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

KEI-J90-1103.R1
February 1, 1991

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

Attention: Mr. Rick Sisk

RE: Soil Sampling Report
Unocal Service Station #0752
800 Harrison Street
Oakland, California

Dear Mr. Sisk:

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 (ACHA).

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

Coordination with regulatory agencies.

Collection of soil samples from beneath the fuel and waste oil storage tanks, fuel tank pit sidewall, the product pipe trench, and beneath the dispensers.

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

Technical review and preparation of this report.

SITE DESCRIPTION AND BACKGROUND

The subject site is presently used as a gasoline station. The site is characterized by gently sloping southward trending topography, and is located approximately 0.5 miles north-northeast from the Oakland Inner Harbor. The site is located northeast and across 8th Street from a Shell Service Station. A Location Map and Site Plan are attached to this report. No leaks or previous subsurface work performed at the site are known to KEI.

FIELD ACTIVITIES

KEI's field work was conducted on November 9, 1990, when two underground fuel storage tanks and one waste oil tank were removed from the site. The tanks consisted of one 10,000 gallon regular unleaded tank, one 10,000 gallon super unleaded fuel storage tank, and one 280 gallon waste oil tank. The tanks were made of steel and no apparent holes or cracks were observed in the fuel tanks; however, the waste oil tank had one 1/8 square inch hole located on the side. Mr. Dennis Byrne of the ACHA was present during tank removal and subsequent soil sampling.

Two soil samples, labeled A1 and B1, were collected from beneath the fuel tanks at a depth of approximately 14 feet below grade. Two soil samples, labeled A2 and B2, were collected from the fuel tank pit east sidewall at a depth of approximately 12 feet below grade. One soil sample, labeled WO1, was collected from beneath the waste oil tank at a depth of approximately 6.5 feet below grade. Soil 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 certified laboratory. Sample locations are as shown on the attached Site Plan.

On November 12, 1990, due to observed soil contamination in the area of sample point A1, KEI collected an additional soil sample, labeled C(19), from the fuel tank pit at a depth of approximately 19 feet below grade. The sample was also collected and handled as described above.

KEI returned to the site on December 20, 1990, in order to collect soil samples from beneath the pump islands. Six samples, labeled D1 through D6, were collected from beneath the six fuel dispensers, and one sample, labeled P1, was collected from the product pipe trench. These samples were collected by using a driven tube-type soil sampler at a depth of about 2.5 feet below grade. These samples were also collected in clean two-inch diameter brass tubes, and handled as described above. Sample point locations are shown on the attached Site Plan.

KEI again returned to the site on December 26, 1990 for additional soil excavation due to obvious contamination in the area beneath sample point D2 observed during previous excavation activities. One additional soil sample, labeled D2(6), was collected from beneath the fuel dispenser and below the sample point D2 at a depth of about 6 feet below grade.

At the request of the ACHA, on January 3, 1991, KEI returned to the site in order to collect one additional soil sample from the waste

oil tank pit. The sample, labeled WO1(9.5), was collected from bulk material excavated by backhoe. Sample point locations are as shown on the attached Site Plan. After sampling, the waste oil tank pit was excavated to the sample depth.

REGIONAL GEOLOGY AND SUBSURFACE CONDITIONS

The subsurface soils exposed in the excavations appeared to consist primarily of silty sand. Ground water was not encountered at the site to the maximum depth explored (19 feet).

Based on review of regional geologic maps (U.S. Geological Survey Professional Paper 943 "Flatland Deposits - Their Geology and Engineering Properties and Their Importance to Comprehensive Planning" by E.J. Helley and K.R. Lajoie, 1979), the subject site is underlain by Quaternary-age dune sand deposits referred to as the Merritt Sand (Qps). The Merritt Sand is described as typically consisting of loose, well-sorted, fine-to medium-grained sand with silt and reaches a maximum depth of about 50 feet near Oakland.

ANALYTICAL RESULTS

All samples were analyzed by Sequoia Analytical Laboratory in Concord, California and were accompanied by properly executed Chain of Custody documentation. All soil samples were analyzed for total petroleum hydrocarbons (TPH) as gasoline using EPA method 5030 in conjunction with modified 8015, and benzene, toluene, xylenes and ethylbenzene (BTX&E) using EPA method 8020. In addition, the soil sample WO1, collected from the waste oil tank pit, was analyzed for TPH as diesel using EPA method 3550 in conjunction with modified 8015, total oil and grease (TOG) by EPA 503D&E, EPA method 8010 and 8270 constituents, and metals - cadmium, chromium, lead, zinc and nickel. The additional soil sample WO1(9.5), collected beneath sample WO1, was analyzed for TPH as gasoline, BTX&E, TOG and the metals - chromium, lead, zinc and nickel.

Analytical results of the soil samples, collected from the fuel tank pit, indicate non-detectable levels of TPH as gasoline for sidewall samples A2 and B2. Analytical results of the soil samples (A1, B1 and C{19}), collected from the fuel tank pit, indicate levels of TPH as gasoline at 1,200 ppm, 45 ppm and 3,800 ppm, respectively.

Analyses of soil samples collected from beneath the dispensers and the pipe trench, indicate non-detectable levels of TPH as gasoline and benzene for samples P1 and D1 through D6, except for sample D2, which showed 45 ppm of TPH as gasoline and 0.22 ppm of benzene. However, sample D2(6), collected beneath sample D2 at a depth of 6 feet, showed 1,200 ppm of TPH as gasoline and 0.24 ppm of benzene.

Analytical results of the soil sample WO1, collected from beneath the waste oil tank pit, indicate non-detectable levels of TPH as gasoline, BTX&E, TPH as diesel, TOG, EPA method 8010 and 8270 constituents and cadmium. Chromium, lead, zinc and nickel were detected at concentrations of 43 ppm, 1,100 ppm, 130 ppm and 12 ppm, respectively. However, sample WO1(9.5), collected from beneath sample WO1 at a depth of 9.5 feet, showed non-detectable levels of TPH as gasoline, BTX&E, TOG and lead. Chromium, zinc and nickel were detected at concentrations of 61 ppm, 20 ppm and 40 ppm, respectively. Results of the soil analyses are summarized in Table 1. Copies of the laboratory analyses and the Chain of Custody documentation are attached to this report.

DISCUSSION AND RECOMMENDATIONS

Based on the analytical results and 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. KEI recommends that an in-situ remediation system design be developed and implemented to deal with the residual soil contamination in the fuel tank pit in the vicinity of sample point locations A1 and C(19), and at the southerly pump island in the vicinity of sample location D2(6). However, prior to designing a remediation system and to comply with the requirements of the RWQCB and the ACHA, KEI recommends the installation of three monitoring wells and two exploratory borings at the site to begin to define the extent of the soil contamination, to determine the ground water flow direction, and to determine if the ground water has been impacted. KEI's work plan/proposal for this work is attached for your review and consideration.

DISTRIBUTION

A copy of this report should be sent to Mr. Dennis Byrne of the ACHA, 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.

Hagop Kevork
Civil Engineer

Don R. Braun
Certified Engineering Geologist

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

Mardo Kaprealian
President

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

KEI-J90-1103.R1
February 1, 1991

TABLE 1

SUMMARY OF LABORATORY ANALYSES

(Collected on November 9 & 12, December 20 & 26, 1990 and January 3, 1991)

Sample	Depth (feet)	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene
A1	14	1,200	3.0	38	170	25
A2	12	ND	ND	0.0082	0.024	ND
B1	14	45	0.29	2.7	10	1.4
B2	12	ND	0.0063	0.0056	0.011	ND
C(19)	19	3,800	11	90	210	36
WO1*	6.5	ND	ND	ND	ND	ND
WO1(9.5)**	9.5	ND	ND	ND	ND	ND
D1	2.5	ND	ND	ND	ND	ND
D2	2.5	45	0.22	1.8	5.5	0.71
D2(6)	6	1,200	0.24	28	170	28
D3	2.5	ND	ND	ND	ND	ND
D4	2.5	ND	ND	ND	ND	ND
D5	2.5	ND	ND	ND	ND	ND
D6	2.5	ND	ND	ND	ND	0.018
P1	2.5	ND	ND	ND	ND	ND
Detection Limits		1.0	0.0050	0.0050	0.0050	0.0050

* TOG, TPH as diesel, all EPA method 8010 and 8270 constituents, and cadmium were non-detectable. Chromium, lead, zinc and nickel were detected at 43 ppm, 1,100 ppm, 130 ppm and 12 ppm, respectively.

** TOG and lead were non-detectable. Chromium, zinc and nickel were detected at 61 ppm, 20 ppm and 40 ppm, respectively.

ND = Non-detectable.

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

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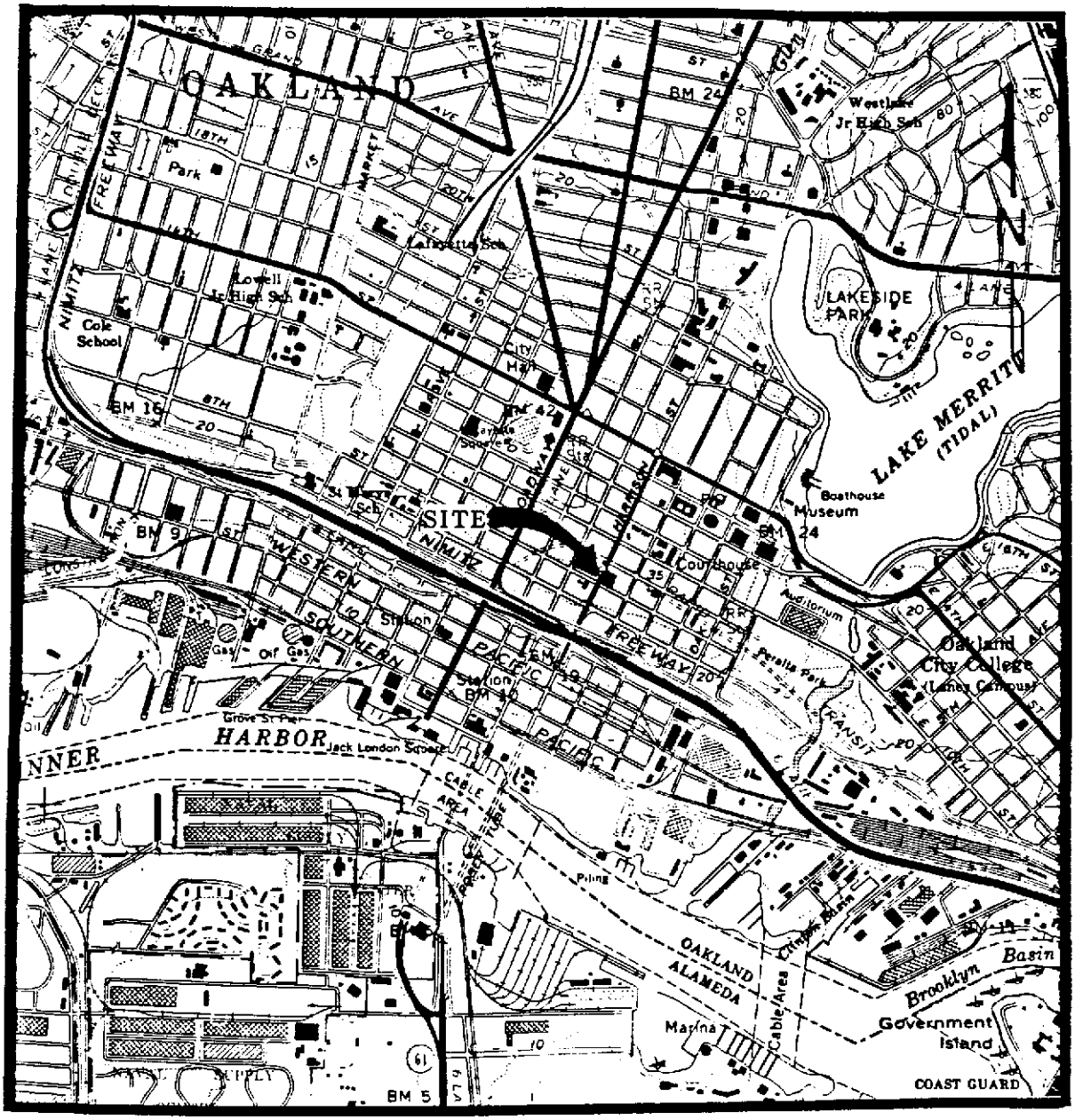

LOCATION MAP

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

Unocal S/S #0752
800 Harrison Street
Oakland, CA

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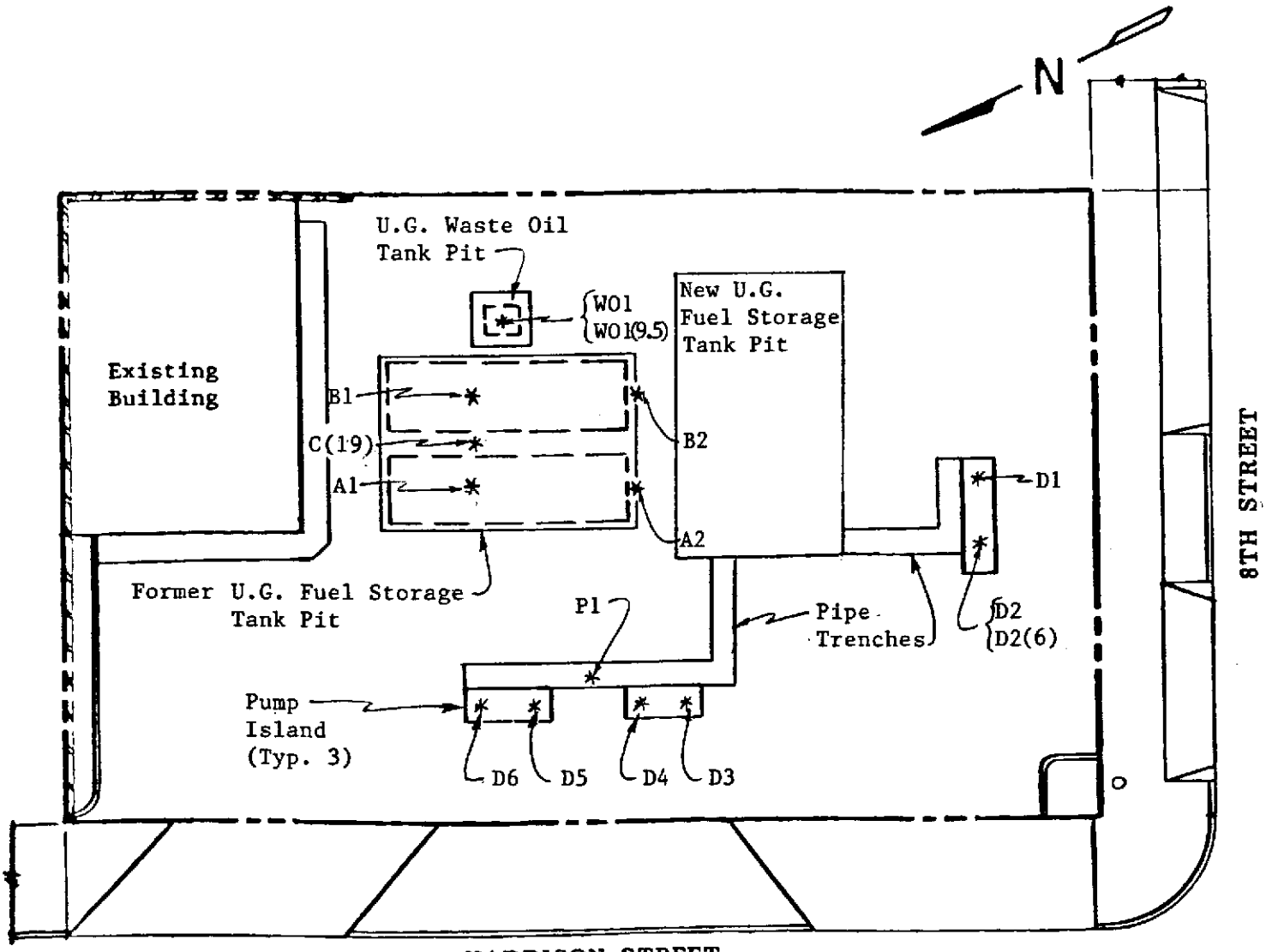

SITE PLAN

0 20 40
Approx. scale feet

LEGEND

* Sample Point Location

Unocal S/S #0752
800 Harrison Street
Oakland, CA

SEQUOIA ANALYTICAL

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 800 Harrison St., Oakland	Sampled:	Nov 9, 1990
P.O. Box 996	Matrix Descript:	Soil	Received:	Nov 12, 1990
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Nov 12, 1990
Attention: Mardo Kaprealian, P.E.	First Sample #:	011-0376	Reported:	Nov 12, 1990

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)
011-0376	A1	1,200	3.0	38	25	170
011-0377	A2	N.D.	N.D.	0.0082	N.D.	0.024
011-0378	B1	45	0.29	2.7	1.4	10
011-0379	B2	N.D.	0.0063	0.0056	N.D.	0.011
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

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: Haig

WITNESSING AGENCY:

SITE NAME & ADDRESS: Unocal - Oakland, 800 Harrison Street

ANALYSES REQUESTED: TPH, BTX

TURN AROUND TIME: 24 Hrs

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPH	BTX						REMARKS
A1	11/9		✓		✓		1	Fuel Tank Pit	✓	✓	011	037	6			Please Fax the results
A2	11/9		✓		✓		1		✓	✓		37	7			
B1	11/9		✓		✓		1		✓	✓		37	8			
B2	11/9		✓		✓		1		✓	✓		37	9			

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Haig Kevol	11-9 17:40	
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? Yes
2. Will samples remain refrigerated until analyzed? Yes
3. Did any samples received for analysis have head space? N/A
4. Were samples in appropriate containers and properly packaged? Yes

Signature | Title | Date: 11-5

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 800 Harrison St., Oakland	Sampled:	Nov 12, 1990
P.O. Box 996	Sample Descript.:	Soil, C (19)	Received:	Nov 12, 1990
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Nov 12, 1990
Attention: Mardo Kaprealian, P.E.	Lab Number:	011-0394	Reported:	Nov 13, 1990

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	3,800
Benzene	0.0050	11
Toluene	0.0050	90
Ethyl Benzene	0.0050	36
Xylenes	0.0050	210

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

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: Haig

WITNESSING AGENCY:

SITE NAME & ADDRESS: Unocal - Oakland
800 Harrison St

TURN AROUND TIME: 24 Hrs

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	ANALYSES REQUESTED: TPH-D	ANALYSES REQUESTED: BTX	REMARKS
C(19)	11/12		✓		✓		1	Fuel Tank Pit	✓	✓	Please Fax the results

Relinquished by: (Signature) Haig Kevorkian — Date/Time 11/12 13:35 — Received by: (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
[illegible]	SR	11/12

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 800 Harrison St., Oakland	Sampled:	Nov 9, 1990
P.O. Box 996	Sample Descript.:	Soil, WO1	Received:	Nov 9, 1990
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Nov 15, 1990
Attention: Mardo Kaprealian, P.E.	Lab Number:	011-0424	Reported:	Nov 19, 1990

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

Julia R. Malerstein
Project Manager

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 800 Harrison St., Oakland	Sampled:	Nov 9, 1990
P.O. Box 996	Matrix Descript:	Soil, WO1	Received:	Nov 9, 1990
Benicia, CA 94510	Analysis Method:	EPA 3550/8015	Extracted:	Nov 16, 1990
Attention: Mardo Kaprealian, P.E.	First Sample #:	011-0424	Analyzed:	Nov 16, 1990
			Reported:	Nov 19, 1990

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
011-0424	WO1	N.D.

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.

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Julia R. Malerstein
Project Manager

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 800 Harrison St., Oakland	Sampled:	Nov 9, 1990
P.O. Box 996	Matrix Descript:	Soil, WO1	Received:	Nov 9, 1990
Benicia, CA 94510	Analysis Method:	SM 503 D&E (Gravimetric)	Extracted:	Nov 14, 1990
Attention: Mardo Kaprealian, P.E.	First Sample #:	011-0424	Analyzed:	Nov 14, 1990
			Reported:	Nov 19, 1990

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
011-0424	WO1	N.D.

Detection Limits:	30

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

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Julia R. Malerstein
Project Manager

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 800 Harrison St., Oakland	Sampled:	Nov 9, 1990
P.O. Box 996	Sample Descript:	Soil, WO1	Received:	Nov 9, 1990
Benicia, CA 94510	Analysis Method:	EPA 5030/8010	Analyzed:	Nov 16, 1990
Attention: Mardo Kaprealian, P.E.	Lab Number:	011-0424	Reported:	Nov 19, 1990

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	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	N.D.
1,3-Dichlorobenzene	10	N.D.
1,4-Dichlorobenzene	10	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	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	N.D.

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

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Julia R. Malerstein
Project Manager

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 800 Harrison St., Oakland	Sampled:	Nov 9, 1990
P.O. Box 996	Sample Descript:	Soil, WO1	Received:	Nov 9, 1990
Benicia, CA 94510			Extracted:	Nov 15, 1990
Attention: Mardo Kaprealian, P.E.	Lab Number:	011-0424	Analyzed:	Nov 15, 1990
			Reported:	Nov 19, 1990

LABORATORY ANALYSIS

Analyte	Detection Limit mg/kg	Sample Results mg/kg
Cadmium	0.50	N.D.
Chromium	0.25	43
Lead	25	1,100
Zinc	0.50	130
Nickel	2.5	12

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

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Julia R. Malerstein
Project Manager

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 800 Harrison St., Oakland	Sampled:	Nov 9, 1990
P.O. Box 996	Sample Descript:	Soil, WO1	Received:	Nov 9, 1990
Benicia, CA 94510	Analysis Method:	EPA 8270	Extracted:	Nov 15, 1990
Attention: Mardo Kaprealian, P.E.	Lab Number:	011-0424	Analyzed:	Nov 16, 1990
			Reported:	Nov 19, 1990

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acenaphthene	100	N.D.
Acenaphthylene	100	N.D.
Aniline	100	N.D.
Anthracene	100	N.D.
Benzidine	2,500	N.D.
Benzoic Acid	500	N.D.
Benzo(a)anthracene	100	N.D.
Benzo(b)fluoranthene	100	N.D.
Benzo(k)fluoranthene	100	N.D.
Benzo(g,h,i)perylene	100	N.D.
Benzo(a)pyrene	100	N.D.
Benzyl alcohol	100	N.D.
Bis(2-chloroethoxy)methane	100	N.D.
Bis(2-chloroethyl)ether	100	N.D.
Bis(2-chloroisopropyl)ether	100	N.D.
Bis(2-ethylhexyl)phthalate	500	N.D.
4-Bromophenyl phenyl ether	100	N.D.
Butyl benzyl phthalate	100	N.D.
4-Chloroaniline	100	N.D.
2-Chloronaphthalene	100	N.D.
4-Chloro-3-methylphenol	100	N.D.
2-Chlorophenol	100	N.D.
4-Chlorophenyl phenyl ether	100	N.D.
Chrysene	100	N.D.
Dibenz(a,h)anthracene	100	N.D.
Dibenzofuran	100	N.D.
Di-N-butyl phthalate	500	N.D.
1,3-Dichlorobenzene	100	N.D.
1,4-Dichlorobenzene	100	N.D.
1,2-Dichlorobenzene	100	N.D.
3,3-Dichlorobenzidine	500	N.D.
2,4-Dichlorophenol	100	N.D.
Diethyl phthalate	100	N.D.
2,4-Dimethylphenol	100	N.D.
Dimethyl phthalate	100	N.D.
4,6-Dinitro-2-methylphenol	500	N.D.
2,4-Dinitrophenol	500	N.D.

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 800 Harrison St., Oakland	Sampled:	Nov 9, 1990
P.O. Box 996	Sample Descript:	Soil, WO1	Received:	Nov 9, 1990
Benicia, CA 94510	Analysis Method:	EPA 8270	Extracted:	Nov 15, 1990
Attention: Mardo Kaprealian, P.E.	Lab Number:	011-0424	Analyzed:	Nov 16, 1990
			Reported:	Nov 19, 1990

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
2,4-Dinitrotoluene	100	N.D.
2,6-Dinitrotoluene	100	N.D.
Di-N-octyl phthalate	100	N.D.
Fluoranthene	100	N.D.
Fluorene	100	N.D.
Hexachlorobenzene	100	N.D.
Hexachlorobutadiene	100	N.D.
Hexachlorocyclopentadiene	100	N.D.
Hexachloroethane	100	N.D.
Indeno(1,2,3-cd)pyrene	100	N.D.
Isophorone	100	N.D.
2-Methylnaphthalene	100	N.D.
2-Methylphenol	100	N.D.
4-Methylphenol	100	N.D.
Naphthalene	100	N.D.
2-Nitroaniline	500	N.D.
3-Nitroaniline	500	N.D.
4-Nitroaniline	500	N.D.
Nitrobenzene	100	N.D.
2-Nitrophenol	100	N.D.
4-Nitrophenol	500	N.D.
N-Nitrosodiphenylamine	100	N.D.
N-Nitroso-di-N-propylamine	100	N.D.
Pentachlorophenol	500	N.D.
Phenanthrene	100	N.D.
Phenol	100	N.D.
Pyrene	100	N.D.
1,2,4-Trichlorobenzene	100	N.D.
2,4,5-Trichlorophenol	500	N.D.
2,4,6-Trichlorophenol	100	N.D.

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

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

SEQUOIA ANALYTICAL

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 800 Harrison St., Oakland	Sampled:	Nov 9, 1990
P.O. Box 996	Sample Descript:	Soil	Received:	Nov 9, 1990
Benicia, CA 94510	Analysis Method:	EPA 8270 & "Open Scan"	Extracted:	Nov 15, 1990
Attention: Mardo Kaprealian, P.E.	Lab Number:	011-0424	Analyzed:	Nov 16, 1990
			Reported:	Nov 19, 1990

SEMI-VOLATILE ORGANICS by GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS

Analyte	Detection Limit µg/kg	Sample Results µg/kg
PCB	250	N.D.
PCP	250	N.D.
PNA	250	N.D.
Creosote	250	N.D.

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

Please Note:
All identifications are tentative and concentrations are estimates based upon spectral comparison to the EPA NIST library. Positive identification or specification between isomers cannot be made without retention time standards.

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER	Haig
WITNESSING AGENCY	
SITE NAME & ADDRESS	Unocal - Oakland, 800 Harrison Street
TURN AROUND TIME:	Five Days

ANALYSES REQUESTED

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPH-G BTXE	TOG TPH-D	CLHC 8010	Metals: Cd,Cr,Pb,Zn,Ni	EPA 8270 PCB-PCP-PNA	CREOSOTE		REMARKS
W01	11/9		✓		✓		1	Waste Oil Tank Pit	✓	✓	✓	✓	✓	✓		Please Fax the results 0110424

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Haig Kevork	17:40 11-9	[signature]
Wimer	11/13	

The following MUST BE completed by the laboratory accepting samples for analysis:

1. Have all samples received for analysis been stored in ice? Yes
2. Will samples remain refrigerated until analyzed? Yes
3. Did any samples received for analysis have head space? N/A
4. Were samples in appropriate containers and properly packaged? Yes

Signature	Title	Date
[signature]		[illegible]

SEQUOIA ANALYTICAL
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(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 800 Harrison St., Oakland	Sampled:	Jan 3, 1991
P.O. Box 996	Sample Descript.:	Soil, WO1 (9.5)	Received:	Jan 3, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Jan 4, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	101-0006	Reported:	Jan 7, 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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(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 800 Harrison St., Oakland	Sampled:	Jan 3, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	Jan 3, 1991
Benicia, CA 94510	Analysis Method:	SM 503 D&E (Gravimetric)	Extracted:	Jan 3, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	101-0006	Analyzed:	Jan 4, 1991
			Reported:	Jan 7, 1991

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
101-0006	WO1 (9.5)	N.D.

Detection Limits:	30

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

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

1010006.KEI <2>

SEQUOIA ANALYTICAL

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 800 Harrison St., Oakland	Sampled:	Jan 3, 1991
P.O. Box 996	Sample Descript:	Soil, WO1 (9.5)	Received:	Jan 3, 1991
Benicia, CA 94510			Extracted:	Jan 4, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	101-0006	Analyzed:	Jan 4, 1991
			Reported:	Jan 7, 1991

LABORATORY ANALYSIS

Analyte	Detection Limit mg/kg	Sample Results mg/kg
Chromium	0.25	61
Lead	0.25	N.D.
Nickel	2.5	40
Zinc	0.50	20

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

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: Haig

WITNESSING AGENCY:

SITE NAME & ADDRESS: Unocal - Oakland, 800 Harrison Street

TURN AROUND TIME: 24 Hrs

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPH-D	BTXE	TOG	Chromium	Lead	Zinc	Nickel	REMARKS
W01(9.5)	1/3/91		✓		✓		1	Waste Oil Tank Pit	✓	✓	✓	✓	✓	✓	✓	1010006

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Haig Kapreal	1-3-91 12:56	
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
	SC	1/3/91

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 800 Harrison St., Oakland	Sampled:	Dec 20, 1990
P.O. Box 996	Matrix Descript:	Soil	Received:	Dec 21, 1990
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Dec 21, 1990
Attention: Mardo Kaprealian, P.E.	First Sample #:	012-0465	Reported:	Dec 26, 1990

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)
012-0465	D1	N.D.	N.D.	N.D.	N.D.	N.D.
012-0466	D2	45	0.22	1.8	0.71	5.5
012-0467	D3	N.D.	N.D.	N.D.	N.D.	N.D.
012-0468	D4	N.D.	N.D.	N.D.	N.D.	N.D.
012-0469	D5	N.D.	N.D.	N.D.	N.D.	N.D.
012-0470	D6	N.D.	N.D.	N.D.	0.018	N.D.
012-0471	P1	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

Julia R. Malerstein
Project Manager

120465.KEI <1>

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: Haig

WITNESSING AGENCY:

SITE NAME & ADDRESS: Unocal - Oakland, 800 Harrison Street

ANALYSES REQUESTED: TPH (G), BTXE

TURN AROUND TIME: 24 Hrs

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPH (G)	BTXE						REMARKS
D1	12/20		✓		✓		1	Beneath Dispenser	✓	✓	01	20	46	5		Please Fax the results
D2	12/20		✓		✓		1		✓	✓			46	6		
D3	12/20		✓		✓		1		✓	✓			46	7		
D4	12/20		✓		✓		1		✓	✓			46	8		
D5	12/20		✓		✓		1		✓	✓			46	9		
D6	12/20		✓		✓		1		✓	✓			47	0		
P1	12/20		✓		✓		1	Product Pipe Trench	✓	✓			47	1		

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Haig P. Kevorkian	12-21-90 7:35	
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? yes
2. Will samples remain refrigerated until analyzed? yes
3. Did any samples received for analysis have head space? no
4. Were samples in appropriate containers and properly packaged? yes

Signature: [illegible] Title: Lab Supervisor Date: 12/21/90

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 800 Harrison St., Oakland	Sampled:	Dec 26, 1990
P.O. Box 996	Sample Descript.:	Soil, D2 (6)	Received:	Dec 27, 1990
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Dec 27, 1990
Attention: Mardo Kaprealian, P.E.	Lab Number:	012-0512	Reported:	Dec 28, 1990

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	5.0	1,200
Benzene	0.025	0.24
Toluene	0.025	28
Ethyl Benzene	0.025	28
Xylenes	0.025	170

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. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER	SITE NAME & ADDRESS	ANALYSES REQUESTED	TURN AROUND TIME:
Haig	Unocal - Oakland 800 Harrison Street	TPH-G, BTXE	24 Hrs
WITNESSING AGENCY			

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPH-G	BTXE					REMARKS
D2(6)	12/26		✓		✓		1	Beneath Dispenser	✓	✓					Please Fax the results
								0120512							

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Haig Kevork	12-26-90 6:00 PM	Jon Marinovich
Relinquished by: (Signature)	Date/Time 26 DEC 90 1900	Received by: (Signature) [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? yes
2. Will samples remain refrigerated until analyzed? yes
3. Did any samples received for analysis have head space? NA
4. Were samples in appropriate containers and properly packaged? yes

Signature: [signature] Title: Date: 26 Dec 90