



**KAPREALIAN ENGINEERING, INC.**  
**Consulting Engineers**

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July 31, 1991

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

Attention: Mr. Larry Seto

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

Dear Mr. Seto:

Per the request of Mr. Rick Sisk of Unocal Corporation, enclosed please find our report and work plan/proposal, both dated July 15, 1991, for the above referenced site.

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

Sincerely,

Kaprealian Engineering, Inc.

Judy A. Dewey

jad\82

Enclosure

cc: Rick Sisk, Unocal Corporation

91 JUL 31 11:39



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KEI-P88-1204.P6  
July 15, 1991

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

Attention: Mr. Rick Sisk

RE: Work Plan/Proposal  
Unocal Service Station #2512  
1300 Davis Street  
San Leandro, California

INTRODUCTION

1. 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 work plan/proposal.

Per Unocal Corporation's procedure for site divestments, Kaprealian Engineering Inc.'s (KEI) 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 ppr. Benzene was detected only in samples EB5(20) and EB6(15) at concentrations of 0.12 ppr 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.Q-R1) 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.

Report #1

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.

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.

Report #2

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.

## 2. Hydrology and Regional Geology:

Based on the water level data gathered during the most recent quarter, the ground water flow direction appeared to be approximately due west, with an average hydraulic gradient of approximately .002 on May 24, 1991, relatively unchanged from the previous quarter (see the attached Site Plan, Figure 1). The measured depth to ground water at the site on May 24, 1991 ranged between 16.04 and 16.75 feet. Recent monitoring data are summarized in Table 1.

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 assured 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.

#### PROPOSED FIELD WORK

##### PHASE II - DEFINING THE EXTENT OF SUBSURFACE CONTAMINATION

1. KEI proposes to install one two-inch diameter monitoring wells, designated as MW7 on the attached Site Vicinity Map, using hollow-stem auger equipment. Permits will be obtained from the Alameda County Flood Control District and the City of San Leandro as necessary prior to beginning work.

The well will be drilled about 10 to 15 feet into the saturated zone of the first encountered ground water unless a 5 foot thick clay aquitard is encountered first, at which time drilling will be terminated.

2. Soil samples will be collected at a maximum spacing of 5 foot intervals which should include any significant changes in lithology, at obvious areas of contamination, and at/or within the soil/ground water interface beginning at a depth of about 4 to 5 feet below grade. Sampling for laboratory analyses and lithologic logging purposes will continue until the first water table is encountered. Sampling for lithologic logging purposes only will continue below the water table to the total depth drilled. Classification of soil will be done using the Unified Soils Classification System (USCS) by KEI's field engineer or geologist. Samples will be collected in a California modified split-spoon sampler with two-inch diameter brass liners. The sampler will be advanced ahead of the drilling augers at designated depths by dropping a 140 pound hammer 30 inches. Blow counts will be recorded. Samples will be removed from the sampler and retained in brass liners. The liners will be sealed with aluminum foil, plastic caps and tape. They will be labeled and stored on ice for delivery to a state certified laboratory.
3. Finalized Boring Logs will be prepared from field logs and submitted to the Alameda County Flood Control District and to the Regional Water Quality Control Board (RWQCB), San Francisco Bay Region.

4. Ground water is anticipated to stabilize at approximately 16 to 17 feet below grade based on the ground water level found in the existing monitoring wells. Also, ground water may not be encountered during drilling activities until a depth of about 20 to 22 feet based on our most recent drilling activities at this site.

5. Well Construction:

Casing Type: Schedule 40 PVC, flush threaded joints, 0.010 inch factory slot, two-inch diameter. Screen to run from total depth of the well to approximately 5 feet above the depth of the first encountered ground water. Monterey sand (#2/16) will fill the annular space from total depth to 2 feet above the perforated casing interval. A two foot thick bentonite seal will be placed in the annular space on top of the sand pack. Neat cement grout will be placed on top of the bentonite seal to the surface.

The well casing will be secured with a waterproof cap and a padlock. A round, watertight, flush-mounted well cover will be concreted in place over the top of each casing.

6. Water level will be measured with an electronic sounder. The well will be developed using a surface pump approximately one week after well completion. The well will be pumped until expelled water is clear and free of turbidity. Effluent generated during well development will be contained in DOT-approved drums and hauled from the site by a licensed hazardous materials hauler.

The elevation of the well cover and all existing well covers will be surveyed by a licensed land surveyor to Mean Sea Level and to a vertical accuracy of 0.01 feet.

7. Ground Water Sampling:

The well will be purged with a surface bailer a minimum of four casing volumes prior to sampling and at least 72 hours after development. After recovery, samples will be collected using a clean Teflon bailer and promptly decanted into 40 ml VOA vials and/or one liter amber bottles, as appropriate. Vials and/or bottles will be sealed with Teflon-lined screw caps, labeled and stored on ice for delivery to a state certified laboratory. The sampling bailer will be cleaned with soap and a clean water rinse between uses.



All wells will be checked for free product and sheen (using an interface probe and/or paste tape) prior to development and sampling.

Properly executed Chain of Custody documentation will accompany all samples.

8. Laboratory Analyses:

Water and selected soil samples will be analyzed by Sequoia Analytical Laboratory in either Concord or Redwood City, California, both state certified laboratories, for TPH as gasoline using EPA method 5030 in conjunction with modified 8015, TPH as diesel using EPA method 3550 (soil) and 3510 (water) in conjunction with modified 8015, and BTX&E using EPA method 8020, as recommended by the RWQCB, and as specified in the Tri-regional guidelines.

Analytical results will be presented in tabular form, showing sample depths, results and detection limits.

The analytical results will be used to delineate the vertical and lateral extent of the contaminants in soil and ground water.

9. Hydrology:

Ground water flow direction will be determined from the survey data and water table depths from both the new and existing wells. The flow direction will be shown on the Site Plan and Site Vicinity Map.

10. Ongoing Pumping, Monitoring and Sampling:

10.1 Monitor all monitoring wells on-site on a monthly basis. Record the elevation of the water table and any abnormal conditions noted during inspection, including presence of product and sheen.

10.2 Purge and sample ground water from all monitoring wells, except MW1 and MW5, and analyze for TPH as gasoline and BTX&E on a quarterly basis. In addition, ground water from MW3, MW4 and MW7, will be analyzed for TPH as diesel and also, ground water from all wells will be analyzed for EPA method 8010 constituents. Prior to sampling, water table elevation will be recorded as well as the presence of any free product.

10.3 MW3 should be purged twice a month of 55 gallons of water.

10.4 Preparation and submission of quarterly technical reports summarizing the field activity water sampling and analyses with discussion and recommendations.

11. Conclusions:

Conclusions and results of Phase II will be described in a technical report.

The technical report will be submitted to the Alameda County Health Care Services, and to the RWQCB.

LIMITATIONS

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

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

KEI-P88-1204.P6  
July 15, 1991  
Page 10

Should you have any questions regarding this work plan/proposal,  
please do not hesitate to call me at (707) 746-6915.

Approved by:



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Don R. Braun  
Certified Engineering Geologist

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



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Timothy R. Ross  
Project Manager

/bam

Attachments: Tables 1 through 4  
Location Map  
Site Vicinity Map  
Site Plans - Figures 1 & 2  
Typical Well Completion Diagram

KEI-P88-1204.P6  
July 15, 1991

TABLE 1

SUMMARY OF MONITORING DATA

<u>Well No.</u>	<u>Ground Water Elevation (feet)</u>	<u>Depth to Water (feet)</u>	<u>Product Thickness (feet)</u>	<u>Sheen</u>	<u>Water Purged (gallons)</u>	<u>Product Purged (gallons)</u>
(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

KEI-P88-1204.P6  
July 15, 1991

TABLE 1 (Continued)

SUMMARY OF MONITORING DATA

<u>Well #</u>	<u>Surface Elevation*</u> <u>(feet)</u>
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.

KEI-P88-1204.P6  
 July 15, 1991

TABLE 2

SUMMARY OF LABORATORY ANALYSES  
 WATER

<u>Date</u>	<u>Sample Well #</u>	<u>TPH as Diesel</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethyl-benzene</u>	<u>TOG (ppm)</u>	
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	

KEI-P88-1204.P6

July 15, 1991

TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES  
WATER

<u>Date</u>	<u>Sample Well #</u>	<u>TPH as Diesel</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethyl-benzene</u>	<u>TOG (ppm)</u>
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.

KEI-P88-1204.P6  
July 15, 1991

TABLE 2a  
SUMMARY OF LABORATORY ANALYSES  
WATER

<u>Date</u>	<u>Sample Well #</u>	<u>Tetrachloro-ethene</u>	<u>1,1-Dichloro-ethane</u>	<u>1,1,1-Trichloro-ethane</u>	<u>Chloro-methane</u>
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.



KEI-P88-1204.P6  
 July 15, 1991

TABLE 3

SUMMARY OF LABORATORY ANALYSES  
 SOIL

<u>Sample Number</u>	<u>Depth (feet)</u>	<u>TPH as Diesel</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethyl-benzene</u>	<u>TOG</u>
(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.P6  
 July 15, 1991

TABLE 3 (Continued)

SUMMARY OF LABORATORY ANALYSES  
 SOIL

<u>Sample Number</u>	<u>Depth (feet)</u>	<u>TPH as Diesel</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethyl-benzene</u>	<u>TOG</u>
(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.P6  
July 15, 1991

TABLE 4  
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>Xylenes</u>	<u>Ethyl-benzene</u>
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

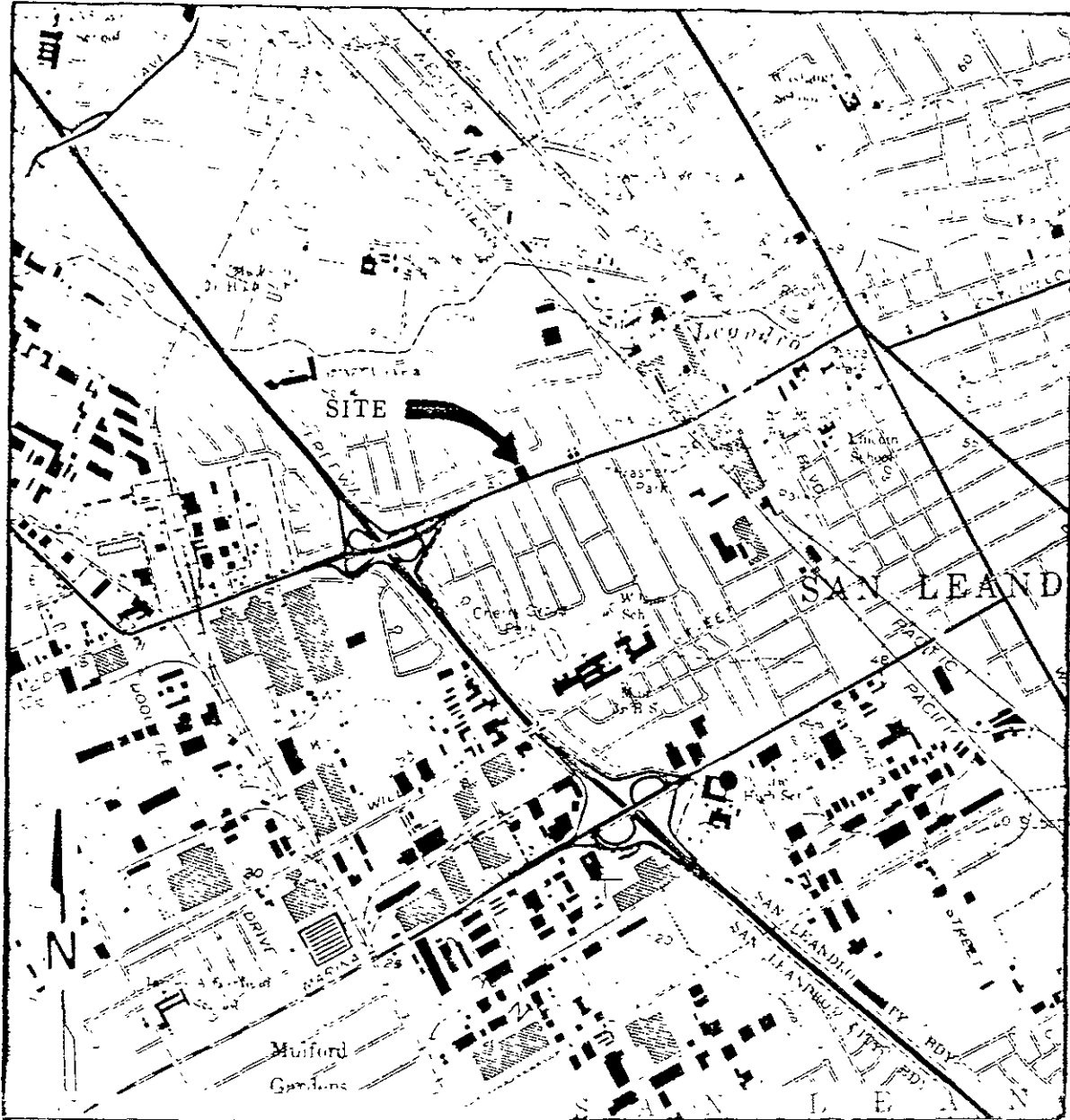
-- Indicates analysis not performed.

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



**KAPREALIAN ENGINEERING, INC.**  
*Consulting Engineers*

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



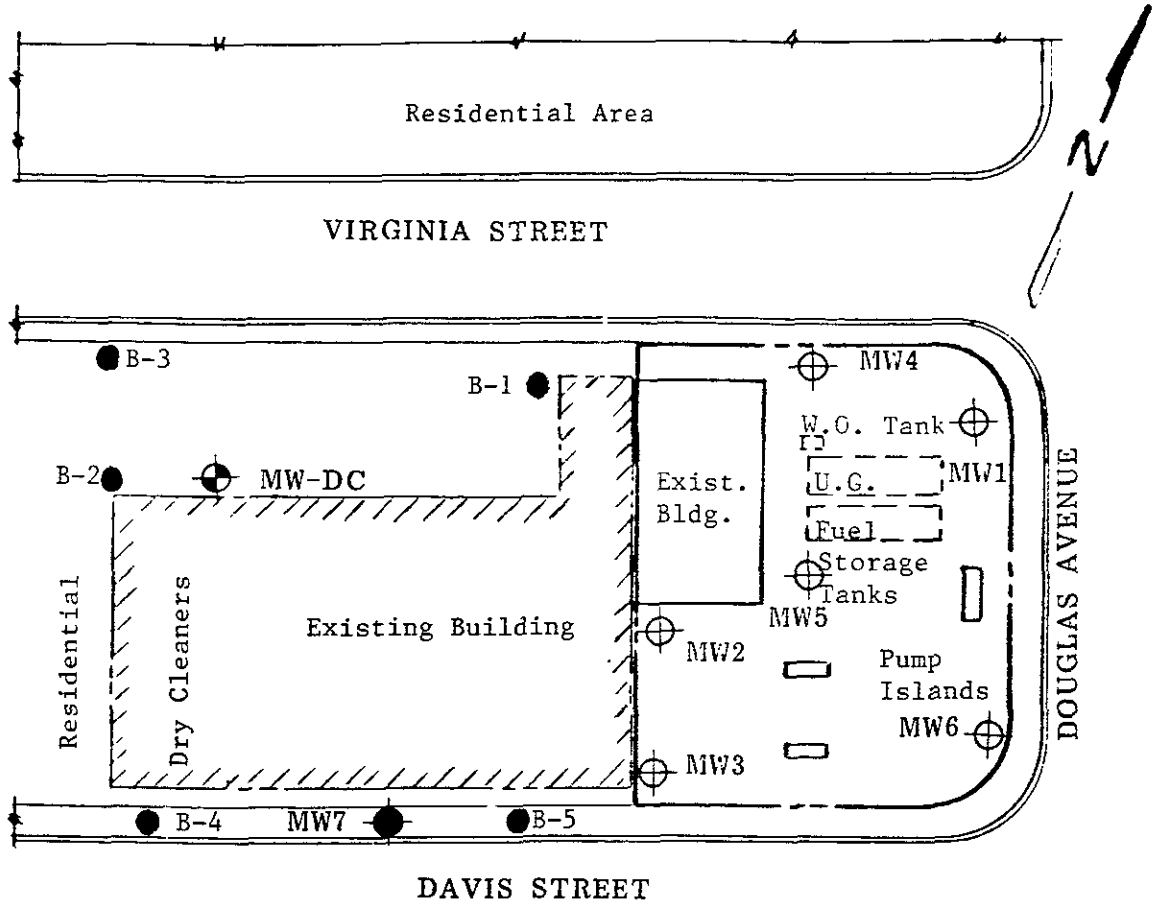
LOCATION MAP

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



**KAPREALIAN ENGINEERING, INC.**  
*Consulting Engineers*

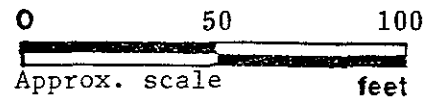
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SITE VICINITY MAP

LEGEND

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



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

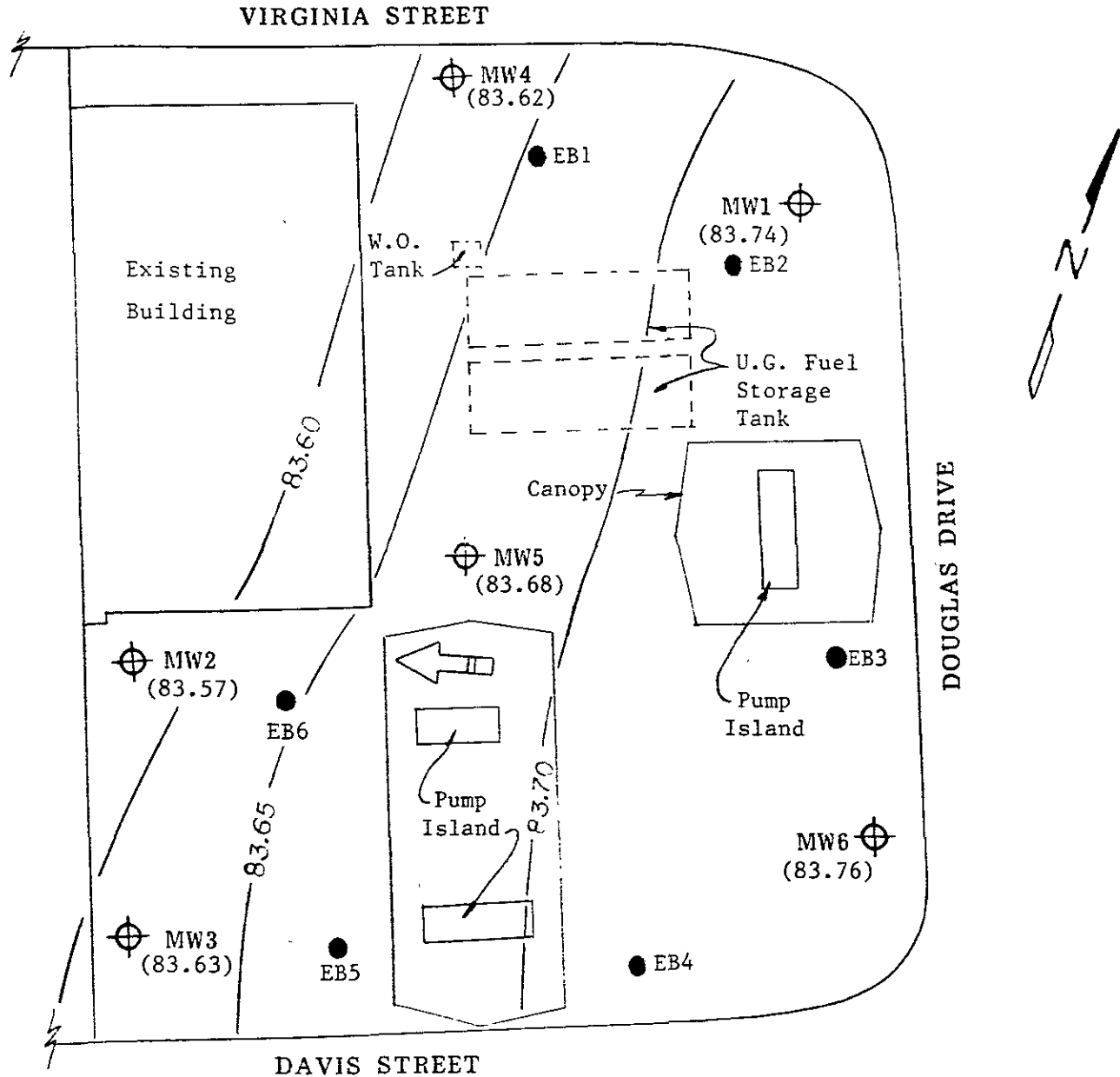


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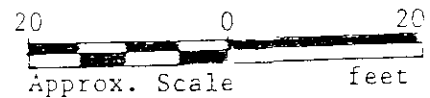
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SITE PLAN

Figure 1

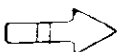


LEGEND



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