



KAPREALIAN ENGINEERING, INC.

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

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9:54 am, Jun 09, 2009

Alameda County
Environmental Health

KEI-J89-0111.R2
March 1, 1989

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

Attention: Mr. Tim Ross

RE: Final Soil and Water Sampling Report
Unocal Service Station #5487
28250 Hesperian Blvd.
Hayward, 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), the City of Hayward Fire Department and the Alameda County Health Department.

The scope of the work performed by KEI consisted of the following:

Coordination with regulatory agencies.

Collection of samples of native soil from the sidewalls of the fuel storage tank pit.

Collection of samples of native soil from the bottom and sidewalls of the waste oil tank pit.

Collection of water samples from the tank pits.

Collection of stockpiled soil samples.

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

Technical review and preparation of this report.

SITE DESCRIPTION AND BACKGROUND

The subject site is presently used as a gasoline station.

FIELD ACTIVITIES

KEI's field work began on January 30, 1989. Three underground storage tanks were removed from the site. The tanks consisted of two 10,000 gallon gasoline storage tanks and one 280 gallon waste oil tank. The two large tanks were made of steel and no apparent holes or cracks were observed. The steel waste oil tank lacked integrity due to corrosion. Tank removal and soil sampling were performed in the presence of Mr. Mark Bowman and Mr. Hugh Murphy of the Hayward Fire Department.

Water was encountered in the fuel tank pit at a depth of 10.5 feet, thus prohibiting the collection of any soil samples from immediately beneath the tanks. Ten soil samples labeled SW-1, SW-2, SW-2A, SW-3, SW-3A, SW-4, SW-5, SW-5A, SW-6 and SW-6A were collected from the sidewalls of the fuel tank pit at a depth approximately six inches above the water table. The samples SW-2A, SW-3A, SW-5A and SW-6A were collected from the sidewalls after additional excavation (see Site Plan, Sketch 1). One sample, labeled WO-1, was collected of native soil from beneath the waste oil tank at a depth of nine feet (see Sketch 1). The undisturbed soil samples were collected from bulk material excavated by backhoe. Soil samples were placed in clean, 2" diameter brass tubes, sealed with aluminum foil, plastic caps and tape, and stored in a cooled ice chest for delivery to a state certified laboratory. Samples were analyzed at Sequoia Analytical Laboratory at Redwood City, California, and were accompanied by property executed Chain of Custody documentation. After the soil sampling was completed, approximately 2,000 gallons of ground water were pumped from the fuel tank pit.

On February 1, 1989, the waste oil tank pit was excavated laterally on all sides. The side nearest the existing building was excavated approximately one foot laterally while the other three sides were excavated approximately ten feet laterally each. The pit was excavated to approximately 21 feet by 29 feet. Four sidewall samples (labeled SW-A, SW-B, SW-C and SW-D) were collected (see attached Sketch 2). In addition, three soil samples were collected from the pipe trenches (labeled P1, P2 and P3) also shown on Sketch 2.

Also, February 1, 1989, soil samples from approximately 350 cubic yards of stockpiled soil at the referenced site were collected to determine proper disposal of the stockpile. Seven composite soil samples (designated as Comp A, Comp B, Comp C, Comp D, Comp E, Comp F and Comp G) 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 2" 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 composite samples were also analyzed at Sequoia Analytical Laboratory of Redwood City, California, and were accompanied by properly executed Chain of Custody documentation. Sample locations are as shown on the attached Site Plan, Sketch 3.

On February 14, 1989, in preparation for setting of the new fuel tanks, approximately 17,500 gallons of water were pumped from the fuel tank pit. On this date, after pumping, water samples W-1A and W-1B were collected in clean glass VOA vials with Teflon screw caps. The water samples were also stored as described above.

On February 17, 1989 KEI returned to the site to observe additional excavation of the northeast sidewall of the waste oil tank pit (SW-C) for a distance of approximately three feet. Sample SW-C2 was then collected. Also on this date a water sample (WO-W1) was collected from the waste oil tank pit. The water sample was taken after having pumped 4,500 gallons from the waste oil excavation. Based on the analytical results from SW-C2 (680 ppm TOG), KEI returned to the site on February 24, 1989 to observe excavation of an additional five feet of soil. Soil sample SW-C3 was then collected, again from undisturbed native soil excavated by backhoe. The sample was collected and handled in the same manner as previously collected sidewall samples. The attached Site Plan, Sketch 4, indicates the locations of all waste oil tank pit soil samples taken.

SUBSURFACE CONDITIONS

Subsurface soils exposed in the excavation consisted exclusively of low plasticity clay. Excavated soil was stockpiled on the site.

ANALYTICAL RESULTS

Selected samples from the fuel tank pit were analyzed for total petroleum hydrocarbon (TPH) as gasoline using EPA method 5030 in

conjunction with modified 8015, and benzene, toluene, xylenes and ethylbenzene (BTX&E) using EPA methods 5030 and 8020. Soil samples SW-2, SW-3 and SW-6 were not analyzed because these locations showed subjective evidence of contamination, and therefore were excavated during tank removal (see Sketch 1). Analyses of the selected fuel tank pit soil samples indicate less than 2 ppm of TPH as gasoline for all samples representing the final pit excavation. Note that SW-5, which had 130 ppm of TPH as gasoline, was taken from a sidewall excavated to accommodate the new, higher capacity storage tanks.

Samples from the waste oil tank pit were analyzed for TPH as gasoline, TPH as diesel using EPA method 3550 in conjunction with modified 8015, BTX&E, and total oil and grease (TOG) by 413.1. In addition, sample WO-1 was analyzed for EPA 8010 constituents, EPA 8270 constituents, and metals cadmium, chromium, lead and zinc. Analyses of soil samples collected from the final sidewalls of the waste oil pit, (i.e., SW-A, SW-B, SW-C3 and SW-D) show low residual levels of contamination, indicating that the majority of contaminated soil has been excavated.

All pipe trench and stockpile composite soil samples were analyzed for TPH as gasoline and BTX&E. The analytical results of the samples from the pipe trenches (P1, P2, and P3) show 7.8 to 12 ppm of TPH as gasoline. Analyses of the seven composite samples, labeled Comp A through Comp G, showed TPH as gasoline concentrations ranging from 1.2 to 38 ppm.

Analyses of water samples from the fuel tank pit, W-1A and W-1B, indicate low residual levels of TPH as gasoline and benzene. EPA 601 constituents were non-detectable.

Analyses of the water sample from the waste oil tank pit indicate moderate levels of TPH as gasoline, TPH as diesel, and benzene. TOG and EPA 601 constituents were non-detectable.

All soil sample analytical results are summarized in Table 1. All water sample analytical results are summarized in Table 2. Copies of the laboratory analyses and the Chain of Custody documentation are attached to this report.

RECOMMENDATIONS

After receiving and reviewing analytical results, KEI recommends the following:

1. Disposal of soil excavated from the waste oil tank pit at a Class I landfill.

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2. Aeration and disposal of soil excavated from the fuel tank pit and piping trenches at a Class III landfill.
3. Installation of five monitoring wells to determine the ground water flow direction, and to begin to define the extent of the contamination.

A copy of this report should be sent to the Alameda County Department of Environmental Health, Mr. Hugh Murphy of the Hayward Fire Department, and to the RWQCB, San Francisco Bay Region.

LIMITATIONS

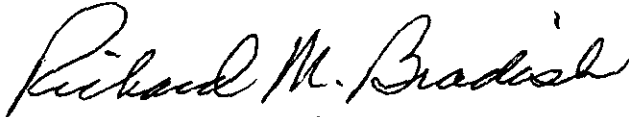
The results of this study are based on the data obtained from the field and laboratory investigations. We have analyzed this data using what we believe to be currently applicable engineering techniques and principles in the Northern California region. We make no warranty, either expressed or implied, except that our services have been performed in accordance with generally accepted professional principles and practices existing for such work.

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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



Gary S. Johnson
Registered Geologist

License No. 4315
Exp. Date 6/30/90



Mardo Kaprealian
President

Attachments: Tables 1 and 2
Site Plan - Sketch 1
 - Sketch 2
 - Sketch 3
 - Sketch 4
Laboratory Analyses
Chain of Custody documentation

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TABLE 1

SUMMARY OF LABORATORY ANALYSES
 SOIL

(Results in ppm)

(Samples collected on January 30, February 2, 14 & 17, 1989)

<u>Sample #</u>	<u>Depth (feet)</u>	<u>TPH as Gasoline</u>	<u>TPH as Diesel</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethyl- benzene</u>
SW-1	10	1.4	---	0.14	<0.1	<0.1	<0.1
SW-2A	10	1.1	---	<0.05	<0.1	<0.1	<0.1
SW-3A	10	<1.0	---	<0.05	<0.1	<0.1	<0.1
SW-4	10	<1.0	---	<0.05	<0.1	<0.1	<0.1
SW-5	10	130	---	1.1	4.6	18	3.7
SW-5A	10	<1.0	---	<0.05	<0.1	<0.1	<0.1
SW-6A	10	<1.0	---	<0.05	<0.1	<0.1	<0.1
P-1	3.5	7.8	---	2.0	<0.1	2.4	0.53
P-2	3.5	12	---	1.9	0.91	0.70	3.0
P-3	3.5	11	---	0.37	0.36	0.29	1.7
SW-A*	10	<1.0	1.0	<0.05	<0.1	<0.1	<0.1
SW-B*	10	1.1	2.4	<0.05	<0.1	<0.1	<0.1
SW-C*	10	110	180	0.68	<0.1	5.6	1.9
SW-C2*	10	89	57	<0.05	<0.1	0.42	0.76
SW-C3*	10	<1.0	<1.0	<0.05	<0.1	<0.1	<0.1
SW-D*	10	<1.0	<1.0	<0.05	<0.1	<0.1	<0.1
WO-1**	9	60	800	3.6	9.2	9.5	2.5
Comp A	---	5.4	---	<0.05	0.17	0.16	0.61
Comp B	---	32	---	0.40	0.44	0.52	2.9
Comp C	---	38	---	0.068	0.22	0.291	2.7
Comp D	---	22	---	0.082	0.77	0.49	2.7
Comp E	---	1.2	---	<0.05	<0.1	<0.1	<0.1
Comp F	---	30	---	0.33	1.2	0.83	5.3
Comp G	---	3.9	---	<0.05	0.1	0.1	0.51

* TOG for SW-A was 35 ppm, SW-B was 44 ppm, SW-C was 500 ppm, SW-C2 was 680 ppm, SW-C3 was <30 ppm, and SW-D was 77 ppm.

** TOG for WO-1 was 1,900 ppm; Cadmium 0.3 ppm; Chromium 39 ppm; Lead 10 ppm and Zinc 42 ppm. For EPA 8270 constituents, refer to attached laboratory analysis.

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March 1, 1989

TABLE 2

SUMMARY OF LABORATORY ANALYSES
WATER

(Results in ppb)
(Samples collected on February 14 & 17, 1989)

<u>Sample #</u>	<u>TPH as Gasoline</u>	<u>TPH as Diesel</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethyl-benzene</u>
W-1A	110	---	2.2	0.55	12	<0.5
W-1B	All EPA 601 constituents were non-detectable.					
WO-W1*	1300	500	52	8.6	100	9.2

* TOG and all EPA 601 constituents were non-detectable.



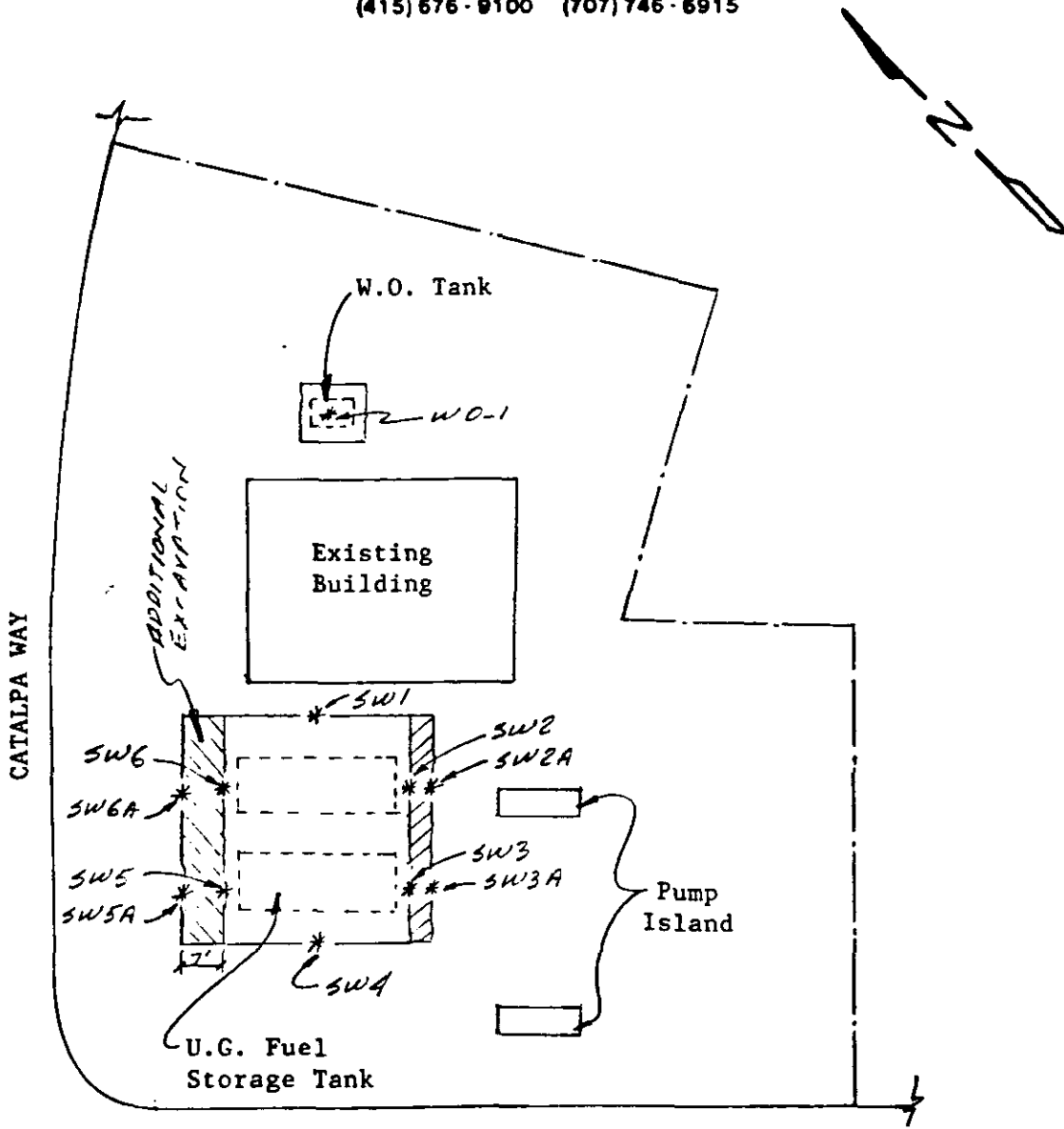
KAPREALIAN ENGINEERING, INC.

Consulting Engineers

P. O. BOX 913

BENICIA, CA 94510

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



HESPERIAN

SITE PLAN

n.t.s.

* Soil Sample Location

Unocal Service Station #5487
28250 Hesperian
Hayward, California

SKETCH 1



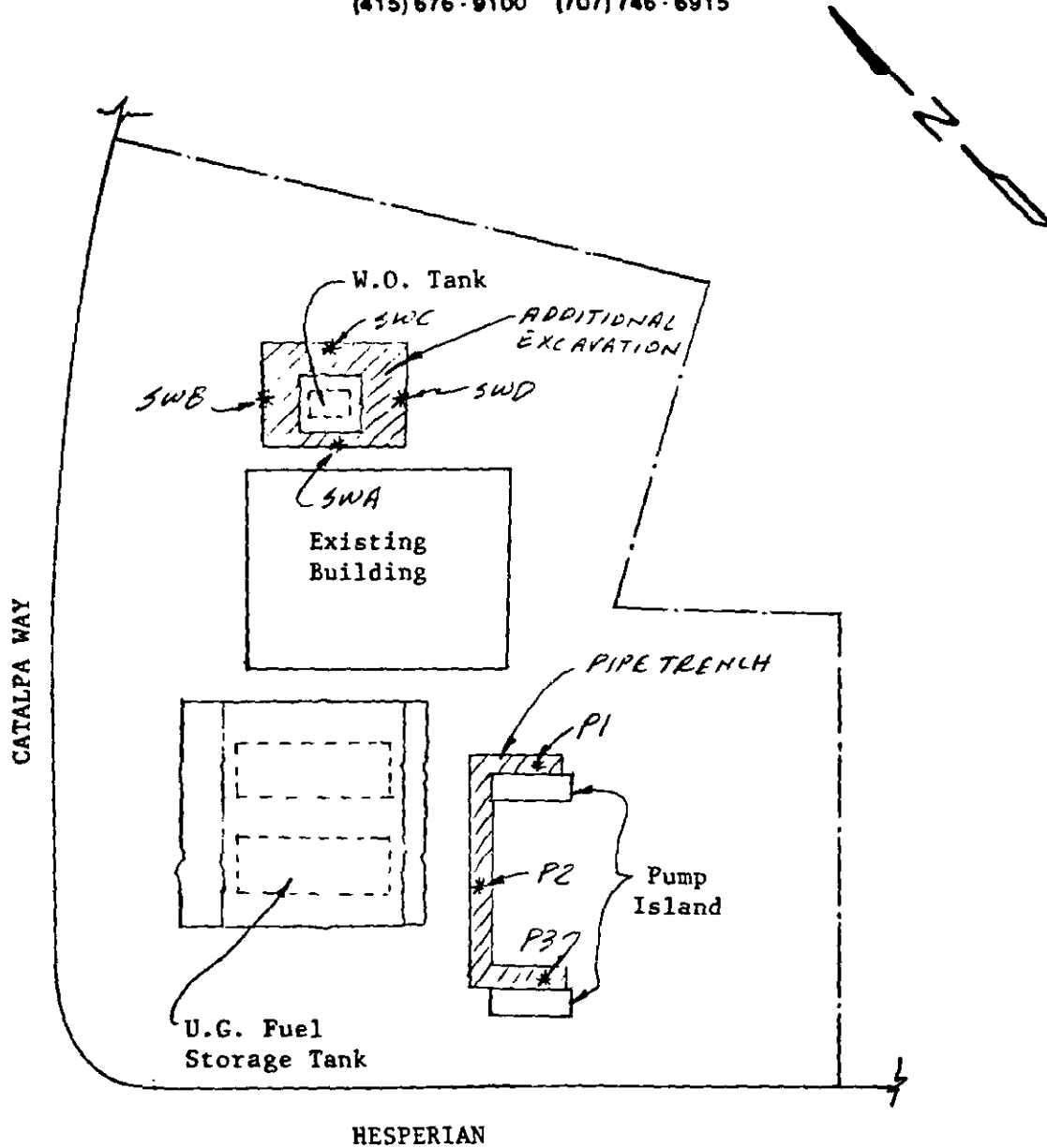
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HESPERIAN

SITE PLAN

n.t.s.

* Soil Sample Location

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28250 Hesperian
Hayward, California

SKETCH 2



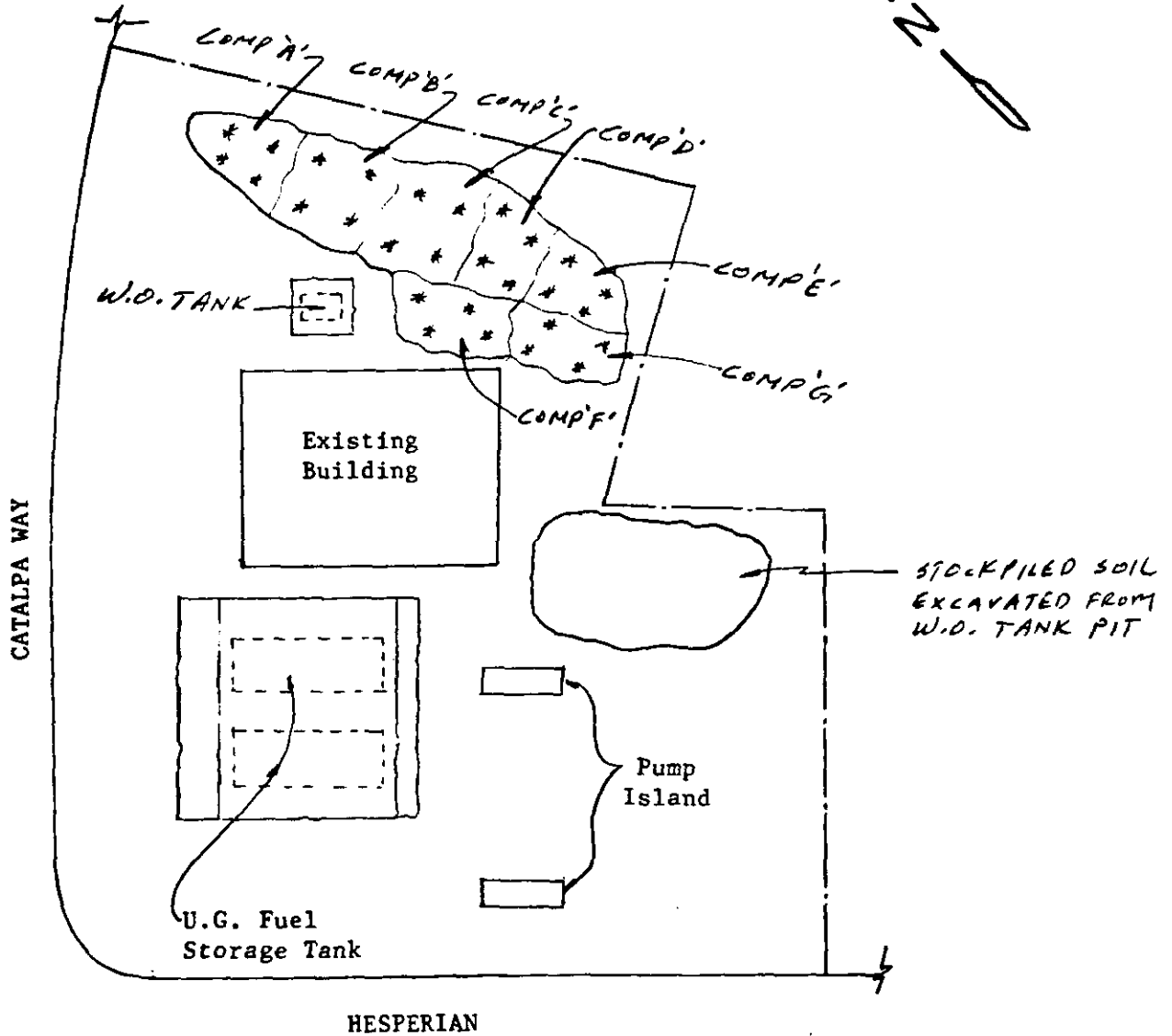
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HESPERIAN

SITE PLAN

n.t.s.

* Soil Sample Location

Unocal Service Station #5487
28250 Hesperian
Hayward, California

SKETCH 3



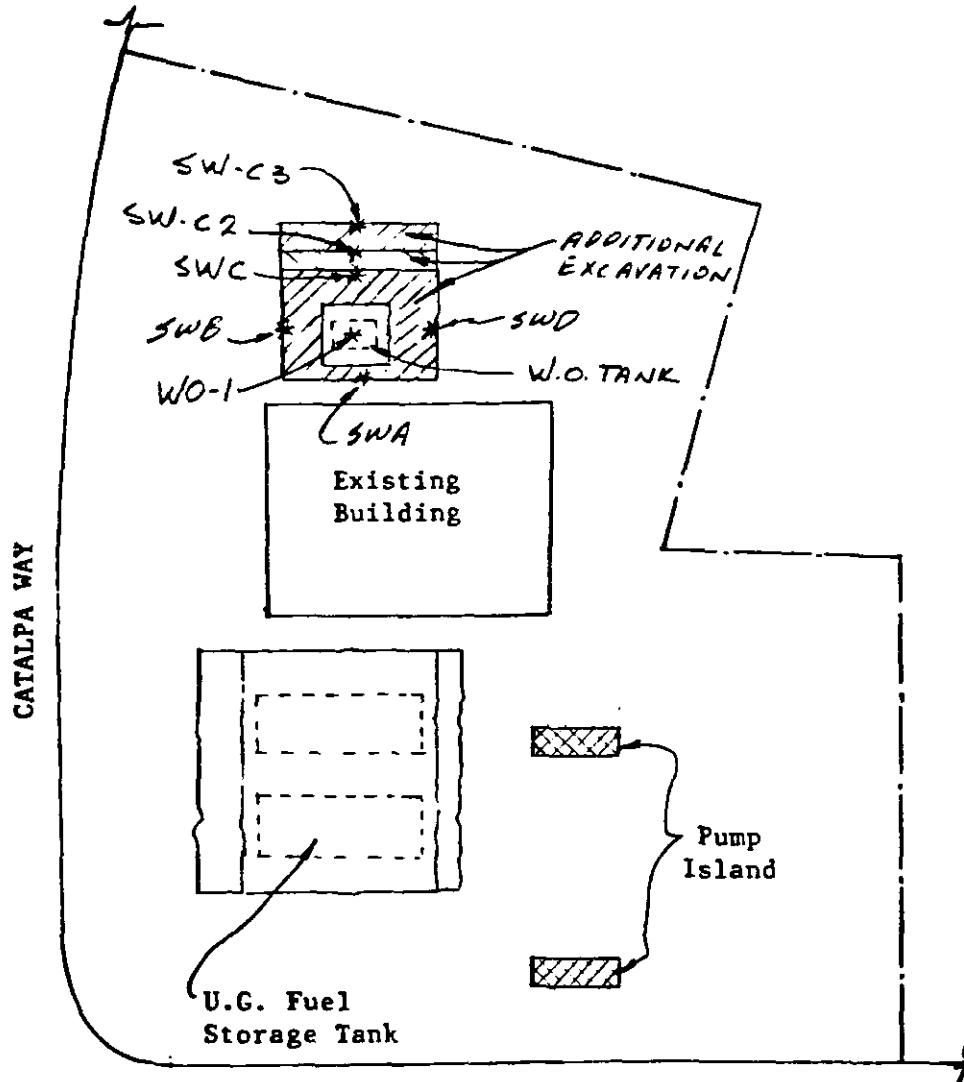
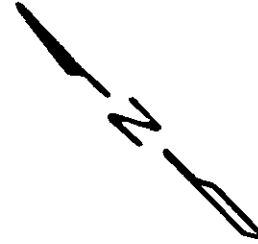
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HESPERIAN

SITE PLAN

n.t.s.

* Soil Sample Location

Unocal Service Station #5487
28250 Hesperian
Hayward, California

SKETCH 4



SEQUOIA ANALYTICAL

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

Kaprealian Engineering, Inc. P.O. Box 913 Benicia, CA 94510 Attention: Mardo Kaprealian, P.E.	Client Project ID: Unocal, Hayward, Hesperian/Catalpa Matrix Descript: Soil Analysis Method: EPA 5030 or 3810/8015/8020 First Sample #: 901-3159	Sampled: Jan 30, 1989 Received: Jan 31, 1989 Analyzed: Feb 1, 1989 Reported: Feb 1, 1989
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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)
901-3159	SW-1	1.4	0.14	N.D.	N.D.	N.D.
901-3160	SW-2A	1.1	N.D.	N.D.	N.D.	N.D.
901-3161	SW-3A	N.D.	N.D.	N.D.	N.D.	N.D.
901-3162	SW-4	N.D.	N.D.	N.D.	N.D.	N.D.
901-3163	SW-5A	N.D.	N.D.	N.D.	N.D.	N.D.
901-3164	SW-6A	N.D.	N.D.	N.D.	N.D.	N.D.
901-3165	SW-5	130	1.1	4.6	3.7	18

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

Arthur G. Burton
Laboratory Director

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KAPREALIAN ENGINEERING, INC.

Consulting Engineers

P. O. BOX 813

BENICIA, CA 94510

(415) 878-8100 (707) 748-8915

CHAIN OF CUSTODY

SAMPLER: R.M. Bradish (signature) DATE/TIME OF COLLECTION: 1-30-89 TURN AROUND TIME: 24 HR

SAMPLE DESCRIPTION AND PROJECT NUMBER: Cluscal - Hayward
Hesperian of Catalpa

SAMPLE #	ANALYSES	GRAB OR COMP.	NUMBER OF CONTAINERS	SOIL/WATER
SW1	TPH-G & BTKE	G	1	S
SW2A	" "	G	1	S
SW3A	" "	G	1	S
SW4	" "	G	1	S
SW5A	" "	G	1	S
SW6A	" "	G	1	S
SW5	" "	G	1	S

RELINQUISHED BY*	TIME/DATE	RECEIVED BY*	TIME/DATE
1. <u>R.M. Bradish</u>	<u>1-31-89</u> <u>1025</u>	<u>Tim McPain</u>	<u>1025</u> <u>1/31/89</u>
2. <u>Tim McPain</u>	<u>1-31-89</u> <u>240</u>	<u>J. Smith</u>	<u>1/31/89</u> <u>245 pm</u>
3.			
4.			

* STATE AFFILIATION NEXT TO SIGNATURE

REMARKS: _____



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

Kaprealian Engineering, Inc.
P.O. Box 913
Benicia, CA 94510
Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal, Hayward, Hesperian/Catalpa
Sample Descript: Soil, WO-1
Lab Number: 901-3176

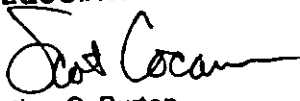
Sampled: Jan 30, 1989
Received: Jan 31, 1989
Extracted: Feb 14, 1989
Analyzed: Feb 14, 1989
Reported: Feb 16, 1989

LABORATORY ANALYSIS

Analyte	Detection Limit mg/kg	Sample Results mg/kg
Cadmium.....	0.1	0.3
Chromium.....	0.05	39
Lead.....	0.05	10
Zinc.....	0.1	42

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

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Arthur G. Burton
Laboratory Director



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Kaprealian Engineering, Inc.	Client Project ID: Unocal, Hayward, Hesperian/Catalpa	Sampled: Jan 30, 1989
P.O. Box 913	Sample Descript.: Soil, WO-1	Received: Jan 31, 1989
Benicia, CA 94510	Analysis Method: EPA 5030 or 3810 and 8015/8020	Analyzed: Feb 10, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number: 901-3176	Reported: Feb 16, 1989

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	60
Benzene.....	0.05	3.6
Toluene.....	0.1	9.2
Ethyl Benzene.....	0.1	2.5
Xylenes.....	0.1	9.5

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

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Laboratory Director



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Kaprealian Engineering, Inc.	Client Project ID: Unocal, Hayward, Hesperian/Catalpa	Sampled: Jan 30, 1989
P.O. Box 913	Matrix Descript: Soil	Received: Jan 31, 1989
Benicia, CA 94510	Analysis Method: EPA 3550/8015	Analyzed: Feb 13, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #: 901-3176	Reported: Feb 16, 1989

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
901-3176	WO-1	800

Detection Limits:

1.0

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.
Analytes reported as N.D. were not present above the stated limit of detection.

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Arthur G. Burton
Laboratory Director

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680 Chesapeake Drive • Redwood City, CA 94063
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Kaprealian Engineering, Inc. P.O. Box 913 Benicia, CA 94510 Attention: Mardo Kaprealian, P.E.	Client Project ID: Unocal, Hayward, Hesperian/Catalpa Matrix Descript: Soil Analysis Method: EPA 413.1 (Gravimetric) First Sample #: 901-3176	Sampled: Jan 30, 1989 Received: Jan 31, 1989 Extracted: Feb 13, 1989 Analyzed: Feb 14, 1989 Reported: Feb 16, 1989
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TOTAL RECOVERABLE OIL & GREASE

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
901-3176	WO-1	1,900

Detection Limits: 30.0

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

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Arthur G. Burton
Laboratory Director

9013176.KEI <4>



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(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.
P.O. Box 913
Benicia, CA 94510
Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal, Hayward, Hesperian/Catalpa
Sample Descript: Soil, WO-1
Analysis Method: EPA 5030/8010
Lab Number: 901-3176

Sampled: Jan 30, 1989
Received: Jan 31, 1989
Analyzed: Feb 13, 1989
Reported: Feb 16, 1989

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit ug/kg	Sample Results ug/kg
Bromodichloromethane.....	250.0	N.D.
Bromoform.....	250.0	N.D.
Bromomethane.....	250.0	N.D.
Carbon tetrachloride.....	250.0	N.D.
Chlorobenzene.....	250.0	N.D.
Chloroethane.....	1,250.0	N.D.
2-Chloroethylvinyl ether.....	250.0	N.D.
Chloroform.....	250.0	N.D.
Chloromethane.....	250.0	N.D.
Dibromochloromethane.....	250.0	N.D.
1,2-Dichlorobenzene.....	500.0	N.D.
1,3-Dichlorobenzene.....	500.0	N.D.
1,4-Dichlorobenzene.....	500.0	N.D.
1,1-Dichloroethane.....	250.0	N.D.
1,2-Dichloroethane.....	250.0	N.D.
1,1-Dichloroethene.....	250.0	N.D.
trans-1,2-Dichloroethene.....	250.0	N.D.
1,2-Dichloropropane.....	250.0	N.D.
cis-1,3-Dichloropropene.....	250.0	N.D.
trans-1,3-Dichloropropene.....	250.0	N.D.
Methylene chloride.....	500.0	N.D.
1,1,2,2-Tetrachloroethane.....	250.0	N.D.
Tetrachloroethene.....	250.0	110
1,1,1-Trichloroethane.....	250.0	270
1,1,2-Trichloroethane.....	250.0	N.D.
Trichloroethene.....	250.0	N.D.
Trichlorofluoromethane.....	250.0	N.D.
Vinyl chloride.....	500.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director



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Kaprealian Engineering, Inc.
P.O. Box 913
Benicia, CA 94510
Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal, Hayward, Hesperian/Catalpa
Sample Descript: Soil, WO-1
Analysis Method: EPA 8270
Lab Number: 901-3176

Sampled: Jan 30, 1989
Received: Jan 31, 1989
Extracted: Feb 13, 1989
Analyzed: Feb 13, 1989
Reported: Feb 16, 1989

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit ug/kg	Sample Results ug/kg
Acenaphthene.....	100.0	N.D.
Acenaphthylene.....	100.0	N.D.
Aniline.....	100.0	N.D.
Anthracene.....	100.0	100
Benzidine.....	2,500.0	N.D.
Benzoic Acid.....	500.0	N.D.
Benzo(a)anthracene.....	100.0	4,700
Benzo(b)fluoranthene.....	100.0	380
Benzo(k)fluoranthene.....	100.0	N.D.
Benzo(g,h,i)perylene.....	100.0	120
Benzo(a)pyrene.....	100.0	400
Benzyl alcohol.....	100.0	N.D.
Bis(2-chloroethoxy)methane.....	100.0	N.D.
Bis(2-chloroethyl)ether.....	100.0	N.D.
Bis(2-chloroisopropyl)ether.....	100.0	N.D.
Bis(2-ethylhexyl)phthalate.....	500.0	10,000
4-Bromophenyl ether.....	100.0	N.D.
Butyl benzyl phthalate.....	100.0	2,900
4-Chloroaniline.....	100.0	N.D.
2-Chloronaphthalene.....	100.0	N.D.
4-Chloro-3-methylphenol.....	100.0	N.D.
2-Chlorophenol.....	100.0	N.D.
4-Chlorophenyl phenyl ether.....	100.0	N.D.
Chrysene.....	100.0	3,600
Dibenz(a,h)anthracene.....	100.0	N.D.
Dibenzofuran.....	100.0	N.D.
Di-N-butyl phthalate.....	500.0	N.D.
1,3-Dichlorobenzene.....	100.0	N.D.
1,4-Dichlorobenzene.....	100.0	N.D.
1,2-Dichlorobenzene.....	100.0	N.D.
3,3-Dichlorobenzidine.....	500.0	N.D.
2,4-Dichlorophenol.....	100.0	N.D.
Diethyl phthalate.....	100.0	N.D.
2,4-Dimethylphenol.....	100.0	N.D.
Dimethyl phthalate.....	100.0	N.D.
4,6-Dinitro-2-methylphenol.....	500.0	N.D.
2,4-Dinitrophenol.....	500.0	N.D.



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Kaprealian Engineering, Inc.	Client Project ID: Unocal, Hayward, Hesperian/Catalpa	Sampled: Jan 30, 1989
P.O. Box 913	Sample Descript: Soil, WO-1	Received: Jan 31, 1989
Benicia, CA 94510	Analysis Method: EPA 8270	Extracted: Feb 13, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number: 901-3176	Analyzed: Feb 13, 1989
		Reported: Feb 16, 1989

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit ug/kg	Sample Results ug/kg
2,4-Dinitrotoluene.....	100.0	N.D.
2,6-Dinitrotoluene.....	100.0	N.D.
Di-N-octyl phthalate.....	100.0	N.D.
Fluoranthene.....	100.0	460
Fluorene.....	100.0	150
Hexachlorobenzene.....	100.0	N.D.
Hexachlorobutadiene.....	100.0	N.D.
Hexachlorocyclopentadiene.....	100.0	N.D.
Hexachloroethane.....	100.0	N.D.
Indeno(1,2,3-cd)pyrene.....	100.0	N.D.
Isophorone.....	100.0	N.D.
2-Methylnaphthalene.....	100.0	8,700
2-Methylphenol.....	100.0	310
4-Methylphenol.....	100.0	440
Naphthalene.....	100.0	5,100
2-Nitroaniline.....	100.0	N.D.
3-Nitroaniline.....	100.0	N.D.
4-Nitroaniline.....	100.0	N.D.
Nitrobenzene.....	100.0	N.D.
2-Nitrophenol.....	100.0	N.D.
4-Nitrophenol.....	500.0	N.D.
N-Nitrosodiphenylamine.....	100.0	N.D.
N-Nitroso-di-N-propylamine.....	100.0	N.D.
Pentachlorophenol.....	500.0	N.D.
Phenathrene.....	100.0	660
Phenol.....	100.0	820
Pyrene.....	100.0	2,700
1,2,4-Trichlorobenzene.....	100.0	N.D.
2,4,5-Trichlorophenol.....	100.0	N.D.
2,4,6-Trichlorophenol.....	100.0	N.D.

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

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director



KAPREALIAN ENGINEERING, INC.

Consulting Engineers

P. O. BOX 913

BENICIA, CA 94510

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

CHAIN OF CUSTODY

SAMPLER: R.M. Bradish (signature) DATE/TIME OF COLLECTION: 1-30-89 TURN AROUND TIME: 10 DAY
~~24 Hrs~~

SAMPLE DESCRIPTION AND PROJECT NUMBER: Unocal - Hayward
Hexperian & Catalpa

SAMPLE #	ANALYSES	GRAB OR COMP.	NUMBER OF CONTAINERS	SOIL/WATER
<u>W01</u>	<u>TPH-G & BTEX; TPH-D;</u>	<u>G</u>	<u>1</u>	<u>S</u>
	<u>TCG (413.1); 8010;</u>			
	<u>8270</u>			
	<u>METALS: Cd, Cr, Pb</u>			
	<u>& Zn</u>			

RELINQUISHED BY*	TIME/DATE	RECEIVED BY*	TIME/DATE
<u>R.M. Bradish</u>	<u>1-31-89</u> <u>1025</u>	<u>Tom M. Laine</u>	<u>1025 1/31/89</u>
<u>Tom M. Laine</u>	<u>1/31/89</u> <u>2:40</u>	<u>C. Smith</u>	<u>1/31/89 2:45</u>
<u>3.</u>			
<u>4.</u>			

* STATE AFFILIATION NEXT TO SIGNATURE

REMARKS: _____



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Kaprealian Engineering, Inc.	Client Project ID: Unocal, Hayward, Hesperian/Catalpa	Sampled: Feb 1, 1989
P.O. Box 913	Matrix Descript: Soil	Received: Feb 2, 1989
Benicia, CA 94510	Analysis Method: EPA 5030 or 3810/8015/8020	Analyzed: Feb 2, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #: 902-0067	Reported: Feb 3, 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)
902-0067	P1	7.8	2.0	N.D.	0.53	2.4
902-0068	P2	12	1.9	0.91	0.7	3.0
902-0069	P3	11	0.37	0.36	0.29	1.7
902-0070	Composite A	5.4	N.D.	0.17	0.16	0.61
902-0071	Composite B	32	0.4	0.44	0.52	2.9
902-0072	Composite C	38	0.068	0.22	0.29	2.7
902-0073	Composite D	22	0.082	0.77	0.49	2.7
902-0074	Composite E	1.2	N.D.	N.D.	N.D.	N.D.
902-0075	Composite F	30	0.33	1.2	0.83	5.3
902-0076	Composite G	3.9	N.D.	0.1	0.1	0.51

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.

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Kaprealian Engineering, Inc.	Client Project ID: Unocal, Hayward, Hesperian/Catalpa	Sampled: Feb 1, 1989
P.O. Box 913	Matrix Descript: Soil	Received: Feb 2, 1989
Benicia, CA 94510	Analysis Method: EPA 5030 or 3810/8015/8020	Analyzed: Feb 2, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #: 902-0077	Reported: Feb 3, 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)
902-0077	SW A	N.D.	N.D.	N.D.	N.D.	N.D.
902-0078	SW B	1.1	N.D.	N.D.	N.D.	N.D.
902-0079	SW C	110	0.68	N.D.	1.9	5.6
902-0080	SW D	N.D.	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.

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Kapreallan Engineering, Inc. P.O. Box 913 Benicia, CA 94510 Attention: Mardo Kapreallan, P.E.	Client Project ID: Unocal, Hayward, Hesperian/Catalpa Matrix Descript: Soil Analysis Method: EPA 3550/8015 First Sample #: 902-0077	Sampled: 2/1 Received: Feb 2, 1989 Analyzed: Feb 2, 1989 Reported: Feb 3, 1989
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TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
902-0077	SW A	1.0
902-0078	SW B	2.4
902-0079	SW C	180
902-0080	SW D	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.

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Kaprealian Engineering, Inc. P.O. Box 913 Benicia, CA 94510 Attention: Mardo Kaprealian, P.E.	Client Project ID: Unocal, Hayward, Hesperian/Catalpa Matrix Descript: Soil Analysis Method: EPA 413.1 (Gravimetric) First Sample #: 902-0077	Sampled: Feb 1, 1989 Received: Feb 2, 1989 Extracted: Feb 2, 1989 Analyzed: Feb 2, 1989 Reported: Feb 3, 1989
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TOTAL RECOVERABLE OIL & GREASE

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
902-0077	SW A	35
902-0078	SW B	44
902-0079	SW C	500
902-0080	SW D	77

Detection Limits: 30.0

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

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BENICIA, CA 94510

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CHAIN OF CUSTODY

SAMPLER: R.M. Bradish (signature) DATE/TIME OF COLLECTION: 2-1-89 TURN AROUND TIME: 24 HR

SAMPLE DESCRIPTION AND PROJECT NUMBER:

Unocal - Hayward
Hesperian & Catalpa

SAMPLE #	ANALYSES	GRAB OR COMP.	NUMBER OF CONTAINERS	SOIL/WATER
SW A	TPH-G & BTXE TPH-D; TOG (413.1)	G	1	S
SW B	TPH-G & BTXE TPH-D; TOG (413.1)	G	1	S
SW C	TPH-G & BTXE TPH-D; TOG (413.1)	G	1	S
SW D	TPH-G & BTXE TPH-D; TOG (413.1)	G	1	S

RELINQUISHED BY*	TIME/DATE	RECEIVED BY*	TIME/DATE
1. <u>R.M. Bradish</u>	<u>2-2-89</u> <u>0910</u>	<u>Tim McLeary</u>	<u>9⁰⁰ 2/2/89</u>
2. <u>Tim McLeary</u>	<u>10³⁰ 2-2-89</u>	<u>Rau [Signature]</u>	<u>10:35</u> <u>2/2/89</u>
3.			
4.			

* STATE AFFILIATION NEXT TO SIGNATURE

REMARKS: _____



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CHAIN OF CUSTODY

SAMPLER: R.M. Bradish DATE/TIME OF COLLECTION: 2-1-89 TURN AROUND TIME: 24 HR
 (signature)

SAMPLE DESCRIPTION AND PROJECT NUMBER: Urocal - Hayward
Hesperian & Catalpa

SAMPLE #	ANALYSES	GRAB OR COMP.	NUMBER OF CONTAINERS	SOIL/WATER
<u>Comp A</u>	<u>TPH-G & BTX</u>	<u>C</u>	<u>2</u>	<u>S</u>
<u>" B</u>	<u>" "</u>	<u>C</u>	<u>2</u>	<u>S</u>
<u>" C</u>	<u>" "</u>	<u>C</u>	<u>2</u>	<u>S</u>
<u>" D</u>	<u>" "</u>	<u>C</u>	<u>2</u>	<u>S</u>
<u>" E</u>	<u>" "</u>	<u>C</u>	<u>2</u>	<u>S</u>
<u>" F</u>	<u>" "</u>	<u>C</u>	<u>2</u>	<u>S</u>
<u>" G</u>	<u>" "</u>	<u>C</u>	<u>2</u>	<u>S</u>

RELINQUISHED BY*	TIME/DATE	RECEIVED BY*	TIME/DATE
<u>1. R.M. Bradish</u>	<u>2-2-89</u> <u>0910</u>	<u>Tom McFain</u>	<u>9¹⁰ 2/2/89</u>
<u>2. Tom McFain</u>	<u>2-2-89</u> <u>1030</u>	<u>Ben Hill</u>	<u>10:35</u> <u>2/2/89</u>
<u>3.</u>			
<u>4.</u>			

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CHAIN OF CUSTODY

SAMPLER: R. M. Bradish DATE/TIME OF COLLECTION: 2-1-89 TURN AROUND TIME: 24 HR.
 (signature)

SAMPLE DESCRIPTION AND PROJECT NUMBER: Urocal-Hayward
Hesperian & Catalpa

SAMPLE #	ANALYSES	GRAB OR COMP.	NUMBER OF CONTAINERS	SOIL/WATER
P1	TPH-G & BTXE	G	1	S
P2	" "	*G	1	S
P3	" "	*G	1	S

RELINQUISHED BY*	TIME/DATE	RECEIVED BY*	TIME/DATE
1. <u>R. M. Bradish</u>	<u>2-2-89</u> <u>0910</u>	<u>Tim McLean</u>	<u>9:10 2/2/89</u>
2. <u>Tim McLean</u>	<u>10:35 2-2-89</u>	<u>[Signature]</u>	<u>10:35 2/2/89</u>
3.			
4.			

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Kaprealian Engineering, Inc.	Client Project ID: Unocal, Hayward, Hesperian/Catalpa	Sampled: Feb 14, 1989
P.O. Box 913	Sample Descript.: Water, W-1 (A)	Received: Feb 14, 1989
Benicia, CA 94510	Analysis Method: EPA 5030/ 8015/8020	Analyzed: Feb 15, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number: 902-1368	Reported: Feb 22, 1989

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

Analyte	Detection Limit ug/L (ppb)	Sample Results ug/L (ppb)
Low to Medium Boiling Point Hydrocarbons.....	50.0	110
Benzene.....	0.5	2.2
Toluene.....	0.5	0.55
Ethyl Benzene.....	0.5	N.D.
Xylenes.....	0.5	12

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

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Arthur G. Burton
Laboratory Director

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Kaprealian Engineering, Inc.	Client Project ID: Unocal, Hayward, Hesperian/Catalpa	Sampled: Feb 14, 1989
P.O. Box 913	Sample Descript: Water, W-1 (B)	Received: Feb 14, 1989
Benicia, CA 94510	Analysis Method: EPA 5030/8010	Analyzed: Feb 22, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number: 902-1369	Reported: Feb 22, 1989

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit ug/L	Sample Results ug/L
Bromodichloromethane.....	20.0	N.D.
Bromoform.....	20.0	N.D.
Bromomethane.....	20.0	N.D.
Carbon tetrachloride.....	20.0	N.D.
Chlorobenzene.....	20.0	N.D.
Chloroethane.....	100.0	N.D.
2-Chloroethylvinyl ether.....	20.0	N.D.
Chloroform.....	10.0	N.D.
Chloromethane.....	10.0	N.D.
Dibromochloromethane.....	10.0	N.D.
1,2-Dichlorobenzene.....	40.0	N.D.
1,3-Dichlorobenzene.....	40.0	N.D.
1,4-Dichlorobenzene.....	40.0	N.D.
1,1-Dichloroethane.....	10.0	N.D.
1,2-Dichloroethane.....	10.0	N.D.
1,1-Dichloroethene.....	20.0	N.D.
trans-1,2-Dichloroethene.....	20.0	N.D.
1,2-Dichloropropane.....	10.0	N.D.
cis-1,3-Dichloropropene.....	100.0	N.D.
trans-1,3-Dichloropropene.....	100.0	N.D.
Methylene chloride.....	40.0	N.D.
1,1,2,2-Tetrachloroethane.....	10.0	N.D.
Tetrachloroethene.....	10.0	N.D.
1,1,1-Trichloroethane.....	10.0	N.D.
1,1,2-Trichloroethane.....	10.0	N.D.
Trichloroethene.....	10.0	N.D.
Trichlorofluoromethane.....	20.0	N.D.
Vinyl chloride.....	40.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

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Arthur G. Burton
Laboratory Director

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(415) 876-9100 (707) 746-6915

CHAIN OF CUSTODY

SAMPLER: R.M. Bradish DATE/TIME OF COLLECTION: 2-14-89 TURN AROUND TIME: 1 wk
 (signature)

SAMPLE DESCRIPTION AND PROJECT NUMBER: Luocal - Hayward
Hesperian & Catalpa

SAMPLE #	ANALYSES	GRAB OR COMP.	NUMBER OF CONTAINERS	SOIL/WATER
<u>W-1 (A)</u>	<u>TPH-G & BTXCE</u>	<u>GC</u>	<u>2</u>	<u>W</u>
<u>W-1 (B)</u>	<u>601</u>	<u>C</u>	<u>2</u>	<u>W</u>

RELINQUISHED BY*	TIME/DATE	RECEIVED BY*	TIME/DATE
<u>R.M. Bradish</u>	<u>2-14-89</u> <u>1600</u>	<u>Paul Yji</u> Priority	<u>2-14-89</u> <u>4:00 PM</u>
<u>Paul Yji</u> Priority	<u>2-14-89</u> <u>4:30 PM</u>	<u>David Newcomb</u>	<u>2/14/89</u> <u>4:50 PM</u>
3.			
4.			

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Kaprealian Engineering, Inc.	Client Project ID: Unocal, Hayward, Hesperian/Catalpa	Sampled: Feb 17, 1989
P.O. Box 913	Sample Descript.: Soil, SW-C-2	Received: Feb 17, 1989
Benicia, CA 94510	Analysis Method: EPA 5030 or 3810 and 8015/8020	Analyzed: Feb 17, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number: 902-1751	Reported: Feb 22, 1989

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	89
Benzene.....	0.05	N.D.
Toluene.....	0.1	N.D.
Ethyl Benzene.....	0.1	0.76
Xylenes.....	0.1	0.42

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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Kaprealian Engineering, Inc.	Client Project ID: Unocal, Hayward, Hesperian/Catalpa	Sampled: Feb 17, 1989
P.O. Box 913	Matrix Descript: Soil	Received: Feb 17, 1989
Benicia, CA 94510	Analysis Method: EPA 3550/8015	Analyzed: Feb 21, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #: 902-1751	Reported: Feb 22, 1989

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
902-1751	SW-C2	57

Detection Limits:

1.0

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.
Analytes reported as N.D. were not present above the stated limit of detection.

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Laboratory Director



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Kaprealian Engineering, Inc. P.O. Box 913 Benicia, CA 94510 Attention: Mardo Kaprealian, P.E.	Client Project ID: Unocal, Hayward, Hesperian/Catalpa Matrix Descript: Soil, SW-C2 Analysis Method: EPA 413.1 (Gravimetric) First Sample #: 902-1751	Sampled: Feb 17, 1989 Received: Feb 17, 1989 Extracted: Feb 17, 1989 Analyzed: Feb 17, 1989 Reported: Feb 22, 1989
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TOTAL RECOVERABLE OIL & GREASE

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
902-1751	SW-C2	680

Detection Limits: 30.0

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

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Kaprealian Engineering, Inc.	Client Project ID: Unocal, Hayward, Hesperian/Catalpa	Sampled: Feb 17, 1989
P.O. Box 913	Sample Descript.: Water, WO-W1	Received: Feb 17, 1989
Benicia, CA 94510	Analysis Method: EPA 5030/ 8015/8020	Analyzed: Feb 21, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number: 902-1752	Reported: Feb 22, 1989

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

Analyte	Detection Limit ug/L (ppb)	Sample Results ug/L (ppb)
Low to Medium Boiling Point Hydrocarbons.....	50.0	1,300
Benzene.....	0.5	52
Toluene.....	0.5	8.6
Ethyl Benzene.....	0.5	9.2
Xylenes.....	0.5	100

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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Laboratory Director



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Kaprealian Engineering, Inc. P.O. Box 913 Benicia, CA 94510 Attention: Mardo Kaprealian, P.E.	Client Project ID: Unocal, Hayward, Hesperian/Catalpa Matrix Descript: Water, WO-W1 Analysis Method: EPA 3510/8015 First Sample #: 902-1752	Sampled: Feb 17, 1989 Received: Feb 17, 1989 Analyzed: Feb 21, 1989 Reported: Feb 22, 1989
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TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons ug/L (ppb)
902-1752	WO-W1	500

Detection Limits: 50.0

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director



SEQUOIA ANALYTICAL

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

Kaprealian Engineering, Inc.	Client Project ID: Unocal, Hayward, Hesperian/Catalpa	Sampled: Feb 17, 1989
P.O. Box 913	Matrix Descript: Water	Received: Feb 17, 1989
Benicia, CA 94510	Analysis Method: EPA 413.1 (Gravimetric)	Extracted: Feb 21, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #: 902-1752	Analyzed: Feb 21, 1989
		Reported: Feb 22, 1989

TOTAL RECOVERABLE OIL & GREASE

Sample Number	Sample Description	Oil & Grease mg/L (ppm)
902-1752	WO-W1	N.D.

Detection Limits: 5.0

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

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Laboratory Director



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Kaprealian Engineering, Inc.	Client Project ID: Unocal, Hayward, Hesperian/Catalpa	Sampled: Feb 17, 1989
P.O. Box 913	Sample Descript: Water, WO-W1	Received: Relogged 2/22
Benicia, CA 94510	Analysis Method: EPA 5030/8010	Analyzed: Feb 23, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number: 902-1752	Reported: Feb 24, 1989

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit ug/L	Sample Results ug/L
Bromodichloromethane.....	8.0	N.D.
Bromoform.....	8.0	N.D.
Bromomethane.....	8.0	N.D.
Carbon tetrachloride.....	8.0	N.D.
Chlorobenzene.....	8.0	N.D.
Chloroethane.....	40.0	N.D.
2-Chloroethylvinyl ether.....	8.0	N.D.
Chloroform.....	4.0	N.D.
Chloromethane.....	4.0	N.D.
Dibromochloromethane.....	4.0	N.D.
1,2-Dichlorobenzene.....	16.0	N.D.
1,3-Dichlorobenzene.....	16.0	N.D.
1,4-Dichlorobenzene.....	16.0	N.D.
1,1-Dichloroethane.....	4.0	N.D.
1,2-Dichloroethane.....	4.0	N.D.
1,1-Dichloroethene.....	8.0	N.D.
trans-1,2-Dichloroethene.....	8.0	N.D.
1,2-Dichloropropane.....	4.0	N.D.
cis-1,3-Dichloropropene.....	40.0	N.D.
trans-1,3-Dichloropropene.....	40.0	N.D.
Methylene chloride.....	16.0	N.D.
1,1,2,2-Tetrachloroethane.....	4.0	N.D.
Tetrachloroethene.....	4.0	N.D.
1,1,1-Trichloroethane.....	4.0	N.D.
1,1,2-Trichloroethane.....	4.0	N.D.
Trichloroethene.....	4.0	N.D.
Trichlorofluoromethane.....	8.0	N.D.
Vinyl chloride.....	16.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director



KAPREALIAN ENGINEERING, INC.

Consulting Engineers

P. O. BOX 913

BENICIA, CA 94510

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

CHAIN OF CUSTODY

SAMPLER: [Signature] DATE/TIME OF COLLECTION: 2-17-89 TURN AROUND TIME: 2 1/2 hr
 (signature)

SAMPLE DESCRIPTION AND PROJECT NUMBER: Unsat / Hayward / Hazardous / Cont/ps

<u>SAMPLE #</u>	<u>ANALYSES</u>	<u>GRAB OR COMP.</u>	<u>NUMBER OF CONTAINERS</u>	<u>SOIL/ WATER</u>
<u>SW-C2</u>	<u>TPH-G / VTK-E / TPH-D / TOC (413.1)</u>	<u>G</u>	<u>1</u>	<u>S</u>
<u>WC-W1</u>	<u>TPH-G / VTK-E / TPH-D / TOC (413.1)</u> <u>601</u>	<u>G</u>	<u>7</u>	<u>W</u>

<u>RELINQUISHED BY*</u>	<u>TIME/DATE</u>	<u>RECEIVED BY*</u>	<u>TIME/DATE</u>
<u>[Signature] (KEI)</u>	<u>3:30pm / 2-17-89</u>	<u>Burt C. Up SA</u>	<u>3:30 / 2-17-89</u>
2.			
3.			
4.			

* STATE AFFILIATION NEXT TO SIGNATURE

REMARKS: _____



SEQUOIA ANALYTICAL

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

Kapreallan Engineering, Inc.
P.O. Box 913
Benicia, CA 94510
Attention: Mardo Kapreallan, P.E.

Client Project ID: Unocal, Hayward, Hesperian/Catalpa
Sample Descript.: Soil, SW-C3
Analysis Method: EPA 5030 or 3810 and 8015/8020
Lab Number: 902-2631

Sampled: Feb 24, 1989
Received: Feb 24, 1989
Analyzed: Feb 27, 1989
Reported: Feb 27, 1989

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.....	0.05	N.D.
Toluene.....	0.1	N.D.
Ethyl Benzene.....	0.1	N.D.
Xylenes.....	0.1	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

Arthur G. Burton
Laboratory Director



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

Kaprealian Engineering, Inc.	Client Project ID: Unocal, Hayward, Hesperian/Catalpa	Sampled: Feb 24, 1989
P.O. Box 913	Matrix Descript: Soil, SW-C3	Received: Feb 24, 1989
Benicia, CA 94510	Analysis Method: EPA 3550/8015	Analyzed: Feb 27, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #: 902-2631	Reported: Feb 27, 1989

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
902-2631	SW-C3	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

Arthur G. Burton
Laboratory Director

9022631.KEI <2>



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

Kaprealian Engineering, Inc. P.O. Box 913 Benicia, CA 94510 Attention: Mardo Kaprealian, P.E.	Client Project ID: Unocal, Hayward, Hesperian/Catalpa Matrix Descript: Soil Analysis Method: EPA 413.1 (Gravimetric) First Sample #: 902-2631	Sampled: Feb 24, 1989 Received: Feb 24, 1989 Extracted: Feb 27, 1989 Analyzed: Feb 27, 1989 Reported: Feb 27, 1989
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TOTAL RECOVERABLE OIL & GREASE

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
902-2631	SW-C3	N.D.

Detection Limits:	30.0
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Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director

9022631.KEI <3>



KAPREALIAN ENGINEERING, INC.

Consulting Engineers

P. O. BOX 913

BENICIA, CA 94510

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

CHAIN OF CUSTODY

SAMPLER: R.M. Bradish (signature) DATE/TIME OF COLLECTION: 2-24-89 TURN AROUND TIME: 24 Hr.

SAMPLE DESCRIPTION AND PROJECT NUMBER: Alvocal - Hayward
Hesperian & Catalpa

SAMPLE #	ANALYSES	GRAB OR COMP.	NUMBER OF CONTAINERS	SOIL/WATER
<u>SW-C3</u>	<u>TPH-G & BTEX; TPH-D;</u> <u>TOG (4.3.1)</u>	<u>G</u>	<u>1</u>	<u>S</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

RELINQUISHED BY*	TIME/DATE	RECEIVED BY*	TIME/DATE
<u>R.M. Bradish</u>	<u>2:35 2/24/89</u>	<u>Elie Fernandez</u>	<u>1430 2/23/89</u>
<u>Elie Fernandez</u>	<u>2:16:50 2/24/89</u>	<u>Derek Newman</u>	<u>16:50 2/24/89</u>
3.			
4.			

* STATE AFFILIATION NEXT TO SIGNATURE

REMARKS: _____