

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

> KEI-J88-1203.R12 June 10, 1991

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

Attention: Rick Sisk

RE: Stockpiled Soil Sampling for

Unocal Service Station #3135

845 - 66th Avenue Oakland, California

Dear Mr. Sisk:

RECEIVED

9:18 am, May 14, 2009

Alameda County Environmental Health

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 May 21, 1991, soil samples were collected from approximately 250 cubic yards of stockpiled soil excavated from the fuel tank pit and the pump island area to determine proper disposal of the soil. Five composite soil samples (designated as Comp T, Comp U, Comp V, Comp W and Comp X) were taken. Each composite sample consisted of four individual grab samples taken at various locations and at depths of approximately 2 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. All samples were analyzed at Sequoia Analytical Laboratory in Concord, California, and were accompanied by properly executed Chain of Custody documentation. Sample point locations are as shown on the attached Site Plan, Figure 1.

On May 23, 1991, Kaprealian Engineering, Inc. (KEI) returned to collect soil samples from approximately 200 cubic yards of additional stockpiled soil excavated from the fuel tank pit and the pump island area. Four composite samples (designated as Comp Y, Comp Z, Comp AA and Comp BB) were collected and stored as described above. Sample point locations are as shown on the attached Site Plan, Figure 2.

On May 28, 1991, KEI again returned to collect soil samples from approximately 700 cubic yards of stockpiled soil additionally excavated from the fuel tank pit and the pump island area. Fourteen composite soil samples (designated as Comp CC through

KEI-J88-1203.R12 June 10, 1991 Page 2

Comp PP) were collected and stored as described above. Sample point locations are as shown of the attached Site Plan, Figure 3.

On June 4, 1991, soil samples from approximately 50 cubic yards of aerated stockpiled soil (previously sampled as Comp X) were taken. One composite soil sample (designated as Comp 18) was collected and stored as described above. Sample point locations are as shown on the attached Site Plan, Figure 4.

Soil samples were analyzed to determine concentrations of total petroleum hydrocarbons (TPH) as gasoline using EPA method 5030 in conjunction with modified 8015; benzene, toluene, xylenes and ethylbenzene using EPA method 8020; TPH as diesel using EPA method 3550 in conjunction with modified 8015; and total oil and grease (TOG) using Standard Method 5520E&F.

Analytical results of the soil samples (Comp T through Comp W, Comp Y, Comp Z and Comp AA through Comp PP) indicate levels of TPH as gasoline ranging from 1.9 ppm to 88 ppm. However, the analytical result of the soil sample (Comp X) indicates a level of TPH as gasoline at 370 ppm. After aeration of soil previously sampled as Comp X, the analytical result of the soil sample (Comp 18) indicates a level of TPH as gasoline at 4.4 ppm.

Analytical results of the soil samples (Comp T through Comp Z and Comp AA through Comp PP) indicate levels of TPH as diesel ranging from 2.0 ppm to 120 ppm and levels of TOG ranging from non-detectable to 540 ppm, except for Comp U with a level of TOG at 1,200 ppm. Results of the soil analyses are summarized in Table 1. Copies of the laboratory analyses, and the Chain of Custody documentation are attached to this report.

Based on the analytical results of the soil samples, approximately 1,100 cubic yards of stockpiled soil, represented by samples Comp T, Comp V, Comp W, Comp Y, Comp Z, Comp AA through Comp PP and Comp 18, were disposed of at BFI Waste Systems in Livermore, California, an approved Class III disposal site, by Paradiso Construction. However, prior to loading and off-hauling of the stockpiled soil, KEI recommended than when obvious isolated high contamination is detected within the stockpiled soil, that portion of the soil be separately stockpiled for further treatment and sampling.

Based on the high levels of TOG, approximately 50 cubic yards of stockpiled soil, represented by Comp U, were disposed of at Laidlaw Environmental Services, and approved Class II disposal site, by Dillard Trucking.

KEI-J88-1203.R12 June 10, 1991 Page 3

DISTRIBUTION

A copy of this report should be sent to Ms. Cynthia Chapman of the Alameda County Health Agency, and to the Regional Water Quality Control Board, San Francisco Bay Region.

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

Sincerely,

Kaprealian Engineering, Inc.

Kristin B. Mascarenas

\kbm

Attachments: Table 1

Site Plans - Figures 1 through 4

Laboratory Results

Chain of Custody documentation

KEI-J88-1203.R12 June 10, 1991

TABLE 1
SUMMARY OF LABORATORY ANALYSES

(Collected on May 21, 23, 28 and June 4, 1991)

<u>Sample</u>	TPH as <u>Diesel</u>	TPH as <u>Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	Xylenes	Ethyl- benzene	TOG
Comp T	9.1	4.4	ND	0.018	0.061	ND	450
Comp U	37	58	0.084	0.12	0.97	0.07 1	,200
Comp V	8.4	72	0.15	0.86	5.8	0.91	450
Comp W	15	88	0.33	1.1	5.7	1.0	540
Comp X	17	370	2.1	16	38	8.2	300
Comp Y	40	1.9	ND	ND	0.10	0.013	ND
Comp Z	15	19	0.39	0.22	1.8	0.33	ND
Comp AA	120	27	0.073	0.23	1.9	0.40	ND
Comp BB	45	26	0.11	0.35	2.0	0.46	ND
Comp CC	2.2	4.2	ND	0.025	0.053	0.018	210
Comp DD	2.0	3.0	ND	ND	0.022	ND	100
Comp EE		4.0	ND	0.028	0.076	0.024	260
Comp FF		16	0.062	0.056	0.68	0.12	240
Comp GG		52	0.10	0.50	3.3	0.49	430
Comp HH		14	0.044	0.052	0.33	0.094	260
Comp II		19	ND	ND	0.064	0.053	230
Comp JJ		5.4	ND	0.23	0.13	0.047	370
Comp KK		2.4	ND	ИD	0.023	ND	300
Comp LL		37	0.091	0.11	1.4	0.28	110
Comp MM		30	0.011	0.054	0.32	0.14	200
Comp NN		32	0.024	0.054	0.050	0.062	190
Comp 00	20	44	0.089	0.092	0.74	0.34	210
Comp PP	24	33	0.054	0.094	0.49	0.12	280
Comp 18		4.4	ND	ND	ND	ND	
D-442							
Detecti Limits	on 1.0	1.0	0.0050	0.0050	0.0050	0.0050	30
TIMITO	1.0	1.0	0.0000	0.0000	0.0000	0.0050	20

ND = Non-detectable.

-- Indicates analysis not performed.

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





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

Kaprealian Engineering, Inc.

Attention: Mardo Kaprealian, P.E.

P.O. Box 996 Benicia, CA 94510 Client Project ID: Matrix Descript:

Analysis Method:

First Sample #:

Unocal, 845 66th Ave., Oakland

Soil

EPA 5030/8015/8020 105-0710 A-D Sampled: Received: May 21, 1991 May 21, 1991

Analyzed: Reported: May 21, 1991 May 24, 1991

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

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
105-0710 A-D	Comp T	4.4	N.D.	0.018	N.D.	0.061
105-0711 A-D	Comp U	58	0.084	0.12	0.070	0.97
105-0712 A-D	Comp V	72	0.15	0.86	0.91	5.8
105-0713 A-D	Comp W	88	0.33	1.1	1.0	5.7
105-0714 A-D	Comp X	370	2.1	16	8.2	38

Detection Limits:	1.0	0.0050	0.0050	0.0050	0.0050
					İ

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

SEQUOIA ANALYTICAL

Belinda C. Vega Laboratory Director





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

Kaprealian Engineering, Inc.

Client Project ID: Unocal, 845 66th Ave., Oakland

P.O. Box 996

Sample Descript.: Matrix Blank

Benicia, CA 94510

Analysis Method: EPA 5030/8015/8020

Attention: Mardo Kaprealian, P.E.

Q.C. Sample Grou 1050710-14

Analyzed:

May 21, 1991

Reported: May 24, 1991

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

Analyte	Detection Limit mg/kg (ppm)		Sample Results mg/kg (ppm)
Low to Medium Boiling Point Hydrocarbons	1.0	*****************************	N.D.
Benzene	0.0050	***************************************	N.D.
Toluene	0.0050	***********	N.D.
Ethyl Benzene	0.0050	*******************************	N.D.
Xylenes	0.0050	***************************************	N.D.

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

SEQUOIA ANALYTICAL

Belinda C. Vega **Laboratory Director**



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Kaprealian Engineering, Inc.

Client Project ID: Unocal, 845 66th Ave., Oakland

P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E. QC Sample Group: 1050710-14

Reported: May 24, 1991

QUALITY CONTROL DATA REPORT

ANALYTE			Ethyl	
	Benzene	Toluene	Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	K. L./J.F.	K. L./J.F.	K. L./J.F.	K. L./J.F.
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	May 21, 1991	May 21, 1991	May 21, 1991	
QC Sample #:	105-0518	105-0518	105-0518	105-0518
Sample Conc.:	0.024	N.D.	N.D.	N.D.
Spike Conc.				
Added:	0.40	0.40	0.40	1.2
Addog.	0.40	0.40	0.40	1.2
Conc. Matrix				
Spike:	0.38	0.34	0.36	1.1
Matrix Spike				
% Recovery:	89	8 5	90	92
Conc. Matrix				
Spike Dup.:	0.36	0.34	0.34	1.0
Matrix Spike				
Duplicate				
% Recovery:	84	85	85	83
Relative				
% Difference:	5.4	0	5.7	9.5

SEQUOIA ANALYTICAL

Belinda C. Vega Laboratory Director % Recovery:

Conc. of M.S. - Conc. of Sample x 100

Spike Conc. Added

Relative % Difference:

Conc. of M.S. - Conc. of M.S.D. x 100

(Conc. of M.S. + Conc. of M.S.D.) / 2

1050710.KEI <3>



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Kaprealian Engineering, Inc.

Client Project ID: Unocal, 845 66th Ave., Oakland

P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E.

QC Sample Group: 1050710-14

Reported: May 24, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method: Analyst:

Reporting Units:

Date Analyzed:

Sample #:

EPA8015/8020 K. L./J.F.

mg/kg

May 21, 1991

105-0710

K. L./J.F.

May 21, 1991

EPA8015/8020

mg/kg

105-0711

EPA8015/8020 EPA8015/8020 EPA8015/8020 EPA8015/8020

K. L./J.F. K. L./J.F. mg/kg

mg/kg

105-0713

mg/kg

K. L./J.F.

105-0714

mg/kg May 21, 1991 May 21, 1991 May 21, 1991 May 21, 1991

Blank

K. L./J.F.

Surrogate

% Recovery:

101

88

91

105-0712

100

108

103

SEQUOIA ANALYTICAL

Belinda C. Vega **Laboratory Director** % Recovery:

Conc. of M.S. - Conc. of Sample

Spike Conc. Added

Relative % Difference:

Conc. of M.S. - Conc. of M.S.D.

x 100

x 100

(Conc. of M.S. + Conc. of M.S.D.) / 2

1050710.KEI <4>

SEQUOI ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520

(415) 686-9600 FAX (415) 686-9689 Kaprealian Engineering, Inc. Client Project ID: Unoca Unocal, 845 66th Ave., Oakland

Attention: Mardo Kaprealian, P.E.

P.O. Box 996 Benicia, CA 94510 Matrix Descript:

Analysis Method:

First Sample #:

Soil EPA 3550/8015

105-0710 A-D Sampled:

May 21, 1991

Received: May 21, 1991 May 22, 1991 Extracted:

May 23, 1991 Analyzed: Reported: May 24, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
105-0710 A-D	Comp T	9.1
105-0711 A-D	Comp U	37
105-0712 A-D	Comp V	8.4
105-0713 A-D	Comp W	15
105-0714 A-D	Comp X	17

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 **Laboratory Director**

1050710.KEI <5>



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

Kaprealian Engineering, Inc.

Client Project ID: Unocal, 845 66th Ave., Oakland

P.O. Box 996 Benicia, CA 94510

Attention: Mardo Kaprealian, P.E. QC Sample Group: 1050710-14

Reported: May 24, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	High Boiling Point
	Compounds
	(as Diesel)
Method:	EPA 8015
Analyst:	
Reporting Units:	
Date Analyzed:	May 22, 1991
QC Sample #:	
Sample Conc.:	N.D.
Sample Conc	14.5.
Spike Conc.	
Added:	10
Conc. Matrix	
Spike:	8.1
Matrix Spike	
% Recovery:	81
Conc. Matrix	
Spike Dup.:	7.0
Matrix Spike	
Duplicate	
% Recovery:	70
Dolotivo	
Relative	

SEQUOIA ANALYTICAL

% Difference:

Belinda C. Vega **Laboratory Director**

% Recovery:	Conc. of M.S Conc. of Sample	x 100	
1	Spike Conc. Added		
Relative % Difference:	Conc. of M.S Conc. of M.S.D.	x 100	
<u> </u>	(Conc. of M.S. + Conc. of M.S.D.) /2	,	



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Kaprealian Engineering, Inc.

Attention: Mardo Kaprealian, P.E.

P.O. Box 996

Benicia, CA 94510

Client Project ID: Matrix Descript:

First Sample #:

ID: Unocal, 845 66th Ave., Oakland ot: Matrix Blank

Analysis Method: E

EPA 3550/8015

_....

Sampled: -----

Received: -----

Extracted: May 22, 1991 Analyzed: May 23, 1991

Reported: May 24, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Sample High B.P.

Number Description Hydrocarbons mg/kg (ppm)

----- Matrix Blank 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 Laboratory Director

1050710.KEI <7>



1900 Bates Avenue • Suite LM • Concord, California 94520

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Kaprealian Engineering, Inc.

P.O. Box 996

Benicia, CA 94510

Client Project ID: Matrix Descript:

Unocal, 845 66th Ave., Oakland Soil

Analysis Method: Attention: Mardo Kaprealian, P.E. First Sample #:

SM 5520 E&F (Gravimetric)

105-0710

Sampled: Received:

May 21, 1991 May 21, 1991

Extracted: May 22, 1991 Analyzed: May 23, 1991

Reported: May 24, 1991

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
105-0710 A-D	Comp T	45 0
105-0711 A-D	Comp U	1,200
105-0712 A-D	Comp V	450
105-0713 A-D	Comp W	540
105-0714 A-D	Comp X	300

Detection Limits: 30

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

SEQUOIA ANALYTICAL

Belinda C. Vega **Laboratory Director**

1050710.KEI <8>



Client Project ID: Unocal, 845 66th Ave., Oakland

P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E. QC Sample Group: 1050710-14

Reported: May 24, 1991

QUALITY CONTROL DATA REPORT

ANALYTE

Oil & Grease

Method:

Analyst:

SM 5520 E&F S.L.

Reporting Units:

ppm

Date Analyzed: QC Sample #:

May 23, 1991 BLK052291

Sample Conc.:

N.D.

Spike Conc.

Added:

5,000

Conc. Matrix

Spike:

4,500

Matrix Spike

% Recovery:

90

Conc. Matrix

Spike Dup.:

4,500

Matrix Spike Duplicate

Duplicate % Recovery:

90

Relative

% Difference:

0

SEQUOIA ANALYTICAL

Belinda C. Vega Laboratory Director % Recovery:

Conc. of M.S. - Conc. of Sample

x 100

Spike Conc. Added

Relative % Difference:

Conc. of M.S. - Conc. of M.S.D. (Conc. of M.S. + Conc. of M.S.D.) / 2 x 100

1050710.KEI <9>



KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER	tario	1					ME & ADDRESS	 	1	ANALYS	ES REQU	ESTED	1	1	TURN AROUND TIME:
WITNESSING A	AGENCY	()	-i () 8	,00 341	c (u.) 5	L - 661	Oakland a Ave	9	<u>-</u> 二-1-2		 (b)		 		
SAMPLE ID NO.		TIME	SOIL	 water	GRAB COM	NO.	SAMPLING LOCATION		877	HOLL	10		! 		REHARKS
Comp T Comp U Comp V Comp X	5/2/91 5/2/91 5/2/91 15/2/91		レレン		V	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		V V	レ レ レ		レレン				711 712 713 714
Retinquished	Jech	(cwg(mature)	5	ate/Tim ate/Tim ate/Tim	2:00	Receiv	red by: (Signature) red by: (Signature) red by: (Signature)		for a 1. H 2. W 3. D	nalysi ave al ill sa id any	s: Isampi mples :	es re emain	refri	igerate	the laboratory accepting samples analysis been stored in ice? ad until analyzed? allysis have head space? atainers and properly packaged? 5



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Kaprealian Engineering, Inc.

P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E.

Client Project ID: Matrix Descript:

Unocal, 66th & San Leandro, Oakland

Soil

Analysis Method: First Sample #:

EPA 5030/8015/8020

105-0745 A-D Sampled:

May 23, 1991

Received:

May 24, 1991 May 24, 1991

Analyzed: Reported:

May 28, 1991

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

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
1050745 A-D	Comp Y	1.9	N.D.	N.D.	0.013	0.10
1050746 A-D	Comp Z	19	0.039	0.22	0.33	1.8
1050747 A-D	Comp AA	27	0.073	0.23	0.40	1.9
1050748 A-D	Comp BB	26	0.11	0.35	0.46	2.0

Detection Limits: 1.0 0.0050 0.0050 0.0050 0.0050

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

SEQUOIA ANALYTIÇAL

ulia R. Malerstein roject Manager



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Kaprealian Engineering, Inc.

Client Project ID: Unocal, 66th & San Leandro, Oakland

P.O. Box 996 Benicia, CA 94510

Attention: Mardo Kaprealian, P.E. QC Sample Group: 1050745-748

Reported: May 28, 1991

QUALITY CONTROL DATA REPORT

		Ethyl	
Benzene	Toluene	Benzene	Xylenes
EBA901E /9000	EBA9015 /9020	EPAR015/8020	EP48015/8020
-	•	•	R. Eastman
			ng
GBLK052491	GBLK052491	GBLK052491	GBLK052491
		NB	N.D.
N.D.	N.D.	N.D.	N.D.
100	100	100	300
93	93	94	280
93	93	94	93
55	00	.	
93	93	94	280
ດວ	03	04	93
ઝ ડ	90	34	30
0	0	0	0
	EPA8015/8020 R. Eastman ng May 24, 1991 GBLK052491 N.D. 100 93 93 93	EPA8015/8020 R. Eastman ng May 24, 1991 GBLK052491 N.D. N.D. 100 100 93 93 93 93 93 93	Benzene Toluene Benzene EPA8015/8020 EPA8015/8020 EPA8015/8020 R. Eastman R. Eastman R. Eastman R. Eastman ng ng ng ng ng May 24, 1991 May 24, 1991 May 24, 1991 GBLK052491 GBLK052491 GBLK052491 N.D. N.D. N.D. 100 100 100 93 93 94 93 93 94 93 93 94 93 93 94

Laboratory blank contained the following analytes: None Detected

oject Manager

x 100 % Recovery: Conc. of M.S. - Conc. of Sample Spike Conc. Added

Relative % Difference: Conc. of M.S. - Conc. of M.S.D. x 100

(Conc. of M.S. + Conc. of M.S.D.) / 2

1050745.KEI <2>



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

Kaprealian Engineering, Inc.

Client Project ID: Unocal, 66th & San Leandro, Oakland

P.O. Box 996

Sample Descript.: Matrix Blank

Benicia, CA 94510

Analysis Method: EPA 5030/8015/8020

Attention: Mardo Kaprealian, P.E.

Q.C. Sample Grou 1050745-748

Analyzed:

May 24, 1991

Reported: May 28, 1991

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

Analyte	Detection Limit mg/kg (ppm)		Sample Results mg/kg (ppm)
Low to Medium Boiling Point Hydrocarbons	1.0	***************************************	N.D.
Benzene	0.0050	***************************************	N.D.
Toluene	0.0050	***************************************	N.D.
Ethyl Benzene	0.0050	*************************	N.D.
Xylenes			N.D.

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

SEQUOIA ANALYTICAL

Julia R. Målerstein Project Manager

1050745.KEI <3>



1900 Bates Avenue • Suite LM • Concord, California 94520

(415) 686-9600 • FAX (415) 686-9689 Kaprealian Engineering, Inc. Client Project ID: Unoca

Unocal, 66th & San Leandro, Oakland

Sampled: May 23, 1991

P.O. Box 996 Benicia, CA 94510 Matrix Descript: Analysis Method:

Soil EPA 3550/8015

Received: May 24, 1991 Extracted: May 24, 1991

Attention: Mardo Kaprealian, P.E.

First Sample #:

105-0745

May 24, 1991 Analyzed: Reported: May 28, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
1050745 A-D	Comp Y	40
1050746 A-D	Comp Z	15
1050747 A-D	Comp AA	120
1050748 A-D	Comp BB	45

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

Malerstein Project Manager

1050745.KEI <4>



1900 Bates Avenue • Suite LM • Concord, California 94520

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Kaprealian angineering, Inc.

Client Project ID:

Unocal, 66th & San Leandro, Oakland

P.O. Box 996

Matrix Descript:

Matrix Blank

Benicia, CA 94510

Analysis Method:

EPA 3550/8015

Attention: Mardo Kaprealian, P.E.

Q.C. Sample Grou 105745-748

Extracted:

May 24, 1991

Analyzed:

May 24, 1991

Reported: May 28, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number Sample Description

High B.P. Hydrocarbons

mg/kg

(ppm)

. - - -

Matrix Blank

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

Julia R. Malerstein Project Manager

1050745.KE) <5>



Client Project ID: Unocal, 66th & San Leandro, Oakland

P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E. QC Sample Group: 1050745-748

Reported: May 28, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	
: 	Diesel
Method:	EPA 8015
Analyst:	R. Lee
Reporting Units:	ng
Date Analyzed:	May 24, 1991
QC Sample #:	DBLK052491
Sample Conc.:	N.D.
Spike Conc.	
Added:	900
	-
Onna Matrix	
Conc. Matrix	000
Spike:	630
Matrix Spike	
% Recovery:	70
Conc. Matrix	
Spike Dup.:	660
- b b	
Matrix Spike	
Duplicate	
% Recovery:	73

SEQUOIA ANALYTICAL

Froject Manager

Relative % Difference:

% Recovery:

4.6

Conc. of M.S. - Conc. of Sample

x 100

Spike Conc. Added

Relative % Difference:

Conc. of M.S. - Conc. of M.S.D. (Conc. of M.S. + Conc. of M.S.D.) / 2 x 100



1900 Bates Avenue • Suite LM • Concord, California 94520

(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.

P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E.

Unocal, 66th & San Leandro, Oakland Client Project ID:

Matrix Descript:

Analysis Method:

First Sample #:

SM 5520 E&F (Gravimetric) 105-0745

Soil

Sampled:

May 23, 1991 May 24, 1991

Received: Extracted:

May 24, 1991 Analyzed: May 24, 1991

Reported: May 28, 1991

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
105-0745	Comp Y	N.D.
105-0746	Comp Z	N.D.
105-0747	Comp AA	N.D.
105-0748	Comp BB	N.D.

Detection Limits:

30

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

ject Manager

1050745.KEI <7>



Client Project ID: Unocal, 66th & San Leandro, Oakland

P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E. QC Sample Group: 1050745-48

Reported: May 28, 1991

QUALITY CONTROL DATA REPORT

ANALYTE Oil & Grease Method: SM 5520 E&F Analyst: L. Laikhtman Reporting Units: mg/kg Date Analyzed: May 24, 1991 QC Sample #: BLK052491 Sample Conc.: N.D. Spike Conc. Added: 100 Conc. Matrix Spike: 92

% Recovery:

Matrix Spike

92

Conc. Matrix

Spike Dup.:

96

Matrix Spike Duplicate

% Recovery:

96

Relative

% Difference:

4.3

roject Manager

Relative % Difference:

% Recovery:

Conc. of M.S. - Conc. of Sample

x 100

Spike Conc. Added

Conc. of M.S. - Conc. of M.S.D.

x 100

(Conc. of M.S. + Conc. of M.S.D.) / 2



KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER	2		116	lu		SII O#	re na	ME & ADDRESS	 \		ANALYS			TURN AROUND TIME:		
WITHESSING AN		adis	1 2	6 E	Re	Ja Lang	0	Ferndra	IBM		D		 	<u> </u>	 	244R
SAMPLE ID NO.	DATE	 TIME	SOIL	WATER	GRAB	i	NO. OF	SAMPLING LOCATION	TPHUIBY		1e4-D	 	 	 	 	REMARKŠ
Campy Campy	5-23 -91		1	 		4	4	Former tupl The	1	-	10		 	 	-	1050745 60
Campa	ч	 	1	 	 	4	4	.,	12	-	12		 	 	- 	747
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	 	 	 	 	 	├ 	1 .			 		 	-			
Relinquished Relinquished	1./5	rado	125	ate/Ti	8:40	1	1.[1	ed by: (Signature)		for	analysi	s:				the laboratory accepting samples analysis been stored in ice?
 		· 	İ	ate/fi	<u></u>			ed by: (Signature)	 i							ed until analyzed?
			<u>i</u>	ate/iii		 		ed by: (Signature)			Were so					nalysis have head space? Intainers and properly packaged? Title Date

P.O. Box 996

Benicia, CA 94510 Attention: Mardo Kaprealian, P.E. Client Project ID:

Unocal, 66th & San Leandro, Oakland

Soil

Matrix Descript:
Analysis Method:
First Sample #:

EPA 5030/8015/8020

105-0830 A-D

Sampled:

May 28, 1991

Received: Analyzed:

Reported:

May 29, 1991 May 29, 1991 May 31, 1991

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

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
105-0830 A-D	Comp CC	4.2	N.D.	0.025	0.018	0.053
105-0831 A-D	Comp DD	3.0	N.D.	N.D.	N.D.	0.022
105-0832 A-D	Comp EE	4.0	N.D.	0.028	0.024	0.076
105-0833 A-D	Comp FF	16	0.062	0.056	0.12	0.68
105-0834 A-D	Comp GG	52	0.10	0.50	0.49	3.3
105-0835 A-D	Comp HH	14	0.044	0.052	0.094	0.33
105-0836 A-D	Comp II	19	N.D.	N.D.	0.053	0.064
105-0837 A-D	Comp JJ	5.4	N.D.	0.023	0.047	0.13
105-0838 A-D	Comp KK	2.4	N.D.	N.D.	N.D.	0.023

Detection Limits:	1.0	0.0050	0.0050	0.0050	0.0050	

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

SEQUOIA ANALYTICAL

Julia R. Malerstein Project Manager

Client Project ID:

Unocal, 66th & San Leandro, Oakland

Sampled:

May 28, 1991

P.O. Box 996

Matrix Descript:

Soil

Received:

May 29, 1991 May 29, 1991

Benicia, CA 94510 Attention: Mardo Kaprealian, P.E.

Analysis Method: First Sample #:

EPA 5030/8015/8020 105-0839

Analyzed: Reported:

May 31, 1991

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

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
105-0839 A-D	Comp LL	37	0.091	0.11	0.28	1.4
105-0840 A-D	Comp MM	30	0.011	0.054	0.14	0.32
105-0841 A-D	Comp NN	32	0.024	0.054	0.062	0.050
105-0842 A-D	Comp OO	44	0.089	0.092	0.34	0.74
105-0843 A-D	Comp PP	33	0.054	0.094	0.12	0.49

Detection Limits:	1.0	0.0050	0.0050	0.0050	0.0050	

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

SEQUOIA ANALYTICAL

Ribject Manager

Client Project ID:

Unocal, 66th & San Leandro, Oakland

P.O. Box 996

Sample Descript.: Matrix Blank

Benicia, CA 94510 Attention: Mardo Kaprealian, P.E.

Analysis Method: EPA 5030/8015/8020

Q.C. Sample Grou 1050830-43

Analyzed:

May 29, 1991

Reported:

May 31, 1991

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

Analyte	Detection Limit mg/kg (ppm)		Sample Results mg/kg (ppm)
Low to Medium Boiling Point Hydrocarbons	1.0	***!***********************************	N.D.
Benzene	0.0050	**************************	N.D.
Toluene	0.0050	***************************************	N.D.
Ethyl Benzene	0.0050	***************************************	N.D.
Xylenes	0.0050	***************************************	N.D.

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

SEQUOIA ANALYTICAL

ect Manager

Client Project ID: Unocal, 66th & San Leandro, Oakland

P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E. QC Sample Group: 1050830-43

Reported: May 31, 1991

QUALITY CONTROL DATA REPORT

ANALYTE			Ethyl	
	Benzene	Toluene	Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	•	EPA8015/8020
Analyst:	K.L./J.F.	K.L./J.F.	K.L./J.F.	K.L./J.F.
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	May 29, 1991	May 29, 1991		May 29, 1991
QC Sample #:	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc.				
Added:	0.40	0.40	0.40	1.2
Conc. Matrix				
Spike:	0.40	0.40	0.41	1.2
Matrix Spike				
% Recovery:	100	100	100	100
Conc. Matrix				
Spike Dup.:	0.40	0.41	0.42	1.3
Matrix Spike				
Duplicate				
% Recovery:	100	100	110	110
Relative				
% Difference:	0	2.4	2.4	8.0

SEQUOIA ANALYTICAL

Project Manager

% Recovery:	Conc. of M.S Conc. of Sample	x 100	· - ,.
_	Spike Conc. Added		
Relative % Difference:	Conc. of M.S Conc. of M.S.D.	x 100	
_	(Conc. of M.S. + Conc. of M.S.D.) /2		

1050830.KEI <4>



Client Project ID: Unocal, 66th & San Leandro, Oakland

P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E.

QC Sample Group: 1050830-43

Reported: May 31, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:

Analyst: Reporting Units:

Sample #:

Date Analyzed:

EPA8015/8020 K.L./J.F. mg/kg

May 29, 1991 105-0830

EPA8015/8020

mg/kg May 29, 1991

K.L./J.F.

105-0831

EPA8015/8020 EPA8015/8020 EPA8015/8020 EPA8015/8020

K.L./J.F. K.L./J.F. mg/kg

105-0832

mg/kg

105-0833

K.L./J.F. mg/kg 105-0834

mg/kg May 29, 1991 May 29, 1991 May 29, 1991 May 29, 1991 105-0835

K.L./J.F.

K.L./J.F. mg/kg May 29, 1991

EPA8015/8020

105-0836

Surrogate % Recovery:

100

100

100

96

77

97

97

SEQUOIA ANALYTICAL

Project Manager

% Recovery:

Conc. of M.S. - Conc. of Sample

x 100

Spike Conc. Added

Relative % Difference:

Conc. of M.S. - Conc. of M.S.D.

x 100

(Conc. of M.S. + Conc. of M.S.D.) / 2

1050830.KEI <5>

Client Project ID: Unocal, 66th & San Leandro, Oakland

P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E.

QC Sample Group: 1050830-43

Reported: May 31, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method: Analyst:

Sample #:

Reporting Units:

Date Analyzed:

EPA8015/8020

K.L./J.F. mg/kg May 29, 1991 105-0837

mg/kg May 29, 1991

EPA8015/8020 K.L./J.F.

105-0838

K.L./J.F. mg/kg 105-0839

mg/kg 105-0840

K.L./J.F.

K.L./J.F. mg/kg May 29, 1991 May 29, 1991 May 29, 1991 May 29, 1991

105-0841

EPA8015/8020 EPA8015/8020 EPA8015/8020 EPA8015/8020

K.L./J.F. mg/kg 105-0842 EPA8015/8020 K.L./J.F. mg/kg May 29, 1991 105-0843

Surrogate

% Recovery:

100

100

84

84

91

83

86

SEQUOIA ANALYTICAL

Project Manager

% Recovery:

Conc. of M.S. - Conc. of Sample Spike Conc. Added

x 100

Relative % Difference:

Conc. of M.S. - Conc. of M.S.D.

x 100

(Conc. of M.S. + Conc. of M.S.D.) / 2

1050830.KEI <6>

Client Project ID: Unocal, 66th & San Leandro, Oakland

P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E.

QC Sample Group: 1050830-43

Reported: May 31, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:

EPA8015/8020

Analyst:

K.L./J.F.

Reporting Units:

mg/kg May 29, 1991

Date Analyzed: Sample #:

Blank

Surrogate % Recovery:

96

SEQUOIA ANALYTICAL

Project Manager

% Recovery:

Conc. of M.S. - Conc. of Sample

x 100

Spike Conc. Added

Relative % Difference:

Conc. of M.S. - Conc. of M.S.D.

x 100

(Conc. of M.S. + Conc. of M.S.D.) / 2

1050830.KEI <7>

P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E.

Client Project ID:

Unocal, 66th & San Leandro, Oakland

Matrix Descript:

Soil

Analysis Method: EPA 3550/8015

First Sample #:

105-0830

Sampled:

May 28, 1991

Received: May 29, 1991

May 29, 1991 Extracted:

Analyzed: Reported: May 29, 1991 May 31, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
105-0830 A-D	Comp CC	2.2
105-0831 A-D	Comp DD	2.0
105-0832 A-D	Comp EE	8.9
105-0833 A-D	Comp FF	4.5
105-0834 A-D	Comp GG	12
105-0835 A-D	Comp HH	12
105-0836 A-D	Comp II	81
105-0837 A-D	Comp JJ	17
105-0838 A-D	Comp KK	13

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

roject Manager

Kaprealian Engineering, Inc. Client Project ID: Unocal, 66th & San Leandro, Oakland Sampled: May 28, 1991 P.O. Box 996 Matrix Descript: Received: May 29, 1991 Soil Benicia, CA 94510 Analysis Method: EPA 3550/8015 Extracted: May 29, 1991 May 29, 1991 Attention: Mardo Kaprealian, P.E. First Sample #: 105-0839 A-D Analyzed:

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Reported:

May 31, 1991

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
105-0839 A-D	Comp LL	11
105-0840 A-D	Comp MM	23
105-0841 A-D	Comp NN	20
105-0842 A-D	Comp OO	20
105-0843 A-D	Comp PP	24

|--|

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

Julia R. Malerstein Project Manager



P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E.

Client Project ID:

First Sample #:

Unocal, 66th & San Leandro, Oakland

Matrix Blank

Matrix Descript: Analysis Method:

EPA 3550/8015

Sampled: - - - - -

Received: -----

Extracted: May 29, 1991

Analyzed: Reported:

May 29, 1991 May 31, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number

Sample Description

High B.P. **Hydrocarbons**

mg/kg

(ppm)

Matrix Blank

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.

Julja R. Malerstein Project Manager

1050830.KEI <10>

Client Project ID: Unocal, 66th & San Leandro, Oakland

P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E. QC Sample Group: 1050830-43

Reported:

QUALITY CONTROL DATA REPORT

ANALYTE

Method:

EPA 8015

Analyst:

JRM

Reporting Units:

mg/kg

Date Analyzed:

May 28, 1991

QC Sample #:

BLK052391

Sample Conc.:

N.D.

Spike Conc.

Added:

10

Conc. Matrix

Spike:

7.6

Matrix Spike

% Recovery:

76

Conc. Matrix

Spike Dup.:

6.4

Matrix Spike Duplicate

% Recovery:

64

Relative

% Difference:

17

SEQUOIA ANALYTICAL

ia R. Malerstein Rroject Manager

% Recovery:

Conc. of M.S. - Conc. of Sample

x 100

Spike Conc. Added

Relative % Difference:

Conc. of M.S. - Conc. of M.S.D.

x 100

(Conc. of M.S. + Conc. of M.S.D.) / 2

1050830.KEI <11>

P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E.

Client Project ID:

Matrix Descript:

Analysis Method:

SM 5520 E&F (Gravimetric)

First Sample #:

105-0830 A-D

Unocal, 66th & San Leandro, Oakland

Sampled: Received:

May 28, 1991 May 29, 1991

Extracted: May 29, 1991 Analyzed:

May 29, 1991 May 31, 1991 Reported:

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
105-0830 A-D	Comp CC	210
105-0831 A-D	Comp DD	100
105-0832 A-D	Comp EE	260
105-0833 A-D	Comp FF	240
105-0834 A-D	Comp GG	430
105-0835 A-D	Comp HH	260
105-0836 A-D	Comp II	230
105-0837 A-D	Comp JJ	370
105-0838 A-D	Comp KK	300

Detection Limits:	30

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

SEQUOIA ANALYTICAL

Project Manager



P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E.

Client Project ID:

Unocal, 66th & San Leandro, Oakland

Matrix Descript:

Soil Analysis Method:

SM 5520 E&F (Gravimetric)

First Sample #:

105-0839 A-D Sampled:

May 28, 1991

Received:

May 29, 1991 May 29, 1991

Extracted: Analyzed:

May 29, 1991

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
105-0839 A-D	Comp LL	110
105-0840 A-D	Comp MM	200
105-0841 A-D	Comp NN	190
105-0842 A-D	Comp OO	210
105-0843 A-D	Comp PP	280

Detection Limits:

30

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

SEQUOIA ANALYTICAL

Project Manager

1050830.KEI <14>

Client Project ID: Unocal, 66th & San Leandro, Oakland

P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E. QC Sample Group: 1050830-43

Reported: May 31, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Oil & Grease
Method:	SM 5520 E&F
Analyst:	R. Halsne
Reporting Units:	mg/kg
Date Analyzed:	May 29, 1991
QC Sample #:	Matrix Blank 052991 M
	002331141
Sample Conc.:	N.D.
Spike Conc.	
Added:	5,000
	0,000
Conc. Matrix	4 600
Spike:	4,600
Matrix Spike	
% Recovery:	92
Conc. Matrix	
Spike Dup.:	4,700
•	
Matrix Spike	
Duplicate % Recovery:	94
& necovery:	34

SEQUOIA ANALYTICAL

2.2

Project Manager

Relative % Difference:

> Conc. of M.S. - Conc. of Sample x 100 % Recovery: Spike Conc. Added Conc. of M.S. - Conc. of M.S.D. x 100 Relative % Difference:

(Conc. of M.S. + Conc. of M.S.D.) / 2 1050830.KEI <14>



KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLES . M	Bea	desk	1 6	lus	-ca-		ME & ADDRESS	ANALYSES REQUESTED				TURN AROUND TIME: 24 HR		
WITHESSIN	G AGENCY				ala		135 Landes	PH-44BIVE	Ą					
 SAMPLE ID NO.	•	TIME	 soil	 WATER	GRAB CO	NO. OF	T SAMPLING LOCATION	7-24-6	TPH-D	704		REMARKS		
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Relinquis	shed by: (Signature)	D	ate/Tim	ne	Receiv	ed by: (Signature)	3. Did any samples received for analysis have head space? (A/C) 4. Were samples in appropriate containers and properly packaged?						
Relinquis 	ihed by: (Signature)	D	ate/Tim	ne	Receiv	ed by: (Signature)		! /.!	Signature	DH- an	Series Sate		



KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

	SAMPLER)	Bes	() edeck	10	lus	eal	#31	ME & ADDRESS	 		ANALYS	ES REDI	JESTED		-	TURN AROUND TIME:
	WITNESSING AGENCY		Oakland						þ	φ		}] 		
:	SAMPLE ID NO.	DATE	TIME	sort	 WATER	GRAB CO	NO. OF OMP CONT.	SAMPLING	704-94BW	a-Hot	789	<u> </u> 	; { } }	·		REHARKS
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	Rel incavished	* *	60011	5-29		220	161	yed by: (Signature)	•	for a	nalysi	s:		·		the laboratory accepting samples malysis been stored in ice?
	Rel inquished 	DY: '(51)	gnature)		ate/Ti	ne	Kecel	red by: (Signature)		2. W	ill <u>s</u> g	mples i	ema in	refri	gerate	d until analyzed?
j	Rel inquished	by: (Si	gnature)	D	ate/Ti	ne	Recei	red by: (Signature)		-)				alysis have head space?
	Relinquished	by: (Si	gnature)	0	ate/ī i	ne	Receiv	ved by: (Signature)		YIF	, to	ples PDY sture	in appi	ropria — C	<u>L</u>	itainers and properly packaged?
	'			<u>i </u>												·

P.O. Box 996

Benicia, CA 94510

Analyte

Attention: Mardo Kaprealian, P.E.

Client Project ID:

Sample Descript.:

Analysis Method: Lab Number:

Unocal, 845 - 66th Ave., Oakland

Soil, Comp 18

EPA 5030/8015/8020 106-0027 A-D

Detection Limit

Sampled:

Jun 4, 1991

Received: Analyzed: Jun 4, 1991 Jun 4, 1991

Reported: Jun 5, 1991

Sample Results

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

	mg/kg (ppn	n)	mg/kg (ppm)
Low to Medium Boiling Point Hydrocarbons	1.0	*******************************	4.4
Benzene	0.0050		N.D.
Toluene	0.0050		N.D.
Ethyl Benzene	0.0050		N.D.
Xylenes	0.0050	***************************************	N.D.

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

SEQUOIA ANALYTICAL

Belinda C. Vega Laboratory Director Please Note:

The above samples do not appear to contain gasoline.

1060027.KEI <1>

Client Project ID:

Unocal, 845 - 66th Ave., Oakland

P.O. Box 996

Sample Descript.: Matrix Blank

Benicia, CA 94510

Analysis Method:

EPA 5030/8015/8020

Analyzed:

Jun 4, 1991

Attention: Mardo Kaprealian, P.E.

Q.C. Sample Grou 106-0027

Reported:

Jun 5, 1991

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

Analyte	Detection Limit mg/kg (ppm)		Sample Results mg/kg (ppm)
Low to Medium Boiling Point Hydrocarbons Benzene	1.0 0.0050	***************************************	N.D. N.D.
Toluene	0.0050	***************************************	N.D.
Ethyl Benzene	0.0050 0.0050		N.D. N.D.

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

SEQUOIA ANALYTICAL

Belinda C. Vega **Laboratory Director**

1060027.KEI <2>

Client Project ID: Unocal, 845 - 66th Ave., Oakland

P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E. QC Sample Group: 106-0027

Reported: Jun 5, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	······································		Ethyl		
<u> </u>	Benzene	Toluene	Benzene	Xylenes	
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha	
Reporting Units:	ppm	ppm	ppm	ppm	
Date Analyzed:	Jun 4, 1991	Jun 4, 1991	Jun 4, 1991	Jun 4, 1991	
QC Sample #:	Matrix	Matrix	Matrix	Matrix	
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	
Spike Conc.					
Added:	0.40	0.40	0.40	1.2	
Conc. Matrix					
Spike:	0.41	0.42	0.47	1.4	
- •					
Matrix Spike					
% Recovery:	100	100	120	120	
,	.00		,20	,20	
On a Market					
Conc. Matrix Spike Dup.:	0.42	0.43	0.48	1.5	
Spike Dup.:	U. 4 2	U.43	U. 40	1.5	
Matrix Spike					
Duplicate					
% Recovery:	100	110	120	120	
Relative					
% Difference:	2.4	2.3	2.1	6.9	

SEQUOIA ANALYTICAL

Belinda C. Vega Laboratory Director

% Recovery:	Conc. of M.S Conc. of Sample	x 100		
_	Spike Conc. Added	•		
Relative % Difference:	Conc. of M.S Conc. of M.S.D.	x 100		
_	(Conc. of M.S. + Conc. of M.S.D.) / 2	•		

1060027.KE! <3>



Client Project ID: Unocal, 845 - 66th Ave., Oakland

P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E.

QC Sample Group: 106-0027

Reported: Jun 5, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:

EPA8015/8020

EPA8015/8020

Analyst:

J. Fontecha

J. Fontecha

Reporting Units:

ppm Jun 4, 1991 ppm

Date Analyzed: Sample #:

106-0027

Jun 4, 1991 Blank

Surrogate

% Recovery:

100

100

SEQUOIA ANALYTICAL

Belinda C. Vega Laboratory Director % Recovery:

Conc. of M.S. - Conc. of Sample Spike Conc. Added x 100

Relative % Difference:

Conc. of M.S. - Conc. of M.S.D.

x 100

(Conc. of M.S. + Conc. of M.S.D.) / 2

1060027.KEI <4>



KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER Haud						SITE HAME & ADDRESS			, , , , , , , , , , , , , , , , , , , 	LYSES REG	OUESTED	TURN AROUND TIME:		
WITHESSING AGENCY				Unocal - Oakland 845 - 66th Ave					1-6-	世	1		 	
SAMPLE ID NO.	 DATE	TIME	SOIL	 WATER	 GRAB	 COMP	NO. OF	SAMPLING LOCATION	1	留下	 	1		REHARKS
Comp18	6/4/91		~	 	 	1	4	Aerated soil	1		- 	 - 	 	1060027A-1
				 	 		 		 	 	1	 	 	
 			 	 	 	 	 		- 	 		 	 	-
 	 	 - 	 	 	 	 	 		 - - 		 - -	 - 		
 	 	 	 	 	 	 	 		<u> </u> 	 	<u> </u>	<u> </u> 	 	
Relifiquished by (Signature) Date/Time Received by (Signature) Act of Color Color						 	The following MUST 8E completed by the laboratory accepting samp for analysis: 1. Have all samples received for analysis been stored in ice?							
Relinquished by: (Signature) Date/Time				'	Receiv	ed by: (Signature)	!	2. Will samples remain refrigerated until analyzed?						
Relinquished by: (Signature) Date/Time					Received by: (Signature)			3. Did any samples received for analysis have head space?						
Relinquished by: (Signature) Date/Time 				† 	Receiv	ed by: (Signature)		4. Were samples in appropriate containers and properly packaged? 1						