

KAPREALIAN ENGINEERING
I N C O R P O R A T E D

May 29, 1996

Alameda County Health Care Services
1131 Harbor Bay Parkway, 2nd Floor
Alameda, CA 94502

Attention: Ms. Jennifer Eberle

RE: Unocal Service Station #1871
96 MacArthur Boulevard
Oakland, California

Dear Ms. Eberle:

Per the request of Mr. Robert A. Boust of Unocal Corporation, enclosed please find our report dated May 17, 1996, for the above referenced site.

If you should have any questions, please feel free to call our office at (510) 602-5100.

Sincerely,

Kaprealian Engineering, Inc.



Judy A. Dewey
Executive Secretary

jad\82

Enclosure

cc: Robert A. Boust, Unocal Corporation

96 MAY 31 PM 1:33
ENVIRONMENTAL
PROTECTION



KAPREALIAN ENGINEERING
INCORPORATED

KEI-P94-0601.R4
May 17, 1996

96 MAY 31 PM 1:33

ENVIRONMENTAL
PROTECTION

Unocal Corporation
2000 Crow Canyon Place, Suite 400
P.O. Box 5155
San Ramon, California 94583

Attention: Mr. Robert A. Boust

RE: Continuing Soil and
Ground Water Investigation at
Unocal Service Station #1871
96 MacArthur Boulevard
Oakland, California

Dear Mr. Boust:

This report presents the results of Kaprealian Engineering, Inc's. (KEI) most recent soil and ground water investigation for the referenced site, in accordance with KEI's work plan/proposal (KEI-P94-0601.P2) dated December 7, 1995. The work plan was conditionally approved by the Alameda County Health Care Services (ACHCS) Agency in a letter dated February 7, 1996, provided that proposed off-site well MW5 was moved to an on-site location approximately 25 feet northwest of well MW3. The purpose of the investigation was to further define the degree and extent of soil and ground water contamination at the site. The scope of the work performed by KEI consisted of the following:

Coordination with regulatory agencies

Geologic logging of four borings for the installation of two monitoring wells and two exploratory borings

Soil sampling

Well development of two monitoring wells

Ground water monitoring and sampling

Delivery of soil and ground water samples (including properly executed Chain of Custody documentation) to a California-certified analytical laboratory for laboratory analyses

Data analysis, interpretation, and report preparation

SITE DESCRIPTION AND BACKGROUND

The subject site contains a Unocal service station facility that is located at the northeast corner of the intersection of MacArthur Boulevard and Harrison Street in Oakland, California. The site is located approximately 1,000 feet east of Glen Echo Creek. A Location Map is attached to this report.

The initial field work was conducted on May 13, 1992, by Roux Associates (Roux) during a dispenser modification and piping replacement project. All former dispensers and piping were reportedly removed from the site. Four soil samples (labeled D1 through D4) were collected from beneath the dispensers at depths ranging from 2 to 5 feet below grade. The samples were collected from bulk material excavated by backhoe. The soil samples were collected in the presence of Ms. Jennifer Eberle of the ACHCS. The sample point locations are shown on the attached Figure 5.

Based on the analytical results of soil sample D3, Roux returned to the site on May 18, 1992, in order to collect an additional soil sample beneath sample D3. One additional soil sample, labeled D3-A, was collected at a depth of 8 feet below grade. The sample point location is also shown on Figure 5.

The soil samples were analyzed by Sequoia Analytical Laboratory in Concord, California, for total petroleum hydrocarbons (TPH) as gasoline, benzene, toluene, ethylbenzene, and xylenes (BTEX), and for total lead. The analytical results of the soil samples are summarized in Table 8.

Based on the results of the soil samples collected during the dispenser modification project, Roux proposed the installation of three monitoring wells. Documentation of the soil sampling techniques and the analytical results for the dispenser modification project are presented in Roux's report dated June 18, 1992.

On October 5 and 6, 1992, three four-inch diameter monitoring wells (designated as MW-1, MW-2, and MW-3 on the attached Figure 1) were installed by Roux. The monitoring wells were drilled and completed to total depths of 24 to 25 feet below grade. Ground water was encountered during drilling at depths of 14 to 15 feet below grade. The wells were initially sampled by GeoStrategies on November 3, 1992.

The soil samples were analyzed by Sequoia Analytical Laboratory in Concord, California, and the water samples were analyzed by NET Pacific in Santa Rosa, California. The soil and water samples were analyzed for TPH as gasoline and BTEX. The analytical results of the soil samples are summarized in Table 7, and the analytical results of the water samples are summarized in Table 3.

Documentation of the well installation procedures for MW-1, MW-2, and MW-3, the sample collection techniques, and the analytical results are presented in Roux's "Site Assessment Report" dated December 17, 1992. A quarterly monitoring and sampling program was implemented at the site in January of 1993. Monitoring wells MW-1, MW-2, and MW-3 have been monitored and sampled for 14 consecutive quarters since the wells were installed.

KEI's initial field work was conducted at the site on August 3, 1994, when one 280 gallon underground waste oil storage tank was removed from the site. The tank removal and soil sampling were performed in the presence of Ms. Eberle of the ACHCS. Mr. Larry James of the City of Oakland Fire Prevention Bureau was also present during tank removal operations. The tank was made of single-walled steel, and no apparent holes or cracks were observed in the tank.

One soil sample, labeled WO1(9), was collected from beneath the tank at a depth of approximately 9 feet below grade. Due to observed soil contamination at a depth of about 9 feet below grade, additional excavation was performed from 9 feet to approximately 14 feet below grade (over an area of approximately 9 feet by 8 feet). One soil sample, labeled WO1(14), was collected from the bottom of the new excavation at a depth of about 14 feet below grade. Moisture was observed in the soil sample and the entire excavated area at a depth of about 14 feet below grade. In addition, per Ms. Eberle's request, four soil samples, labeled WOSW1 through WOSW4, were collected from the sidewalls of the waste oil tank pit excavation at depths of approximately 9 feet below grade. The undisturbed samples were collected from bulk material excavated by backhoe. The sample point locations are shown on the attached Figure 4. The excavated soil was stockpiled on-site for further sampling prior to disposal. A new 520 gallon double-walled steel waste oil storage tank was installed in the excavation by Gettler-Ryan, Inc. of Dublin, California.

The samples were analyzed by Sequoia Analytical Laboratory in Concord, California, and were accompanied by properly executed Chain of Custody documentation. Samples WO1(9) and WOSW2 were analyzed for TPH as gasoline, BTEX, TPH as diesel, EPA method 8010 constituents, EPA method 8270 constituents, total oil and grease (TOG), and the metals cadmium, chromium, lead, nickel, and zinc.

Samples WOSW1, WOSW3, and WOSW4 were analyzed for TOG only. Soil sample WO1(14) was analyzed for TOG and EPA method 8270 constituents. The results of the soil analyses are summarized in Table 6.

Based on the analytical results of the soil samples collected during the waste oil tank replacement project, and based upon visual inspection of the waste oil tank pit cavity, KEI concluded that elevated concentrations of contamination remain in the soils in the vicinity of the waste oil tank pit at depths of about 9 feet below grade. Sample WO1(9), collected from beneath the waste oil tank, and sidewall samples WOSW2, WOSW3, and WOSW4, collected at depths of approximately 9 feet below grade, showed elevated concentrations of TOG contamination ranging from 1,400 milligrams per kilogram (mg/kg) to 17,000 mg/kg. In addition, samples WO1(9) and WOSW2 showed elevated concentrations of some EPA method 8270 compounds. However, soil sample WO1(14), collected from beneath soil sample WO1(9) at a depth of about 14 feet below grade, showed no detectable concentrations of TOG and EPA method 8270 compounds.

In order to further define the lateral extent of soil contamination in the vicinity of the waste oil tank, KEI recommended the installation of two to three exploratory borings. In addition, KEI recommended the installation of one monitoring well downgradient of the waste oil tank in order to determine whether the ground water in this area had been impacted by petroleum hydrocarbons. Documentation of the waste oil tank removal activities, sample collection techniques, and the analytical results are presented in KEI's report (KEI-P94-0601.R1) dated September 13, 1994.

RECENT FIELD ACTIVITIES

On March 20, 1996, two two-inch diameter monitoring wells and two exploratory borings (designated as MW4, MW5, EB1, and EB2, respectively on the attached Figures 1 and 3) were installed at the site. The location of well MW4 was modified slightly from the original proposed location due to the presence of underground utilities in the sidewalk, and tank pit backfill encountered during an attempt to install well MW4 closer to the waste oil tank (see Figure 3). All drilling activities, including the construction and completion of monitoring wells MW4 and MW5, were conducted in accordance with the guidelines of the Regional Water Quality Control Board (RWQCB), the Alameda County Flood Control and Water Conservation District, and the California Well Standards (per Bulletin 74-90). The subsurface materials penetrated in all of the borings and details of the construction of the monitoring wells are described in the attached Boring Logs and Well Construction Diagram, respectively.

Monitoring wells MW4 and MW5 were drilled and completed to total depths of 20 feet below grade. Exploratory borings EB1 and EB2 were drilled to total depths of 13.5 and 14 feet below grade, respectively. Ground water was encountered during drilling of EB1, EB2, MW4, and MW5 at depths ranging from 9.75 to 11 feet below grade. Soil samples were collected for laboratory analysis and for lithologic logging purposes at a maximum spacing of 5 foot intervals, at significant changes in lithology, at obvious areas of contamination, and at or within the soil/ground water interface, beginning at a depth of approximately 4.5 feet below grade and continuing until ground water was encountered. Other soil sampling conducted below the ground water table was for lithologic logging purposes only. The undisturbed soil samples were collected by driving a California-modified split-spoon sampler (lined with brass liners) ahead of the drilling augers. The two-inch diameter brass liners holding the samples were sealed with Teflon-lined plastic caps, labeled, and placed in individually sealed plastic bags, which were then stored in a cooler, on ice, until delivery to a state-certified laboratory.

For exploratory borings EB1 and EB2, drilling was stopped about 1 to 2 feet after intersecting the first water table. Water samples were collected from each of the borings using a clean Teflon bailer. The water samples were decanted into clean VOA vials and/or one-liter amber bottles, as appropriate, which were then sealed with Teflon-lined screw caps, labeled, and stored in a cooler, on ice, until delivery to a state-certified laboratory.

After the water samples were collected, bentonite was used to seal the borings within the saturated zone. Neat cement grout was then placed from the bentonite plug to the surface using a tremmie pipe. A hardening agent was used for the upper 1 to 2 feet of the borings to reduce curing time.

The well casings for MW4 and MW5 were installed with watertight caps and padlocks. A round, watertight, flush-mounted well cover was cemented in place over each well casing. The surface of each well cover and the top of each well casing were surveyed by Kier & Wright of Pleasanton, California, to Mean Sea Level (MSL) and to a vertical accuracy of 0.01 foot.

Monitoring wells MW4 and MW5 were developed on March 27, 1996. Prior to development, the wells were checked for the depth to the water table and the presence of free product. No free product was noted in the wells. After recording the monitoring data, monitoring wells MW4 and MW5 were purged of 75 and 110 gallons of water, respectively, until the evacuated water was clear and free of visible suspended sediment. Monitoring and well development data are summarized in Table 1.

All of the monitoring wells, including the newly installed wells MW4 and MW5, were monitored and sampled on April 18, 1996, by MPDS Services, Inc. of Concord, California. Prior to sampling, the wells were checked for depth to water, and the presence of free product and sheen. No free product or sheen was noted in any of the wells. After recording the monitoring data and prior to sampling, the wells were each purged of between 7.5 and 41 gallons of water. During purging operations, the field parameters pH, temperature, and electrical conductivity were recorded and are presented in Table 2. Once the field parameters were observed to stabilize and a minimum of approximately four casing volumes had been removed from each well, water samples were then collected using a clean Teflon bailer. The samples were decanted into clean VOA vials and/or one-liter amber bottles, as appropriate, which were then sealed with Teflon-lined screw caps, labeled, and stored in a cooler, on ice, until delivery to a state-certified laboratory.

ANALYTICAL RESULTS

Water samples from all of the wells, and selected soil samples from the borings of MW4, MW5, EB1, and EB2, were analyzed at Sequoia Analytical Laboratory. All samples analyzed were accompanied by properly executed Chain of Custody documentation. All of the soil and water samples were analyzed for TPH as gasoline by EPA method 5030/modified 8015, and BTEX by EPA method 8020. In addition, the soil and water samples collected from MW4, EB1, and EB2 were analyzed for TPH as diesel by EPA methods 3550/modified 8015 (soil) and 3510/modified 8015 (water), TOG by Standard Methods 5520B&F (water) and 5520E&F (soil), and for EPA method 8010 and 8270 constituents, except for the water sample collected from MW4, which was inadvertently not analyzed for EPA method 8270 constituents. The analytical results of the soil samples are summarized in Table 4, and the analytical results of the water samples collected from exploratory borings EB1 and EB2 are summarized in Table 5. Copies of the laboratory analyses and the Chain of Custody documentation for the soil samples and the water samples collected from the exploratory borings are attached to this report.

The analytical results of all the ground water samples collected from the monitoring wells to date are summarized in Table 3. The concentrations of TPH as gasoline and benzene detected in the ground water samples collected on April 18, 1996, are shown on the attached Figure 2. Copies of the laboratory analyses and the Chain of Custody documentation for the water samples collected from the monitoring wells are attached to MPDS Services, Inc.'s Quarterly Data Report (MPDS-UN1871-11) dated May 6, 1996.

HYDROLOGY AND GEOLOGY

On April 18, 1996, the measured depth to ground water in the monitoring wells ranged from 9.27 to 13.40 feet below the tops of the well casings. The ground water flow direction appeared to vary from the south to southwest, as shown on the attached Figure 1. The ground water flow direction has generally varied from the southwest to the south-southwest during the previous 14 quarters of monitoring. The hydraulic gradient at the site on April 18, 1996, was approximately 0.03, based on water level data collected from the monitoring wells prior to purging.

Based on the results of the subsurface studies completed to date, the site is underlain by alluvium to the maximum depth explored (25.5 feet below grade), except where artificial fill has been placed.

The alluvium underlying the site predominantly consists of clay in the uppermost 5 to 7 feet, which is generally underlain by silt, silty sand, and poorly graded fine-grained sand (in order of decreasing abundance) to approximately 16 feet below grade. Clay was encountered beneath these sediments in most of the wells.

DISCUSSION AND RECOMMENDATIONS

Based on the analytical results of the soil samples collected from exploratory borings EB1 and EB2, the extent of soil contamination in the vicinity of the waste oil tank appears to be well defined in the crossgradient directions (northwest and southeast). The analytical results of the soil samples collected from EB1 and EB2 showed low to no detectable concentrations of TPH as gasoline, BTEX, TOG, and EPA method 8010 and 8270 constituents, except for 540 mg/kg of TOG detected in sample EB2(10) at the capillary fringe zone. However, an elevated concentration of TOG (1,000 mg/kg) and several EPA method 8270 constituents (up to 1,300 micrograms per kilogram [$\mu\text{g}/\text{kg}$]) were detected in the capillary fringe zone soils of downgradient boring MW-4.

Based on the analytical results of the water samples collected from exploratory boring EB2 and monitoring well MW-4, it appears that the ground water in the vicinity of the waste oil tank has been impacted by petroleum hydrocarbons. The ground water sample collected from monitoring well MW-4 on April 18, 1996, showed a concentration of benzene at 630 micrograms per liter ($\mu\text{g}/\text{L}$) and a concentration of methyl tert butyl ether (MTBE) at 18,000 $\mu\text{g}/\text{L}$. However, the water samples collected from EB1, EB2, and MW-4 indicated no detectable concentrations of TOG and all EPA method 8010 constituents, except for 0.54 $\mu\text{g}/\text{L}$ of 1,1-dichloroethane detected in EB1. In addition, the ground water samples collected

from EB1 and EB2 indicated no detectable concentrations of semi-volatile compounds (EPA method 8270), except for four compounds detected in EB2 at concentrations less than or equal to 26 $\mu\text{g/L}$. The ground water sample collected from monitoring well MW4 was inadvertently not analyzed for EPA method 8270 constituents.

As shown in Table 3, the most recent ground water samples collected from monitoring wells MW-1, MW-2, and MW-3 on April 18, 1996, showed an anomalous increase in petroleum hydrocarbon concentrations from previous sampling events, particularly MTBE. Therefore, KEI recommends the continuation of the monitoring and sampling program to confirm the results from the April of 1996 sampling event, including the initial sampling results from the recently installed wells MW4 and MW5.

Per a letter dated February 7, 1996, from the ACHCS to Unocal Corporation, the monitoring and sampling program will be reduced from quarterly to semi-annually for all wells. The wells will be monitored and sampled during the first and third quarters of each year (January and July). The ground water samples collected from all of the wells will be analyzed for TPH as gasoline, BTEX, and MTBE. In addition, the ground water sample collected from monitoring well MW4 (adjacent to the waste oil tank) will be analyzed for TPH as diesel, TOG, and EPA method 8010 and 8270 constituents. *ok*

DISTRIBUTION

Copies of this report should be sent to Ms. Jennifer Eberle of the ACHCS, and to the RWQCB, San Francisco Bay Region.

LIMITATIONS

Soil deposits and rock formations may vary in thickness, lithology, saturation, strength and other properties across any site. In addition, environmental changes, either naturally-occurring or artificially-induced, may cause changes in the extent and concentration of any contaminants. Our studies assume that the field and laboratory data are reasonably representative of the site as a whole, and assume that subsurface conditions are reasonably conducive to interpolation and extrapolation.

The results of this study are based on the data obtained from the field and laboratory analyses obtained from a state-certified laboratory. 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, regarding the above, including laboratory analyses, except that our services have been performed in accordance with

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generally accepted professional principles and practices existing for such work.

Should you have any questions regarding this report, please do not hesitate to call me at (510) 602-5100.

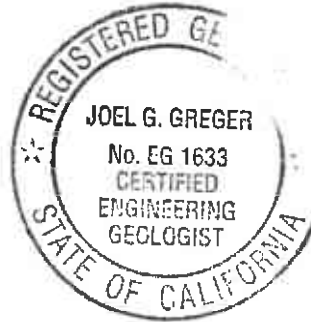
Sincerely,

Kaprealian Engineering, Inc.



Joel G. Greger, C.E.G.
Senior Engineering Geologist

License No. EG 1633
Exp. Date 8/31/96



Thomas J. Berkins
Project Manager

/jad

Attachments: Tables 1 through 8
Location Map
Figures 1 through 5
Boring Logs
Well Construction Diagrams
Laboratory Analyses
Chain of Custody documentation

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TABLE 1

SUMMARY OF MONITORING DATA

<u>Well #</u>	<u>Ground Water Elevation (feet)</u>	<u>Depth to Water (feet)†</u>	<u>Total Well Depth (feet)†</u>	<u>Product Thickness (feet)</u>	<u>Sheen</u>	<u>Water Purged (gallons)</u>
(Monitored and Sampled on April 18, 1996)						
MW-1	72.84	13.40	24.20	0	No	23
MW-2	72.39	9.27	24.80	0	No	41
MW-3	71.25	11.30	23.77	0	No	33
MW-4	72.21	9.83	19.61	0	No	7.5
MW-5	72.15	9.65	20.05	0	No	7.5
(Monitored and Developed on March 27, 1996)						
MW-4	73.06	8.98	19.58	0	--	75
MW-5	73.19	8.61	19.98	0	--	110
(Monitored and Sampled on January 18, 1996)						
MW-1	66.97	14.21	24.13	0	No	17
MW-2	66.50	10.11	24.74	0	No	38
MW-3	65.69	11.79	23.71	0	No	31
(Monitored and Sampled on October 23, 1995)						
MW-1	66.33	14.85	24.1	0	No	20
MW-2	65.91	10.70	24.7	0	No	46
MW-3	64.98	12.50	23.65	0	No	30
(Monitored and Sampled on July 24, 1995)						
MW-1	67.21	13.97	24.17	0	Yes	27
MW-2	66.67	9.94	24.76	0	No	39
MW-3	65.72	11.76	23.73	0	No	32

<u>Well #</u>	<u>Well Casing Elevation (feet)**</u>	<u>Well Casing Elevation (feet)*</u>
MW-1	81.18	86.24
MW-2	76.61	81.66
MW-3	77.48	82.55
MW-4	N/A	82.04
MW-5	N/A	81.80

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TABLE 1 (Continued)

SUMMARY OF MONITORING DATA

- ♦ The depth to water level and total well depth measurements were taken from the top of the well casings.
- Sheen determination was not performed.
- * The top of casing elevations were re-surveyed by Kier & Wright in May, 1996, per City of Oakland Benchmark No. 2310, a cut square in concrete curb at mid point of return at the northeast corner of El Dorado and Fairmont Streets (elevation = 77.53 feet MSL). These well casing elevations are used beginning with the April 18, 1996 monitoring event.
- ** The elevations of the top of the well casings, used prior to April 18, 1996, were surveyed by Roux Associates relative to MSL (benchmark unknown).

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TABLE 2

RECORD OF THE TEMPERATURE, CONDUCTIVITY AND pH VALUES
 IN THE MONITORING WELLS DURING PURGING AND PRIOR TO SAMPLING

(Measured on April 18, 1996)

<u>Well #</u>	<u>Gallons per Well Volume</u>	<u>Time</u>	<u>Gallons Purged</u>	<u>Casing Volumes Purged</u>	<u>Temperature (°F)</u>	<u>Conductivity ((μmhos/cm)x100)</u>	<u>pH</u>
MW-1	7.02	13:40	0	0	75.3	6.05	6.96
			7	1.00	73.2	7.49	6.63
			14	1.99	72.0	7.72	6.62
			21	2.99	72.3	7.62	6.66
			23	3.28	72.4	7.96	6.63
		14:10	WELL DEWATERED				
MW-2	10.09	12:05	0	0	72.3	6.34	7.60
			10	0.99	70.5	5.78	7.03
			20	1.98	68.9	5.65	6.97
			30	2.97	68.9	5.76	6.92
		12:30	41	4.06	69.3	5.40	6.93
MW-3	8.11	10:10	0	0	62.1	9.20	6.73
			8	0.99	65.6	8.70	6.75
			16	1.97	73.4	8.30	6.72
			24	2.96	73.7	8.30	6.72
		10:50	33	4.07	73.6	8.30	6.71
MW-4	1.66	13:00	0	0	70.8	4.96	7.55
			2	1.20	71.6	5.93	7.07
			4	2.41	72.0	5.19	6.89
			6	3.61	72.1	5.75	6.85
		13:09	7.5	4.51	72.7	5.31	6.83
MW-5	1.77	11:15	0	0	80.7	6.80	7.57
			2	1.13	76.8	6.79	7.14
			4	2.26	73.7	6.61	7.08
			6	3.39	74.8	6.39	7.06
		11:30	7.5	4.24	75.6	6.57	7.16

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TABLE 3

SUMMARY OF LABORATORY ANALYSES
 WATER

<u>Well #</u>	<u>Date</u>	<u>TPH as Diesel</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl-benzene</u>	<u>Xylenes</u>	<u>MTBE</u>
MW-1	11/03/92	--	260,000	2,300	4,600	3,700	17,000	--
	1/25/93	--	120,000	2,100	4,600	4,900	22,000	--
	4/29/93	--	100,000	850	2,000	4,300	19,000	--
	7/16/93	--	29,000	590	560	980	4,200	--
	10/19/93	--	67,000	1,400	2,600	2,900	5,000	--
	1/20/94	--	92,000	1,200	3,000	3,400	17,000	--
	4/13/94	--	51,000	1,000	2,600	3,200	15,000	--
	7/13/94	--	35,000	550	150	1,400	5,700	--
	10/10/94	--	52,000	1,000	810	3,300	12,000	--
	1/10/95	--	810	16	18	59	250	--
	4/17/95	--	48,000	880	530	2,500	11,000	--
	7/24/95	--	48,000	1,500	420	2,700	9,700	--
	10/23/95	--	47,000	780	210	2,100	11,000	270
	1/18/96	--	30,000	1,500	500	3,500	13,000	2,400
		--	66,000	2,200	3,100	13,000	57,000	
	MW-2	11/03/92	--	140	2.2	ND	ND	2.0
1/25/93		--	2,100	56	1.1	90	140	--
4/29/93		--	1,500	290	ND	33	11	--
7/16/93		--	510*	17	0.60	3.2	2.5	--
10/19/93		--	670	24	1.1	7.7	23	--
1/20/94		--	820	97	ND	12	ND	--
4/13/94		--	550	71	ND	5.1	1.3	--
7/13/94		--	2,000	490	ND	17	13	--
10/10/94		--	2,300	340	ND	25	ND	--
1/10/95		--	850	3.8	ND	8.5	1.3	--
4/17/95		--	1,300	4.7	ND	8.3	1.2	--
7/24/95		--	960	20	ND	4.2	6.2	--
10/23/95		--	ND	ND	ND	ND	ND	19
1/18/96		--	900	300	86	7.6	18	4,300
	--	18,000	3,500	680	890	4,100	19,000	
MW-3	11/03/92	--	2,100	120	15	38	200	--
	1/25/93	--	2,300	80	1	55	52	--
	4/29/93	--	4,500	1,700	ND	200	140	--
	7/16/93	--	4,000*	1,100	28	52	70	--
	10/19/93	--	3,800	42	ND	50	56	--
	1/20/94	--	4,200	11	ND	21	15	--
	4/13/94	--	4,200	210	ND	36	53	--
	7/13/94	--	1,800**	16	16	ND	21	--
	10/10/94	--	4,300	11	ND	12	ND	--
	1/10/95	--	310	4.6	ND	3.5	2.1	--

TABLE 3 (Continued)

SUMMARY OF LABORATORY ANALYSES
 WATER

Well #	Date	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE
MW-3	4/17/95	--	7,800	ND	4.6	300	450	--
(Cont.)	7/24/95	--	3,200	170	ND	22	16	--
	10/23/95	--	3,900	55	ND	19	11	4,500
	1/18/96	--	2,200	270	33	26	18	5,500
	4/18/96	--	6,000	1,800	ND	100	230	48,000
MW-4	11/18/95	110***	ND	630	ND	ND	ND	18,000
MW-5	10/18/95	--	31,000	5,500	1,400	1,700	8,100	66,000

* Primarily due to the presence of discrete peaks not indicative of gasoline.

** Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a gasoline and non-gasoline mixture.

*** Sequoia Analytical Laboratory reported that the hydrocarbons detected did not appear to contain diesel.

♦ TOG and all EPA Method 8010 constituents were non-detectable.

-- Indicates analysis was not performed.

ND = Non-detectable.

Results are in micrograms per liter (mg/L), unless otherwise indicated.

NOTE: The detection limit for results reported as ND by Sequoia Analytical Laboratory is equal to the stated detection limit times the dilution factor indicated on the laboratory analytical sheets.

Prior to August 1, 1995, the total purgeable petroleum hydrocarbon (TPH as gasoline) quantification range used by Sequoia Analytical Laboratory was C4 - C12. Since August 1, 1995, the quantification range used by Sequoia Analytical Laboratory is C6 - C12.

KEI-P94-0601.R4
 May 17, 1996

TABLE 4

SUMMARY OF LABORATORY ANALYSES
 SOIL

(Collected by KEI on March 20, 1996)

<u>Sample Number</u>	<u>TPH as Diesel</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl-benzene</u>	<u>Xylenes</u>	<u>TOG</u>	<u>EPA Method 8010 Constituents</u>	<u>EPA Method 8270 Constituents</u>
EB1 (5)	ND	ND	ND	ND	ND	ND	ND	ND ⁽²⁾	ND
EB1 (10)	ND	ND	ND	ND	ND	ND	ND	ND	ND
EB2 (5)	ND	ND	ND	ND	ND	ND	ND	ND	ND
EB2 (10)	7.2 ⁽¹⁾	5.7	ND	0.0094	ND	0.035	540	ND	ND
MW4 (5)	1.1 ⁽¹⁾	ND	ND	ND	0.0052	0.019	ND	ND ⁽³⁾	ND
MW4 (9.5)	2.5 ⁽¹⁾	24	ND	0.74	0.15	0.48	1,000	ND ⁽⁴⁾	ND ⁽⁶⁾
MW5 (5)	--	ND	ND	ND	ND	ND	--	--	--
MW5 (9)	--	ND	0.023	ND	ND	ND	--	--	--

NOTE: The soil samples were collected at the depths below grade indicated in the () of the respective sample number.

ND = Non-detectable.

-- Indicates analysis was not performed.

Results are in milligrams per kilogram (mg/kg), unless otherwise indicated.



TABLE 4 (Continued)

SUMMARY OF LABORATORY ANALYSES
 SOIL

FOOTNOTES

- (1) Sequoia Analytical Laboratory reported that the extractable hydrocarbons detected were "unidentified hydrocarbons."
- (2) 1,1-dichloroethene was detected at a concentration of 6.0 micrograms per kilogram ($\mu\text{g}/\text{kg}$).
- (3) 1,1-dichloroethene and tetrachloroethene were detected at concentrations of 11 and 8.7 $\mu\text{g}/\text{kg}$, respectively.
- (4) 1,2-dichlorobenzene and 1,4-dichlorobenzene were detected at concentrations of 37 and 12 $\mu\text{g}/\text{kg}$, respectively.
- (5) All EPA method 8270 constituents were non-detectable, except for the following five compounds:

EB2-10'

Compound	Concentration ($\mu\text{g}/\text{kg}$)
Benzo(k)fluoranthene	190
Chrysene	180
Fluoranthene	610
Phenanthrene	100
Pyrene	690

- (6) All EPA method 8270 constituents were non-detectable, except for the following 11 compounds:

MW4-9.5'

Compound	Concentration ($\mu\text{g}/\text{kg}$)	Compound	Concentration ($\mu\text{g}/\text{kg}$)
Acenaphthene	170	Fluoranthene	860
Anthracene	350	Fluorene	190
Benzo(a)anthracene	260	Naphthalene	150
Benzo(b)fluoranthene	240	Phenanthrene	1,300
Benzo(a)pyrene	160	Pyrene	960
Chrysene	290		

KEI-P94-0601.R4
May 17, 1996

TABLE 5

SUMMARY OF LABORATORY ANALYSES
WATER

(Collected by KEI on March 20, 1996)

<u>Sample Number</u>	<u>TPH as Diesel</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl-benzene</u>	<u>Xylenes</u>	<u>TOG (mg/L)</u>	<u>EPA Method 8010 Constituents</u>	<u>EPA Method 8270 Constituents</u>
EB1	ND	ND	ND	ND	ND	1.3	ND	ND ⁽¹⁾	ND
EB2	ND	ND	690	41	25	64	ND	ND	ND ⁽²⁾

ND = Non-detectable.

mg/L = milligrams per liter.

Results are in micrograms per liter ($\mu\text{g/L}$), unless otherwise indicated.

FOOTNOTES:

- (1) 1,1-dichloroethane was detected at a concentration of 0.54 $\mu\text{g/L}$.
- (2) All EPA method 8270 constituents were non-detectable, except for the following four compounds: fluoranthene at 2.2 $\mu\text{g/L}$, naphthalene at 26 $\mu\text{g/L}$, pyrene at 2.4 $\mu\text{g/L}$, and 2-methylnaphthalene at 2.2 $\mu\text{g/L}$.

KEI-P94-0601.R4
 May 17, 1996

TABLE 6

SUMMARY OF LABORATORY ANALYSES
 SOIL

(Collected by KEI)

<u>Date</u>	<u>Sample</u>	<u>Depth (feet)</u>	<u>TPH as Diesel</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethylbenzene</u>	<u>Xylenes</u>	<u>TOG</u>
8/03/94	WO1(9)	9	97♦	46	0.12	0.11	0.12	0.47	1,400
	WO1(14)*	14	--	--	--	--	--	--	ND
	WOSW1	9	--	--	--	--	--	--	160
	WOSW2	9	1,400♦	960	2.2	2.6	9.5	22	17,000
	WOSW3	9	--	--	--	--	--	--	2,200
	WOSW4	9	--	--	--	--	--	--	2,400

<u>Date</u>	<u>Sample</u>	<u>Bromoform</u>	<u>1,2-Dichlorobenzene</u>	<u>1,3-Dichlorobenzene</u>	<u>1,4-dichlorobenzene</u>
8/03/94	WO1(9)**	ND	22	ND	ND
	WOSW2**	220	1,800	63	540

	<u>Acenaphthene</u>	<u>Anthracene</u>	<u>Benzo(a)anthracene</u>	<u>Benzo(b)fluoranthene</u>
WO1(9)	6,500	9,900	5,300	5,000
WOSW2	3,300	6,100	4,000	3,300

	<u>Benzo(a)pyrene</u>	<u>Chrysene</u>	<u>Dibenzofuran</u>	<u>Fluoranthene</u>	<u>Fluorene</u>
WO1(9)	4,300	7,500	3,400	25,000	6,600
WOSW2	2,900	4,800	ND	15,000	3,800

	<u>2-Methylnaphthalene</u>	<u>Naphthalene</u>	<u>Phenanthrene</u>	<u>Pyrene</u>
WO1(9)	8,500	4,700	38,000	24,000
WOSW2	28,000	10,000	22,000	14,000

KEI-P94-0601.R4
May 17, 1996

TABLE 6 (Continued)
SUMMARY OF LABORATORY ANALYSES
SOIL

(Collected by KEI)

<u>Date</u>	<u>Sample</u>	<u>Cadmium</u>	<u>Chromium</u>	<u>Lead</u>	<u>Nickel</u>	<u>Zinc</u>
8/03/94	WO1(9)	ND	28	21	31	34
	WOSW2	1.2	33	39	35	42

* All EPA method 8270 constituents were non-detectable.

** All other EPA methods 8010 and 8270 constituents were non-detectable.

◆ Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a diesel and non-diesel mixture.

-- Indicates analysis was not performed.

ND = Non-detectable.

Results are in milligrams per kilogram (mg/kg), except for EPA methods 8010 and 8270 constituents, which were reported in micrograms per kilogram (μ g/kg).

KEI-P94-0601.R4
May 17, 1996

TABLE 7

SUMMARY OF LABORATORY ANALYSES
SOIL

(Collected by Roux Associates)

<u>Date</u>	<u>Sample Number</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethylbenzene</u>	<u>Xylenes</u>
10/05/92	MW1(5-6.5)	ND	ND	ND	ND	ND
	MW1(8.5-10)	ND	ND	ND	ND	ND
	MW1(13.5-15)	ND	ND	ND	ND	ND
	MW2(3.5-5)	ND	ND	ND	ND	ND
	MW2(8.5-10)	ND	ND	ND	ND	ND
10/06/92	MW3(4-5.5)	ND	ND	ND	ND	ND
	MW3(9-10.5)	ND	ND	0.0088	ND	0.0060
	MW3(12-13.5)	4.2	0.079	0.010	0.16	0.26
	MW3(13.5-15)	10	0.040	0.013	0.40	0.73

NOTE: The soil samples were collected at the depths below grade indicated in the () of the respective sample number.

ND = Non-detectable.

Results are in milligrams per kilogram (mg/kg), unless otherwise indicated.

KEI-P94-0601.R4
May 17, 1996

TABLE 8

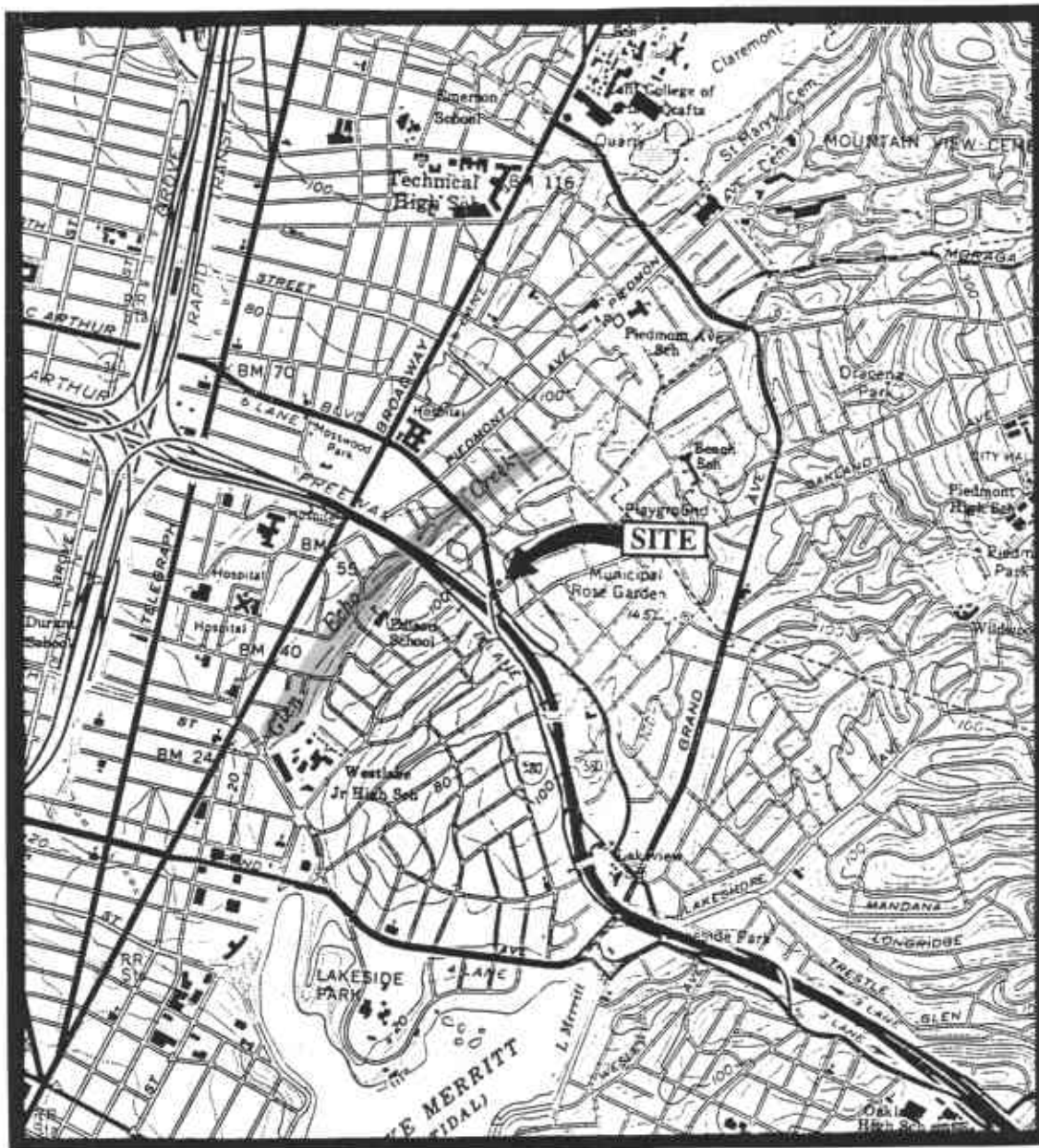
SUMMARY OF LABORATORY ANALYSES
SOIL

(Collected by Roux Associates)

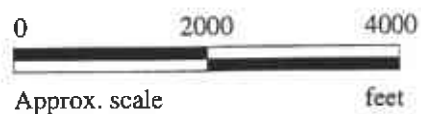
<u>Date</u>	<u>Sample Number</u>	<u>Depth (feet)</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl-benzene</u>	<u>Xylenes</u>	<u>Total Lead</u>
5/13/92	D1	2	ND	ND	ND	ND	ND	2.4
	D2	2	ND	ND	ND	ND	ND	2.6
	D3	4	58	0.20	0.087	0.52	0.97	23
	D4	5	2.9	ND	ND	ND	0.0070	4.8
5/18/92	D3-A	8	1,700	3.1	1.0	11	5.4	18

ND = Non-detectable.

Results are in milligrams per kilogram (mg/kg), unless otherwise indicated.



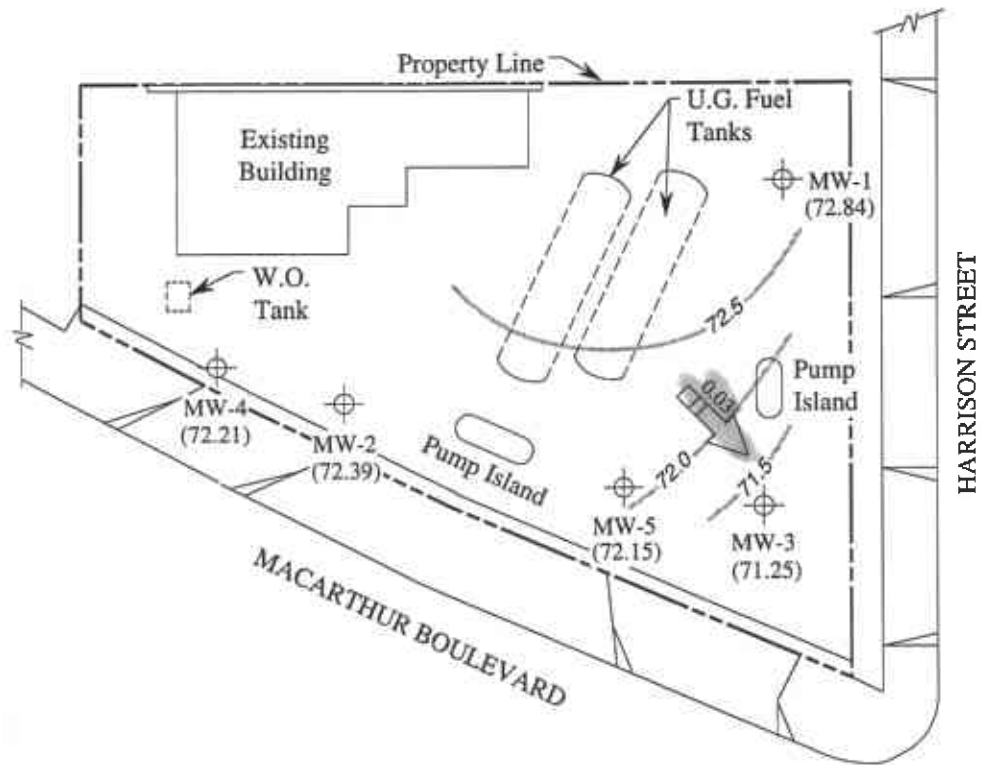
Base modified from 7.5 minute U.S.G.S.
 Oakland East and West Quadrangles
 (both photorevised 1980)



**KAPREALIAN ENGINEERING
 INCORPORATED**

**UNOCAL SERVICE STATION # 1871
 96 MACARTHUR BOULEVARD
 OAKLAND, CALIFORNIA**

**LOCATION
 MAP**



LEGEND

⊕ Monitoring well

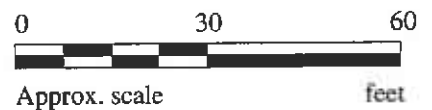
() Ground water elevation in feet above Mean Sea Level

→ Direction of ground water flow with approximate hydraulic gradient

— Contours of ground water elevation

Note:

The ground water elevations and contours were obtained from MPDS Services, Inc.'s Quarterly Data Report dated May 16, 1996.

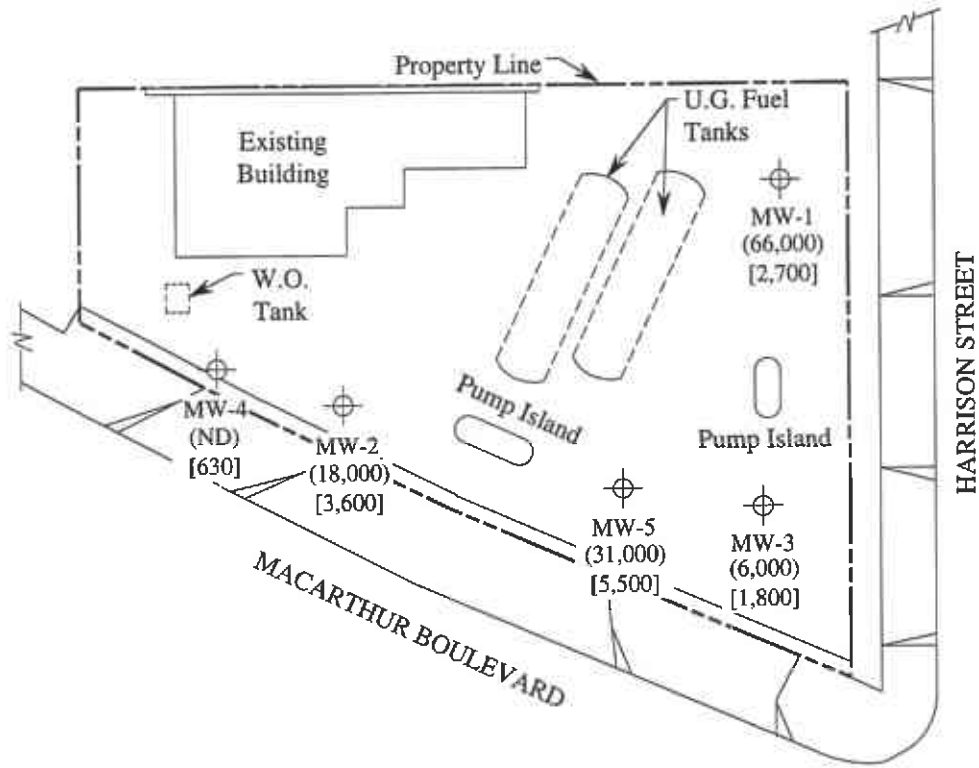


GROUND WATER FLOW DIRECTION MAP FOR THE APRIL 18, 1996 MONITORING EVENT



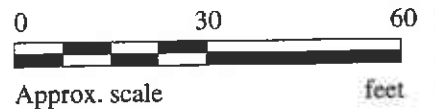
**UNOCAL SERVICE STATION # 1871
96 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA**

**FIGURE
1**



LEGEND

- ⊕ Monitoring well
- () Concentration of TPH as gasoline in $\mu\text{g/L}$
- [] Concentration of benzene in $\mu\text{g/L}$
- ND Non-detectable

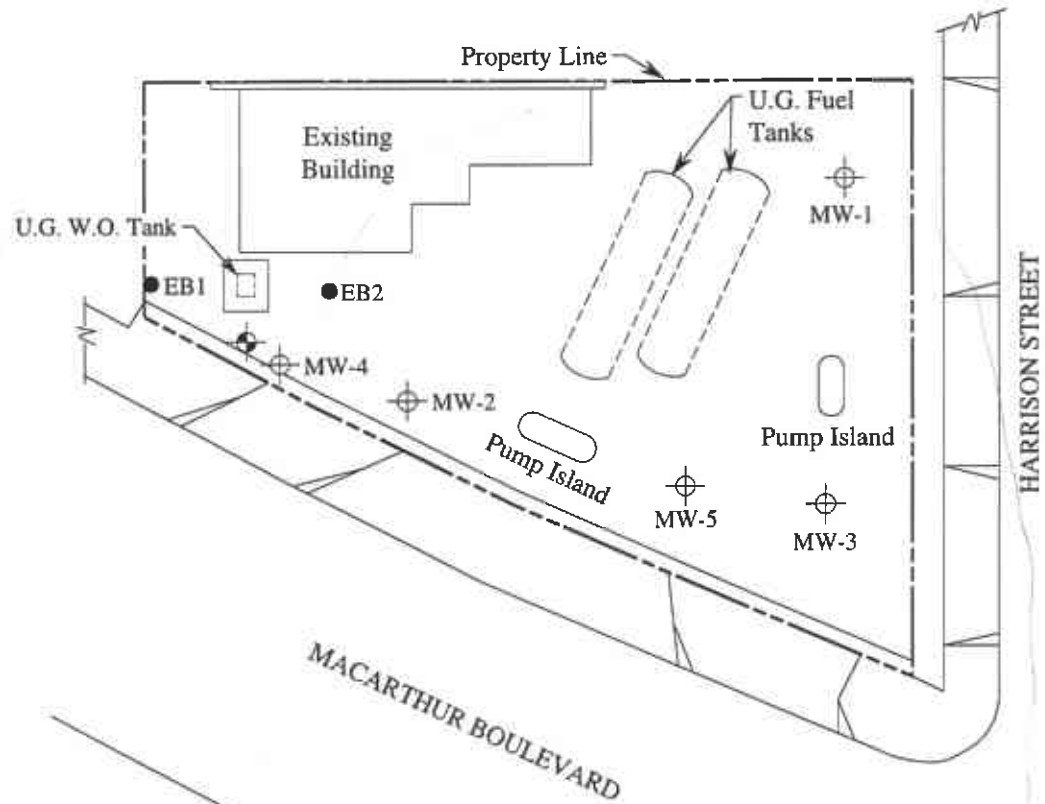


PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON APRIL 18, 1996



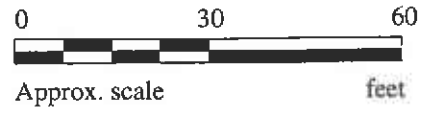
**UNOCAL SERVICE STATION # 1871
96 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA**

**FIGURE
2**



LEGEND

- ⊕ Monitoring well
- ⊕ Monitoring well (attempted MW4 location)
- Exploratory boring

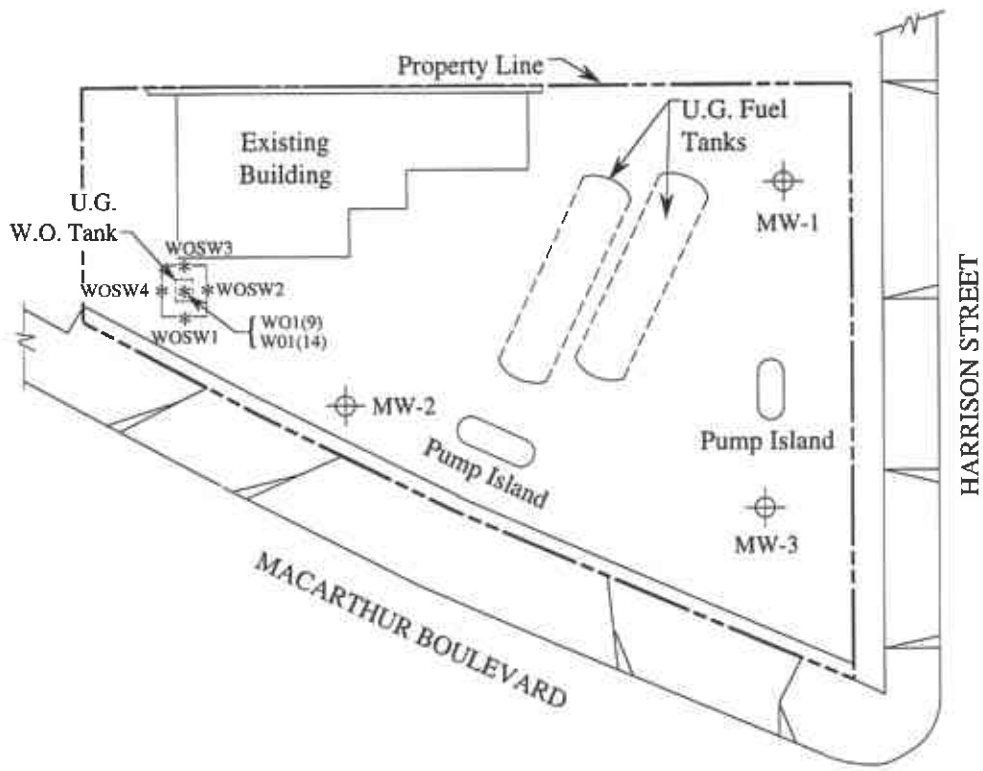


EXPLORATORY BORING AND MONITORING WELL LOCATION MAP



**UNOCAL SERVICE STATION # 1871
96 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA**

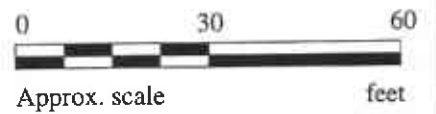
**FIGURE
3**



LEGEND

⊕ Monitoring well

* Sample point location (samples collected on April 3, 1994)

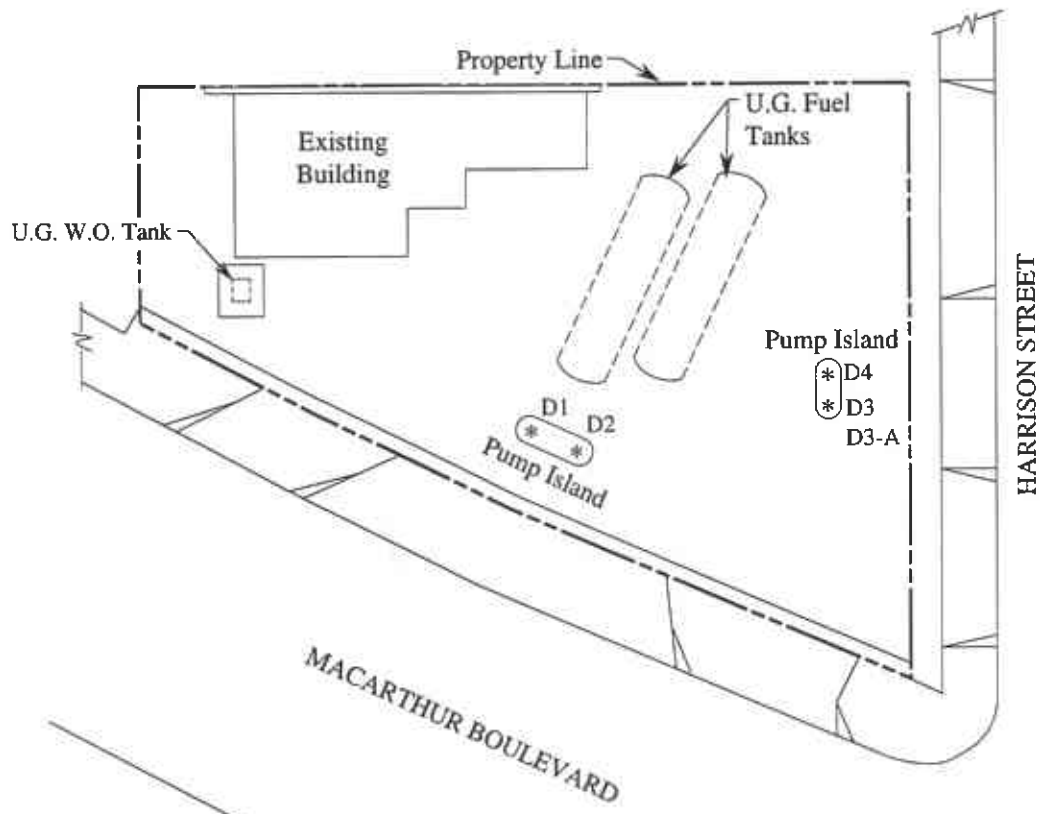


WASTE OIL TANK PIT SOIL SAMPLE POINT LOCATION MAP



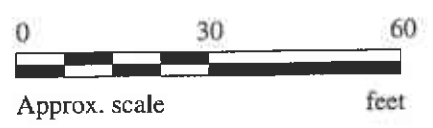
**UNOCAL SERVICE STATION # 1871
96 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA**

**FIGURE
4**



LEGEND

* Sample point location
(samples collected by Roux Assoc. on May 13 and 18, 1992)



FUEL DISPENSER SOIL SAMPLE POINT LOCATION MAP



**UNOCAL SERVICE STATION # 1871
96 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA**

**FIGURE
5**

BORING LOG

Project No. KEI-P94-0601.P2	Boring Diameter 8.75"	Logged By <i>J66</i> T.S. <i>LEG 1633</i>
	Casing Diameter NA"	
Project Name Unocal S/S #1871 96 MacArthur Blvd., Oakland	Well Cover Elevation N/A	Date Drilled 3/20/96
Boring No. EB1	Drilling Method Hollow-stem Auger	Drilling Company Woodward Drilling

Penetration blows/6"	G.W. level	O.V.M. (ppm)	Depth (feet) Samples	Stratigraphy USCS	Description
			0		Concrete slab over sand base.
				CL	Clay, estimated at 5-15% sand, firm, moist, dark greenish gray.
9/13/22			5		Clay, estimated at 10-15% fine-grained sand, very stiff to hard, moist, greenish gray.
				ML	Clayey silt, estimated at 10-20% fine-grained sand, very stiff, moist, pale olive.
9/12/16			10	SP	Poorly graded sand, sand is very fine to fine-grained, trace silt, medium dense, moist to wet, light olive gray.
7/13/14	▽			ML	Clayey silt, estimated at 10-20% silt, sand is very fine to fine-grained, medium dense, wet, gray.
5/10/16				ML	Silty sand, estimated at 15-20% silt, sand is very fine to fine-grained, medium dense, wet, gray.
					TOTAL DEPTH: 13.5'
			15		
			20		

BORING LOG

Project No. KEI-P94-0601.P2	Boring Diameter 8.75"	Logged By <i>J66</i> T.S. <i>CEC 1633</i>
	Casing Diameter NA"	
Project Name Unocal S/S #1871 96 MacArthur Blvd., Oakland	Well Cover Elevation N/A	Date Drilled 3/20/96
Boring No. EB2	Drilling Method Hollow-stem Auger	Drilling Company Woodward Drilling

Penetration blows/6"	G.W level	O.V.M. (ppm)	Depth (feet) Samples	Stratigraphy USCS	Description
			0		A.C. pavement over sand and gravel base.
					Sand and gravel fill, debris.
					Native soil
				CL	Clay with silt, trace sand and gravel, firm, moist, dark greenish gray.
9/13/16			5	SM	Silty sand, sand is predominantly fine-grained, trace granules, medium dense, olive gray.
				ML	Silt, estimated at 20-30% very fine to fine-grained sand, and 10-20% clay, very stiff, moist, greenish gray.
7/11/13	▽		10		
				SW-SM	Well graded sand with silt and gravel, estimated at 25-30% gravel to 1 inch in diameter, and 5-15% silt, medium dense to dense, wet to saturated, greenish gray.
8/18/24					TOTAL DEPTH: 14'
			15		
			20		

BORING LOG

Project No. KEI-P94-0601.P2	Boring Diameter 8.75" Casing Diameter 2"	Logged By <i>JGG</i> T.S. <i>LEC 1633</i>
Project Name Unocal S/S #1871 96 MacArthur Blvd., Oakland	Well Cover Elevation N/A	Date Drilled 3/20/96
Boring No. MW4	Drilling Method Hollow-stem Auger	Drilling Company Woodward Drilling

Pene- tration blows/6"	G.W level	O.V.M. (ppm)	Depth (feet) Samples	Stratigraphy USCS	Description
			0		Asphalt over base gravel.
				CL	Clay with sand, estimated at 15-25% fine-grained sand, firm, moist, dark greenish gray.
8/13/16			5		Sandy clay, estimated at 25-30% very fine to coarse-grained sand, and 5-10% gravel to 3/4 inch in diameter, very stiff, moist, light olive brown.
				SP- SM	Poorly graded sand with silt, sand is predominantly fine-grained, estimated at 5-15% silt, medium dense, moist to wet, greenish gray.
8/10/13	▽		10		Poorly graded sand with silt, predominantly fine-grained, estimated at 5-10% silt, medium dense, wet, greenish gray.
7/11/14					
				GC	Clayey gravel with sand, gravel to 1 1/4 inches in diameter, estimated at 25-30% well graded fine to coarse-grained sand, and 10-20% clay, dense to very dense, saturated, yellowish brown.
16/32/40			15		
12/19/30				CL	Clay, trace sand, very stiff to hard, moist, light olive brown.
6/13/22					
			20		
TOTAL DEPTH: 20'					

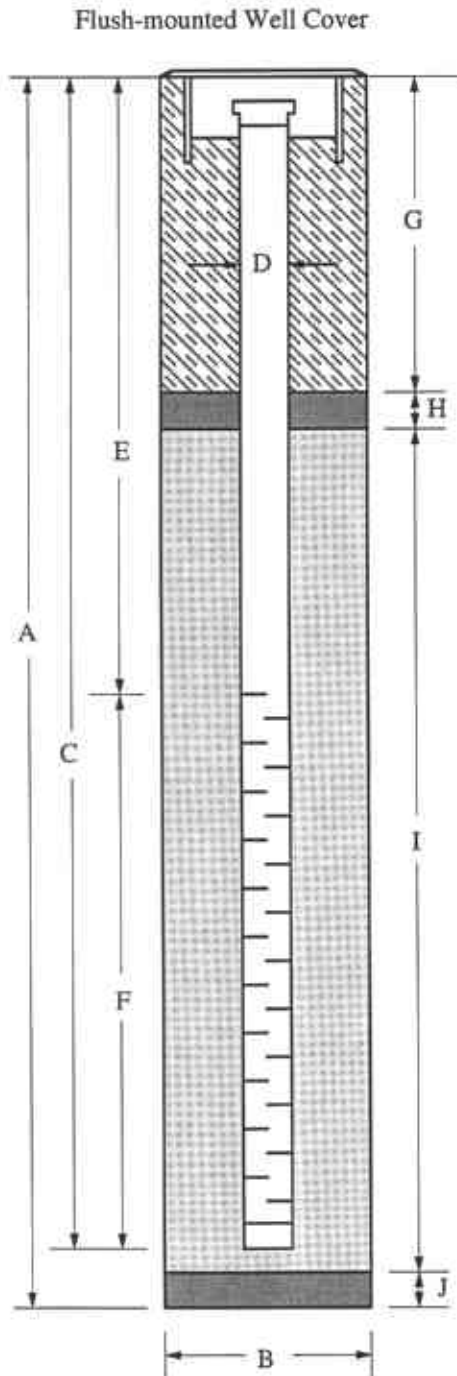
WELL CONSTRUCTION DIAGRAM

PROJECT NAME: Unocal S/S #1871, 96 MacArthur Blvd., Oakland

WELL NO.: MW4

PROJECT NUMBER: KEI-P94-0601.P2

WELL PERMIT NO.: ACFC & WCD #96164



- A. Total Depth : 20'
- B. Boring Diameter: 8.75"
 Drilling Method: Hollow Stem Auger
- C. Casing Length: 20'
 Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 5'
- F. Perforated Length: 15'
 Perforation Type: Machine Slotted
 Perforation Size: 0.010"
- G. Surface Seal: 3'
 Seal Material: Neat Cement
- H. Seal: 1'
 Seal Material: Bentonite
- I. Filter Pack: 16'
 Pack Material: RMC Lonestar Sand
 Size: #2/12
- J. Bottom Seal: None
 Seal Material: N/A

BORING LOG

Project No. KEI-P94-0601.P2	Boring Diameter 8.75"	Logged By JGL T.S. (EG 1633)
	Casing Diameter 2"	
Project Name Unocal S/S #1871 96 MacArthur Blvd., Oakland	Well Cover Elevation N/A	Date Drilled 3/20/96
Boring No. MW5	Drilling Method Hollow-stem Auger	Drilling Company Woodward Drilling

Penetration blows/6"	G.W level	O.V.M. (ppm)	Depth (feet) Samples	Stratigraphy USCS	Description
			0		A.C. pavement over sand and gravel.
				CL	Clay, estimated at 10-15% fine to medium-grained sand, trace gravel to 1 inch in diameter, soft, moist, greenish gray.
5/12/17			5	ML	Silt, estimated at 10-20% clay, and 10-20% fine-grained sand, firm, moist, olive. Silty sand, estimated at 15-25% silt, sand is very fine to fine-grained, medium dense, moist, grayish green.
9/14/16					Silty sand, estimated at 15-20% silt, sand is predominantly fine-grained, medium dense, moist, grayish green.
10/12/18	▽		10	SP-SM	Poorly graded sand, sand is predominantly fine-grained, estimated at 5-10% silt, medium dense, moist, greenish gray.
14/26/31			15	SW-SM	Well graded sand with silt and gravel, estimated at 10-20% gravel to 1 1/2 inches in diameter, 5-15% silt, dense to very dense, wet, dark greenish gray.
9/14/17			20	CL	Clay, very stiff, moist, pale olive.
TOTAL DEPTH: 20'					

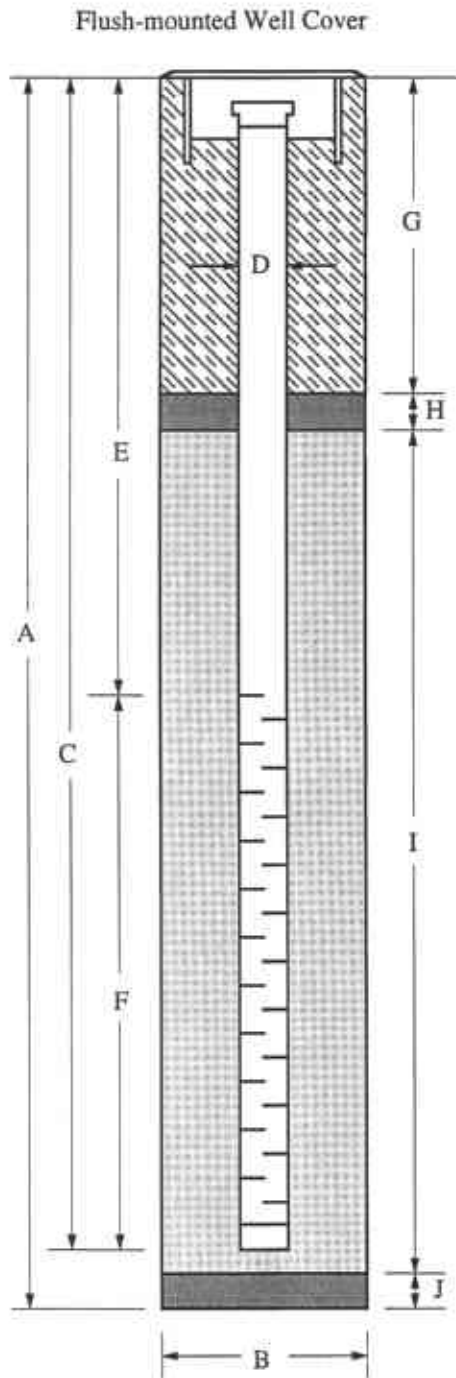
WELL CONSTRUCTION DIAGRAM

PROJECT NAME: Unocal S/S #1871, 96 MacArthur Blvd., Oakland

WELL NO.: MW5

PROJECT NUMBER: KEI-P94-0601.P2

WELL PERMIT NO.: ACFC & WCD #96164



- | | |
|---------------------------|-------------------|
| A. Total Depth : | 20' |
| B. Boring Diameter: | 8.75" |
| Drilling Method: | Hollow Stem Auger |
| C. Casing Length: | 20' |
| Material: | Schedule 40 PVC |
| D. Casing Diameter: | OD = 2.375" |
| | ID = 2.067" |
| E. Depth to Perforations: | 5' |
| F. Perforated Length: | 15' |
| Perforation Type: | Machine Slotted |
| Perforation Size: | 0.010" |
| G. Surface Seal: | 3' |
| Seal Material: | Neat Cement |
| H. Seal: | 1' |
| Seal Material: | Bentonite |
| I. Filter Pack: | 16' |
| Pack Material: | RMC Lonestar Sand |
| Size: | #2/12 |
| J. Bottom Seal: | None |
| Seal Material: | N/A |



Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd., Oakland
Sample Matrix: Water
Analysis Method: EPA 5030/8015 Mod./8020
First Sample #: 603-1804

Sampled: Mar 20, 1996
Received: Mar 22, 1996
Reported: Apr 10, 1996

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 603-1804 EB1	Sample I.D. 603-1805 EB2
Purgeable Hydrocarbons	50	N.D.	1,400
Benzene	0.50	N.D.	690
Toluene	0.50	N.D.	41
Ethyl Benzene	0.50	N.D.	25
Total Xylenes	0.50	1.3	64
Chromatogram Pattern:		--	Gasoline

Quality Control Data

Report Limit Multiplication Factor:	1.0	10
Date Analyzed:	4/3/96	4/3/96
Instrument Identification:	HP-5	HP-5
Surrogate Recovery, %: (QC Limits = 70-130%)	92	82

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager





Kaprealian Engineering, Inc. 2401 Stanwell Dr., Ste. 400 Concord, CA 94520 Attention: Dennis Royce	Client Project ID: Unocal #1871, 96 MacArthur Blvd., Oakland Sample Matrix: Water Analysis Method: EPA 3510/8015 Mod. First Sample #: 603-1804	Sampled: Mar 20, 1996 Received: Mar 22, 1996 Reported: Apr 10, 1996
-------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 603-1804 EB1	Sample I.D. 603-1805 EB2
Extractable Hydrocarbons	50	N.D.	410


Chromatogram Pattern: -- Diesel & Unidentified Hydrocarbons <C15

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0
Date Extracted:	3/26/96	3/26/96
Date Analyzed:	3/26/96	3/26/96
Instrument Identification:	HP-3B	HP-3B

Extractable Hydrocarbons are quantitated against a fresh diesel standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager





Kaprealian Engineering, Inc. 2401 Stanwell Dr., Ste. 400 Concord, CA 94520 Attention: Dennis Royce	Client Project ID:	Unocal #1871, 96 MacArthur Blvd., Oakland	Sampled:	Mar 20, 1996
	Matrix Descript:	Water	Received:	Mar 22, 1996
	Analysis Method:	SM 5520 B&F (Gravimetric)	Extracted:	Mar 25, 1996
	First Sample #:	603-1804	Analyzed:	Mar 25, 1996
			Reported:	Apr 10, 1996

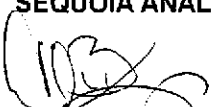
TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/L (ppm)	Detection Limit Multiplication Factor
603-1804	EB1	N.D.	1.0
603-1805	EB2	N.D.	1.0

Detection Limits:	5.0
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Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager





Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd., Oakland
Sample Descript: Water, EB1
Analysis Method: EPA 5030/8010
Lab Number: 603-1804

Sampled: Mar 20, 1996
Received: Mar 22, 1996
Analyzed: Mar 28, 1996
Reported: Apr 10, 1996

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane.....	0.50	N.D.
Bromoform.....	0.50	N.D.
Bromomethane.....	1.0	N.D.
Carbon tetrachloride.....	0.50	N.D.
Chlorobenzene.....	0.50	N.D.
Chloroethane.....	1.0	N.D.
2-Chloroethylvinyl ether.....	1.0	N.D.
Chloroform.....	0.50	N.D.
Chloromethane.....	1.0	N.D.
Dibromochloromethane.....	0.50	N.D.
1,3-Dichlorobenzene.....	0.50	N.D.
1,4-Dichlorobenzene.....	0.50	N.D.
1,2-Dichlorobenzene.....	0.50	N.D.
1,1-Dichloroethane.....	0.50	0.54
1,2-Dichloroethane.....	0.50	N.D.
1,1-Dichloroethene.....	0.50	N.D.
cis-1,2-Dichloroethene.....	0.50	N.D.
trans-1,2-Dichloroethene.....	0.50	N.D.
1,2-Dichloropropane.....	0.50	N.D.
cis-1,3-Dichloropropene.....	0.50	N.D.
trans-1,3-Dichloropropene.....	0.50	N.D.
Methylene chloride.....	5.0	N.D.
1,1,2,2-Tetrachloroethane.....	0.50	N.D.
Tetrachloroethene.....	0.50	N.D.
1,1,1-Trichloroethane.....	0.50	N.D.
1,1,2-Trichloroethane.....	0.50	N.D.
Trichloroethene.....	0.50	N.D.
Trichlorofluoromethane.....	0.50	N.D.
Vinyl chloride.....	1.0	N.D.

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

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager





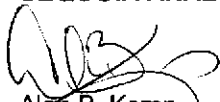
Kaprealian Engineering, Inc. 2401 Stanwell Dr., Ste. 400 Concord, CA 94520 Attention: Dennis Royce	Client Project ID: Unocal #1871, 96 MacArthur Blvd., Oakland Sample Descript: Water, EB2 Analysis Method: EPA 5030/8010 Lab Number: 603-1805	Sampled: Mar 20, 1996 Received: Mar 22, 1996 Analyzed: Mar 28, 1996 Reported: Apr 10, 1996
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HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane.....	0.50	N.D.
Bromoform.....	0.50	N.D.
Bromomethane.....	1.0	N.D.
Carbon tetrachloride.....	0.50	N.D.
Chlorobenzene.....	0.50	N.D.
Chloroethane.....	1.0	N.D.
2-Chloroethylvinyl ether.....	1.0	N.D.
Chloroform.....	0.50	N.D.
Chloromethane.....	1.0	N.D.
Dibromochloromethane.....	0.50	N.D.
1,3-Dichlorobenzene.....	0.50	N.D.
1,4-Dichlorobenzene.....	0.50	N.D.
1,2-Dichlorobenzene.....	0.50	N.D.
1,1-Dichloroethane.....	0.50	N.D.
1,2-Dichloroethane.....	0.50	N.D.
1,1-Dichloroethene.....	0.50	N.D.
cis-1,2-Dichloroethene.....	0.50	N.D.
trans-1,2-Dichloroethene.....	0.50	N.D.
1,2-Dichloropropane.....	0.50	N.D.
cis-1,3-Dichloropropene.....	0.50	N.D.
trans-1,3-Dichloropropene.....	0.50	N.D.
Methylene chloride.....	5.0	N.D.
1,1,2,2-Tetrachloroethane.....	0.50	N.D.
Tetrachloroethene.....	0.50	N.D.
1,1,1-Trichloroethane.....	0.50	N.D.
1,1,2-Trichloroethane.....	0.50	N.D.
Trichloroethene.....	0.50	N.D.
Trichlorofluoromethane.....	0.50	N.D.
Vinyl chloride.....	1.0	N.D.

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

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager





Kapreallan Engineering, Inc. 2401 Stanwell Dr., Ste. 400 Concord, CA 94520 Attention: Dennis Royce	Client Project ID: Unocal #1871, 96 MacArthur Blvd., Oakland Sample Descript: Water, EB1 Analysis Method: EPA 8270 Lab Number: 603-1804	Sampled: Mar 20, 1996 Received: Mar 22, 1996 Extracted: Mar 27, 1996 Analyzed: Apr 2, 1996 Reported: Apr 10, 1996
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SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/L	Sample Results µg/L
Acenaphthene.....	2.0	N.D.
Acenaphthylene.....	2.0	N.D.
Aniline.....	2.0	N.D.
Anthracene.....	2.0	N.D.
Benzidine.....	50	N.D.
Benzoic Acid.....	10	N.D.
Benzo(a)anthracene.....	2.0	N.D.
Benzo(b)fluoranthene.....	2.0	N.D.
Benzo(k)fluoranthene.....	2.0	N.D.
Benzo(g,h,i)perylene.....	2.0	N.D.
Benzo(a)pyrene.....	2.0	N.D.
Benzyl alcohol.....	2.0	N.D.
Bis(2-chloroethoxy)methane.....	2.0	N.D.
Bis(2-chloroethyl)ether.....	2.0	N.D.
Bis(2-chloroisopropyl)ether.....	2.0	N.D.
Bis(2-ethylhexyl)phthalate.....	10	N.D.
4-Bromophenyl phenyl ether.....	2.0	N.D.
Butyl benzyl phthalate.....	2.0	N.D.
4-Chloroaniline.....	2.0	N.D.
2-Chloronaphthalene.....	2.0	N.D.
4-Chloro-3-methylphenol.....	2.0	N.D.
2-Chlorophenol.....	2.0	N.D.
4-Chlorophenyl phenyl ether.....	2.0	N.D.
Chrysene.....	2.0	N.D.
Dibenz(a,h)anthracene.....	2.0	N.D.
Dibenzofuran.....	2.0	N.D.
Di-N-butyl phthalate.....	10	N.D.
1,3-Dichlorobenzene.....	2.0	N.D.
1,4-Dichlorobenzene.....	2.0	N.D.
1,2-Dichlorobenzene.....	2.0	N.D.
3,3-Dichlorobenzidine.....	10	N.D.
2,4-Dichlorophenol.....	2.0	N.D.
Diethyl phthalate.....	2.0	N.D.
2,4-Dimethylphenol.....	2.0	N.D.
Dimethyl phthalate.....	2.0	N.D.
4,6-Dinitro-2-methylphenol.....	10	N.D.
2,4-Dinitrophenol.....	10	N.D.
2,4-Dinitrotoluene.....	2.0	N.D.
2,6-Dinitrotoluene.....	2.0	N.D.
Di-N-octyl phthalate.....	2.0	N.D.





Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd., Oakland
Sample Descript: Water, EB1
Analysis Method: EPA 8270
Lab Number: 603-1804

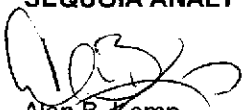
Sampled: Mar 20, 1996
Received: Mar 22, 1996
Extracted: Mar 27, 1996
Analyzed: Apr 2, 1996
Reported: Apr 10, 1996

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

Analyte	Detection Limit µg/L	Sample Results µg/L
Fluoranthene.....	2.0	N.D.
Fluorene.....	2.0	N.D.
Hexachlorobenzene.....	2.0	N.D.
Hexachlorobutadiene.....	2.0	N.D.
Hexachlorocyclopentadiene.....	2.0	N.D.
Hexachloroethane.....	2.0	N.D.
Indeno(1,2,3-cd)pyrene.....	2.0	N.D.
Isophorone.....	2.0	N.D.
2-Methylnaphthalene.....	2.0	N.D.
2-Methylphenol.....	2.0	N.D.
4-Methylphenol.....	2.0	N.D.
Naphthalene.....	2.0	N.D.
2-Nitroaniline.....	10	N.D.
3-Nitroaniline.....	10	N.D.
4-Nitroaniline.....	10	N.D.
Nitrobenzene.....	2.0	N.D.
2-Nitrophenol.....	2.0	N.D.
4-Nitrophenol.....	10	N.D.
N-Nitrosodimethylamine.....	2.0	N.D.
N-Nitrosodiphenylamine.....	2.0	N.D.
N-Nitroso-di-N-propylamine.....	2.0	N.D.
Pentachlorophenol.....	10	N.D.
Phenanthrene.....	2.0	N.D.
Phenol.....	2.0	N.D.
Pyrene.....	2.0	N.D.
1,2,4-Trichlorobenzene.....	2.0	N.D.
2,4,5-Trichlorophenol.....	10	N.D.
2,4,6-Trichlorophenol.....	2.0	N.D.

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

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager





Kaprealan Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd., Oakland
Sample Descript: Water, EB2
Analysis Method: EPA 8270
Lab Number: 603-1805

Sampled: Mar 20, 1996
Received: Mar 22, 1996
Extracted: Mar 27, 1996
Analyzed: Apr 2, 1996
Reported: Apr 10, 1996

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

Analyte	Detection Limit µg/L	Sample Results µg/L
Acenaphthene.....	2.0	N.D.
Acenaphthylene.....	2.0	N.D.
Aniline.....	2.0	N.D.
Anthracene.....	2.0	N.D.
Benzidine.....	50	N.D.
Benzoic Acid.....	10	N.D.
Benzo(a)anthracene.....	2.0	N.D.
Benzo(b)fluoranthene.....	2.0	N.D.
Benzo(k)fluoranthene.....	2.0	N.D.
Benzo(g,h,i)perylene.....	2.0	N.D.
Benzo(a)pyrene.....	2.0	N.D.
Benzyl alcohol.....	2.0	N.D.
Bis(2-chloroethoxy)methane.....	2.0	N.D.
Bis(2-chloroethyl)ether.....	2.0	N.D.
Bis(2-chloroisopropyl)ether.....	2.0	N.D.
Bis(2-ethylhexyl)phthalate.....	10	N.D.
4-Bromophenyl phenyl ether.....	2.0	N.D.
Butyl benzyl phthalate.....	2.0	N.D.
4-Chloroaniline.....	2.0	N.D.
2-Chloronaphthalene.....	2.0	N.D.
4-Chloro-3-methylphenol.....	2.0	N.D.
2-Chlorophenol.....	2.0	N.D.
4-Chlorophenyl phenyl ether.....	2.0	N.D.
Chrysene.....	2.0	N.D.
Dibenz(a,h)anthracene.....	2.0	N.D.
Dibenzofuran.....	2.0	N.D.
Di-N-butyl phthalate.....	10	N.D.
1,3-Dichlorobenzene.....	2.0	N.D.
1,4-Dichlorobenzene.....	2.0	N.D.
1,2-Dichlorobenzene.....	2.0	N.D.
3,3-Dichlorobenzidine.....	10	N.D.
2,4-Dichlorophenol.....	2.0	N.D.
Diethyl phthalate.....	2.0	N.D.
2,4-Dimethylphenol.....	2.0	N.D.
Dimethyl phthalate.....	2.0	N.D.
4,6-Dinitro-2-methylphenol.....	10	N.D.
2,4-Dinitrophenol.....	10	N.D.
2,4-Dinitrotoluene.....	2.0	N.D.
2,6-Dinitrotoluene.....	2.0	N.D.
Di-N-octyl phthalate.....	2.0	N.D.





Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd., Oakland
Sample Descript: Water, EB2
Analysis Method: EPA 8270
Lab Number: 603-1805

Sampled: Mar 20, 1996
Received: Mar 22, 1996
Extracted: Mar 27, 1996
Analyzed: Apr 2, 1996
Reported: Apr 10, 1996

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

Analyte	Detection Limit µg/L	Sample Results µg/L
Fluoranthene	2.0	2.2
Fluorene.....	2.0	N.D.
Hexachlorobenzene.....	2.0	N.D.
Hexachlorobutadiene.....	2.0	N.D.
Hexachlorocyclopentadiene.....	2.0	N.D.
Hexachloroethane.....	2.0	N.D.
Indeno(1,2,3-cd)pyrene.....	2.0	N.D.
Isophorone.....	2.0	N.D.
2-Methylnaphthalene	2.0	2.2
2-Methylphenol.....	2.0	N.D.
4-Methylphenol.....	2.0	N.D.
Naphthalene	2.0	26
2-Nitroaniline.....	10	N.D.
3-Nitroaniline.....	10	N.D.
4-Nitroaniline.....	10	N.D.
Nitrobenzene.....	2.0	N.D.
2-Nitrophenol.....	2.0	N.D.
4-Nitrophenol.....	10	N.D.
N-Nitrosodimethylamine.....	2.0	N.D.
N-Nitrosodiphenylamine.....	2.0	N.D.
N-Nitroso-di-N-propylamine.....	2.0	N.D.
Pentachlorophenol.....	10	N.D.
Phenanthrene.....	2.0	N.D.
Phenol.....	2.0	N.D.
Pyrene	2.0	2.4
1,2,4-Trichlorobenzene.....	2.0	N.D.
2,4,5-Trichlorophenol.....	10	N.D.
2,4,6-Trichlorophenol.....	2.0	N.D.

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

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager





Kaprelian Engineering, Inc.
 2401 Stanwell Dr., Ste. 400
 Concord, CA 94520
 Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd., Oakland
 Matrix: Liquid

QC Sample Group: 6031804-805

Reported: Apr 12, 1996

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel	Oil & Grease
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015	SM 5520
Analyst:	L. Huang	L. Huang	L. Huang	L. Huang	J. Dinsay	D. Newcomb

MS/MSD Batch#:	6032108	6032108	6032108	6032108	BLK032696	BLK032596
Date Prepared:	4/3/96	4/3/96	4/3/96	4/3/96	3/26/96	3/25/96
Date Analyzed:	4/3/96	4/3/96	4/3/96	4/3/96	3/26/96	3/25/96
Instrument I.D.#:	HP-11	HP-11	HP-11	HP-11	HP-3B	Manual
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	300 µg/L	100 mg/L
Matrix Spike % Recovery:	125	110	115	113	80	92
Matrix Spike Duplicate % Recovery:	130	115	120	120	77	91
Relative % Difference:	3.9	4.4	4.2	5.7	4.3	1.1

LCS Batch#:	11LCS040396	11LCS040396	11LCS040396	11LCS040396	LCS032696	BLK032596
Date Prepared:	4/3/96	4/3/96	4/3/96	4/3/96	3/26/96	3/25/96
Date Analyzed:	4/3/96	4/3/96	4/3/96	4/3/96	3/26/96	3/25/96
Instrument I.D.#:	HP-11	HP-11	HP-11	HP-11	HP-3B	Manual
LCS % Recovery:	120	100	105	108	80	92

% Recovery Control Limits:	71-133	72-128	72-130	71-120	50-150	60-140
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Please Note:
 The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

SEQUOIA ANALYTICAL, #1271


 Alan B. Kemp
 Project Manager





Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd., Oakland
Matrix: Liquid

QC Sample Group: 6031804-805

Reported: Apr 10, 1996

QUALITY CONTROL DATA REPORT

ANALYTE	1,1-Dichloro-ethene	Trichloro-ethene	Chloro-benzene
Method:	EPA 8010	EPA 8010	EPA 8010
Analyst:	I.Dalvand	I.Dalvand	I.Dalvand

MS/MSD			
Batch#:	6031428	6031428	6031428
Date Prepared:	3/28/96	3/28/96	3/28/96
Date Analyzed:	3/28/96	3/28/96	3/28/96
Instrument I.D.#:	HP-7	HP-7	HP-7
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L
Matrix Spike			
% Recovery:	68	92	87
Matrix Spike Duplicate %			
Recovery:	65	96	87
Relative % Difference:	4.5	4.3	0.0

LCS Batch#:	LCS032896	LCS032896	LCS032896
Date Prepared:	3/28/96	3/28/96	3/28/96
Date Analyzed:	3/28/96	3/28/96	3/28/96
Instrument I.D.#:	HP-7	HP-7	HP-7
LCS % Recovery:	72	93	91

% Recovery Control Limits:	28-167	35-146	38-150
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Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager





Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd., Oakland
Matrix: Liquid

QC Sample Group: 6031804-805

Reported: Apr 10, 1996

QUALITY CONTROL DATA REPORT

ANALYTE	Phenol	2-Chlorophenol	1,4-Dichloro- benzene	N-Nitroso-Di- N-propylamine	1,2,4-Trichloro- benzene	4-Chloro-3- Methylphenol
Prep. Method:	EPA 3510	EPA 3510	EPA 3510	EPA 3510	EPA 3510	EPA 3510
Method:	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270
Analyst:	T. Granicher	T. Granicher	T. Granicher	T. Granicher	T. Granicher	T. Granicher

MS/MSD Batch#:	MS032096	MS032096	MS032096	MS032096	MS032096	MS032096
Date Prepared:	3/20/96	3/20/96	3/20/96	3/20/96	3/20/96	3/20/96
Date Analyzed:	4/1/96	4/1/96	4/1/96	4/1/96	4/1/96	4/1/96
Instrument I.D.#:	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1
Conc. Spiked:	200 µg/L	200 µg/L	100 µg/L	100 µg/L	100 µg/L	200 µg/L
Matrix Spike % Recovery:	36	64	66	66	64	67
Matrix Spike Duplicate % Recovery:	27	66	72	72	70	64
Relative % Difference:	29	3.1	8.7	8.7	9.0	4.6
RPD Limit:	0-42	0-40	0-28	0-38	0-28	0-42

LCS Batch#:	LCS032796	LCS032796	LCS032796	LCS032796	LCS032796	LCS032796
Date Prepared:	3/20/96	3/20/96	3/20/96	3/20/96	3/20/96	3/20/96
Date Analyzed:	4/1/96	4/1/96	4/1/96	4/1/96	4/1/96	4/1/96
Instrument I.D.#:	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1
LCS % Recovery:	38	70	74	78	74	78

% Recovery Control Limits:	35-120	30-120	30-120	30-120	40-120	30-120
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SEQUOIA ANALYTICAL, #1271

Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

Alan B. Kemp
Project Manager





Kapreallan Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd., Oakland
Matrix: Liquid

QC Sample Group: 6031804-805

Reported: Apr 10, 1996

QUALITY CONTROL DATA REPORT

ANALYTE	Acenaphthene	4-Nitrophenol	2,4-Dinitro-toluene	Pentachloro-phenol	Pyrene
Prep. Method:	EPA 3510	EPA 3510	EPA 3510	EPA 3510	EPA 3510
Method:	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270
Analyst:	T. Granicher	T. Granicher	T. Granicher	T. Granicher	T. Granicher

MS/MSD	Acenaphthene	4-Nitrophenol	2,4-Dinitro-toluene	Pentachloro-phenol	Pyrene
Batch#:	MS032096	MS032096	MS032096	MS032096	MS032096
Date Prepared:	3/20/96	3/20/96	3/20/96	3/20/96	3/20/96
Date Analyzed:	4/1/96	4/1/96	4/1/96	4/1/96	4/1/96
Instrument I.D.#:	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1
Conc. Spiked:	100 µg/L	200 µg/L	100 µg/L	200 µg/L	100 µg/L
Matrix Spike % Recovery:	78	22	68	76	86
Matrix Spike Duplicate % Recovery:	80	31	74	86	98
Relative % Difference:	2.5	34	8.5	12	13
RPD Limit:	0-31	0-50	0-38	0-50	0-31

LCS Batch#:	Acenaphthene	4-Nitrophenol	2,4-Dinitro-toluene	Pentachloro-phenol	Pyrene
LCS Batch#:	LCS032796	LCS032796	LCS032796	LCS032796	LCS032796
Date Prepared:	3/20/96	3/20/96	3/20/96	3/20/96	3/20/96
Date Analyzed:	4/1/96	4/1/96	4/1/96	4/1/96	4/1/96
Instrument I.D.#:	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1
LCS % Recovery:	92	28	80	93	108

% Recovery Control Limits:	Acenaphthene	4-Nitrophenol	2,4-Dinitro-toluene	Pentachloro-phenol	Pyrene
% Recovery Control Limits:	50-140	20-120	40-130	30-110	55-115

Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

SEQUOIA ANALYTICAL, #1271

Alan B. Kemp
Project Manager



9603417

Company Name: <u>Kaprelian Engineering, Inc.</u>			Project Name: <u>96 MacArthur Blvd, Oakland</u>		
Address: <u>2401 Stanwell Dr, Suite 400</u>			UNOCAL Project Manager: <u>Robert Boust</u>		
City: <u>Concord</u>	State: <u>CA</u>	Zip Code: <u>94520</u>	Release #:		
Telephone: <u>(510) 602-5100</u>		FAX #: <u>(510) 687-0602</u>		Site #: <u>1871</u>	
Report To: <u>Dennis</u>		Sampler: <u>Tom Seeliger</u>		QC Data: <input checked="" type="checkbox"/> Level D (Standard) <input type="checkbox"/> Level C <input type="checkbox"/> Level B <input type="checkbox"/> Level A	

Turnaround 10 Work Days 5 Work Days 3 Work Days
 Time: 2 Work Days 1 Work Day 2-8 Hours
 CODE: Misc. Detect. Eval. Remed. Demol. Closure

Drinking Water Waste Water Other
 Analyses Requested

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	Analyses Requested							Comments	
						TPH-6	BTEX	BO10	TPH-D	VO6	4270			
1. <u>EB1</u>	<u>3/20/96</u>	<u>water</u>	<u>2</u>	<u>VOA</u>	<u>6031804</u>	X	X							
2. ↓	↓	↓	<u>2</u>	<u>VOA</u>	<u>AG</u>			X						
3. ↓	↓	↓	<u>3</u>	<u>Amberl</u>					X	X	X			
4. <u>EB2</u>	<u>"</u>	<u>"</u>	<u>2</u>	<u>VOA</u>	<u>6031805</u>	X	X							
5. ↓	↓	↓	<u>2</u>	<u>VOA</u>	<u>AG</u>			X						
6. ↓	↓	↓	<u>3</u>	<u>Amberl</u>					X	X	X			
7.														
8.														
9.														
10.														

Relinquished By: <u>Don G. Sadegh</u>	Date: _____	Time: _____	Received By: <u>Ralph Bonilla</u>	Date: <u>3/22/96</u>	Time: <u>0855</u>
Relinquished By: <u>Ralph Bonilla</u>	Date: <u>3/22/96</u>	Time: <u>9:40</u>	Received By: _____	Date: _____	Time: _____
Relinquished By: _____	Date: _____	Time: _____	Received By Lab: <u>R. Williams</u>	Date: <u>3/22/96</u>	Time: <u>9:40</u>

Were Samples Received in Good Condition? Yes No
 Samples on Ice? Yes No
 Method of Shipment _____
 Page ___ of ___

To be completed upon receipt of report:

1) Were the analyses requested on the Chain of Custody reported? Yes No If no, what analyses are still needed? _____
 2) Was the report issued within the requested turnaround time? Yes No If no, what was the turnaround time? _____

Approved by: _____ Signature: _____ Company: _____ Date: _____

Pink - Client
 Yellow - Laboratory
 White - Laboratory



Sequoia Analytical

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Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland
Sample Matrix: Soil
Analysis Method: EPA 5030/8015 Mod./8020
First Sample #: 603-1884

Sampled: Mar 20, 1996
Received: Mar 22, 1996
Reported: Apr 10, 1996

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit mg/kg	Sample I.D. 603-1884 EB1 (5)	Sample I.D. 603-1885 EB1 (10)	Sample I.D. 603-1886 EB2 (5)	Sample I.D. 603-1887 EB2 (10)	Sample I.D. 603-1888 MW4 (5)	Sample I.D. 603-1889 MW4 (9.5)
Purgeable Hydrocarbons	1.0	N.D.	N.D.	N.D.	5.7	N.D.	24
Benzene	0.0050	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Toluene	0.0050	N.D.	N.D.	N.D.	0.0094	N.D.	0.74
Ethyl Benzene	0.0050	N.D.	N.D.	N.D.	N.D.	0.0052	0.15
Total Xylenes	0.0050	N.D.	N.D.	N.D.	0.035	0.019	0.48
Chromatogram Pattern:		--	--	--	Gasoline	--	Gasoline

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	5.0
Date Analyzed:	4/3/96	4/3/96	4/3/96	4/3/96	4/3/96	4/3/96
Instrument Identification:	HP-4	HP-4	HP-4	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	108	14	106	108	104	100

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager





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Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland
Sample Matrix: Soil
Analysis Method: EPA 5030/8015 Mod./8020
First Sample #: 603-1890

Sampled: Mar 20, 1996
Received: Mar 22, 1996
Reported: Apr 10, 1996

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

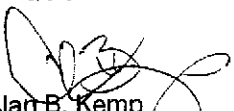
Analyte	Reporting Limit mg/kg	Sample I.D. 603-1890 MW5 (5)	Sample I.D. 603-1891 MW5 (9)
Purgeable Hydrocarbons	1.0	N.D.	N.D.
Benzene	0.0050	N.D.	0.023
Toluene	0.0050	N.D.	N.D.
Ethyl Benzene	0.0050	N.D.	N.D.
Total Xylenes	0.0050	N.D.	N.D.
Chromatogram Pattern:		--	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0
Date Analyzed:	4/3/96	4/3/96
Instrument Identification:	HP4	HP4
Surrogate Recovery, %: (QC Limits = 70-130%)	108	105

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager





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Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland
Sample Matrix: Soil
Analysis Method: EPA 3550/8015 Mod.
First Sample #: 603-1884

Sampled: Mar 20, 1996
Received: Mar 22, 1996
Reported: Apr 10, 1996

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit mg/kg	Sample I.D. 603-1884 EB1 (5)	Sample I.D. 603-1885 EB1 (10)	Sample I.D. 603-1886 EB2 (5)	Sample I.D. 603-1887 EB2 (10)	Sample I.D. 603-1888 MW4 (5)	Sample I.D. 603-1889 MW4 (9.5)
Extractable Hydrocarbons	1.0	N.D.	N.D.	N.D.	73	1.1	350
Chromatogram Pattern:		--	--	--	Unidentified Hydrocarbons >C20	Unidentified Hydrocarbons >C20	Unidentified Hydrocarbons <C15; >C20

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	10	1.0	10
Date Extracted:	3/26/96	3/26/96	3/26/96	3/26/96	3/26/96	3/26/96
Date Analyzed:	3/27/96	3/27/96	3/27/96	3/27/96	3/27/96	3/27/96
Instrument Identification:	HP-3A	HP-3A	HP-3A	HP-3A	HP-3A	HP-3A

Extractable Hydrocarbons are quantitated against a fresh diesel standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager





Kapreallan Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland
Matrix Descript: Soil
Analysis Method: SM 5520 E&F (Gravimetric)
First Sample #: 603-1884

Sampled: Mar 20, 1996
Received: Mar 22, 1996
Extracted: Apr 1, 1996
Analyzed: Apr 2, 1996
Reported: Apr 10, 1996

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)	Detection Limit Multiplication Factor
603-1884	EB1 (5)	N.D.	1.0
603-1885	EB1 (10)	N.D.	1.0
603-1886	EB2 (5)	N.D.	1.0
603-1887	EB2 (10)	540	1.0
603-1888	MW4 (5)	N.D.	1.0
603-1889	MW4 (9.5)	1,000	1.0

Detection Limits:

50

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

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager





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Kapreallan Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland
Sample Descript: Soil, EB1 (5)
Analysis Method: EPA 5030/8010
Lab Number: 603-1884

Sampled: Mar 20, 1996
Received: Mar 22, 1996
Analyzed: Apr 1, 1996
Reported: Apr 10, 1996

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Bromodichloromethane.....	5.0	N.D.
Bromoform.....	5.0	N.D.
Bromomethane.....	10	N.D.
Carbon tetrachloride.....	5.0	N.D.
Chlorobenzene.....	5.0	N.D.
Chloroethane.....	10	N.D.
2-Chloroethylvinyl ether.....	10	N.D.
Chloroform.....	5.0	N.D.
Chloromethane.....	10	N.D.
Dibromochloromethane.....	5.0	N.D.
1,2-Dichlorobenzene.....	5.0	N.D.
1,3-Dichlorobenzene.....	5.0	N.D.
1,4-Dichlorobenzene.....	5.0	N.D.
1,1-Dichloroethane.....	5.0	N.D.
1,2-Dichloroethane.....	5.0	N.D.
1,1-Dichloroethene.....	5.0	6.0
cis-1,2-Dichloroethene.....	5.0	N.D.
trans-1,2-Dichloroethene.....	5.0	N.D.
1,2-Dichloropropane.....	5.0	N.D.
cis-1,3-Dichloropropene.....	5.0	N.D.
trans-1,3-Dichloropropene.....	5.0	N.D.
Methylene chloride.....	50	N.D.
1,1,2,2-Tetrachloroethane.....	5.0	N.D.
Tetrachloroethene.....	5.0	N.D.
1,1,1-Trichloroethane.....	5.0	N.D.
1,1,2-Trichloroethane.....	5.0	N.D.
Trichloroethene.....	5.0	N.D.
Trichlorofluoromethane.....	5.0	N.D.
Vinyl chloride.....	10	N.D.

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

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager





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Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland
Sample Descript: Soil, EB1 (10)
Analysis Method: EPA 5030/8010
Lab Number: 603-1885

Sampled: Mar 20, 1996
Received: Mar 22, 1996
Analyzed: Mar 29, 1996
Reported: Apr 10, 1996

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit $\mu\text{g}/\text{kg}$	Sample Results $\mu\text{g}/\text{kg}$
Bromodichloromethane.....	5.0	N.D.
Bromoform.....	5.0	N.D.
Bromomethane.....	10	N.D.
Carbon tetrachloride.....	5.0	N.D.
Chlorobenzene.....	5.0	N.D.
Chloroethane.....	10	N.D.
2-Chloroethylvinyl ether.....	10	N.D.
Chloroform.....	5.0	N.D.
Chloromethane.....	10	N.D.
Dibromochloromethane.....	5.0	N.D.
1,2-Dichlorobenzene.....	5.0	N.D.
1,3-Dichlorobenzene.....	5.0	N.D.
1,4-Dichlorobenzene.....	5.0	N.D.
1,1-Dichloroethane.....	5.0	N.D.
1,2-Dichloroethane.....	5.0	N.D.
1,1-Dichloroethene.....	5.0	N.D.
cis-1,2-Dichloroethene.....	5.0	N.D.
trans-1,2-Dichloroethene.....	5.0	N.D.
1,2-Dichloropropane.....	5.0	N.D.
cis-1,3-Dichloropropene.....	5.0	N.D.
trans-1,3-Dichloropropene.....	5.0	N.D.
Methylene chloride.....	50	N.D.
1,1,2,2-Tetrachloroethane.....	5.0	N.D.
Tetrachloroethene.....	5.0	N.D.
1,1,1-Trichloroethane.....	5.0	N.D.
1,1,2-Trichloroethane.....	5.0	N.D.
Trichloroethene.....	5.0	N.D.
Trichlorofluoromethane.....	5.0	N.D.
Vinyl chloride.....	10	N.D.

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

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager





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Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland
Sample Descript: Soil, EB2 (5)
Analysis Method: EPA 5030/8010
Lab Number: 603-1886

Sampled: Mar 20, 1996
Received: Mar 22, 1996
Analyzed: Mar 29, 1996
Reported: Apr 10, 1996

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Bromodichloromethane.....	5.0	N.D.
Bromoform.....	5.0	N.D.
Bromomethane.....	10	N.D.
Carbon tetrachloride.....	5.0	N.D.
Chlorobenzene.....	5.0	N.D.
Chloroethane.....	10	N.D.
2-Chloroethylvinyl ether.....	10	N.D.
Chloroform.....	5.0	N.D.
Chloromethane.....	10	N.D.
Dibromochloromethane.....	5.0	N.D.
1,2-Dichlorobenzene.....	5.0	N.D.
1,3-Dichlorobenzene.....	5.0	N.D.
1,4-Dichlorobenzene.....	5.0	N.D.
1,1-Dichloroethane.....	5.0	N.D.
1,2-Dichloroethane.....	5.0	N.D.
1,1-Dichloroethene.....	5.0	N.D.
cis-1,2-Dichloroethene.....	5.0	N.D.
trans-1,2-Dichloroethene.....	5.0	N.D.
1,2-Dichloropropane.....	5.0	N.D.
cis-1,3-Dichloropropene.....	5.0	N.D.
trans-1,3-Dichloropropene.....	5.0	N.D.
Methylene chloride.....	50	N.D.
1,1,2,2-Tetrachloroethane.....	5.0	N.D.
Tetrachloroethene.....	5.0	N.D.
1,1,1-Trichloroethane.....	5.0	N.D.
1,1,2-Trichloroethane.....	5.0	N.D.
Trichloroethene.....	5.0	N.D.
Trichlorofluoromethane.....	5.0	N.D.
Vinyl chloride.....	10	N.D.

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

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager





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Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland
Sample Descript: Soil, EB2 (10)
Analysis Method: EPA 5030/8010
Lab Number: 603-1887


Sampled: Mar 20, 1996
Received: Mar 22, 1996
Analyzed: Apr 1, 1996
Reported: Apr 10, 1996

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Bromodichloromethane.....	5.0	N.D.
Bromoform.....	5.0	N.D.
Bromomethane.....	10	N.D.
Carbon tetrachloride.....	5.0	N.D.
Chlorobenzene.....	5.0	N.D.
Chloroethane.....	10	N.D.
2-Chloroethylvinyl ether.....	10	N.D.
Chloroform.....	5.0	N.D.
Chloromethane.....	10	N.D.
Dibromochloromethane.....	5.0	N.D.
1,2-Dichlorobenzene.....	5.0	N.D.
1,3-Dichlorobenzene.....	5.0	N.D.
1,4-Dichlorobenzene.....	5.0	N.D.
1,1-Dichloroethane.....	5.0	N.D.
1,2-Dichloroethane.....	5.0	N.D.
1,1-Dichloroethene.....	5.0	N.D.
cis-1,2-Dichloroethene.....	5.0	N.D.
trans-1,2-Dichloroethene.....	5.0	N.D.
1,2-Dichloropropane.....	5.0	N.D.
cis-1,3-Dichloropropene.....	5.0	N.D.
trans-1,3-Dichloropropene.....	5.0	N.D.
Methylene chloride.....	50	N.D.
1,1,2,2-Tetrachloroethane.....	5.0	N.D.
Tetrachloroethene.....	5.0	N.D.
1,1,1-Trichloroethane.....	5.0	N.D.
1,1,2-Trichloroethane.....	5.0	N.D.
Trichloroethene.....	5.0	N.D.
Trichlorofluoromethane.....	5.0	N.D.
Vinyl chloride.....	10	N.D.

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

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager





Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland
Sample Descript: Soil, MW4 (5)
Analysis Method: EPA 5030/8010
Lab Number: 603-1888

Sampled: Mar 20, 1996
Received: Mar 22, 1996
Analyzed: Apr 2, 1996
Reported: Apr 10, 1996

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Bromodichloromethane.....	5.0	N.D.
Bromoform.....	5.0	N.D.
Bromomethane.....	10	N.D.
Carbon tetrachloride.....	5.0	N.D.
Chlorobenzene.....	5.0	N.D.
Chloroethane.....	10	N.D.
2-Chloroethylvinyl ether.....	10	N.D.
Chloroform.....	5.0	N.D.
Chloromethane.....	10	N.D.
Dibromochloromethane.....	5.0	N.D.
1,2-Dichlorobenzene.....	5.0	N.D.
1,3-Dichlorobenzene.....	5.0	N.D.
1,4-Dichlorobenzene.....	5.0	N.D.
1,1-Dichloroethane.....	5.0	N.D.
1,2-Dichloroethane.....	5.0	N.D.
1,1-Dichloroethene.....	5.0	11
cis-1,2-Dichloroethene.....	5.0	N.D.
trans-1,2-Dichloroethene.....	5.0	N.D.
1,2-Dichloropropane.....	5.0	N.D.
cis-1,3-Dichloropropene.....	5.0	N.D.
trans-1,3-Dichloropropene.....	5.0	N.D.
Methylene chloride.....	50	N.D.
1,1,2,2-Tetrachloroethane.....	5.0	N.D.
Tetrachloroethene.....	5.0	8.7
1,1,1-Trichloroethane.....	5.0	N.D.
1,1,2-Trichloroethane.....	5.0	N.D.
Trichloroethene.....	5.0	N.D.
Trichlorofluoromethane.....	5.0	N.D.
Vinyl chloride.....	10	N.D.

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

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager





Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland
Sample Descript: Soil, MW4 (9.5)
Analysis Method: EPA 5030/8010
Lab Number: 603-1889

Sampled: Mar 20, 1996
Received: Mar 22, 1996
Analyzed: Mar 29, 1996
Reported: Apr 10, 1996

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Bromodichloromethane.....	5.0	N.D.
Bromoform.....	5.0	N.D.
Bromomethane.....	10	N.D.
Carbon tetrachloride.....	5.0	N.D.
Chlorobenzene.....	5.0	N.D.
Chloroethane.....	10	N.D.
2-Chloroethylvinyl ether.....	10	N.D.
Chloroform.....	5.0	N.D.
Chloromethane.....	10	N.D.
Dibromochloromethane.....	5.0	N.D.
1,2-Dichlorobenzene.....	5.0	37
1,3-Dichlorobenzene.....	5.0	N.D.
1,4-Dichlorobenzene.....	5.0	12
1,1-Dichloroethane.....	5.0	N.D.
1,2-Dichloroethane.....	5.0	N.D.
1,1-Dichloroethene.....	5.0	N.D.
cis-1,2-Dichloroethene.....	5.0	N.D.
trans-1,2-Dichloroethene.....	5.0	N.D.
1,2-Dichloropropane.....	5.0	N.D.
cis-1,3-Dichloropropene.....	5.0	N.D.
trans-1,3-Dichloropropene.....	5.0	N.D.
Methylene chloride.....	50	N.D.
1,1,1,2-Tetrachloroethane.....	5.0	N.D.
Tetrachloroethene.....	5.0	N.D.
1,1,1-Trichloroethane.....	5.0	N.D.
1,1,2-Trichloroethane.....	5.0	N.D.
Trichloroethene.....	5.0	N.D.
Trichlorofluoromethane.....	5.0	N.D.
Vinyl chloride.....	10	N.D.

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

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager





Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland
Sample Descript: Soil, EB1 (5)
Analysis Method: EPA 8270
Lab Number: 603-1884

Sampled: Mar 20, 1996
Received: Mar 22, 1996
Extracted: Apr 3, 1996
Analyzed: Apr 9, 1996
Reported: Apr 10, 1996

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

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acenaphthene.....	100	N.D.
Acenaphthylene.....	100	N.D.
Aniline.....	100	N.D.
Anthracene.....	100	N.D.
Benzidine.....	2,500	N.D.
Benzoic Acid.....	500	N.D.
Benzo(a)anthracene.....	100	N.D.
Benzo(b)fluoranthene.....	100	N.D.
Benzo(k)fluoranthene.....	100	N.D.
Benzo(g,h,i)perylene.....	100	N.D.
Benzo(a)pyrene.....	100	N.D.
Benzyl alcohol.....	100	N.D.
Bis(2-chloroethoxy)methane.....	100	N.D.
Bis(2-chloroethyl)ether.....	100	N.D.
Bis(2-chloroisopropyl)ether.....	100	N.D.
Bis(2-ethylhexyl)phthalate.....	500	N.D.
4-Bromophenyl phenyl ether.....	100	N.D.
Butyl benzyl phthalate.....	100	N.D.
4-Chloroaniline.....	100	N.D.
2-Chloronaphthalene.....	100	N.D.
4-Chloro-3-methylphenol.....	100	N.D.
2-Chlorophenol.....	100	N.D.
4-Chlorophenyl phenyl ether.....	100	N.D.
Chrysene.....	100	N.D.
Dibenz(a,h)anthracene.....	100	N.D.
Dibenzofuran.....	100	N.D.
Di-N-butyl phthalate.....	500	N.D.
1,3-Dichlorobenzene.....	100	N.D.
1,4-Dichlorobenzene.....	100	N.D.
1,2-Dichlorobenzene.....	100	N.D.
3,3-Dichlorobenzidine.....	500	N.D.
2,4-Dichlorophenol.....	100	N.D.
Diethyl phthalate.....	100	N.D.
2,4-Dimethylphenol.....	100	N.D.
Dimethyl phthalate.....	100	N.D.
4,6-Dinitro-2-methylphenol.....	500	N.D.
2,4-Dinitrophenol.....	500	N.D.
2,4-Dinitrotoluene.....	100	N.D.
2,6-Dinitrotoluene.....	100	N.D.
Di-N-octyl phthalate.....	100	N.D.





Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland
Sample Descript: Soil, EB1 (5)
Analysis Method: EPA 8270
Lab Number: 603-1884

Sampled: Mar 20, 1996
Received: Mar 22, 1996
Extracted: Apr 3, 1996
Analyzed: Apr 9, 1996
Reported: Apr 10, 1996

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

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Fluoranthene.....	100	N.D.
Fluorene.....	100	N.D.
Hexachlorobenzene.....	100	N.D.
Hexachlorobutadiene.....	100	N.D.
Hexachlorocyclopentadiene.....	100	N.D.
Hexachloroethane.....	100	N.D.
Indeno(1,2,3-cd)pyrene.....	100	N.D.
Isophorone.....	100	N.D.
2-Methylnaphthalene.....	100	N.D.
2-Methylphenol.....	100	N.D.
4-Methylphenol.....	100	N.D.
Naphthalene.....	100	N.D.
2-Nitroaniline.....	500	N.D.
3-Nitroaniline.....	500	N.D.
4-Nitroaniline.....	500	N.D.
Nitrobenzene.....	100	N.D.
2-Nitrophenol.....	100	N.D.
4-Nitrophenol.....	500	N.D.
N-Nitrosodimethylamine.....	100	N.D.
N-Nitrosodiphenylamine.....	100	N.D.
N-Nitroso-di-N-propylamine.....	100	N.D.
Pentachlorophenol.....	500	N.D.
Phenanthrene.....	100	N.D.
Phenol.....	100	N.D.
Pyrene.....	100	N.D.
1,2,4-Trichlorobenzene.....	100	N.D.
2,4,5-Trichlorophenol.....	500	N.D.
2,4,6-Trichlorophenol.....	100	N.D.

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

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager





Kapreallan Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland
Sample Descript: Soil, EB1 (10)
Analysis Method: EPA 8270
Lab Number: 603-1885

Sampled: Mar 20, 1996
Received: Mar 22, 1996
Extracted: Apr 3, 1996
Analyzed: Apr 9, 1996
Reported: Apr 10, 1996

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

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acenaphthene.....	100	N.D.
Acenaphthylene.....	100	N.D.
Aniline.....	100	N.D.
Anthracene.....	100	N.D.
Benzidine.....	2,500	N.D.
Benzoic Acid.....	500	N.D.
Benzo(a)anthracene.....	100	N.D.
Benzo(b)fluoranthene.....	100	N.D.
Benzo(k)fluoranthene.....	100	N.D.
Benzo(g,h,i)perylene.....	100	N.D.
Benzo(a)pyrene.....	100	N.D.
Benzyl alcohol.....	100	N.D.
Bis(2-chloroethoxy)methane.....	100	N.D.
Bis(2-chloroethyl)ether.....	100	N.D.
Bis(2-chloroisopropyl)ether.....	100	N.D.
Bis(2-ethylhexyl)phthalate.....	500	N.D.
4-Bromophenyl phenyl ether.....	100	N.D.
Butyl benzyl phthalate.....	100	N.D.
4-Chloroaniline.....	100	N.D.
2-Chloronaphthalene.....	100	N.D.
4-Chloro-3-methylphenol.....	100	N.D.
2-Chlorophenol.....	100	N.D.
4-Chlorophenyl phenyl ether.....	100	N.D.
Chrysene.....	100	N.D.
Dibenz(a,h)anthracene.....	100	N.D.
Dibenzofuran.....	100	N.D.
Di-N-butyl phthalate.....	500	N.D.
1,3-Dichlorobenzene.....	100	N.D.
1,4-Dichlorobenzene.....	100	N.D.
1,2-Dichlorobenzene.....	100	N.D.
3,3-Dichlorobenzidine.....	500	N.D.
2,4-Dichlorophenol.....	100	N.D.
Diethyl phthalate.....	100	N.D.
2,4-Dimethylphenol.....	100	N.D.
Dimethyl phthalate.....	100	N.D.
4,6-Dinitro-2-methylphenol.....	500	N.D.
2,4-Dinitrophenol.....	500	N.D.
2,4-Dinitrotoluene.....	100	N.D.
2,6-Dinitrotoluene.....	100	N.D.
Di-N-octyl phthalate.....	100	N.D.





Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland
Sample Descript: Soil, EB1 (10)
Analysis Method: EPA 8270
Lab Number: 603-1885

Sampled: Mar 20, 1996
Received: Mar 22, 1996
Extracted: Apr 3, 1996
Analyzed: Apr 9, 1996
Reported: Apr 10, 1996

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

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Fluoranthene.....	100	N.D.
Fluorene.....	100	N.D.
Hexachlorobenzene.....	100	N.D.
Hexachlorobutadiene.....	100	N.D.
Hexachlorocyclopentadiene.....	100	N.D.
Hexachloroethane.....	100	N.D.
Indeno(1,2,3-cd)pyrene.....	100	N.D.
Isophorone.....	100	N.D.
2-Methylnaphthalene.....	100	N.D.
2-Methylphenol.....	100	N.D.
4-Methylphenol.....	100	N.D.
Naphthalene.....	100	N.D.
2-Nitroaniline.....	500	N.D.
3-Nitroaniline.....	500	N.D.
4-Nitroaniline.....	500	N.D.
Nitrobenzene.....	100	N.D.
2-Nitrophenol.....	100	N.D.
4-Nitrophenol.....	500	N.D.
N-Nitrosodimethylamine.....	100	N.D.
N-Nitrosodiphenylamine.....	100	N.D.
N-Nitroso-di-N-propylamine.....	100	N.D.
Pentachlorophenol.....	500	N.D.
Phenanthrene.....	100	N.D.
Phenol.....	100	N.D.
Pyrene.....	100	N.D.
1,2,4-Trichlorobenzene.....	100	N.D.
2,4,5-Trichlorophenol.....	500	N.D.
2,4,6-Trichlorophenol.....	100	N.D.

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

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager





Kapreallan Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland
Sample Descript: Soil, EB2 (5)
Analysis Method: EPA 8270
Lab Number: 603-1886

Sampled: Mar 20, 1996
Received: Mar 22, 1996
Extracted: Apr 3, 1996
Analyzed: Apr 9, 1996
Reported: Apr 10, 1996

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

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acenaphthene.....	100	N.D.
Acenaphthylene.....	100	N.D.
Aniline.....	100	N.D.
Anthracene.....	100	N.D.
Benzidine.....	2,500	N.D.
Benzoic Acid.....	500	N.D.
Benzo(a)anthracene.....	100	N.D.
Benzo(b)fluoranthene.....	100	N.D.
Benzo(k)fluoranthene.....	100	N.D.
Benzo(g,h,i)perylene.....	100	N.D.
Benzo(a)pyrene.....	100	N.D.
Benzyl alcohol.....	100	N.D.
Bis(2-chloroethoxy)methane.....	100	N.D.
Bis(2-chloroethyl)ether.....	100	N.D.
Bis(2-chloroisopropyl)ether.....	100	N.D.
Bis(2-ethylhexyl)phthalate.....	500	N.D.
4-Bromophenyl phenyl ether.....	100	N.D.
Butyl benzyl phthalate.....	100	N.D.
4-Chloroaniline.....	100	N.D.
2-Chloronaphthalene.....	100	N.D.
4-Chloro-3-methylphenol.....	100	N.D.
2-Chlorophenol.....	100	N.D.
4-Chlorophenyl phenyl ether.....	100	N.D.
Chrysene.....	100	N.D.
Dibenz(a,h)anthracene.....	100	N.D.
Dibenzofuran.....	100	N.D.
Di-N-butyl phthalate.....	500	N.D.
1,3-Dichlorobenzene.....	100	N.D.
1,4-Dichlorobenzene.....	100	N.D.
1,2-Dichlorobenzene.....	100	N.D.
3,3-Dichlorobenzidine.....	500	N.D.
2,4-Dichlorophenol.....	100	N.D.
Diethyl phthalate.....	100	N.D.
2,4-Dimethylphenol.....	100	N.D.
Dimethyl phthalate.....	100	N.D.
4,6-Dinitro-2-methylphenol.....	500	N.D.
2,4-Dinitrophenol.....	500	N.D.
2,4-Dinitrotoluene.....	100	N.D.
2,6-Dinitrotoluene.....	100	N.D.
Di-N-octyl phthalate.....	100	N.D.





Kapreallan Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland
Sample Descript: Soil, EB2 (5)
Analysis Method: EPA 8270
Lab Number: 603-1886

Sampled: Mar 20, 1996
Received: Mar 22, 1996
Extracted: Apr 3, 1996
Analyzed: Apr 9, 1996
Reported: Apr 10, 1996

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

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Fluoranthene.....	100	N.D.
Fluorene.....	100	N.D.
Hexachlorobenzene.....	100	N.D.
Hexachlorobutadiene.....	100	N.D.
Hexachlorocyclopentadiene.....	100	N.D.
Hexachloroethane.....	100	N.D.
Indeno(1,2,3-cd)pyrene.....	100	N.D.
Isophorone.....	100	N.D.
2-Methylnaphthalene.....	100	N.D.
2-Methylphenol.....	100	N.D.
4-Methylphenol.....	100	N.D.
Naphthalene.....	100	N.D.
2-Nitroaniline.....	500	N.D.
3-Nitroaniline.....	500	N.D.
4-Nitroaniline.....	500	N.D.
Nitrobenzene.....	100	N.D.
2-Nitrophenol.....	100	N.D.
4-Nitrophenol.....	500	N.D.
N-Nitrosodimethylamine.....	100	N.D.
N-Nitrosodiphenylamine.....	100	N.D.
N-Nitroso-di-N-propylamine.....	100	N.D.
Pentachlorophenol.....	500	N.D.
Phenanthrene.....	100	N.D.
Phenol.....	100	N.D.
Pyrene.....	100	N.D.
1,2,4-Trichlorobenzene.....	100	N.D.
2,4,5-Trichlorophenol.....	500	N.D.
2,4,6-Trichlorophenol.....	100	N.D.

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

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager





Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland
Sample Descript: Soil, EB2 (10)
Analysis Method: EPA 8270
Lab Number: 603-1887

Sampled: Mar 20, 1996
Received: Mar 22, 1996
Extracted: Apr 3, 1996
Analyzed: Apr 9, 1996
Reported: Apr 10, 1996

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

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acenaphthene.....	100	N.D.
Acenaphthylene.....	100	N.D.
Aniline.....	100	N.D.
Anthracene.....	100	N.D.
Benzidine.....	2,500	N.D.
Benzoic Acid.....	500	N.D.
Benzo(a)anthracene.....	100	N.D.
Benzo(b)fluoranthene.....	100	N.D.
Benzo(k)fluoranthene.....	100	190
Benzo(g,h,i)perylene.....	100	N.D.
Benzo(a)pyrene.....	100	N.D.
Benzyl alcohol.....	100	N.D.
Bis(2-chloroethoxy)methane.....	100	N.D.
Bis(2-chloroethyl)ether.....	100	N.D.
Bis(2-chloroisopropyl)ether.....	100	N.D.
Bis(2-ethylhexyl)phthalate.....	500	N.D.
4-Bromophenyl phenyl ether.....	100	N.D.
Butyl benzyl phthalate.....	100	N.D.
4-Chloroaniline.....	100	N.D.
2-Chloronaphthalene.....	100	N.D.
4-Chloro-3-methylphenol.....	100	N.D.
2-Chlorophenol.....	100	N.D.
4-Chlorophenyl phenyl ether.....	100	N.D.
Chrysene.....	100	180
Dibenz(a,h)anthracene.....	100	N.D.
Dibenzofuran.....	100	N.D.
Di-N-butyl phthalate.....	500	N.D.
1,3-Dichlorobenzene.....	100	N.D.
1,4-Dichlorobenzene.....	100	N.D.
1,2-Dichlorobenzene.....	100	N.D.
3,3-Dichlorobenzidine.....	500	N.D.
2,4-Dichlorophenol.....	100	N.D.
Diethyl phthalate.....	100	N.D.
2,4-Dimethylphenol.....	100	N.D.
Dimethyl phthalate.....	100	N.D.
4,6-Dinitro-2-methylphenol.....	500	N.D.
2,4-Dinitrophenol.....	500	N.D.
2,4-Dinitrotoluene.....	100	N.D.
2,6-Dinitrotoluene.....	100	N.D.
Di-N-octyl phthalate.....	100	N.D.





Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland
Sample Descript: Soil, EB2 (10)
Analysis Method: EPA 8270
Lab Number: 603-1887


Sampled: Mar 20, 1996
Received: Mar 22, 1996
Extracted: Apr 3, 1996
Analyzed: Apr 9, 1996
Reported: Apr 10, 1996

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

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Fluoranthene	100	610
Fluorene.....	100	N.D.
Hexachlorobenzene.....	100	N.D.
Hexachlorobutadiene.....	100	N.D.
Hexachlorocyclopentadiene.....	100	N.D.
Hexachloroethane.....	100	N.D.
Indeno(1,2,3-cd)pyrene.....	100	N.D.
Isophorone.....	100	N.D.
2-Methylnaphthalene.....	100	N.D.
2-Methylphenol.....	100	N.D.
4-Methylphenol.....	100	N.D.
Naphthalene.....	100	N.D.
2-Nitroaniline.....	500	N.D.
3-Nitroaniline.....	500	N.D.
4-Nitroaniline.....	500	N.D.
Nitrobenzene.....	100	N.D.
2-Nitrophenol.....	100	N.D.
4-Nitrophenol.....	500	N.D.
N-Nitrosodimethylamine.....	100	N.D.
N-Nitrosodiphenylamine.....	100	N.D.
N-Nitroso-di-N-propylamine.....	100	N.D.
Pentachlorophenol.....	500	N.D.
Phenanthrene	100	100
Phenol.....	100	N.D.
Pyrene	100	690
1,2,4-Trichlorobenzene.....	100	N.D.
2,4,5-Trichlorophenol.....	500	N.D.
2,4,6-Trichlorophenol.....	100	N.D.

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

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager





Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland
Sample Descript: Soil, MW4 (5)
Analysis Method: EPA 8270
Lab Number: 603-1888

Sampled: Mar 20, 1996
Received: Mar 22, 1996
Extracted: Apr 3, 1996
Analyzed: Apr 9, 1996
Reported: Apr 10, 1996

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

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acenaphthene.....	100	N.D.
Acenaphthylene.....	100	N.D.
Aniline.....	100	N.D.
Anthracene.....	100	N.D.
Benzidine.....	2,500	N.D.
Benzoic Acid.....	500	N.D.
Benzo(a)anthracene.....	100	N.D.
Benzo(b)fluoranthene.....	100	N.D.
Benzo(k)fluoranthene.....	100	N.D.
Benzo(g,h,i)perylene.....	100	N.D.
Benzo(a)pyrene.....	100	N.D.
Benzyl alcohol.....	100	N.D.
Bis(2-chloroethoxy)methane.....	100	N.D.
Bis(2-chloroethyl)ether.....	100	N.D.
Bis(2-chloroisopropyl)ether.....	100	N.D.
Bis(2-ethylhexyl)phthalate.....	500	N.D.
4-Bromophenyl phenyl ether.....	100	N.D.
Butyl benzyl phthalate.....	100	N.D.
4-Chloroaniline.....	100	N.D.
2-Chloronaphthalene.....	100	N.D.
4-Chloro-3-methylphenol.....	100	N.D.
2-Chlorophenol.....	100	N.D.
4-Chlorophenyl phenyl ether.....	100	N.D.
Chrysene.....	100	N.D.
Dibenz(a,h)anthracene.....	100	N.D.
Dibenzofuran.....	100	N.D.
Di-N-butyl phthalate.....	500	N.D.
1,3-Dichlorobenzene.....	100	N.D.
1,4-Dichlorobenzene.....	100	N.D.
1,2-Dichlorobenzene.....	100	N.D.
3,3-Dichlorobenzidine.....	500	N.D.
2,4-Dichlorophenol.....	100	N.D.
Diethyl phthalate.....	100	N.D.
2,4-Dimethylphenol.....	100	N.D.
Dimethyl phthalate.....	100	N.D.
4,6-Dinitro-2-methylphenol.....	500	N.D.
2,4-Dinitrophenol.....	500	N.D.
2,4-Dinitrotoluene.....	100	N.D.
2,6-Dinitrotoluene.....	100	N.D.
Di-N-octyl phthalate.....	100	N.D.





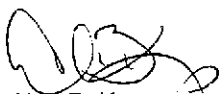
Kaprealian Engineering, Inc. 2401 Stanwell Dr., Ste. 400 Concord, CA 94520 Attention: Dennis Royce	Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland Sample Descript: Soil, MW4 (5) Analysis Method: EPA 8270 Lab Number: 603-1888	Sampled: Mar 20, 1996 Received: Mar 22, 1996 Extracted: Apr 3, 1996 Analyzed: Apr 9, 1996 Reported: Apr 10, 1996
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SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Fluoranthene.....	100	N.D.
Fluorene.....	100	N.D.
Hexachlorobenzene.....	100	N.D.
Hexachlorobutadiene.....	100	N.D.
Hexachlorocyclopentadiene.....	100	N.D.
Hexachloroethane.....	100	N.D.
Indeno(1,2,3-cd)pyrene.....	100	N.D.
Isophorone.....	100	N.D.
2-Methylnaphthalene.....	100	N.D.
2-Methylphenol.....	100	N.D.
4-Methylphenol.....	100	N.D.
Naphthalene.....	100	N.D.
2-Nitroaniline.....	500	N.D.
3-Nitroaniline.....	500	N.D.
4-Nitroaniline.....	500	N.D.
Nitrobenzene.....	100	N.D.
2-Nitrophenol.....	100	N.D.
4-Nitrophenol.....	500	N.D.
N-Nitrosodimethylamine.....	100	N.D.
N-Nitrosodiphenylamine.....	100	N.D.
N-Nitroso-di-N-propylamine.....	100	N.D.
Pentachlorophenol.....	500	N.D.
Phenanthrene.....	100	N.D.
Phenol.....	100	N.D.
Pyrene.....	100	N.D.
1,2,4-Trichlorobenzene.....	100	N.D.
2,4,5-Trichlorophenol.....	500	N.D.
2,4,6-Trichlorophenol.....	100	N.D.

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

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager





Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland
Sample Descript: Soil, MW4 (9.5)
Analysis Method: EPA 8270
Lab Number: 603-1889

Sampled: Mar 20, 1996
Received: Mar 22, 1996
Extracted: Apr 3, 1996
Analyzed: Apr 9, 1996
Reported: Apr 10, 1996

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

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acenaphthene	100	170
Acenaphthylene.....	100	N.D.
Aniline.....	100	N.D.
Anthracene	100	350
Benzidine.....	2,500	N.D.
Benzoic Acid.....	500	N.D.
Benzo(a)anthracene	100	260
Benzo(b)fluoranthene	100	240
Benzo(k)fluoranthene.....	100	N.D.
Benzo(g,h,i)perylene.....	100	N.D.
Benzo(a)pyrene	100	160
Benzyl alcohol.....	100	N.D.
Bis(2-chloroethoxy)methane.....	100	N.D.
Bis(2-chloroethyl)ether.....	100	N.D.
Bis(2-chloroisopropyl)ether.....	100	N.D.
Bis(2-ethylhexyl)phthalate.....	500	N.D.
4-Bromophenyl phenyl ether.....	100	N.D.
Butyl benzyl phthalate.....	100	N.D.
4-Chloroaniline.....	100	N.D.
2-Chloronaphthalene.....	100	N.D.
4-Chloro-3-methylphenol.....	100	N.D.
2-Chlorophenol.....	100	N.D.
4-Chlorophenyl phenyl ether.....	100	N.D.
Chrysene	100	290
Dibenz(a,h)anthracene.....	100	N.D.
Dibenzofuran.....	100	N.D.
Di-N-butyl phthalate.....	500	N.D.
1,3-Dichlorobenzene.....	100	N.D.
1,4-Dichlorobenzene.....	100	N.D.
1,2-Dichlorobenzene.....	100	N.D.
3,3-Dichlorobenzidine.....	500	N.D.
2,4-Dichlorophenol.....	100	N.D.
Diethyl phthalate.....	100	N.D.
2,4-Dimethylphenol.....	100	N.D.
Dimethyl phthalate.....	100	N.D.
4,6-Dinitro-2-methylphenol.....	500	N.D.
2,4-Dinitrophenol.....	500	N.D.
2,4-Dinitrotoluene.....	100	N.D.
2,6-Dinitrotoluene.....	100	N.D.
Di-N-octyl phthalate.....	100	N.D.





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Sampled: Mar 20, 1996
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 Analyzed: Apr 9, 1996
 Reported: Apr 10, 1996

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

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Fluoranthene	100	860
Fluorene	100	190
Hexachlorobenzene.....	100	N.D.
Hexachlorobutadiene.....	100	N.D.
Hexachlorocyclopentadiene.....	100	N.D.
Hexachloroethane.....	100	N.D.
Indeno(1,2,3-cd)pyrene.....	100	N.D.
Isophorone.....	100	N.D.
2-Methylnaphthalene.....	100	N.D.
2-Methylphenol.....	100	N.D.
4-Methylphenol.....	100	N.D.
Naphthalene	100	150
2-Nitroaniline.....	500	N.D.
3-Nitroaniline.....	500	N.D.
4-Nitroaniline.....	500	N.D.
Nitrobenzene.....	100	N.D.
2-Nitrophenol.....	100	N.D.
4-Nitrophenol.....	500	N.D.
N-Nitrosodimethylamine.....	100	N.D.
N-Nitrosodiphenylamine.....	100	N.D.
N-Nitroso-di-N-propylamine.....	100	N.D.
Pentachlorophenol.....	500	N.D.
Phenanthrene	100	1,300
Phenol.....	100	N.D.
Pyrene	100	960
1,2,4-Trichlorobenzene.....	100	N.D.
2,4,5-Trichlorophenol.....	500	N.D.
2,4,6-Trichlorophenol.....	100	N.D.

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

SEQUOIA ANALYTICAL, #1271


 Alan B. Kemp
 Project Manager





Sequoia Analytical

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Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland
Matrix: Solid

QC Sample Group: 6031884-891

Reported: Apr 10, 1996

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel	Oil & Grease
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015	SM 5520
Analyt:	K. Nill	K. Nill	K. Nill	K. Nill	J. Dinsay	D. Newcomb

MS/MSD Batch#:	6040170	6040170	6040170	6040170	6031880	6031884
Date Prepared:	4/3/96	4/3/96	4/3/96	4/3/96	3/26/96	4/1/96
Date Analyzed:	4/3/96	4/3/96	4/3/96	4/3/96	3/27/96	4/2/96
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4	HP-3A	Manual
Conc. Spiked:	0.40 mg/kg	0.40 mg/kg	0.40 mg/kg	1.2 mg/kg	10 mg/kg	5000 mg/kg
Matrix Spike % Recovery:	88	88	83	88	93	74
Matrix Spike Duplicate % Recovery:	83	83	78	82	100	92
Relative % Difference:	5.9	5.9	6.3	6.9	7.3	22

LCS Batch#:	4LCS040396	4LCS040396	4LCS040396	4LCS040396	LCS032696	BLK040196
Date Prepared:	4/3/96	4/3/96	4/3/96	4/3/96	3/26/96	4/1/96
Date Analyzed:	4/3/96	4/3/96	4/3/96	4/3/96	3/27/96	4/2/96
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4	HP-3A	Manual
LCS % Recovery:	95	95	90	93	89	86

% Recovery Control Limits:	55-145	47-149	47-155	56-140	50-150	60-140
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Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager





Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland
Matrix: Solid

QC Sample Group: 6031884-891

Reported: Apr 10, 1996

QUALITY CONTROL DATA REPORT

ANALYTE	1,1-Dichloro-ethene	Trichloro-ethene	Chloro-benzene	1,1-Dichloro-ethene	Trichloro-ethene	Chloro-benzene
Method:	EPA 8010	EPA 8010	EPA 8010	EPA 8010	EPA 8010	EPA 8010
Analyst:	I.Dalvand	I.Dalvand	I.Dalvand	I.Dalvand	I.Dalvand	I.Dalvand

MS/MSD	1,1-Dichloro-ethene	Trichloro-ethene	Chloro-benzene	1,1-Dichloro-ethene	Trichloro-ethene	Chloro-benzene
Batch#:	6032374	6032374	6032374	6031885	6031885	6031885
Date Prepared:	3/29/96	3/29/96	3/29/96	4/1/96	4/1/96	4/1/96
Date Analyzed:	3/29/96	3/29/96	3/29/96	4/1/96	4/1/96	4/1/96
Instrument I.D.#:	HP-7	HP-7	HP-7	HP-7	HP-7	HP-7
Conc. Spiked:	10000 µg/kg	10000 µg/kg	10000 µg/kg	100 µg/kg	100 µg/kg	100 µg/kg
Matrix Spike % Recovery:	76	87	87	99	79	80
Matrix Spike Duplicate % Recovery:	82	95	90	104	63	87
Relative % Difference:	7.1	8.9	3.1	4.9	23	8.4

LCS Batch#:	LCS032996	LCS032996	LCS032996	LCS040196	LCS040196	LCS040196
Date Prepared:	3/29/96	3/29/96	3/29/96	4/1/96	4/1/96	4/1/96
Date Analyzed:	3/29/96	3/29/96	3/29/96	4/1/96	4/1/96	4/1/96
Instrument I.D.#:	HP-7	HP-7	HP-7	HP-7	HP-7	HP-7
LCS % Recovery:	77	89	86	88	94	91

% Recovery Control Limits:	LCS032996	LCS032996	LCS032996	LCS040196	LCS040196	LCS040196
	28-167	35-146	38-150	28-167	35-146	38-150

Please Note:
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SEQUOIA ANALYTICAL, #1271

Alan B. Kemp
Alan B. Kemp
Project Manager





Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland
Matrix: Solid

QC Sample Group: 6031884-891

Reported: Apr 10, 1996

QUALITY CONTROL DATA REPORT

ANALYTE	1,1-Dichloro-ethene	Trichloro-ethene	Chloro-benzene
Method:	EPA 8010	EPA 8010	EPA 8010
Analyst:	I.Dalvand	I.Dalvand	I.Dalvand

MS/MSD			
Batch#:	6031887	6031887	6031887
Date Prepared:	4/2/96	4/2/96	4/2/96
Date Analyzed:	4/2/96	4/2/96	4/2/96
Instrument I.D.#:	HP-7	HP-7	HP-7
Conc. Spiked:	100 µg/kg	100 µg/kg	100 µg/kg
Matrix Spike % Recovery:	90	85	81
Matrix Spike Duplicate % Recovery:	109	62	81
Relative % Difference:	19	31	0.0

LCS Batch#:	LCS040296	LCS040296	LCS040296
Date Prepared:	4/2/96	4/2/96	4/2/96
Date Analyzed:	4/2/96	4/2/96	4/2/96
Instrument I.D.#:	HP-7	HP-7	HP-7
LCS % Recovery:	87	91	84

% Recovery Control Limits:	28-167	35-146	38-150
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SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager





Kaprealian Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland
Matrix: Solid

QC Sample Group: 6031884-891

Reported: Apr 10, 1996

QUALITY CONTROL DATA REPORT

ANALYTE	Phenol	2-Chlorophenol	1,4-Dichloro- benzene	N-Nitroso-Di- N-propylamine	1,2,4-Trichloro- benzene	4-Chloro-3- Methylphenol
Prep. Method:	EPA 3550	EPA 3550	EPA 3550	EPA 3550	EPA 3550	EPA 3550
Method:	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270
Analyst:	T. Granicher	T. Granicher	T. Granicher	T. Granicher	T. Granicher	T. Granicher

MS/MSD	Phenol	2-Chlorophenol	1,4-Dichloro- benzene	N-Nitroso-Di- N-propylamine	1,2,4-Trichloro- benzene	4-Chloro-3- Methylphenol
Batch#:	6031886	6031886	6031886	6031886	6031886	6031886
Date Prepared:	4/3/96	4/3/96	4/3/96	4/3/96	4/3/96	4/3/96
Date Analyzed:	4/10/96	4/10/96	4/10/96	4/10/96	4/10/96	4/10/96
Instrument I.D.#:	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1
Conc. Spiked:	5000 µg/kg	5000 µg/kg	2500 µg/kg	2500 µg/kg	2500 µg/kg	5000 µg/kg
Matrix Spike						
% Recovery:	88	72	68	96	84	95
Matrix Spike Duplicate %						
Recovery:	26	21	20	22	22	21
Relative %						
Difference:	109	110	111	125	117	128
RPD Limit:	0-35	0-50	0-27	0-38	0-23	0-33

LCS Batch#:	LCS040396	LCS040396	LCS040396	LCS040396	LCS040396	LCS040396
Date Prepared:	4/3/96	4/3/96	4/3/96	4/3/96	4/3/96	4/3/96
Date Analyzed:	4/10/96	4/10/96	4/10/96	4/10/96	4/10/96	4/10/96
Instrument I.D.#:	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1
LCS %						
Recovery:	94	82	82	88	90	88

% Recovery Control Limits:	Phenol	2-Chlorophenol	1,4-Dichloro- benzene	N-Nitroso-Di- N-propylamine	1,2,4-Trichloro- benzene	4-Chloro-3- Methylphenol
	15-115	30-120	30-120	30-120	40-120	40-120

SEQUOIA ANALYTICAL, #1271

Alan B. Kemp
Project Manager

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Kaprealan Engineering, Inc.
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Dennis Royce

Client Project ID: Unocal #1871, 96 MacArthur Blvd. Oakland
Matrix: Solid

QC Sample Group: 6031884-891

Reported: Apr 10, 1996

QUALITY CONTROL DATA REPORT

ANALYTE	Acenaphthene	4-Nitrophenol	2,4-Dinitro-toluene	Pentachloro-phenol	Pyrene
Prep. Method:	EPA 3550	EPA 3550	EPA 3550	EPA 3550	EPA 3550
Method:	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270
Analyst:	T. Granicher	T. Granicher	T. Granicher	T. Granicher	T. Granicher

MS/MSD	Acenaphthene	4-Nitrophenol	2,4-Dinitro-toluene	Pentachloro-phenol	Pyrene
Batch#:	6031886	6031886	6031886	6031886	6031886
Date Prepared:	4/3/96	4/3/96	4/3/96	4/3/96	4/3/96
Date Analyzed:	4/10/96	4/10/96	4/10/96	4/10/96	4/10/96
Instrument I.D.#:	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1
Conc. Spiked:	2500 µg/kg	5000 µg/kg	2500 µg/kg	5000 µg/kg	2500 µg/kg
Matrix Spike % Recovery:	100	112	110	143	170
Matrix Spike Duplicate % Recovery:	38	15	17	20	30
Relative % Difference:	90	153	145	151	140
RPD Limit:	0-19	0-50	0-47	0-47	0-36

LCS Batch#:	LCS040396	LCS040396	LCS040396	LCS040396	LCS040396
Date Prepared:	4/3/96	4/3/96	4/3/96	4/3/96	4/3/96
Date Analyzed:	4/10/96	4/10/96	4/10/96	4/10/96	4/10/96
Instrument I.D.#:	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1
LCS % Recovery:	88	75	84	91	110

% Recovery Control Limits:	Acenaphthene	4-Nitrophenol	2,4-Dinitro-toluene	Pentachloro-phenol	Pyrene
	50-140	20-120	40-130	30-110	50-115

Please Note:
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SEQUOIA ANALYTICAL, #1271

Alan B. Kemp
Project Manager



UNOCAL 76

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- East 11115 Montgomery, Suite B • Spokane, WA 99206 • (509) 924-9200
- 404 N. Wiget Lane • Walnut Creek, CA 94598 • (510) 988-9600
- 15055 S.W. Sequoia Pkwy, Suite 110 • Portland, OR 97222 • (503) 624-9800

Company Name: <u>Kaprealian Engineering Inc.</u>		Project Name: <u>96 MacArthur Boulevard, Oakland</u>	
Address: <u>2401 Scanwell Dr., Suite 400</u>		UNOCAL Project Manager: <u>Robert Bourst</u>	
City: <u>Concord</u>	State: <u>CA</u>	Zip Code: <u>94520</u>	Release #: <u>9603416</u>
Telephone: <u>(510) 602-5100</u>		FAX #: <u>(510) 687-0602</u>	
Report To: <u>Dennis</u>		Site #: <u>1871</u>	
Sampler: <u>Tom Seeliger</u>		QC Data: <input checked="" type="checkbox"/> Level D (Standard) <input type="checkbox"/> Level C <input type="checkbox"/> Level B <input type="checkbox"/> Level A	

Turnaround <input checked="" type="checkbox"/> 10 Work Days <input type="checkbox"/> 5 Work Days <input type="checkbox"/> 3 Work Days	Analyses Requested <input type="checkbox"/> Drinking Water <input type="checkbox"/> Waste Water <input checked="" type="checkbox"/> Other
Time: <input type="checkbox"/> 2 Work Days <input type="checkbox"/> 1 Work Day <input type="checkbox"/> 2-8 Hours	
CODE: <input type="checkbox"/> Misc. <input checked="" type="checkbox"/> Detect. <input type="checkbox"/> Eval. <input type="checkbox"/> Remed. <input type="checkbox"/> Demol. <input type="checkbox"/> Closure	

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	Analyses Requested						Comments
						TPH-G	BTEX	TPH-D	TOG	8270	8010	
1. EB1 (5)	3/20/96	soil	1	tube	6031884	X	X	X	X	X	X	
2. EB1 (10)	↓	↓	↓	↓	6031885	↓	↓	↓	↓	↓	↓	
3. EB2 (5)	↓	↓	↓	↓	6031886	↓	↓	↓	↓	↓	↓	
4. EB2 (10)	↓	↓	↓	↓	6031887	↓	↓	↓	↓	↓	↓	
5. MW4 (5)	↓	↓	↓	↓	6031888	↓	↓	↓	↓	↓	↓	
6. MW4 (9.5)	↓	↓	↓	↓	6031889	↓	↓	↓	↓	↓	↓	
7. MWS (5)	↓	↓	↓	↓	6031890	X	X					
8. MWS (9)	↓	↓	↓	↓	6031891	↓	↓					
9.												
10.												

Relinquished By: <u>Tom Seeliger</u>	Date:	Time:	Received By: <u>Ralph Boniello</u>	Date: <u>3/22/96</u>	Time: <u>08:55</u>
Relinquished By: <u>Ralph Boniello</u>	Date: <u>3/22/96</u>	Time: <u>9:40</u>	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab: <u>K. Andrews</u>	Date: <u>3/22/96</u>	Time: <u>9:40</u>

Were Samples Received in Good Condition? Yes No Samples on Ice? Yes No Method of Shipment _____ Page ___ of ___

To be completed upon receipt of report:

1) Were the analyses requested on the Chain of Custody reported? Yes No If no, what analyses are still needed? _____

2) Was the report issued within the requested turnaround time? Yes No If no, what was the turnaround time? _____

Approved by: _____ Signature: _____ Company: _____ Date: _____

Pink - Client

Yellow - Laboratory

White - Laboratory