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KEI-P88-1204.QR8
July 15, 1991

Unocal Corporation
P.O. Box 5155
San Ramon, CA 94583

Attention: Mr. Rick Sisk

RE: Quarterly Report
Unocal Service Station #2512
1300 Davis Street
San Leandro, California

Dear Mr. Sisk:

This report presents the results of the eighth quarter of monitoring and sampling of the monitoring wells at the referenced site by Kaprealian Engineering, Inc. (KEI), per proposal (KEI-P88-1204.P5) dated March 11, 1991. The wells are currently monitored monthly and sampled on a quarterly basis. This report covers the work performed by KEI from March through May, 1991.

SITE DESCRIPTION AND BACKGROUND

The subject site is presently used as a gasoline station. The site is situated on gently sloping, westward trending topography, and is located approximately two miles east-northeast of the present shoreline of San Francisco Bay. Also, the site is located approximately 2,000 feet south of San Leandro Creek. A Location Map, Site Vicinity Map and Site Plans are attached to this report.

Per Unocal Corporation's procedure for site divestments, KEI's work at the site began on December 30, 1988, when KEI was asked to install exploratory borings. On January 3, 1989, six exploratory borings, designated as EB1 through EB6 on the attached Site Plan, Figure 2, were drilled at the site. The six borings were drilled to depths ranging from 26.5 to 30 feet and ground water was encountered at depths ranging from 25 to 26.5 feet beneath the surface.

Soil and water samples were analyzed by Sequoia Analytical Laboratory in Redwood City, California. Soil and water samples collected from borings EB2 through EB6 were analyzed for total petroleum hydrocarbons (TPH) as gasoline, and benzene, toluene, xylenes and ethylbenzene (BTX&E). Soil samples collected from

boring EB6 were also analyzed for TPH as diesel and total oil and grease (TOG). Soil and water samples collected from boring EB1 were analyzed for TPH as diesel, BTX&E, TOG, and EPA method 8010 constituents.

Analytical results of soil samples collected from borings EB1 through EB6 indicated levels of TPH as gasoline ranging from non-detectable to 73 ppm. Benzene was detected only in samples EB5(20) and EB6(15) at concentrations of 0.12 ppm and 0.065 ppm, respectively. Analytical results of soil samples collected from boring EB6 indicated levels of TPH as diesel ranging from 3 ppm to 160 ppm, and levels of TOG ranging from 130 ppm to 7,800 ppm. Analytical results of the water samples collected from borings EB2, EB3, and EB4 indicated non-detectable levels of TPH as gasoline. Analytical results of the water samples collected from borings EB5 and EB6 indicated levels of TPH as gasoline at concentrations of 340 ppb and 1,500 ppb, respectively. Benzene was detected in water samples collected from borings EB2 and EB6 at concentrations of 8.2 ppb and 1.5 ppb, respectively. Results of the soil analyses are summarized in Table 3, and the water analyses in Table 4. Documentation of the exploratory boring investigation, sample collection, and sample results are presented in KEI's report (KEI-P88-1204.R1) dated February 3, 1989. Based on the results of the exploratory boring investigation, KEI proposed installation of three monitoring wells.

On April 17, 1989, three two-inch diameter monitoring wells (designated as MW1, MW2 and MW3 on the attached Site Plan, Figure 1) were installed at the site. The three wells were drilled and completed to a total depth of 33 feet. Ground water was encountered at depths ranging from 17.5 to 18.5 feet. The wells were developed on April 24, 1989, and initially sampled on April 25, 1989.

Water and selected soil samples were analyzed by Sequoia Analytical Laboratory in Redwood City, California, for TPH as gasoline, BTX&E, TPH as diesel, TOG, and purgeable halocarbons. Analytical results of the soil samples collected from MW1, MW2 and MW3, indicated levels of TPH as gasoline ranging from non-detectable to 6.2 ppm, levels of TOG ranging from non-detectable to 180 ppm, and non-detectable levels of benzene, TPH as diesel and EPA method 8010 constituents. Analytical results of water samples collected from MW1, MW2, and MW3, indicated levels of TPH as gasoline ranging from non-detectable to 56 ppb, TPH as diesel ranging from non-detectable to 5,700 ppb, and benzene ranging from non-detectable to 0.35 ppb. Results of the soil analyses are summarized in Table 3, and water analyses in Tables 2 and 2a. Documentation of well installation, sample collection and sample results are presented in KEI's report (KEI-P88-1204.R2) dated May 16, 1990.

On May 11, 1989, at KEI's recommendation, the area surrounding exploratory boring EB6 (shown on the attached Site Plan, Figure 2) was excavated. Four soil samples, labeled SWA, SWB, SWC and SWD, were collected from the sidewalls of the excavation at a depth of approximately 16.5 feet (six inches above the water table). The samples were analyzed for TPH as diesel and TOG. Analytical results of the soil samples indicated levels of TPH as diesel ranging from 16 ppm to 26 ppm, and levels of TOG ranging from 170 ppm to 850 ppm. Results of the soil analyses are summarized in Table 3. Documentation of the excavation investigation are presented in KEI's report (KEI-J88-1204.R4) dated June 15, 1989. Based on the results of the excavation soil samples and ground water contamination detected in the monitoring wells, KEI recommended installation of three additional monitoring wells.

On August 16, 1989, three additional two-inch diameter monitoring wells (designated as MW4, MW5, and MW6 on the attached Site Plan, Figure 1) were installed at the site. The new wells were drilled and completed to total depths of 33 feet. Ground water was encountered at depths of approximately 19.8 to 22 feet below grade during drilling. The new wells (MW4, MW5 and MW6) were developed on August 27, 1989 and initially sampled on August 29, 1989.

Water and selected soil samples were analyzed by Sequoia Analytical Laboratory in Redwood City, California, for TPH as gasoline, BTX&E, and TOG. In addition, the water samples were analyzed for TPH as diesel. Analytical results of the soil samples collected from the borings for monitoring wells MW4, MW5 and MW6 indicated non-detectable levels of all constituents analyzed except for soil sample MW4(5), which showed 3.3 ppm of TPH as gasoline and 0.11 ppm of xylenes, and soil sample MW5(20), which showed 20 ppm of TPH as gasoline. Analytical results of water samples collected from MW1, MW2, MW4, MW5 and MW6 indicated non-detectable levels of TPH as gasoline, benzene, TPH as diesel, and TOG, except for MW4 and MW5 which indicated TPH as diesel at concentrations of 120 ppb and 100 ppb, respectively. Analytical results of the water sample collected from MW3 indicated 3,200 ppb of TPH as gasoline, 73 ppb of benzene, 860 ppb of TPH as diesel, and a non-detectable level of TOG. Results of the soil analyses are summarized in Table 3, and the water analyses in Table 2. Documentation of well installation, sample collection and sample results are presented in KEI's report (KEI-P88-1204.QR1) dated September 27, 1989. Based on the analytical results, KEI recommended a monthly monitoring and quarterly sampling program for all existing wells. The six wells MW1 through MW6 have been monitored monthly and sampled quarterly since August, 1989.

A field reconnaissance of the subject site on August 24, 1990 revealed the presence of soil borings within the existing asphalt

parking area at the adjacent property located southwest of the site (see the attached Site Vicinity Map). KEI has reviewed a report prepared by Applied Geosystems (AGS) of San Jose, California, dated April 30, 1990 (AGS #60004-1), documenting this work. Soil and ground water samples were collected from five borings (B1 through B5) on the adjacent property. Analytical results of soil samples indicated non-detectable levels of petroleum hydrocarbons in all samples except for 200 ppm of TOG and 0.058 ppm of toluene detected at 16 feet in boring B5 located immediately southwest of MW3. Also, tetrachloroethene was detected in borings B2, B3 and B4 at depths of 15 to 17.5 feet at levels ranging from 0.0052 ppm to 0.0460 ppm. TPH as gasoline was detected in water samples collected from borings B2 and B3 at levels of 220 ppb and 50 ppb, respectively, which are located near a former dry cleaning operation (see the attached Site Vicinity Map). Also, tetrachloroethene (PCE) was detected in the water samples from all five borings at levels ranging from 2.2 ppb to 540 ppb with the greatest concentrations obtained from borings B2, B3 and B4 located near the former dry cleaning operation.

RECENT FIELD ACTIVITIES

Wells MW1, MW2, MW5 and MW6 were monitored three times and sampled once during the quarter. Monitoring well MW3 was monitored six times and sampled once during the quarter. Monitoring well MW4 was monitored twice and sampled once during the quarter. During monitoring, the wells were checked for depth to water and presence of free product and sheen. No free product was observed in any of the wells. A sheen was observed on two occasions in well MW3 during the quarter. Sheen was not observed in any of the other wells during the quarter. Monitoring data are summarized in Table 1.

Water samples were collected from the wells on May 24, 1991. The wells were each purged of 15 gallons using a surface pump, except for well MW3, which was pumped of 55 gallons, and samples were then collected using a clean Teflon bailer. The samples were decanted into clean VOA vials and one liter amber bottles, sealed with Teflon-lined screw caps and stored on ice in a cooler until delivery to a state certified laboratory.

GEOLOGY AND HYDROLOGY

Based on the water level data gathered during the quarter, the ground water flow direction appeared to be approximately due west, with an average hydraulic gradient of approxirately .002 on May 24, 1991, relatively unchanged from the previous quarter (see the attached Site Plan, Figure 1). Water levels have fluctuated during the quarter, and show a net increase in all the wells ranging from

1.24 to 1.33 feet since February 4, 1991. The measured depth to ground water at the site on May 24, 1991 ranged between 16.04 and 16.75 feet.

Based on review of regional geologic mapping (U.S. Geological Survey Professional Paper 943 "Flatland deposits of the San Francisco Bay Region, California - 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 coarse-grained alluvium (Qhac). This deposit is described as typically consisting of unconsolidated, moderately sorted, permeable sand and silt at a thickness ranging from less than 10 feet to as much as 50 feet. This unit is assumed to overlie late Pleistocene alluvial fan deposits at depth.

However, review of the boring logs previously completed by KEI (EB1 through EB6, and MW1 through MW6) indicate the site is underlain predominantly by silty clay materials to at least the maximum depth explored (33 feet). An apparent intermittent clayey silt bed was encountered at approximately 10 feet below grade and in one boring (MW1) a clayey sand bed was encountered between depths of about 6 to 10 feet, otherwise, only clay materials were noted to have been encountered.

ANALYTICAL RESULTS

Ground water samples were analyzed at Sequoia Analytical Laboratory in Concord, California, and were accompanied by properly executed Chain of Custody documentation. The samples were analyzed for TPH as gasoline using EPA method 5030 in conjunction with modified 8015, BTX&E using EPA method 8020, TOG using Standard Method 5520B&F, and halogenated volatile organics using EPA method 8010. In addition, monitoring wells MW3, MW4 and MW5 were analyzed for TPH as diesel using EPA method 3510 in conjunction with modified 8015.

Analytical results of ground water samples collected from MW1, MW2, MW4, MW5, and MW6 indicate non-detectable levels of TPH as gasoline, BTX&E and TOG, except for benzene in MW2 and MW4 at concentrations of 1.5 ppb and 0.64 ppb, respectively. Analytical results of the ground water sample collected from MW3 indicate 23,000 ppb of TPH as gasoline, 940 ppb of benzene, 2,000 ppb of TPH as diesel, and a non-detectable level of TOG. Analytical results of ground water samples, collected from monitoring wells MW4 and MW5, indicate non-detectable levels of TPH as diesel. Analytical results of ground water samples, collected from wells MW1 through MW6, indicate non-detectable levels of all EPA method 8010 constituents, except for tetrachloroethene detected in wells MW1, MW4, MW5 and MW6 at concentrations ranging from 0.88 ppb to 4.6

ppb; 1,1-dichloroethane and 1,1,1-trichloroethane detected in well MW5 at concentrations of 2.5 ppb and 3.9 ppb, respectively, and chloromethane detected in well MW6 at 5.6 ppb. Results of the water analyses are summarized in Tables 2 and 2a. Copies of the analytical results and Chain of Custody documentation are attached to this report.

DISCUSSION AND RECOMMENDATIONS

Based on the analytical results collected and evaluated to date, KEI recommends a modification to the current monitoring and sampling program of the existing wells. Monitoring wells MW1 and MW5 have shown non-detectable levels of TPH as gasoline and benzene for the past four quarters (i.e., one hydrologic cycle). Therefore, KEI recommends that no additional ground water samples be collected and analyzed from these wells. However, MW2, MW3, MW4 and MW6 should continue to be sampled on a quarterly basis. In addition, all of the existing monitoring wells should be monitored on a monthly basis.

Ground water contamination appears to be generally limited to the vicinity of well MW3 only, except for the scattered presence of EPA method 8010 constituents. Water samples from all other wells have shown non-detectable levels of TPH as gasoline, TPH as diesel, and TOG for the past four quarters, with occasional detectable levels of benzene ranging from 0.64 ppb to 1.6 ppb. Well MW3 has been purged twice a month for the past quarter, and the previously observed free product has been reduced to an occasional sheen. Therefore, KEI also recommends that well MW3 continue to be purged twice a month in an attempt to remove free product and to reduce levels of contamination.

Based on a site inspection conducted on December 27, 1990, one existing monitoring well (MW-DC) was observed near the former dry cleaner operation (see attached Site Vicinity Map). Communication with Unocal Corporation on January 2, 1991 indicated that this well was not installed at the request of Unocal.

A follow-up site visit was conducted by KEI during March, 1991 in an attempt to determine the well owner. None of the adjacent property owners or tenants were aware of the presence of the well and/or who installed the well. KEI subsequently reviewed a report titled "Report of Subsurface Environmental Conditions" dated October 9, 1990, which was prepared by Hageman-Schenk, Inc. (HSI) for the current property owner (1335 to 1370 Davis Street).

Investigations conducted by HSI indicate that the well was apparently a former water supply well for the dry cleaners located at 1370 Davis Street. The well is six inches in diameter and

extends to a depth of approximately 28 feet with a water level of 18 feet, as of August 1, 1990. At the time of HSI's investigation (June 7, 1990), the well was plugged with soil and other debris to a depth of about 8 feet. Analytical results of a soil sample collected from the soil plug within the well showed 1.2 ppm of tetrachloroethene. After the well was unplugged, a water sample was collected on September 12, 1990 and showed a level of 33 ppb of tetrachloroethene. The soil and water samples were not analyzed for petroleum hydrocarbons.

In addition to collecting soil and water samples from the dry cleaners' well, HSI also collected soil samples from six soil borings (A1 through A5 and HS-B-1), located at the northwest perimeter of the dry cleaners building, as well as six soil samples from beneath the concrete floor inside the building. Tetrachloroethene was detected in all soil borings at concentrations ranging from 0.0069 ppm up to 0.20 ppm.

The October 9, 1990 HSI report concluded that the tetrachloroethene soil and ground water contamination detected throughout the site was probably the result of small-scale spillage of tetrachloroethene over a long period of time. The HSI report recommended the installation of at least three monitoring wells; however, it does not appear that any further subsurface investigations have been conducted at the site as of March, 1991.

Based on the levels of contamination detected in well MW3 at the subject Unocal site and the general westward ground water flow direction, KEI recommends the installation of one off-site monitoring well to further define the extent of ground water contamination. KEI does not recommend the use of the dry cleaner well (MW-DC) since the integrity, construction, and precise use of the well is unknown or otherwise unclear. Our work plan/proposal for this work is attached for your review and consideration.

DISTRIBUTION

A copy of this report should be sent to the Mr. Larry Seto of the Alameda County Health Agency, to the City of San Leandro, and to the RWQCB, San Francisco Bay Region.

LIMITATIONS

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.

If you have any questions regarding this report, please do not hesitate to call me at (707) 746-6915.

Sincerely,

Kaprealian Engineering, Inc.

Thomas J. Berkins
Senior Environmental Engineer

Don R. Braun
Certified Engineering Geologist

License No. 1310
Exp. Date 6/30/92

Timothy R. Ross
Project Manager

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Attachments: Tables 1, 2, 2a, 3 & 4
Location Map
Site Vicinity Map
Site Plans - Figures 1 & 2
Laboratory Analyses
Chain of Custody documentation
Work Plan/Proposal

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TABLE 1

SUMMARY OF MONITORING DATA

Well No.	Ground Water Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Sheen	Water Purged (gallons)	Product Purged (gallons)
(Monitored and Sampled on May 24, 1991)						
MW1	83.74	16.26	0	No	15	0
MW2	83.57	16.75	0	No	15	0
MW3	83.63	16.40	0	Yes	55	0
MW4	83.62	16.04	0	No	15	0
MW5	83.68	16.64	0	No	15	0
MW6	83.76	16.74	0	No	15	0
(Monitored on May 8, 1991)						
MW3	84.16	15.87	0	No	55	0
(Monitored on April 11, 1991)						
MW3	84.62	15.38	0	Yes	55	0
(Monitored on March 28, 1991)						
MW1	84.79	15.21	0	No	0	0
MW2	85.09	15.23	0	No	0	0
MW3	85.21	14.82	0	No	55	0
MW4	COULD NOT MONITOR - WELL NOT ACCESSIBLE					
MW5	84.96	15.36	0	No	0	0
MW6	84.94	15.56	0	No	0	0
(Monitored on March 12, 1991)						
MW3	83.67	16.36	0	No	55	0
(Monitored on March 4, 1991)						
MW1	84.01	15.99	0	No	0	0
MW2	83.87	16.45	0	No	0	0
MW3	83.91	16.12	0	No	0	0
MW4	83.94	15.72	0	No	0	0
MW5	83.97	16.35	0	No	0	0
MW6	84.04	16.46	0	No	0	0

TABLE 1 (Continued)

SUMMARY OF MONITORING DATA

Well #	Surface Elevation* (feet)
MW1	100.00
MW2	100.32
MW3	100.03
MW4	99.66
MW5	100.32
MW6	100.50

* Elevations surveyed assuming well cover MW1 100 feet as datum.

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TABLE 2

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Sample Well #	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene	TOG (ppm)
5/24/91	MW1	--	ND	ND	ND	ND	ND	ND
	MW2	--	ND	1.5	ND	ND	ND	ND
	MW3	2,000	23,000	940	3,400	2,600	590	ND
	MW4	ND	ND	0.64	ND	ND	ND	ND
	MW5	ND	ND	ND	ND	ND	ND	ND
	MW6	--	ND	ND	ND	ND	ND	ND
2/04/91	MW1	ND	ND	ND	0.31	0.62	ND	ND
	MW2	ND	ND	ND	0.38	0.87	ND	ND
	MW3	NOT SAMPLED DUE TO TRACE OF FREE PRODUCT						
	MW4	ND	ND	ND	0.72	1.1	ND	ND
	MW5	ND	ND	ND	0.35	ND	ND	ND
	MW6	ND	ND	ND	ND	ND	ND	ND
11/06/90	MW1	ND	ND	ND	ND	ND	ND	ND
	MW2	ND	ND	ND	0.42	1.4	ND	ND
	MW3	940	16,000	820	1,500	770	2,200	ND
	MW4	ND	ND	ND	0.36	0.98	ND	ND
	MW5	ND	ND	ND	ND	ND	ND	ND
	MW6	ND	ND	1.6	0.35	ND	ND	ND
8/09/90	MW1	ND	ND	ND	ND	ND	ND	ND
	MW2	ND	ND	ND	ND	ND	ND	ND
	MW3	500	1,900	56	140	140	31	ND
	MW4	ND	ND	ND	ND	ND	ND	ND
	MW5	ND	ND	ND	ND	ND	ND	ND
	MW6	ND	ND	ND	ND	ND	ND	ND
5/10/90	MW1	ND	ND	ND	ND	ND	ND	ND
	MW2	ND	43	ND	1.0	ND	ND	ND
	MW3	850	6,200	94	460	540	160	2.8
	MW4	88	54	ND	2.0	0.37	ND	ND
	MW5	83	ND	ND	ND	0.31	ND	ND
	MW6	ND	ND	ND	1.2	ND	ND	ND
2/23/90	MW1	ND	ND	ND	ND	ND	ND	ND
	MW2	ND	44	ND	ND	ND	ND	ND
	MW3	350	ND	0.32	ND	ND	ND	1.3
	MW4	ND	ND	ND	ND	ND	ND	ND
	MW5	ND	ND	ND	ND	ND	ND	ND
	MW6	ND	ND	ND	ND	ND	ND	ND

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TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Sample Well #	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene	TOG (ppm)
11/21/89	MW1	ND	ND	ND	ND	ND	ND	8.9
	MW2	ND	48	ND	0.51	ND	ND	1.6
	MW3	110	1,900	ND	ND	ND	ND	3.8
	MW4	ND	ND	ND	ND	ND	ND	ND
	MW5	70	ND	ND	ND	ND	ND	ND
	MW6	ND	ND	ND	ND	ND	ND	ND
8/11/89	MW1	ND	ND	ND	ND	ND	ND	ND
&	MW2	ND	ND	ND	0.39	ND	ND	ND
8/29/89	MW3	860	3,200	73	140	240	35	ND
	MW4	120	ND	ND	ND	ND	ND	ND
	MW5	100	ND	ND	0.94	ND	0.30	ND
	MW6	ND	ND	ND	ND	ND	ND	ND
4/25/89	MW1	100	ND	0.31	ND	ND	ND	--
	MW2	ND	32	0.35	ND	ND	ND	--
	MW3	5,700	56	ND	ND	0.49	0.31	--
Detection Limits		50	30	0.3	0.3	0.3	0.3	5.0

-- Indicates analysis not performed.

ND = Non-detectable.

Results in parts per billion (ppb), unless otherwise indicated.

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TABLE 2a

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Sample Well #	Tetrachloro-ethene	1,1-Dichloro-ethane	1,1,1-Trichloro-ethane	Chloro-methane
5/24/91	MW1	4.6	ND	ND	ND
	MW2	ND	ND	ND	ND
	MW3	ND	ND	ND	ND
	MW4	4.1	2.5	3.9	ND
	MW5	0.89	ND	ND	ND
	MW6	0.88	ND	ND	5.6
11/06/90	MW1	4.8	ND	ND	ND
	MW2	ND	ND	ND	ND
	MW3	ND	ND	ND	ND
	MW4	2.9	ND	ND	ND
	MW5	0.76	ND	ND	ND
	MW6	1.2	ND	ND	ND
4/25/89	MW1*	3.3	ND	ND	ND
	MW2	0.68	ND	ND	ND
	MW3	1.0	ND	ND	ND

NOTE: All EPA method 8010 constituents were non-detectable, except for those shown in the above table.

* Trichloroethene was detected at 0.55 ppb.

ND = Non-detectable.

Results in parts per billion (ppb), unless otherwise indicated.

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TABLE 3

SUMMARY OF LABORATORY ANALYSES
SOIL

Sample Number	Depth (feet)	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene	TOG
(Collected on August 16, 1989)								
MW4	5	--	3.3	ND	ND	0.11	ND	<50
MW4	10	--	ND	ND	ND	ND	ND	<50
MW4	15	--	ND	ND	ND	ND	ND	<50
MW4	19	--	ND	ND	ND	ND	ND	<50
MW5	5	--	ND	ND	ND	ND	ND	<50
MW5	10	--	ND	ND	ND	ND	ND	<50
MW5	15	--	ND	ND	ND	ND	ND	<50
MW5	20	--	20	ND	ND	ND	ND	<50
MW5	22	--	ND	ND	ND	ND	ND	<50
MW6	5	--	ND	ND	ND	ND	ND	<50
MW6	10	--	ND	ND	ND	ND	ND	<50
MW6	15	--	ND	ND	ND	ND	ND	<50
MW6	20	--	ND	ND	ND	ND	ND	<50
(Collected on May 11, 1989)								
SWA	16.5	21	--	--	--	--	--	850
SWB	16.5	18	--	--	--	--	--	580
SWC	16.5	26	--	--	--	--	--	680
SWD	16.5	16	--	--	--	--	--	170
(Collected on April 17, 1989)								
MW1	5	ND	4.0	ND	ND	ND	ND	ND
MW1	10	ND	ND	ND	ND	ND	ND	ND
MW1	15	ND	ND	ND	ND	ND	ND	ND
MW1	17	ND	ND	ND	ND	ND	ND	31
MW2*	5	ND	ND	ND	ND	ND	ND	31
MW2*	10	ND	1.1	ND	ND	ND	ND	60
MW2*	15	ND	ND	ND	ND	ND	ND	71
MW3	5	ND	ND	ND	ND	ND	ND	ND
MW3	10	ND	1.1	ND	ND	ND	ND	ND
MW3	15	ND	1.2	ND	ND	ND	ND	32
MW3	17	ND	6.2	ND	0.21	0.42	ND	180

KEI-P88-1204.QR6
January 9, 1991

TABLE 3 (Continued)

SUMMARY OF LABORATORY ANALYSES
SOIL

Sample Number	Depth (feet)	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene	TOG
(Collected on January 3, 1989)								
EB1(5)*	5	5.0	--	<0.005	0.05	<0.005	<0.005	ND
EB1(10)*	10	1.0	--	<0.005	<0.005	<0.005	<0.005	ND
EB1(15)*	15	1.0	--	<0.005	<0.005	<0.005	<0.005	ND
EB1(25)*	25	2.0	--	--	--	--	--	ND
EB2(10)	10	--	<1.0	<0.05	<0.1	<0.1	<0.1	--
EB2(15)	15	--	<1.0	<0.05	<0.1	<0.1	<0.1	--
EB2(20)	20	--	<1.0	<0.05	<0.1	<0.1	<0.1	--
EB2(25)	25	--	1.9	<0.05	<0.1	<0.1	<0.1	--
EB3(5)	5	--	<1.0	<0.05	<0.1	<0.1	<0.1	--
EB3(10)	10	--	<1.0	<0.05	<0.1	<0.1	<0.1	--
EB3(15)	15	--	2.7	<0.05	<0.1	<0.1	<0.1	--
EB3(20)	20	--	2.2	<0.05	<0.1	<0.1	<0.1	--
EB3(25)	25	--	<1.0	<0.05	<0.1	<0.1	<0.1	--
EB4(5)	5	--	<1.0	<0.05	<0.1	<0.1	<0.1	--
EB4(10)	10	--	<1.0	<0.05	<0.1	<0.1	<0.1	--
EB4(15)	15	--	<1.0	<0.05	<0.1	<0.1	<0.1	--
EB4(20)	20	--	<1.0	<0.05	<0.1	<0.1	<0.1	--
EB4(25)	25	--	<1.0	<0.05	<0.1	<0.1	<0.1	--
EB5(5)	5	--	<1.0	<0.05	<0.1	<0.1	<0.1	--
EB5(10)	10	--	<1.0	<0.05	<0.1	<0.1	<0.1	--
EB5(15)	15	--	2.0	<0.05	<0.1	<0.1	<0.1	--
EB5(20)	20	--	17	0.12	0.15	1.4	0.25	--
EB5(25)	25	--	3.9	<0.05	<0.1	0.17	<0.1	--
EB6(5)	5	10	1.8	<0.05	<0.1	<0.1	<0.1	7,800
EB6(10)	10	160	73	<0.05	<0.1	<0.1	<0.1	1,200
EB6(15)	15	40	17	0.065	<0.1	0.21	<0.1	900
EB6(25)	25	3.0	<1.0	<0.05	<0.1	<0.1	<0.1	130

-- Indicates analysis not performed.

ND = Non-detectable.

* EPA method 8010 constituents were non-detectable.

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

KEI-P88-1204.QR8
July 15, 1991

TABLE 4

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Sample Number	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene
1/3/89	EB1	<50	--	<0.5	3.5	<0.5	<0.5
	EB2	--	<50	8.2	7.4	3.3	0.67
	EB3	--	<50	<0.5	<0.5	<0.5	<0.5
	EB4	--	<50	<0.5	<0.5	<0.5	0.73
	EB5	--	340	<0.5	<0.5	<0.5	0.63
	EB6	--	1,500	1.5	1.4	12	8.1

-- Indicates analysis not performed.

Results in parts per billion (ppb), unless otherwise indicated.

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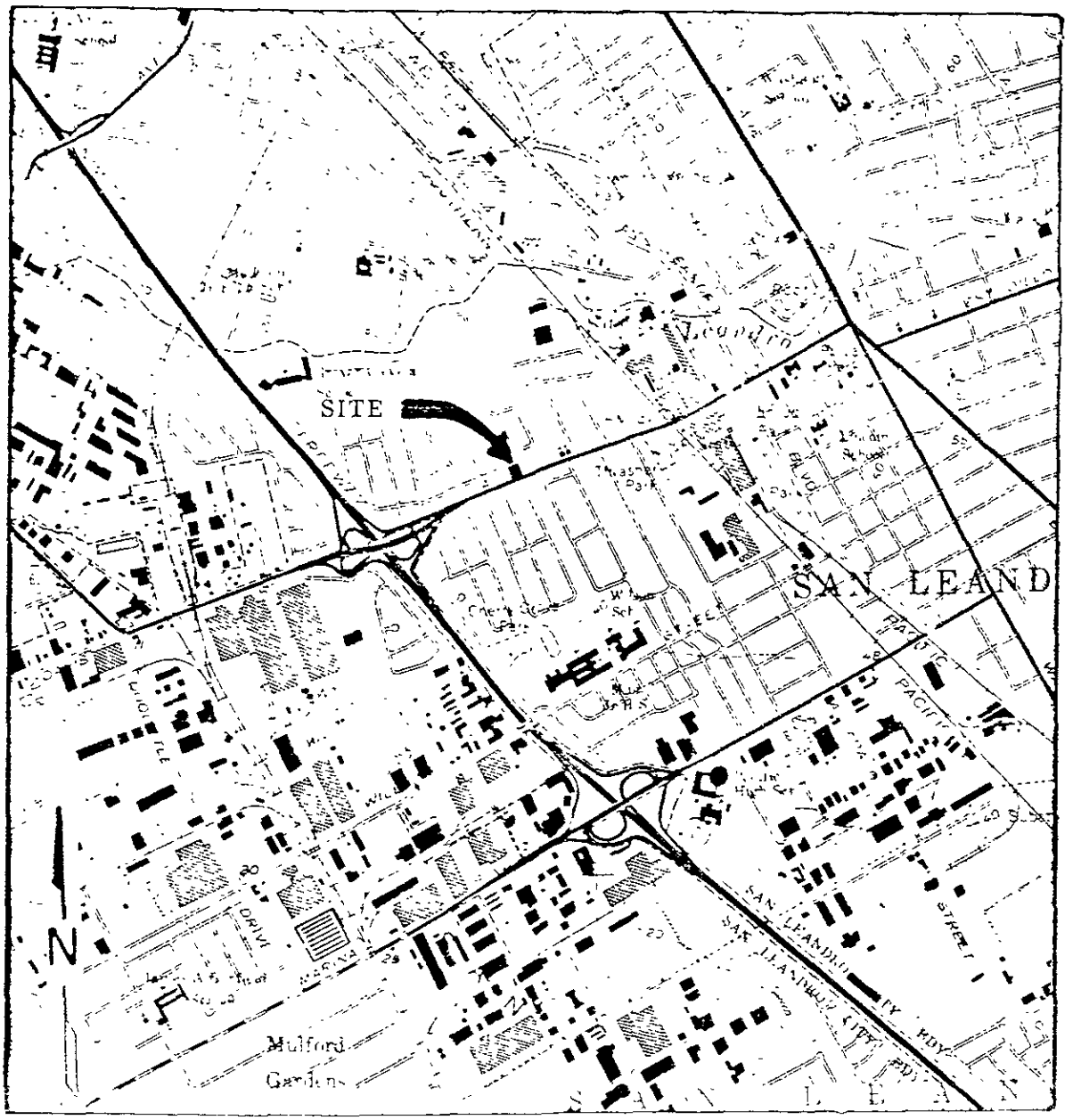
(707) 746-6915 • (707) 746-6916 • FAX. (707) 746-5581



LOCATION MAP

Unocal S.S #2512
1300 Davis Street
San Leandro, CA

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Consulting Engineers
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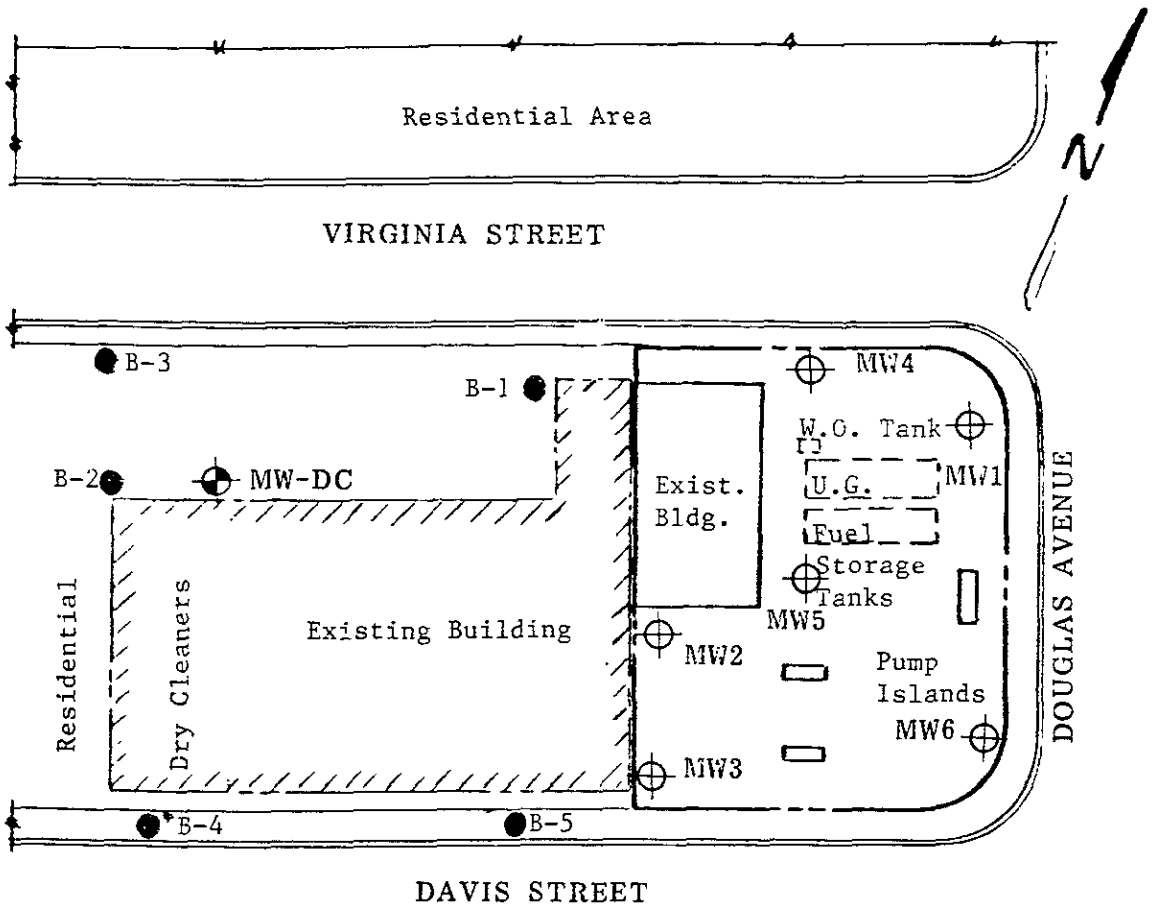

SITE VICINITY MAP

LEGEND

- Existing Monitoring Well (by KEI)
- Existing Monitoring Well (by others)
- Approximate location of existing off-site Soil Borings (by AGS)

0 50 100
Approx. scale feet

Unocal S/S #2512
1300 Davis Street
San Leandro, CA

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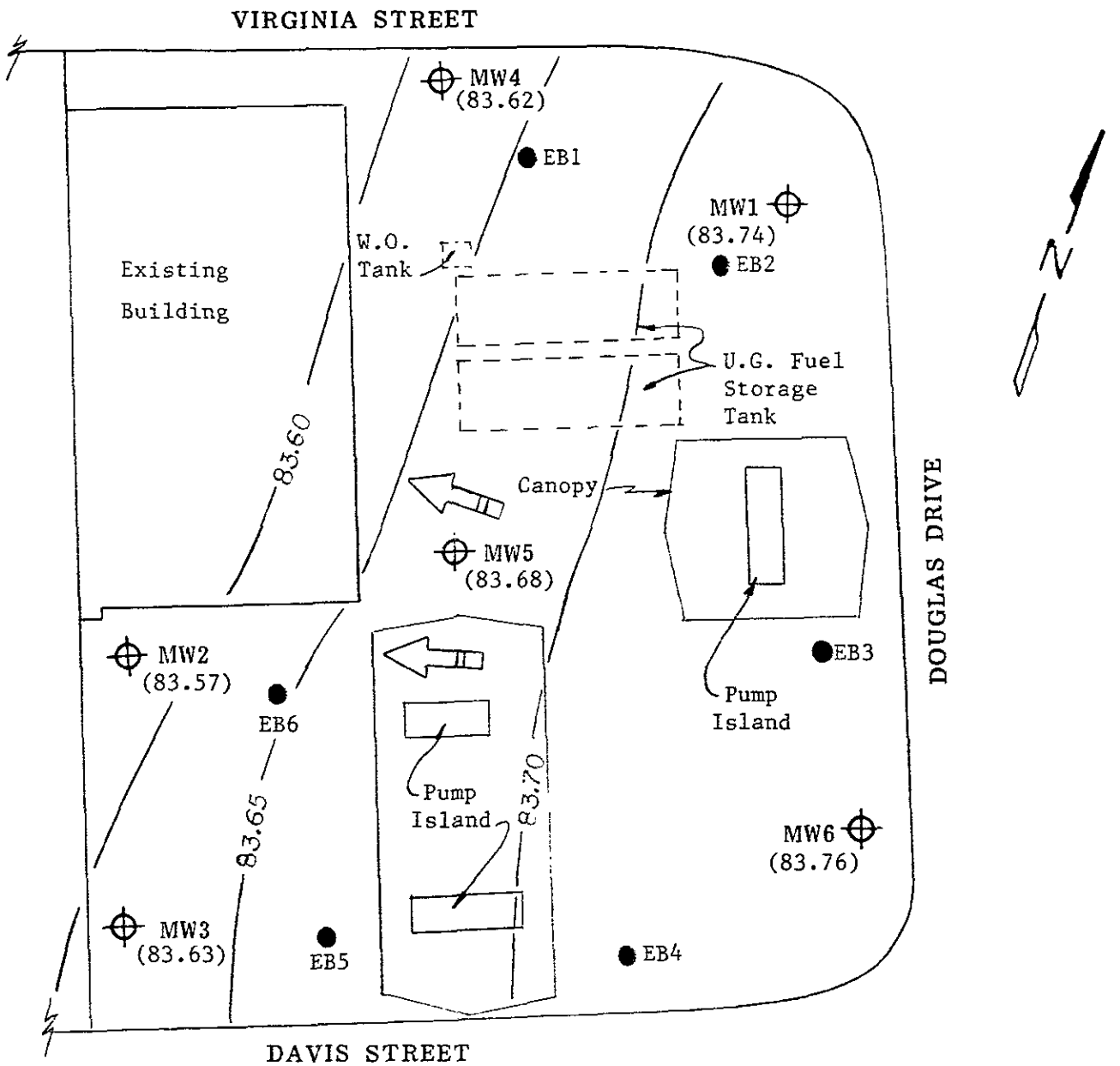

SITE PLAN
Figure 1

20 0 20
Approx. Scale feet

LEGEND

⊕ Monitoring Well

( ) Ground water elevation in feet on 5/24/91. Top of MW1 well cover assumed 100.00 feet as datum.

⇨ Direction of ground water flow.

——— Contours of ground water elevation

Unocal Service Station #2512
1300 Davis Street
San Leandro, California

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Consulting Engineers
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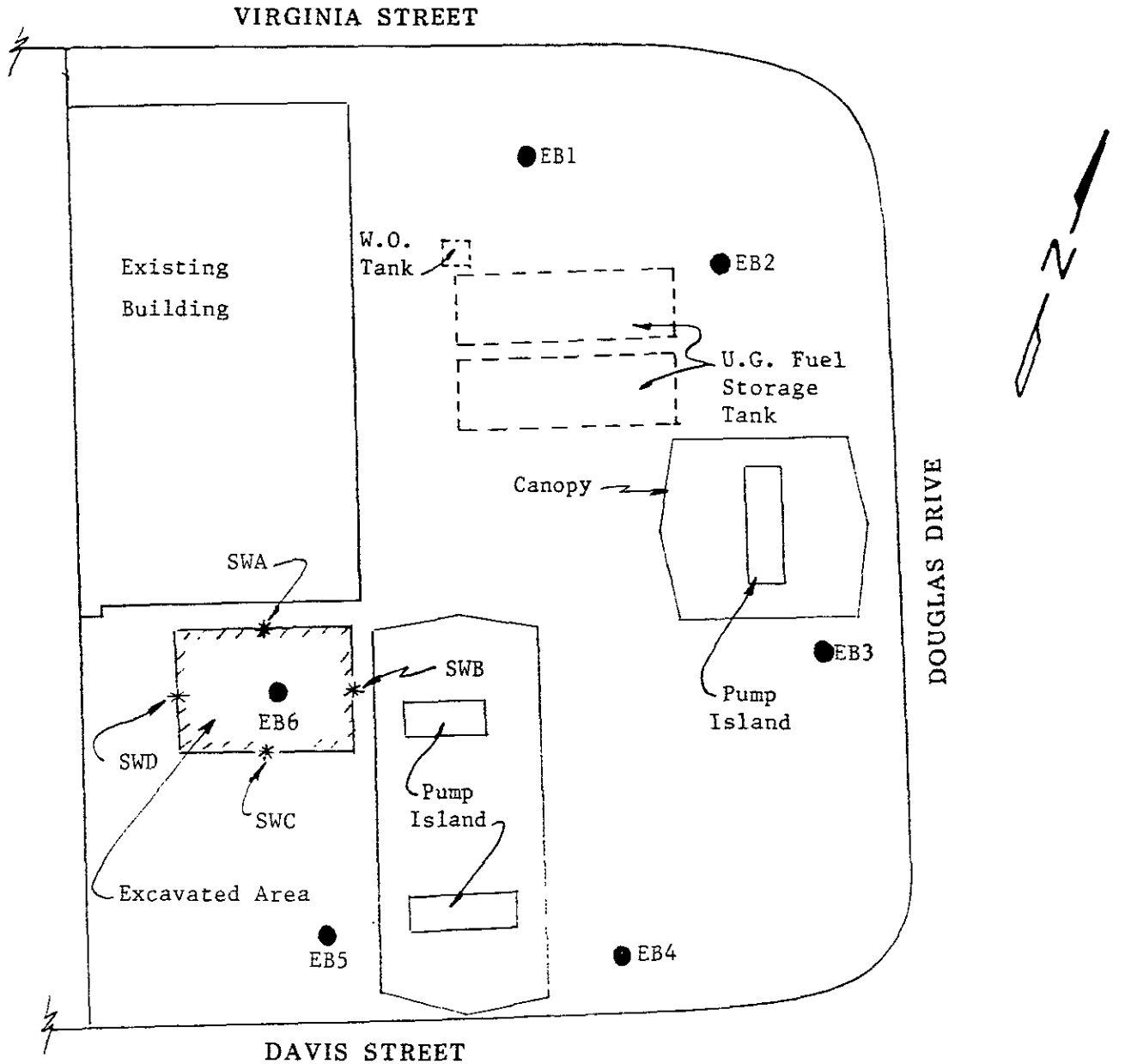
(707) 746-6915 • (707) 746-6916 • FAX. (707) 746-5581



SITE PLAN
Figure 2

20 0 20
Approx. Scale feet

LEGEND

● Exploratory Boring

✱ Sample Point Location

Unocal Service Station #2512
1300 Davis Street
San Leandro, California

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 1300 Davis St., San Leandro	Sampled:	May 24, 1991
P.O. Box 996	Matrix Descript:	Water	Received:	May 28, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Jun 6, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	105-0919 AB	Reported:	Jun 11, 1991

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

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons µg/L (ppb)	Benzene µg/L (ppb)	Toluene µg/L (ppb)	Ethyl Benzene µg/L (ppb)	Xylenes µg/L (ppb)
105-0919 AB	MW-1	N.D.	N.D.	N.D.	N.D.	N.D.
105-0920 AB	MW-2	N.D.	1.5	N.D.	N.D.	N.D.
105-0921 AB	MW-3	23,000	940	3,400	590	2,600
105-0922 AB	MW-4	N.D.	0.64	N.D.	N.D.	N.D.
105-0923 AB	MW-5	N.D.	N.D.	N.D.	N.D.	N.D.
105-0924 AB	MW-6	N.D.	N.D.	N.D.	N.D.	N.D.
Detection Limits:		30	0.30	0.30	0.30	0.30

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

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Belinda C. Vega
Laboratory Director

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 1300 Davis St., San Leandro	Sampled: - - - - - -
P.O. Box 996	Sample Descript.:	D I Blank	Received: - - - - - -
Benicia, CA 94510	Analysis Method:	EPA 5030/ 8015/8020	Analyzed: Jun 6, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	- - - - - -	Reported: Jun 11, 1991

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

Analyte	Detection Limit µg/L (ppb)	Sample Results µg/L (ppb)
Low to Medium Boiling Point Hydrocarbons	30	N.D.
Benzene	0.30	N.D.
Toluene	0.30	N.D.
Ethyl Benzene	0.30	N.D.
Xylenes	0.30	N.D.

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

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

Client Project ID: Unocal, 1300 Davis St., San Leandro
QC Sample Group: 1050919-24
Reported: Jun 11, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha
Reporting Units:	ppb	ppb	ppb	ppb
Date Analyzed:	Jun 6, 1991	Jun 6, 1991	Jun 6, 1991	Jun 6, 1991
QC Sample #:	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	20	20	20	60
Conc. Matrix Spike:	20	20	20	62
Matrix Spike % Recovery:	100	100	100	100
Conc. Matrix Spike Dup.:	20	20	20	59
Matrix Spike Duplicate % Recovery:	100	100	100	98
Relative % Difference:	0	0	0	17

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Laboratory Director

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

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

Client Project ID: Unocal, 1300 Davis St., San Leandro
QC Sample Group: 1050919-24
Reported: Jun 11, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha
Reporting Units:	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Date Analyzed:	Jun 6, 1991	Jun 6, 1991	Jun 6, 1991	Jun 6, 1991	Jun 6, 1991	Jun 6, 1991	Jun 6, 1991
Sample #:	105-0919	105-0920	105-0921	105-0922	105-0923	105-0924	Blank
Surrogate % Recovery:	110	85	92	100	100	100	100

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Laboratory Director

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

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 1300 Davis St., San Leandro	Sampled:	May 24, 1991
P.O. Box 996	Matrix Descript:	Water	Received:	May 28, 1991
Benicia, CA 94510	Analysis Method:	EPA 3510/8015	Extracted:	May 31, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	105-0921 C	Analyzed:	Jun 4, 1991
			Reported:	Jun 11, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons µg/L (ppb)
105-0921 C	MW-3	2,000
105-0922 C	MW-4	N.D.
105-0923 C	MW-5	N.D.

Detection Limits:	50

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

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 1300 Davis St., San Leandro	Sampled:	------
P.O. Box 996	Matrix Descript:	D I Blank	Received:	------
Benicia, CA 94510	Analysis Method:	EPA 3510/8015	Extracted:	May 31, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	------	Analyzed:	Jun 4, 1991
			Reported:	Jun 11, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons µg/L (ppb)
------	D I Blank	N.D.

Detection Limits:	50

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

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

Client Project ID: Unocal, 1300 Davis St., San Leandro
QC Sample Group: 1050919-24
Reported: Jun 11, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Diesel
Method:	EPA 8015
Analyst:	JRM
Reporting Units:	µg/L
Date Analyzed:	Jun 4, 1991
QC Sample #:	BLK053191
Sample Conc.:	N.D.
Spike Conc. Added:	300
Conc. Matrix Spike:	250
Matrix Spike % Recovery:	83
Conc. Matrix Spike Dup.:	230
Matrix Spike Duplicate % Recovery:	77
Relative % Difference:	8.3

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

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 1300 Davis St., San Leandro	Sampled:	May 24, 1991
P.O. Box 996	Matrix Descript:	Water	Received:	May 28, 1991
Benicia, CA 94510	Analysis Method:	SM 5520 B&F (Gravimetric)	Extracted:	May 31, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	105-0919 C	Analyzed:	Jun 4, 1991
			Reported:	Jun 11, 1991

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/L (ppm)
105-0919 C	MW-1	N.D.
105-0920 C	MW-2	N.D.
105-0921 D	MW-3	N.D.
105-0922 D	MW-4	N.D.
105-0923 D	MW-5	N.D.
105-0924 D	MW-6	N.D.

Detection Limits:	5.0

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

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

Client Project ID: Unocal, 1300 Davis St., San Leandro
QC Sample Group: 1050919-24
Reported: Jun 11, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Oil & Grease
Method:	SM 5520 B&F
Analyst:	D. Newcomb
Reporting Units:	mg/L
Date Analyzed:	Jun 4, 1991
QC Sample #:	Matrix Blank 060491M
Sample Conc.:	N.D.
Spike Conc. Added:	100
Conc. Matrix Spike:	94
Matrix Spike % Recovery:	94
Conc. Matrix Spike Dup.:	95
Matrix Spike Duplicate % Recovery:	95
Relative % Difference:	1 1

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Laboratory Director

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

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 1300 Davis St., San Leandro	Sampled:	May 24, 1991
P.O. Box 996	Sample Descript:	Water, MW-1	Received:	May 28, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8010	Analyzed:	Jun 4, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	105-0919 D-E	Reported:	Jun 11, 1991

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane	1.0	N.D.
Bromoform	1.0	N.D.
Bromomethane	1.0	N.D.
Carbon tetrachloride	1.0	N.D.
Chlorobenzene	1.0	N.D.
Chloroethane	5.0	N.D.
2-Chloroethylvinyl ether	1.0	N.D.
Chloroform	0.50	N.D.
Chloromethane	0.50	N.D.
Dibromochloromethane	0.50	N.D.
1,2-Dichlorobenzene	2.0	N.D.
1,3-Dichlorobenzene	2.0	N.D.
1,4-Dichlorobenzene	2.0	N.D.
1,1-Dichloroethane	0.50	N.D.
1,2-Dichloroethane	0.50	N.D.
1,1-Dichloroethene	1.0	N.D.
cis-1,2-Dichloroethene	1.0	N.D.
trans-1,2-Dichloroethene	1.0	N.D.
1,2-Dichloropropane	0.50	N.D.
cis-1,3-Dichloropropene	5.0	N.D.
trans-1,3-Dichloropropene	5.0	N.D.
Methylene chloride	2.0	N.D.
1,1,2,2-Tetrachloroethane	0.50	N.D.
Tetrachloroethene	**0.50**	**4.6**
1,1,1-Trichloroethane	0.50	N.D.
1,1,2-Trichloroethane	0.50	N.D.
Trichloroethene	0.50	N.D.
Trichlorofluoromethane	1.0	N.D.
Vinyl chloride	2.0	N.D.

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

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Belinda C. Vega
Laboratory Director

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 1300 Davis St., San Leandro	Sampled: May 24, 1991
P.O. Box 996	Sample Descript:	Water, MW-2	Received: May 28, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8010	Analyzed: Jun 4, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	105-0920 D-E	Reported: Jun 11, 1991

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane	1.0	N.D.
Bromoform	1.0	N.D.
Bromomethane	1.0	N.D.
Carbon tetrachloride	1.0	N.D.
Chlorobenzene	1.0	N.D.
Chloroethane	5.0	N.D.
2-Chloroethylvinyl ether	1.0	N.D.
Chloroform	0.50	N.D.
Chloromethane	0.50	N.D.
Dibromochloromethane	0.50	N.D.
1,2-Dichlorobenzene	2.0	N.D.
1,3-Dichlorobenzene	2.0	N.D.
1,4-Dichlorobenzene	2.0	N.D.
1,1-Dichloroethane	0.50	N.D.
1,2-Dichloroethane	0.50	N.D.
1,1-Dichloroethene	1.0	N.D.
cis-1,2-Dichloroethene	1.0	N.D.
trans-1,2-Dichloroethene	1.0	N.D.
1,2-Dichloropropane	0.50	N.D.
cis-1,3-Dichloropropene	5.0	N.D.
trans-1,3-Dichloropropene	5.0	N.D.
Methylene chloride	2.0	N.D.
1,1,2,2-Tetrachloroethane	0.50	N.D.
Tetrachloroethene	0.50	N.D.
1,1,1-Trichloroethane	0.50	N.D.
1,1,2-Trichloroethane	0.50	N.D.
Trichloroethene	0.50	N.D.
Trichlorofluoromethane	1.0	N.D.
Vinyl chloride	2.0	N.D.

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

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 1300 Davis St., San Leandro	Sampled:	May 24, 1991
P.O. Box 996	Sample Descript:	Water, MW-3	Received:	May 28, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8010	Analyzed:	Jun 4, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	105-0921 D-E	Reported:	Jun 11, 1991

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane	1.0	N.D.
Bromoform	1.0	N.D.
Bromomethane	1.0	N.D.
Carbon tetrachloride	1.0	N.D.
Chlorobenzene	1.0	N.D.
Chloroethane	5.0	N.D.
2-Chloroethylvinyl ether	1.0	N.D.
Chloroform	0.50	N.D.
Chloromethane	0.50	N.D.
Dibromochloromethane	0.50	N.D.
1,2-Dichlorobenzene	2.0	N.D.
1,3-Dichlorobenzene	2.0	N.D.
1,4-Dichlorobenzene	2.0	N.D.
1,1-Dichloroethane	0.50	N.D.
1,2-Dichloroethane	0.50	N.D.
1,1-Dichloroethene	1.0	N.D.
cis-1,2-Dichloroethene	1.0	N.D.
trans-1,2-Dichloroethene	1.0	N.D.
1,2-Dichloropropane	0.50	N.D.
cis-1,3-Dichloropropene	5.0	N.D.
trans-1,3-Dichloropropene	5.0	N.D.
Methylene chloride	2.0	N.D.
1,1,2,2-Tetrachloroethane	0.50	N.D.
Tetrachloroethene	0.50	N.D.
1,1,1-Trichloroethane	0.50	N.D.
1,1,2-Trichloroethane	0.50	N.D.
Trichloroethene	0.50	N.D.
Trichlorofluoromethane	1.0	N.D.
Vinyl chloride	2.0	N.D.

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

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 1300 Davis St., San Leandro	Sampled:	May 24, 1991
P.O. Box 996	Sample Descript:	Water, MW-4	Received:	May 28, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8010	Analyzed:	Jun 4, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	105-0922 D-E	Reported:	Jun 11, 1991

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane	1.0	N.D.
Bromoform	1.0	N.D.
Bromomethane	1.0	N.D.
Carbon tetrachloride	1.0	N.D.
Chlorobenzene	1.0	N.D.
Chloroethane	5.0	N.D.
2-Chloroethylvinyl ether	1.0	N.D.
Chloroform	0.50	N.D.
Chloromethane	0.50	N.D.
Dibromochloromethane	0.50	N.D.
1,2-Dichlorobenzene	2.0	N.D.
1,3-Dichlorobenzene	2.0	N.D.
1,4-Dichlorobenzene	2.0	N.D.
1,1-Dichloroethane	**0.50**	**2.5**
1,2-Dichloroethane	0.50	N.D.
1,1-Dichloroethene	1.0	N.D.
cis-1,2-Dichloroethene	1.0	N.D.
trans-1,2-Dichloroethene	1.0	N.D.
1,2-Dichloropropane	0.50	N.D.
cis-1,3-Dichloropropene	5.0	N.D.
trans-1,3-Dichloropropene	5.0	N.D.
Methylene chloride	2.0	N.D.
1,1,2,2-Tetrachloroethane	0.50	N.D.
Tetrachloroethene	**0.50**	**4.1**
1,1,1-Trichloroethane	**0.50**	**3.9**
1,1,2-Trichloroethane	0.50	N.D.
Trichloroethene	0.50	N.D.
Trichlorofluoromethane	1.0	N.D.
Vinyl chloride	2.0	N.D.

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

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 1300 Davis St., San Leandro	Sampled:	May 24, 1991
P.O. Box 996	Sample Descript:	Water, MW-5	Received:	May 28, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8010	Analyzed:	Jun 4, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	105-0923 D-E	Reported:	Jun 11, 1991

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane	1.0	N.D.
Bromoform	1.0	N.D.
Bromomethane	1.0	N.D.
Carbon tetrachloride	1.0	N.D.
Chlorobenzene	1.0	N.D.
Chloroethane	5.0	N.D.
2-Chloroethylvinyl ether	1.0	N.D.
Chloroform	0.50	N.D.
Chloromethane	0.50	N.D.
Dibromochloromethane	0.50	N.D.
1,2-Dichlorobenzene	2.0	N.D.
1,3-Dichlorobenzene	2.0	N.D.
1,4-Dichlorobenzene	2.0	N.D.
1,1-Dichloroethane	0.50	N.D.
1,2-Dichloroethane	0.50	N.D.
1,1-Dichloroethene	1.0	N.D.
cis-1,2-Dichloroethene	1.0	N.D.
trans-1,2-Dichloroethene	1.0	N.D.
1,2-Dichloropropane	0.50	N.D.
cis-1,3-Dichloropropene	5.0	N.D.
trans-1,3-Dichloropropene	5.0	N.D.
Methylene chloride	2.0	N.D.
1,1,2,2-Tetrachloroethane	0.50	N.D.
Tetrachloroethene	**0.50**	**0.89**
1,1,1-Trichloroethane	0.50	N.D.
1,1,2-Trichloroethane	0.50	N.D.
Trichloroethene	0.50	N.D.
Trichlorofluoromethane	1.0	N.D.
Vinyl chloride	2.0	N.D.

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

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 1300 Davis St., San Leandro	Sampled:	May 24, 1991
P.O. Box 996	Sample Descript:	Water, MW-6	Received:	May 28, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8010	Analyzed:	Jun 4, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	105-0924 D-E	Reported:	Jun 11, 1991

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane	1.0	N.D.
Bromoform	1.0	N.D.
Bromomethane	1.0	N.D.
Carbon tetrachloride	1.0	N.D.
Chlorobenzene	1.0	N.D.
Chloroethane	5.0	N.D.
2-Chloroethylvinyl ether	1.0	N.D.
Chloroform	0.50	N.D.
Chloromethane	**0.50**	**5.6**
Dibromochloromethane	0.50	N.D.
1,2-Dichlorobenzene	2.0	N.D.
1,3-Dichlorobenzene	2.0	N.D.
1,4-Dichlorobenzene	2.0	N.D.
1,1-Dichloroethane	0.50	N.D.
1,2-Dichloroethane	0.50	N.D.
1,1-Dichloroethene	1.0	N.D.
cis-1,2-Dichloroethene	1.0	N.D.
trans-1,2-Dichloroethene	1.0	N.D.
1,2-Dichloropropane	0.50	N.D.
cis-1,3-Dichloropropene	5.0	N.D.
trans-1,3-Dichloropropene	5.0	N.D.
Methylene chloride	2.0	N.D.
1,1,2,2-Tetrachloroethane	0.50	N.D.
Tetrachloroethene	**0.50**	**0.88**
1,1,1-Trichloroethane	0.50	N.D.
1,1,2-Trichloroethane	0.50	N.D.
Trichloroethene	0.50	N.D.
Trichlorofluoromethane	1.0	N.D.
Vinyl chloride	2.0	N.D.

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

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Belinda C. Vega
Laboratory Director

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 1300 Davis St., San Leandro	Sampled: - - - - - -
P.O. Box 996	Sample Descript:	D I Blank	Received: - - - - - -
Benicia, CA 94510	Analysis Method:	EPA 5030/8010	Analyzed: Jun 4, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	- - - - - - D-E	Reported: Jun 11, 1991

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane	1.0	N.D.
Bromoform	1.0	N.D.
Bromomethane	1.0	N.D.
Carbon tetrachloride	1.0	N.D.
Chlorobenzene	1.0	N.D.
Chloroethane	5.0	N.D.
2-Chloroethylvinyl ether	1.0	N.D.
Chloroform	0.50	N.D.
Chloromethane	0.50	N.D.
Dibromochloromethane	0.50	N.D.
1,2-Dichlorobenzene	2.0	N.D.
1,3-Dichlorobenzene	2.0	N.D.
1,4-Dichlorobenzene	2.0	N.D.
1,1-Dichloroethane	0.50	N.D.
1,2-Dichloroethane	0.50	N.D.
1,1-Dichloroethene	1.0	N.D.
cis-1,2-Dichloroethene	1.0	N.D.
trans-1,2-Dichloroethene	1.0	N.D.
1,2-Dichloropropane	0.50	N.D.
cis-1,3-Dichloropropene	5.0	N.D.
trans-1,3-Dichloropropene	5.0	N.D.
Methylene chloride	2.0	N.D.
1,1,2,2-Tetrachloroethane	0.50	N.D.
Tetrachloroethene	0.50	N.D.
1,1,1-Trichloroethane	0.50	N.D.
1,1,2-Trichloroethane	0.50	N.D.
Trichloroethene	0.50	N.D.
Trichlorofluoromethane	1.0	N.D.
Vinyl chloride	2.0	N.D.

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

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

Client Project ID: Unocal, 1300 Davis St., San Leandro
QC Sample Group: 1050919-24
Reported: Jun 11, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	1,1-Dichloroethene	Trichloro-ethene	Chloro-benzene	Benzene	Toluene	Chloro-benzene (PID)
Method:	EPA 8010	EPA 8010	EPA 8010	EPA 8020	EPA 8020	EPA 8020
Analyst:	S. Le	S. Le	S. Le	S. Le	S. Le	S. Le
Reporting Units:	ppb	ppb	ppb	ppb	ppb	ppb
Date Analyzed:	Jun 4, 1991	Jun 4, 1991	Jun 4, 1991	Jun 4, 1991	Jun 4, 1991	Jun 4, 1991
QC Sample #:	105-0794	105-0794	105-0794	105-0794	105-0794	105-0794
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	10	10	10	10	10	10
Conc. Matrix Spike:	7.6	9.5	11	8.7	8.3	9.2
Matrix Spike % Recovery:	76	95	110	87	83	92
Conc. Matrix Spike Dup.:	7.7	9.3	10	8.5	8.3	9.2
Matrix Spike Duplicate % Recovery:	77	93	100	85	83	92
Relative % Difference:	1.3	2.1	9.5	2.3	0	0

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

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

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

Client Project ID: Unocal, 1300 Davis St., San Leandro
QC Sample Group: 1050919-924
Reported: Jun 11, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA 8010	EPA 8010	EPA 8010	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	S. Le	S. Le	S. Le	S. Le	S. Le	S. Le	S. Le
Reporting Units:	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Date Analyzed:	Jun 4, 1991	Jun 4, 1991	Jun 4, 1991	Jun 4, 1991	Jun 4, 1991	Jun 4, 1991	Jun 4, 1991
Sample #:	105-0919	105-0920	105-0921	105-0922	105-0923	105-0924	Blank
Surrogate #1 % Recovery:	120	120	150	160	140	130	120
Surrogate #2 % Recovery:	99	85	89	72	78	85	78

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Laboratory Director

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

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: Vartkes

WITNESSING AGENCY:

SITE NAME & ADDRESS: Unocal / San Leandro
1300 Davis str.

ANALYSES REQUESTED

TURN AROUND TIME: Regular.

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPHG & BTXE	TPHD	TOG (5520 C&F)	8010		REMARKS
MW 1	5/24/91	A.M. 11:00		✓	✓		5	Monitoring Well	✓		✓	✓	1050	9 Δ-E VOA's Preserved
MW 2	"			✓	✓		5	" "	✓		✓	✓	920	& in HCl.
MW 3	"			✓	✓		6	" "	✓	✓	✓	✓	921	Δ-F
MW 4	"			✓	✓		6	" "	✓	✓	✓	✓	922	
MW 5	"			✓	✓		6	" "	✓	✓	✓	✓	923	
MW 6	"	P.M 3:30		✓	✓		5	" "	✓		✓	✓	924	Δ-E

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
M. Tuckfield	5/24/91 4:40	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received by: (Signature)

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

1. Have all samples received for analysis been stored in ice? Yes
2. Will samples remain refrigerated until analyzed? Yes
3. Did any samples received for analysis have head space? No
4. Were samples in appropriate containers and properly