



KAPREALIAN ENGINEERING, INC.
Consulting Engineers

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

May 10, 1991

Alameda County Health Care Services
80 Swan Way, Room 200
Oakland, CA 94621

Attention: Mr. Larry Seto

RE: Unocal Service Station #6129
3420 - 35th Avenue
Oakland, California

Dear Mr. Seto:

Per the request of Mr. Ron Bock of Unocal Corporation, enclosed please find our report dated May 8, 1991, for the above referenced site.

Should you have any questions, please feel free to call our office at (707) 746-6915.

Sincerely,

Kaprealian Engineering, Inc.

Judy A. Dewey

jad\82

Enclosure

cc: Ron Bock, Unocal Corporation

19:01W 81 LVH 16



KAPREALIAN ENGINEERING, INC.

Consulting Engineers

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(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581

KEI-J89-0902.R8

May 8, 1991

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

Attention: Mr. Ron Bock

RE: Stockpiled Soil Sampling for
Unocal Service Station #6129
3420 - 35th Avenue
Oakland, California

Dear Mr. Bock:

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 April 9, 1991, samples were collected from approximately 200 cubic yards of stockpiled soil excavated from the area surrounding on-site monitoring well MW3 to determine proper disposal of the soil. Four composite soil samples (designated as Comp E-1, Comp E-2, Comp E-3, and Comp E-4) 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 April 25, 1991, soil samples from approximately 50 cubic yards of aerated stockpiled soil (previously sampled as Comp E-3). One composite soil sample (designated as Comp 1) was collected and stored as described above. Sample point locations are as shown on the attached Site Plan, Figure 2.

Soil 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 using EPA method 8020. In addition, sample Comp E-3 was analyzed for organic lead using the DHS LUFT method. Analytical results of the soil samples (Comp E-1, Comp E-2 and Comp E-4)

indicate levels of TPH as gasoline ranging from 14 ppm to 40 ppm. However, analytical results of the soil samples (Comp E-3) indicate a level of TPH as gasoline at 110 ppm. After aeration of soil represented by Comp E-3, the soil was resampled as Comp 1 and analytical results indicate a level of TPH as gasoline at 3.6 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 200 cubic yards of stockpiled soil, represented by samples Comp E-1, Comp E-2, Comp E-4 and Comp 1, were disposed of at Redwood Landfill in Novato, California, an approved Class III disposal site, by Paradiso Construction. However, prior to loading and off-hauling of the stockpiled soil, KEI recommended that when obvious isolated high contamination is detected within the stockpiled soil, that portion of the soil be separately stockpiled for further treatment and sampling.

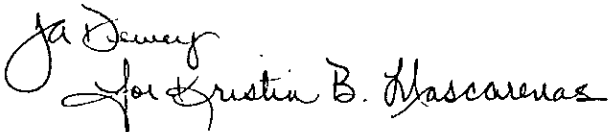
DISTRIBUTION

A copy of this report should be sent to Mr. Lawrence Seto 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

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Attachments: Table 1
Site Plans - Figures 1 & 2
Laboratory Results
Chain of Custody documentation

KEI-J89-0902.R8
May 8, 1991

TABLE 1
SUMMARY OF LABORATORY ANALYSES
(Collected on April 9 & 25, 1991)

<u>Sample</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethylbenzene</u>
Comp E-1	30	ND	0.044	0.74	0.050
Comp E-2	14	ND	0.032	0.65	0.040
Comp E-3*	110	0.41	0.56	2.2	0.46
Comp E-4	40	0.14	ND	0.94	0.080
Comp 1	3.6	ND	ND	ND	ND
Detection Limits	1.0	0.0050	0.0050	0.0050	0.0050

* Organic lead was non-detectable.

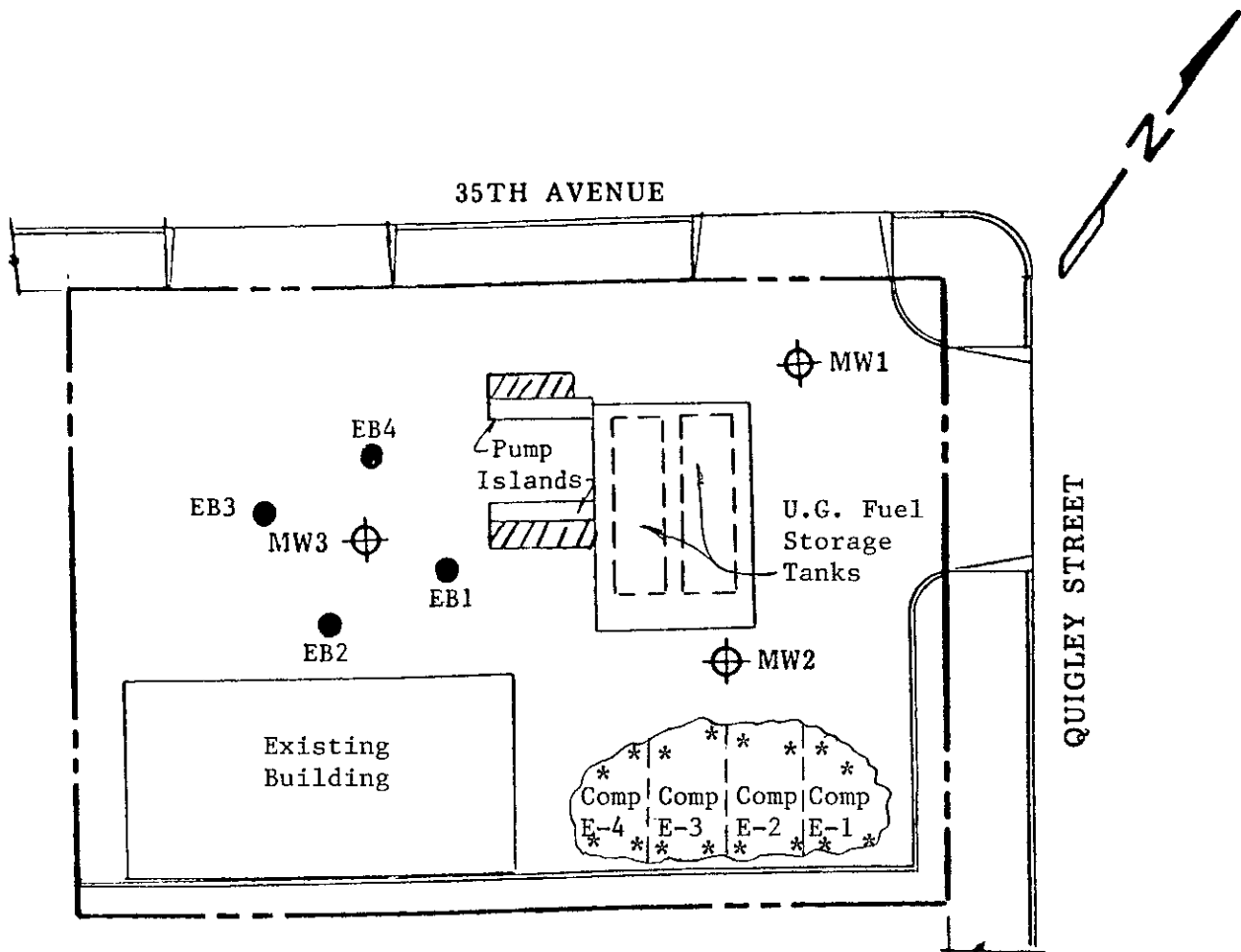
ND = Non-detectable.

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

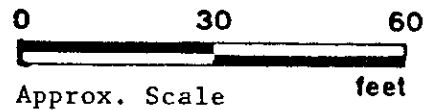


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SITE PLAN
Figure 1



LEGEND

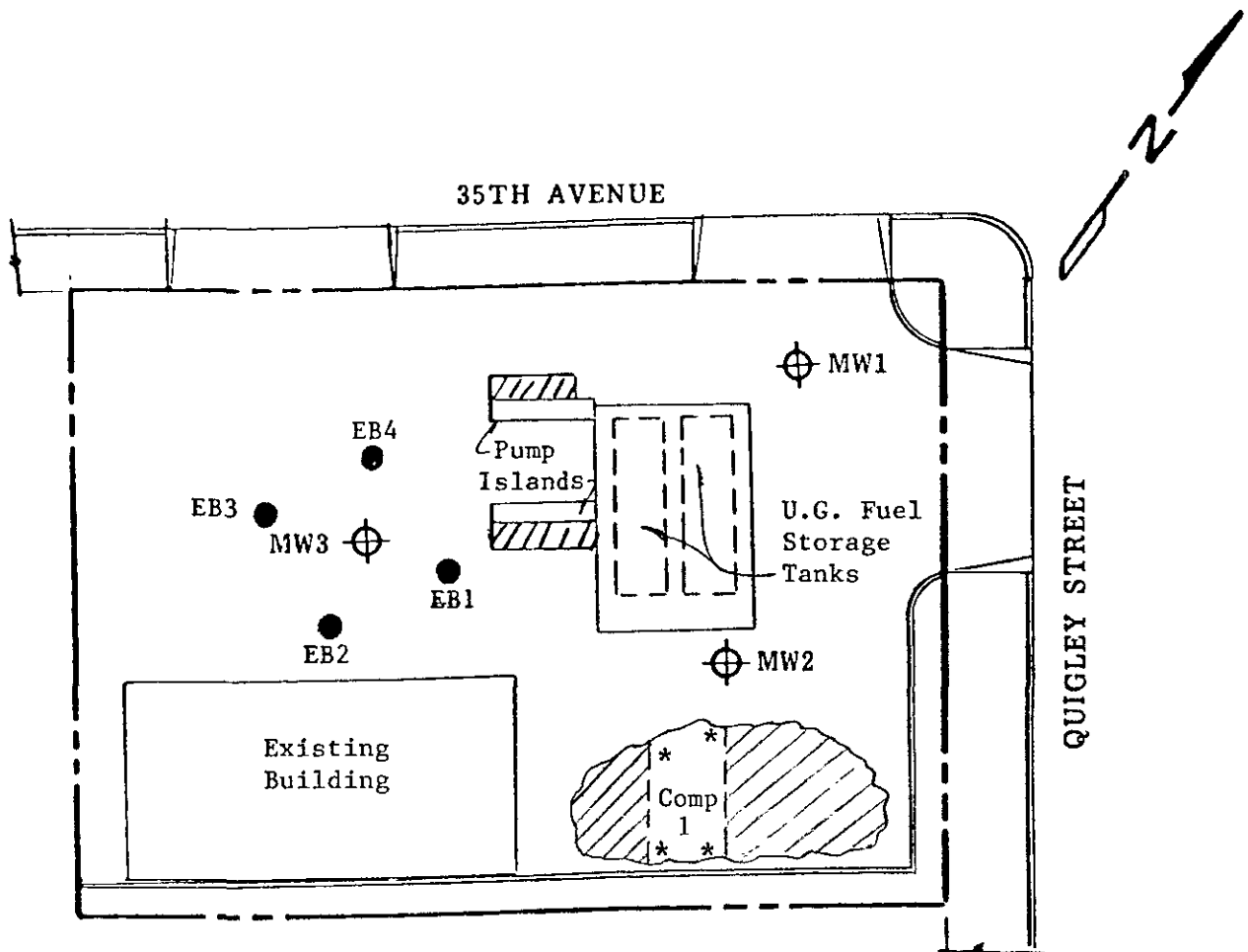
- Exploratory Boring
- ⊕ Monitoring Well
- * Sample Point Location

Unocal Service Station #6129
3420 - 35th Avenue
Oakland, California

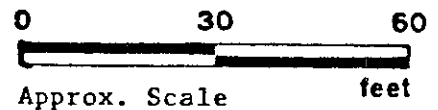


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SITE PLAN
Figure 2



LEGEND

- Exploratory Boring
- ⊕ Monitoring Well
- * Sample Point Location
- ▨ Previously sampled soil

Unocal Service Station #6129
3420 - 35th Avenue
Oakland, California



SEQUOIA ANALYTICAL

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.

Client Project ID: Unocal3420 35th Ave., Oakland

Matrix Descript: Soil

Analysis Method: EPA 5030/8015/8020

First Sample #: 104-0285 A-D

Sampled: Apr 9, 1991

Received: Apr 10, 1991

Analyzed: Apr 10, 1991

Reported: Apr 11, 1991

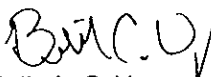
TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

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)
104-0285 A-D	Comp E-1	30	N.D.	0.044	0.050	0.74
104-0286 A-D	Comp E-2	14	N.D.	0.032	0.040	0.65
104-0287 A-D	Comp E-3	110	0.41	0.56	0.46	2.2
104-0288 A-D	Comp E-4	40	0.14	N.D.	0.080	0.94

Detection Limits:	1.0	0.0050	0.0050	0.0050	0.0050
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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
Laboratory Director



SEQUOIA ANALYTICAL

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Kapreallan Engineering, Inc.	Client Project ID: Unocal3420 35th Ave., Oakland	Sampled: -----
P.O. Box 996	Sample Descript.: Matrix Blank	Received: -----
Benicia, CA 94510	Analysis Method: EPA 5030/8015/8020	Analyzed: Apr 10, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number: -----	Reported: Apr 11, 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: Unocal3420 35th Ave., Oakland

P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E. QC Sample Group: 1040285-288

Reported: Apr 11, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	E.H.	E.H.	E.H.	E.H.	E.H.
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Apr 10, 1991	Apr 10, 1991	Apr 10, 1991	Apr 10, 1991	Apr 10, 1991
Sample #:	104-0285	104-0286	104-0287	104-0288	Blank

Surrogate	77	97	96	70	93
% Recovery:					

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Belinda C. Vega
Belinda C. Vega
Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$



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Kaprealian Engineering, Inc.

Client Project ID: Unocal3420 35th Ave., Oakland

P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E. QC Sample Group: 1040285-88

Reported: Apr 11, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
---------	---------	---------	---------------	---------

Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	E.H.	E.H.	E.H.	E.H.
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Apr 10, 1991	Apr 10, 1991	Apr 10, 1991	Apr 10, 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:	0.42	0.39	0.41	1.2
Matrix Spike % Recovery:	110	98	100	100
Conc. Matrix Spike Dup.:	0.42	0.39	0.41	1.2
Matrix Spike Duplicate % Recovery:	110	98	100	100
Relative % Difference:	0	0	0	0

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Belinda C. Vega
Belinda C. Vega
Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

1040285.KEI <4>



KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER <i>Hai'g</i>		SITE NAME & ADDRESS <i>Unocal - Oakland</i>							ANALYSES REQUESTED				TURN AROUND TIME: <i>24 Hrs</i>
WITNESSING AGENCY		<i>3420 - 35th AVE</i>							<input checked="" type="checkbox"/> TPH-C <input checked="" type="checkbox"/> BTXE				REMARKS
SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION					
<i>Comp-E1</i>	<i>4/9/91</i>		<input checked="" type="checkbox"/>				<i>4</i>	<i>STOCKPILE</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<i>10402.85 A-D</i>
<i>Comp-E2</i>	<i>4/9/91</i>		<input checked="" type="checkbox"/>				<i>4</i>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<i>286</i>
<i>Comp-E3</i>	<i>4/9/91</i>		<input checked="" type="checkbox"/>				<i>4</i>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<i>287</i>
<i>Comp-E4</i>	<i>4/9/91</i>		<input checked="" type="checkbox"/>				<i>4</i>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<i>288</i>

Relinquished by: (Signature) <i>Hai'g</i>	Date/Time <i>4/10/91 10:35</i>	Received by: (Signature) <i>[Signature]</i>	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? <i>NO</i> 4. Were samples in appropriate containers and properly packaged? _____
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	
		<i>[Signature]</i>	Signature
		<i>[Signature]</i>	Title
		<i>4/10</i>	Date



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(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID: Unocal, 3420 35th Ave., Oakland	Sampled: Apr 25, 1991
P.O. Box 996	Sample Descript.: Soil, Comp 1	Received: Apr 25, 1991
Benicia, CA 94510	Analysis Method: EPA 5030/8015/8020	Analyzed: Apr 25, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number: 104-0828 A-D	Reported: Apr 26, 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	3.6
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.

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Belinda C. Vega
Laboratory Director



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Kaprealian Engineering, Inc.
P.O. Box 996
Benicia, CA 94510
Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal, 3420 35th Ave., Oakland
Sample Descript.: Matrix Blank
Analysis Method: EPA 5030/8015/8020
Q.C. Sample Grou 104-0828 A-D

Analyzed: Apr 25, 1991
Reported: Apr 26, 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.

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Belinda C. Vega
Laboratory Director



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Kaprealian Engineering, Inc.

Client Project ID: Unocal, 3420 35th Ave., Oakland

P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E. QC Sample Group: 104-0828 A-D

Reported: Apr 26, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020
Analyst:	J.F.	J.F.
Reporting Units:	mg/kg	mg/kg
Date Analyzed:	Apr 25, 1991	Apr 25, 1991
Sample #:	104-0828	Blank

Surrogate		
% Recovery:	95	100

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Belinda C. Vega
Belinda C. Vega
Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$



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Kaprealian Engineering, Inc.

Client Project ID: Unocal, 3420 35th Ave., Oakland

P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E. QC Sample Group: 104-0828 A-D

Reported: Apr 26, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
---------	---------	---------	---------------	---------

Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Apr 25, 1991	Apr 25, 1991	Apr 25, 1991	Apr 25, 1991
QC Sample #:	104-0801	104-0801	104-0801	104-0801
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.40	0.40	0.40	1.2
Conc. Matrix Spike:	0.44	0.40	0.38	1.2
Matrix Spike % Recovery:	110	100	95	100
Conc. Matrix Spike Dup.:	0.42	0.40	0.38	1.2
Matrix Spike Duplicate % Recovery:	110	100	95	100
Relative % Difference:	4.6	0	0	0

SEQUOIA ANALYTICAL

Belinda C. Vega
Belinda C. Vega
Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

1040828.KEI <4>



KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER <i>TOM</i> <i>MASCARONAS</i>		SITE NAME & ADDRESS <i>UNOCAL - Oakland #6129</i>					ANALYSES REQUESTED			TURN AROUND TIME: <i>24 hrs.</i>
WITNESSING AGENCY		<i>3420 35th AVE</i>					<i>IRK-6</i> <i>BTEX</i>			REMARKS
SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP				
<i>Comp 1</i>	<i>4-25-91</i>		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<i>4</i>	<i>Exploratory Borings</i> <i>STKPL.</i>	<i>IRK-6</i> <i>BTEX</i>	<i>Please Fax Results.</i>
Relinquished by: (Signature) <i>Tom Mascaronas</i>	Date/Time <i>12:40</i>	Received by: (Signature) <i>[Signature]</i>		The following MUST BE completed by the laboratory accepting samples for analysis: 1. Have all samples received for analysis been stored in ice? <input checked="" type="checkbox"/> <i>Yes</i> 2. Will samples remain refrigerated until analyzed? <input checked="" type="checkbox"/> <i>Yes</i> 3. Did any samples received for analysis have head space? <input checked="" type="checkbox"/> <i>NO</i> 4. Were samples in appropriate containers and properly packaged? <input checked="" type="checkbox"/> <i>Yes</i>						
Relinquished by: (Signature)	Date/Time	Received by: (Signature)								
Relinquished by: (Signature)	Date/Time	Received by: (Signature)								
Relinquished by: (Signature)	Date/Time	Received by: (Signature)								
Signature <i>[Signature]</i>		Title <i>Manager</i>		Date <i>4/25/91</i>						



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Kaprealian Engineering, Inc.
P.O. Box 996
Benicia, CA 94510
Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal, 3420 35th Ave., Oakland
Sample Descript: Soil
Analysis Method: California LUFT Manual, 12/87
First Sample #: 104-0287 A-D

Sampled: Apr 9, 1991
Received: Apr 11, 1991
Extracted: Apr 12, 1991
Analyzed: Apr 12, 1991
Reported: Apr 15, 1991

ORGANIC LEAD

Sample Number	Sample Description	Sample Results mg/kg (ppm)
104-0287 A-D	Comp E-3	N.D.

Detection Limits: 0.050

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

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

1040287.KEI <1>



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

Kaprealian Engineering, Inc.

Client Project ID: Unocal, 3420 35th Ave., Oakland

P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E. QC Sample Group: 104-0287

Reported: Apr 15, 1991

QUALITY CONTROL DATA REPORT

ANALYTE

Organic Lead

Method: HML Draft
Analyst: N. Herrera
Reporting Units: mg/L
Date Analyzed: Apr 12, 1991
QC Sample #: 104-0287

Sample Conc.: N.D.

Spike Conc.
Added: 0.020

Conc. Matrix
Spike: 0.016

Matrix Spike
% Recovery: 80

Conc. Matrix
Spike Dup.: 0.018

Matrix Spike
Duplicate
% Recovery: 90

Relative
% Difference: 12

SEQUOIA ANALYTICAL

Belinda C. Vega
Belinda C. Vega
Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$



KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

COLLECTOR Harig		SITE NAME & ADDRESS Unocal - Oakland 3420 - 35th Ave					ANALYSES REQUESTED TPH-C BTXE			TURN AROUND TIME: 24 Hrs
TESTING AGENCY										REMARKS 1040285 A-D 286 287 288
SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION		
Sp-E1	4/9/91		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	4	STOCKPILE		
Sp-E2	4/9/91		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	4	↓		
Sp-E3	4/9/91		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	4	↓		
Sp-E4	4/9/91		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	4	↓		

Relinquished by: (Signature) Harig	Date/Time 4/10/91 10:55	Received by: (Signature) [Signature]
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received by: (Signature)

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

- 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? **N/D**
- Were samples in appropriate containers and properly packaged?

Signature: **[Signature]** Title: **SR** Date: **4/11/91**