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

KEI-J88-1203.R2
January 15, 1990

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

Attention: Mr. Tim Ross

RE: Soil Sampling Report
Unocal Service Station #3135
845 - 66th Avenue
Oakland, California

Dear Mr. Ross:

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 samples of native soil from the fuel and waste oil tank pit sidewalls, and from beneath the waste oil tank and piping trenches.

Collection of a water sample from the fuel oil storage tank pit.

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

Technical review of field data and laboratory analyses, and preparation of this report.

SITE DESCRIPTION AND BACKGROUND

The subject site is presently used as a gasoline station. Site vicinity and site descriptions are shown on the attached sketch.

The initial work performed by Kaprealian Engineering, Inc. (KEI) at this site occurred on December 8, 1988 during modifications to the pump island located along San Leandro Street. Three soil

samples, labeled P1, P2 and P3, were collected from undisturbed native soil at depths ranging from 2.0 to 3.0 feet. The samples were analyzed by Sequoia Analytical Laboratory in Redwood City, California, and were accompanied by properly executed Chain of Custody documentation. The samples were analyzed for total petroleum hydrocarbons (TPH) as gasoline using either EPA method 5030 or 3810 in conjunction with modified 8015, and benzene, toluene, xylenes and ethylbenzene (BTX&E) using EPA method 8020. Laboratory analyses indicated non-detectable levels of all constituents for all three samples. Laboratory results are summarized in Table 1, attached. The sample point locations are as shown on the attached site Plan, Figure 1. This work was previously presented in KEI's report (KEI-J88-1203.R1) dated December 16, 1988.

FIELD ACTIVITIES

KEI's field work was conducted on November 29, 1989 when two 10,000 gallon underground fuel storage tanks, and one 280 gallon waste oil tank were removed from the site.

The gasoline tanks and the waste oil tank were made of steel and no apparent cracks or holes were observed in any of the tanks. Mr. Ariu Levi of the ACHA, and Mr. Robert Dawson of the City of Oakland Fire Department were present during tank removal. Mr. Ariu Levi remained on-site during subsequent soil sampling.

Water was initially encountered in the fuel tank pit at a depth of approximately 10.5 feet, thus prohibiting the collection of any soil samples from immediately beneath the tanks. Six soil samples, labeled SW1 through SW6, were collected from the sidewalls of the fuel tank pit approximately 18 to 30-inches above the water table at the direction of the ACHA. One sample, labeled WO1, was collected of native soil from beneath the waste oil tank at a depth of 8.5 feet. The area beneath the waste oil tank was then excavated to ground water and two sidewall samples, labeled SWA and SWB, were collected of native soil from the waste oil tank pit sidewalls approximately 12-inches above the water table. The undisturbed samples were collected from bulk material excavated by backhoe. The 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 point locations are as shown on the attached Site Plan, Figure 2.

Also, on November 29, 1989, one pipe trench sample (labeled P1) was collected from the easterly sidewall of the fuel tank pit at a depth of 6 feet under the vapor return piping at the direction

of ACHA. The sample was taken from undisturbed soil excavated by backhoe, collected and handled as described above. This sample point location is shown on the attached Site Plan, Figure 3.

KEI returned to the site on December 5, 1989, in order to collect samples of the soil materials from the product pipe trenches. Six samples, labeled D1 through D6, were collected from bulk material excavated by backhoe at a depth of 3.5 feet. These samples were also collected in clean two-inch diameter brass tubes, handled as described above. Pipe trench sample point locations are also shown on the attached Site Plan, Figure 3.

After fuel tank pit soil sampling was completed, approximately 5,000 gallons of ground water were pumped from the fuel tank pit. Also on December 5, 1989, one water sample, labeled W1, was collected from the fuel tank pit in four clean glass VOA vials with Teflon screw caps. The water sample was stored and delivered as described above.

KEI again returned to the site on December 29, 1989, in order to collect additional required product pipe trench samples. Four samples, labeled P2, P3, P4 and P5, were collected from bulk material excavated by backhoe at depths ranging from 4.5 to 5.5 feet. These samples were also collected and handled as described above. These pipe trench sample point locations are also shown on the attached Site Plan, Figure 3.

Upon review of the laboratory analyses for sample P2, KEI again returned to the site on January 9, 1990, in order to observe the excavation of as much contaminated soil as possible in the vicinity of sample point location P2. Following the trench excavation to a depth of 12 feet, one soil sample, labeled P2(12), was collected of undisturbed native soil excavated by backhoe from a depth of 12 feet. In addition, two pipe trench sidewall samples, labeled SWP2E and SWP2W, were collected from the easterly and westerly sidewalls of the excavation adjacent to sample P2(12) at a depth of 11 feet. These samples were also collected and handled as described above. Sample point locations are as shown on the attached Site Plan, Figure 3. Mr. Ariu Levi of the ACHA was again present during sampling.

KEI again returned to the site on January 10, 1990, in order to complete the required product pipe trench sampling. Two samples, labeled P6 and P7, were collected from soil materials at depths of 3.0 and 4.0 feet, respectively. Samples were collected and handled as previously described. Sample point locations are shown on the attached Site Plan, Figure 3.

SUBSURFACE CONDITIONS

The subsurface soils exposed in the excavation consisted primarily of fill to a depth of about 7.5 feet below grade and underlain by about 1.5 feet of adobe top soil (silty clay) and in turn underlain by sandy silt materials.

ANALYTICAL RESULTS

All samples were analyzed by Sequoia Analytical Laboratory in Redwood City, California 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. The waste oil tank bottom and sidewall samples were analyzed for TPH as gasoline, BTX&E, TPH as diesel using EPA method 3550 in conjunction with modified 8015, total oil and grease (TOG) using EPA method 503D&E, halogenated volatile organics using EPA method 5030 in conjunction with 8010, and the metals cadmium, chromium, lead and zinc.

The water sample was analyzed for TPH as gasoline, BTX&E, and EPA 8010 constituents.

Analyses of soil samples from the fuel tank pit indicate levels of TPH as gasoline ranging from non-detectable to 1.2 ppm. Analyses of the waste oil tank bottom and sidewall samples indicate less than 50 ppm TOG, non-detectable levels of BTX&E, non-detectable levels of TPH as diesel and 8020, and less than 5.0 ppm TPH as gasoline for all three samples. Metals concentrations are as indicated in Table 2 attached.

Laboratory analyses of the pipe trench samples indicate TPH as gasoline levels ranging from non-detectable to 20 ppm, with non-detectable to 0.13 ppm benzene for all samples except sample P2 at a depth of 5.5 feet, which showed TPH as gasoline at 3,800 ppm and benzene at 6.1 ppm. Following the additional excavation in the area of sample point P2, laboratory analyses of samples P2(12), SWP2E, and SWP2W indicate non-detectable levels of TPH as gasoline and benzene for samples P2(12) and SWP2W, while sample SWP2E showed TPH as gasoline at 20 ppm with non-detectable levels of benzene.

Water sample W1 from the fuel tank pit had 7,900 ppb TPH as gasoline, 850 ppb benzene, and non-detectable levels of EPA 8010 constituents. The analytical results for soil samples are summarized in Table 2. Water sample analytical results are sum-

marized in Table 3. 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 and water. To comply with the requirements of the RWQCB and the ACHA, KEI recommends the installation of three monitoring wells at the site to begin to define the extent of the soil and ground water contamination, and to determine the ground water flow direction. KEI's proposal for this work is attached for your review and consideration.

DISTRIBUTION

A copy of this report should be sent to Mr. Robert Dawson of the City of Oakland Fire Department, Mr. Ariu Levi 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 work and laboratory analyses. We have analyzed this data using what we believe to be currently applicable engineering techniques and principles in the Northern California region. We make no warranty, either expressed or implied, except that our services have been performed in accordance with generally accepted professional principles and practices existing for such work.

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

Sincerely,

Kaprealian Engineering, Inc.

Richard M. Bradish
Staff Engineer

Don R. Braun
Certified Engineering Geologist

License No. 1310
Exp. Date 6/30/90

Mardo Kaprealian
President

Attachments: Tables 1, 2 & 3
Location Map
Site Plans, Figures 1, 2 & 3
Laboratory Analyses
Chain of Custody documentation
Proposal

KEI-P88-1203.R2
January 15, 1990

TABLE 1

SUMMARY OF LABORATORY ANALYSES
SOIL

(Results in ppm)
(Samples collected on December 8, 1988)

Sample #	Depth (feet)	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethylbenzene
P1	2.0	ND	ND	ND	ND	ND
P2	3.0	ND	ND	ND	ND	ND
P3	3.0	ND	ND	ND	ND	ND

ND = Non-detectable.

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January 15, 1990

TABLE 2

SUMMARY OF LABORATORY ANALYSES
SOIL

(Results in ppm)
(Samples Collected on November 29, and
December 5 & 29, 1989)

Sample	Depth (feet)	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene
SW1	9.0	--	1.6	ND	ND	ND	ND
SW2	9.0	--	3.8	ND	ND	ND	ND
SW3	9.0	--	5.6	ND	ND	2.3	0.42
SW4	9.0	--	32	1.2	ND	1.0	2.1
SW5	9.0	--	4.8	0.20	ND	0.11	ND
SW6	8.0	--	ND	ND	ND	ND	ND
D1	3.5	--	ND	ND	ND	ND	ND
D2	3.5	--	1.5	0.08	ND	ND	ND
D3	3.5	--	6.6	0.14	ND	0.31	ND
D4	3.5	--	7.4	0.11	ND	0.1	ND
D5	3.5	--	1.9	ND	ND	ND	ND
D6	3.5	--	2.0	ND	0.17	0.25	ND
P1	6.0	--	15	0.086	ND	8.5	0.18
P2	5.5	--	3,800	6.1	290	750	140
P2(12)	12.0	--	ND	ND	ND	ND	ND
P3	5.0	--	11	0.13	ND	1.3	0.18
P4	4.5	--	1.4	ND	ND	0.23	ND
P5	4.5	--	ND	ND	ND	ND	ND
P6	3.0	--	ND	ND	ND	ND	ND
P7	4.0	--	ND	ND	ND	ND	ND
P7	4.0	--	ND	ND	ND	ND	ND
SWP2E	11.0	--	2	ND	0.16	3.1	0.50
SWP2W	11.0	--	ND	ND	ND	ND	ND

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January 15, 1990

TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
SOIL

(Results in ppm)
(Samples Collected on November 29, and
December 5 & 29, 1989)

Sample	Depth (feet)	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene
WO1*	8.5	ND	1.6	ND	ND	ND	ND
SWA**	9.5	ND	2.1	ND	ND	ND	ND
SWB***	9.5	ND	3.9	ND	ND	ND	ND
Detection Limits		1.0	1.0	0.05	0.1	0.1	0.1

* TOG was <50 ppm, and all 8010 constituents were non-detectable. Metal concentrations were as follows: cadmium non-detectable, chromium 20 ppm, lead 75 ppm, and zinc 65 ppm.

** TOG was <50 ppm, and all 8010 constituents were non-detectable. Metals concentrations were as follows: cadmium non-detectable, chromium 20 ppm, lead 5.9 ppm and zinc 44 ppm.

*** TOG was <50 ppm and all 8010 constituents were non-detectable. Metals concentrations were as follows: cadmium non-detectable, chromium 15 ppm, lead 5.0 ppm, an zinc 39 ppm.

ND = Non-detectable.

KEI-P88-1203.P1
January 15, 1990

TABLE 3

SUMMARY OF LABORATORY ANALYSES
WATER

(Results in ppb)
(Samples collected on December 5, 1989)

Sample #	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethylbenzene
W1	7,900	850	150	720	ND
Detection Limits	30.0	0.3	0.3	0.3	0.3

NOTE: All 8010 constituents were non-detectable.

ND = Non-detectable.

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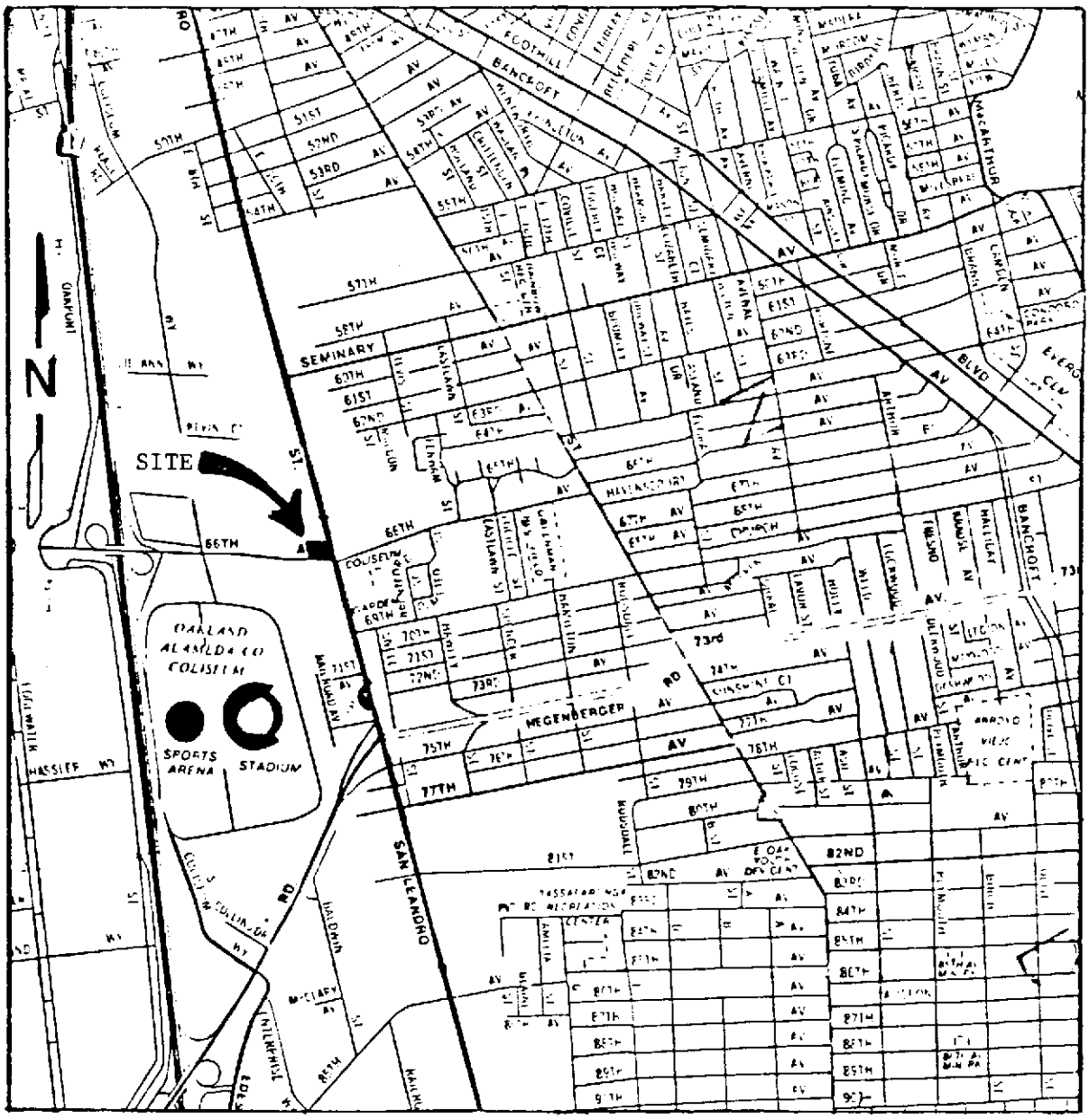

Unocal S/S #3135
845 - 66th Avenue
Oakland, CA

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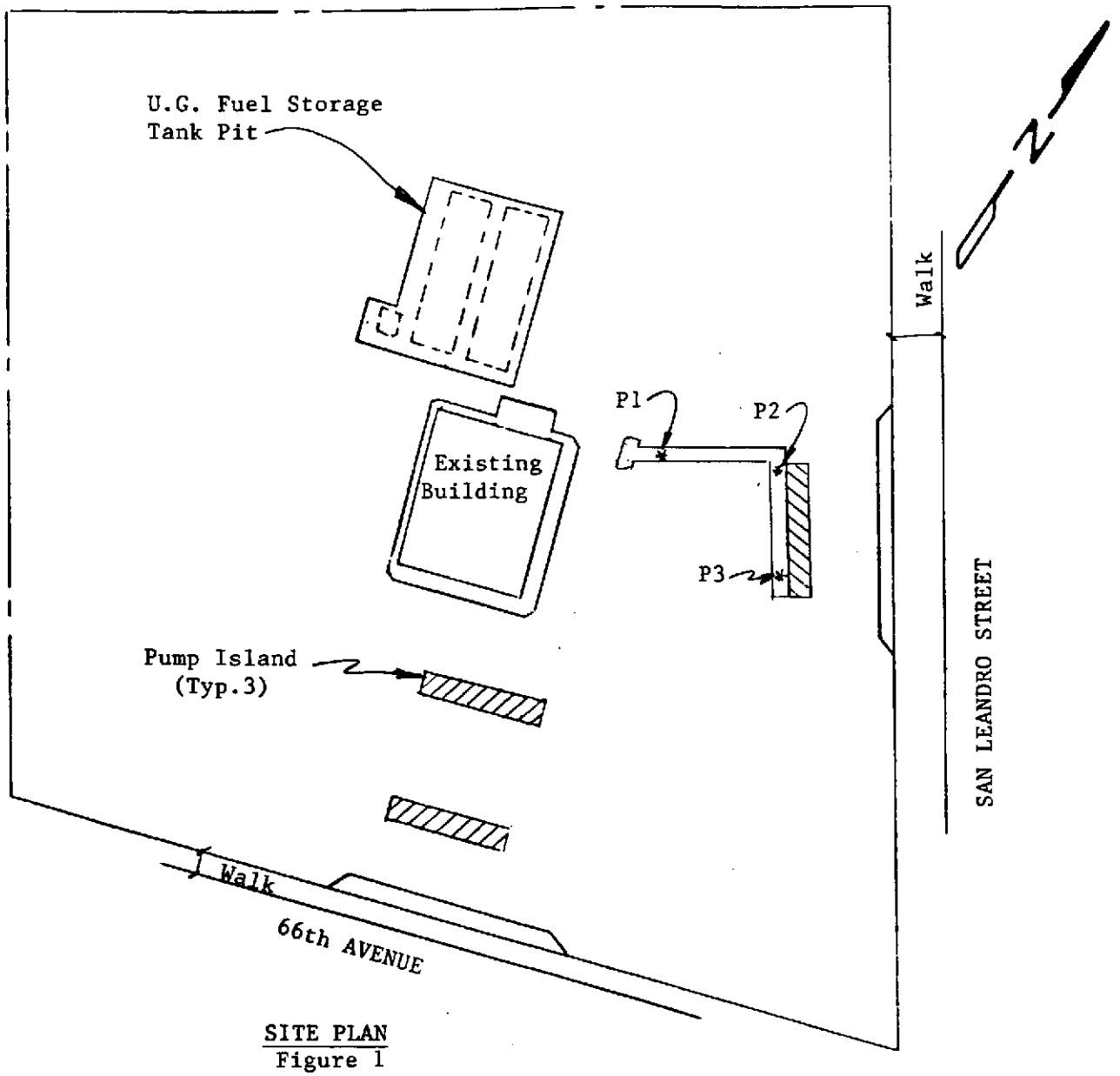

SITE PLAN
Figure 1

LEGEND

* Sample Point Location

Unocal SS #3135
845 66th AVENUE
OAKLAND, CALIFORNIA

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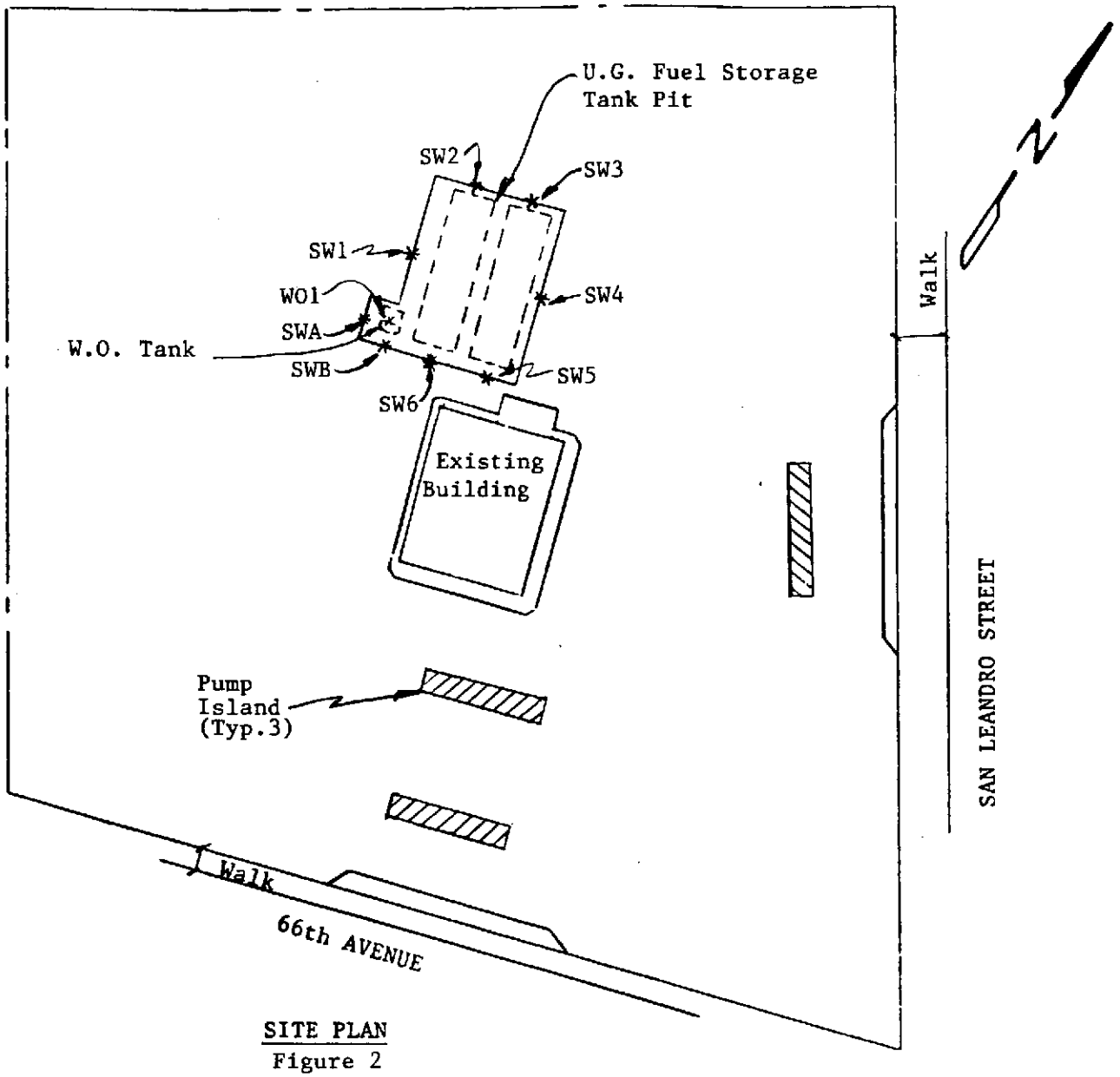

SITE PLAN
Figure 2

0 30 60
feet
Approx. Scale

LEGEND

* Sample Point Location

Unocal SS #3135
845 66th AVENUE
OAKLAND, CALIFORNIA

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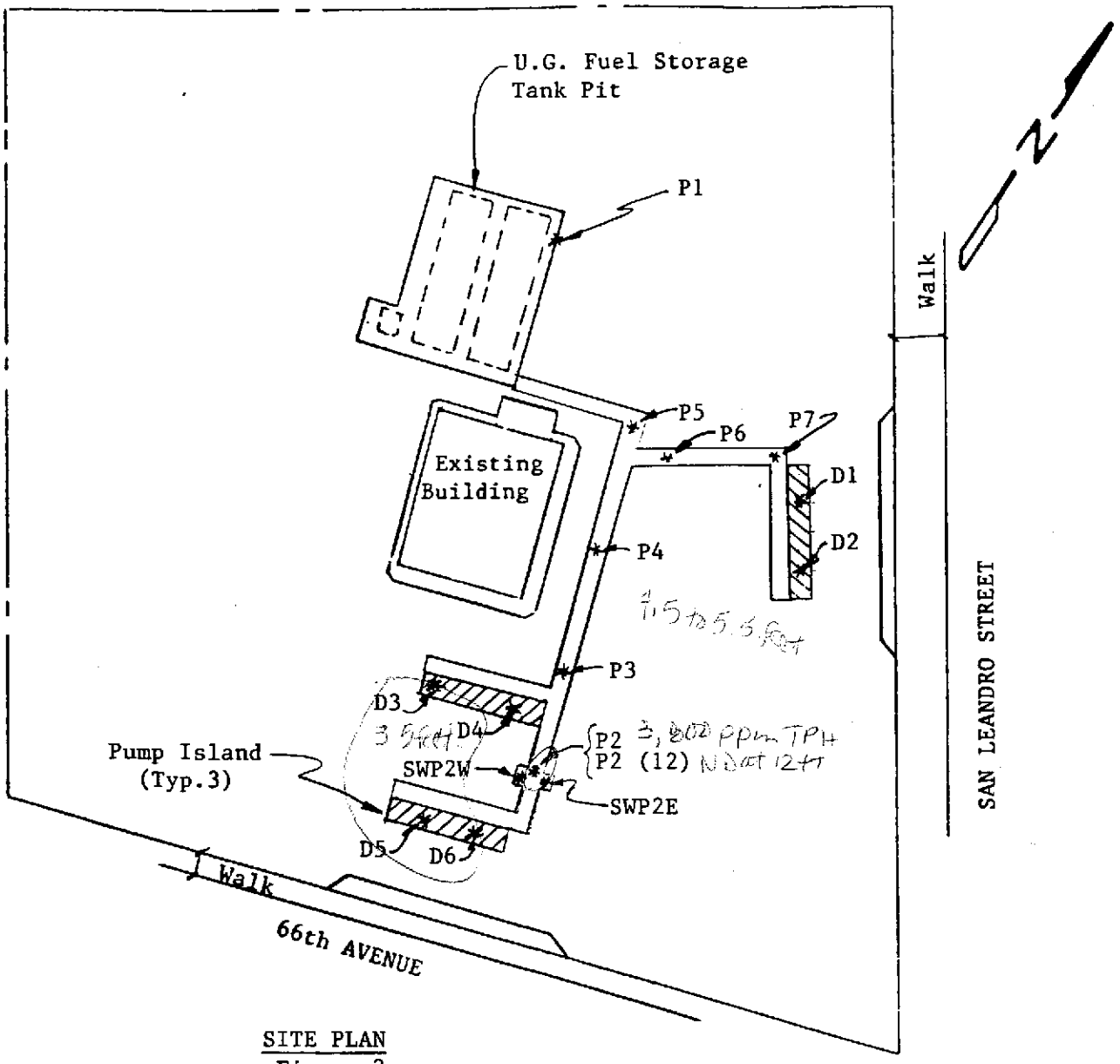

SITE PLAN
Figure 3

LEGEND

* Sample Point Location

Unocal SS #3135
845 66th AVENUE
OAKLAND, CALIFORNIA

SEQUOIA ANALYTICAL

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, Oakland, 66th/San Leandro	Sampled:	Nov 29, 1989
P.O. Box 913	Matrix Descript:	Soil	Received:	Nov 29, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Nov 30, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	911-3711	Reported:	Dec 1, 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)
911-3711	SW1	1.6	N.D.	N.D.	N.D.	N.D.
911-3712	SW2	3.8	N.D.	N.D.	N.D.	N.D.
911-3713	SW3	5.6	N.D.	N.D.	0.42	2.3
911-3714	SW4	32	1.2	N.D.	2.1	1.0
911-3715	SW5	4.8	0.20	N.D.	N.D.	0.11
911-3716	SW6	N.D.	N.D.	N.D.	N.D.	N.D.
911-3717	P1	15	0.086	N.D.	0.18	8.5
Detection Limits:		**1.0**	**0.05**	**0.1**	**0.1**	**0.1**

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

SEQUOIA ANALYTICAL

Belinda C. Vega
Project Manager

Please Note:
Amended Report dated: 12/8/89

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: Dick Bradish

WITNESSING AGENCY: Alameda County Health Agency

SITE NAME & ADDRESS: Unocal - Oakland 66th + San Leandro

ANALYSES REQUESTED: TPH-G, BTXE

TURN AROUND TIME: 24 hrs

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	REMARKS
SW1	11/29		X		X		1	Fuel Tank Sidewall	911371
SW2	11/29		X		X		1	"	12
SW3	11/29		X		X		1	"	13
SW4	11/29		X		X		1	"	14
SW5	11/29		X		X		1	"	15
SW6	11/29		X		X		1	"	16
P1	11/29		X		X		1	Pipe Trench	17

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
K.M. Bradish	11-29-89 1605	Ben Lonnard
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Ben Lonnard	11-29-89 5:57pm	

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? ND
4. Were samples in appropriate containers and properly packaged? YES

Signature: [signature] Title: [signature] Date: 11-29-89

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, Oakland, 66th/San Leandro	Sampled:	Nov 29, 1989
P.O. Box 913	Matrix Descript:	Soil	Received:	Nov 29, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Nov 30, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	911-3725	Reported:	Dec 1, 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)
911-3725	SWA	2.1	N.D.	N.D.	N.D.	N.D.
911-3726	SWB	3.9	N.D.	N.D.	N.D.	N.D.
911-3727	WO1	1.6	N.D.	N.D.	N.D.	N.D.
Detection Limits:		**1.0**	**0.05**	**0.1**	**0.1**	**0.1**

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

SEQUOIA ANALYTICAL

Belinda C. Vega
Project Manager

SEQUOIA ANALYTICAL

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, Oakland, 66th/San Leandro	Sampled:	Nov 29, 1989
P.O. Box 913	Matrix Descript:	Soil	Received:	Nov 29, 1989
Benicia, CA 94510	Analysis Method:	EPA 3550/8015	Extracted:	Nov 30, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	911-3725	Analyzed:	Nov 30, 1989
			Reported:	Dec 1, 1989

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
911-3725	SWA	N.D.
911-3726	SWB	N.D.
911-3727	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.

SEQUOIA ANALYTICAL

Belinda C. Vega
Project Manager

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, Oakland, 66th/San Leandro	Sampled:	Nov 29, 1989
P.O. Box 913	Matrix Descript:	Soil	Received:	Nov 29, 1989
Benicia, CA 94510	Analysis Method:	SM 503 D&E (Gravimetric)	Extracted:	Dec 1, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	911-3725	Analyzed:	Dec 1, 1989
			Reported:	Dec 1, 1989

TOTAL RECOVERABLE OIL & GREASE

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
911-3725	SWA	< 50
911-3726	SWB	< 50
911-3727	WO1	< 50

Detection Limits:	**30.0**

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

SEQUOIA ANALYTICAL

Belinda C. Vega
Project Manager

9113725.KEI <3>

SEQUOIA ANALYTICAL

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(415) 364-9600 • FAX (415) 364-9233

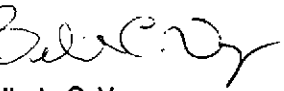
Kaprealian Engineering, Inc.	Client Project ID:	Unocal, Oakland, 66th/San Leandro	Sampled:	Nov 29, 1989
P.O. Box 913	Sample Descript:	Soil, SWA	Received:	Nov 29, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8010	Analyzed:	Nov 30, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	911-3725	Reported:	Dec 1, 1989

HALOGENATED VOLATILE ORGANICS (EPA 8010)

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

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

SEQUOIA ANALYTICAL



Belinda C. Vega
Project Manager

SEQUOIA ANALYTICAL

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(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, Oakland, 66th/San Leandro	Sampled:	Nov 29, 1989
P.O. Box 913	Sample Descript:	Soil, SWB	Received:	Nov 29, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8010	Analyzed:	Nov 30, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	911-3726	Reported:	Dec 1, 1989

HALOGENATED VOLATILE ORGANICS (EPA 8010)

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

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

SEQUOIA ANALYTICAL

Belinda C. Vega
Project Manager

SEQUOIA ANALYTICAL

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, Oakland, 66th/San Leandro	Sampled:	Nov 29, 1989
P.O. Box 913	Sample Descript:	Soil, WO1	Received:	Nov 29, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8010	Analyzed:	Nov 30, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	911-3727	Reported:	Dec 1, 1989

HALOGENATED VOLATILE ORGANICS (EPA 8010)

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

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

SEQUOIA ANALYTICAL

Belinda C. Vega
Project Manager

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, Oakland, 66th/San Leandro	Sampled:	Nov 29, 1989
P.O. Box 996	Sample Descript:	Soil, SWA	Received:	relogged 12/8
Benicia, CA 94510			Extracted:	Dec 8, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	911-3725	Analyzed:	Dec 8, 1989
			Reported:	Dec 11, 1989

LABORATORY ANALYSIS

Analyte	Detection Limit mg/kg	Sample Results mg/kg
Cadmium	0.5	N.D.
Chromium	0.5	20
Lead	0.5	7.5
Zinc	0.5	65

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

SEQUOIA ANALYTICAL

for Arthur G. Burton
Laboratory Director

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, Oakland, 66th/San Leandro	Sampled:	Nov 29, 1989
P.O. Box 996	Sample Descript:	Soil, SWB	Received:	relogged 12/8
Benicia, CA 94510			Extracted:	Dec 8, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	911-3726	Analyzed:	Dec 8, 1989
			Reported:	Dec 11, 1989

LABORATORY ANALYSIS

Analyte	Detection Limit mg/kg	Sample Results mg/kg
Cadmium	0.5	N.D.
Chromium	0.5	20
Lead	0.5	5.9
Zinc	0.5	44

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

SEQUOIA ANALYTICAL

for Arthur G. Burton
Laboratory Director

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SEQUOIA ANALYTICAL

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(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, Oakland, 66th/San Leandro	Sampled:	Nov 29, 1989
P.O. Box 996	Sample Descript:	Soil, WO1	Received:	relogged 12/8
Benicia, CA 94510			Extracted:	Dec 8, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	911-3727	Analyzed:	Dec 8, 1989
			Reported:	Dec 11, 1989

LABORATORY ANALYSIS

Analyte	Detection Limit mg/kg	Sample Results mg/kg
Cadmium	0.5	N.D.
Chromium	0.5	15
Lead	0.5	5.0
Zinc	0.5	39

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

SEQUOIA ANALYTICAL

for Arthur G. Burton
Laboratory Director

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, Oakland, 66th/San Leandro	Sampled:	Nov 29, 1989
P.O. Box 996	Sample Descript:	Soil, WO1	Received:	relogged 12/8
Benicia, CA 94510			Extracted:	Dec 8, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	911-3727	Analyzed:	Dec 8, 1989
			Reported:	Dec 11, 1989

LABORATORY ANALYSIS

Analyte	Detection Limit mg/kg	Sample Results mg/kg
Cadmium	0.5	N.D.
Chromium	0.5	15
Lead	0.5	5.0
Zinc	0.5	39

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

SEQUOIA ANALYTICAL

Belinda C. Vega
Project Manager

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: Dick Bradish

WITNESSING AGENCY: ARIU LEVI Alameda City Hazard Agency

SITE NAME & ADDRESS: Unocal - Oakland 66th & San Leandro

ANALYSES REQUESTED: TPH Gas, BTXE; TPH-D; TOG (503D+E); 8010; Cd. Cr. Pb. Zn.

TURN AROUND TIME: 24 hrs

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	REMARKS
SW A	11/29		X		X		1	W.O. Tank Pit Sidewall	9113725
SW B	11/29		X		X		1	"	26
WO1	11/29		X		X		1	W.O. Tank Pit	27

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
L. M. Bradish	11/29/89 1605	Ben Ponanek
Ponanek	11-29-89 5:50 pm	

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: [illegible] Date: 11-29-89

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, Oakland, 66th. & San Leandro	Sampled:	Dec 5, 1989
P.O. Box 996	Matrix Descript:	Soil	Received:	Dec 6, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Dec 7, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	912-0376	Reported:	Dec 7, 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)
912-0376	D1	N.D.	N.D.	N.D.	N.D.	N.D.
912-0377	D2	1.5	0.08	N.D.	N.D.	N.D.
912-0378	D3	6.6	0.14	N.D.	N.D.	0.31
912-0379	D4	7.4	0.11	N.D.	N.D.	0.1
912-0380	D5	1.9	N.D.	N.D.	N.D.	N.D.
912-0381	D6	2.0	N.D.	0.17	N.D.	0.25

Detection Limits:	**1.0**	**0.05**	**0.1**	**0.1**	**0.1**

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

SEQUOIA ANALYTICAL

Belinda C. Vega
Project Manager

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: DRB

WITNESSING AGENCY:

SITE NAME & ADDRESS: UnoCal Oakland - 66th & San Leandro

TURN AROUND TIME: 24 hr.

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB OR COMP	NO. OF CONT.	SAMPLING LOCATION	ANALYSES REQUESTED: TPH gas	ANALYSES REQUESTED: BTXE	REMARKS
D1	12/5/89	2:00 PM	✓		G	1	D1 @ -3.5'	✓	✓	
D2	"	"	✓		G	1	D2 @ -3.5'	✓	✓	
D3	"		✓		G	1	D3 @ -3.3'	✓	✓	
D4	"		✓		G	1	D4 @ -3.4'	✓	✓	
D5	"		✓		G	1	D5 @ -3.5'	✓	✓	
D6	"		✓		G	1	D6 @ -3.5'	✓	✓	

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Dan R Braun	12/6/89 6:00 pm	
	12/6/89 9:45	Tim McLaren
Tim McLaren		
	12/6 11:30a	

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

1. Have all samples received for analysis been stored in ice? Y
2. Will samples remain refrigerated until analyzed? Y
3. Did any samples received for analysis have head space? NO
4. Were samples in appropriate containers and properly packaged? Y

Signature	Title	Date
	sample control	12/6

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, Oakland, 66th Ave/San Leandro	Sampled:	Dec 29, 1989
P.O. Box 996	Matrix Descript:	Soil	Received:	Jan 3, 1990
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Jan 3, 1990
Attention: Mardo Kaprealian, P.E.	First Sample #:	001-0082	Reported:	Jan 4, 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)
001-0082	P2	3,800	6.1	290	140	750
001-0083	P3	11	0.13	N.D.	0.18	1.3
001-0084	P4	1.4	N.D.	N.D.	N.D.	0.23
001-0085	P5	N.D.	N.D.	N.D.	N.D.	N.D.
Detection Limits:		**1.0**	**0.05**	**0.1**	**0.1**	**0.1**

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

SEQUOIA ANALYTICAL

Belinda C. Vega
Project Manager

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: HAGOP

WITNESSING AGENCY:

SITE NAME & ADDRESS: Unocal - Oakland - 845 - 66th Ave/San Leandro

ANALYSES REQUESTED: TPH-G; BTXE

TURN AROUND TIME: 24 Hrs priority - needed by 5:00pm 1/3/89

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION
P2	12/29		✓		✓		1	Pipe Trench
P3	12/29		✓		✓		1	Pipe Trench
P4	12/29		✓		✓		1	Pipe Trench
P5	12/29		✓		✓		1	Pipe Trench

REMARKS: 0010082 e3 e4 e5

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Hagop Kework	1/3/90 9:40	Tim McLain
Tim McLain	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	1/3/89 11:55a.m.	Received by: (Signature) Brenda Olin

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: BLO Title: login 1/3 Date:

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, Oakland, 66th/San Leandro	Sampled:	Jan 9, 1990
P.O. Box 996	Matrix Descript:	Soil	Received:	Jan 9, 1990
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Jan 10, 1990
Attention: Mardo Kaprealian, P.E.	First Sample #:	001-0937	Reported:	Jan 11, 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)
001-0937	P2 (12)	N.D.	N.D.	N.D.	N.D.	N.D.
001-0938	SWP 2E	20	N.D.	0.16	0.50	3.1
001-0939	SWP 2W	N.D.	N.D.	N.D.	N.D.	N.D.
Detection Limits:		**1.0**	**0.05**	**0.1**	**0.1**	**0.1**

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

SEQUOIA ANALYTICAL

Belinda C. Vega
Project Manager

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: Hagop

WITNESSING AGENCY:

SITE NAME & ADDRESS: Unocal - Oakland - 66th Ave / San Leandro

ANALYSES REQUESTED: TPH-d; BTXE

TURN AROUND TIME: 24 Hrs

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	REMARKS
P2(12)	1/9/90		✓		✓		1	Pipe Trench (Bottom)	
SWP2E	1/9/90		✓		✓		1	Pipe Trench (Sidewall)	
SWP2W	1/9/90		✓		✓		1	Pipe Trench (Sidewall)	

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Hagop Kevork	1/9 3:40	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time 1/9/90 18:45	Received by: (Signature) B.L. Ohren

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

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

BLO (Signature) login (Title) 1/9 (Date)

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, Oakland, 66th @ San Leandro	Sampled:	Dec 5, 1989
P.O. Box 996	Sample Descript.:	Water, W1	Received:	Dec 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/ 8015/8020	Analyzed:	Dec 7, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	912-0375 C-D	Reported:	Dec 7, 1989

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

Analyte	Detection Limit µg/L (ppb)	Sample Results µg/L (ppb)
Low to Medium Boiling Point Hydrocarbons	150.0	7,900
Benzene	1.5	850
Toluene	1.5	150
Ethyl Benzene	1.5	N.D.
Xylenes	1.5	720

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
Project Manager

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, Oakland, 66th @ San Leandro	Sampled:	Dec 5, 1989
P.O. Box 996	Sample Descript:	Water, W1	Received:	Dec 5, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8010	Analyzed:	Dec 6, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	912-0375 A-B	Reported:	Dec 7, 1989

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/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.
Total 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

Belinda C. Vega
Project Manager

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: DRB

WITNESSING AGENCY:

SITE NAME & ADDRESS: UnoCal Oakland 66th & San Leandro

TURN AROUND TIME: 24 hr.

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPH-g	BTXE	8010	REMARKS
W1	12/5/89	1:30 pm		X			4 vials	tank pit @ -16'	✓	✓	✓	9120375A→D

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Dan R Braun	12/5/89 6:00 pm	
	12/6/89 9:45	Tim McLean
Tim McLean		
		Brenda Oh 12/6 11:30 am

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?
4. Were samples in appropriate containers and properly packaged?

Signature | Title | Date