ND	ND
MW2(15)	14.5	ND	ND	ND	ND	ND
MW2(20)	20	ND	ND	ND	ND	ND
MW2(25)	25	ND	ND	ND	ND	ND
MW2(27)	27	ND	ND	ND	ND	ND
MW2(30)	30	ND	ND	ND	ND	ND
MW2(33.5)	33.5	ND	ND	ND	ND	ND
MW2(35)	35	ND	ND	ND	ND	ND
MW3(5)	5	1,200	4.5	2.0	63	21
MW3(10)	10	ND	ND	ND	ND	ND
MW3(15)	15	ND	ND	ND	ND	ND
MW3(20)	20	ND	ND	ND	ND	ND
MW3(25)	25	ND	ND	ND	ND	ND
MW3(30)	30	ND	ND	ND	ND	ND
MW3(34.5)	34.5	ND	ND	ND	ND	ND
MW3(36)	36	ND	ND	ND	ND	ND

KEI-J89-0902.R7
April 25, 1991

TABLE 4 (Continued)

SUMMARY OF LABORATORY ANALYSES
SOIL

Sample Number	Depth (feet)	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethylbenzene
(Collected on September 11, 1989)						
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	ND	ND	ND	ND	ND

* Organic lead was non-detectable, except for sample P3, which showed 0.058 ppm.

** TPH as diesel was 3.3 ppm, TOG was 58 ppm, and all EPA method 8010 constituents were non-detectable.

ND = Non-detectable

Results in parts per million (ppm), unless otherwise indicated.

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
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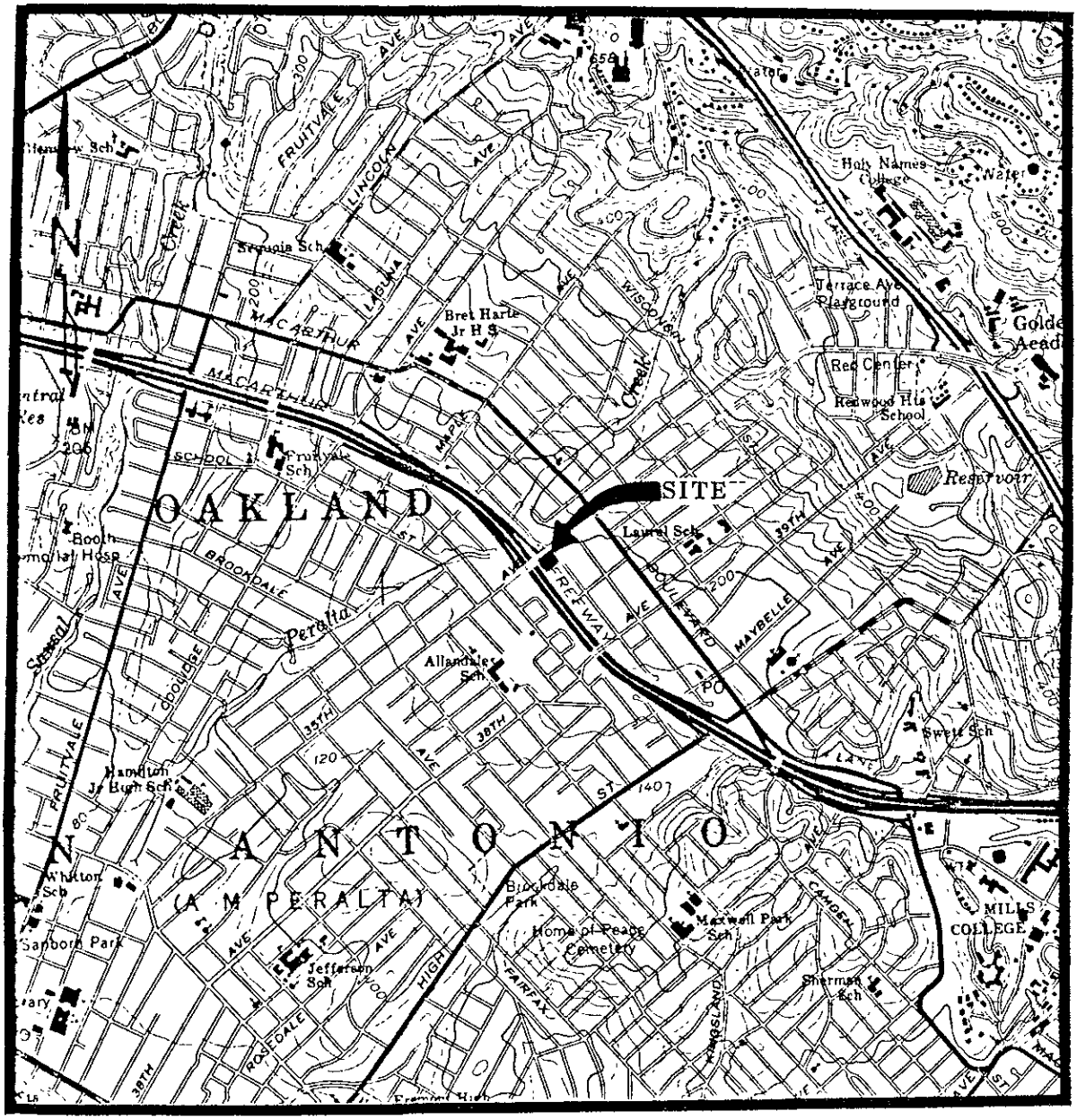

LOCATION MAP

Base modified from U.S.G.S 7.5 minute Oakland East Quadrangle (photorevised 1980)

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

KAPREALIAN ENGINEERING, INC.
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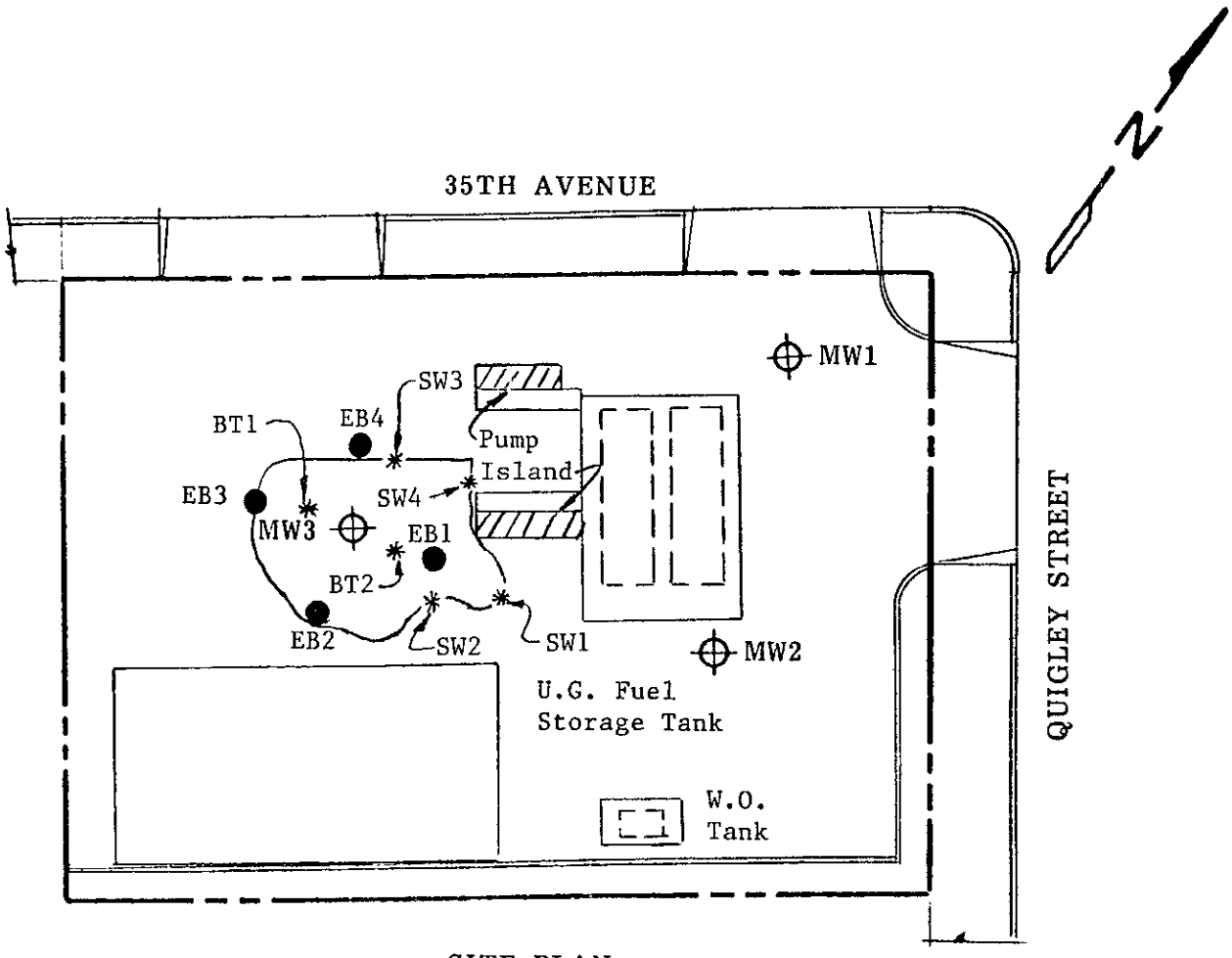

SITE PLAN
Figure 1

LEGEND

- ● Exploratory Boring
- ⊕ Monitoring Well
- * Sample Point Location

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

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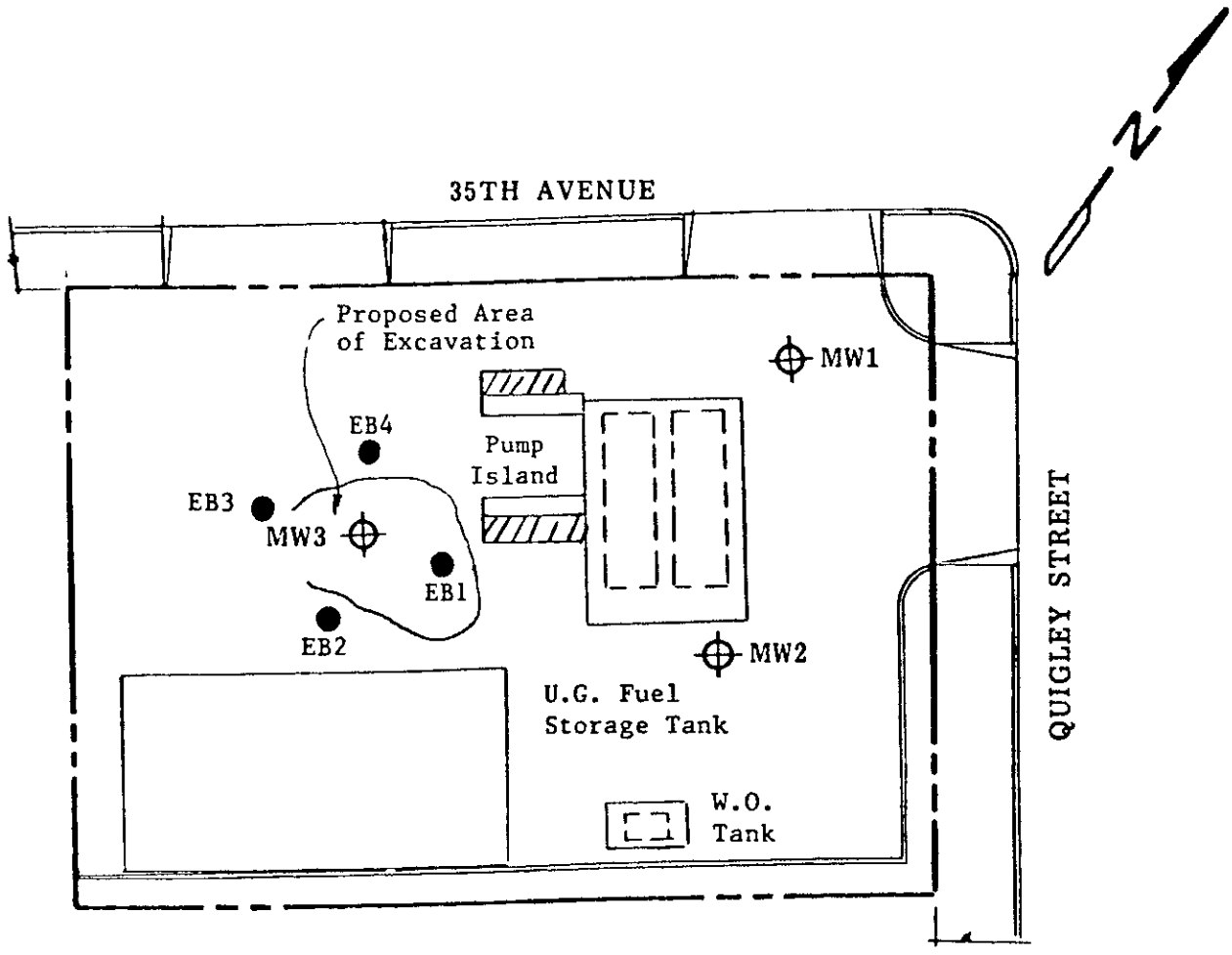

SITE PLAN
Figure 2

LEGEND

- Exploratory Boring
- Monitoring Well

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

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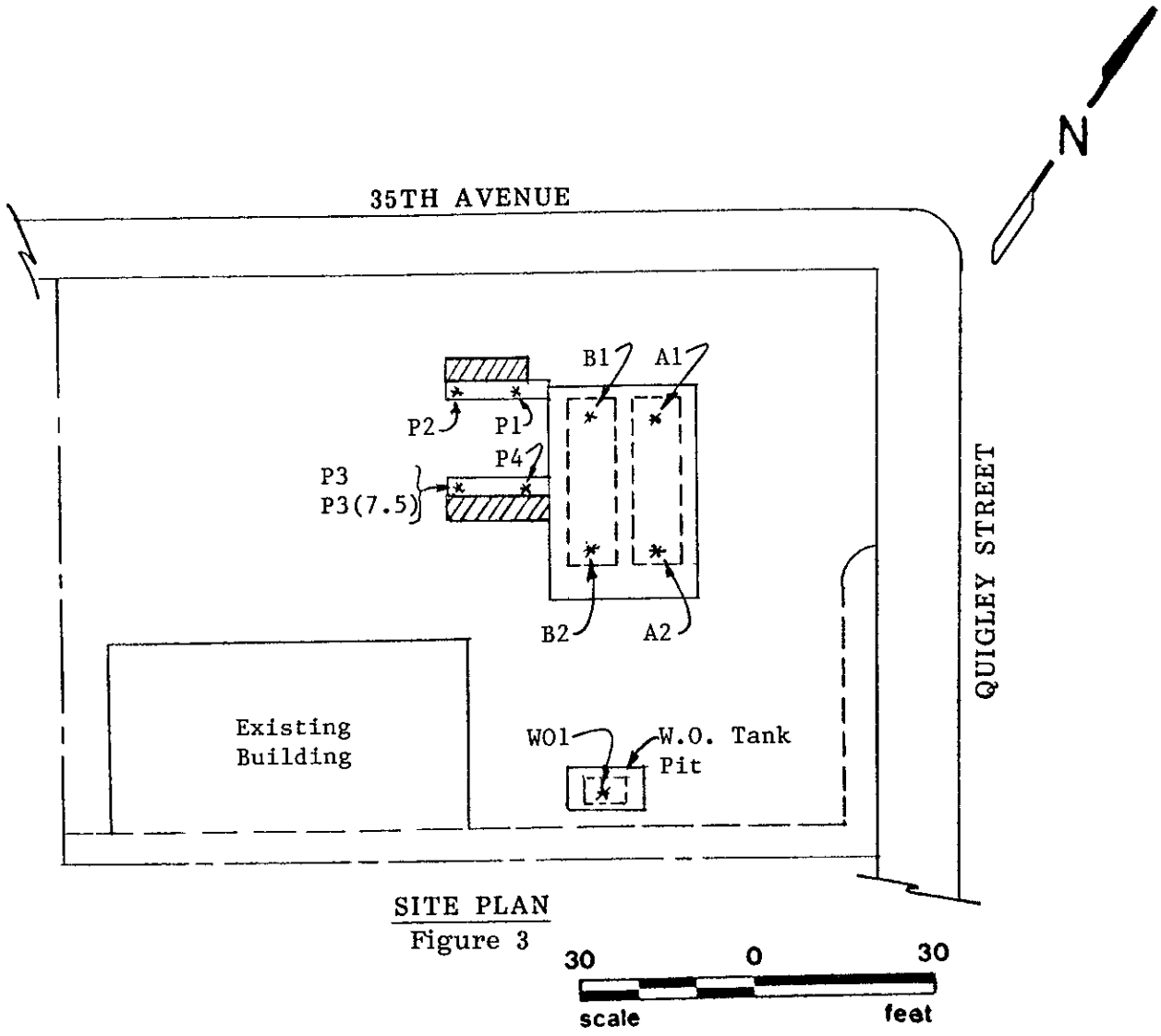

SITE PLAN
Figure 3

LEGEND

* Sample Point Location

Unocal S/S #6129
3420 35th Avenue
Oakland, CA

KAPREALIAN ENGINEERING, INC.
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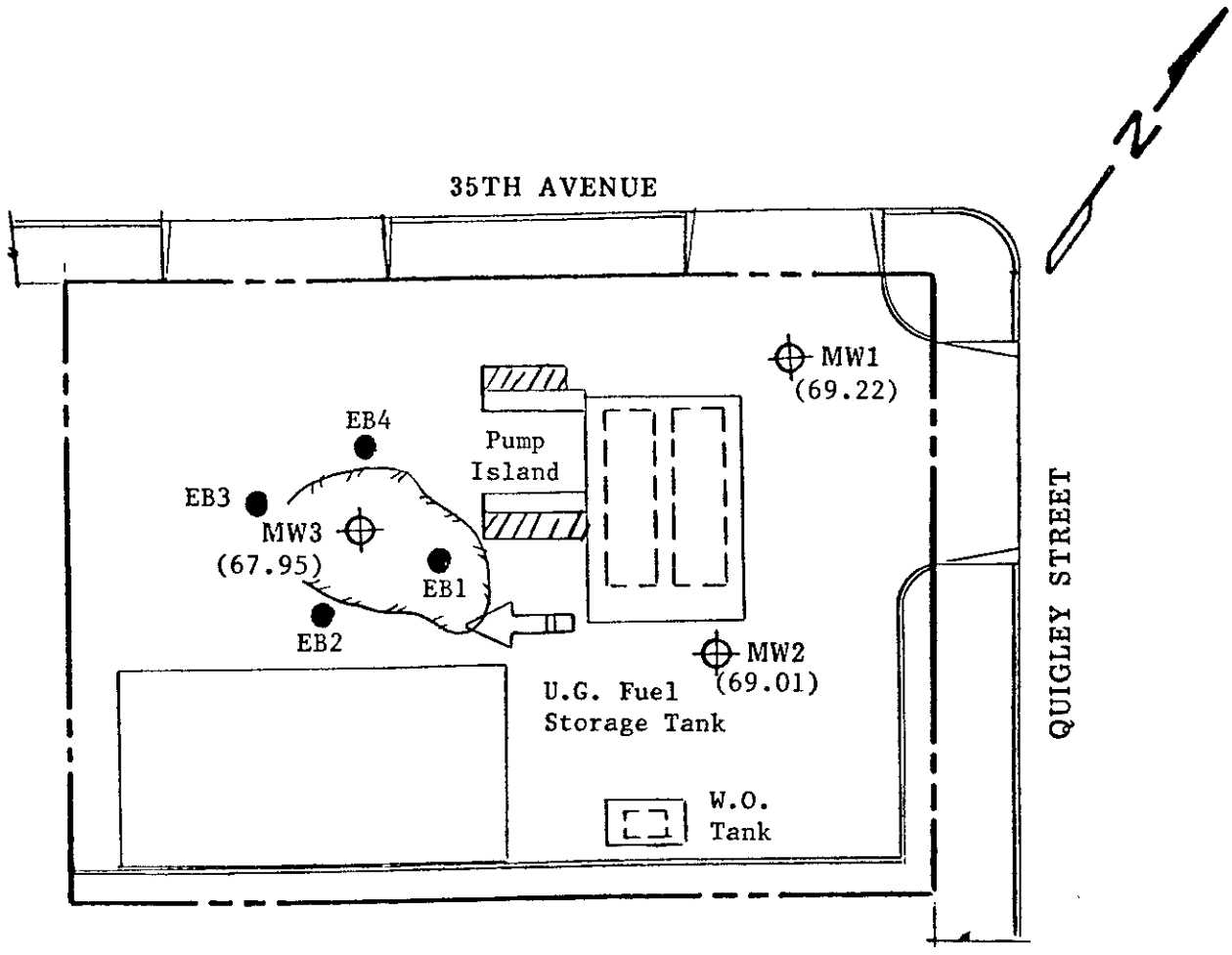

SITE PLAN
Figure 4

0 30 60
Approx. Scale feet

LEGEND

- Exploratory Boring
- Monitoring Well
- ( ) Ground water elevation in feet on 2/12/91. Surface elevation at top of MW3 assumed 100.00 feet as datum.
- Direction of ground water flow.
- Proposed area of excavation

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

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 3420 35th Ave., Oakland	Sampled:	Apr 9, 1991
P.O. Box 996	Sample Descript.:	Soil, SW-4	Received:	Apr 10, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Apr 10, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	104-0289	Reported:	Apr 11, 1991

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**		**3.0**
Benzene	0.0050		N.D.
Toluene	0.0050		N.D.
Ethyl Benzene	0.0050		N.D.
Xylenes	0.0050		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

Belinda C. Vega
Laboratory Director

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 3420 35th Ave., Oakland	Sampled: - - - - - -
P.O. Box 996	Sample Descript.:	Matrix Blank	Received: - - - - - -
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed: Apr 10, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	- - - - - -	Reported: Apr 11, 1991

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	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes	0.0050	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

Belinda C. Vega
Laboratory Director

SEQUOIA ANALYTICAL
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Kaprealian Engineering, Inc.
P.O. Box 996
Benicia, CA 94510
Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal, 3420 35th Ave., Oakland
QC Sample Group: 104-0289
Reported: Apr 11, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020
Analyst:	E.H.	E.H.
Reporting Units:	mg/kg	mg/kg
Date Analyzed:	Apr 10, 1991	Apr 10, 1991
Sample #:	104-0289	Blank
Surrogate % Recovery:	93	97

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

% 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

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc.
P.O. Box 996
Benlcia, CA 94510
Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal, 3420 35th Ave., Oakland
QC Sample Group: 104-0289
Reported: Apr 11, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	E.H.	E.H.	E.H.	E.H.
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Apr 10, 1991	Apr 10, 1991	Apr 10, 1991	Apr 10, 1991
QC Sample #:	Matrix	Matrix	Matrix	Matrix
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.40	0.40	0.40	1.2
Conc. Matrix Spike:	0.42	0.39	0.41	1.2
Matrix Spike % Recovery:	110	98	100	100
Conc. Matrix Spike Dup.:	0.42	0.39	0.41	1.2
Matrix Spike Duplicate % Recovery:	110	98	100	100
Relative % Difference:	0	0	0	0

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

% 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: Hauge

WITNESSING AGENCY:

SITE NAME & ADDRESS: Unocal - Oakland 3420 - 35th Ave

ANALYSES REQUESTED: TPH-D; BTEX III

TURN AROUND TIME: 24 Hrs

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	REMARKS
✓ SW-4	4/9/91		✓		✓		1	sidewall	1040289

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	4/10/91 10:25	[signature]
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received 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? ✓
2. Will samples remain refrigerated until analyzed? ✓
3. Did any samples received for analysis have head space? NO
4. Were samples in appropriate containers and properly packaged? ✓

Signature	Title	Date
[signature]	SR	11/10

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 3420 35th Ave., Oakland	Sampled:	Apr 8, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	Apr 9, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Apr 9, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	104-0270	Reported:	Apr 10, 1991

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)
104-0270	BT-1	N.D.	N.D.	N.D.	N.D.	0.012
104-0271	BT-2	N.D.	N.D.	N.D.	N.D.	N.D.
104-0272	SW-1	N.D.	N.D.	N.D.	0.068	N.D.
104-0273	SW-2	N.D.	N.D.	N.D.	N.D.	N.D.
104-0274	SW-3	N.D.	N.D.	N.D.	N.D.	N.D.
Detection Limits:		**1.0**	**0.0050**	**0.0050**	**0.0050**	**0.0050**

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
Laboratory Director

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 3420 35th Ave., Oakland	Sampled: - - - - - -
P.O. Box 996	Sample Descript.:	Matrix Blank	Received: - - - - - -
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed: Apr 9, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	- - - - - -	Reported: Apr 10, 1991

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	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	**0.0050**	**0.026**
Xylenes	0.0050	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.

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Laboratory Director

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Kaprealian Engineering, Inc.
P.O. Box 996
Benicia, CA 94510
Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal, 3420 35th Ave., Oakland
QC Sample Group: 1040270-274
Reported: Apr 10, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	E.H	E.H	E.H	E.H	E.H	E.H
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Apr 8, 1991	Apr 8, 1991	Apr 8, 1991	Apr 8, 1991	Apr 8, 1991	Apr 8, 1991
Sample #:	104-0270	104-0271	104-0272	104-0273	104-0274	Blank
Surrogate % Recovery:	90	90	90	97	93	90

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

% 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

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc.
P.O. Box 996
Benicia, CA 94510
Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal, 3420 35th Ave., Oakland
QC Sample Group: 1040270-74
Reported: Apr 10, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	E.H.	E.H.	E.H.	E.H.
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Apr 8, 1991	Apr 8, 1991	Apr 8, 1991	Apr 8, 1991
QC Sample #:	103-0826	103-0826	103-0826	103-0826
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.40	0.40	0.40	1.2
Conc. Matrix Spike:	0.38	0.36	0.40	1.1
Matrix Spike % Recovery:	95	90	100	92
Conc. Matrix Spike Dup.:	0.40	0.36	0.38	1.1
Matrix Spike Duplicate % Recovery:	100	90	95	92
Relative % Difference:	5.1	0	5.1	0

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

$$\text{\% Recovery:} \quad \frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$$

$$\text{Relative \% Difference:} \quad \frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}} \times 100$$