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

March 13, 1989

Alameda County Department of
Environmental Health
470 27th Street, Room 322
Oakland, CA 94612

3/17/89
ALAMEDA CO...
ENVT. ...

RE: Unocal Service Station #2512
1300 Davis Street
San Leandro, California

Gentlemen:

Per the request of Unocal's Mr. Tim Ross, enclosed please find our reports dated March 3, 1989 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

Judy A. Dewey

Enclosure

cc: Tim Ross, Unocal

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

KEI-P88-1204.R1
February 3, 1989

Unocal Corporation
2175 N. California Blvd., Suite 650
Walnut Creek, CA 94569

Attention: Mr. Tim Ross

RE: Preliminary Subsurface Investigation at
Unocal Service Station #2512
1300 Davis Street
San Leandro, California

Dear Mr. Ross:

This report presents the results of our subsurface investigation for the referenced site in accordance with our proposal dated December 14, 1988. The purpose of the investigation was to determine if the subsurface soil and ground water (if encountered) has been impacted at the site. The work performed consisted of the following:

Coordination with regulatory agencies.

Drilling six exploratory borings.

Soil sampling.

Ground water sampling.

Laboratory analyses.

Data analyses, interpretation and report preparation.

SITE DESCRIPTION AND BACKGROUND

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

FIELD ACTIVITIES

On January 3, 1989, six exploratory borings (designated as EB1, EB2, EB3, EB4, EB5 and EB6 on the attached Site Plan) were drilled at the site. Subsurface materials penetrated and the depths at which soil samples were collected are shown in the attached Boring Logs.

The six borings were drilled to depths ranging from 26.5 to 30 feet. Ground water was encountered at depths of 25 to 26.5 feet beneath the surface. Soil samples were collected every five feet beginning at a depth of five feet in each of the borings with the exception of EB2, in which samples were collected beginning at ten feet. Undisturbed soil samples were collected by driving a California-modified split-spoon sampler ahead of the drilling augers. The clean, 2" by 4" brass tubes holding the samples were sealed with aluminum foil, plastic caps and tape, and stored in a cooled ice chest for delivery to a state certified laboratory. Drilling was stopped about two feet after intersecting the first water table. Water samples were collected from each of the borings using a clean acrylic bailer. The water samples were placed in VOA vials and/or one liter amber bottles, as appropriate, with Teflon-lined screw caps, and labeled and stored on ice for delivery to the laboratory. After the water samples were collected, the borings were backfilled to the surface with a cement sand slurry.

ANALYTICAL RESULTS

Samples were analyzed at Sequoia Analytical Laboratory in Redwood City, California, and were accompanied by properly executed Chain of Custody documentation. Soil and water samples from EB2, EB3, EB4, EB5 and EB6 were analyzed for TPH as gasoline using EPA method 5030 or 3810 in conjunction with modified 8015 and BTX&E using EPA methods 5030 and 8020. Soil and water samples from EB1, adjacent to the waste oil tank, were analyzed for TPH as diesel by EPA method 3550 in conjunction with modified 8015, total oil and grease (TOG) by method 413.1, and EPA method 8010/8020. Black oil (?) droplets were observed in EB6 so soil samples from EB6 were analyzed for TPH as diesel and TOG. The results of soil and water analyses are summarized in Table 1. Copies of the laboratory analyses and Chain of Custody documentation are attached to this report.

Soil sample analyses from EB2 through EB6 show very low to non-detectable TPH as gasoline and BTX&E. Samples from EB1, adjacent to the waste oil tank, showed low to non-detectable levels of all constituents analyzed. Soil samples from EB6 show up to 7,800 ppm TOG.

Water sample analyses show non-detectable levels of benzene in all borings, except EB2 and EB6, where benzene levels were 8.2 and 1.5 ppb, respectively.

HYDROLOGY AND GEOLOGY

Ground water is present at the site at depths ranging from 25 to 26.5 feet below the surface.

Subsurface formations at the site consist of clay to a depth of about 9.5 feet, followed by silt to about 13.5 feet. Silty clay occurs from 13.5 to 23 feet in depth, followed by high plasticity clay, which constitutes the aquifer, to the total depth explored (see Cross Section).

DISCUSSION AND RECOMMENDATIONS

The data indicate that soil and ground water contamination occurs in the vicinity of EB6.

Based on the analytical results, KEI recommends excavation of contaminated soil around EB6 to a depth of 20 feet (see Site Plan), and the installation of three monitoring wells to further define the extent of soil and ground water contamination. KEI'S proposal for this work is attached for your review and consideration.

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 ground water levels and flow paths, thereby changing the extent and concentration of any contaminants. Our studies assume that the field and laboratory data are reasonably representative of the site as a whole, and assume that subsurface conditions are reasonably conducive to interpolation and extrapolation.

The results of this study are based on the data obtained from the field and laboratory investigations. 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.

Gary S. Johnson
Registered Geologist

License #4315
Exp. Date 6/30/90

Attachments: Table 1
Site Plan
Cross Section
Boring Logs
Laboratory Results
Chain of Custody documentation
Proposal

KEI-P88-1204.R1
February 3, 1989

TABLE 1

SUMMARY OF LABORATORY ANALYSES
SOIL

(Results in ppm)
(Collected on January 3, 1989)

Sample Number	TPH as Gasoline	TPH as Diesel	Benzene	Toluene	Xylenes	Ethylbenzene
EB1(5)*	---	5.0	<0.005	0.05	<0.005	<0.005
EB1(10)*	---	1.0	<0.005	<0.005	<0.005	<0.005
EB1(15)*	---	1.0	<0.005	<0.005	<0.005	<0.005
EB1(25)*	---	2.0	---	---	---	---
EB2(10)	<1.0	---	<0.05	<0.1	<0.1	<0.1
EB2(15)	<1.0	---	<0.05	<0.1	<0.1	<0.1
EB2(20)	<1.0	---	<0.05	<0.1	<0.1	<0.1
EB2(25)	1.9	---	<0.05	<0.1	<0.1	<0.1
EB3(5)	<1.0	---	<0.05	<0.1	<0.1	<0.1
EB3(10)	<1.0	---	<0.05	<0.1	<0.1	<0.1
EB3(15)	2.7	---	<0.05	<0.1	<0.1	<0.1
EB3(20)	2.2	---	<0.05	<0.1	<0.1	<0.1
EB3(25)	<1.0	---	<0.05	<0.1	<0.1	<0.1
EB4(5)	<1.0	---	<0.05	<0.1	<0.1	<0.1
EB4(10)	<1.0	---	<0.05	<0.1	<0.1	<0.1
EB4(15)	<1.0	---	<0.05	<0.1	<0.1	<0.1
EB4(20)	<1.0	---	<0.05	<0.1	<0.1	<0.1
EB4(25)	<1.0	---	<0.05	<0.1	<0.1	<0.1
EB5(5)	<1.0	---	<0.05	<0.1	<0.1	<0.1
EB5(10)	<1.0	---	<0.05	<0.1	<0.1	<0.1
EB5(15)	2.0	---	<0.05	<0.1	<0.1	<0.1
EB5(20)	17	---	0.12	0.15	1.4	0.25
EB5(25)	3.9	---	<0.05	<0.1	0.17	<0.1
EB6(5)**	1.8	10	<0.05	<0.1	<0.1	<0.1
EB6(10)	73	160	<0.05	<0.1	<0.1	<0.1
EB6(15)	17	40	0.065	<0.1	0.21	<0.1
EB6(25)	<1.0	3.0	<0.05	<0.1	<0.1	<0.1

* TOG and 8010 non-detectable.
** TOG 7800 @ 5', 1200 @ 10', 900 @ 15' and 130 ppm at 25'; 8010 non-detectable.

KEI-P88-1204.R1
February 3, 1989

TABLE 1 (Con't.)

SUMMARY OF LABORATORY ANALYSES
WATER

(Results in ppb)
(Collected on January 3, 1989)

Sample Number	TPH as Gasoline	TPH as Diesel	Benzene	Toluene	Xylenes	Ethylbenzene
EB1	---	<50	<0.5	3.5	<0.5	<0.5
EB2	<50	---	8.2	7.4	3.3	0.67
EB3	<50	---	<0.5	<0.5	<0.5	<0.5
EB4	<50	---	<0.5	<0.5	<0.5	0.73
EB5	340	---	<0.5	<0.5	<0.5	0.63
EB6	1500	---	1.5	1.4	12	8.1

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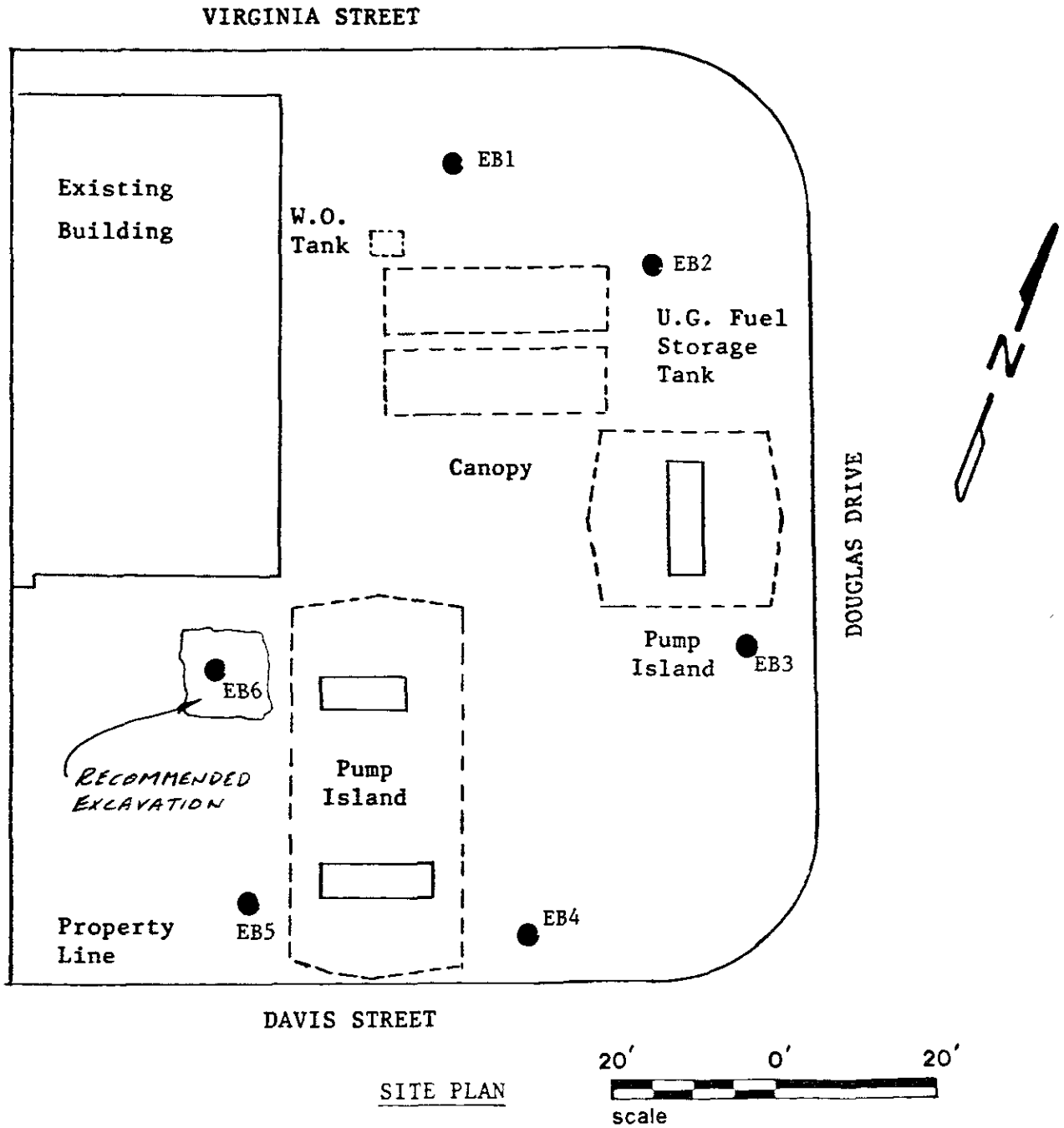
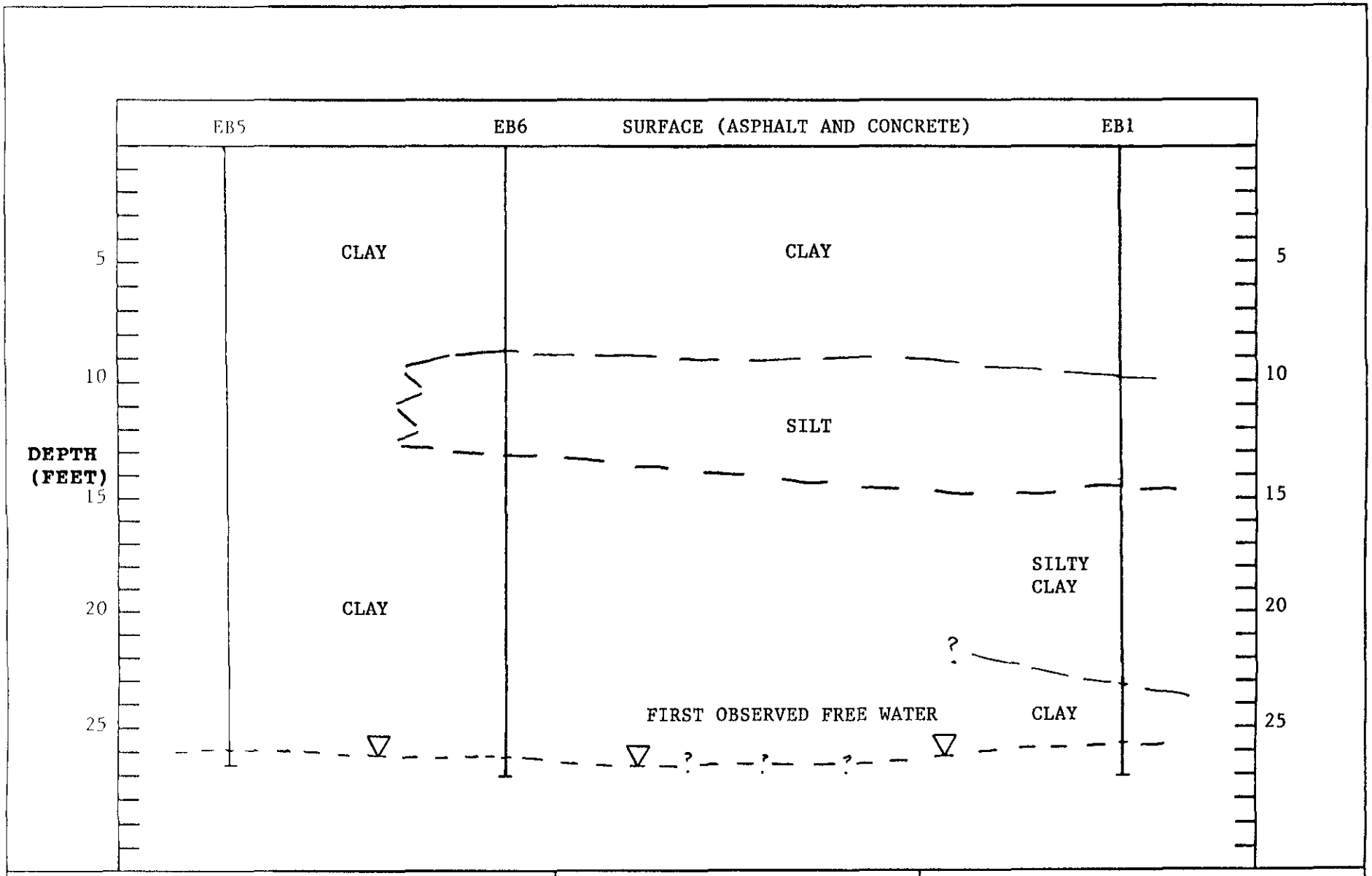


SITE PLAN

● Exploratory Boring

Unocal Service Station #2512
1300 Davis Street
San Leandro, California



L E G E N D

▽ FIRST OBSERVED FREE WATER DURING DRILLING

KAPREALIAN ENGINEERING INCORPORATED

P. O. BOX 913
BENICIA, CALIFORNIA
94510

UNOCAL SERVICE STATION #2512
1300 Davis Street
San Leandro, California

C R O S S S E C T I O N

B O R I N G L O G

Project No. KEI-P88-1204	**Boring & Casing Diameter** 9" ---	**Logged By** Gary Johnson
Project Name Unocal - San Leandro	**Well Head Elevation** ---	**Date Drilled** 1/3/89
Boring No. EB-1	**Drilling Method** Hollow-stem Flight Auger	**Drilling Company** EGI

Penetration blows/6"	G. W. level	Depth (ft) Samples	Stratigraphy USCS	Description
		0		
8/14/17		5	CL	Clay, medium plasticity, very dark gray
6/10/13		10	CL / ML	Top half of tube as above, bottom half silt, dark greenish gray
12/16/18		15	CL	Silty clay, dark grayish brown
8/11/16		20		Silty clay, olive gray
6/6/8	▽ 25.5' Water rose to about 15'	25	CH	Clay, high plasticity, dark yellowish brown
		30		TOTAL DEPTH 27'

B O R I N G L O G

Project No. KEI-P88-1204	Boring & Casing Diameter 9" ---	Logged By Gary Johnson
Project Name Unocal - San Leandro	Well Head Elevation ---	Date Drilled 1/3/89
Boring No. EB-2	Drilling Method Hollow-stem Flight Auger	Drilling Company EGI

Penetration blows/6"	G. W. level	Depth (ft) Samples	Stratigraphy USCS	Description
		0		
8/11/15		5	CL	Clay, medium plasticity, very dark gray
7/8/12		10	ML	Silt dark greenish gray
12/14/16		15	CL	Silty clay, dark grayish brown
8/9/12		20		Silty clay, dark grayish brown
8/8/8	25' Water rose to 18'	25	CH	Clay, high plasticity, dark yellowish brown
		30		Yellowish brown clay, high plasticity
				TOTAL DEPTH 30'

B O R I N G L O G

Project No. KEI-P88-1204	**Boring & Casing Diameter** 9" ---	**Logged By** Gary Johnson
Project Name Unocal - San Leandro	**Well Head Elevation** ---	**Date Drilled** 1/3/89
Boring No. EB-3	**Drilling Method** Hollow-stem Flight Auger	**Drilling Company** EGI

Penetration blows/6"	G. W. level	Depth (ft) Samples	Stratigraphy USCS	Description
		0		
8/11/14		5	CH	Clay, high plasticity, very dark gray
8/11/14		10		Clay, slightly silty, dark greenish gray
12/16/20		15	CL	Clay, slightly silty, greenish gray
8/10/12		20	CL/ CH	Clay, dark brown, moderate to high plasticity
8/10/11	26'	25	CH	Clay, slightly silty yellowish brown, high plasticity
				TOTAL DEPTH 27'
		30		

B O R I N G L O G

Project No. KEI-P88-1204	**Boring & Casing Diameter** 9" ---	**Logged By** Gary Johnson
Project Name Unocal - San Leandro	**Well Head Elevation** ---	**Date Drilled** 1/3/89
Boring No. EB-4	**Drilling Method** Hollow-stem Flight Auger	**Drilling Company** EGI

Penetration blows/6"	G. W. level	Depth (ft) Samples	Stratigraphy USCS	Description
		0		
8/11/19		5		Clay, medium plasticity, very dark gray
8/8/8		10		Clay, medium plasticity, very dark gray
10/15/18		15	CL	Clay, slightly silty, yellowish brown
8/8/14		20		Clay, slightly silty, brown
9/9/13	26.5'	25		Clay, slightly silty, brown, moderate plasticity
		30		TOTAL DEPTH 27'

BORING LOG

Project No.	Boring & Casing Diameter	Logged By
KEI-P88-1204	9" ---	Gary Johnson
Project Name	**Well Head Elevation**	**Date Drilled**
Unocal - San Leandro	---	1/3/89
Boring No.	**Drilling Method** Hollow-stem Flight Auger	**Drilling Company**
EB-5		EGI

Penetration blows/6"	G. W. level	Depth (ft) Samples	Stratigraphy USCS	Description
		0		
6/9/11		5	CL/ CH	Clay, medium to high plasticity, very dark gray
6/7/9		10	CL/ CH	Top of tube: Yellowish brown, low plasticity clay Bottom of tube: Very dark brown, high plasticity clay
10/15/18		15		Silty clay, grayish brown, medium plasticity
8/12/14		20	CL	Clay, dark grayish brown, medium plasticity
16/18/24	26'	25	CH	Clay, yellowish brown, moderate to high plasticity
		30		TOTAL DEPTH 26.5'

BORING LOG

Project No.	Boring & Casing Diameter	Logged By
KEI-P88-1204	9" ---	Gary Johnson
Project Name	**Well Head Elevation**	**Date Drilled**
Unocal - San Leandro	---	1/3/89
Boring No.	**Drilling Method** Hollow-stem Flight Auger	**Drilling Company**
EB-6		EGI

Penetration blows/6"	G. W. level	Depth (ft) Samples	Stratigraphy USCS	Description
		0		
3/4/5		5	CL	Very dark gray clay with pieces of gravel (fill?), medium plasticity
5/8/13		10	ML	Dark gray silt
9/10/13		15	CL	Gray clay, slightly silty, medium plasticity
8/10/12		20	CL/ CH	Light gray clay, medium to high plasticity
10/15/18	26'	25	CL	Brown and gray clay, medium plasticity
				TOTAL DEPTH 27'
		30		

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MAJOR DIVISIONS		SYMBOLS	TYPICAL SOIL DESCRIPTIONS
	GRAVELS (More than ½ of coarse fraction > No. 4 sieve size)	GW	Well graded gravels or gravel-sand mixtures, little or no fines
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS (More than ½ of coarse fraction < No. 4 sieve size)	SW	Well graded sands or gravelly sands, little or no fines
		SP	Poorly graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
	SILTS & CLAYS LL < 50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts
	HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils

CLASSIFICATION CHART
(Unified Soil Classification System)

KAPREALIAN ENGINEERING, INC.

Consulting Engineers

P. O. BOX 913

BENICIA, CA 94510

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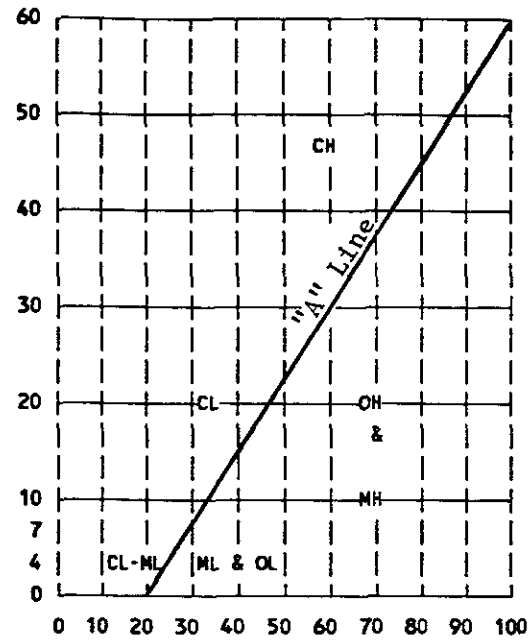
CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL	3" to No. 4	76.2 to 4.76
Coarse	3" to 3/4"	76.2 to 19.1
Fine	3/4" to No. 4	19.1 to 4.76
SAND	No. 4 to No. 200	4.76 to 0.074
Coarse	No. 4 to No. 10	4.76 to 2.00
Medium	No. 10 to No. 40	2.00 to 0.420
Fine	No. 40 to No.200	0.420 to 0.074
SILT & CLAY	Below No. 200	Below 0.074

GRAIN SIZE CHART



PLASTICITY CHART

SANDS AND GRAVELS	BLOWS/FOOT*
VERY LOOSE	0 - 4
LOOSE	4 - 10
MEDIUM DENSE	10 - 30
DENSE	30 - 50
VERY DENSE	OVER 50

RELATIVE DENSITY

SILTS AND CLAYS	BLOWS/FOOT*
VERY SOFT	0 - 2
SOFT	2 - 4
FIRM	4 - 8
STIFF	8 - 16
VERY STIFF	16 - 32
HARD	OVER 32

CONSISTENCY

*Number of blows of 140 pound hammer falling 30 inches to drive a 2 inch O.D. (1-3/8 inch I.D.) split spoon.

UNIFIED SOIL CLASSIFICATION SYSTEM

☐ Soil sample, not retained

■ Soil sample, retained for analysis

▨ Soil sample, not recovered

METHOD OF SOIL CLASSIFICATION

SEQUOIA ANALYTICAL

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro	Sampled:	Jan 3, 1989
P.O. Box 913	Matrix Descript:	Soil	Received:	Jan 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030 or 3810/8015/8020	Analyzed:	Jan 17, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	901-0280	Reported:	Jan 30, 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)
901-0280	EB-2 (10)	N.D.	N.D.	N.D.	N.D.	N.D.
901-0281	EB-2 (15)	N.D.	N.D.	N.D.	N.D.	N.D.
901-0282	EB-2 (20)	N.D.	N.D.	N.D.	N.D.	N.D.
901-0283	EB-2 (25)	1.9	N.D.	N.D.	N.D.	N.D.
901-0284	EB-3 (5)	N.D.	N.D.	N.D.	N.D.	N.D.
901-0285	EB-3 (10)	N.D.	N.D.	N.D.	N.D.	N.D.
901-0286	EB-3 (15)	2.7	N.D.	N.D.	N.D.	N.D.
901-0287	EB-3 (20)	2.2	N.D.	N.D.	N.D.	N.D.
901-0288	EB-3 (25)	N.D.	N.D.	N.D.	N.D.	N.D.
901-0289	EB-4 (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

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, San Leandro	Sampled:	Jan 3, 1989
P.O. Box 913	Matrix Descript:	Soil	Received:	Jan 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030 or 3810/8015/8020	Analyzed:	Jan 17, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	901-0290	Reported:	Jan 30, 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)
901-0290	EB-4 (10)	N.D.	N.D.	N.D.	N.D.	N.D.
901-0291	EB-4 (15)	N.D.	N.D.	N.D.	N.D.	N.D.
901-0292	EB-4 (20)	N.D.	N.D.	N.D.	N.D.	N.D.
901-0293	EB-4 (25)	N.D.	N.D.	N.D.	N.D.	N.D.
901-0294	EB-5 (5)	N.D.	N.D.	N.D.	N.D.	N.D.
901-0295	EB-5 (10)	N.D.	N.D.	N.D.	N.D.	N.D.
901-0296	EB-5 (15)	2.0	N.D.	N.D.	N.D.	N.D.
901-0297	EB-5 (20)	17	0.12	0.15	0.25	1.4
901-0298	EB-5 (25)	3.9	N.D.	N.D.	N.D.	0.17
901-0299	EB-6 (5)	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

SEQUOIA ANALYTICAL

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro	Sampled:	Jan 3, 1989
P.O. Box 913	Matrix Descript:	Soil	Received:	Jan 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030 or 3810/8015/8020	Analyzed:	Jan 17, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	901-0300	Reported:	Jan 30, 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)
901-0300	EB-6 (10)	73	N.D.	N.D.	N.D.	N.D.
901-0301	EB-6 (15)	17	0.065	N.D.	N.D.	0.21
901-0302	EB-6 (25)	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

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, San Leandro	Sampled:	Jan 3, 1989
P.O. Box 913	Matrix Descript:	Soil	Received:	Jan 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 3550/8015	Analyzed:	Jan 16, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	901-0276	Reported:	Jan 30, 1989

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
901-0276	EB-1 (5)	5.0
901-0277	EB-1 (10)	1.0
901-0278	EB-1 (15)	1.0
901-0279	EB-1 (25)	2.0
901-0299	EB-6 (5)	10
901-0300	EB-6 (10)	160
901-0301	EB-6 (15)	40
901-0302	EB-6 (25)	3.0

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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Arthur G Burton
Laboratory Director

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro	Sampled:	Jan 3, 1989
P.O. Box 913	Matrix Descript:	Soil	Received:	Jan 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 413.1 (Gravimetric)	Extracted:	Jan 17, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	901-0276	Analyzed:	Jan 18, 1989
			Reported:	Jan 30, 1989

TOTAL RECOVERABLE OIL & GREASE

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
901-0276	EB-1 (5)	N.D.
901-0277	EB-1 (10)	N.D.
901-0278	EB-1 (15)	N.D.
901-0279	EB-1 (25)	N.D.
901-0299	EB-6 (5)	7,800
901-0300	EB-6 (10)	1,200
901-0301	EB-6 (15)	900
901-0302	EB-6 (25)	130

Detection Limits:	**30.0**

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

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro	Sampled:	Jan 3, 1989
P.O. Box 913	Sample Descript:	Soil, EB-1 (5)	Received:	Jan 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8010	Analyzed:	Jan 13, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	901-0276	Reported:	Jan 30, 1989

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit ug/kg	Sample Results ug/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.
trans-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

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro	Sampled:	Jan 3, 1989
P.O. Box 913	Sample Descript:	Soil, EB-1 (10)	Received:	Jan 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8010	Analyzed:	Jan 13, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	901-0277	Reported:	Jan 30, 1989

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit ug/kg	Sample Results ug/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.
trans-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

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro	Sampled:	Jan 3, 1989
P.O. Box 913	Sample Descript:	Soil, EB-1 (15)	Received:	Jan 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8010	Analyzed:	Jan 13, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	901-0278	Reported:	Jan 30, 1989

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit ug/kg	Sample Results ug/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.
trans-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

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro	Sampled:	Jan 3, 1989
P.O. Box 913	Sample Descript:	Soil, EB-6 (5)	Received:	Jan 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8010	Analyzed:	Jan 13, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	901-0299	Reported:	Jan 30, 1989

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit ug/kg	Sample Results ug/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.
trans-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

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro	Sampled:	Jan 3, 1989
P.O. Box 913	Sample Descript:	Soil, EB-6 (10)	Received:	Jan 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8010	Analyzed:	Jan 13, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	901-0300	Reported:	Jan 30, 1989

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit ug/kg	Sample Results ug/kg
Bromodichloromethane	20.0	N.D.
Bromoform	20.0	N.D.
Bromomethane	20.0	N.D.
Carbon tetrachloride	20.0	N.D.
Chlorobenzene	20.0	N.D.
Chloroethane	100.0	N.D.
2-Chloroethylvinyl ether	20.0	N.D.
Chloroform	20.0	N.D.
Chloromethane	20.0	N.D.
Dibromochloromethane	20.0	N.D.
1,2-Dichlorobenzene	40.0	N.D.
1,3-Dichlorobenzene	40.0	N.D.
1,4-Dichlorobenzene	40.0	N.D.
1,1-Dichloroethane	20.0	N.D.
1,2-Dichloroethane	20.0	N.D.
1,1-Dichloroethene	20.0	N.D.
trans-1,2-Dichloroethene	20.0	N.D.
1,2-Dichloropropane	20.0	N.D.
cis-1,3-Dichloropropene	20.0	N.D.
trans-1,3-Dichloropropene	20.0	N.D.
Methylene chloride	40.0	N.D.
1,1,2,2-Tetrachloroethane	20.0	N.D.
Tetrachloroethene	20.0	N.D.
1,1,1-Trichloroethane	20.0	N.D.
1,1,2-Trichloroethane	20.0	N.D.
Trichloroethene	20.0	N.D.
Trichlorofluoromethane	20.0	N.D.
Vinyl chloride	40.0	N.D.

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.

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro	Sampled:	Jan 3, 1989
P.O. Box 913	Sample Descript:	Soil, EB-6 (25)	Received:	Jan 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8010	Analyzed:	Jan 13, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	901-0302	Reported:	Jan 30, 1989

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit ug/kg	Sample Results ug/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.
trans-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.

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro	Sampled:	Jan 3, 1989
P.O. Box 913	Sample Descript:	Soil, EB-1 (5)	Received:	Jan 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8020	Analyzed:	Jan 13, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	901-0276	Reported:	Jan 30, 1989

AROMATIC VOLATILE ORGANICS (EPA 8020)

Analyte	Detection Limit ug/kg	Sample Results ug/kg
Benzene	5.0	N.D.
Chlorobenzene	5.0	N.D.
1,4-Dichlorobenzene	10.0	N.D.
1,3-Dichlorobenzene	10.0	N.D.
1,2-Dichlorobenzene	10.0	N.D.
Ethyl Benzene	5.0	N.D.
Toluene	5.0	50
Xylene	5.0	N.D.

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

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro	Sampled:	Jan 3, 1989
P.O. Box 913	Sample Descript:	Soil, EB-1 (10)	Received:	Jan 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8020	Analyzed:	Jan 13, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	901-0277	Reported:	Jan 30, 1989

AROMATIC VOLATILE ORGANICS (EPA 8020)

Analyte	Detection Limit ug/kg	Sample Results ug/kg
Benzene	5.0	N.D.
Chlorobenzene	5.0	N.D.
1,4-Dichlorobenzene	10.0	N.D.
1,3-Dichlorobenzene	10.0	N.D.
1,2-Dichlorobenzene	10.0	N.D.
Ethyl Benzene	5.0	N.D.
Toluene	5.0	N.D.
Xylene	5.0	N.D.

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

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro	Sampled:	Jan 3, 1989
P.O. Box 913	Sample Descript:	Soil, EB-1 (15)	Received:	Jan 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8020	Analyzed:	Jan 13, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	901-0278	Reported:	Jan 30, 1989

AROMATIC VOLATILE ORGANICS (EPA 8020)

Analyte	Detection Limit ug/kg	Sample Results ug/kg
Benzene	5.0	N.D.
Chlorobenzene	5.0	N.D.
1,4-Dichlorobenzene	10.0	N.D.
1,3-Dichlorobenzene	10.0	N.D.
1,2-Dichlorobenzene	10.0	N.D.
Ethyl Benzene	5.0	N.D.
Toluene	5.0	N.D.
Xylene	5.0	N.D.

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

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro	Sampled:	Jan 3, 1989
P.O. Box 913	Sample Descript:	Soil, EB6- (5)	Received:	Jan 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8020	Analyzed:	Jan 13, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	901-0299	Reported:	Jan 30, 1989

AROMATIC VOLATILE ORGANICS (EPA 8020)

Analyte	Detection Limit ug/kg	Sample Results ug/kg
Benzene	5.0	N.D.
Chlorobenzene	5.0	N.D.
1,4-Dichlorobenzene	10.0	N.D.
1,3-Dichlorobenzene	10.0	N.D.
1,2-Dichlorobenzene	10.0	N.D.
Ethyl Benzene	5.0	N.D.
Toluene	5.0	6.0
Xylene	5.0	N.D.

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

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro	Sampled:	Jan 3, 1989
P.O. Box 913	Sample Descript:	Soil, EB-6 (10)	Received:	Jan 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8020	Analyzed:	Jan 13, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	901-0300	Reported:	Jan 30, 1989

AROMATIC VOLATILE ORGANICS (EPA 8020)

Analyte	Detection Limit ug/kg	Sample Results ug/kg
Benzene	20.0	N.D.
Chlorobenzene	20.0	N.D.
1,4-Dichlorobenzene	40.0	N.D.
1,3-Dichlorobenzene	40.0	N.D.
1,2-Dichlorobenzene	40.0	N.D.
Ethyl Benzene	20.0	N.D.
Toluene	20.0	N.D.
Xylene	20.0	N.D.

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

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro	Sampled:	Jan 3, 1989
P.O. Box 913	Sample Descript:	Soil, EB-6 (25)	Received:	Jan 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8020	Analyzed:	Jan 13, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	901-0302	Reported:	Jan 30, 1989

AROMATIC VOLATILE ORGANICS (EPA 8020)

Analyte	Detection Limit ug/kg	Sample Results ug/kg
Benzene	5.0	N.D.
Chlorobenzene	5.0	N.D.
1,4-Dichlorobenzene	10.0	N.D.
1,3-Dichlorobenzene	10.0	N.D.
1,2-Dichlorobenzene	10.0	N.D.
Ethyl Benzene	5.0	N.D.
Toluene	5.0	12
Xylene	5.0	N.D.

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

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

CHAIN OF CUSTODY

SAMPLER: Henry Johnson (signature)
DATE/TIME OF COLLECTION: JAN. 3, 1989
TURN AROUND TIME: Regular

SAMPLE DESCRIPTION AND PROJECT NUMBER: UNOCAL - San Leandro

	SAMPLE #	ANALYSES	GRAB OR COMP.	NUMBER OF CONTAINERS	SOIL/ WATER	
	EB-1(5)	TPHD, 5030 & 8010/8020	G	1	S	0276
	EB-1(10)	TPHD, 5030 & 8010/8020	G	1	S	0277
	EB-1(15)	TPHD, 5030 & 8010/8020	G	1	S	0278
HOLD	EB-1(20)	TPHD, 5030 &	G	1	S	
	EB-1(25)	TPHD, 5030 &	G	1	S	0279
HOLD	EB-2(5)	TPHG + BTX &	G	1	S	
	EB-2(10)	TPHG + BTX &	G	1	S	0280
	EB-2(15)	TPHG + BTX &	G	1	S	0281

RELINQUISHED BY*	TIME/DATE	RECEIVED BY*	TIME/DATE
1. Henry Johnson	1/4/89 1:00	Chris Lecce	1/4/89 1:00
2. Chris Lecce	1/5/89 11:35am	Don Nielsen	1-5-89 11:20 A.m.
3.	1-5-89	Ron Nelson	1/5/89 2:09 PM
4.			

* STATE AFFILIATION NEXT TO SIGNATURE

REMARKS:

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
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(415) 676-9100 (707) 746-6915

CHAIN OF CUSTODY

SAMPLER: Doug Johnson (signature) DATE/TIME OF COLLECTION: Jan. 3, 1989 TURN AROUND TIME: Regular

SAMPLE DESCRIPTION AND PROJECT NUMBER: UNOCAL - SAN LEANDRO

SAMPLE #	ANALYSES	GRAB OR COMP.	NUMBER OF CONTAINERS	SOIL/ WATER	
EB-2(20)	TPHG + BTX&E	G	1	S	0282
EB-2(25)	TPHG + BTX&E	G	1	S	0283
EB-3(5)	TPHG + BTX&E	G	1	S	0284
EB-3(10)	TPHG + BTX&E	G	1	S	0285
EB-3(15)	TPHG + BTX&E	G	1	S	0286
EB-3(20)	TPHG + BTX&E	G	1	S	0287
EB-3(25)	TPHG + BTX&E	G	1	S	0288
EB-4(5)	TPHG + BTX&E	G	1	S	0289

RELINQUISHED BY*	TIME/DATE	RECEIVED BY*	TIME/DATE
1. Doug Johnson	1/4/89 1:00 pm	Chris Lecce	1/4/89 1:00 pm
2. Chris Lecce	1/5/89 11:15am	Don Nichol	1-5-89 11:20 A.m.
3. [illegible]	1-5-89 [illegible]	Ron Allen	1-5-89 2:09 PM
4.			

* STATE AFFILIATION NEXT TO SIGNATURE

REMARKS:

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

CHAIN OF CUSTODY

SAMPLER: Gary Johnson (signature)

DATE/TIME OF COLLECTION: Jan. 3, 1989

TURN AROUND TIME: Regular

SAMPLE DESCRIPTION AND PROJECT NUMBER: UNOCAL - San Leandro

SAMPLE #	ANALYSES	GRAB OR COMP.	NUMBER OF CONTAINERS	SOIL/ WATER	
EB-4(10)	TPH G + BTX&E	G	1	S	0290
EB-4(15)	TPH G + BTX&E	G	1	S	0291
EB-4(20)	TPH G + BTX&E	G	1	S	0292
EB-4(25)	TPH G + BTX&E	G	1	S	0293
EB-5(5)	TPH G + BTX&E	G	1	S	0294
EB-5(10)	TPH G + BTX&E	G	1	S	0295
EB-5(15)	TPH G + BTX&E	G	1	S	0296
EB-5(20)	TPH G + BTX&E	G	1	S	0297

RELINQUISHED BY*	TIME/DATE	RECEIVED BY*	TIME/DATE
1. Gary Johnson	1/4/89 1:00pm	Chris Lecce	1/4/89 1:00pm
2. Chris Lecce	1/5/89 11:15am	Don Nichol	1-5-89 11:20 AM
3.		Ron Allen	1-5-89 2:09 PM
4.			

* STATE AFFILIATION NEXT TO SIGNATURE

REMARKS:

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: Jan 3, 1989
TURN AROUND TIME: Regular

SAMPLE DESCRIPTION AND PROJECT NUMBER: Unocal San Leandro

	SAMPLE #	ANALYSES	GRAB OR COMP.	NUMBER OF CONTAINERS	SOIL/ WATER	
	EB-5(25)	TPH G, BTX&E	G	1	S	0298
	EB6(5)	TPH G&D, 503D&E, 8010/8020	G	1	S	0299
	EB-6(10')	TPH G&D, 503D&E, 8010/8020	G	1	S	0300
	EB-6(15)	TPH G&D, 503 D&E	G	1	S	0301
HOLD	EB-6(20)	TPH G&D, 503 D&E	G	1	S	
	EB6(25)	TPH G&D, 503D&E, 8010/8020	G	1	S	0302

	RELINQUISHED BY*	TIME/DATE	RECEIVED BY*	TIME/DATE
1.	[signature]	1/4/89 1:00pm	Chris Lecce	1/4/89 1:00pm
2.	Chris Lecce	1/5/89 11:15am	Don Nichols	1-5-89 11:30 A.m.
3.	[illegible]	[illegible]	Ron [signature]	1-5-89 2:09 PM
4.				

* STATE AFFILIATION NEXT TO SIGNATURE

REMARKS:

SEQUOIA ANALYTICAL

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro	Sampled:	Jan 3, 1989
P.O. Box 913	Matrix Descript:	Water	Received:	Jan 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 413.1 (Gravimetric)	Extracted:	Jan 12, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	901-0270	Analyzed:	Jan 12, 1989
			Reported:	Jan 27, 1989

TOTAL RECOVERABLE OIL & GREASE

Sample Number	Sample Description	Oil & Grease mg/L (ppm)
901-0270	EB-1	N.D.

Detection Limits:	5.0

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, San Leandro	Sampled:	Jan 3, 1989
P.O. Box 913	Matrix Descript:	Water	Received:	Jan 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 3510/8015	Analyzed:	Jan 17, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	901-0270	Reported:	Jan 27, 1989

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons ug/L (ppb)
901-0270	EB-1	N.D.

Detection Limits:	50.0

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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Arthur G Burton
Laboratory Director

SEQUOIA ANALYTICAL

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(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro	Sampled:	Jan 3, 1989
P.O. Box 913	Matrix Descript:	Water	Received:	Jan 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Jan 17, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	901-0272	Reported:	Jan 27, 1989

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

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons ug/L (ppb)	Benzene ug/L (ppb)	Toluene ug/L (ppb)	Ethyl Benzene ug/L (ppb)	Xylenes ug/L (ppb)
901-0272	EB-2	N.D.	8.2	7.4	0.67	3.3
901-0273	EB-3	N.D.	N.D.	N.D.	N.D.	N.D.
901-0274	EB-4	N.D.	N.D.	N.D.	0.73	N.D.
901-0275	EB-5	340	N.D.	N.D.	0.63	N.D.
901-0276	EB-6	1,500	1.5	1.4	8.1	12
Detection Limits:		50.0	0.5	0.5	0.5	0.5

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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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, San Leandro	Sampled:	Jan 3, 1989
P.O. Box 913	Sample Descript:	Water, EB-1	Received:	Jan 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8010	Analyzed:	Jan 13, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	901-0270	Reported:	Jan 27, 1989

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit ug/L	Sample Results ug/L
Bromodichloromethane	1.0	N.D.
Bromoform	1.0	N.D.
Bromomethane	1.0	N.D.
Carbon tetrachloride	1.0	N.D.
Chlorobenzene	1.0	N.D.
Chloroethane	5.0	N.D.
2-Chloroethylvinyl ether	1.0	N.D.
Chloroform	0.5	N.D.
Chloromethane	0.5	N.D.
Dibromochloromethane	0.5	N.D.
1,2-Dichlorobenzene	2.0	N.D.
1,3-Dichlorobenzene	2.0	N.D.
1,4-Dichlorobenzene	2.0	N.D.
1,1-Dichloroethane	0.5	N.D.
1,2-Dichloroethane	0.5	N.D.
1,1-Dichloroethene	1.0	N.D.
trans-1,2-Dichloroethene	1.0	N.D.
1,2-Dichloropropane	0.5	N.D.
cis-1,3-Dichloropropene	5.0	N.D.
trans-1,3-Dichloropropene	5.0	N.D.
Methylene chloride	2.0	N.D.
1,1,2,2-Tetrachloroethane	0.5	N.D.
Tetrachloroethene	**0.5**	**3.7**
1,1,1-Trichloroethane	0.5	N.D.
1,1,2-Trichloroethane	0.5	N.D.
Trichloroethene	0.5	N.D.
Trichlorofluoromethane	1.0	N.D.
Vinyl chloride	2.0	N.D.

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

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro	Sampled:	Jan 3, 1989
P.O. Box 913	Sample Descript:	Water, EB-6	Received:	Jan 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8010	Analyzed:	Jan 15, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	901-0271	Reported:	Jan 27, 1989

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit ug/L	Sample Results ug/L
Bromodichloromethane	1.0	N.D.
Bromoform	1.0	N.D.
Bromomethane	1.0	N.D.
Carbon tetrachloride	1.0	N.D.
Chlorobenzene	1.0	N.D.
Chloroethane	5.0	N.D.
2-Chloroethylvinyl ether	1.0	N.D.
Chloroform	0.5	N.D.
Chloromethane	0.5	N.D.
Dibromochloromethane	0.5	N.D.
1,2-Dichlorobenzene	2.0	N.D.
1,3-Dichlorobenzene	2.0	N.D.
1,4-Dichlorobenzene	2.0	N.D.
1,1-Dichloroethane	0.5	N.D.
1,2-Dichloroethane	0.5	N.D.
1,1-Dichloroethene	1.0	N.D.
trans-1,2-Dichloroethene	1.0	N.D.
1,2-Dichloropropane	0.5	N.D.
cis-1,3-Dichloropropene	5.0	N.D.
trans-1,3-Dichloropropene	5.0	N.D.
Methylene chloride	2.0	N.D.
1,1,2,2-Tetrachloroethane	0.5	N.D.
Tetrachloroethene	0.5	N.D.
1,1,1-Trichloroethane	0.5	N.D.
1,1,2-Trichloroethane	0.5	N.D.
Trichloroethene	0.5	N.D.
Trichlorofluoromethane	1.0	N.D.
Vinyl chloride	2.0	N.D.

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

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director

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SEQUOIA ANALYTICAL

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro	Sampled:	Jan 3, 1989
P.O. Box 913	Sample Descript:	Water, EB-1	Received:	Jan 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8020	Analyzed:	Jan 13, 1989
Attention: Mardo Kapreallan, P.E.	Lab Number:	901-0270	Reported:	Jan 27, 1989

AROMATIC VOLATILE ORGANICS (EPA 8020)

Analyte	Detection Limit ug/L	Sample Results ug/L
Benzene	0.5	N.D.
Chlorobenzene	1.0	N.D.
1,4-Dichlorobenzene	2.0	N.D.
1,3-Dichlorobenzene	2.0	N.D.
1,2-Dichlorobenzene	2.0	N.D.
Ethyl Benzene	0.5	N.D.
Toluene	0.5	3.5
Xylene	0.5	N.D.

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, San Leandro	Sampled:	Jan 3, 1989
P.O. Box 913	Sample Descript:	Water, EB-6	Received:	Jan 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8020	Analyzed:	Jan 13, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	901-0271	Reported:	Jan 27, 1989

AROMATIC VOLATILE ORGANICS (EPA 8020)

Analyte	Detection Limit ug/L	Sample Results ug/L
Benzene	2.5	N.D.
Chlorobenzene	5.0	N.D.
1,4-Dichlorobenzene	10.0	N.D.
1,3-Dichlorobenzene	10.0	N.D.
1,2-Dichlorobenzene	10.0	N.D.
Ethyl Benzene	2.5	N.D.
Toluene	2.5	N.D.
Xylene	2.5	N.D.

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

Arthur G Burton
Laboratory Director

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(415) 676-9100 (707) 746-6915

CHAIN OF CUSTODY

SAMPLER: Doug Johnson (signature)
DATE/TIME OF COLLECTION: Jan. 3, 1989
TURN AROUND TIME: Regular

SAMPLE DESCRIPTION AND PROJECT NUMBER: UNOCAL - SAN LEANDRO

SAMPLE #	ANALYSES	GRAB OR COMP.	NUMBER OF CONTAINERS	SOIL/ WATER	
EB-1	TPH D, 503A&E, 601/602	G	2+2	W	276
EB-2	TPH G + BTX&E	G	2	W	277
EB-3	TPH G + BTX&E	G	2	W	278
EB-4	TPH G + BTX&E	G	2	W	279
EB-5	TPH G + BTX&E	G	2	W	275
EB-6	TPH G 601/602	G	2	W	271

RELINQUISHED BY*	TIME/DATE	RECEIVED BY*	TIME/DATE
1. Doug Johnson	1/4/89 1:00pm	Chris Lecce	1/4/89 1:00pm
2. Chris Lecce	1/5/89 11:15 am	Dan Naifeh	1-5-89 11:20 AM
3. [illegible]	[illegible]	Ron Alm	1/5/89 2:09 PM
4.			

* STATE AFFILIATION NEXT TO SIGNATURE

REMARKS:

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

KEI-P88-1204.P2
February 3, 1989

Proposal

to

UNOCAL CORPORATION

for

Unocal Service Station #2512

at

1300 Davis Street

San Leandro, California

Submitted By:

Mardo Kaprealian
President

1.0 INTRODUCTION

In December, 1988, Kaprealian Engineering, Inc. (KEI) was hired to oversee drilling of six exploratory borings at the referenced site. Analytical results from soil and water samples collected during drilling indicated the presence of contamination at the site (KEI report KEI-P88-1204.R1 dated February 3, 1989).

2.0 SCOPE OF WORK

Per our recommendations described in our report dated February 3, 1989, additional investigation is necessary to comply with the State and Local Regulatory Agencies regulations. Therefore, per the RWQCB guidelines, KEI proposes to perform the work as outlined below:

2.1 Coordination with regulatory agencies.

2.2 Installation and construction of three monitoring wells as shown on attached Site Plan.

2.3 During the well construction, soil samples will be collected at five foot intervals starting at a depth of five feet. Soil sampling will continue until the first water table is encountered at approximately 26 feet. Selected soil samples will be analyzed for TPH as gasoline and benzene, toluene, xylenes and ethylbenzene (BTX&E). In addition, selected soil samples collected from MW-2 (adjacent to the previous boring, EB-6) will be analyzed for TPH as diesel, TOG and 8010 constituents.

2.4 Three monitoring wells (2" diameter) will be installed. The monitoring wells will be observed for free product and sheen. Water samples will be collected and analyzed for TPH as gasoline and diesel, BTX&E, TOG, and EPA method 601 constituents. All analyses will be performed by a state certified laboratory.

2.5 Supervision and collection of soil samples from the excavated pit.

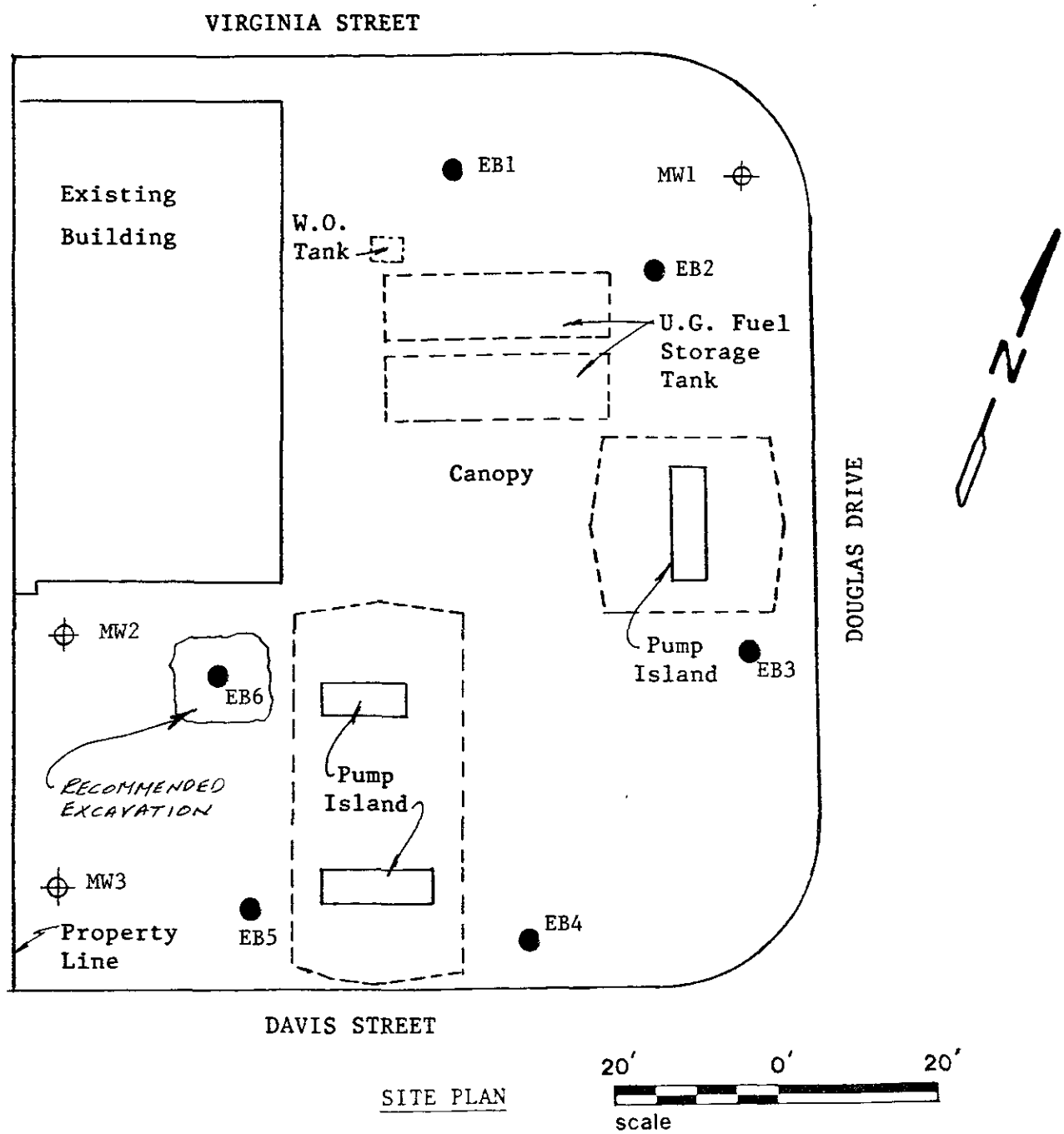
2.6 Results of the sample analyses will be evaluated as to the current and potential impact on the ground water.

2.7 A technical report will be submitted within 45 days of completion of the soil and water sampling. The report will document the field work performed, chemical analyses of soil/ground water, and offer discussion and recommendations.

3.0 SCHEDULING

KEI is prepared to start the work as soon as this proposal is accepted by the client.

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



SITE PLAN

● Exploratory Boring

⊕ Monitoring Well (Proposed)

Unocal Service Station #2512
1300 Davis Street
San Leandro, California