



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.R3
January 23, 1990

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

Attention: Mr. Tim Ross

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

Dear Mr. Ross:

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

On December 11, 1989, soil samples from approximately 750 cubic yards of stockpiled soil (excavated from the fuel tank pit) at the referenced site were collected to determine proper disposal of the soil. Fifteen composite soil samples (designated as Comp A, Comp B, Comp C, Comp D, Comp E, Comp F, Comp G, Comp H, Comp I, Comp J, Comp K, Comp L, Comp M, Comp N and Comp P) were taken. Each composite sample consisted of four individual grab samples taken at various locations and depths ranging from one to two feet. The samples were collected in two-inch diameter, clean brass tubes, which were then sealed with aluminum foil, plastic caps and tape, and placed in a cooled ice chest for subsequent delivery to a certified laboratory for analysis. Sample locations are as shown on the attached Site Plan, Figure 1.

On December 29, 1989, soil samples from approximately 150 cubic yards of additional stockpiled soil (excavated from piping trenches) at the referenced site were collected to determine proper disposal of the soil. Three composite soil samples, labeled Comp AA, Comp BB and Comp CC, were taken and handled as described above. Sample locations are as shown on the attached Site Plan, Figure 2.

On January 10, 1990, soil samples from approximately 100 cubic yards of additional stockpiled soil (excavated from piping trenches) at the referenced site were collected again to determine the appropriate disposition. Two composite soil samples, labeled Comp DD and Comp EE, were taken and handled as described

above. Sample point locations are as shown on the attached Site Plan, Figure 3.

All samples were analyzed at Sequoia Analytical in Redwood City, California, and were accompanied by properly executed Chain of Custody documentation. The composite samples were analyzed to determine concentrations of 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 composite sample Comp A was analyzed for Organic Lead using the California LUFT manual method. Analyses of the samples showed TPH as gasoline ranging from non-detectable to 50 ppm for all samples except Comp AA and Comp DD. Both of these were 130 ppm. Organic lead for Comp A was non-detectable. Analytical results are summarized in Table 1. Copies of the laboratory analyses, and the Chain of Custody documentation are attached to this report.

Based on TPH levels in the stockpiled soil of less than 100 ppm, the soil except that represented by samples Comp AA and Comp DD can be disposed of at an approved Class III disposal site (based on Regional Water Quality Control Board guidelines). However, KEI recommends that during disposal, when obvious isolated high contamination is detected within the stockpiled soil, that portion of the soil be separately stockpiled for further sampling. Soil represented by samples Comp AA and Comp DD should be retained on-site for aeration and resampling prior to disposal.

DISTRIBUTION

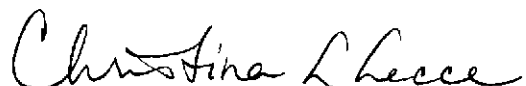
A copy of this report should be sent to Mr. Ariu Levi of the Alameda County Health Agency, and to the Regional Water Quality Control Board (RWQCB), San Francisco Bay Region.

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January 23, 1990
Page 3

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

Sincerely,

Kaprealian Engineering, Inc.

A handwritten signature in cursive script that reads "Christina L. Lecce".

Christina L. Lecce

c11

Attachments: Table 1
Site Plan, Figures 1, 2 & 3
Laboratory Results
Chain of Custody documentation

KEI-J88-1203.R3
January 23, 1990

TABLE 1

SUMMARY OF LABORATORY ANALYSES

(Results in ppm)

(Samples collected on December 11 and 29, 1989, and January 10, 1990)

<u>Sample</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethyl-benzene</u>
Comp A*	40	ND	ND	1.1	ND
Comp B	49	ND	ND	0.70	ND
Comp C	40	ND	ND	0.63	ND
Comp D	1.6	ND	ND	ND	ND
Comp E	ND	ND	ND	ND	ND
Comp F	33	ND	ND	0.75	ND
Comp G	50	ND	ND	5.5	ND
Comp H	24	ND	ND	0.62	ND
Comp I	1.4	ND	ND	ND	ND
Comp J	5.9	ND	ND	ND	ND
Comp K	1.5	ND	ND	ND	ND
Comp L	ND	ND	ND	ND	ND
Comp M	ND	ND	ND	ND	ND
Comp N	ND	ND	ND	ND	ND
Comp P	49	ND	ND	2.5	0.11
Comp AA	130	0.23	2.1	22	0.73
Comp BB	32	0.16	0.17	3.8	0.13
Comp CC	ND	ND	ND	ND	ND
Comp DD	130	0.06	4.7	42	6.6
Comp EE	7.6	ND	ND	0.67	0.10
Detection Limits	1.0	0.05	0.1	0.1	0.1

ND = Non-detectable.

* Organic Lead for this sample was non-detectable.

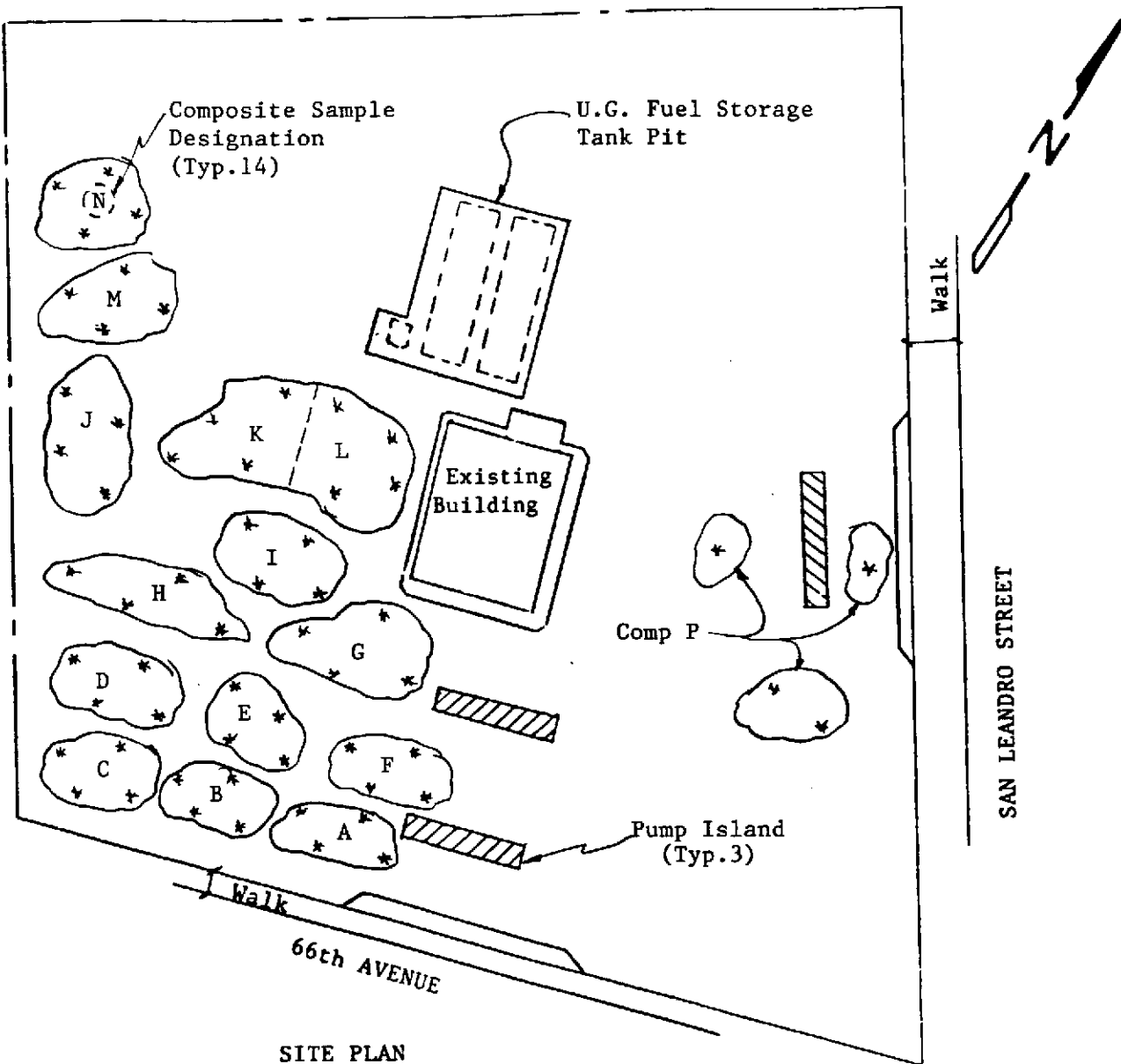


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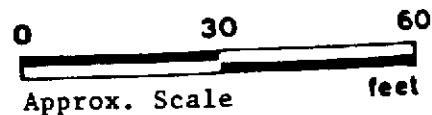
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SITE PLAN
Figure 1



LEGEND

* Sample Point Location

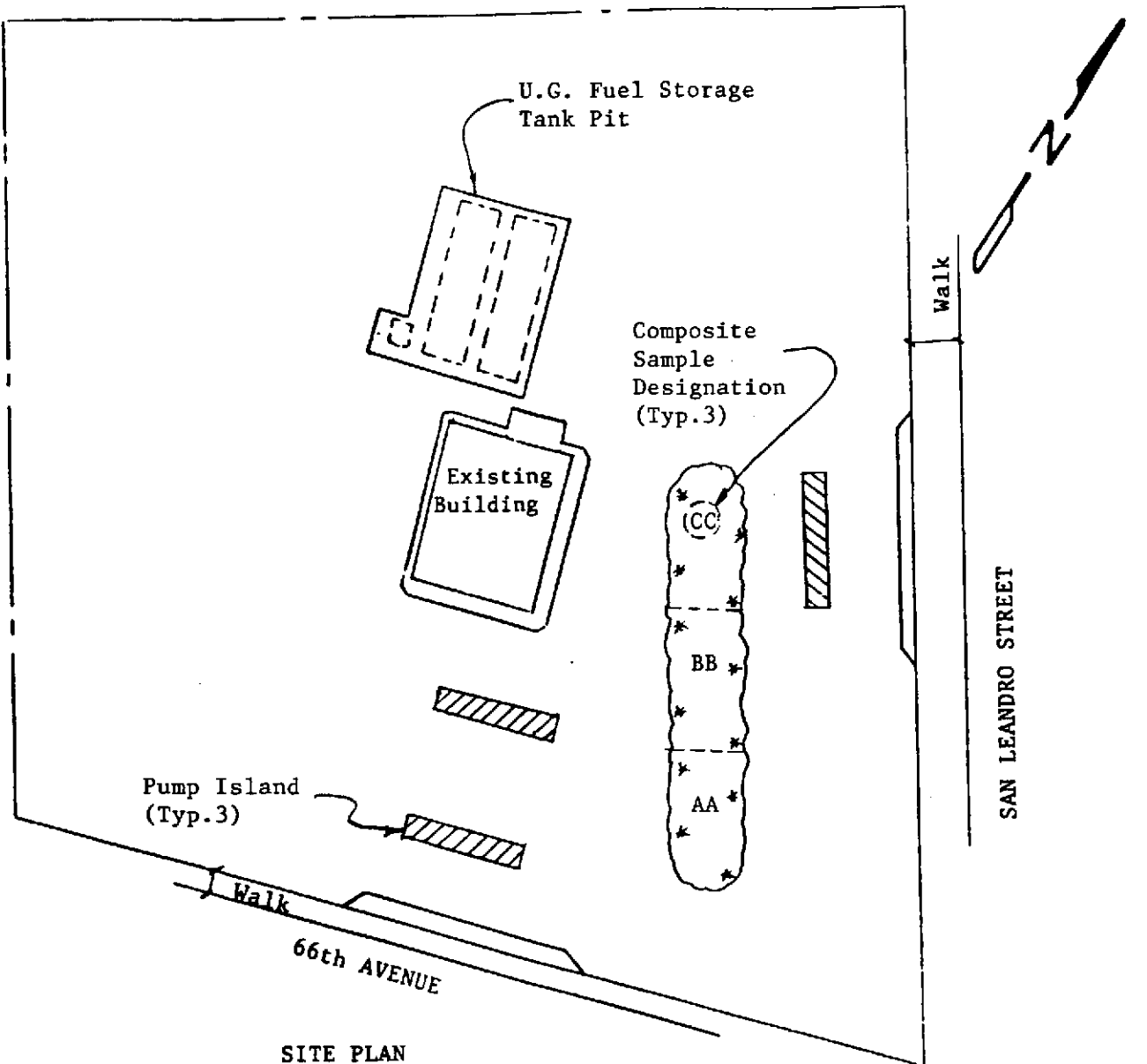
Unocal SS #3135
845 66th AVENUE
OAKLAND, CALIFORNIA



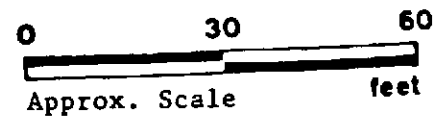
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SITE PLAN
Figure 2



LEGEND

* Sample Point Location

Unocal SS #3135
845 66th AVENUE
OAKLAND, CALIFORNIA

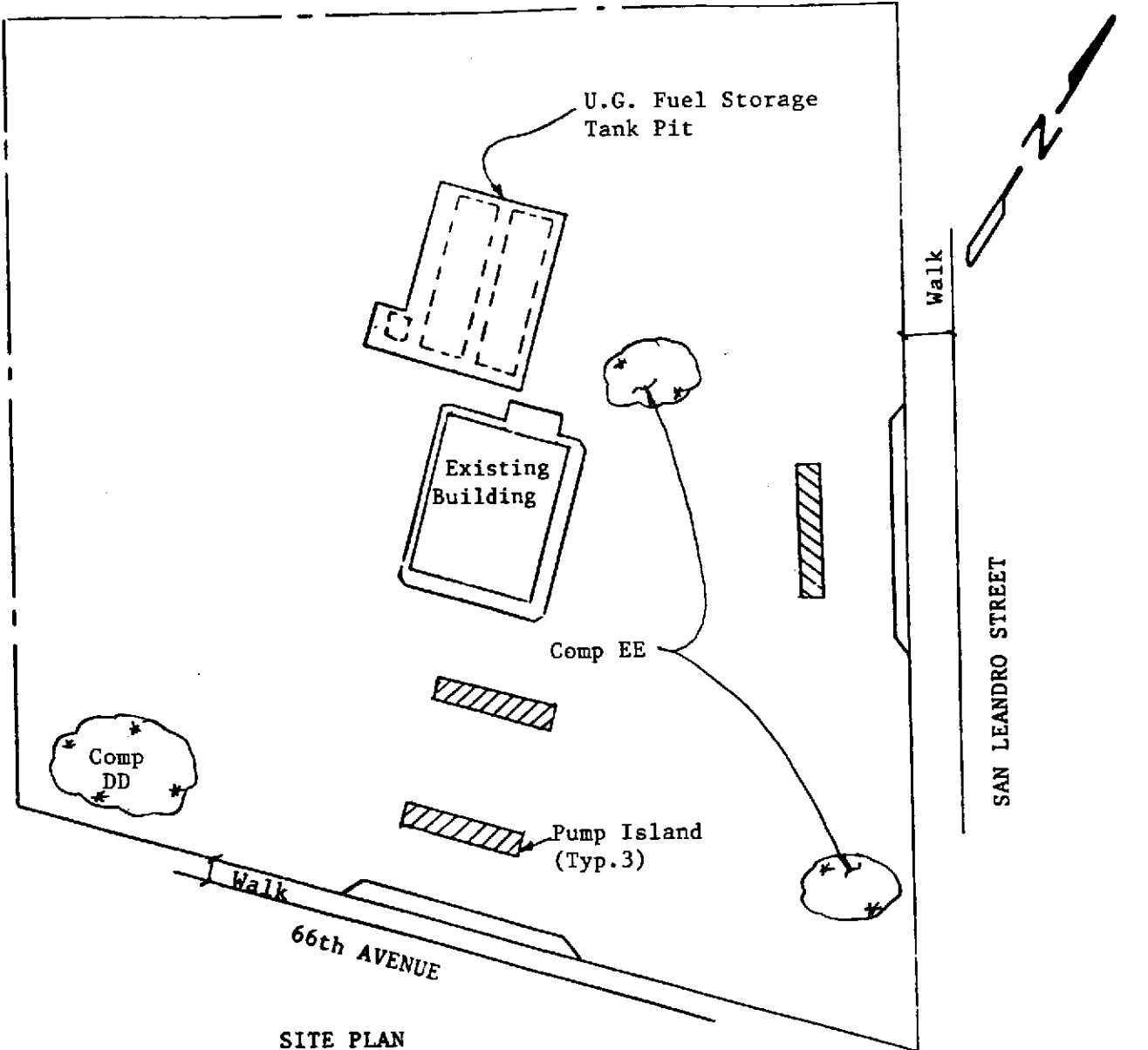


KAPREALIAN ENGINEERING, INC.

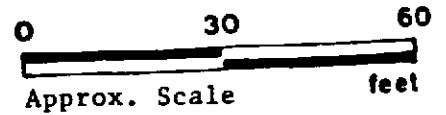
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SITE PLAN
Figure 3



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: Dec 11, 1989
P.O. Box 996	Matrix Descript: Soil	Received: Dec 11, 1989
Benicia, CA 94510	Analysis Method: EPA 5030/8015/8020	Analyzed: Dec 12, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #: 912-1169 A-B	Reported: Dec 13, 1989

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

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
9121169 A-B	Composite A	40	N.D.	N.D.	N.D.	1.1
9121170 A-B	Composite B	49	N.D.	N.D.	N.D.	0.70
9121171 A-B	Composite C	40	N.D.	N.D.	N.D.	0.63
9121172 A-B	Composite D	1.6	N.D.	N.D.	N.D.	N.D.
9121173 A-B	Composite E	N.D.	N.D.	N.D.	N.D.	N.D.
9121174 A-B	Composite F	33	N.D.	N.D.	N.D.	0.75
9121175 A-B	Composite G	50	N.D.	N.D.	N.D.	5.5
9121176 A-B	Composite H	24	N.D.	N.D.	N.D.	0.62
9121177 A-B	Composite I	1.4	N.D.	N.D.	N.D.	N.D.
9121178 A-B	Composite J	5.9	N.D.	N.D.	N.D.	N.D.

Detection Limits:	1.0	0.05	0.1	0.1	0.1
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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: Dec 11, 1989
P.O. Box 996	Matrix Descript: Soil	Received: Dec 11, 1989
Benicia, CA 94510	Analysis Method: EPA 5030/8015/8020	Analyzed: Dec 12, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #: 912-1179 A-B	Reported: Dec 13, 1989

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

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
912-1179	Composite K	1.5	N.D.	N.D.	N.D.	N.D.
912-1180	Composite L	N.D.	N.D.	N.D.	N.D.	N.D.
912-1181	Composite M	N.D.	N.D.	N.D.	N.D.	N.D.
912-1182	Composite N	N.D.	N.D.	N.D.	N.D.	N.D.
912-1183	Composite P	49	N.D.	N.D.	0.11	2.5

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



SEQUOIA ANALYTICAL

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

Kaprealian Engineering, Inc. P.O. Box 996 Benicia, CA 94510 Attention: Mardo Kaprealian, P.E.	Client Project ID: Unocal, Oakland, 66th/San Leandro Sample Descript: Soil, Composite A Analysis Method: California LUFT Manual, 12/87 First Sample #: 912-1169 A-B	Sampled: Dec 11, 1989 Received: Dec 11, 1989 Extracted: Dec 12, 1989 Analyzed: Dec 12, 1989 Reported: Dec 13, 1989
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ORGANIC LEAD

Sample Number	Sample Description	Sample Results mg/kg (ppm)
9121169 A-B	Composite A	N.D.

Detection Limits:

0.05

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

SEQUOIA ANALYTICAL

Belinda C. Vega
Project Manager

9121169.KEI <1>



KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER JOE / KEI	SITE NAME & ADDRESS Unocal / Oakland 66th / San Leandro	ANALYSES REQUESTED TPHG, BTXE Organic Lead	TURN AROUND TIME: 24 hrs.
WITNESSING AGENCY		REMARKS	

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPHG	BTXE	Organic Lead
Comp. A	12/11/89	AFTERNOON	✓			✓	2	Stockpile	✓	✓	✓
" B	"		✓			✓	"	"	✓		
" C	"		✓			✓	"	"	✓		
" D	"		✓			✓	"	"	✓		
" E	"		✓			✓	"	"	✓		
" F	"		✓			✓	"	"	✓		
" G	"		✓			✓	"	"	✓		
" H	"		✓			✓	"	"	✓		
" I	"		✓			✓	"	"	✓		

Relinquished by: (Signature) <i>[Signature]</i>	Date/Time 12/11/89	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time 12/11 6:50pm	Received by: (Signature) <i>Brenda Oh</i>

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

- Have all samples received for analysis been stored in ice? Y
- Will samples remain refrigerated until analyzed? Y
- Did any samples received for analysis have head space? M
- Were samples in appropriate containers and properly packaged? Y

Signature: [Signature] Title: loggin Date: 12/11



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: 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 #: 001-0079 A-B	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)
0010079 A-B	Composite AA	130	0.23	2.1	0.73	22
0010080 A-B	Composite BB	32	0.16	0.17	0.13	3.8
0010081 A-B	Composite CC	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	SITE NAME & ADDRESS Unocal - Oakland - 845 - 66th Ave/San Leandro	ANALYSES REQUESTED	TURN AROUND TIME: 24 Hrs Priority - needed by 5:00 pm 1/3/89
WITNESSING AGENCY			

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	NO. OF COMP	CONT.	SAMPLING LOCATION	TPH-G	BTXE					REMARKS
CompAA	1/2/29		✓			✓	2	Stockpile	✓	✓					0010079 AB ↓ 80 ↓
CompBB	1/2/29		✓			✓	2	Stockpile	✓	✓					
CompCC	1/2/29		✓			✓	2	Stockpile	✓	✓					

Relinquished by: (Signature) Hagop Kework	Date/Time 1/3/90 9:4	Received by: (Signature) Tom M. Fair
Relinquished by: (Signature) Tom M. Fair	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time 1/3/90 11:55 am	Received by: (Signature) Brenda Ohri

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

- Have all samples received for analysis been stored in ice?
yes
- Will samples remain refrigerated until analyzed?
yes
- Did any samples received for analysis have head space?
no
- Were samples in appropriate containers and properly packaged?
yes

Signature: ESD Title: loggin Date: 1/3



SEQUOIA ANALYTICAL

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

Kapreallan Engineering, Inc. P.O. Box 996 Benicia, CA 94510 Attention: Mardo Kapreallan, P.E.	Client Project ID: Unocal, Oakland, 66th/San Leandro Matrix Descript: Soil Analysis Method: EPA 5030/8015/8020 First Sample #: 001-1126 A-B	Sampled: Jan 10, 1990 Received: Jan 11, 1990 Analyzed: Jan 11, 1990 Reported: Jan 12, 1990
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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)
0011126 A-B	Composite DD	130	0.060	4.7	6.6	42
0011127 A-B	Composite EE	7.6	N.D.	N.D.	0.10	0.67

Detection Limits:	1.0	0.05	0.1	0.1	0.1
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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

11126.KEI <1>



KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER HAGOP		SITE NAME & ADDRESS Unocal - Oakland - 66th / San Leandro				ANALYSES REQUESTED TPH - BTX //			TURN AROUND TIME: 24 hrs
WITNESSING AGENCY									REMARKS 0011126, 27A-B
SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	
CompDD1	1/10/9d		✓			✓	2	Stockpile	
CompEE1	1/10/9d		✓			✓	2	Stockpile	

Relinquished by: (Signature) Hagop Kevork	Date/Time 1/10/5:15	Received by: (Signature) Walter Mognan
Relinquished by: (Signature) Walter Mognan	Date/Time 1-10 19:15	Received by: (Signature) Ed H...
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:

- Have all samples received for analysis been stored in ice?
- Will samples remain refrigerated until analyzed?
- Did any samples received for analysis have head space? **NO**
- Were samples in appropriate containers and properly packaged?

Signature: CH Title: analyst Date: 1-10