



KAPREALIAN ENGINEERING  
INCORPORATED

April 6, 1994

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

Attention: Ms. Jennifer Eberle

RE: Unocal Service Station #0752  
800 Harrison Street  
Oakland, California

Dear Ms. Eberle:

Per the request of Ms. Tina Berry of Unocal Corporation, enclosed please find our report dated April 1, 1994, 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

jad\82

Enclosure

cc: Tina Berry, Unocal Corporation

ALCO  
HAZMAT  
94 APR -7 PM 1:15



KAPREALIAN ENGINEERING  
INCORPORATED

KEI-P90-1103.R8  
April 1, 1994

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

Attention: Ms. Tina Berry

RE: Subsurface Investigation at  
Unocal Service Station #0752  
800 Harrison Street  
Oakland, California

Dear Ms. Berry:

This report presents the results of Kaprealian Engineering, Inc's. (KEI) most recent subsurface investigation for the referenced site, in accordance with KEI's proposal (KEI-P90-1103.P4) dated February 4, 1994. The purpose of the investigation was to determine if the subsurface soil and ground water (if encountered) has been impacted by petroleum hydrocarbons at the site. The scope of the work performed by KEI consisted of the following:

- Coordination with regulatory agencies
- Geologic logging of ten exploratory borings
- Soil sampling
- Laboratory analyses
- Data analyses, interpretation, and report preparation

#### SITE DESCRIPTION AND BACKGROUND

The subject site contains a Unocal service station facility. The site is characterized by gently sloping, southward trending topography, and is located approximately 0.5 miles north-northeast of the Oakland Inner Harbor. The site is also located northeast and across 8th Street from a Shell service station that is located adjacent to and northeast of a currently closed Arco service station (which is located at the intersection of 7th Street with Harrison). In addition, a gasoline and diesel service station referred to as "Mandarin Auto Service" is located east-southeast of the Unocal site at Alice Street and 8th Street. The aforementioned site vicinity is shown on Figure 3.

KEI's initial field work was conducted on November 9, 1990, when two underground gasoline storage tanks and one waste oil tank were removed from the site. The tanks consisted of one 10,000 gallon

regular unleaded gasoline storage tank, one 10,000 gallon super unleaded gasoline storage tank, and one 280 gallon waste oil tank. The tanks were made of steel, and no apparent holes or cracks were observed in the fuel tanks; however, the waste oil tank contained one 1/8th-inch square hole. Mr. Dennis Byrne of the Alameda County Health Care Services (ACHCS) Agency was present during tank removal and subsequent soil sampling.

Two soil samples, labeled A1 and B1, were collected from beneath the fuel tanks at depths of approximately 14 feet below grade. Two soil samples, labeled A2 and B2, were collected from the fuel tank pit south sidewall at depths of approximately 12 feet below grade. One soil sample, labeled W01, was collected from beneath the waste oil tank at a depth of approximately 6.5 feet below grade. The sample point locations are as shown on the attached Figure 2.

On November 12, 1990, due to observed soil contamination in the area of sample point A1, KEI collected an additional soil sample, labeled C(19), from the fuel tank pit at a depth of approximately 19 feet below grade.

KEI returned to the site on December 20, 1990, in order to collect soil samples from beneath the pump islands. Six samples, labeled D1 through D6, were collected from beneath the six fuel dispensers; one sample, labeled P1, was collected from the product pipe trench. These samples were collected at depths of about 2.5 feet below grade. The sample point locations are shown on the attached Figure 2.

KEI again returned to the site on December 26, 1990, in order to collect a sample from the pump island excavation (due to obvious contamination observed in the area beneath sample point D2 during previous excavation activities). One additional soil sample, labeled D2(6), was collected from beneath the fuel dispenser and below the sample point D2 at a depth of about 6 feet below grade.

At the request of the ACHCS, on January 3, 1991, KEI returned to the site in order to collect one additional soil sample, labeled W01(9.5), from the waste oil tank pit. The sample point location is shown on the attached Figure 3. After sampling, the waste oil tank pit was excavated to the sample depth of 9.5 feet below grade.

All samples were analyzed by Sequoia Analytical Laboratory in Concord, California. All soil samples were analyzed for total petroleum hydrocarbons (TPH) as gasoline, and benzene, toluene, ethylbenzene, and xylenes (BTEX). In addition, the soil sample (W01) collected from the waste oil tank pit was analyzed for TPH as diesel, total oil and grease (TOG), EPA method 8010 and 8270 constituents, and the metals cadmium, chromium, lead, zinc, and

nickel. Soil sample WO1(9.5), collected beneath sample WO1, was analyzed for TPH as gasoline, BTEX, TOG, and the metals chromium, lead, zinc, and nickel. The results of the soil analyses are summarized in Table 8.

Based on the analytical results, KEI recommended that an in-situ remediation system design be developed and implemented to remediate the residual soil contamination in the fuel tank pit in the vicinity of sample point locations A1 and C(19), and at the southerly pump island in the vicinity of sample location D2(6). However, prior to designing the recommended remediation system, and in order to comply with the requirements of the Regional Water Quality Control Board (RWQCB) and the ACHCS, KEI recommended the installation of three monitoring wells and two exploratory borings at the site. Documentation of the tank and piping removal procedures, sample collection techniques, and the analytical results are summarized in KEI's report (KEI-J90-1103.R1) dated February 1, 1991.

On May 29 and 30, 1991, three two-inch diameter monitoring wells and two exploratory borings (designated as MW1, MW2, and MW3, and EB1 and EB2, respectively, on the attached Figure 1) were installed at the site. The monitoring wells were drilled and completed to total depths ranging from 33 to 35 feet below grade. The exploratory borings were each drilled to total depths of 23 feet below grade and were subsequently fully grouted with neat Portland cement. Ground water was encountered at depths ranging from about 22.5 to 24 feet beneath the surface during drilling. The wells were developed on June 1, 1991, and were initially sampled on June 5, 1991.

Water samples from MW1, MW2, and MW3, and selected soil samples from EB1, EB2, MW1, MW2, and MW3, were analyzed at Sequoia Analytical Laboratory in Concord, California. All of the soil and water samples were analyzed for TPH as gasoline and BTEX. In addition, the soil and water samples collected from MW1 (adjacent to the waste oil tank) were analyzed for TPH as diesel, TOG, EPA method 8010 constituents, and for the metals cadmium, chromium, lead, nickel, and zinc. The results of the soil analyses are summarized in Tables 1, 6, and 7, and the results of the water analyses are summarized in Tables 3, 4, and 5.

Based on the analytical results, KEI recommended the implementation of a monthly ground water monitoring and quarterly ground water sampling program. Documentation of the monitoring well and exploratory boring installation procedures, sample collection techniques, and the analytical results are presented in KEI's report (KEI-P90-1103.R4) dated July 5, 1991.

On August 13, 1991, a representative of KEI reviewed files at the offices of the RWQCB in order to obtain information on sites with documented ground water contamination in the vicinity of the Unocal site. These sites are shown on the attached Figure 3. KEI conducted a follow-up file review at the RWQCB on March 25, 1992. The following is a summary of these file reviews:

Fire Station #12, 822 Alice Street

This site is located southeast of and within 300 feet of the Unocal site (between 8th Street and 9th Street). A 280 gallon underground diesel tank was removed in 1989. The analytical results of the soil samples collected from immediately beneath the tank showed total extractable hydrocarbons and TOG at concentrations up to 860 ppm and 250 ppm, respectively. On June 12 through June 14, 1989, one monitoring well and two piezometers were drilled to a depth of between 20 and 21 feet below grade. The analytical results of the soil samples from well MW1 indicated non-detectable levels of TPH as gasoline and BTEX. TOG was detected at concentrations ranging from 74 ppm to 78 ppm in the soil samples collected from depths of 5 to 20 feet below grade. The analytical results of the ground water samples collected from well MW1 (at high detection limits) indicated non-detectable levels of TPH as gasoline, BTEX, and TPH as diesel. Also, TPH as diesel was non-detectable in the ground water samples collected from monitoring well MW1 as of May 2, 1990. Based on a south to southwesterly ground water flow direction at the Unocal site, it is not considered likely that contamination from the Unocal site and the fire station have commingled. All of the above information is based on a report prepared by Subsurface Consultants, Inc., dated August 3, 1989.

Former Shell Station, 416 Eighth Street at Broadway

This site is located three blocks north-northwest of the Unocal site. This site reportedly had seven monitoring wells (S-1 through S-7), which were apparently installed by Groundwater Technology Inc. (GTI) in August 1981. In 1985, monitoring well S-7 was destroyed for freeway construction. Monitoring wells S-1 through S-3 were reported as "inaccessible" and "believed to be destroyed" during a station demolition. Quarterly ground water sampling of wells S-4, S-5, and S-6 began in October of 1988. Ground water samples collected from these wells were analyzed for TPH as gasoline and BTEX. Free product levels of up to 0.25 feet have been detected in well S-5 since October of 1990. Monitoring well S-4 was not sampled since June 1991, due to insufficient water for sampling. The ground water flow direction was reported as

varying from the north-northwest to the northwest on April 8, 1991. Based on the opposing directions of ground water flow and the distance from the Unocal site, it is not considered likely that contamination from the Unocal site and the former Shell station have commingled. All of the above information is based on a quarterly report prepared by GeoStrategies, Inc., dated January 6, 1992.

#### Other Sites

No information was contained in the RWQCB files at the time of our review for the adjacent Shell service station, the former Arco service station (Seventh Street at Harrison Street), the Mandarin Auto service station, or the Rind gas station located at the intersection of Eighth Street and Alice Street. The immediate site vicinity of the Unocal site is shown on the attached Figure 3. KEI recommended that the RWQCB files be periodically re-reviewed to determine if any information becomes available for the sites.

On September 30 and October 1, 1992, three additional two-inch diameter monitoring wells (designated as MW4, MW5, and MW6 on the attached Figure 1) were installed at and in the vicinity of the Unocal site to further delineate the extent of ground water contamination. The three new wells were each drilled and completed to total depths ranging from 32 to 33 feet below grade. Ground water was encountered at depths ranging from 21.5 to 23 feet below grade during drilling. The three new wells (MW4, MW5, and MW6) were developed on October 15, 1992, and were initially sampled on October 19, 1992.

Water and selected soil samples from the borings of MW4, MW5 and MW6 were analyzed at Sequoia Analytical Laboratory. The samples were analyzed for TPH as gasoline and BTEX. The results of the soil analyses are summarized in Table 6, and the results of the water analyses are summarized in Tables 3 and 4. Documentation of the well installation procedures, sample collection techniques, and the analytical results are presented in KEI's report (KEI-P90-1103.R5) dated November 17, 1992.

In KEI's report (KEI-P90-1103.QR6) dated January 21, 1993, KEI concluded that the extent of ground water contamination had not been defined in the vicinity of the site. Therefore, KEI recommended the installation of two additional off-site monitoring wells in order to further define the extent of ground water contamination.

On April 14, 1993, two additional two-inch diameter monitoring wells (designated as MW7 and MW8 on the attached Figure 1) were installed in the vicinity of the site.

Monitoring well MW7 was drilled and completed to a total depth of 33 feet below grade. Well MW8 was drilled and sampled to a depth of 31 feet, but was completed to a depth of 29 feet below grade. During drilling, ground water was encountered at a depth of 21.5 feet below grade in MW7, and at a depth of 21 feet below grade in MW8.

The surface of each well cover was surveyed by Kier & Wright of Pleasanton, California, to Mean Sea Level (MSL) and to a vertical accuracy of 0.01 foot. The new wells were developed on April 21, 1993, and were initially sampled on April 28, 1993.

Water samples from all of the wells, and selected soil samples from the borings for MW7 and MW8, were analyzed at Sequoia Analytical Laboratory. The samples were analyzed for TPH as gasoline by EPA method 5030/modified 8015, and BTEX by EPA method 8020. In addition, the ground water sample collected from MW1 was analyzed for TPH as diesel by EPA method 3510/modified 8015, and for EPA method 8010 constituents. The results of the soil analyses are summarized in Table 6, and the results of the water analyses are summarized in Tables 3 and 4.

The analytical results of all of the soil samples collected from the borings for the two new monitoring wells (MW7 and MW8) indicated non-detectable concentrations of TPH as gasoline and BTEX. Therefore, KEI concluded that the horizontal extent of the soil contamination at the Unocal site had been defined, and that the contamination was limited to the areas beneath the fuel tanks and the southernmost pump island.

Based on the monitoring data collected and evaluated through April of 1993, KEI recommended a modification to the monthly monitoring program. The ground water flow direction had been consistently to the southwest or south-southwest during the preceding six consecutive quarters of monitoring. In addition, no free product or sheen had been detected in any well through April of 1993. Therefore, KEI recommended that the monitoring frequency for all of the wells be reduced from monthly to quarterly.

Based on the analytical results of the ground water samples collected and evaluated through April of 1993, KEI recommended the continuation of the ground water sampling program at the site. Documentation of well installation procedures, sample collection techniques, and the analytical results are presented in KEI's report (KEI-P90-1103.R6) dated May 24, 1993.

FIELD ACTIVITIES

*March*  
Per Unocal Corporation's procedure for potential site divestment locations, on ~~February~~ *March* 17 and 18, 1994, ~~ten~~ exploratory borings (designated as EB3 through EB12 on the attached Figure 1) were drilled at the site. Subsurface materials penetrated and the depths at which soil samples were collected are shown in the attached Boring Logs.

Eight exploratory borings (EB3 through EB10) were each drilled to total depths ranging from 19.5 to 20.5 feet below grade. Exploratory borings EB11 and EB12 were hand-augered to total depths of 10.5 and 11 feet below grade, respectively. In EB3 through EB10, ground water was encountered at depths ranging from 19 to 20.5 feet below grade during drilling. Ground water was not encountered in exploratory borings EB11 and EB12 during installation. 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 5 feet below grade and continuing until ground water was encountered. The undisturbed soil samples were collected by driving a California-modified split-spoon sampler (lined with brass liners) ahead of the drilling augers, except in EB11 and EB12, where samples were collected using a hand-held drive sampler. The two-inch diameter brass liners holding the samples were sealed with aluminum foil, plastic caps and tape, labeled, and stored in a cooler, on ice, until delivery to a state-certified laboratory. Drilling of exploratory borings EB3 through EB10 was stopped about 0.5 foot after intersecting the first water table.

*ok - not .5' bgs*  
After the completion of drilling and soil sampling, the exploratory borings were fully sealed with neat cement grout, which was placed from the bottom of the borings to the surface. A hardening agent was used for the upper 1 to 2 feet of the borings to reduce curing time.

ANALYTICAL RESULTS

All samples were analyzed at Sequoia Analytical Laboratory in Concord, California, and were accompanied by properly executed Chain of Custody documentation. Selected soil samples from the ten exploratory borings EB3 through EB12 were analyzed for TPH as gasoline by EPA method 5030/modified 8015, and BTEX by EPA method 8020. In addition, selected soil samples from exploratory borings EB9, EB11, and EB12 were analyzed for TPH as diesel by EPA method 3550/modified 8015, TOG by Standard Methods 5520E&F, TPH as hydraulic fluid by EPA method 3550/modified 8015, and for EPA method 8010 constituents.



The results of the soil analyses are summarized in Tables 1 and 2. Copies of the laboratory analyses and the Chain of Custody documentation are attached to this report.

#### HYDROLOGY AND GEOLOGY

During drilling, ground water was encountered in exploratory borings EB3 through EB10 at depths ranging from 19 to 20.5 feet below the surface.

On January 3, 1994, the measured depth to ground water in the monitoring wells ranged from 18.54 to 20.52 feet below the top of the well casings. The ground water flow direction appeared to be to the south-southwest. The average hydraulic gradient at and in the vicinity of the site on January 3, 1994, was approximately 0.008, based on water level data collected from the monitoring wells prior to purging. This gradient is relatively consistent with the previously reported gradients. Monitoring data and a Potentiometric Surface Map are presented in the MPDS Quarterly Data Report (MPDS-UN0752-01) dated February 3, 1994.

Based on review of regional geologic maps (U.S. Geological Survey Professional Paper 943 "Flatland Deposits - Their Geology and Engineering Properties and Their Importance to Comprehensive Planning" by E.J. Helley and K.R. Lajoie, 1979), the subject site is underlain by Quaternary-age dune sand deposits referred to as the Merritt Sand (Qps). The Merritt Sand is described as typically consisting of loose, well-sorted, fine-to medium-grained sand with silt. This sand apparently reaches a maximum depth of about 50 feet below grade in the Oakland area.

Based on the results of our subsurface studies, the site is underlain by fill materials to a depth of between 1 and 7 feet below grade. The fill is in turn underlain by unconsolidated sediments to the maximum depth explored (35 feet below grade).

The deposits underlying the site consist initially of fine-grained sand with silt. This sand sequence is in turn underlain by silty to sandy clay, clayey sand, and clayey or sandy silt, beginning at a depth of between 30 and 33 feet below grade and extending to the total depth explored (35 feet below grade).

As of January 1994, the unsaturated zone beneath the site is approximately 18 to 21 feet thick and consists of fine-grained sand with silt. The saturated zone also predominantly consists of fine-grained sand with silt, which is the predominant soil type encountered in the existing wells and exploratory borings installed at the site.

A particle size analysis (sieve analysis) was previously performed on a saturated sample collected from the boring for well MW2 at a depth of 30 feet below grade. The analysis indicated that the sample consisted of approximately 90% fine sand, 8% medium sand, and 2% silt and clay. The sample is classified as fine-grained brown sand (SP).

#### DISCUSSION AND RECOMMENDATIONS

Based on the analytical results of all of the soil and ground water samples collected and evaluated to date, and based on no evidence of free product or sheen in any of the wells, KEI recommends the continuation of the current ground water monitoring and sampling program. The wells are currently monitored and sampled on a quarterly basis.

#### DISTRIBUTION

A copy 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 ground water levels and flow paths, thereby changing 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 generally accepted professional principles and practices existing for such work.

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April 1, 1994  
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Should you have any questions on this report, please call me at  
(510) 602-5100.

Sincerely,

Kaprealian Engineering, Inc.



Haig (Gary) Tejirian  
Project Geologist



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

License No. EG 1633  
Exp. Date 6/30/94



Robert H. Kezerian  
Project Manager

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Attachments: Tables 1 through 8  
Location Map  
Figures 1 through 3  
Boring Logs  
Laboratory Analyses  
Chain of Custody documentation

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 April 1, 1994

3-17 to 18-94

TABLE 1

SUMMARY OF LABORATORY ANALYSES  
 SOIL

ppm?

<u>Date</u>	<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>	
5/29/91	EB1(55)	--	ND	ND	ND	ND	ND	
	EB1(10)	--	ND	ND	ND	ND	ND	
	EB1(15)	--	ND	0.0087	ND	ND	ND	
	EB1(20)	--	ND	ND	ND	ND	ND	
	EB1(22)	--	ND	ND	ND	ND	ND	
	EB2(5.5)	--	ND	ND	ND	ND	ND	
	EB2(10)	--	ND	ND	ND	ND	ND	
	EB2(15)	--	ND	ND	ND	ND	ND	
	EB2(20)	--	ND	ND	ND	ND	ND	
	EB2(22.5)	--	ND	ND	ND	ND	ND	
	3/17/94	EB3(5)	--	ND	ND	ND	ND	ND
		& EB3(9.5)	--	ND	ND	ND	ND	ND
	3/18/94	EB3(14.5)	--	ND	ND	ND	ND	ND
		EB3(19.5)	--	ND	ND	ND	ND	ND
		EB4(5)	--	ND	ND	ND	ND	ND
EB4(9.5)		--	ND	ND	ND	ND	ND	
EB4(14.5)		--	ND	ND	ND	ND	ND	
EB4(19)		--	ND	ND	ND	ND	ND	
	EB5(5)	--	ND	ND	ND	ND	ND	
	EB5(10)	--	ND	ND	ND	ND	ND	
	EB5(15)	--	ND	ND	ND	ND	ND	
	EB5(19)	--	310*	0.71	2.4	1.3	2.2	
	EB6(4.5)	--	ND	ND	ND	ND	ND	
	EB6(9.5)	--	ND	ND	ND	ND	ND	
	EB6(14.5)	--	ND	ND	ND	ND	ND	
	EB6(19.5)	--	ND	ND	ND	ND	ND	
	EB7(5)	--	ND	ND	ND	ND	ND	
	EB7(10)	--	ND	ND	ND	ND	ND	
	EB7(15)	--	ND	ND	ND	ND	ND	
	EB7(19)	--	ND	ND	ND	ND	ND	
	EB8(5)	--	ND	ND	ND	ND	ND	
	EB8(10)	--	ND	ND	ND	ND	ND	
	EB8(15)	--	ND	ND	ND	ND	ND	
	EB8(18.5)	--	21,000	7.0	78	26	140	

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TABLE 1 (Continued)  
SUMMARY OF LABORATORY ANALYSES  
SOIL

<u>Date</u>	<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>
3/17/94	EB9(5.5)	ND	1.6	ND	0.040	ND	0.99
&	EB9(10)	ND	ND	ND	ND	ND	ND
3/18/94	EB9(15)	ND	ND	ND	ND	ND	ND
(Con't)	EB9(20)	ND	ND	ND	ND	ND	ND
	EB10(5)	--	ND	ND	ND	ND	ND
	EB10(10)	--	ND	ND	ND	ND	ND
	EB10(15)	--	ND	ND	ND	ND	ND
	EB10(20)	--	ND	ND	ND	ND	ND
	EB11(5)	ND	1.8*	ND	0.0091	ND	0.0088
	EB11(6)	19♦	3.6**	ND	ND	ND	ND
	EB11(10)	ND	ND	ND	ND	ND	ND
	EB12(5)	ND	ND	ND	ND	ND	ND
	EB12(10.5)	ND	ND	ND	ND	ND	ND

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

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

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TABLE 2  
SUMMARY OF LABORATORY ANALYSES  
SOIL

<u>Date</u>	<u>Sample Number</u>	<u>TOG</u>	<u>TPH as Hydraulic Fluid</u>	<u>Tetrachloro-ethene* (µg/kg)</u>	<u>1,1,1-tri-chloroethane* (µg/kg)</u>
3/17/94	EB9(5.5)	ND	ND	ND	ND
&	EB9(10)	ND	ND	ND	ND
3/18/94	EB9(15)	ND	ND	ND	ND
	EB9(20)	ND	ND	ND	ND
	EB11(5)	13,800	4,300	130	46
	EB11(6)	4,300	270	ND	ND
	EB11(10)	88	ND	ND	ND
	EB12(5)	ND	ND	ND	ND
	EB12(10.5)	ND	ND	ND	ND

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

\* All EPA method 8010 constituents were non-detectable, except as indicated above.

ND = Non-detectable.

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

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 April 1, 1994

TABLE 3  
 SUMMARY OF LABORATORY ANALYSES  
 WATER

<u>Date</u>	<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>
1/03/94	MW1	ND	ND	ND	ND	ND	ND
	MW2	--	260	25	ND	5.5	26
	MW3	--	4,900	830	100	170	150
	MW4	--	210	ND	ND	0.76	1.6
	MW5	--	1,500	44	ND	42	46
	MW6	--	1,400	57	ND	8.5	11
	MW7	--	ND	0.93	ND	0.75	1.9
	MW8	--	ND	ND	ND	ND	ND
10/05/93	MW1	57♦	92**	1.5	ND	ND	0.72
	MW2	--	120	12	ND	2.1	12
	MW3	--	9,200	720	88	140	140
	MW4	--	130**	ND	ND	ND	ND
	MW5	--	1,700	70	6.2	54	40
	MW6	--	1,400	34	ND	5.3	7.3
	MW7	--	360	10	1.2	0.91	0.99
	MW8	--	120**	1.7	ND	ND	ND
7/23/93	MW1	ND	ND	0.50	0.66	ND	ND
	MW2	--	66	1.8	ND	2.5	2.0
	MW3	--	4,400	660	26	160	82
	MW4	--	85*	ND	ND	ND	ND
	MW5	--	2,000	122	8.0	68	47
	MW6	--	580	19	0.99	3.4	2.7
	MW7	--	790	23	3.3	28	5.4
	MW8	--	260	5.1	ND	0.60	ND
4/28/93	MW1	470♦♦	920	3.1	2.3	1.2	9.7
	MW2	--	1,300	76	1.9	130	87
	MW3	--	2,600	220	7.6	41	27
	MW4	--	ND	ND	ND	ND	ND
	MW5	--	6,700	200	190	250	430
	MW6	--	1,200	54	1.5	11	5.3
	MW7	--	110	2.8	1.3	1.4	1.7
	MW8	--	450	18	1.8	1.8	1.4

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TABLE 3 (Continued)

SUMMARY OF LABORATORY ANALYSES  
 WATER

<u>Date</u>	<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>
12/21/92	MW1	ND	95	0.69	ND	ND	1.0
	MW2	--	960	97	3.2	74	96
	MW3	--	8,500	1,500	150	310	330
	MW4	--	220*	ND	ND	0.97	0.74
	MW5	--	1,700	51	4.7	83	34
	MW6	--	2,300	370	11	39	15
10/19/92	MW4	--	480	0.51	2.1	2.8	6.8
	MW5	--	2,700	61	5.0	100	61
	MW6	--	3,900	420	12	60	28
9/15/92	MW1	ND	76	1.0	ND	ND	ND
	MW2	--	1,300	91	5.7	80	110
	MW3	--	10,000	1,900	330	400	580
6/30/92	MW1	120	ND	ND	ND	ND	ND
	MW2	--	76	9.3	0.76	4.8	6.9
	MW3	--	8,900	1,900	210	430	550
4/02/92	MW1	94	ND	ND	ND	ND	ND
	MW2	--	88	12	0.32	6.3	7.2
	MW3	--	8,000	1,400	200	300	310
12/30/91	MW1	ND	ND	ND	ND	ND	ND
	MW2	--	91	16	0.89	11	1.9
	MW3	--	7,200	2,100	690	410	550
9/30/91	MW1	ND	ND	ND	ND	ND	ND
	MW2	--	130	18	0.53	14	9.6
	MW3	--	6,800	1,400	130	290	240
6/05/91	MW1	ND	47	ND	ND	ND	ND
	MW2	--	49	ND	ND	ND	ND
	MW3	--	5,800	1,200	40	140	97



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TABLE 3 (Continued)

SUMMARY OF LABORATORY ANALYSES  
WATER

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

ND = Non-detectable.

-- Indicates analysis was not performed.

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

**NOTE:** Laboratory analyses data for January 3, 1994, were provided by MPDS Services, Inc.

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TABLE 4  
SUMMARY OF LABORATORY ANALYSES  
WATER

<u>Date</u>	<u>Sample Number</u>	<u>Chloroform*</u>	<u>Tetrachloroethene*</u>	<u>Trichloroethene*</u>
1/03/94	MW1*	18	1.4	0.93
	MW4**	9.0	1.0	ND
	MW8♦	1.5	1.2	ND
10/05/93	MW1	13	1.3	0.66
7/23/93	MW1	16	1.3	0.91
4/28/93	MW1♦♦	12	0.89	0.85
12/21/92	MW1	12	1.4	0.83
9/15/92	MW1	12	2.2	1.3
6/30/92	MW1	9.5	2.2	1.3
4/02/92	MW1	7.1	2.6	1.4
12/30/91	MW1	6.4	2.1	0.9
9/30/91	MW1	--	--	--
6/04/91	MW1	7.8	2.9	1.3

\* All EPA method 8010 constituents were non-detectable, except as indicated above.

\* A fuel fingerprint analysis was conducted on this sample. Sequoia Analytical Laboratory reported that total extractable petroleum hydrocarbons in this sample were not detected in high enough concentrations to compare with known standards and approximate their make-up.

\*\* MTBE was detected at a concentration of 240 µg/L.

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April 1, 1994

TABLE 4 (Continued)

SUMMARY OF LABORATORY ANALYSES  
WATER

- ◆ 1,2-Dichloroethane was detected at a concentration of 4.0  $\mu\text{g/L}$ , and MTBE was detected at a concentration of 51  $\mu\text{g/L}$ .
- ◆◆ 1,2-Dichloroethane was detected at a concentration of 1.1 ppb.

ND = Non-detectable.

-- Indicates analysis was not performed.

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

NOTE: Laboratory analyses data for January 3, 1994, were provided by MPDS Services, Inc.

KEI-P90-1103.R8  
April 1, 1994

TABLE 5  
SUMMARY OF LABORATORY ANALYSES  
WATER

<u>Date</u>	<u>Sample Number</u>	<u>TOG</u>	<u>Cadmium</u>	<u>Chromium</u>	<u>Lead</u>	<u>Nickel</u>	<u>Zinc</u>
4/02/92	MW1	ND	ND	0.015	0.016	ND	0.020
12/30/91	MW1	ND	ND	0.0078	0.0057	ND	0.046
9/30/91	MW1	ND	ND	0.019	ND	ND	0.11
6/05/91	MW1	ND	ND	0.0083	0.011	0.063	0.023

ND = Non-detectable.

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

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TABLE 6  
 SUMMARY OF LABORATORY ANALYSES  
 SOIL

<u>Date</u>	<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>
5/23/91	MW1(5)*	2.2	1.1	ND	ND	ND	0.010
&	MW1(10)*	43	43	ND	0.0059	0.0074	0.43
5/30/91	MW1(15)*	120	250	0.80	0.73	0.91	2.9
	MW1(20)*	ND	ND	ND	ND	ND	ND
	MW1(24)*	ND	ND	ND	ND	ND	0.0073
	MW2(5)	--	ND	ND	ND	ND	0.0054
	MW2(10)	--	ND	ND	ND	ND	ND
	MW2(15.5)	--	ND	0.015	ND	0.0064	0.025
	MW2(20)	--	ND	0.0086	ND	ND	ND
	MW2(22)	--	ND	ND	ND	ND	ND
	MW3(5)	--	ND	ND	ND	ND	ND
	MW3(10)	--	ND	ND	ND	ND	ND
	MW3(15)	--	ND	ND	ND	ND	ND
	MW3(20)	--	ND	ND	ND	ND	ND
	MW3(23)	--	2.9	0.0079	ND	0.012	0.031
9/30/92	MW4(5)	--	ND	ND	ND	ND	ND
&	MW4(10)	--	ND	ND	ND	ND	ND
10/01/92	MW4(15)	--	ND	ND	ND	ND	ND
	MW4(20)	--	ND	ND	ND	ND	ND
	MW4(22.5)	--	27♦	ND	ND	ND	ND
	MW5(5)	--	ND	ND	ND	ND	ND
	MW5(10)	--	ND	ND	ND	ND	ND
	MW5(15)	--	ND	ND	ND	ND	ND
	MW5(20)	--	ND	ND	ND	ND	ND
	MW5(22)	--	1.1	ND	0.00600	ND	0.014

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TABLE 6 (Continued)

SUMMARY OF LABORATORY ANALYSES  
SOIL

<u>Date</u>	<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>
9/30/92	MW6(5)	--	ND	ND	ND	ND	ND
&	MW6(10)	--	ND	ND	ND	ND	ND
10/01/92	MW6(15)	--	ND	ND	ND	ND	ND
	MW6(20)	--	ND	ND	ND	ND	ND
	MW6(21.5)	--	170	ND	0.38	1.8	4.5
4/14/93	MW7(5)	--	ND	ND	ND	ND	ND
	MW7(10)	--	ND	ND	ND	ND	ND
	MW7(15)	--	ND	ND	ND	ND	ND
	MW7(21)	--	ND	ND	ND	ND	ND
	MW8(5)	--	ND	ND	ND	ND	ND
	MW8(10)	--	ND	ND	ND	ND	ND
	MW8(15)	--	ND	ND	ND	ND	ND
	MW8(20.5)	--	ND	ND	ND	ND	ND

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

\* TOG and all EPA method 8010 constituents were non-detectable.

♦ Sequoia Analytical Laboratory reported that the hydrocarbons detected did not appear to be gasoline.

ND = Non-detectable.

-- Indicates analysis was not performed.

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

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TABLE 7  
SUMMARY OF LABORATORY ANALYSES  
SOIL

<u>Date</u>	<u>Sample</u>	<u>Cadmium</u>	<u>Chromium</u>	<u>Lead</u>	<u>Nickel</u>	<u>Zinc</u>
5/29/91	MW1(5)	ND	64	11	32	30
	MW1(10)	ND	48	7.1	24	27
	MW1(15)	ND	11	06.0	42	28
	MW1(20)	ND	32	4.2	36	23
	MW1(24)	ND	20	5.0	31	23

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.

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TABLE 8

SUMMARY OF LABORATORY ANALYSES  
SOIL

(Collected on November 9 & 12, December 20 & 26, 1990,  
and January 3, 1991)

<u>Sample</u>	<u>Depth (feet)</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl- benzene</u>	<u>Xylenes</u>
A1	14.0	1,200	3.0	38	25	170
A2	12.0	ND	ND	0.0082	ND	0.024
B1	14.0	45	0.29	2.7	1.4	10
B2	12.0	ND	0.0063	0.0056	ND	0.011
C(19)	19.0	3,800	11	90	36	210
WO1*	6.5	ND	ND	ND	ND	ND
WO1(9.5)**		9.5	ND	ND	ND	ND
D1	2.5	ND	ND	ND	ND	ND
D2	2.5	45	0.22	1.8	0.71	5.5
D2(6)	6.0	1,200	0.24	28	28	170
D3	2.5	ND	ND	ND	ND	ND
D4	2.5	ND	ND	ND	ND	ND
D5	2.5	ND	ND	ND	ND	ND
D6	2.5	ND	ND	ND	0.018	ND
P1	2.5	ND	ND	ND	ND	ND

\* TOG, TPH as diesel, cadmium, and all EPA methods 8010 and 8270 constituents were non-detectable. Chromium, lead, zinc, and nickel were detected at 43 mg/kg, 1,100 mg/kg, 130 mg/kg, and 12 mg/kg, respectively.

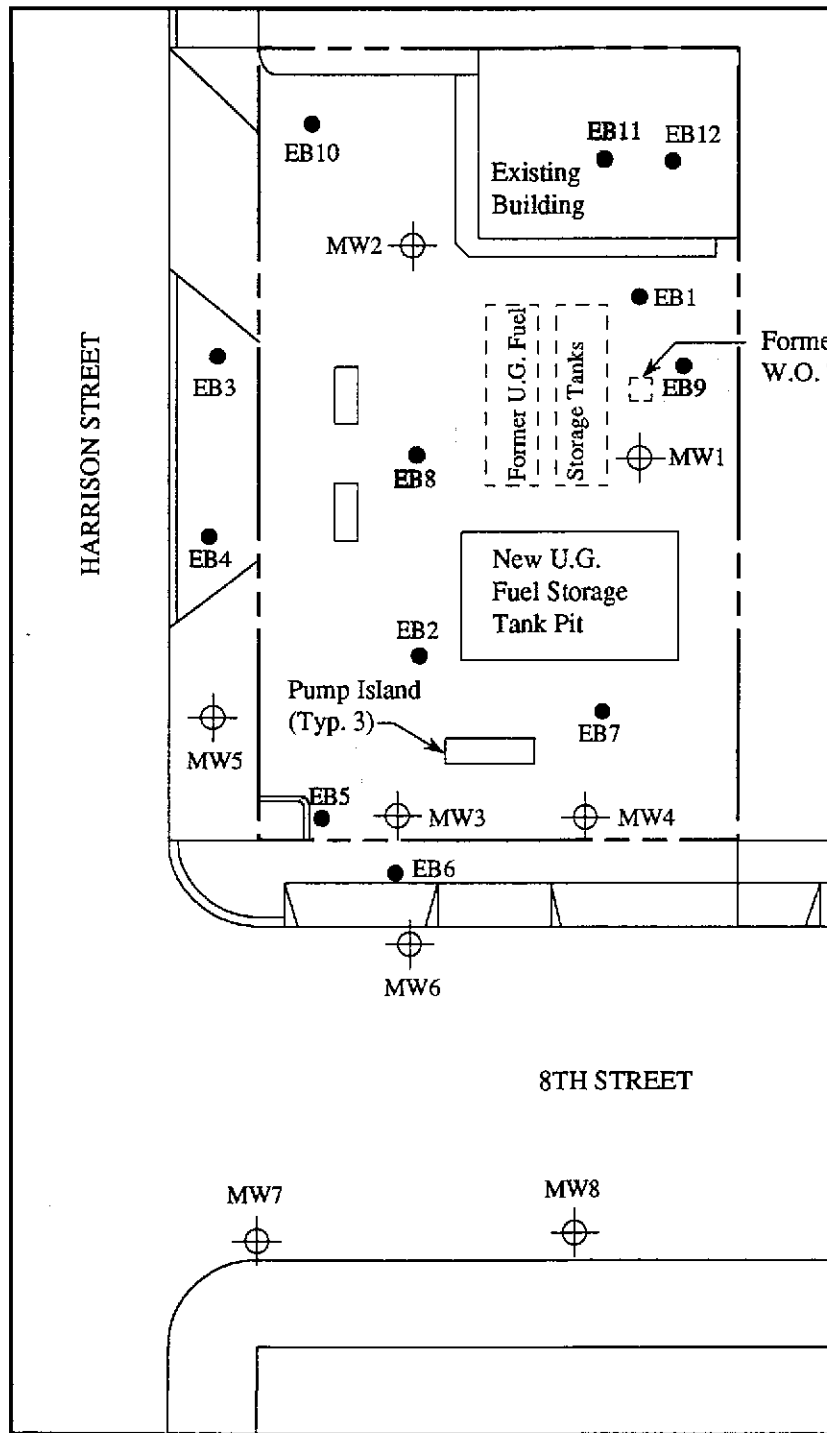
\*\* TOG and lead were non-detectable. Chromium, zinc, and nickel were detected at 61 mg/kg, 20 mg/kg, and 40 mg/kg, respectively.

ND = Non-detectable.

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



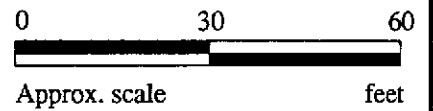




hjt

**LEGEND**

- ⊕ Monitoring well
- Exploratory boring

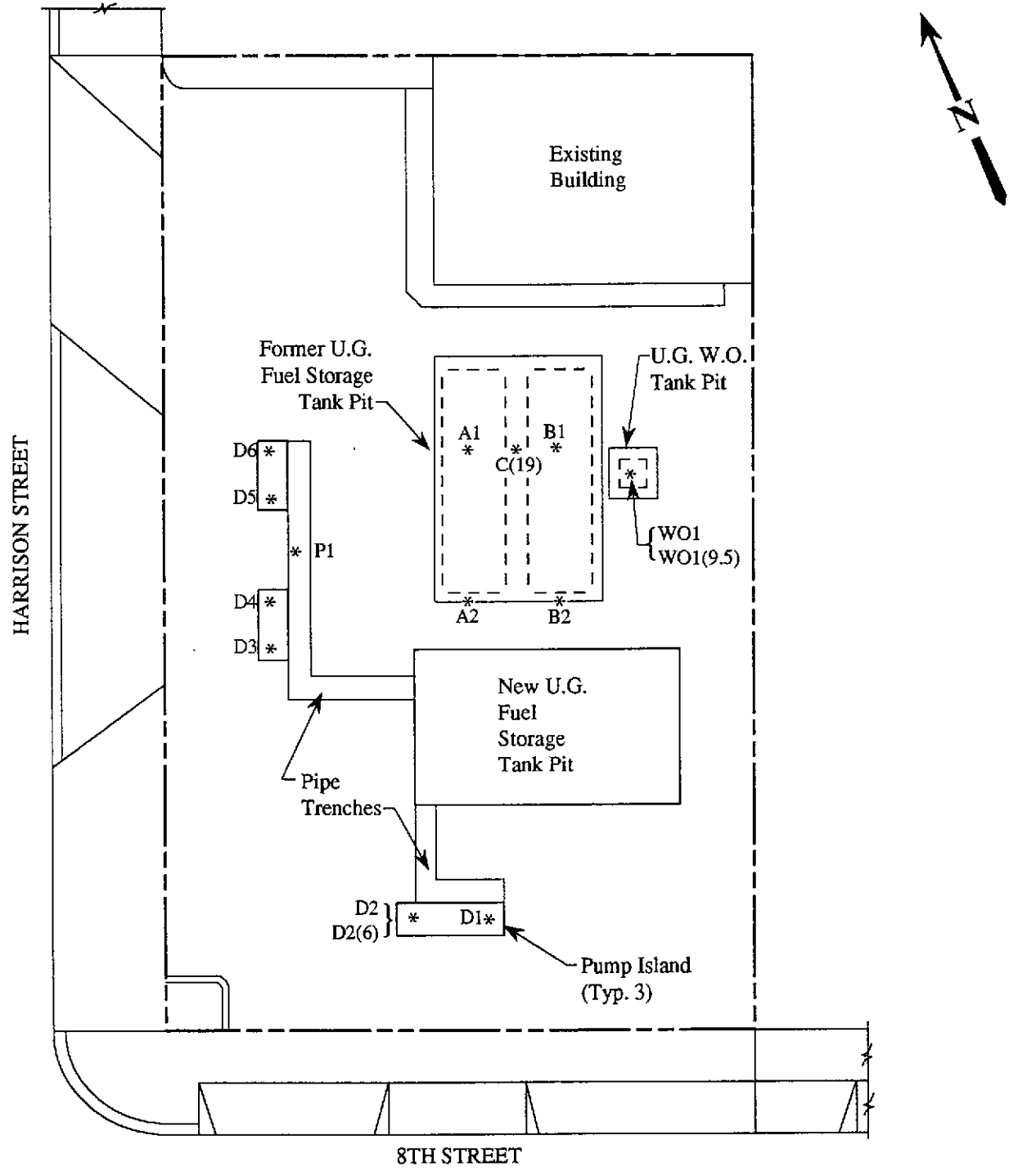


**EXPLORATORY BORING AND MONITORING WELL LOCATION MAP**



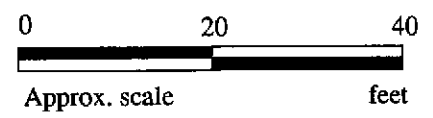
**UNOCAL SERVICE STATION #0752  
800 HARRISON STREET  
OAKLAND, CA**

**FIGURE  
1**



**LEGEND**

\* Soil sample point location

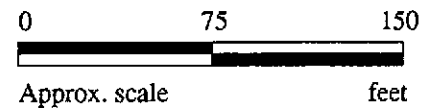
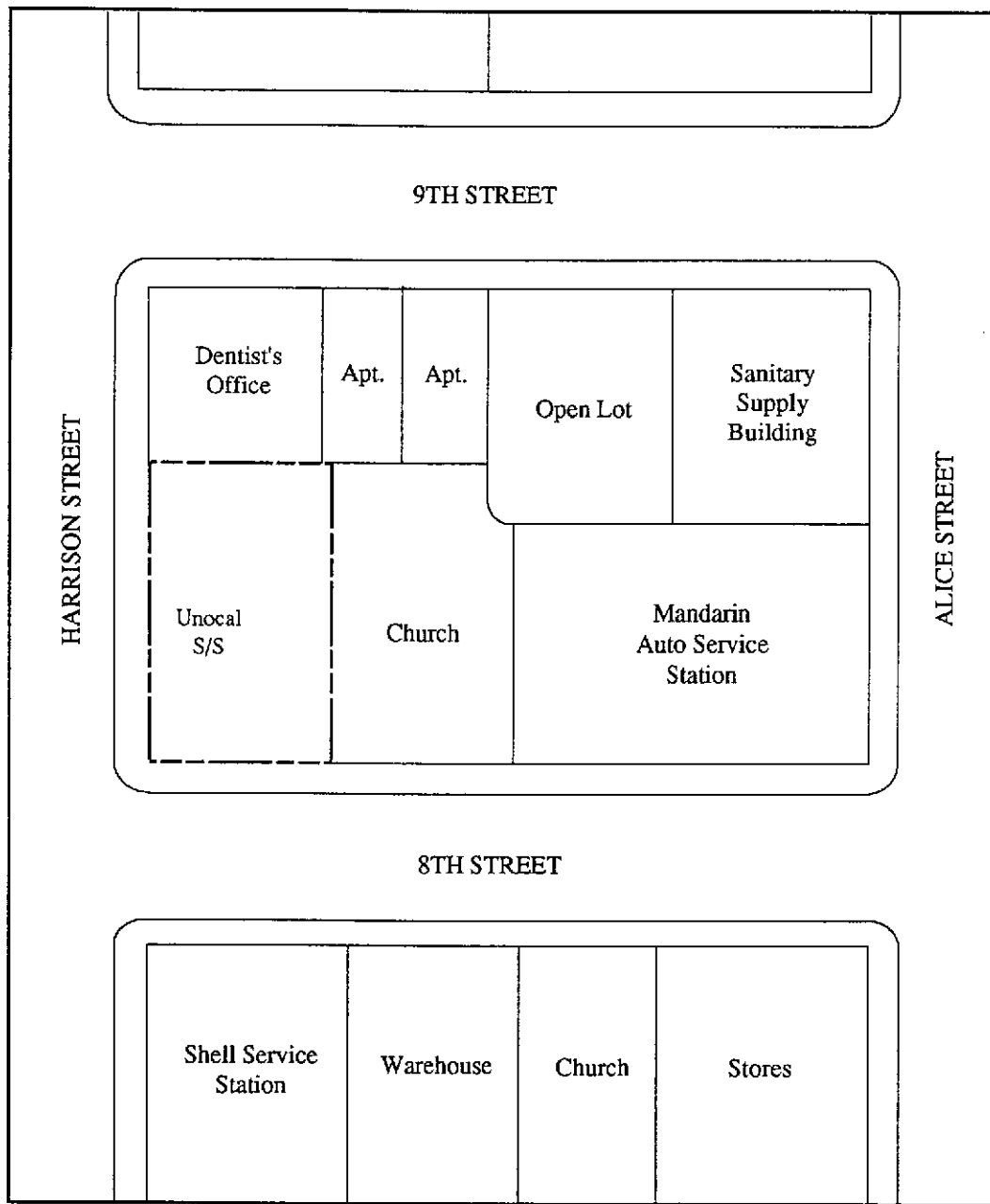
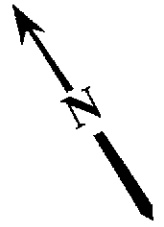


**SOIL SAMPLE POINT LOCATIONS**



**UNOCAL SERVICE STATION #0752  
800 HARRISON STREET  
OAKLAND, CA**

**FIGURE  
2**



**MONITORING WELL LOCATION MAP**



**UNOCAL SERVICE STATION #0752  
800 HARRISON STREET  
OAKLAND, CA**

**FIGURE  
3**

## BORING LOG

<b>Project No.</b> KEI-P90-1103	<b>Boring Diameter</b> 8.5" <b>Casing Diameter</b> N/A	<b>Logged By</b> JGG J.G. CEG 1633
<b>Project Name</b> Unocal S/S #0752 800 Harrison Street, Oakland	<b>Well Cover Elevation</b> N/A	<b>Date Drilled</b> 3/18/94
<b>Boring No.</b> EB3	<b>Drilling Method</b> Hollow-stem Auger	<b>Drilling Company</b> Woodward Drilling

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description
		0		Concrete slab (sidewalk)
				Silty sand, up to 15% silt, sand is fine to medium grained, loose to medium dense, moist, dark brown (fill and disturbed native soil).
8/12/32		5	SP	Poorly graded sand, fine to medium grained, medium dense, moist, yellowish brown.
				Poorly graded sand, up to 15% silt and trace clay, sand is predominantly medium grained, very dense, moist, light reddish brown, with heavy iron oxide staining.
12/17/23		10		Poorly graded sand, up to 10% variable silt content, predominantly medium grained, very dense, light reddish brown and medium brown mottled, mottled iron oxide staining.
8/12/20		15		Poorly graded sand as above, except dense, gray, very moist.
11/18/23	▽	20		Poorly graded sand as above, except wet.
				TOTAL DEPTH: 20.5'

## BORING LOG

<b>Project No.</b> KEI-P90-1103	<b>Boring Diameter</b> 8.5"	<b>Logged By</b> JGG D.L. CEG 1633
	<b>Casing Diameter</b> N/A	
<b>Project Name</b> Unocal S/S #0752 800 Harrison Street, Oakland	<b>Well Cover Elevation</b> N/A	<b>Date Drilled</b> 3/17/94
<b>Boring No.</b> EB5	<b>Drilling Method</b> Hollow-stem Auger	<b>Drilling Company</b> Woodward Drilling

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description
		0		Concrete slab (sidewalk)
1/2/2		5	SP	Poorly graded sand, estimated at 5-10% silt with gravel, concrete and debris, loose, moist, predominantly dark brown and very dark grayish brown (fill and disturbed native soil).
9/5/16		10		Poorly graded sand, trace silt, predominantly medium grained, medium dense, moist, dark greenish gray.
12/19/38		15	SP	Poorly graded sand, trace silt, predominantly medium grained, dense to very dense, cohesive, moist, olive and olive gray, mottled.
17/28/40		20		Poorly graded sand, trace silt, predominantly medium grained, very dense grading to dense, moist grading to wet, dark greenish gray, with an occasional lens of silt.
14/19/22	▽			
				TOTAL DEPTH: 20.5'


## BORING LOG

<b>Project No.</b> KEI-P90-1103	<b>Boring Diameter</b> 8.5"	<b>Logged By</b> <i>JGG</i> J.G. <i>CEG 1633</i>
	<b>Casing Diameter</b> N/A	
<b>Project Name</b> Unocal S/S #0752 800 Harrison Street, Oakland	<b>Well Cover Elevation</b> N/A	<b>Date Drilled</b> 3/18/94
<b>Boring No.</b> EB6	<b>Drilling Method</b> Hollow-stem Auger	<b>Drilling Company</b> Woodward Drilling

Penetration blows/6"	G. W. level	Depth (feet) Samples	Stratigraphy USCS	Description
		0		Concrete slab (sidewalk)
			SP	Poorly graded sand, predominantly medium grained, moist, medium dense to dense, brown and dark brown, mottled with gravel and concrete debris (fill).
2/5/8		5		Poorly graded sand as above (fill).
			SP	Poorly graded sand, predominantly medium grained, up to 10% silt, dense, moist, light brown and light reddish brown, mottled, iron-oxide staining.
12/12/14		10		Poorly graded sand as above, except moist to very moist, very dense, gray.
			SP	Poorly graded sand as above.
10/21/30		15		Poorly graded sand, predominantly medium grained, trace to 10% silt, very dense, wet, gray.
18/20/24				
11/17/25	▽	20		
<b>TOTAL DEPTH: 20.5'</b>				

## BORING LOG

<b>Project No.</b> KEI-P90-1103	<b>Boring Diameter</b> 8.5" <b>Casing Diameter</b> N/A	<b>Logged By</b> JGG D.L. CEG 1633
<b>Project Name</b> Unocal S/S #0752 800 Harrison Street, Oakland	<b>Well Cover Elevation</b> N/A	<b>Date Drilled</b> 3/17/94
<b>Boring No.</b> EB7	<b>Drilling Method</b> Hollow-stem Auger	<b>Drilling Company</b> Woodward Drilling

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description
		0		A.C. Pavement over sand and gravel base
				Silt, sand and gravel, with concrete and debris(fill).
4/13/20		5	SP	Poorly graded sand, trace to 10% variable silt content, sand is predominantly medium grained, medium dense, moist, brown and dark yellowish brown.
11/10/22		10		Poorly graded sand, trace silt, sand is predominantly medium grained, medium dense, slightly cohesive, brown, with iron-oxide staining.
14/22/40		15		Poorly graded sand as above, except dense to very dense, dark yellowish brown.
16/28/32		20		Poorly graded sand, clean to trace silt, sand is predominantly medium grained, dense to very dense, moist to wet, olive brown.
				TOTAL DEPTH: 19.5'



## BORING LOG

<b>Project No.</b> KEI-P90-1103		<b>Boring Diameter</b> 8.5" <b>Casing Diameter</b> N/A		<b>Logged By</b> JGG D.L. LEG 1633	
<b>Project Name</b> Unocal S/S #0752 800 Harrison Street, Oakland		<b>Well Cover Elevation</b> N/A		<b>Date Drilled</b> 3/17/94	
<b>Boring No.</b> EB8		<b>Drilling Method</b> Hollow-stem Auger		<b>Drilling Company</b> Woodward Drilling	
Penetration blows/6"	G. W. level	Depth (feet) Samples	Stratigraphy USCS	Description	
		0		Concrete Slab	
NO DATA Samples Pushed				Poorly graded sand, predominantly medium grained, loose, moist, olive brown, with bricks and debris (fill and disturbed native soil).	
		5	SP/SM	Poorly graded sand, estimated at 10-15% silt, locally with trace clay, sand is predominantly medium grained, medium dense, moist, olive brown, with iron-oxide staining.	
		10		Poorly graded sand, trace silt, predominantly medium grained, medium dense, moist, olive brown and olive gray, mottled.	
		15	SP	Poorly graded sand, estimated at 5-10% silt, trace clay, predominantly medium grained, medium dense, moist, dark olive gray and dark greenish gray, mottled.	
	20			Poorly graded sand as above, moist to wet, grades to light olive brown below 18.75 feet, grades to dense.	
	20			TOTAL DEPTH: 19.5'	

## BORING LOG

Project No. KEI-P90-1103	Boring Diameter	8.5"	Logged By D.L.	JGG CEG 1633
	Casing Diameter	N/A		
Project Name Unocal S/S #0752 800 Harrison Street, Oakland	Well Cover Elevation	N/A	Date Drilled 3/17/94	
Boring No. EB9	Drilling Method	Hollow-stem Auger	Drilling Company Woodward Drilling	

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description
		0		Concrete Slab
		5		Poorly graded sand, variable silt content, loose, slightly moist, predominantly brown to very dark grayish brown, with numerous bricks, cobbles and concrete (fill).
2/4/7		5	SM	Silty sand, estimated at 15% silt, trace clay, sand is predominantly medium grained, medium dense, moist, dark brown and dark yellowish brown, with heavy iron oxide staining.
		10		Poorly graded sand, clean to trace silt, sand is predominantly medium grained, medium dense to dense, moist, olive and olive gray, mottled.
10/16/23		10		
		15	SP	Poorly graded sand as above, except trace to 10% variable silt content.
12/14/18		15		
		20		Poorly graded sand, trace silt, medium grained, medium dense to dense, moist to wet, olive gray.
11/15/20		20		
	▽			TOTAL DEPTH: 20.5'

## BORING LOG

Project No. KEI-P90-1103	Boring Diameter    8.5"	Logged By <i>J66</i> D.L. <i>CE6 1633</i>
	Casing Diameter    N/A	
Project Name Unocal S/S #0752 800 Harrison Street, Oakland	Well Cover Elevation N/A	Date Drilled 3/17/94
Boring No. EB10	Drilling Method Hollow-stem Auger	Drilling Company Woodward Drilling

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description
		0		A.C. Pavement over sand and gravel base, with concrete and asphalt debris (fill).
			SP	Poorly graded sand, loose, slightly moist, dark brown, with debris (fill and disturbed native soil).
6/17/19		5	SP/SM	Poorly graded sand, estimated at 10-15% silt, sand is predominantly medium grained, medium dense to dense, moist, olive brown, with iron-oxide staining.
			SP	Poorly graded sand, trace silt, medium grained, medium dense, moist, olive brown, with iron oxide staining.
13/20/24		10	SP/SM	Poorly graded sand, estimated at 10-15% silt, trace clay, sand is predominantly medium grained, dense, moist, olive brown.
			SP	Poorly graded sand, estimated at 5-10% silt, trace clay, medium dense to dense, moist, brown and dark yellowish brown, mottled.
8/14/18		15	SP	
				Poorly graded sand, trace silt, sand is medium grained, medium dense to dense, very moist to wet, dark greenish gray.
10/17/18	▽	20		
				TOTAL DEPTH: 20.5'

## BORING LOG

<b>Project No.</b> KEI-P90-1103	<b>Boring Diameter</b> 3" <b>Casing Diameter</b> N/A	<b>Logged By</b> JGG D.L.                    CEG 1633
<b>Project Name</b> Unocal S/S #0752 800 Harrison Street, Oakland	<b>Well Cover Elevation</b> N/A	<b>Date Drilled</b> 3/18/94
<b>Boring No.</b> EB11	<b>Drilling Method</b> N/A	<b>Drilling Company</b> Hand Augered by KEI Personnel

Penetration blows/6"	G. W. level	Depth (feet) Samples	Stratigraphy USCS	Description
		0		Concrete Slab
				Poorly graded sand, gravel, loose, slightly moist, brown, with bricks and concrete debris (fill and disturbed native soil).
		5		Poorly graded sand, predominantly medium grained, loose to medium dense, slightly moist, olive brown, clean.
			SP	Poorly graded sand, trace silt, sand is predominantly medium grained, medium dense, moist, dark yellowish brown grades to dark olive gray and dark greenish gray below 6 feet.
		10		Poorly graded sand, medium grained, trace to 10% silt, medium dense to dense, moist, dark greenish gray.
				TOTAL DEPTH: 10.5'
		15		
		20		

## BORING LOG

<b>Project No.</b> KEI-P90-1103	<b>Boring Diameter</b> 3"	<b>Logged By</b> <i>JGG</i> D.L. <i>CEG 1633</i>
	<b>Casing Diameter</b> N/A	
<b>Project Name</b> Unocal S/S #0752 800 Harrison Street, Oakland	<b>Well Cover Elevation</b> N/A	<b>Date Drilled</b> 3/18/94
<b>Boring No.</b> EB12	<b>Drilling Method</b> N/A	<b>Drilling Company</b> Hand Augered by KEI Personnel

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description
		0		Concrete Slab
				Poorly graded sand, loose, slightly moist, dark brown to very dark grayish brown, with bricks, gravel and concrete debris (fill).
			SP	Poorly graded sand, loose, moist, olive brown.
		5	SC	Clayey sand, estimated at 15% clay, medium dense, moist, dark brown and dark yellowish brown.
			SP/SM	Poorly graded sand with silt, trace clay, medium dense, moist, dark brown and dark yellowish brown.
			SP	Poorly graded sand, medium grained, up to 10% silt, medium dense to dense, moist, dark yellowish brown.
		10		TOTAL DEPTH: 11'
		15		
		20		



Kaprealian Engineering, Inc. 2401 Stanwell Dr., Ste. 400 Concord, CA 94520 Attention: Avo Avedissian	Client Project ID: Unocal #0752, 800 Harrison, Oakland Sample Matrix: Soil Analysis Method: EPA 5030/8015/8020 First Sample #: 403-0846	Sampled: Mar 18, 1994 Received: Mar 18, 1994 Reported: Mar 28, 1994
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**TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION**

Analyte	Reporting Limit mg/kg	Sample I.D. 403-0846 EB3 (5)	Sample I.D. 403-0847 EB3 (9.5)	Sample I.D. 403-0848 EB3 (14.5)	Sample I.D. 403-0849 EB3 (19.5)	Sample I.D. 403-0850 EB4 (5)	Sample I.D. 403-0851 EB4 (9.5)
Purgeable Hydrocarbons	1.0	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Benzene	0.005	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Toluene	0.005	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.005	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Total Xylenes	0.005	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.


Chromatogram Pattern:                    --                    --                    --                    --                    --                    --

**Quality Control Data**

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Analyzed:	3/24/94	3/24/94	3/24/94	3/24/94	3/24/94	3/24/94
Instrument Identification:	ML #2	ML #2	ML #2	ML #2	ML #2	ML #2
Surrogate Recovery, %: (QC Limits = 70-130%)	115	108	97	93	88	87

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: Avo Avedissian	Client Project ID: Unocal #0752, 800 Harrison, Oakland Sample Matrix: Soil Analysis Method: EPA 5030/8015/8020 First Sample #: 403-0852	Sampled: 3/17 & 18/94 Received: Mar 18, 1994 Reported: Mar 28, 1994
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**TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION**

Analyte	Reporting Limit mg/kg	Sample I.D. 403-0852 EB4 (14.5)	Sample I.D. 403-0853 EB4 (19)	Sample I.D. 403-0854 EB5 (5)	Sample I.D. 403-0855 EB5 (10)	Sample I.D. 403-0856 EB5 (15)	Sample I.D. 403-0857 EB5 (19)*
Purgeable Hydrocarbons	1.0	N.D.	N.D.	N.D.	N.D.	N.D.	310
Benzene	0.005	N.D.	N.D.	N.D.	N.D.	N.D.	0.71
Toluene	0.005	N.D.	N.D.	N.D.	N.D.	N.D.	2.4
Ethyl Benzene	0.005	N.D.	N.D.	N.D.	N.D.	N.D.	1.3
Total Xylenes	0.005	N.D.	N.D.	N.D.	N.D.	N.D.	2.2

Chromatogram Pattern:                    --                    --                    --                    --                    --                    Gasoline & Unidentified Hydrocarbons > C8

**Quality Control Data**

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	20
Date Analyzed:	3/24/94	3/24/94	3/24/94	3/24/94	3/25/94	3/28/94
Instrument Identification:	ML #2	ML #2	ML #2	ML #2	ML #2	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	102	105	107	98	101	151

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

Please Note:  
 \*This sample appears to contain gasoline and a non-gasoline mixture. Unidentified hydrocarbons > C8 refers to unidentified peaks in the total extractable petroleum hydrocarbon range.





Kaprealian Engineering, Inc. 2401 Stanwell Dr., Ste. 400 Concord, CA 94520 Attention: Avo Avedissian	Client Project ID: Unocal #0752, 800 Harrison, Oakland Sample Matrix: Soil Analysis Method: EPA 5030/8015/8020 First Sample #: 403-0858	Sampled: 3/17 & 18/94 Received: Mar 18, 1994 Reported: Mar 28, 1994
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**TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION**

Analyte	Reporting Limit mg/kg	Sample I.D. 403-0858 EB6 (4.5)	Sample I.D. 403-0859 EB6 (9.5)	Sample I.D. 403-0860 EB6 (14.5)	Sample I.D. 403-0861 EB6 (19.5)	Sample I.D. 403-0862 EB7 (5)	Sample I.D. 403-0863 EB7 (10)
Purgeable Hydrocarbons	1.0	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Benzene	0.005	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Toluene	0.005	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.005	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Total Xylenes	0.005	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Chromatogram Pattern:		--	--	--	--	--	--

**Quality Control Data**

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Analyzed:	3/25/94	3/25/94	3/25/94	3/25/94	3/25/94	3/28/94
Instrument Identification:	ML #2	ML #2	ML #2	ML #2	ML #2	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	110	120	112	117	105	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







Kaprealian Engineering, Inc. 2401 Stanwell Dr., Ste. 400 Concord, CA 94520 Attention: Avo Avedissian	Client Project ID: Unocal #0752, 800 Harrison, Oakland Sample Matrix: Soil Analysis Method: EPA 5030/8015/8020 First Sample #: 403-0864	Sampled: Mar 17, 1994 Received: Mar 18, 1994 Reported: Mar 28, 1994
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**TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION**

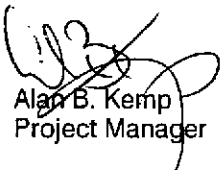
Analyte	Reporting Limit mg/kg	Sample I.D. 403-0864 EB7 (15)	Sample I.D. 403-0865 EB7 (19)	Sample I.D. 403-0866 EB8 (5)	Sample I.D. 403-0867 EB8 (10)	Sample I.D. 403-0868 EB8 (15)	Sample I.D. 403-0869 EB8 (18.5)
Purgeable Hydrocarbons	1.0	N.D.	N.D.	N.D.	N.D.	N.D.	21,000
Benzene	0.005	N.D.	N.D.	N.D.	N.D.	N.D.	7.0
Toluene	0.005	N.D.	N.D.	N.D.	N.D.	N.D.	78
Ethyl Benzene	0.005	N.D.	N.D.	N.D.	N.D.	N.D.	26
Total Xylenes	0.005	N.D.	N.D.	N.D.	N.D.	N.D.	140
Chromatogram Pattern:		--	--	--	--	--	Gasoline

**Quality Control Data**

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	20
Date Analyzed:	3/25/94	3/25/94	3/25/94	3/25/94	3/25/94	3/25/94
Instrument Identification:	ML #2	ML #2	ML #2	ML #2	ML #2	ML #2
Surrogate Recovery, %: (QC Limits = 70-130%)	102	103	105	117	100	79

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





Kaprealan Engineering, Inc. 2401 Stanwell Dr., Ste. 400 Concord, CA 94520 Attention: Avo Avedissian	Client Project ID: Unocal #0752, 800 Harrison, Oakland Sample Matrix: Soil Analysis Method: EPA 5030/8015/8020 First Sample #: 403-0870	Sampled: Mar 17, 1994 Received: Mar 18, 1994 Reported: Mar 28, 1994
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**TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION**

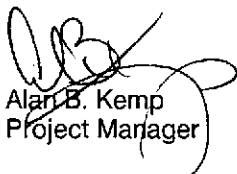
Analyte	Reporting Limit mg/kg	Sample I.D. 403-0870 EB9 (5.5)	Sample I.D. 403-0871 EB9 (10)	Sample I.D. 403-0872 EB9 (15)	Sample I.D. 403-0873 EB9 (20)	Sample I.D. 403-0874 EB10 (5)	Sample I.D. 403-0875 EB10 (10)
Purgeable Hydrocarbons	1.0	1.6	N.D.	N.D.	N.D.	N.D.	N.D.
Benzene	0.005	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Toluene	0.005	0.040	N.D.	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.005	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Total Xylenes	0.005	0.99	N.D.	N.D.	N.D.	N.D.	N.D.
Chromatogram Pattern:		Gasoline	--	--	--	--	--

**Quality Control Data**

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Analyzed:	3/25/94	3/25/94	3/25/94	3/25/94	3/25/94	3/25/94
Instrument Identification:	ML #2	HP-4	HP-4	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	100	96	98	96	95	92

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





Kaprealan Engineering, Inc.  
2401 Stanwell Dr., Ste. 400  
Concord, CA 94520  
Attention: Avo Avedissian

Client Project ID: Unocal #0752, 800 Harrison, Oakland  
Sample Matrix: Soil  
Analysis Method: EPA 5030/8015/8020  
First Sample #: 403-0876

Sampled: 3/17 & 18/94  
Received: Mar 18, 1994  
Reported: Mar 28, 1994

**TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION**

Analyte	Reporting Limit mg/kg	Sample I.D. 403-0876 EB10 (15)	Sample I.D. 403-0877 EB10 (20)	Sample I.D. 403-0878 EB11 (5)*	Sample I.D. 403-0879 EB11 (6)**	Sample I.D. 403-0880 EB11 (10)	Sample I.D. 403-0881 EB12 (5)
Purgeable Hydrocarbons	1.0	N.D.	N.D.	1.8	3.6	N.D.	N.D.
Benzene	0.005	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Toluene	0.005	N.D.	N.D.	0.0091	N.D.	N.D.	N.D.
Ethyl Benzene	0.005	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Total Xylenes	0.005	N.D.	N.D.	0.0088	N.D.	N.D.	N.D.
Chromatogram Pattern:	--	--	Gasoline & Unidentified Hydrocarbons >C8	Unidentified Hydrocarbons >C8	--	--	--

**Quality Control Data**

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Analyzed:	3/25/94	3/25/94	3/27/94	3/27/94	3/27/94	3/27/94
Instrument Identification:	HP-4	HP-4	HP-4	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	98	98	108	98	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

**Please Note:**

\*This sample appears to contain gasoline and a non-gasoline mixture. Unidentified hydrocarbons >C8 refers to unidentified peaks in the total extractable petroleum hydrocarbon range.

\*\*This sample does not appear to contain gasoline. Unidentified hydrocarbons >C8 refers to unidentified peaks in the total extractable petroleum hydrocarbon range.





Kaprealan Engineering, Inc. 2401 Stanwell Dr., Ste. 400 Concord, CA 94520 Attention: Avo Avedissian	Client Project ID: Unocal #0752, 800 Harrison, Oakland Sample Matrix: Soil Analysis Method: EPA 5030/8015/8020 First Sample #: 403-0882	Sampled: Mar 18, 1994 Received: Mar 18, 1994 Reported: Mar 25, 1994
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**TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION**

Analyte	Reporting Limit mg/kg	Sample I.D. 403-0882 EB12 (10.5)	Sample I.D. Method Blank
Purgeable Hydrocarbons	1.0	N.D.	
Benzene	0.005	N.D.	
Toluene	0.005	N.D.	
Ethyl Benzene	0.005	N.D.	
Total Xylenes	0.005	N.D.	

Chromatogram Pattern: ..

**Quality Control Data**

Report Limit Multiplication Factor:	1.0	1.0
Date Analyzed:	3/27/94	3/27/94
Instrument Identification:	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	102	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





Kaprealian Engineering, Inc. 2401 Stanwell Dr., Ste. 400 Concord, CA 94520 Attention: Avo Avedissian	Client Project ID: Unocal #0752, 800 Harrison, Oakland Sample Matrix: Soil Analysis Method: EPA 3550/8015 First Sample #: 403-0870	Sampled: 3/17 & 18/94 Received: Mar 18, 1994 Reported: Mar 28, 1994
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**TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS**

Analyte	Reporting Limit mg/kg	Sample I.D. 403-0870 EB9 (5.5)	Sample I.D. 403-0871 EB9 (10)	Sample I.D. 403-0872 EB9 (15)	Sample I.D. 403-0873 EB9 (20)	Sample I.D. 403-0878 EB11 (5)	Sample I.D. 403-0879 EB11 (6)*
Extractable Hydrocarbons	1.0	N.D.	N.D.	N.D.	N.D.	N.D.	19
Chromatogram Pattern:		--	--	--	--	--	Diesel & Unidentified Hydrocarbons >C20

**Quality Control Data**

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	50	1.0
Date Extracted:	3/23/94	3/23/94	3/23/94	3/23/94	3/23/94	3/23/94
Date Analyzed:	3/25/94	3/25/94	3/25/94	3/25/94	3/25/94	3/25/94
Instrument Identification:	HP-3B	HP-3B	HP-3B	HP-3B	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

Please Note:  
\*This sample appears to contain diesel and non-diesel mixtures. Unidentified hydrocarbons >C20 refers to unidentified peaks in the total oil and grease range.





Kaprealian Engineering, Inc. 2401 Stanwell Dr., Ste. 400 Concord, CA 94520 Attention: Avo Avedissian	Client Project ID: Unocal #0752, 800 Harrison, Oakland Sample Matrix: Soil Analysis Method: EPA 3550/8015 First Sample #: 403-0880	Sampled: Mar 18, 1994 Received: Mar 18, 1994 Reported: Mar 28, 1994
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**TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS**

Analyte	Reporting Limit mg/kg	Sample I.D. 403-0880 EB11 (10)	Sample I.D. 403-0881 EB12 (5)	Sample I.D. 403-0882 EB12 (10.5)	Sample I.D. Method Blank
Extractable Hydrocarbons	1.0	N.D.	N.D.	N.D.	
Chromatogram Pattern:		--	--	--	

**Quality Control Data**

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0
Date Extracted:	3/23/94	3/23/94	3/23/94	3/23/94
Date Analyzed:	3/25/94	3/25/94	3/25/94	3/24/94
Instrument Identification:	HP-3B	HP-3B	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: Avo Avedissian	Client Project ID: Unocal #0752, 800 Harrison, Oakland Sample Matrix: Soil Analysis Method: EPA 3550/8015 First Sample #: 403-0870	Sampled: Mar 17-18, 1994 Received: Mar 18, 1994 Reported: Mar 30, 1994
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**TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS AS HYDRAULIC FLUID**


Analyte	Reporting Limit mg/kg	Sample I.D. 403-0870 EB9 (5.5)	Sample I.D. 403-0871 EB9 (10)	Sample I.D. 403-0872 EB9 (15)	Sample I.D. 403-0873 EB9 (20)	Sample I.D. 403-0878 EB11 (5)	Sample I.D. 403-0879 EB11 (6)
Extractable Hydrocarbons	1.0	N.D.	N.D.	N.D.	N.D.	4,300	270
Chromatogram Pattern:		--	--	--	--	Hydraulic Fluid	Hydraulic Fluid

**Quality Control Data**

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	50	10
Date Extracted:	3/23/94	3/23/94	3/23/94	3/23/94	3/23/94	3/23/94
Date Analyzed:	3/29/94	3/29/94	3/29/94	3/29/94	3/29/94	3/29/94
Instrument Identification:	HP-3A	HP-3A	HP-3A	HP-3A	HP-3B	HP-3A

Extractable Hydrocarbons are quantitated against a fresh hydraulic fluid 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: Avo Avedissian	Client Project ID: Unocal #0752, 800 Harrison, Oakland Sample Matrix: Soil Analysis Method: EPA 3550/8015 First Sample #: 403-0880	Sampled: Mar 18, 1994 Received: Mar 18, 1994 Reported: Mar 30, 1994
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**TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS AS HYDRAULIC FLUID**

Analyte	Reporting Limit mg/kg	Sample I.D. 403-0880 EB11 (10)	Sample I.D. 403-0881 EB12 (5)	Sample I.D. 403-0882 EB12 (10.5)	Sample I.D. Method Blank
Extractable Hydrocarbons	1.0	N.D.	N.D.	N.D.	
Chromatogram Pattern:		--	--	--	

**Quality Control Data**

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0
Date Extracted:	3/23/94	3/23/94	3/23/94	3/23/94
Date Analyzed:	3/29/94	3/29/94	3/29/94	3/24/94
Instrument Identification:	HP-3A	HP-3A	HP-3A	HP-3B

Extractable Hydrocarbons are quantitated against a fresh hydraulic fluid 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: Avo Avedissian

Client Project ID: Unocal #0752, 800 Harrison, Oakland  
 Matrix Descript: Soil  
 Analysis Method: SM 5520 E&F (Gravimetric)  
 First Sample #: 403-0870

Sampled: 3/17 & 18/94  
 Received: Mar 18, 1994  
 Extracted: Mar 23, 1994  
 Analyzed: 3/25 & 28/94  
 Reported: Mar 28, 1994

**TOTAL RECOVERABLE PETROLEUM OIL**

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
403-0870	EB9 (5.5)	N.D.
403-0871	EB9 (10)	N.D.
403-0872	EB9 (15)	N.D.
403-0873	EB9 (20)	N.D.
403-0878	EB11 (5)	13,000
403-0879	EB11 (6)	4,300
403-0880	EB11 (10)	88
403-0881	EB12 (5)	N.D.
403-0882	EB12 (10.5)	N.D.

**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






Kaprealian Engineering, Inc. 2401 Stanwell Dr., Ste. 400 Concord, CA 94520 Attention: Avo Avedissian	Client Project ID: Unocal #0752, 800 Harrison, Oakland Sample Descript: Soil, EB9 (5.5) Analysis Method: EPA 5030/8010 Lab Number: 403-0870	Sampled: Mar 17, 1994 Received: Mar 18, 1994 Analyzed: Mar 24, 1994 Reported: Mar 28, 1994
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**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: Avo Avedissian

Client Project ID: Unocal #0752, 800 Harrison, Oakland  
Sample Descript: Soil, EB9 (10)  
Analysis Method: EPA 5030/8010  
Lab Number: 403-0871


Sampled: Mar 17, 1994  
Received: Mar 18, 1994  
Analyzed: Mar 24, 1994  
Reported: Mar 28, 1994

**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





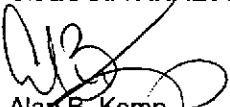
Kaprealian Engineering, Inc. 2401 Stanwell Dr., Ste. 400 Concord, CA 94520 Attention: Avo Avedissian	Client Project ID: Unocal #0752, 800 Harrison, Oakland Sample Descript: Soil, EB9 (15) Analysis Method: EPA 5030/8010 Lab Number: 403-0872	Sampled: Mar 17, 1994 Received: Mar 18, 1994 Analyzed: Mar 24, 1994 Reported: Mar 28, 1994
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**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





Kapreallan Engineering, Inc.  
2401 Stanwell Dr., Ste. 400  
Concord, CA 94520  
Attention: Avo Avedissian

Client Project ID: Unocal #0752, 800 Harrison, Oakland  
Sample Descript: Soil, EB9 (20)  
Analysis Method: EPA 5030/8010  
Lab Number: 403-0873

Sampled: Mar 17, 1994  
Received: Mar 18, 1994  
Analyzed: Mar 24, 1994  
Reported: Mar 28, 1994

**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: Avo Avedissian	Client Project ID: Unocal #0752, 800 Harrison, Oakland Sample Descript: Soil, EB11 (5) Analysis Method: EPA 5030/8010 Lab Number: 403-0878	Sampled: Mar 18, 1994 Received: Mar 18, 1994 Analyzed: Mar 24, 1994 Reported: Mar 28, 1994
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**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.
<b>Tetrachloroethene.....</b>	<b>5.0</b>	<b>130</b>
<b>1,1,1-Trichloroethane.....</b>	<b>5.0</b>	<b>46</b>
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





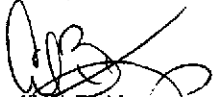
Kaprealian Engineering, Inc. 2401 Stanwell Dr., Ste. 400 Concord, CA 94520 Attention: Avo Avedissian	Client Project ID: Unocal #0752, 800 Harrison, Oakland Sample Descript: Soil, EB11 (6) Analysis Method: EPA 5030/8010 Lab Number: 403-0879	Sampled: Mar 18, 1994 Received: Mar 18, 1994 Analyzed: Mar 24, 1994 Reported: Mar 28, 1994
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**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: Avo Avedissian

Client Project ID: Unocal #0752, 800 Harrison, Oakland  
Sample Descript: Soil, EB11 (10)  
Analysis Method: EPA 5030/8010  
Lab Number: 403-0880

Sampled: Mar 18, 1994  
Received: Mar 18, 1994  
Analyzed: Mar 24, 1994  
Reported: Mar 28, 1994

**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.	Client Project ID: Unocal #0752, 800 Harrison, Oakland	Sampled: Mar 18, 1994
2401 Stanwell Dr., Ste. 400	Sample Descript: Soil, EB12 (5)	Received: Mar 18, 1994
Concord, CA 94520	Analysis Method: EPA 5030/8010	Analyzed: Mar 24, 1994
Attention: Avo Avedissian	Lab Number: 403-0881	Reported: Mar 28, 1994

**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: Avo Avedissian

Client Project ID: Unocal #0752, 800 Harrison, Oakland  
Sample Descript: Soil, EB12 (10.5)  
Analysis Method: EPA 5030/8010  
Lab Number: 403-0882

Sampled: Mar 18, 1994  
Received: Mar 18, 1994  
Analyzed: Mar 24, 1994  
Reported: Mar 28, 1994

**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: Avo Avedissian

Client Project ID: Unocal #0752, 800 Harrison, Oakland  
Matrix: Solid

QC Sample Group: 4030846-82

Reported: Apr 1, 1994

**QUALITY CONTROL DATA REPORT**

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel	Oil & Grease
<b>Method:</b>	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015	SM 5520 EF
<b>Analyst:</b>	E. Vomund	E. Vomund	E. Vomund	E. Vomund	K. Wimer	K. Wimer

<b>MS/MSD Batch#:</b>	4030858	4030858	4030858	4030858	4030870	4030600
<b>Date Prepared:</b>	3/24/94	3/24/94	3/24/94	3/24/94	3/23/94	3/23/94
<b>Date Analyzed:</b>	3/24/94	3/24/94	3/24/94	3/24/94	3/24/94	3/25/94
<b>Instrument I.D.#:</b>	ML #2	ML #2	ML #2	ML #2	HP-3A	N.A.
<b>Conc. Spiked:</b>	0.40 mg/kg	0.40 mg/kg	0.40 mg/kg	1.2 mg/kg	10 mg/kg	5,000 mg/kg
<b>Matrix Spike % Recovery:</b>	85	85	90	80	93	95
<b>Matrix Spike Duplicate % Recovery:</b>	95	88	100	88	84	96
<b>Relative % Difference:</b>	11	3.4	11	9.5	10	1.0

<b>LCS Batch#:</b>	LCS032494	LCS032494	LCS032494	LCS032494	BLK032394	BLK032394
<b>Date Prepared:</b>	3/24/94	3/24/94	3/24/94	3/24/94	3/23/94	3/23/94
<b>Date Analyzed:</b>	3/24/94	3/24/94	3/24/94	3/24/94	3/24/94	3/25/94
<b>Instrument I.D.#:</b>	ML #2	ML #2	ML #2	ML #2	HP-3A	N.A.
<b>LCS % Recovery:</b>	78	70	75	74	90	98

<b>% Recovery Control Limits:</b>	55-145	47-149	47-155	56-140	38-122	75-125
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**SEQUOIA ANALYTICAL, #1271**

Alan B. Kemp  
Project Manager

**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.





Kaprealian Engineering, Inc.  
2401 Stanwell Dr., Ste. 400  
Concord, CA 94520  
Attention: Avo Avedissian

Client Project ID: Unocal #0752, 800 Harrison, Oakland  
Matrix: Solid

QC Sample Group: 4030870-82

Reported: Apr 1, 1994

### QUALITY CONTROL DATA REPORT

ANALYTE	1,1-Dichloro- ethene	Trichloro- ethene	Chloro- benzene
Method:	EPA 8010	EPA 8010	EPA 8010
Analyst:	K. Nill	K. Nill	K. Nill

<b>MS/MSD</b>			
Batch#:	4030882	4030882	4030882
Date Prepared:	3/24/94	3/24/94	3/24/94
Date Analyzed:	3/24/94	3/24/94	3/24/94
Instrument I.D.#:	HP5890/6	HP5890/6	HP5890/6
Conc. Spiked:	10 µg/kg	10 µg/kg	10 µg/kg
<b>Matrix Spike</b>			
% Recovery:	78	85	80
<b>Matrix Spike Duplicate %</b>			
Recovery:	77	88	90
<b>Relative % Difference:</b>	13	3.5	12

<b>LCS Batch#:</b>	LCS032494	LCS032494	LCS032494
Date Prepared:	3/24/94	3/24/94	3/24/94
Date Analyzed:	3/24/94	3/24/94	3/24/94
Instrument I.D.#:	HP5890/6	HP5890/6	HP5890/6
<b>LCS % Recovery:</b>	97	93	90

<b>% Recovery Control Limits:</b>	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: Avo Avedissian

Client Project ID: Unocal #0752, 800 Harrison, Oakland

QC Sample Group: 4030870-80

Reported: Apr 1, 1994

QUALITY CONTROL DATA REPORT

SURROGATE

	EPA 8015	EPA 8015	EPA 8015	EPA 8015	EPA 8015	EPA 8015	EPA 8015
Method:	EPA 8015	EPA 8015	EPA 8015	EPA 8015	EPA 8015	EPA 8015	EPA 8015
Analyst:	K. Wimer	K. Wimer	K. Wimer	K. Wimer	K. Wimer	K. Wimer	K. Wimer
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	3/25/94	3/25/94	3/25/94	3/25/94	3/25/94	3/25/94	3/25/94
Sample #:	403-0870	403-0871	403-0872	403-0873	403-0878	403-0879	403-0880

Surrogate	76	102	82	85	260	-	81
% Recovery:							

SEQUOIA ANALYTICAL, #1271

Alan B. Kemp  
Project Manager

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





Kapreallan Engineering, Inc. 2401 Stanwell Dr., Ste. 400 Concord, CA 94520 Attention: Avo Avedissian	Client Project ID: Unocal #0752, 800 Harrison, Oakland
QC Sample Group: 4030881-82	Reported: Apr 1, 1994

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA 8015	EPA 8015	EPA 8015
Analyst:	K. Wimer	K. Wimer	K. Wimer
Reporting Units:	mg/kg	mg/kg	mg/kg
Date Analyzed:	3/25/94	3/25/94	3/25/94
Sample #:	403-0881	403-0882	Method Blank

<b>Surrogate</b>			
<b>% Recovery:</b>	85	75	80

SEQUOIA ANALYTICAL, #1271

  
Alan B. Kemp  
Project Manager

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





Kaprealian Engineering, Inc.  
2401 Stanwell Dr., Ste. 400  
Concord, CA 94520  
Attention: Avo Avedissian

Client Project ID: Unocal #0752, 800 Harrison, Oakland

QC Sample Group: 4030870-80

Reported: Apr 1, 1994

QUALITY CONTROL DATA REPORT

SURROGATE

	EPA 8010	EPA 8010	EPA 8010	EPA 8010	EPA 8010	EPA 8010	EPA 8010
Method:	EPA 8010	EPA 8010	EPA 8010	EPA 8010	EPA 8010	EPA 8010	EPA 8010
Analyst:	K.Niil	K.Niil	K.Niil	K.Niil	K.Niil	K.Niil	K.Niil
Reporting Units:	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Date Analyzed:	3/24/94	3/24/94	3/24/94	3/24/94	3/24/94	3/24/94	3/24/94
Sample #:	403-0870	403-0871	403-0872	403-0873	403-0878	403-0879	403-0880

Surrogate #1  
% Recovery:

88                      79                      84                      82                      87                      90                      90

Surrogate #2  
% Recovery:

111                      105                      99                      104                      96                      105                      104

SEQUOIA ANALYTICAL, #1271

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

Alan B. Kemp  
Project Manager





Kaprealian Engineering, Inc.  
2401 Stanwell Dr., Ste. 400  
Concord, CA 94520  
Attention: Avo Avedissian

Client Project ID: Unocal #0752, 800 Harrison, Oakland

QC Sample Group: 4030881-82

Reported: Apr 1, 1994

**QUALITY CONTROL DATA REPORT**

**SURROGATE**

Method:	EPA 8010	EPA 8010	EPA 8010
Analyst:	K.Nill	K.Nill	K.Nill
Reporting Units:	µg/kg	µg/kg	µg/kg
Date Analyzed:	3/24/94	3/24/94	3/24/94
Sample #:	403-0881	403-0882	Method Blank

<b>Surrogate #1</b>			
% Recovery:	80	122	102
<b>Surrogate #2</b>			
% Recovery:	103	99	102

SEQUOIA ANALYTICAL, #1271

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

  
Alan B. Kemp  
Project Manager





# UNOCAL 76

680 Chesapeake Drive • Redwood City, CA 94063 • (415) 364-9600  
 819 Striker Ave., Suite B • Sacramento, CA 95834 • (916) 921-9600  
 1900 Bates Ave., Suite LM • Concord, CA 94520 • (510) 686-9600

18939 120th Ave., N.E., Suite 101 • Bothell, WA 98011 • (206) 481-9200  
 East 11115 Montgomery, Suite B • Spokane, WA 99206 • (509) 924-9200  
 15055 S.W. Sequoia Pkwy, Suite 110 • Portland, OR 97222 • (503) 624-9800

Company Name: <b>Kaprealian Engineering, Inc.</b>		Project Name: <b>800 Harrison - Oakland</b>	
Address: <b>2401 Stanwell Drive, Suite 400</b>		UNOCAL Project Manager: <b>Tina Berry</b>	
City: <b>Concord</b>	State: <b>CA</b>	Zip Code: <b>94520</b>	Release #:
Telephone: <b>(510) 602-5100</b>		FAX #: <b>687-0602</b>	
Report To: <b>Avo</b>		Sampler: <b>Doug Lee</b>	
		QC Data: <input checked="" type="checkbox"/> Level A (Standard) <input type="checkbox"/> Level B <input type="checkbox"/> Level C <input type="checkbox"/> Level D	

Turnaround  10 Working Days  2 Working Days  
 Time:  5 Working Days  24 Hours  
 3 Working Days  2 - 8 Hours

Drinking Water  
 Waste Water  
 Other

Analyses Requested

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	UNOCAL 76 GATEX										Comments		
1. EB3(5)	3/18/94	SOIL	1	TUBE		X	X											4030846
2. EB3(9.5)																		0847
3. EB3(14.5)																		0848
4. EB3(19.5)																		0849
5. EB4(5)																		0850
6. EB4(9.5)																		0851
7. EB4(14.5)																		0852
8. EB4(19)																		0853
9. EB5(5)	3/17/94																	0854
10. EB5(10)	3/17/94																	0855

Relinquished By: <u>[Signature]</u> (KE)	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab: <u>[Signature]</u>	Date: <u>3/18/94</u>	Time: <u>1915</u>

Were Samples Received in Good Condition?  Yes  No     
 Samples on Ice?  Yes  No     
 Method of Shipment \_\_\_\_\_     
 Page 1 of 1

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

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15055 S.W. Sequoia Pkwy, Suite 110 • Portland, OR 97222 • (503) 624-9800

Company Name: <b>Kaprealian Engineering, Inc.</b>			Project Name: <b>800 Harrison - Oakland</b>		
Address: <b>2401 Stanwell Drive, Suite 400</b>			UNOCAL Project Manager: <b>Tina Berry</b>		
City: <b>Concord</b>	State: <b>CA</b>	Zip Code: <b>94520</b>	Release #:		
Telephone: <b>(510) 602-5100</b>		FAX #: <b>687-0602</b>		Site #: <b>Unocal S/S #0752 - Oakland</b>	
Report To: <b>Avo</b>		Sampler: <b>Doug Lee</b>		QC Data: <input checked="" type="checkbox"/> Level A (Standard) <input type="checkbox"/> Level B <input type="checkbox"/> Level C <input type="checkbox"/> Level D	

Turnaround  10 Working Days  2 Working Days  
 Time:  5 Working Days  24 Hours  
 3 Working Days  2 - 8 Hours

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		
1. EBS(15)	3/17/94	SOIL	1	TUBE		X	X											4030856
2. EBS(19)	↓	↓	↓	↓														0857
3. EBL6(4.5)	3/18/94	↓	↓	↓														0858
4. EBL6(9.5)	↓	↓	↓	↓														0859
5. EBL6(14.5)	↓	↓	↓	↓														0860
6. EBL6(19.5)	↓	↓	↓	↓														0861
7. EBT(5)	3/17/94	↓	↓	↓														0862
8. EBT(10)	↓	↓	↓	↓														0863
9. EBT(15)	↓	↓	↓	↓														0864
10. EBT(19)	↓	↓	↓	↓														0865

Relinquished By: <i>[Signature]</i> (KEI)	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By: <i>[Signature]</i>	Date: 3/18/94	Time: 1915

Were Samples Received in Good Condition?  Yes  No      Samples on Ice?  Yes  No      Method of Shipment \_\_\_\_\_      Page 2 of 3

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

# UNOCAL 76

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 15055 S.W. Sequoia Pkwy, Suite 110 • Portland, OR 97222 • (503) 624-9800

Company Name: <b>Kaprealian Engineering, Inc.</b>			Project Name: <b>800 Harrison - Oakland</b>		
Address: <b>2401 Stanwell Drive, Suite 400</b>			UNOCAL Project Manager: <b>Tina Berry</b>		
City: <b>Concord</b>	State: <b>CA</b>	Zip Code: <b>94520</b>	Release #:		
Telephone: <b>(510) 602-5100</b>		FAX #: <b>687-0602</b>		Site #: <b>Unocal S/S #0752 - Oakland</b>	
Report To: <b>Ayo</b>		Sampler: <b>Doug Lee</b>		QC Data: <input checked="" type="checkbox"/> Level A (Standard) <input type="checkbox"/> Level B <input type="checkbox"/> Level C <input type="checkbox"/> Level D	

Turnaround  10 Working Days  2 Working Days  
 Time:  5 Working Days  24 Hours  
 3 Working Days  2 - 8 Hours

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	
						1313-C	1313-X	1313-D	1313-G	1313-H	1313-I	1313-J	1313-K	1313-L	1313-M		1313-N
1. EB8 (S)	3/17/04	SOIL	1	TUBE		X	X										4030866
2. EB8 (10)						X											0867
3. EB8 (15)																	0868
4. EB8 (18.5)																	0869
5. EB9 (5.5)								X	X	X	X						0870
6. EB9 (10)								X	X	X	X						0871
7. EB9 (15)								X	X	X	X						0872
8. EB9 (20)								X	X	X	X						0873
9. EB10 (5)																	0874
10. EB10 (10)																	0875

Relinquished By: <i>[Signature]</i>	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab: <i>[Signature]</i>	Date: 3/18/04	Time: 1915

Were Samples Received in Good Condition?  Yes  No      Samples on Ice?  Yes  No      Method of Shipment \_\_\_\_\_      Page 3 of 4

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

# UNOCAL 76

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Company Name: <b>Kaprealian Engineering, Inc.</b>			Project Name: <b>800 Harrison - Oakland</b>		
Address: <b>2401 Stanwell Drive, Suite 400</b>			UNOCAL Project Manager: <b>Tina Berry</b>		
City: <b>Concord</b>	State: <b>CA</b>	Zip Code: <b>94520 J</b>	Release #:		
Telephone: <b>(510) 602-5100</b>		FAX #: <b>687-0602</b>	Site #: <b>Unocal S/S #0752 - Oakland</b>		
Report To: <b>Avo</b>		Sampler: <b>Doug Lee</b>	QC Data: <input checked="" type="checkbox"/> Level A (Standard) <input type="checkbox"/> Level B <input type="checkbox"/> Level C <input type="checkbox"/> Level D		

Turnaround  10 Working Days  2 Working Days  
 Time:  5 Working Days  24 Hours  
 3 Working Days  2 - 8 Hours

Analyses Requested  
 Drinking Water  
 Waste Water  
 Other

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	Analyses Requested							Comments	
						TPH-G	STP-EX	TPH-D	LOG	TPH-MS	HYDROCARBON FLUID	SOLO		
1. EB10(15)	3/17/94	SOIL	4	TUBE		X	X							4030876
2. EB10(20)	↓	↓	↓	↓		↓	↓							0877
3. EB11(5)	3/18/94							X	X	X	X			0878
4. EB11(6)	↓	↓	↓	↓		↓	↓							0879
5. EB11(10)	↓	↓	↓	↓		↓	↓							0880
6. EB12(5)	↓	↓	↓	↓		↓	↓							0881
7. EB12(10.5)	↓	↓	↓	↓		↓	↓							0882
8.														
9.														
10.														

Relinquished By: <i>[Signature]</i> (KEI)	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By: <i>[Signature]</i>	Date: 3/18/94	Time: 1915
Relinquished By:	Date:	Time:	Received By Lab:	Date:	Time:

Were Samples Received in Good Condition?  Yes  No      Samples on Ice?  Yes  No      Method of Shipment \_\_\_\_\_      Page 1 of 4

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