KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P.O. BOX 996 • BENICIA, CA 94510
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581

91 OCT -8 AM 1:55

October 7, 1991

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

Attention: ~~Mr. Larry Seto~~

RE: Unocal Service Station #7004
15599 Hesperian Boulevard
San Leandro, California

Dear Mr. Seto:

Per the request of Mr. Rick Sisk of Unocal Corporation, enclosed please find our report dated August 16, 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

reviewed 12/20/91
SAS

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P.O. BOX 996 • BENICIA, CA 94510
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581

KEI-P90-1003.R5
August 16, 1991

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

Attention: Mr. Rick Sisk

RE: **Continuing Ground Water Investigation at**
Unocal Service Station #7004
15599 Hesperian Boulevard
San Leandro, California 94578

Dear Mr. Sisk:

This report presents the results of Kaprealian Engineering, Inc's. (KEI) soil and ground water investigation for the referenced site, in accordance with KEI's proposal KEI-P90-1003.P2 dated May 31, 1991. The purpose of the investigation was to determine the degree and extent of ground water contamination at the site. The scope of the work performed by KEI consisted of the following:

Coordination with regulatory agencies.

Geologic logging of three borings for the installation of three monitoring wells.

Soil sampling.

Ground water monitoring, purging and sampling.

Laboratory analyses.

Data analysis, interpretation and report preparation.

SITE DESCRIPTION AND BACKGROUND

The subject site is presently used as a self-service gasoline station, and is located adjacent to a Kragen Auto Parts store. The site is situated on gently sloping, southwest trending topography, and is located approximately 700 to 800 feet northeast of San Lorenzo Creek, and 2.1 miles northeast of the present shoreline of San Francisco Bay. A former Chevron Service Station is located approximately 450 feet north-northeast from Unocal, at the intersection of Sycamore Street and Hesperian Boulevard. A Location Map and Site Plans are attached to this report.

KEI's initial field work was conducted on October 12, 1990, when three underground fuel storage tanks were removed from the site. The tanks consisted of one 12,000 gallon super unleaded fuel storage tank, and two 12,000 gallon regular unleaded fuel storage tanks. The tanks were made of steel and no apparent holes or cracks were observed in the tanks.

Nine soil samples, labeled A1, A2, A3, B1, B2, B3, C1, C2 and C3, were collected from beneath the fuel tanks at depths of approximately 14 to 15 feet below grade. Sample locations are as shown on the attached Site Plan, Figure 2.

In an attempt to remove as much of the contaminated soil as possible, KEI returned to the site on October 19, 1990, in order to observe additional soil excavation in the fuel tank pit. Soil was excavated from a depth below grade of 15 feet to a depth of 19 feet. Water was encountered in the fuel tank pit at a depth of approximately 18.5 feet, thus prohibiting the collection of any additional soil samples from the bottom of the fuel tank pit. Four soil samples, labeled SW1 through SW4, were collected from trenches that were excavated near the sidewalls of the fuel tank pit, approximately six inches above the observed water table, and at lateral distances of 2, 4, 17 and 4 feet, respectively, from the original tank pit sidewalls. Sample point locations are as shown on the attached Site Plan, Figure 2.

KEI returned to the site on October 22, 1990, in order to complete the fuel tank pit sidewall sampling. One soil sample, labeled SW5, was collected from the south sidewall at a depth of about 18 feet below grade. Due to obvious contamination observed in the area of sample point SW5, one additional soil sample, labeled SW5(20), was collected from a trench that was excavated to a depth of 18 feet, and to a lateral distance of 20 feet from the original tank pit south sidewall.

After soil sampling was completed, the entire fuel tank pit was excavated 4 feet laterally and to a depth of approximately 19 feet. Following soil excavation, approximately 5,000 gallons of ground water were pumped from the fuel tank pit. On October 24, 1990, one water sample, labeled W1, was collected from the fuel tank pit.

KEI returned to the site on October 31, 1990, in order to collect soil samples from the product pipe trenches. Four samples, labeled P1 through P4, were collected from the pipe trenches at depths ranging from 2.5 to 3 feet below grade. After additional excavation in the area of sample point P2, one soil sample, labeled P2(7.5), was collected directly beneath sample point P2 at a depth of 7.5 feet below grade. After the soil sampling was completed, pipe trenches were excavated to the depth of the sample points.

After reviewing the laboratory analyses and in an attempt to remove as much of the contaminated soil as possible, KEI returned to the site on November 2, 1990, in order to observe additional soil excavation in the area of sample points P1 and P3. Additional soil samples, labeled P1(8) and P3(5.5), were collected at depths of 8 and 5.5 feet, respectively, beneath the initial sample points. Sample point locations are shown on the attached Site Plan, Figure 2.

All samples were analyzed by Sequoia Analytical Laboratory in Concord, California. All soil and water samples were analyzed for total petroleum hydrocarbons (TPH) as gasoline using EPA method 5030 in conjunction with modified 8015, and benzene, toluene, xylenes and ethylbenzene (BTX&E) using EPA method 8020.

Analytical results of the soil samples, collected from beneath the fuel tanks, indicated levels of TPH as gasoline ranging from 180 ppm to 1,900 ppm, and benzene ranging from 0.64 ppm to 9.7 ppm. Samples collected from the fuel tank pit sidewalls showed levels of TPH as gasoline ranging from non-detectable to 4.5 ppm, except for sample SW5, which showed 998 ppm of TPH as gasoline. However, the additional sample SW5(20), collected at a depth of 18 feet and a lateral distance of 16 feet from sample SW5, indicated 30 ppm of TPH as gasoline.

Analytical results of soil samples P1 through P4, collected from the pipe trenches, indicated levels of TPH as gasoline at 1,400 ppm, 3,900 ppm, 100 ppm and 19 ppm, respectively. However, after additional excavation, the levels of TPH as gasoline in samples P1(8), P2(7.5) and P3(5.5), collected beneath the samples P1, P2 and P3, respectively, were detected at 5.7 ppm, 20 ppm and 9.8 ppm, respectively. Results of the soil analyses are summarized in Table 5.

Analytical results of the water sample (W1), collected from the fuel tank pit, indicated 4,300 ppb of TPH as gasoline and 40 ppb of benzene. The results of the water analyses are summarized in Table 6.

Documentation of sampling techniques and analytical results of the soil and ground water samples from the tank excavation are summarized in KEI's report (KEI-J90-1003.R1) dated November 26, 1990. To comply with the requirements of the regulatory agencies and based on the analytical results, KEI proposed the installation of three monitoring wells.

On April 22, 1991, 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 monitoring wells were each

drilled and completed to a total depth of 25 feet below grade. Ground water was encountered at depths ranging from 16.5 to 18 feet beneath the surface during drilling. 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 feet. The wells were developed on April 23, and were initially sampled on May 4, 1991.

Water and selected soil samples collected from MW1, MW2 and MW3 were analyzed at Sequoia Analytical Laboratory in Concord, California. Soil and water samples were analyzed for TPH as gasoline and BTX&E.

Analytical results of the soil samples, collected from the borings for monitoring wells MW1, MW2 and MW3, indicated levels of TPH as gasoline and benzene ranging from non-detectable to 6.8 ppm, and non-detectable to 0.025 ppm, respectively, except for samples MW3(15) and MW3(17.5), collected from depths of 15 feet and 17.5 feet, respectively, which showed TPH as gasoline levels of 4,800 ppm and 1,000 ppm, and benzene levels of 23 ppm and 8.4 ppm, respectively.

Analytical results of the ground water samples collected from monitoring wells MW1 and MW2 indicated non-detectable levels of TPH as gasoline and BTX&E. In well MW3, TPH as gasoline was detected at 34,000 ppb, and benzene was detected at 6,100 ppb. Results of the soil analyses are summarized in Table 4, and the water analyses in Table 2.

Based on results of the preliminary investigation, KEI proposed the installation of three additional monitoring wells. Documentation of well installation protocol, sampling techniques, and analytical results of the preliminary ground water investigation are presented in KEI's report (KEI-P90-1003.R4) dated May 31, 1991.

RECENT FIELD ACTIVITIES

On July 2, 1991, three two-inch diameter monitoring wells (designated as MW4, MW5 and MW6 on the attached Site Plan, Figure 1) were installed at the site. The wells were drilled, constructed and completed in accordance with the guidelines of the Regional Water Quality Control Board (RWQCB), and California Well Standards per Bulletin 74-90.

The subsurface materials penetrated and details of the construction of the wells are described in the attached Boring Logs.

The three wells were each drilled and completed to total depths of 26 feet. Ground water was encountered at depths ranging from 17.5

to 20.5 feet beneath the surface during drilling. Soil samples were taken for laboratory analysis and for lithologic logging purposes at a maximum spacing of 5 foot intervals, at significant changes in lithology, at obvious areas of contamination, and at or within the soil/ground water interface, beginning at a depth of approximately 4.5 feet below grade until ground water was encountered. Soil sampling conducted below the ground water table was for lithologic logging purposes only. The undisturbed soil samples were taken by driving a California-modified split-spoon sampler ahead of the drilling augers. The two-inch diameter brass liners holding the samples were sealed with aluminum foil, plastic caps and tape, and stored in a cooled ice chest for delivery to a certified laboratory. Each well casing was installed with a watertight cap and padlock. A round, watertight, flush-mounted well cover was cemented in place over each well casing.

The surface of each well cover was surveyed by Kier & Wright of Pleasanton, California, to MSL and to a vertical accuracy of 0.01 feet.

Monitoring wells MW4, MW5 and MW6 were developed on July 15, 1991. Prior to development, all wells were checked for depth to water table using an electronic sounder, presence of free product (using an interface probe or paste tape) and sheen. No free product or sheen was noted in any of the wells. After recording the monitoring data, wells MW4, MW5 and MW6 were purged with a surface pump of 55 to 85 gallons until the evacuated water was clear and free of suspended sediment. Monitoring and well development data are summarized in Table 1.

All wells were sampled on July 23, 1991. Prior to sampling, monitoring data were collected, the wells were each purged of 15 gallons, and water samples were then collected using a clean Teflon bailer. The samples were decanted into clean glass VOA vials, sealed with Teflon-lined screw caps, and labeled and stored on ice until delivery to a certified laboratory.

ANALYTICAL RESULTS

Water samples from all wells, and selected soil samples collected from the borings of MW4, MW5, and MW6, were analyzed at Sequoia Analytical Laboratory in Concord, California. All samples analyzed were accompanied by properly executed Chain of Custody documentation. The samples were analyzed for TPH as gasoline by EPA method 5030 in conjunction with modified 8015, and BTX&E by EPA method 8020.

Analytical results of the soil samples collected from the borings of wells MW4, MW5 and MW6 indicate non-detectable levels of TPH as

gasoline and benzene in all analyzed samples. Analytical results of the water samples collected from monitoring wells MW1, MW2, MW4 and MW6 indicate non-detectable levels of TPH as gasoline and BTX&E. **In wells MW3 and MW5, levels of TPH as gasoline were detected at concentrations of 17,000 ppb and 260 ppb, respectively, and benzene levels were detected at concentrations of 5,500 ppb and 1.2 ppb, respectively.** Results of the soil analyses are summarized in Table 3, and water analyses in Table 2. Concentrations of TPH as gasoline and benzene that were detected in ground water samples collected on July 23, 1991, are shown on the attached Site Plan, Figure 1a. Copies of the laboratory analyses and Chain of Custody documentation are attached to this report.

HYDROLOGY AND GEOLOGY

The water table stabilized in the monitoring wells at depths ranging from 15.48 to 17.17 feet below the surface. Ground water flow direction appeared to be toward the southwest on July 23, 1991, with an average hydraulic gradient of approximately 0.002 (based on water level data collected from the monitoring wells prior to purging and sampling).

Based on review of regional geologic maps (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 Holocene Coarse-grained Alluvium (Qhac). The coarse-grained alluvium is described as typically consisting of unconsolidated, moderately sorted, permeable sand and silt with a thickness ranging from less than 10 feet to as much as 50 feet.

The results of our previous subsurface study (the installation of monitoring wells MW1, MW2, and MW3) indicated that the site is underlain by artificial fill materials to depths below grade of 1-1/2 to about 3-1/2 feet. The fill materials are inturn underlain predominantly be silty clay and clayey silt materials to the maximum depth drilled (25 feet). However, two distinct sand lenses (varying from about 2-1/2 to 3-3/4 feet in thickness) were encountered. The upper sand lens was encountered at depths of about 10 to 13-1/4 feet at MW2 and about 8-1/4 to 12 feet at MW1, but was not encountered at MW3. The deeper and generally saturated clayey sand lens was encountered at depths below grade of about 17-1/2 to 20 feet at MW3 and at about 16-1/2 to 19-3/4 feet at MW2. This deeper saturated clayey land lens was not observed at MW1; however, the interval below 16-1/2 to 20 feet was not sampled and it is therefore inferred that this deeper clayey sand lens may be present at MW1 and thus represents the upper aquifer at the subject site.

The results of our recent subsurface study (the installation of monitoring wells MW4, MW5, and MW6) indicate that the site is directly underlain by fill materials extending to depths below grade of about 2 to 3-1/2 feet. The fill materials are inturn underlain by clayey silt and/or silty clay materials to depths below grade of about 8 feet, which are inturn underlain by a 2 to 3 foot thick bed of well-graded sand to depths of about 10 to 11 feet; except at MW4, where the fill materials are underlain by silt to a depth of about 4 feet, and silt with interbedded poorly graded sand lenses to a depth below grade of about 12 feet. The above soil materials are inturn underlain by clay and/or silt materials to depths below grade of about 20 to 20.5 feet. However, at MW4, a one foot thick lens of silty sand was encountered at a depth of about 17.5 to 18.5 feet below grade, but was not observed in MW5 or MW6. This second clay and/or silt zone is inturn underlain by a laterally consistent silty sand bed, which is about 2 to 3 feet thick and extends to depths of about 22 to 23 feet. The silty sand bed is inturn underlain by a silty clay zone extending to at least the maximum depth explored.

DISCUSSION AND RECOMMENDATIONS

Based on the analytical results, **KEI recommends continuation of the monthly monitoring and quarterly sampling program.** Results of the monitoring program will be documented and evaluated after each monitoring and sampling event. Recommendations for altering or terminating the program will be made as needed.

As shown on the attached Site Plan, Figure 1a, the extent of ground water contamination appears to be confined to the vicinity of wells MW3 and MW5, both located directly downgradient of the underground fuel tank pit. Therefore, **KEI recommends monthly purging of well MW3, in an attempt to reduce the levels of contamination detected in the ground water in the vicinity of this well.**

DISTRIBUTION

A copy of this report should be sent to the Alameda County Health Care Services Agency, to Mr. Michael Bakaldin of the City of San Leandro Fire Department, and to the RWQCB, San Francisco Bay Region.

LIMITATIONS

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

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

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

Sincerely,

Kaprealian Engineering, Inc.

Thomas J. Berkins

Thomas J. Berkins
Senior Environmental Engineer

Don R. Braun

Don R. Braun
Certified Engineering Geologist

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

Timothy R. Ross

Timothy R. Ross
Project Manager

Attachments: Tables 1 through 6
Location Map
Site Plans - Figures 1 , 1a & 2
Boring Logs
Laboratory Results
Chain of Custody documentation

KEI-P90-1003.R5
August 16, 1991

TABLE 1

SUMMARY OF GROUND WATER MONITORING AND PURGING DATA

Well #	Ground Water Elevation (feet)	Depth to Water (feet)	Product Thickness	Sheen	Gallons Pumped
(Monitored and Developed on July 15, 1991)					
MW1*	20.63	16.26	0	No	0
MW2*	20.67	16.68	0	No	0
MW3*	20.52	16.70	0	No	0
MW4	20.45	15.36	0	No	85
MW5	20.34	16.67	0	No	81
MW6	20.49	17.06	0	No	55
(Monitored and Sampled on July 23, 1991)					
MW1	20.53	16.36	0	No	15
MW2	20.57	16.78	0	No	15
MW3	20.42	16.80	0	No	15
MW4	20.33	15.48	0	No	15
MW5	20.28	16.73	0	No	15
MW6	20.38	17.17	0	No	15

Well #	Surface Elevation** (feet)
MW1	36.89
MW2	37.35
MW3	37.22
MW4	35.81
MW5	37.01
MW6	37.55

* Monitored only.

** Elevation of top of well covers surveyed to MSL by Kier & Wright of Pleasanton, California.

KEI-P90-1003.R5
August 16, 1991

TABLE 2

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Sample Number	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene
7/23/91	MW1	ND	ND	ND	ND	ND
	MW2	ND	ND	ND	ND	ND
	MW3	17,000	5,500	26	2,800	1,800
	MW4	ND	ND	ND	ND	ND
	MW5	260	1.2	0.39	0.71	10
	MW6	ND	ND	ND	ND	ND
5/04/91	MW1	ND	ND	ND	ND	ND
	MW2	ND	ND	ND	ND	ND
	MW3	34,000	6,100	32	6,100	1,200
Detection Limits		30	0.3	0.3	0.3	0.3

ND = Non-detectable.

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

KEI-P90-1003.R5
August 16, 1991

TABLE 3

SUMMARY OF LABORATORY ANALYSES
SOIL

Date	Sample Number	Depth (feet)	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene
7/02/91	MW4(5)	5.0	ND	ND	0.0084	ND	ND
	MW4(10)	10.0	ND	ND	0.0051	ND	ND
	MW4(15)	15.0	ND	ND	0.016	0.017	ND
	MW4(17)	17.0	ND	ND	0.015	0.015	ND
	MW5(5)	5.0	ND	ND	0.030	ND	ND
	MW5(10)	10.0	ND	ND	0.0074	0.012	ND
	MW5(15)	15.0	ND	ND	0.011	0.0094	ND
	MW5(17.5)	17.5	ND	ND	0.0098	0.0077	0.0052
	MW6(5)	5.0	ND	ND	0.0086	ND	ND
	MW6(10)	10.0	ND	ND	0.0061	ND	ND
	MW6(15)	15.0	ND	ND	ND	ND	ND
	MW6(17.5)	17.5	ND	ND	0.0084	0.0063	ND
Detection Limits			1.0	0.0050	0.0050	0.0050	0.0050

ND = Non-detectable.

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

KEI-P90-1003.R5
August 16, 1991

TABLE 4

SUMMARY OF LABORATORY ANALYSES
SOIL

Date	Sample Number	Depth (feet)	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene
4/22/91	MW1(5)	5.0	ND	ND	ND	0.012	ND
	MW1(10)	10.0	ND	ND	ND	ND	ND
	MW1(16)	16.0	1.5	ND	ND	ND	ND
	MW2(5)	5.0	4.5	0.015	ND	0.079	0.034
	MW2(10)	10.0	6.8	0.025	ND	0.043	0.035
	MW2(15.5)	15.5	ND	ND	ND	ND	ND
	MW2(17)	17.0	ND	0.014	ND	ND	ND
	MW3(5)	5.0	2.0	0.025	ND	0.011	ND
	MW3(10)	10.0	ND	0.018	ND	ND	ND
	MW3(15)	15.0	4,800	23	9.1	290	63
	MW3(17.5)	17.5	1,000	8.4	4.6	64	17
Detection Limits			1.0	0.0050	0.0050	0.0050	0.0050

ND = Non-detectable.

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

KEI-P90-1003.R5
August 16, 1991

TABLE 5

SUMMARY OF LABORATORY ANALYSES
SOIL

(Collected on October 12, 19, 22 & 31, and November 2, 1990)

Sample	Depth (feet)	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethylbenzene
A1	14.5	350	2.0	3.6	47	7.7
A2	14.5	480	2.4	7.3	49	7.4
A3	14.0	570	0.97	5.6	50	8.3
B1	15.0	180	0.64	0.84	11	3.0
B2	15.0	1,900	9.7	120	250	33
B3	15.0	990	6.3	52	120	16
C1	15.0	270	0.64	3.7	22	5.4
C2	15.0	1,200	4.9	41	150	24
C3	15.0	590	4.6	23	80	9.4
SW1	18.0	3.7	0.21	0.024	0.42	0.14
SW2	18.0	4.5	0.46	0.024	0.46	0.26
SW3	18.0	4.1	0.024	0.0080	0.088	0.058
SW4	18.0	ND	0.0090	ND	0.0070	ND
SW5	18.0	998	0.58	ND	21	19
SW5(20)	18.0	30	0.054	0.047	0.054	0.46
P1	2.5	1,400	0.22	3.3	72	8.9
P1(8)	8.0	5.7	0.0078	0.0054	0.18	0.033
P2	3.0	3,900	1.1	23	280	41
P2(7.5)	7.5	20	ND	0.11	1.3	0.12
P3	2.5	100	0.057	0.63	12	0.97
P3(5.5)	5.5	9.8	0.015	0.15	1.3	0.13
P4	2.5	19	ND	0.10	0.13	ND
Detection Limits		1.0	0.0050	0.0050	0.0050	0.0050

ND = Non-detectable.

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

KEI-P90-1003.R5
August 16, 1991

TABLE 6

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Sample #	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene
10/24/90	W1	4,300	40	1.9	520	0.54
Detection Limits		30.0	0.3	0.3	0.3	0.3

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

KAPREALIAN ENGINEERING, INC.
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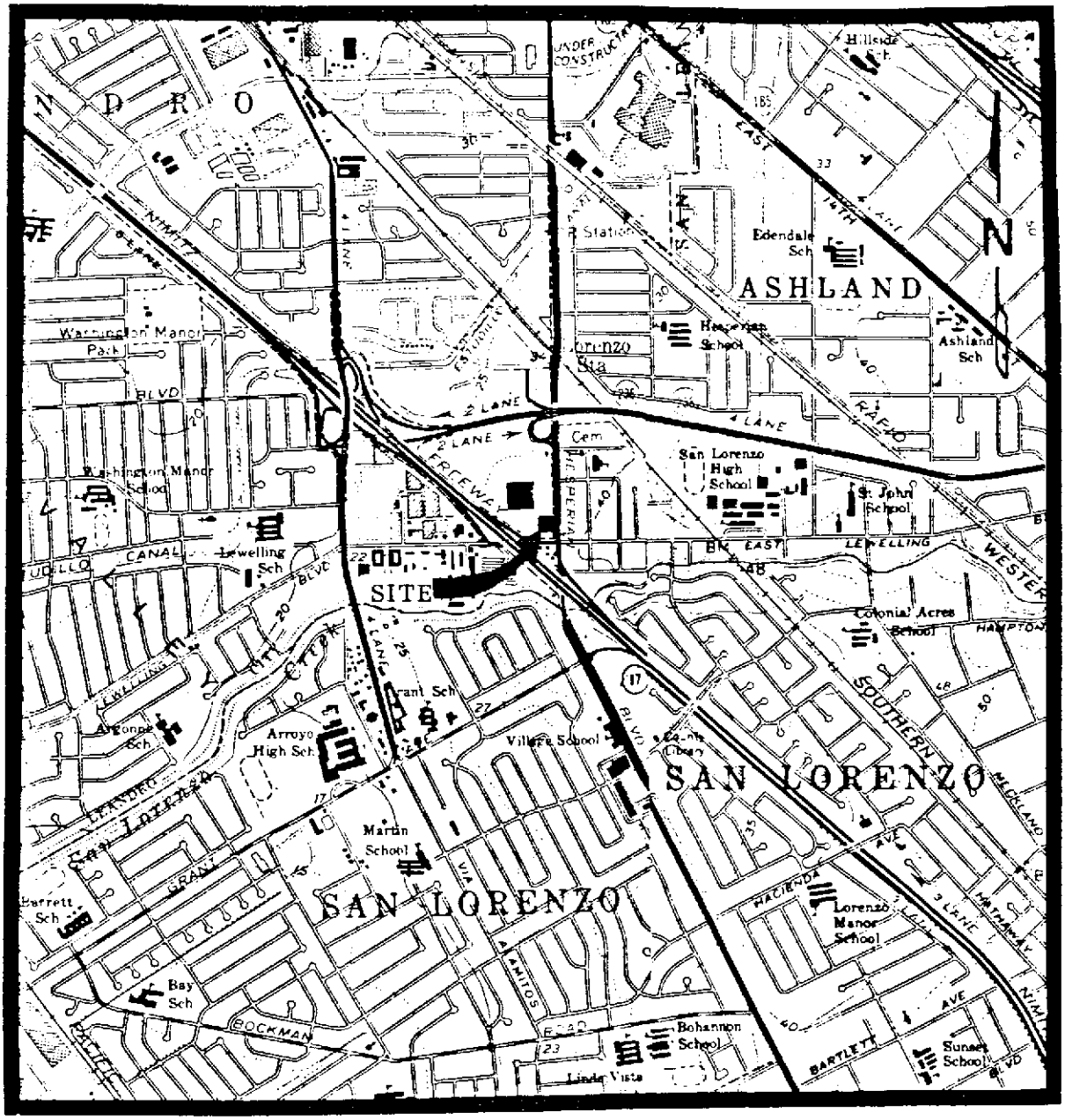

LOCATION MAP

Base from U.S.G.S. 7.5 min. Hayward and San Leandro Quadrangles (photorevised 1980)

Unocal S/S #7004
15599 Hesperian Boulevard
San Leandro, CA

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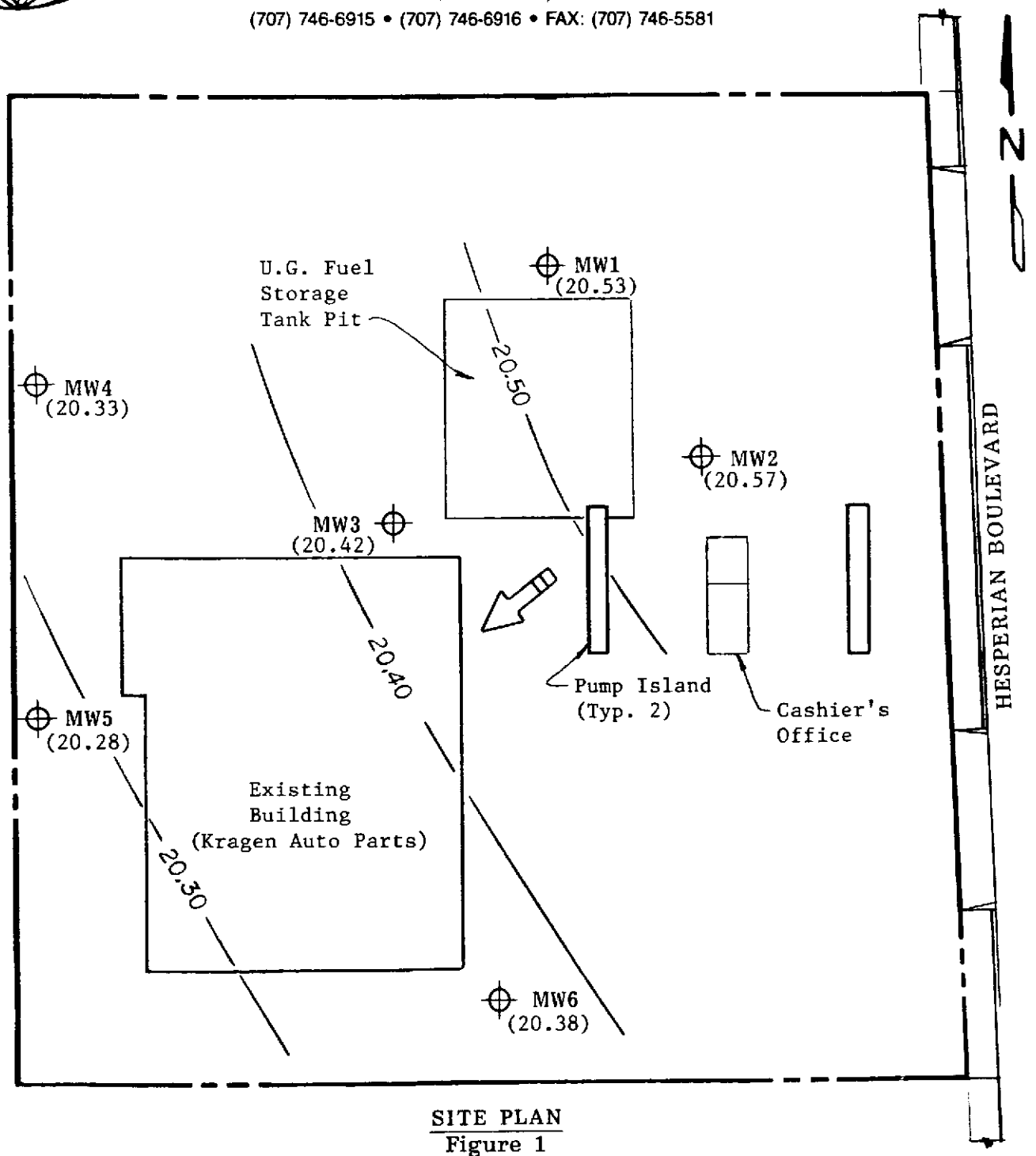

SITE PLAN
Figure 1

LEGEND

- Monitoring well
- ( ) Ground water table elevation in feet above Mean Sea Level on 7/23/91
- Direction of ground water flow
- Contour of equal elevation of water table in feet

0 30 60
Approx. scale feet

Unocal S/S #7004
15599 Hesperian Boulevard
San Leandro, CA

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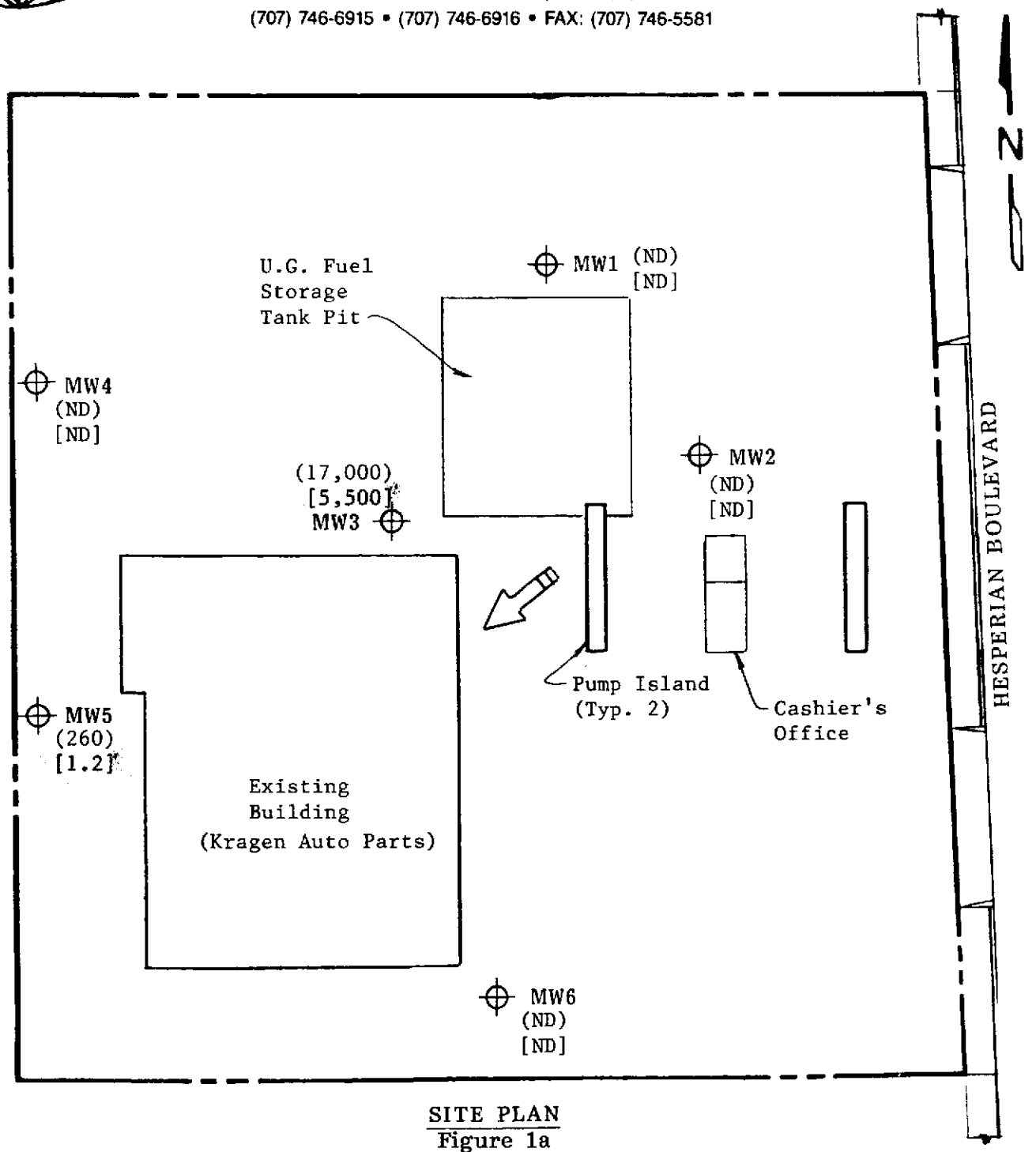

SITE PLAN
Figure 1a

LEGEND

- Monitoring well
- ( ) Concentration of TPH as gasoline in ppb
- [ ] Concentration of benzene in ppb
- Direction of ground water flow

0 30 60
Approx. scale feet

Unocal S/S #7004
15599 Hesperian Boulevard
San Leandro, CA

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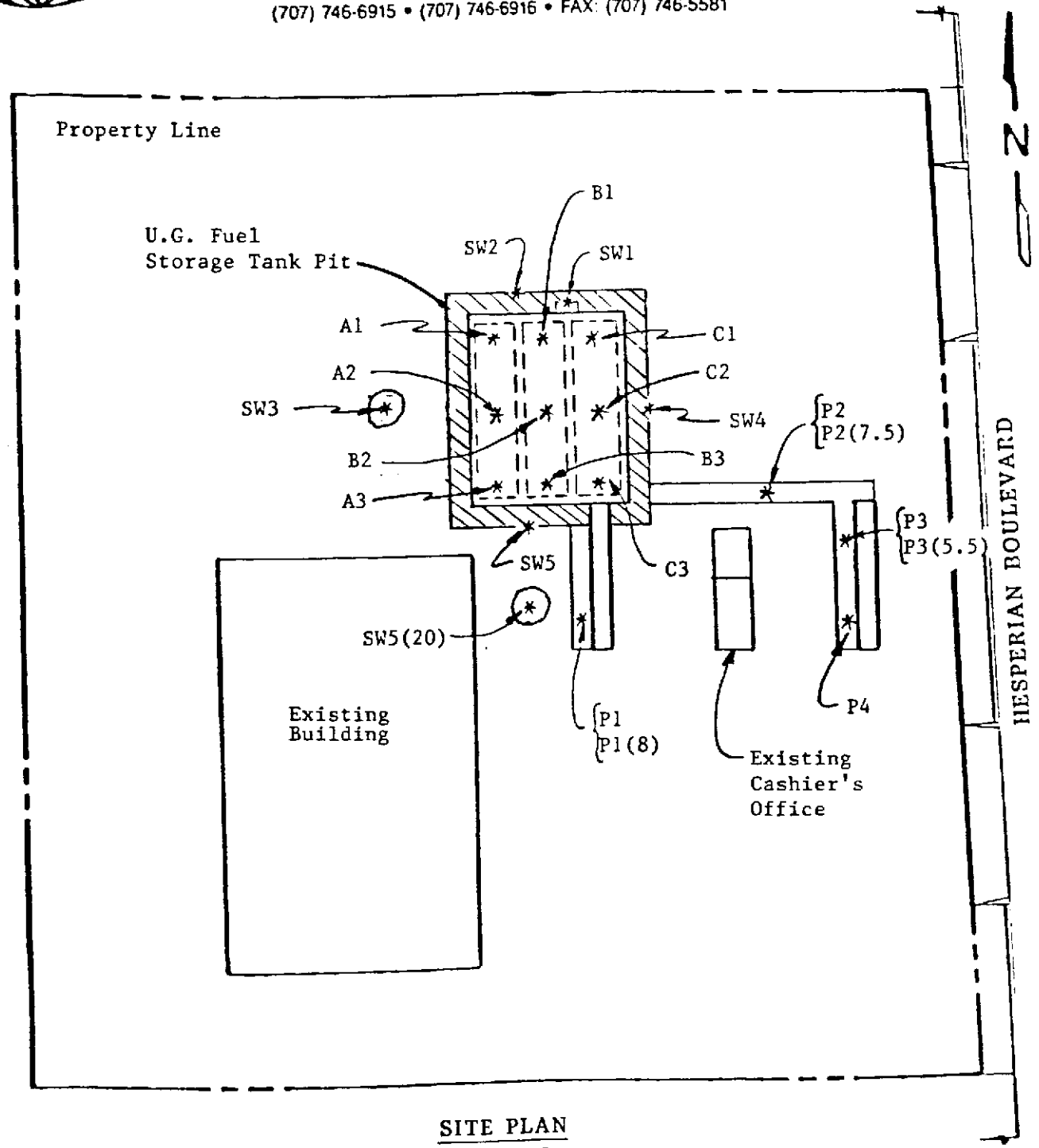


SITE PLAN
Figure 2

0 30 60
Approx. scale feet

LEGEND

* Sample Point Location

▨ Area of Additional Excavation

Unocal S/S #7004
15599 Hesperian Boulevard
San Leandro, CA

BORING LOG

Project No. KEI-P90-1003	**Boring & Casing Diameter** 9" 2"	**Logged By** D.L.
Project Name Unocal San Leandro, Hesper.	**Well Cover Elevation**	**Date Drilled** 7/2/91
Boring No. MW4	**Drilling Method** Hollow-stem Auger	**Drilling Company** EGI

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati-graphy USCS	Description
		0		Asphalt pavement over silt, sand and gravel.
			ML/ MH	Clayey silt, with fine-grained sand, firm, moist, very dark grayish brown.
2/2/2		5	ML with SP	Sandy silt, sand is fine-grained, firm, moist, dark olive gray; interbedded with poorly graded sand, fine-grained, loose, moist, dark grayish brown.
2/2/2		10		Clayey silt, firm, moist, dark greenish gray and dark olive gray, mottled; interbedded with sandy silt, firm, very moist, dark greenish gray; and poorly graded sand, fine-grained, loose, moist, dark greenish gray.
3/3/3		15	CL/ CH	Silty clay, with coarse- to fine-grained sand, firm, moist, veyr dark grayish brown and very dark gray, mottled, with root holes.
2/3/4			CL/ ML	Silty clay to very clayey silt, moist, very dark grayish brown and very dark gray.
	▽		SM	Silty sand, trace clay, sand is fine- to coarse-grained, loose, wet, very dark grayish brown.
5/6/8		20	CL	Sandy clay, medium- to fine-grained sand, stiff, moist, veyr dark grayish brown, with root holes and caliche.
			SM	Silty sand, as below.

BORING LOG

Project No.	Boring & Casing Diameter	Logged By
KEI-P90-1003	9" 2"	D.L.
Project Name Unocal San Leandro, Hesper.	**Well Cover Elevation**	**Date Drilled** 7/2/91
Boring No. MW4	**Drilling Method** Hollow-stem Auger	**Drilling Company** EGI

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati-graphy USCS		Description
			SM		Silty sand, up to 20% silt, sand is predominantly fine-grained, medium dense, wet, olive brown.
6/9/11		25	CL/ CH		Sandy clay, stiff to very stiff, moist, with voids, caliche nodules to 1" diameter, wet in voids and around nodules, very dark gray, grading to dark grayish brown below 25'.
		30			
		35			
		40			TOTAL DEPTH: 26'

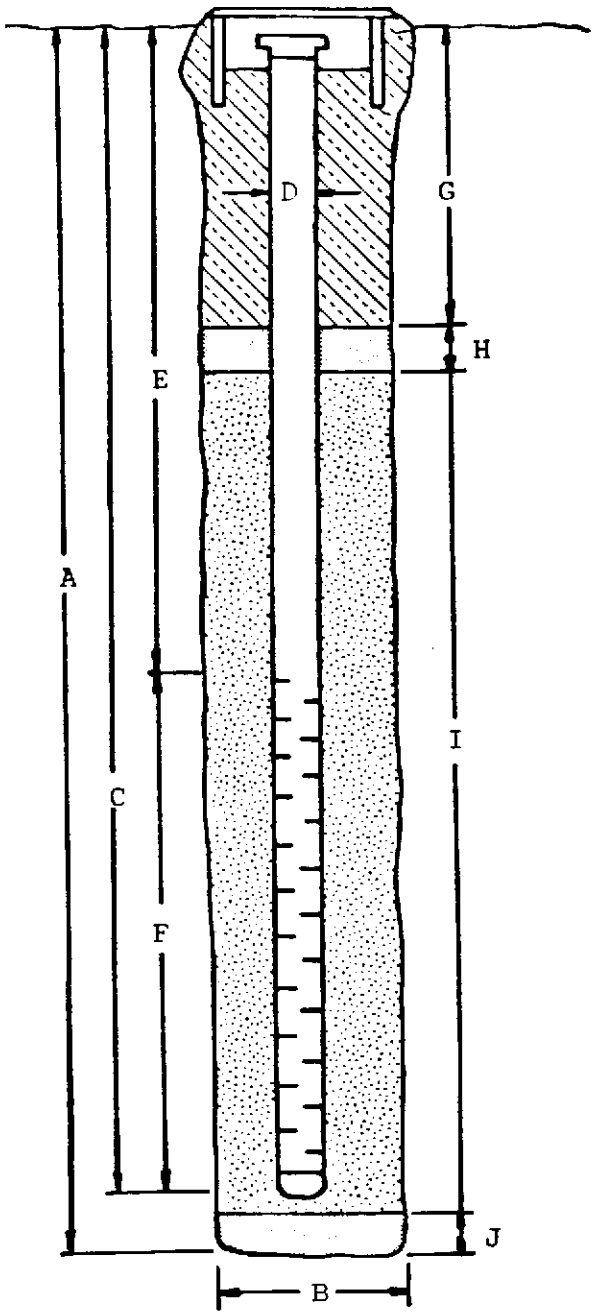
WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal San Leandro, Hesperian BORING/WELL NO. MW4

PROJECT NUMBER: KEI-P90-1003

WELL PERMIT NO.: 91349

Flush-mounted Well Cover



A. Total Depth: 26'

B. Boring Diameter*: 9"

Drilling Method: Hollow Stem Auger

C. Casing Length: 26'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"
ID = 2.067"

E. Depth to Perforations: 10'

F. Perforated Length: 16'

Perforation Type: Machined Slot

Perforation Size: 0.010"

G. Surface Seal: 6'

Seal Material: Neat Cement

H. Seal: 2'

Seal Material: Bentonite

I. Gravel Pack: 18'

Pack Material: RMC Lonestar Sand

Size: #2/12

J. Bottom Seal: none

Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

BORING LOG

Project No.	Boring & Casing Diameter	Logged By
KEI-P90-1003	9" 2"	D.L.
Project Name Unocal San Leandro, Hesper.	**Well Cover Elevation**	**Date Drilled** 7/2/91
Boring No. MW5	**Drilling Method** Hollow-stem Auger	**Drilling Company** EGI

Penetration blows/6"	G. W. level	Depth (feet) Samples	Stratigraphy USCS	Description
		0		Asphalt pavement over silt, sand and gravel fill, olive brown.
				Clay, sand and gravel with asphalt, wood and assorted debris.
			ML/ MH	Sandy silt, with clay, sand is medium- to fine-grained, firm, moist, very dark gray.
3/3/4		5		
			CL/ CH	Silty clay, with up to 45% silt, trace fine-grained sand, firm, moist, dark olive gray.
			SW	Well graded sand, with gravel to 3/8" diameter, sand is coarse- to fine-grained, trace silt, loose, moist, dark grayish brown.
2/3/4		10		
			MH	Silt, with clay, trace fine-grained sand, firm, very moist, very dark gray.
2/2/4				
			CL/ CH	Silty clay, firm to stiff, moist, very dark gray, with fine-grained sand below 14'.
2/3/5		15		
		16		Silty clay, stiff, moist, very dark grayish brown and very dark gray, mottled, with root holes.
3/6/7		17		
	▽	18	MH	Clayey silt, stiff, wet, dark gray.
			CL/ CH	Sandy clay, trace gravel to 1/8" diameter, sand is coarse- to fine-grained, stiff, moist, very dark gray.
4/6/7		20	SM	Silty sand, as below.

BORING LOG

Project No.	Boring & Casing Diameter	Logged By
KEI-P90-1003	9" 2"	D.L.
Project Name Unocal San Leandro, Hesper.	**Well Cover Elevation**	**Date Drilled** 7/2/91
Boring No. MW5	**Drilling Method** Hollow-stem Auger	**Drilling Company** EGI

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati-graphy USCS	Description
5/6/9		25	SM	Silty sand, up to 20% silt, sand is coarse- to fine-grained, with angular to rounded gravel to 5/8" diameter, medium dense, wet, very dark grayish brown.
			CL/CH	Silty clay, stiff, moist, very dark grayish brown, locally with fissures and voids, caliche developed in voids.
		30		
		35		
		40		TOTAL DEPTH: 26'

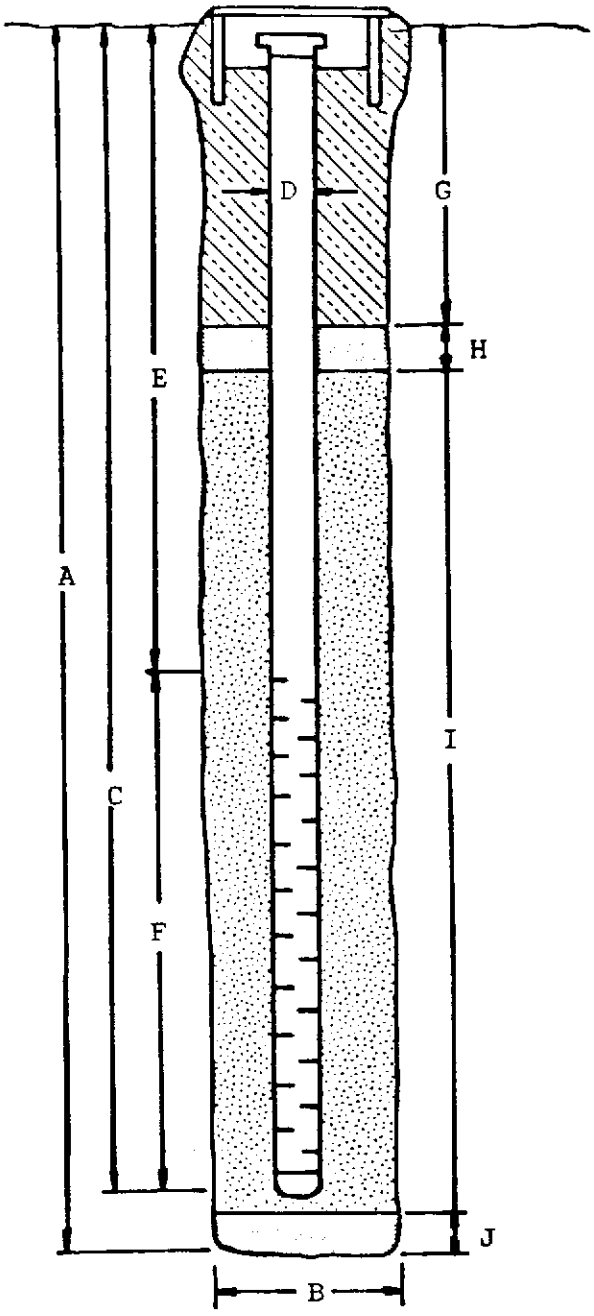
WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal San Leandro, Hesperian BORING/WELL NO. MW5

PROJECT NUMBER: KEI-P90-1003

WELL PERMIT NO.:

Flush-mounted Well Cover



A. Total Depth: 26'

B. Boring Diameter*: 9"

Drilling Method: Hollow Stem Auger

C. Casing Length: 26'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"

ID = 2.067"

E. Depth to Perforations: 10'

F. Perforated Length: 16'

Perforation Type: Machined Slot

Perforation Size: 0.010"

G. Surface Seal: 6'

Seal Material: Neat Cement

H. Seal: 2'

Seal Material: Bentonite

I. Gravel Pack: 18'

Pack Material: RMC Lonestar Sand

Size: #2/12

J. Bottom Seal: none

Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

BORING LOG

Project No.	Boring & Casing Diameter	Logged By
KEI-P90-1003	9" 2"	D.L.
Project Name Unocal San Leandro, Hesper.	**Well Cover Elevation**	**Date Drilled** 7/2/91
Boring No. MW6	**Drilling Method** Hollow-stem Auger	**Drilling Company** EGI

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati-graphy USCS	Description
		0		Asphalt pavement over silt, sand and gravel.
			SM	Silty sand, sand is medium- to predominantly fine-grained, loose, moist, olive brown, homogenous?, possible fill?
2/2/4		5	ML	Sandy silt, sand is fine-grained, firm, moist, dark brown, with trace organic matter.
			SW	Well graded sand, with trace silt and gravel to 1/4" diameter, sand is coarse- to fine-grained, medium dense, moist, dark brown.
4/9/3		10	ML/ MH	Silt, with clay, up to 10% fine-grained sand, firm, moist, olive brown.
			CL/ CH	Silty clay, with sand, stiff, moist, very dark grayish brown.
3/5/7		15		Clay, with silt, trace sand, stiff, moist, very dark grayish brown, with root holes.
4/6/7			ML/ MH	Clayey silt, stiff, very moist, very dark grayish brown.
			CL/ CH	Sandy clay, trace gravel to 1/4" diameter, sand is coarse- to fine-grained, stiff, moist, very dark grayish brown, with root holes to 20.5'.
4/6/	▽	20		

BORING LOG

Project No.	Boring & Casing Diameter	Logged By
KEI-P90-1003	9" 2"	D.L.
Project Name Unocal San Leandro, Hesper.	**Well Cover Elevation**	**Date Drilled** 7/2/91
Boring No. MW6	**Drilling Method** Hollow-stem Auger	**Drilling Company** EGI

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati-graphy USCS	Description
/6			SM	Silty sand, coarse- to fine-grained, up to 20% silt, trace clay, medium dense, wet, very dark grayish brown.
3/5/7		25	CL/ CH	Clay, with silt, trace sand, stiff, moist, very dark gray, with root holes and caliche, wet inside root holes.
		30		
		35		
		40		TOTAL DEPTH: 26'

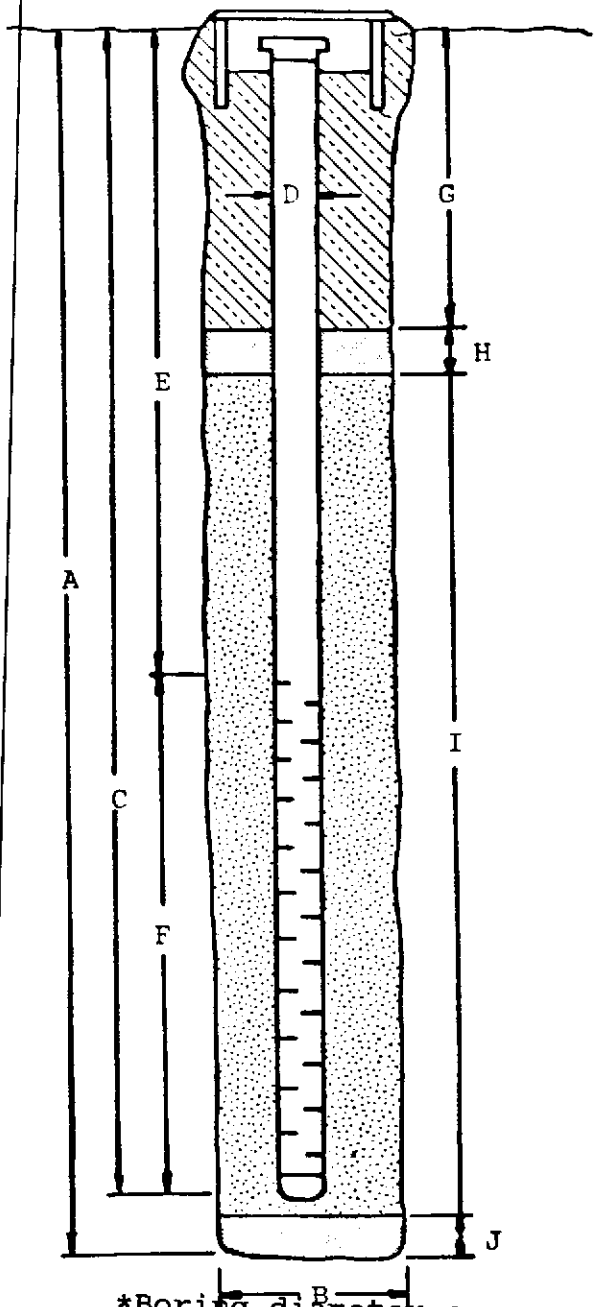
WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal San Leandro, Hesperian BORING/WELL NO. MW6

PROJECT NUMBER: KEI-P90-1003

WELL PERMIT NO.:

Flush-mounted Well Cover



A. Total Depth: 26'

B. Boring Diameter*: 9"

Drilling Method: Hollow Stem Auger

C. Casing Length: 26'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"
ID = 2.067"

E. Depth to Perforations: 10'

F. Perforated Length: 16'

Perforation Type: Machined Slot

Perforation Size: 0.010"

G. Surface Seal: 6'

Seal Material: Neat Cement

H. Seal: 2'

Seal Material: Bentonite

I. Gravel Pack: 18'

Pack Material: RMC Lonestar Sand

Size: #2/16

J. Bottom Seal: none

Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

SEQUOIA ANALYTICAL

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 15599 Hesperian Blvd., San Leandro	Sampled: Jul 23, 1991
P.O. Box 996	Matrix Descript:	Water	Received: Jul 23, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed: 7/31,8/5/91
Attention: Mardo Kaprealian, P.E.	First Sample #:	107-0702 AB	Reported: Aug 7, 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)
107-0702 AB	MW1	N.D.	N.D.	N.D.	N.D.	N.D.
107-0703 AB	MW2	N.D.	N.D.	N.D.	N.D.	N.D.
107-0704 AB	MW3	17,000	5,500	26	1,800	2,800
107-0705 AB	MW4	N.D.	N.D.	N.D.	N.D.	N.D.
107-0706 AB	MW5	260	1.2	0.39	10	0.71
107-0707 AB	MW6	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.

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

1070702.KEI <1>

SEQUOIA ANALYTICAL

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(415) 686-9600 • FAX (415) 686-9689

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

Client Project ID: Unocal, 15599 Hesperian Blvd., San Leandro
QC Sample Group: 1070702-07
Reported: Aug 7, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	R.H./J.F.	R.H./J.F.	R.H./J.F.	R.H./J.F.
Reporting Units:	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Jul 31, 1991	Jul 31, 1991	Jul 31, 1991	Jul 31, 1991
QC Sample #:	107-0613	107-0613	107-0613	107-0613
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	20	20	20	60
Conc. Matrix Spike:	20	18	15	60
Matrix Spike % Recovery:	100	90	75	100
Conc. Matrix Spike Dup.:	20	19	20	64
Matrix Spike Duplicate % Recovery:	100	95	100	110
Relative % Difference:	0	5.4	29	6.5

Laboratory blank contained the following analytes: None Detected

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

$$\text{\% Recovery:} \quad \frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$$

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

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

Client Project ID: Unocal, 15599 Hesperian Blvd., San Leandro
QC Sample Group: 1070702-07
Reported: Aug 7, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	R.H./J.F.	R.H./J.F.	R.H./J.F.	R.H./J.F.
Reporting Units:	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Aug 5, 1991	Aug 5, 1991	Aug 5, 1991	Aug 5, 1991
QC Sample #:	107-0807	107-0807	107-0807	107-0807
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	20	20	20	60
Conc. Matrix Spike:	18	17	19	59
Matrix Spike % Recovery:	90	85	95	98
Conc. Matrix Spike Dup.:	19	18	11	58
Matrix Spike Duplicate % Recovery:	95	90	55	97
Relative % Difference:	5.4	5.7	53	1.7

Laboratory blank contained the following analytes: None Detected

SEQUOIA ANALYTICAL

Belinda C. Vega
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.
P.O. Box 996
Benicia, CA 94510
Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal, 15599 Hesperian Blvd., San Leandro
QC Sample Group: 1070702-07
Reported: Aug 7, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	R.H./J.F.	R.H./J.F.	R.H./J.F.	R.H./J.F.	R.H./J.F.	R.H./J.F.	R.H./J.F.
Reporting Units:	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Aug 5, 1991	Aug 5, 1991	Aug 5, 1991	Aug 5, 1991	Aug 5, 1991	Aug 5, 1991	Aug 5, 1991
Sample #:	107-0702	107-0703	107-0704	107-0705	107-0706	107-0707	Blank
Surrogate % Recovery:	110	99	78	100	86	96	96

SEQUOIA ANALYTICAL

Belinda C. Vega
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

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER	SITE NAME & ADDRESS	ANALYSES REQUESTED	TURN AROUND TIME:
Vartan	Unocal / San Leandro 15599 Hesperian Blvd.	TPHG & BTXE	Regular
WITNESSING AGENCY			

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPHG & BTXE		REMARKS
MW 1	7/23/91	10:05 A.M.		✓	✓		2	Monitoring well	✓	1070702 AB	VOA's Preserved in HCl
MW 2	"			✓	✓		2	" "	✓	703	
MW 3	"			✓	✓		2	" "	✓	704	
MW 4	"			✓	✓		2	" "	✓	705	
MW 5	"			✓	✓		2	" "	✓	706	
MW 6	"	2:20 P.M.		✓	✓		2	" "	✓	707	

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
W. Pachofia	7/23/91 3:25 pm	K. Walton 7/23 325
Derik Menard	7/26/91 0830	Joe Jenks
Joe Jenks	7/26/91 10AM	
	7/26 1000	Karen

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

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

Signature	Title	Date
KW	login	7/23/91

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 15599 Hesperian Blvd., San Leandro	Sampled:	Jul 2, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	Jul 3, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Jul 8, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	107-0039	Reported:	Jul 18, 1991

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

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
107-0039	MW4(5)	N.D.	N.D.	0.0084	N.D.	N.D.
107-0040	MW4(10)	N.D.	N.D.	0.0051	N.D.	N.D.
107-0041	MW4(15)	N.D.	N.D.	0.016	N.D.	0.017
107-0042	MW4(17)	N.D.	N.D.	0.015	N.D.	0.015
107-0043	MW5(5)	N.D.	N.D.	0.030	N.D.	N.D.
107-0044	MW5(10)	N.D.	N.D.	0.0074	N.D.	0.012
Detection Limits:		**1.0**	**0.0050**	**0.0050**	**0.0050**	**0.0050**

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

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 15599 Hesperian Blvd., San Leandro	Sampled:	Jul 2, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	Jul 3, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Jul 8, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	107-0045	Reported:	Jul 18, 1991

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

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
107-0045	MW5(15)	N.D.	N.D.	0.011	N.D.	0.0094
107-0046	MW5(17.5)	N.D.	N.D.	0.0098	0.0052	0.0077
107-0047	MW6(5)	N.D.	N.D.	0.0086	N.D.	N.D.
107-0048	MW6(10)	N.D.	N.D.	0.0061	N.D.	N.D.
107-0049	MW6(15)	N.D.	N.D.	N.D.	N.D.	N.D.
107-0050	MW6(17.5)	N.D.	N.D.	0.0084	N.D.	0.0063
Detection Limits:		**1.0**	**0.0050**	**0.0050**	**0.0050**	**0.0050**

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

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

SEQUOIA ANALYTICAL

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

Client Project ID: Unocal, 15599 Hesperian Blvd., San Leandro
QC Sample Group: 1070039-50
Reported: Jul 18, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	J.F./R.H.	J.F./R.H.	J.F./R.H.	J.F./R.H.
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Jul 8, 1991	Jul 8, 1991	Jul 8, 1991	Jul 8, 1991
QC Sample #:	107-0039	107-0039	107-0039	107-0039
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.40	0.40	0.40	1.2
Conc. Matrix Spike:	0.35	0.33	0.37	1.1
Matrix Spike % Recovery:	88	83	93	92
Conc. Matrix Spike Dup.:	0.36	0.34	0.39	1.2
Matrix Spike Duplicate % Recovery:	90	85	98	100
Relative % Difference:	2.8	3.0	5.3	8.7

Laboratory blank contained the following analytes: None Detected

SEQUOIA ANALYTICAL

Belinda C. Vega
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

SEQUOIA ANALYTICAL

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

Client Project ID: Unocal, 15599 Hesperian Blvd., San Leandro
QC Sample Group: 1070039-50
Reported: Jul 18, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	J.F./R.H.	J.F./R.H.	J.F./R.H.	J.F./R.H.	J.F./R.H.	J.F./R.H.	J.F./R.H.
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Jul 8, 1991	Jul 8, 1991	Jul 8, 1991	Jul 8, 1991	Jul 8, 1991	Jul 8, 1991	Jul 8, 1991
Sample #:	107-0039	107-0040	107-0041	107-0042	107-0043	107-0044	107-0045
Surrogate % Recovery:	89	91	86	92	89	91	98

SEQUOIA ANALYTICAL

Belinda C. Vega
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

SEQUOIA ANALYTICAL

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

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

Client Project ID: Unocal, 15599 Hesperian Blvd., San Leandro
QC Sample Group: 1070039-50
Reported: Jul 18, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	J.F./R.H.	J.F./R.H.	J.F./R.H.	J.F./R.H.	J.F./R.H.	J.F./R.H.
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Jul 8, 1991	Jul 8, 1991	Jul 8, 1991	Jul 8, 1991	Jul 8, 1991	Jul 8, 1991
Sample #:	107-0046	107-0047	107-0048	107-0049	107-0050	Blank
Surrogate % Recovery:	94	90	92	91	92	91

SEQUOIA ANALYTICAL

Belinda C. Vega
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

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: [signature]

WITNESSING AGENCY:

SITE NAME & ADDRESS: UNOCAL #7004 / SAN LEANDRO
15599 HESPERIAN BLVD.

ANALYSES REQUESTED: TPH-D; TPH-G

TURN AROUND TIME: REGULAR

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPH-D	TPH-G	REMARKS
MW4(5)	7-2-91		X		X		1	SEE SAMPLE ID. NO.	X	X	1070039 ~~AB~~
MW4(10)	7-2-91		X		X		1		X	X	040
MW4(15)	7-2-91		X		X		1		X	X	041
MW4(17)	7-2-91		X		X		1		X	X	042
MWS(5)	7-2-91		X		X		1		X	X	043
MWS(10)	7-2-91		X		X		1		X	X	044
MWS(15)	7-2-91		X		X		1		X	X	045
MWS(17.5)	7-2-91		X		X		1		X	X	046
MW6(5)	7-2-91		X		X		1		X	X	047

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature] (KE)	7/3 0950	[signature]
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? ✓
2. Will samples remain refrigerated until analyzed? ✓
3. Did any samples received for analysis have head space? NO
4. Were samples in appropriate containers and properly packaged? ✓

[signature] (Signature) — SC (Title) — 7/3/91 (Date)

KEI

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: [signature]

WITNESSING AGENCY:

SITE NAME & ADDRESS: UNOCAL #7004/SAN LEANDRO 15599 HESPERIAN BLVD.

TURN AROUND TIME: REGULAR

ANALYSES REQUESTED

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPH-G	BTXE						REMARKS
MW6(10)	7-2-91		X		X		1	SEE SAMPLE ID NO.	X	X						1070048
MW6(15)	7-2-91		X		X		1	↓	X	X						049
MW6(17.5)	7-2-91		X		X		1	↓	X	X						050

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature] (KEI)	7/3 0950	Karen [signature]
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? ✓
2. Will samples remain refrigerated until analyzed? ✓
3. Did any samples received for analysis have head space? No
4. Were samples in appropriate containers and properly packaged? ✓

Signature: Karen [signature] Title: SC Date: 7/3/91

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER	SITE NAME & ADDRESS	ANALYSES REQUESTED	TURN AROUND TIME:
[signature]	UNOCAL #7004/SAN LEANDRO 15599 HESPERIAN BLVD.		REGULAR
WITNESSING AGENCY			

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPHG	BTXE						REMARKS
MW6(10)	7-2-91		X		X		1	SEE SAMPLE ID NO.	X	X						1070048
MW6(15)	7-2-91		X		X		1	↓	X	X						049
MW6(17.5)	7-2-91		X		X		1		X	X						050

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature] (KEI)	7/3 0950	Karen [signature]
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? ✓
2. Will samples remain refrigerated until analyzed? ✓
3. Did any samples received for analysis have head space? No
4. Were samples in appropriate containers and properly packaged? ✓

Signature: Karen [signature] Title: SC Date: 7/3/91