KAPREALIAN ENGINEERING
INCORPORATED

KEI-P94-0903.R3
April 27, 1995

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

Attention: Mr. Robert A. Boust

RE: Continuing Ground Water Investigation at
Unocal Service Station #7376
4191 - 1st Street
Pleasanton, California

Dear Mr. Boust:

This report presents the results of Kaprealian Engineering, Inc's. (KEI) most recent soil and ground water investigation for the referenced site, in accordance with KEI's proposal (KEI-P94-0903.P1) dated January 11, 1995. The purpose of the investigation was to further define the degree and extent of soil and ground water contamination at the site. The scope of the work performed by KEI consisted of the following:

Coordination with regulatory agencies

Geologic logging of two borings for the installation of one monitoring well and one exploratory boring.

Destruction of an on-site monitoring well

Soil sampling

Ground water monitoring, purging, and sampling

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

Data analysis, interpretation, and report preparation

SITE DESCRIPTION AND BACKGROUND

The subject site contains a Unocal service station facility. The site is situated at the intersection of Ray and First Streets in Pleasanton, California. The site occupies flat terrain and is located approximately 700 feet southeast of Arroyo Del Valle. It is KEI's understanding that the subject site was previously

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operated as a service station (reportedly by Armour Oil, Inc.) prior to Unocal's acquisition.

On June 30, 1987, three exploratory borings (designated as B-1, B-2, and B-3, on the attached Figure 3) were drilled and sampled by Applied GeoSystems (AGS) at the subject site. Borings B-1 and B-2 were each drilled to a total depth of 46.5 feet below grade. Boring B-3 was drilled to a depth of 55 feet below grade. Ground water was not encountered during drilling. Selected soil samples collected during the drilling of these borings were analyzed for total volatile hydrocarbons (TVH), and benzene, toluene, ethylbenzene, and xylenes (BTEX). One soil sample collected from B-1 was also analyzed for total extractable hydrocarbons (TEH). The analytical results of the soil samples are summarized in Table 7.

Based on the analytical results of the soil samples collected from exploratory borings B-1 through B-3, AGS recommended the installation of a monitoring well. Documentation on drilling of the three exploratory borings, sampling techniques, and the analytical results of the soil samples are presented in the AGS report (Job No. 87065-1) dated July 14, 1987.

On August 21, 1987, one additional exploratory boring (designated as B-4 on the attached Figure 3) was drilled and sampled by AGS to a total depth of 66.5 feet below grade. Ground water was not encountered during drilling. Two soil samples collected from this boring were analyzed for TVH, BTEX, and TEH. The analytical results of the soil samples are summarized in Table 7.

Based on the analytical results of the soil samples collected from the four exploratory borings, AGS concluded that the majority of the soil contamination underneath the site is derived from TEH (diesel). Also, based on the fact that the analytical results of the deepest soil sample collected from B-4 (65 feet below grade) indicated 0.45 mg/kg of TVH and non-detectable concentrations of BTEX and TEH, AGS concluded that hydrocarbon contamination may not have impacted ground water beneath the site. Documentation on the drilling of exploratory boring B-4, sampling techniques, and the analytical results are presented in the AGS report (Job No. 87086-1) dated September 9, 1987.

On December 2 through 7, 1987, three borings (B-5 through B-7) were drilled and sampled at the site and were completed as monitoring wells (designated as MW-1 through MW-3 on the attached Figure 3) by AGS. The borings for the three wells were drilled to a total depth of 96.5 feet below grade. Well MW1 and MW3 were completed to a depth of 96.5 feet below grade, and well MW2 was completed to a depth of 85 feet below grade. During drilling, the first saturated soil was encountered at a depth of approximately 80 feet below grade.

The three wells were developed on December 3 through 8, 1987, and were initially monitored and sampled on December 8, 1987. The ground water and soil samples collected from the monitoring wells were analyzed at the Anametrix, Inc. Laboratories of San Jose, California. The water and soil samples were analyzed for total petroleum hydrocarbons (TPH), BTEX, and TEH. The ground water samples were also analyzed for EPA method 624 constituents. The analytical results of the soil samples are summarized in Table 7. The analytical results of the ground water samples are summarized in Table 4.

A water well survey of a 1/2-mile radius from the site was conducted by AGS in late 1987/early 1988, in order to identify water producing wells in the vicinity. Information for the well survey was obtained from the Alameda County Flood Control and Water Conservation District - Zone 7 (ACFCWCD). Five water wells and two cathodic protection wells were identified within the 1/2-mile radius survey area. Of the five water wells, one appears to be a monitoring well and the remaining four are classified as domestic wells. Well survey data is presented on the attached Table 9.

Documentation on the monitoring well installation procedures, sampling techniques, and the analytical results are presented in the AGS report No. 87086-3. The exact date of this report is not given on the copy that is on file at KEI. However, it is believed that the report was prepared in early 1988.

Reportedly, in December 1987, the four 12,000 gallon underground fuel storage tanks located in the northern portion of the site were removed and replaced by two 12,000 gallon fuel tanks at the same location.

Per Unocal Corporation's direction, on September 9, 1994, KEI was present during the pumpability project at the subject service station. All former product piping and dispensers were removed and replaced. Twelve soil samples (labeled P1 through P12) were collected from the product piping trenches at depths of approximately 3 feet below grade. Mr. Scott Deaver from the City of Pleasanton Fire Department (CPFD) was on-site on September 9, 1994. The soil sample locations are shown on the attached Figure 4.

KEI returned to the site on September 15, 1994, to collect soil samples following the overexcavation in the areas of sample points P2 and P5. Two additional soil samples, labeled P2(9) and P5(9), were collected from the excavations at depths of approximately 9 feet below grade.

On September 23, 1994, KEI was again on-site to observe excavation activities at the southwest portion of the site. One soil sample, labeled P13, was collected at a depth of approximately 9 feet below

grade, in order to document concentrations of hydrocarbons in the soil at that portion of the site. Ground water was not encountered in any of the excavations. All excavated soil was sampled and properly disposed of off-site. The soil sample point locations are shown on the attached Figure 4.

All samples were analyzed by Sequoia Analytical Laboratory in Concord, California. Samples were analyzed for TPH as gasoline and BTEX. The analytical results for the soil samples are summarized in Table 8. Documentation of the product piping and dispenser island replacement procedures, sampling techniques, and the analytical results are presented in KEI's report (KEI-J94-0903.R1) dated October 21, 1994.

Based on the analytical results of all of the soil samples collected and evaluated, and in accordance with the guidelines established by the Regional Water Quality Control Board (RWQCB), KEI concluded that further subsurface investigative work was warranted at the subject site.

In a work plan/proposal (KEI-P94-0903.P1) dated January 11, 1995, KEI recommended the destruction and replacement of existing monitoring well MW2 due to the presence of asphalt tar within the well. In addition, KEI recommended the installation of an exploratory boring.

RECENT FIELD ACTIVITIES - EXPLORATORY BORING AND MONITORING WELL INSTALLATION

On February 6 and 7, 1995, one additional exploratory boring and one two-inch diameter monitoring well (designated as EB1 and MW2B, respectively, on the attached Figure 1) were installed at the site. All drilling activities, including the construction and completion of the ground water monitoring well, were conducted in accordance with the guidelines of the RWQCB and the California Well Standards (per Bulletin 74-90). Mr. Scott Seery of the Alameda County Health Care Services (ACHCS) Agency was present during a portion of the drilling activities. The subsurface materials penetrated and details of the construction of the monitoring well are described in the attached Boring Logs and Well Construction Diagram, respectively.

Exploratory boring EB1 was drilled to a total depth of 66 feet below grade. Ground water was not encountered in this boring during drilling. Monitoring well MW2B was drilled and completed to a total depth of 91 feet below grade. [redacted] Soil samples were collected for laboratory analysis and for lithologic logging purposes at a maximum spacing of 5 foot intervals, at significant changes in lithology, at obvious areas of contamination, and at or

within the soil/ground water interface (in the boring for monitoring well MW2B). Sampling began at a depth of approximately 5 feet below grade and continued to the total depth drilled in exploratory boring EB1, and until ground water was encountered in MW2B. A representative soil sample of the saturated zone was collected from well MW2B at a depth of 85 feet below grade, and was submitted for particle size analysis (sieve and hydrometer) for verification of filter pack and well screen design. In the boring for monitoring well MW2B, other soil sampling conducted below the ground water table was for lithologic logging purposes only.

The undisturbed soil samples were collected by driving a California-modified split spoon sampler (lined with brass liners) ahead of the drilling augers. The two-inch diameter brass liners holding the samples were sealed with Teflon-lined plastic caps, labeled, and placed in individually sealed plastic bags, which were then stored in a cooler, on ice, until delivery to a state-certified laboratory.

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

The new well was developed on February 21, 1995. Prior to development, the well was checked for the depth to the water table and the presence of free product. No free product was noted in the well. After recording the monitoring data, the new well was purged (by the use of a pump) of 50 gallons of water until the evacuated water was clear and free of visible suspended sediment.

All of the wells, including the newly installed well MW2B, were monitored and sampled on March 1, 1995, by MPDS Services, Inc., of Concord, California. The monitoring and well development data are summarized in Table 1, and the field parameter data are summarized in Table 2.

RECENT FIELD ACTIVITIES - MONITORING WELL DESTRUCTION

On February 7, 1995, one on-site monitoring well (designated as MW2 on the attached Figure 1) was destroyed by fully drilling out the existing well seal, well casing, and filter pack materials to a total depth of 96.5 feet below grade. The borehole was then fully sealed with neat cement grout which was placed from the bottom of the boring to the surface through the hollow-stem augers.

The borehole for former well MW2 extended to a total depth of 96.5 feet below grade. However, the well was completed (by AGS) to a

depth of 85 feet below grade. Monitoring well MW2 was destroyed because asphalt tar (Asphaltic) was encountered within the well casing following repaving activities at the site.

ANALYTICAL RESULTS

Selected soil samples collected from the boring of EB1 and monitoring well MW2B 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/modified 8015, BTEX by EPA method 8020, and TPH as diesel by EPA method 3550/modified 8015.

The analytical results of the soil samples are summarized in Tables 5 and 6. Copies of the laboratory analyses and the Chain of Custody documentation for the soil samples are attached to this report.

The analytical results of the ground water samples collected from all of the monitoring wells (MW1, MW2B, and MW3) on March 1, 1995, are summarized in Table 3. The concentrations of TPH as gasoline and benzene detected in ground water samples collected on March 1, 1995, are shown on the attached Figure 2. Copies of the laboratory analyses and the Chain of Custody documentation for the water samples are included in MPDS Services, Inc's. Quarterly Data Report (MPDS-UN7376-01) dated March 22, 1995.

HYDROLOGY AND GEOLOGY

On March 1, 1995, the measured depth to ground water in the monitoring wells ranged from 80.09 to 83.20 feet below grade. The ground water flow direction appeared to be to the northwest, as shown on the attached Figure 1. The hydraulic gradient at the site on March 1, 1995, was approximately 0.06, based on water level data collected from the monitoring wells prior to purging.

Based on the ACFCWCD Fall 1993 Groundwater Contour Map Report (dated 17 December 1993), the subject site is located within the southwestern portion of the Amador Subbasin of the Livermore Valley Groundwater Basin. The regional ground water flow direction at and in the vicinity of the site appears to be to the northwest.

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, et. al., 1979), the subject site is directly underlain by the Holocene coarse grained alluvium (Qhac), which is described as typically consisting of unconsolidated and well bedded,

moderately sorted, permeable sand and silt, with coarse sand and gravel becoming abundant toward fan heads and in narrow canyons. The exact thickness of these deposits underneath the site and vicinity is not known to KEI. However, the Qhac sequence is believed to be as much as 50 feet thick.

Based on review of additional regional geologic maps (U.S.G.S. Open File Report 80-533B, "Preliminary Geologic Map of the Livermore Quadrangle, Alameda and Contra Costa Counties, California," by T.W. Diblee, Jr., 1980), the site is located approximately 1,000 feet west of Pliocene and/or Pleistocene non-marine sedimentary rocks (Qtl - Livermore Gravel), which consist of cobble-pebble gravel containing debris from Franciscan rocks.

Based on our subsurface study (Boring Logs for MW2B and EB1), the site is underlain by alluvium to the maximum depth explored (91 feet below grade). The alluvium underlying the site consists of an interbedded sequence of silt or gravelly silt, well sorted sand with gravel, and clayey or silty gravel.

As of March 1995, the unsaturated zone underneath the site is approximately 80 to 83 feet thick and consists of silt or gravelly silt, gravel or silty gravel, and poorly graded sand with gravel or silt in order of decreasing abundance. Minor amounts of clay are also present. The saturated zone in well MW2B consists predominantly of poorly sorted sand with gravel and silt, with minor amounts of silty gravel.

The results of the particle size analysis (sieve and hydrometer) of the soil sample collected from the saturated zone of the boring for monitoring well MW2B at a depth of 85 feet below grade indicate that the sample is composed of approximately 51% sand, 40% gravel, and 9% silt and clay. The sample was classified in the field as a well graded sand with gravel (SW). The results of the particle size analysis are shown on the attached Particle Size Distribution sheets and Graph of Acquired Data.

DISCUSSION AND RECOMMENDATIONS

Based on the analytical results of the ground water samples collected and evaluated to date, KEI recommends the continuation of the ground water monitoring and sampling program, which was re-implemented (by KEI) on December 7, 1994. The wells are currently monitored and sampled on a quarterly basis. Ground water samples are analyzed for TPH as gasoline, TPH as diesel, and BTEX. The results of the monitoring program will be documented and evaluated after each monitoring and sampling event, and recommendations for altering or terminating the program will be made as warranted.

In addition, KEI recommends that a meeting be arranged between representatives of the ACHCS, Unocal, and the former owners (and operators) of the property, in order to determine the most appropriate course of action for the subject site.

DISTRIBUTION

Copies of this report should be sent to Mr. Scott Seery of the ACHCS, and to the RWQCB, San Francisco Bay Region.

LIMITATIONS

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

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

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

Sincerely,

Kaprealian Engineering, Inc.

Haig (Gary) Tejirian
Senior Staff Geologist

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

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

Robert H. Kezerian
Project Manager

/jad

Attachments: Tables 1 through 9
Location Map
Figures 1 through 4
Boring Logs
Well Construction Diagrams
Particle Size Distribution Sheets
and Graph of Acquired Data
Laboratory Analyses
Chain of Custody documentation

KEI-P94-0903.R3
April 27, 1995

TABLE 1

SUMMARY OF GROUND WATER MONITORING AND PURGING DATA

Well #	Ground Water Elevation (feet)	Depth to Water (feet)♦	Total Well Depth (feet)♦	Product Thickness (feet)	Sheen	Water Purged (gallons)
(Monitored and Sampled on March 1, 1995)						
MW1	286.90	80.09	86.39	0	No	1
MW2B	284.25	80.80	85.25	0	No	2
MW3	283.81	83.20	94.10	0	No	4
(Monitored and Developed on February 21, 1995)						
MW2B	284.14	80.91	85.35	0	--	50
(Monitored and Sampled on December 7, 1994)						
MW1	N/A	81.04	86.46	0	No	4
MW2	WELL DAMAGED (ASPHALT TAR)					
MW3	N/A	85.54	94.34	0	No	6

* The elevations of the tops of the well casings were recently surveyed relative to City of Pleasanton Benchmark V1, a brass disk on the north curb of Ray Street, approximately 200 feet northwest of the centerline of First Street (elevation = 367.17 MSL).

♦ Depth to water and total well depth measurements are taken from the top of the well casings.

N/A = Not available.

NOTE: Monitoring data for the March 1, 1995, monitoring and sampling event were provided by MPDS Services, Inc. of Concord, California.

KEI-P94-0903.R3
April 27, 1995

TABLE 2

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

(Measured on March 1,1995)

Well #	Gallons per Casing Volume	Time	Gallons Purged	Casing Volumes Purged	Temperature (°F)	Conductivity ([μmhos/cm]x100)	pH
MW1	1.07	11:05	0	0	70.0	4.46	7.70
			1	0.93	70.4	4.31	7.63
		11:10	WELL	DEWATERED			
MW2B	0.76	12:50	0	0	68.2	3.76	7.95
			1	1.32	67.5	4.14	7.75
			2	2.63	67.9	4.09	7.63
		12:55	WELL	DEWATERED			
MW3	1.85	11:55	0	0	67.1	4.06	7.60
			2	1.08	67.5	4.16	7.46
			4	2.16	68.0	4.13	7.32
		12:03	WELL	DEWATERED			

NOTE: The field parameter data were provided by MPDS Services, Inc. of Concord, California.

KEI-P94-0903.R3
April 27, 1995

TABLE 4

SUMMARY OF ANALYTICAL RESULTS
WATER

Date	Well #	TPH	Benzene	Ethyl-benzene	Toluene	Xylenes	TEH
12/08/87	MW1*	50	58	ND	8	10	2,100
	MW2	1,800	910	260	800	1,200	620
	MW3	24,000	2,600	160	1,300	660	2,300

TPH = Total petroleum hydrocarbons

TEH = Total extractable hydrocarbons

ND = Non-detectable.

* 1,2-Dichloroethene was detected at a concentration of 18 µg/L.

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

NOTE: The above analytical results were obtained from AGS report 86086-3.

KEI-P94-0903.R3
April 27, 1995

TABLE 5

SUMMARY OF LABORATORY ANALYSES
SOIL

Date	Sample Number	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes
2/06/95	MW2B(5)	ND	7.3	0.13	0.048	0.090	0.63
	MW2B(10)	ND	2.1	0.062	0.020	0.0078	0.11
	MW2B(15)	ND	2.0	0.12	0.0076	0.0074	0.02
	MW2B(20)	110*	16♦	0.50	0.042	0.12	0.18
	MW2B(25)	550*	660	9.5	2.6	4.1	11
	MW2B(30)	1,100*	680	8.2	1.1	6.1	11
	MW2B(35)	2,400*	720	3.2	1.1	4.6	15
	MW2B(40)	430*	130♦	1.4	0.45	1.6	5.0
	MW2B(45)	1,000*	110♦	0.31	0.083	0.63	1.7
	MW2B(50)	1,800*	190♦	ND	0.68	0.33	2.2
	MW2B(55)	320*	4.3♦♦	ND	ND	0.013	0.056
	MW2B(60)	33*	2.2♦♦	0.013	0.0088	ND	0.035
	MW2B(65)	4.7*	1.0	ND	0.0099	ND	0.0097
	MW2B(70)	ND	ND	ND	ND	ND	ND
	MW2B(75)	ND	ND	ND	ND	ND	ND
	MW2B(80)	ND	ND	ND	ND	ND	ND

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

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

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

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

ND = Non-detectable.

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

KEI-P94-0903.R3
April 27, 1995

TABLE 6

SUMMARY OF LABORATORY ANALYSES
SOIL

Date	Sample Number	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes
2/06/95	EB1(5)	3,600*	15,000	340	1,700	390	2,100
	EB1(10)	690*	3,200	32	280	73	400
	EB1(15)	800*	1,800	15	140	41	240
	EB1(20)	240*	1,700	4.9	76	39	220
	EB1(25)	840*	2,000	3.9	78	44	250
	EB1(30)	530**	1,500	ND	40	30	170
	EB1(35)	200**	1,800	1.4	52	44	250
	EB1(40)	98*	1,200	1.3	50	25	140
	EB1(45)	2.6**	27	1.4	5.7	0.59	3.2
	EB1(50)	55*	430	0.29	11	7.5	42
	EB1(55)	ND	6.4	0.89	0.097	0.20	1.0
	EB1(60)	ND	1.6	0.0090	0.061	0.021	0.098
	EB1(65)	ND	ND	ND	0.034	0.011	0.065

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

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

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

ND = Non-detectable.

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

KEI-P94-0903.R3
April 27, 1995

TABLE 7

SUMMARY OF ANALYTICAL RESULTS
SOIL
(by AGS)

Sample Number	TVH	Benzene	Ethyl-benzene	Toluene	Xylenes	TEH
(Collected on June 30, 1987)						
S-20-B1	281.9	17.1	17.0	73.6	92.3	NA
S-35-B1	126.13	2.06	0.84	1.02	6.59	1,325
S-45-B1	9.36	0.64	0.26	1.06	1.47	NA
S-25-B2	188.8	13.1	6.1	6.3	56.2	NA
S-35-B2	56.81	1.47	1.81	1.58	18.09	NA
S-45-B2	9.09	0.07	0.18	0.26	1.30	NA
S-10-B3	ND	ND	ND	ND	ND	NA
S-30-B3	7.72	3.95	0.13	0.51	0.85	NA
S-40-B3	180.7	12.4	9.4	47.8	45.1	NA
(Collected on August 21, 1987)						
S-35-B4	100.5	1.4	0.5	0.6	4.4	1,835
S-65-B4	0.45	ND	ND	ND	ND	ND
(Collected on December 2 through 7, 1987)						
S-35-B5	ND	ND	ND	ND	ND	ND
S-75-B5	ND	ND	ND	ND	ND	ND
S-35-B6	5.0	ND	ND	ND	ND	ND
S-70-B6	ND	ND	ND	ND	ND	ND
S-55-B7	390.0	1.3	14.0	6.2	34.0	220.0
S-75-B7	5.0	ND	ND	ND	ND	30.0

Results are in milligrams per kilogram (mg/kg).

TVH: Total volatile hydrocarbons

TEH: Total extractable hydrocarbons

ND = Non-detectable.

KEI-P94-0903.R3
April 27, 1995

TABLE 7 (Continued)

SUMMARY OF ANALYTICAL RESULTS
SOIL
(by AGS)

NA = Not analyzed.

NOTE: Monitoring wells MW1, MW2, and MW3 were installed in borings B5, B6, and B7, respectively.

The analytical results were obtained from AGS Reports #87065-1, #87086-1, and #87086-3.

KEI-P94-0903.R3
April 27, 1995

TABLE 8

SUMMARY OF LABORATORY ANALYSES
SOIL

Date	Sample	Depth (feet)	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes
9/09/94	P1	3	ND	ND	ND	ND	ND
	P2	3	1,300	3.3	57	26	130
	P3	3	4.9	0.071	0.028	0.065	0.70
	P4	3	11	0.26	0.014	0.23	1.3
	P5	3	8,900	65	570	160	800
	P6	3	ND	0.0093	0.015	ND	0.028
	P7	3	8.7	0.21	0.028	0.081	0.73
	P8	3	10	0.074	0.27	0.043	0.38
	P9	3	65*	0.69	0.15	0.71	3.9
	P10	3	ND	ND	ND	ND	0.015
	P11	3	ND	ND	ND	ND	ND
	P12	3	4.7*	0.011	0.17	0.091	0.54
9/15/94	P2(9)	9	13	0.020	0.015	0.013	1.1
	P5(9)	9	17	0.029	0.031	0.047	1.4
9/23/94	P13	9	4,400	29	390	150	790

ND = Non-detectable.

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

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

KEI-P94-0903.R3
April 27, 1995

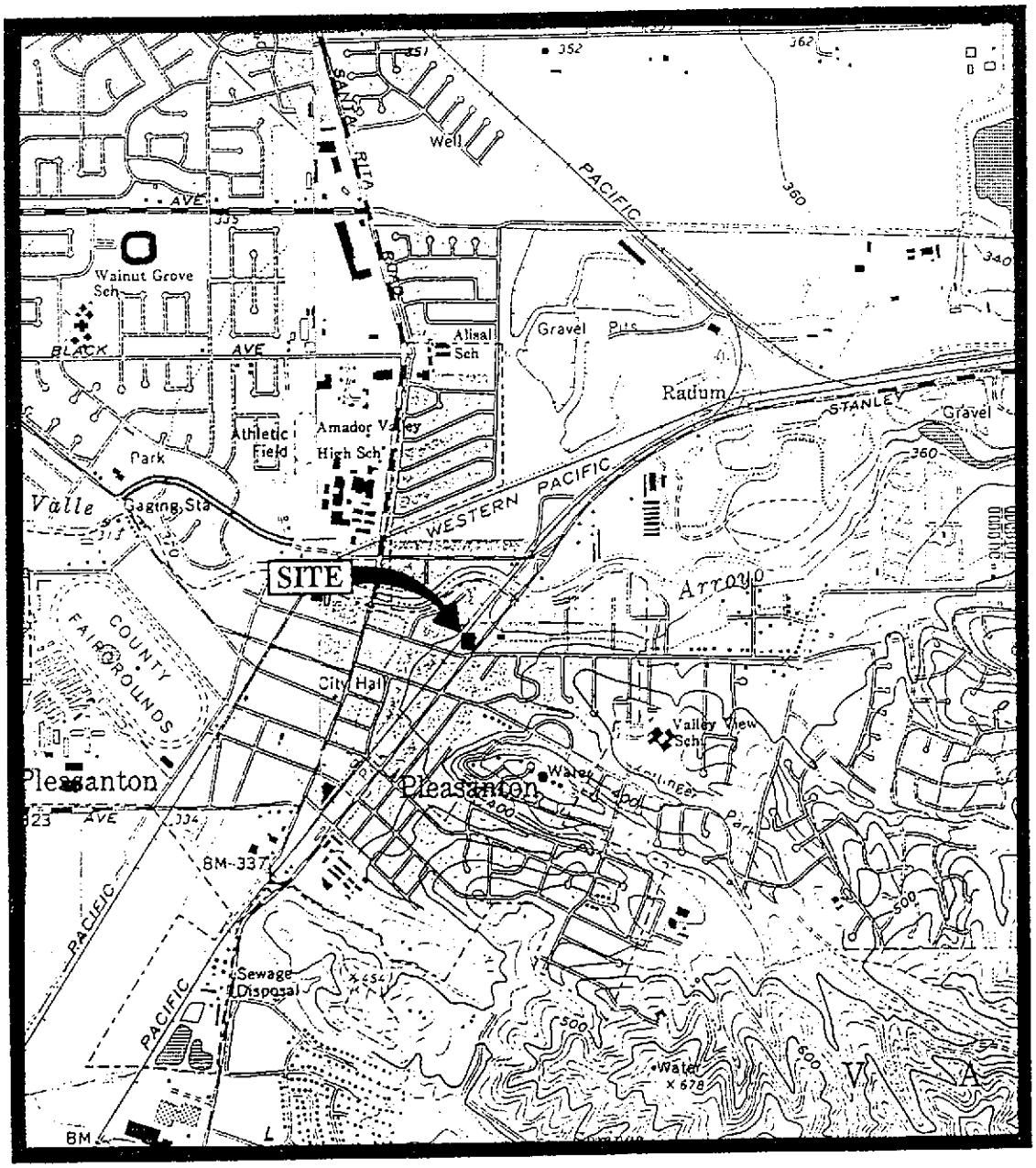
TABLE 9

LISTING OF WATER WELL LOCATIONS WITHIN A
HALF-MILE RADIUS OF UNOCAL SERVICE STATION #7376
(Conducted 1987/1988)

Well Number	Total Depth (feet)	Water Level (feet)	Screened Interval (feet)	Year Constructed	Water Use
16-L-11	NA	NA	NA	1979	Dom?
16-P-5	74	65	65-70	1976	Mon
16-R-1	239	66	70-226	1948	Dom
21-C-2	182	NA	NA	NA	Dom
21-C-4	115	56	NA	1911	Dom?
21-E-1	43	43	NA	1977	Cat
21-G-1	120	100	>95	1974	Cat

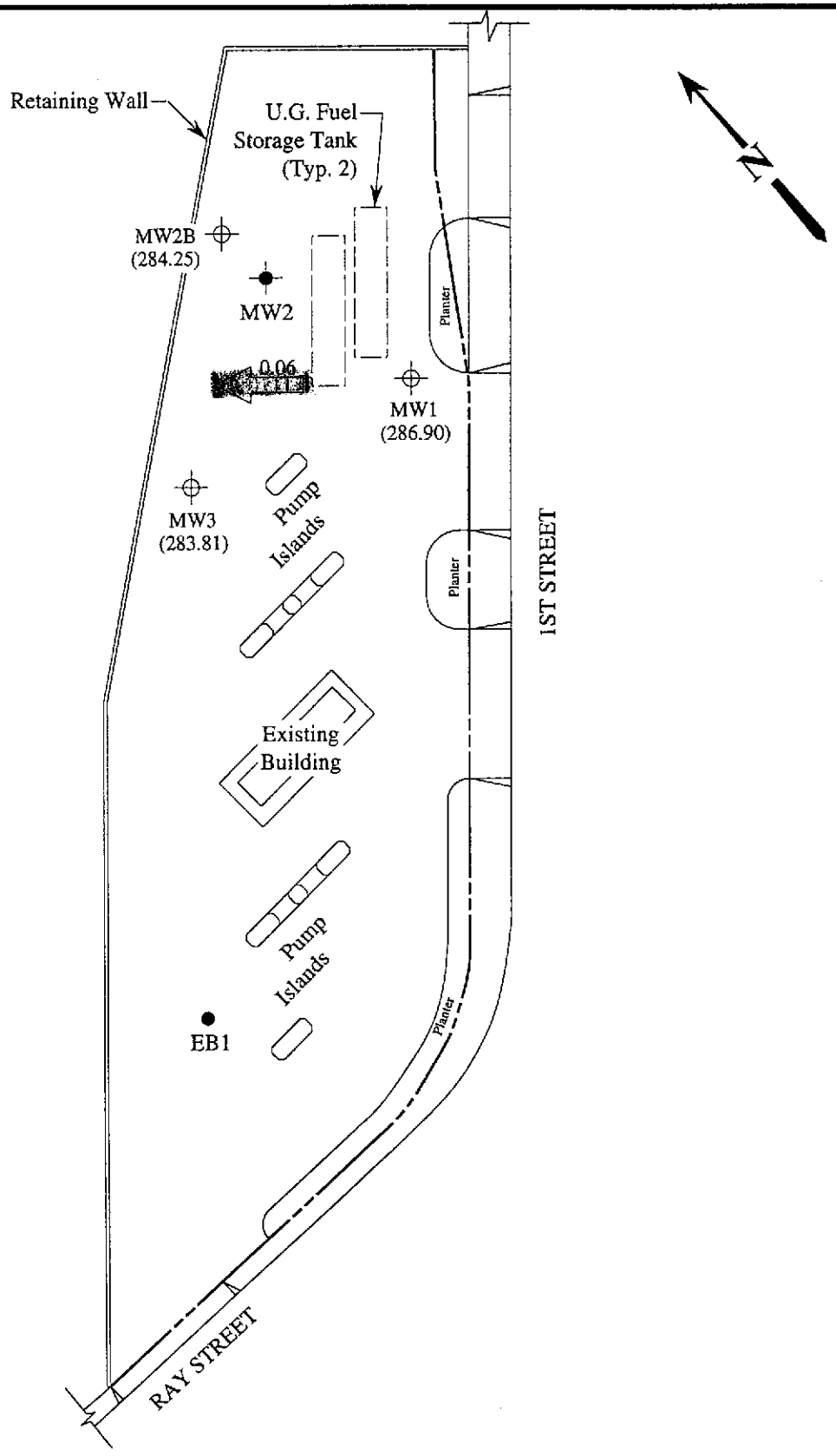
NA = Not available
Dom = Domestic
Mon = Monitoring
Cat = Cathodic protection

NOTE: This list was obtained from Table 4 of the AGS Report #87086-3. A Location Map is not available with the copy of this report on file at KEI.



Base modified from 7.5 minute U.S.G.S. Dublin and Livermore Quadrangles
(both photorevised 1980)

KAPREALIAN ENGINEERING INCORPORATED	UNOCAL SERVICE STATION #7376 4191 1ST STREET PLEASANTON, CALIFORNIA	LOCATION MAP



Note:
The ground water elevations, the direction of ground water flow, and the hydraulic gradient were obtained from (MPDS-UN7376-01) dated March 22, 1995.

LEGEND

- Monitoring well (existing)
- Monitoring well (destroyed)
- Exploratory boring
- ( ) Ground water elevation in feet above Mean Sea Level
- #.## Direction of ground water flow with approximate hydraulic gradient

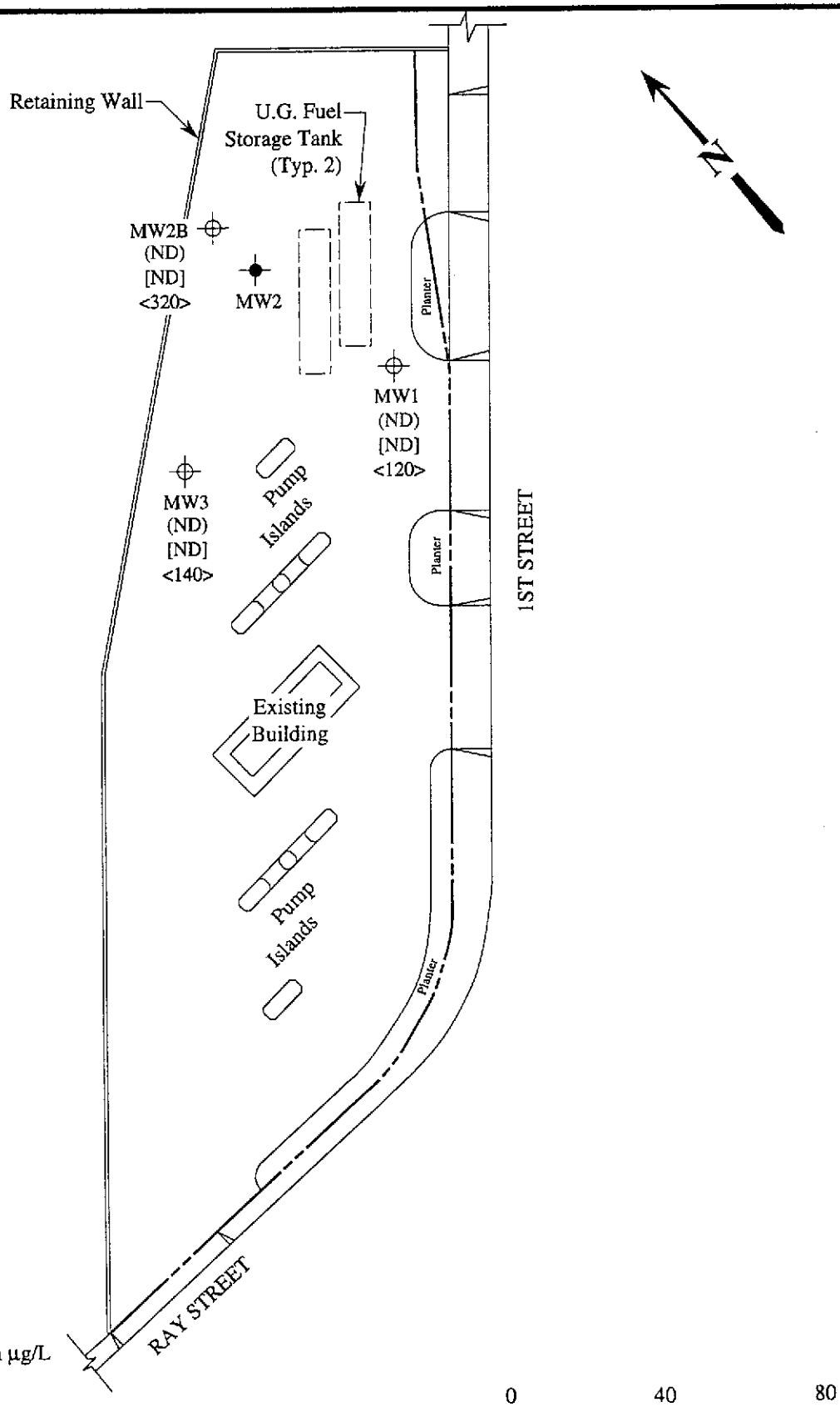
0 40 80
Approx. scale feet

GROUND WATER FLOW DIRECTION MAP FOR THE MARCH 1, 1995 MONITORING EVENT

KAPREALIAN ENGINEERING INCORPORATED

UNOCAL SERVICE STATION #7376
4191 1ST STREET
PLEASANTON, CALIFORNIA

FIGURE
1

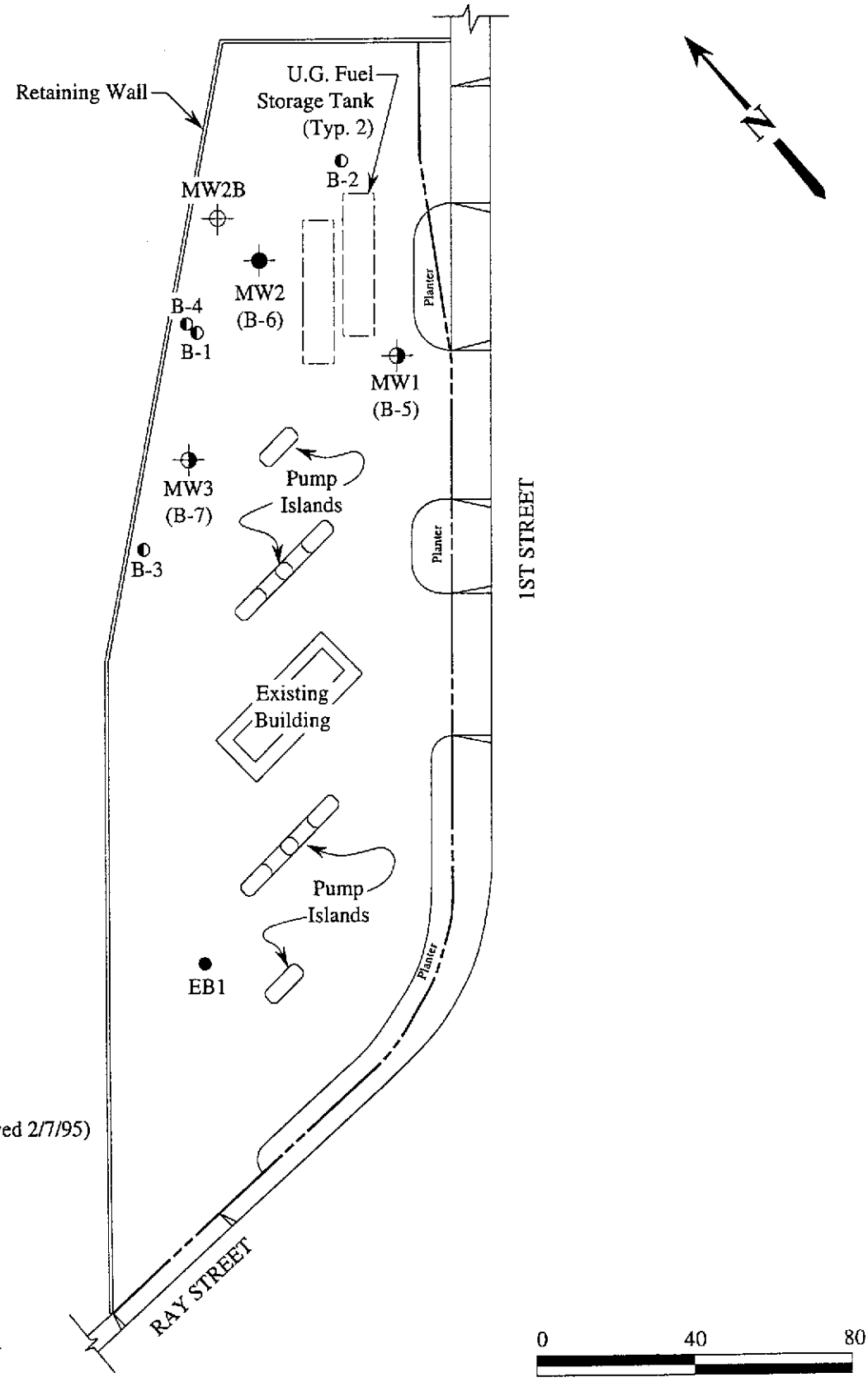


PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON MARCH 1, 1995

KAPREALIAN ENGINEERING
INCORPORATED

UNOCAL SERVICE STATION #7376
4191 1ST STREET
PLEASANTON, CALIFORNIA

FIGURE
2



LEGEND

- Monitoring well (KEI)
- Monitoring well (AGS)
- Monitoring well (AGS - destroyed 2/7/95)
- Exploratory boring (KEI)
- Exploratory boring (AGS)
- ( ) Name of previous boring

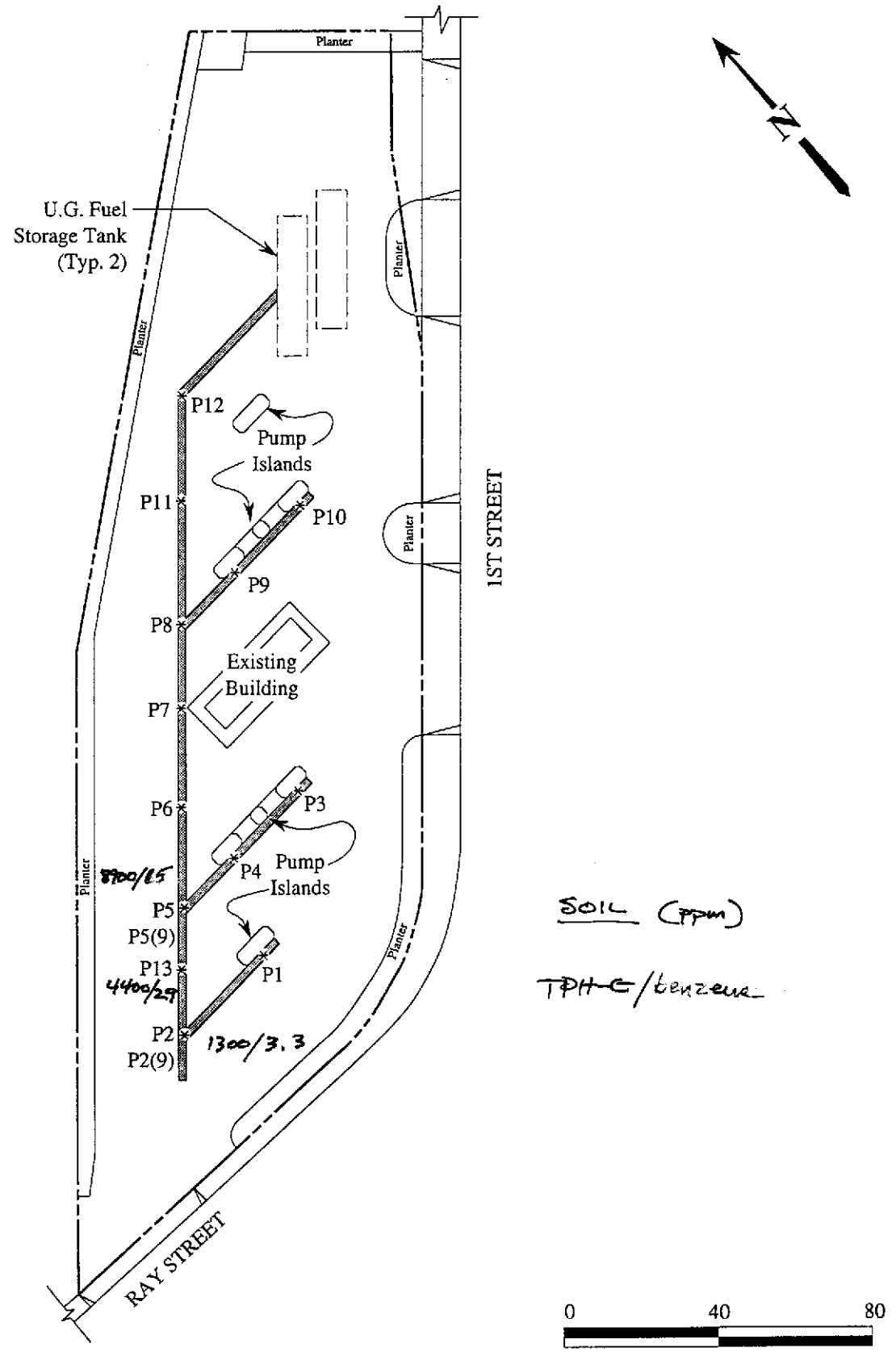
Note:
The approximate locations of exploratory borings B-1 through B-4 were obtained from the AGS report (87086-1) dated September 9, 1987.

MONITORING WELL AND EXPLORATORY BORING LOCATION MAP

KAPREALIAN ENGINEERING
INCORPORATED

UNOCAL SERVICE STATION #7376
4191 1ST STREET
PLEASANTON, CALIFORNIA

FIGURE
3



SOIL SAMPLE POINT LOCATION MAP

KAPREALIAN ENGINEERING
INCORPORATED

UNOCAL SERVICE STATION #7376
4191 1ST STREET
PLEASANTON, CALIFORNIA

FIGURE
4

BORING LOG

Project No. KEI-P94-0903.P1	**Boring Diameter** 8.5"	**Logged By** T.S. JG6 CEG 1633
	Casing Diameter N/A	
Project Name Unocal S/S #7376 4191 1st Street, Pleasanton, CA	**Well Cover Elevation**	**Date Drilled** 2/6/95
Boring No. EB1	**Drilling Method** Hollow-stem Auger	**Drilling Company** V & W Drilling

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati-graphy USCS	Description
		0		Pavement, base gravel and fill.
				Fill with wood debris.
				Silt, trace very coarse-grained sand, firm, moist, dark brown.
14/15/19		5	15,000 / 340	Silt, trace clay, trace very coarse-grained sand and gravel to 1/4 inch in diameter, very stiff to hard, moist, dark yellowish brown.
11/18/21		10	3200 / 32 ML	Silt as above, except yellowish brown, gravel to 1 inch in diameter.
7/16/19		15	1800 / 15	Silt, estimated at 5-10% very coarse-grained sand, trace gravel to 1/2 inch in diameter, very stiff to hard, moist, yellowish brown.
10/11/11		20	1700 / 4.9 SM	Silty sand, trace gravel to 1 inch in diameter, estimated at 15-20% silt, sand is medium to coarse-grained, medium dense, moist, yellowish brown.

BORING LOG

Project No. KEI-P94-0903.P1	**Boring Diameter** 8.5" **Casing Diameter** N/A	**Logged By** T.S. JGG CEG 1633
Project Name Unocal S/S #7376 4191 1st Street, Pleasanton, CA	**Well Cover Elevation**	**Date Drilled** 2/6/95
Boring No. EB1	**Drilling Method** Hollow-stem Auger	**Drilling Company** V & W Drilling

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati-graphy USCS	Description
15/32/44		25 — 2000 / 3.9	GW	Well graded gravel with sand, trace silt, gravel to 1-1/2 inches in diameter, estimated at 35-45% medium to coarse-grained sand, dense to very dense, moist, dark yellowish brown.
17/31/39		30 — 1500 / ND		Well graded gravel with sand, trace silt, gravel to 3/4 inch in diameter, estimated at 30-35% medium to coarse-grained sand, dense to very dense, moist, dark yellowish brown.
17/36/41		35 — 1800 / 1.4	GM	Silty gravel, estimated at 15-20% silt and 10-15% medium coarse-grained sand, gravel to 2 inches indiameter, very dense, moist, yellowish brown.
21/32/36		40 — 1200 / 1.3		Silty gravel, estimated at 15-20% silt and 10-15% medium to coarse-grained sand, gravel to 2 inches in diameter, very dense, moist, yellowish brown..
			ML	Silt, trace clay, very stiff to hard, moist, yellowish brown and very pale brown mottled, trace biotite.

BORING LOG

Project No. KEI-P94-0903.P1	**Boring Diameter** 8.5" **Casing Diameter** N/A	**Logged By** T.S. JGG CEG/1633
Project Name Unocal S/S #7376 4191 1st Street, Pleasanton, CA	**Well Cover Elevation**	**Date Drilled** 2/6/95
Boring No. EB1	**Drilling Method** Hollow-stem Auger	**Drilling Company** V & W Drilling

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati-graphy USCS	Description
8/16/24		45 — 27 / 1.4	ML	Silt, trace clay, very stiff to hard, moist, yellowish brown and very pale brown mottled, trace biotite.
21/36/42		50 — 430 / 0.29	SW	Well graded sand with gravel and silt, estimated at 15-20% gravel to 3/4 inch in diameter, 5-15% silt, sand is medium to very coarse-grained, dense to very dense, moist, yellowish brown.
8/12/14		55 — 6.4 / 0.59	ML	Silt, trace clay, trace gravel to 1/2 inch in diameter, very stiff, moist, yellowish brown and olive, mottled, trace biotite.
13/50-6"		60 — 1.6 / 0.009	ML	Silt with gravel, estimated at 10-20% medium coarse-grained sand and 15-25% gravel to 1-1/2 inches in diameter, hard, moist, dark yellowish brown.
			CL	Gravelly clay, estimated at 10-15% silt, gravel to 1-1/2 inches in diameter, hard moist, pale olive.
6/12/12		65 — ND	ML	Silt with trace very coarse-grained sand and gravel to 1/4 inch in diameter, stiff, moist, yellowish brown and pale olive, mottled.
				Silt with gravel, estimated at 10-15% clay and 15-20% gravel to 1/2 inch in diameter, trace very coarse-grained sand, very stiff, moist, dark yellowish brown.

Total Depth: 66'

BORING LOG

Project No. KEI-P94-0903.P1	**Boring Diameter** 8.5" **Casing Diameter** 2"	**Logged By** T.S. JG G CEG 1633
Project Name Unocal S/S #7376 4191 1st Street, Pleasanton, CA	**Well Cover Elevation**	**Date Drilled** 2/6/95
Boring No. MW2B	**Drilling Method** Hollow-stem Auger	**Drilling Company** V & W Drilling

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati-graphy USCS	Description
		0		Pavement and base gravel.
			ML	Silt, trace clay, trace medium-grained sand, soft, moist, very dark gray.
			SP-SM	Poorly graded sand with gravel and silt, gravel to 1 inch in diameter, sand is fine to medium-grained, loose, moist, very dark gray, fill.
				Gravelly silt, trace coarse to very coarse-grained sand, soft, moist, brownish yellow, fill.
9/14/16		5	7.3 ND 0.13	Gravelly silt, as above, gravel diameter increasing with depth, very stiff, asphalt, fill.
				Native Soil
5/6/6		10	2.1 ND 0.062	Gravelly silt, trace coarse to very coarse-grained sand, gravel to 1-1/4 inches in diameter, stiff, moist, very dark brown.
			ML	
17/50-6"		15	2.0 ND 0.12	Silt, trace very coarse-grained sand, trace gravel to 1/4 inch in diameter, hard, moist, yellowish brown.
11/23/28		20	16 110 0.5	Silt, trace medium coarse-grained sand, hard, moist, olive brown.

BORING LOG

Project No. KEI-P94-0903.P1	**Boring Diameter** 8.5" **Casing Diameter** 2"	**Logged By** T.S. JGG CEG/633
Project Name Unocal S/S #7376 4191 1st Street, Pleasanton, CA	**Well Cover Elevation**	**Date Drilled** 2/6/95
Boring No. MW2B	**Drilling Method** Hollow-stem Auger	**Drilling Company** V & W Drilling

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati-graphy USCS	Description
			ML	Silt, as above.
			SP	Poorly graded sand with gravel, trace silt, estimated at 15-20% gravel to 3/4 inch in diameter, sand is medium to coarse-grained, medium dense, moist, dark greenish gray.
9/16/16		25 — 660 / 650 / 9.5	ML	Silt, trace fine to medium-grained sand, very stiff, moist, dark greenish gray.
				Silt, trace very fine to fine-grained sand, very stiff, moist, dark greenish gray.
8/13/14		30 — 680 / 1100 / 8.2	SP-SM	Poorly graded sand with silt, estimated at 20% gravel to 1-1/2 inches in diameter, 10% silt, sand is predominantly medium-grained, medium dense, moist, dark greenish gray.
27/50-6"		35 — 720 / 2400 / 3.2	GW	Well graded gravel with sand, trace silt, gravel to 2 inches in diameter, sand is fine to very coarse-grained, very dense, moist, dark greenish gray.
12/21/26		40 — 130 / 430 / 5.4	ML	Gravelly silt, estimated at 10-15% fine to medium-grained sand, gravel to 3/4 inch in diameter, hard, moist, dark yellowish brown and pale green, mottled.
			SP	Poorly graded sand with gravel, trace silt, estimated at 20-25% gravel to 1/2 inch in diameter, sand is predominantly fint to medium-grained, very dense, moist, grayish green and olive yellow, mottled.

BORING LOG

Project No. KEI-P94-0903.P1	**Boring Diameter** 8.5" / **Casing Diameter** 2"	**Logged By** T.S. JGG CEG 1633
Project Name Unocal S/S #7376, 4191 1st Street, Pleasanton, CA	**Well Cover Elevation**	**Date Drilled** 2/6/95
Boring No. MW2B	**Drilling Method** Hollow-stem Auger	**Drilling Company** V & W Drilling

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati-graphy USCS	Description
40/50-6"		45 — 110 / 1900 / 0.3%	SP	Poorly graded sand with gravel, trace silt, estimated at 20-25% gravel to 1/2 inch in diameter, sand is predominantly fint to medium-grained, very dense, moist, grayish green and olive yellow, mottled.
20/31/46		50 — 190 / 1900 / ND	GM	Silty gravel with sand, estimated at 10-20% silt, 25-30% medium to very coarse-grained sand, gravel to 1 inch in diameter, very dense, moist, dark olive brown.
12/21/33		55 — 4.3 / 320 / ND		Silty gravel with sand as above, except dense to very dense.
28/39/43		60 — 2.2 / 33 / 0.013	ML	Silt, trace medium to very coarse-grained sand, hard, moist, yellowish red.
29/50-3"		65 — 1.0 / 47 / ND	GW-GC	Silt, trace very coarse-grained sand and gravel to 1/4 inch in diameter, trace clay, hard, moist, strong brown, with weathered biotite.
				Well graded gravel with clay and sand, trace silt, sand is medium to very coarse-grained, very dense, moist, dark yellowish brown.

BORING LOG

Project No. KEI-P94-0903.P1	**Boring Diameter** 8.5" / **Casing Diameter** 2"	**Logged By** T.S. JGG CEG/1633
Project Name Unocal S/S #7376 4191 1st Street, Pleasanton, CA	**Well Cover Elevation**	**Date Drilled** 2/6/95
Boring No. MW2B	**Drilling Method** Hollow-stem Auger	**Drilling Company** V & W Drilling

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati-graphy USCS	Description
			GW-GC	Well graded gravel with clay and sand, trace silt, sand is medium to very coarse-grained, very dense, moist, dark yellowish brown.
27/50-6"		70	PD GC	Clayey gravel with sand, estimated at 15% clay, 5-10% silt, 10-15% medium to coarse-grained sand, gravel to 1-1/2 inches in diameter, very dense, moist, yellowish brown.
9/27/50-5"		75	ML	Silt, estimated at 5-10% clay, trace coarse to very coarse-grained sand and gravel to 1/2 inch in diameter, hard, moist, yellowish brown.
37/50-3"		80	SW	Well graded sand with gravel, sand is medium to very coarse-grained, gravel to 1/2 inch in diameter, very dense, moist, yellowish brown, with charcoal.
41/50-3"				Well graded sand with gravel as above.
39/50-6"		85	ML	Silt, trace gravel to 1 inch in diameter, trace clay, hard, moist, olive brown.
41/50-4"			GM	Silty gravel, estimated at 10-15% medium to very coarse-grained sand, gravel to 1 inch in diameter, very dense, moist, olive brown.

BORING LOG

Project No. KEI-P94-0903.P1	**Boring Diameter** 8.5" **Casing Diameter** 2"	**Logged By** T.S. JGG CEG/633
Project Name Unocal S/S #7376 4191 1st Street, Pleasanton, CA	**Well Cover Elevation**	**Date Drilled** 2/6/95
Boring No. MW2B	**Drilling Method** Hollow-stem Auger	**Drilling Company** V & W Drilling

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati-graphy USCS	Description
			ML	Silt, trace very coarse-grained sand, trace clay, hard, moist, olive brown.
50/50-4"		90	SW	Well graded sand with gravel, trace to 10% silt, estimated at 20-25% gravel to 3/4 inch in diameter, sand is fine to coarse-grained, hard, moist, olive brown.
				Total Depth: 91'
		95		
		100		
		105		

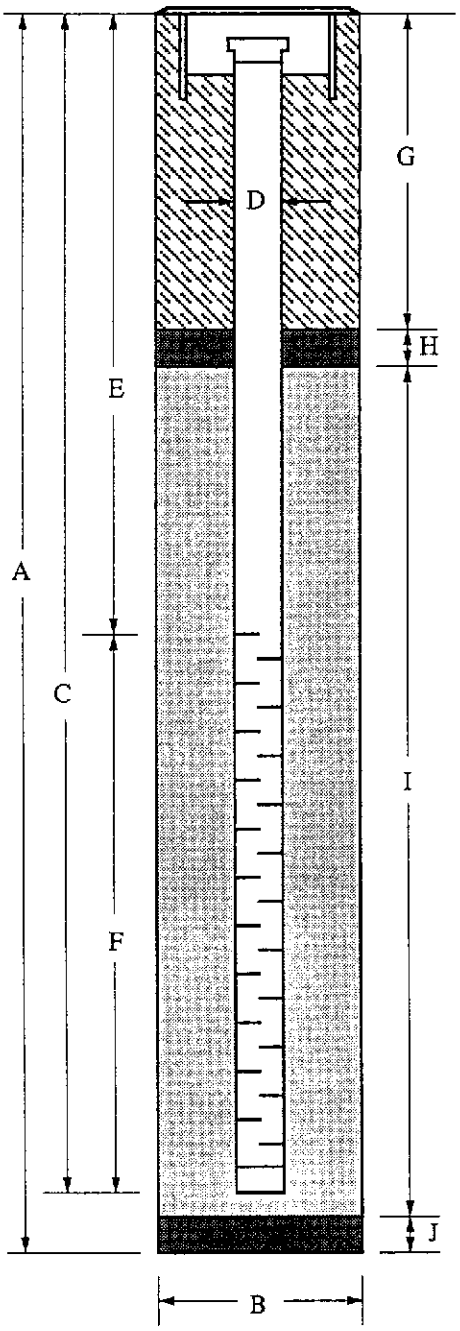
WELL CONSTRUCTION DIAGRAM

PROJECT NAME: Unocal S/S #7376, 4191 1st Street, Pleasanton, CA **WELL NO.:** MW2B

PROJECT NUMBER: KEI-P94-0903.P1

WELL PERMIT NO.: ACFC & WCD #95024

Flush-mounted Well Cover



A. Total Depth : 91'

B. Boring Diameter: 8.5"

Drilling Method: Hollow Stem Auger

C. Casing Length: 85'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"

ID = 2.067"

E. Depth to Perforations: 65'

F. Perforated Length: 20'

Perforation Type: Machine Slotted

Perforation Size: 0.010"

G. Surface Seal: 61'

Seal Material: Neat Cement

H. Seal: 2'

Seal Material: Bentonite

I. Filter Pack: 22'

Pack Material: RMC Lonestar Sand

Size: #2/12

J. Bottom Seal: 6'

Seal Material: Bentonite Chips

Sequoia Analytical

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Kaprealian Engineering, Inc.	Client Project ID:	Unocal #7376, 4191 1st Street, Pleasanton	Sampled:	Feb 6, 1995
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Soil	Received:	Feb 8, 1995
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported:	Feb 27, 1995
Attention: Avo Avedissian	First Sample #:	502-0491		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit mg/kg	Sample I.D. 502-0491 EB1 (5)	Sample I.D. 502-0492 EB1 (10)	Sample I.D. 502-0493 EB1 (15)	Sample I.D. 502-0494 EB1 (20)	Sample I.D. 502-0495 EB1 (25)	Sample I.D. 502-0496 EB1 (30)
Purgeable Hydrocarbons	1.0	15,000	3,200	1,800	1,700	2,000	1,500
Benzene	0.0050	340	32	15	4.9	3.9	N.D.
Toluene	0.0050	1,700	280	140	76	78	40
Ethyl Benzene	0.0050	390	73	41	39	44	30
Total Xylenes	0.0050	2,100	400	240	220	250	170
Chromatogram Pattern:		Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline

Quality Control Data

Report Limit Multiplication Factor:	1,000	500	500	500	500	500
Date Analyzed:	2/15/95	2/15/95	2/15/95	2/15/95	2/15/95	2/15/95
Instrument Identification:	HP-2	HP-2	HP-2	HP-2	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	120	112	104	100	84	84

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

SEQUOIA ANALYTICAL, #1271

Alan B. Kemp
Project Manager

Sequoia Analytical

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal #7376, 4191 1st Street, Pleasanton	Sampled:	Feb 6, 1995
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Soil	Received:	Feb 8, 1995
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported:	Feb 27, 1995
Attention: Avo Avedissian	First Sample #:	502-0497		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit mg/kg	Sample I.D. 502-0497 EB1 (35)	Sample I.D. 502-0498 EB1 (40)	Sample I.D. 502-0499 EB1 (45)	Sample I.D. 502-0500 EB1 (50)	Sample I.D. 502-0501 EB1 (55)	Sample I.D. 502-0502 EB1 (60)
Purgeable Hydrocarbons	1.0	1,800	1,200	27	430	6.4	1.6
Benzene	0.0050	1.4	1.3	1.4	0.29	0.89	0.0090
Toluene	0.0050	52	50	5.7	11	0.097	0.061
Ethyl Benzene	0.0050	44	25	0.59	7.5	0.20	0.021
Total Xylenes	0.0050	250	140	3.2	42	1.0	0.098
Chromatogram Pattern:		Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline

Quality Control Data

Report Limit Multiplication Factor:	250	250	10	50	1.0	1.0
Date Analyzed:	2/15/95	2/15/95	2/15/95	2/17/95	2/20/95	2/20/95
Instrument Identification:	HP-4	HP-4	HP-2	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	80	81	89	85	92	86

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

SEQUOIA ANALYTICAL, #1271

Alan B. Kemp
Project Manager

Sequoia Analytical

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal #7376, 4191 1st Street, Pleasanton	Sampled: Feb 6, 1995
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Soil	Received: Feb 8, 1995
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported: Feb 27, 1995
Attention: Avo Avedissian	First Sample #:	502-0503	

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit mg/kg	Sample I.D. 502-0503 EB1 (65)	Sample I.D. 502-0504 MW2B (5)	Sample I.D. 502-0505 MW2B (10)	Sample I.D. 502-0506 MW2B (15)	Sample I.D. 502-0507 MW2B (20)*	Sample I.D. 502-0508 MW2B (25)
Purgeable Hydrocarbons	1.0	N.D.	7.3	2.1	2.0	16	660
Benzene	0.0050	N.D.	0.13	0.062	0.12	0.50	9.5
Toluene	0.0050	0.034	0.048	0.020	0.0076	0.042	2.6
Ethyl Benzene	0.0050	0.011	0.090	0.0078	0.0074	0.12	4.1
Total Xylenes	0.0050	0.065	0.63	0.11	0.02	0.18	11
Chromatogram Pattern:		--	Gasoline	Gasoline	Gasoline	Gasoline and Unidentified Hydrocarbons >C9	Gasoline

Quality Control Data

Report Limit Multiplication Factor:	1.0	2.0	1.0	1.0	2.5	50
Date Analyzed:	2/20/95	2/20/95	2/20/95	2/20/95	2/20/95	2/17/95
Instrument Identification:	HP-4	HP-4	HP-4	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	89	94	97	94	102	115

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

SEQUOIA ANALYTICAL, #1271

Alan B. Kemp
Project Manager

Please Note:
* This sample appears to contain gasoline and non-gasoline mixtures. "Unidentified Hydrocarbons >C9" refers to unidentified peaks in the total extractable petroleum hydrocarbons range.

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal #7376, 4191 1st Street, Pleasanton	Sampled:	Feb 6, 1995
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Soil	Received:	Feb 8, 1995
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported:	Feb 27, 1995
Attention: Avo Avedissian	First Sample #:	502-0509		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit mg/kg	Sample I.D. 502-0509 MW2B (30)	Sample I.D. 502-0510 MW2B (35)	Sample I.D. 502-0511 MW2B (40)*	Sample I.D. 502-0512 MW2B (45)*	Sample I.D. 502-0513 MW2B (50)*	Sample I.D. 502-0514 MW2B (55)^
Purgeable Hydrocarbons	1.0	680	720	130	110	190	4.3
Benzene	0.0050	8.2	3.2	1.4	0.31	N.D.	N.D.
Toluene	0.0050	1.1	1.1	0.45	0.083	0.68	N.D.
Ethyl Benzene	0.0050	6.1	4.6	1.6	0.63	0.33	0.013
Total Xylenes	0.0050	11	15	5.0	1.7	2.2	0.056
Chromatogram Pattern:		Gasoline	Gasoline	Gasoline and Unidentified Hydrocarbons >C9	Gasoline and Unidentified Hydrocarbons >C9	Gasoline and Unidentified Hydrocarbons >C9	Unidentified Hydrocarbons >C9

Quality Control Data

Report Limit Multiplication Factor:	100	100	10	20	20	2.0
Date Analyzed:	2/17/95	2/17/95	2/17/95	2/16/95	2/16/95	2/15/95
Instrument Identification:	HP-4	HP-4	HP-2	HP-4	HP-5	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	103	95	124	89	85	95

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

SEQUOIA ANALYTICAL, #1271

Alan B. Kemp
Project Manager

Please Note:
* This sample appears to contain gasoline and non-gasoline mixtures. "Unidentified Hydrocarbons >C9" refers to unidentified peaks in the total extractable petroleum hydrocarbons range.
^ This sample does not appear to contain gasoline. "Unidentified Hydrocarbons >C9 refers to unidentified peaks in the total extractable petroleum hydrocarbons range.

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Kaprealian Engineering, Inc.	Client Project ID:	Unocal #7376, 4191 1st Street, Pleasanton	Sampled:	Feb 6, 1995
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Soil	Received:	Feb 8, 1995
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported:	Feb 27, 1995
Attention: Avo Avedissian	First Sample #:	502-0515		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit mg/kg	Sample I.D. 502-0515 MW2B (60)^	Sample I.D. 502-0516 MW2B (65)	Sample I.D. 502-0517 MW2B (70)	Sample I.D. 502-0518 MW2B (75)	Sample I.D. 502-0519 MW2B (80)
Purgeable Hydrocarbons	1.0	2.2	1.0	N.D.	N.D.	N.D.
Benzene	0.0050	0.013	N.D.	N.D.	N.D.	N.D.
Toluene	0.0050	0.0088	0.0099	N.D.	N.D.	N.D.
Ethyl Benzene	0.0050	N.D.	N.D.	N.D.	N.D.	N.D.
Total Xylenes	0.0050	0.035	0.0097	N.D.	N.D.	N.D.
Chromatogram Pattern:		Unidentified Hydrocarbons >C9	Gasoline	--	--	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0
Date Analyzed:	2/16/95	2/16/95	2/16/95	2/16/95	2/15/95
Instrument Identification:	HP-5	HP-4	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	94	85	90	90	87

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

SEQUOIA ANALYTICAL, #1271

Alan B. Kemp
Project Manager

Please Note:
^ This sample does not appear to contain gasoline. "Unidentified Hydrocarbons >C9 refers to unidentified peaks in the total extractable petroleum hydrocarbons range.

Sequoia Analytical

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal #7376, 4191 1st Street, Pleasanton	Sampled: Feb 6, 1995
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Soil	Received: Feb 8, 1995
Concord, CA 94520	Analysis Method:	EPA 3550/8015	Reported: Feb 27, 1995
Attention: Avo Avedissian	First Sample #:	502-0491	

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit mg/kg	Sample I.D. 502-0491 EB1 (5)*	Sample I.D. 502-0492 EB1 (10)*	Sample I.D. 502-0493 EB1 (15)*	Sample I.D. 502-0494 EB1 (20)*	Sample I.D. 502-0495 EB1 (25)*	Sample I.D. 502-0496 EB1 (30)^
Extractable Hydrocarbons	1.0	3600	690	800	240	840	530
Chromatogram Pattern:		Diesel and Unidentified Hydrocarbons <C14	Diesel and Unidentified Hydrocarbons <C14	Diesel and Unidentified Hydrocarbons <C14	Diesel and Unidentified Hydrocarbons <C14	Diesel and Unidentified Hydrocarbons <C14	Unidentified Hydrocarbons <C14 & >C20

Quality Control Data

Report Limit Multiplication Factor:	50	20	20	10	20	20
Date Extracted:	2/15/95	2/15/95	2/15/95	2/18/95	2/18/95	2/18/95
Date Analyzed:	2/24/95	2/23/95	2/24/95	2/24/95	2/24/95	2/24/95
Instrument Identification:	HP-3B	HP-3B	HP-3B	HP-3A	HP-3A	HP-3A

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

SEQUOIA ANALYTICAL, #1271

Alan B. Kemp
Project Manager

Please Note:
* This sample appears to contain diesel and non-diesel mixtures. "Unidentified Hydrocarbons <C14" are probably gasoline.
^ This sample does not appear to contain diesel. "Unidentified Hydrocarbons <C14" are probably gasoline; ">C20" refers to unidentified peaks in the total oil and grease range.

5020491.KEI <6>

Sequoia Analytical

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal #7376, 4191 1st Street, Pleasanton	Sampled: Feb 6, 1995
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Soil	Received: Feb 8, 1995
Concord, CA 94520	Analysis Method:	EPA 3550/8015	Reported: Feb 27, 1995
Attention: Avo Avedissian	First Sample #:	502-0497	

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit mg/kg	Sample I.D. 502-0497 EB1 (35)^	Sample I.D. 502-0498 EB1 (40)*	Sample I.D. 502-0499 EB1 (45)^	Sample I.D. 502-0500 EB1 (50)*	Sample I.D. 502-0501 EB1 (55)	Sample I.D. 502-0502 EB1 (60)
Extractable Hydrocarbons	1.0	200	98	2.6	55	N.D.	N.D.
Chromatogram Pattern:		Unidentified Hydrocarbons <C14 & >C20	Diesel and Unidentified Hydrocarbons <C14	Unidentified Hydrocarbons <C14	Diesel and Unidentified Hydrocarbons <C14	--	--

Quality Control Data

Report Limit Multiplication Factor:	10	1.0	1.0	1.0	1.0	1.0
Date Extracted:	2/18/95	2/18/95	2/18/95	2/18/95	2/18/95	2/18/95
Date Analyzed:	2/24/95	2/22/95	2/22/95	2/22/95	2/22/95	2/22/95
Instrument Identification:	HP-3A	HP-3A	HP-3A	HP-3A	HP-3A	HP-3A

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

SEQUOIA ANALYTICAL, #1271

Alan B. Kemp
Project Manager

Please Note:
* This sample appears to contain diesel and non-diesel mixtures. "Unidentified Hydrocarbons <C14" are probably gasoline.
^ This sample does not appear to contain diesel. "Unidentified Hydrocarbons <C14" are probably gasoline; ">C20" refers to unidentified peaks in the total oil and grease range.

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal #7376, 4191 1st Street, Pleasanton	Sampled: Feb 6, 1995
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Soil	Received: Feb 8, 1995
Concord, CA 94520	Analysis Method:	EPA 3550/8015	Reported: Feb 27, 1995
Attention: Avo Avedissian	First Sample #:	502-0503	

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit mg/kg	Sample I.D. 502-0503 EB1 (65)	Sample I.D. 502-0504 MW2B (5)	Sample I.D. 502-0505 MW2B (10)	Sample I.D. 502-0506 MW2B (15)	Sample I.D. 502-0507 MW2B (20)*	Sample I.D. 502-0508 MW2B (25)*
Extractable Hydrocarbons	1.0	N.D.	N.D.	N.D.	N.D.	110	550
Chromatogram Pattern:		--	--	--	--	Diesel and Unidentified Hydrocarbons <C14 & >C20	Diesel and Unidentified Hydrocarbons >C20

Quality Control Data

Report Limit Multiplication Factor:	1.0	5.0	1.0	1.0	10	20
Date Extracted:	2/18/95	2/18/95	2/18/95	2/18/95	2/18/95	2/18/95
Date Analyzed:	2/22/95	2/24/95	2/22/95	2/24/95	2/23/95	2/24/95
Instrument Identification:	HP-3A	HP-3A	HP-3A	HP-3A	HP-3A	HP-3B

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

SEQUOIA ANALYTICAL, #1271

Alan B. Kemp
Project Manager

Please Note:
* This sample appears to contain diesel and non-diesel mixtures. "Unidentified Hydrocarbons <C14" are probably gasoline; ">C20" refers to unidentified peaks in the total oil and grease range.

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal #7376, 4191 1st Street, Pleasanton	Sampled: Feb 6, 1995
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Soil	Received: Feb 8, 1995
Concord, CA 94520	Analysis Method:	EPA 3550/8015	Reported: Feb 27, 1995
Attention: Avo Avedissian	First Sample #:	502-0509	

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit mg/kg	Sample I.D. 502-0509 MW2B (30)*	Sample I.D. 502-0510 MW2B (35)*	Sample I.D. 502-0511 MW2B (40)*	Sample I.D. 502-0512 MW2B (45)*	Sample I.D. 502-0513 MW2B (50)*	Sample I.D. 502-0514 MW2B (55)*
Extractable Hydrocarbons	1.0	1,100	2,400	430	1,000	1,800	320
Chromatogram Pattern:		Diesel and Unidentified Hydrocarbons >C20	Diesel and Unidentified Hydrocarbons >C20	Diesel and Unidentified Hydrocarbons >C20	Diesel and Unidentified Hydrocarbons >C20	Diesel and Unidentified Hydrocarbons >C20	Diesel and Unidentified Hydrocarbons >C20

Quality Control Data

Report Limit Multiplication Factor:	50	400	20	50	100	10
Date Extracted:	2/18/95	2/18/95	2/18/95	2/18/95	2/18/95	2/20/95
Date Analyzed:	2/23/95	2/24/95	2/24/95	2/23/95	2/24/95	2/23/95
Instrument Identification:	HP-3A	HP-3B	HP-3B	HP-3A	HP-3B	HP-3B

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

SEQUOIA ANALYTICAL, #1271

Alan B. Kemp
Project Manager

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

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal #7376, 4191 1st Street, Pleasanton	Sampled: Feb 6, 1995
2401 Stanwell Dr., Ste. 400	Sample Matrix:	Soil	Received: Feb 8, 1995
Concord, CA 94520	Analysis Method:	EPA 3550/8015	Reported: Feb 27, 1995
Attention: Avo Avedissian	First Sample #:	502-0515	

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit mg/kg	Sample I.D. 502-0515 MW2B (60)	Sample I.D. 502-0516 MW2B (65)	Sample I.D. 502-0517 MW2B (70)	Sample I.D. 502-0518 MW2B (75)	Sample I.D. 502-0519 MW2B (80)
Extractable Hydrocarbons	1.0	33	4.7	N.D.	N.D.	N.D.
Chromatogram Pattern:		Diesel and Unidentified Hydrocarbons >C20	Diesel and Unidentified Hydrocarbons >C20	--	--	--

Quality Control Data

Report Limit Multiplication Factor:	10	1.0	1.0	1.0	1.0
Date Extracted:	2/20/95	2/20/95	2/20/95	2/20/95	2/20/95
Date Analyzed:	2/24/95	2/23/95	2/23/95	2/22/95	2/22/95
Instrument Identification:	HP-3A	HP-3B	HP-3B	HP-3A	HP-3A

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

SEQUOIA ANALYTICAL, #1271

Alan B. Kemp
Project Manager

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

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

Client Project ID: Unocal #7376, 4191 1st Street, Pleasanton
Matrix: Solid
QC Sample Group: 5020491-519

Reported: Feb 28, 1995

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel	Diesel	Diesel
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015 Mod	EPA 8015 Mod	EPA 8015 Mod
Analyst:	A.Tuzon	A.Tuzon	A.Tuzon	A.Tuzon	K. Wimer	K. Wimer	K. Wimer
MS/MSD Batch#:	5020519	5020519	5020519	5020519	5020440	--	5020694
Date Prepared:	2/15/95	2/15/95	2/15/95	2/15/95	2/21/95	--	2/23/95
Date Analyzed:	2/15/95	2/15/95	2/15/95	2/15/95	2/21/95	--	2/23/95
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4	HP-3A	--	HP-3B
Conc. Spiked:	0.40 mg/kg	0.40 mg/kg	0.40 mg/kg	1.2 mg/kg	10 mg/kg	--	10 mg/kg
Matrix Spike % Recovery:	83	88	90	91	51	--	99
Matrix Spike Duplicate % Recovery:	85	90	90	93	46	--	100
Relative % Difference:	2.4	2.2	0.0	2.2	10	--	1.0
LCS Batch#:	2LCS021595	2LCS021595	2LCS021595	2LCS021595	BLK021595	BLK0211895	BLK022095
Date Prepared:	2/15/95	2/15/95	2/15/95	2/15/95	2/15/95	2/18/95	2/20/95
Date Analyzed:	2/15/95	2/15/95	2/15/95	2/15/95	2/21/95	2/21/95	2/23/95
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4	HP-3A	HP-3B	HP-3B
LCS % Recovery:	91	98	100	101	104	105	100
% Recovery Control Limits:	55-145	47-149	47-155	56-140	38-122	38-122	38-122

SEQUOIA ANALYTICAL, #1271

Alan B. Kemp
Project Manager

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

UNOCAL 76

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☐ East 11115 Montgomery, Suite B • Spokane, WA 99206 • (509) 924-9200
☐ 15055 S.W. Sequoia Pkwy, Suite 110 • Portland, OR 97222 • (503) 624-9800

Company Name: Kaprealian Engineering, Inc
Address: 2401 Stanwell Dr., Suite 400
City: Concord State: CA Zip Code: 94520
Telephone: (510)602-5100 FAX #: (510)687-0602
Report To: Avo Sampler: Tom Seeliger

Project Name: 4191 - 1st Street, Pleasanton
UNOCAL Project Manager: Bob Houst
Release #:
Site #: 7376
QC Data: ☒ Level D (Standard) ☐ Level C ☐ Level B ☐ Level A

Turnaround Time: ☒ 10 Work Days ☐ 5 Work Days ☐ 3 Work Days ☐ 2 Work Days ☐ 1 Work Day ☐ 2-8 Hours

☐ Drinking Water ☐ Waste Water ☒ Other

CODE: ☐ Misc. ☒ Detect. ☐ Eval. ☐ Remed. ☐ Demol. ☐ Closure

Analyses Requested

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	TPH-G	BTEX	TPH-D	Comments
1. EB1 (5)	2/6/95	soil	1	tube	5020491	X	X	X	
2. EB1 (10)					5020492				
3. EB1 (15)					5020493				
4. EB1 (20)					5020494				
5. EB1 (25)					5020495				
6. EB1 (30)					5020496				
7. EB1 (35)					5020497				
8. EB1 (40)					5020498				
9. EB1 (45)					5020499				
10. EB1 (50)	↓	↓	↓	↓	5020500	↓	↓	↓	

Relinquished By: Tom E. Seeliger	Date: 2/8/95	Time: 11:45AM	Received By:	Date: 2/8/95	Time: 11:45AM
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab:	Date:	Time:

Were Samples Received in Good Condition? ☒ Yes ☐ No Samples on Ice? ☒ Yes ☐ No Method of Shipment _____

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

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

Pink - Client
Yellow - Laboratory
White - Laboratory

UNOCAL 76

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☐ East 11115 Montgomery, Suite B • Spokane, WA 99206 • (509) 924-9200
☐ 15055 S.W. Sequoia Pkwy, Suite 110 • Portland, OR 97222 • (503) 624-9800

Company Name: Kaprealian Engineering, Inc.
Address: 2401 Stanwell Dr., Suite 400
City: Concord State: CA Zip Code: 94520
Telephone: (510)602-5100 FAX #: (510)687-0602
Report To: Avo Sampler: Tom Seeliger

Project Name: 4191 - 1st Street, Pleasanton
UNOCAL Project Manager: Bob Boust
Release #:
Site #: 7376
QC Data: ☒ Level D (Standard) ☐ Level C ☐ Level B ☐ Level A

Pink - Client

Turnaround Time: ☒ 10 Work Days ☐ 5 Work Days ☐ 3 Work Days ☐ 2 Work Days ☐ 1 Work Day ☐ 2-8 Hours

CODE: ☐ Misc. ☒ Detect. ☐ Eval. ☐ Remed. ☐ Demol. ☐ Closure

☐ Drinking Water ☐ Waste Water ☒ Other

Analyses Requested

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	TPH-G	BTEX	TPH-D	Comments
1. EB1 (55)'	2/6/95	soil	1	tube	5020501	X	X	X	
2. EB1 (60)'					5020502				
3. EB1 (65)'					5020503				
4. MW2B (5)'					5020504				
5. MW2B (10)'					5020505				
6. MW2B (15)'					5020506				
7. MW2B (20)'					5020507				
8. MW2B (25)'					5020508				
9. MW2B (30)'					5020509				
10. MW2B (35)'					5020510				

Yellow - Laboratory

Relinquished By: Tom Seeliger	Date: 2/8/95	Time: 11:45 AM	Received By:	Date: 2/8/95	Time: 11:45 AM
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab:	Date:	Time:

White - Laboratory

Were Samples Received in Good Condition? ☒ Yes ☐ No Samples on Ice? ☒ Yes ☐ No Method of Shipment _____

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

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

UNOCAL 76

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☐ East 11115 Montgomery, Suite B • Spokane, WA 99206 • (509) 924-9200
☐ 15055 S.W. Sequoia Pkwy, Suite 110 • Portland, OR 97222 • (503) 624-9800

Company Name: Kaprealian Engineering, Inc.	Project Name: 4191 - 1st Street, Pleasanton
Address: 2401 Stanwell Dr., Suite 400	UNOCAL Project Manager: Bob Boust
City: Concord State: CA Zip Code: 94520	Release #:
Telephone (510) 602-5100 FAX # (510) 687-0602	Site #: 7376
Report To: Avo Sampler: Tom Seeliger	QC Data: ☒ Level D (Standard) ☐ Level C ☐ Level B ☐ Level A

Turnaround Time: ☒ 10 Work Days ☐ 5 Work Days ☐ 3 Work Days ☐ 2 Work Days ☐ 1 Work Day ☐ 2-8 Hours

CODE: ☐ Misc. ☒ Detect. ☐ Eval. ☐ Remed. ☐ Demol. ☐ Closure

☐ Drinking Water ☐ Waste Water ☒ Other

Analyses Requested: TPH-G, BTEX, TPH-D

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	TPH-G	BTEX	TPH-D	Comments
1. MW2B(40)'	2/6/95	soil	1	tube	5020511	X	X	X	
2. MW2B(45)'					5020512				
3. MW2B(50)'					5020513				
4. MW2B(55)'					5020514				
5. MW2B(60)'					5020515				
6. MW2B(65)'					5020516				
7. MW2B(70)'					5020517				
8. MW2B(75)'					5020518				
9. MW2B(80)'					5020519				
10.									

Relinquished By: [signature]	Date: 2/8/95	Time: 11:45 AM	Received By: [signature]	Date: 2/8/95	Time: 11:45 AM
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab:	Date:	Time:

Were Samples Received in Good Condition? ☒ Yes ☐ No Samples on Ice? ☒ Yes ☐ No Method of Shipment _____ Page 3 of 3

To be completed upon receipt of report:

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

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

Pink - Client
Yellow - Laboratory
White - Laboratory

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Particle Size Distribution by Sieve and Hydrometer

Method: **ASTM D422-63**

Client: **Kaprealian Engineering, Inc.**
Client Project ID: Unocal #7376, Pleasanton
Received: 02/08/95
Analyzed: 02/13/95
Client ID: MW 2B (85)
Sample Description: Soil
Lab ID: 5020490

SIEVE TEST

A. Total weight of sample:	348.55	g
B. Weight retained in No. 10 sieve:	218.01	g
C. % passing No. 10 sieve:	37.45	%

Sieve test for weight retained in a No. 10 sieve.

SIEVE SIZE	WEIGHT RETAINED(g)	% RETAINED	CUMULATIVE % RETAINED	CUMULATIVE % PASSING
1 1/2 in	0.00	0.00	0.00	100.00
3/8 in	72.19	20.71	20.71	79.29
No. 4	69.11	19.83	40.54	59.46
No. 10	76.71	22.01	62.55	37.45
No. 18	37.43	10.74	73.29	26.71
No. 35	24.55	7.04	80.33	19.67
No. 50	21.51	6.17	86.50	13.50
No. 80	6.09	1.75	88.25	11.75
No. 200	10.82	3.10	91.35	8.65

HYDROMETER TEST

ELAPSED TIME (min)	TEMP. (deg C)	HYDROMETER READING (H)	CORRECTED READING (R)	(L)	PARTICLE DIAM. in mm (S)	% SUSPENDED (P)
2	19	18	14	14.0	0.0357	8.1
5	19	16	12	14.3	0.0228	7.0
10	19	14	10	14.7	0.0163	5.8
15	19	14	10	14.7	0.0133	5.8
25	19	13	9	14.8	0.0104	5.2
40	19	12	8	15.0	0.0083	4.7
60	19	11	7	15.2	0.0068	4.1
90	19	11	7	15.2	0.0055	4.1
120	19	10	6	15.3	0.0048	3.5
1440	19	9	5	15.5	0.0014	2.9

Weight of soil used in hydrometer test (D):	65	g
Hygroscopic moisture correction factor (G):	0.99	
Specific gravity (Assumed):	2.65	
Dispersing agent correction factor (E):	3	
Meniscus correction factor (F):	1	
Temp./Spec. gravity dependent constant (K):	0.01348	

Formulas:

R = H - E - F
S = K[SQRT(L/T)]
P = (R/W)100
W = (J x 100)/C
J = D x G

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Method: **ASTM D422-63**
Analyzed: 02/13/95
Lab ID: 5020490
Client ID: MW 2B (85)

Graphing Data:

% SUSPENDED (P)	PARTICLE DIAM. in mm (S)	Sieve Size
100.00	37.5	1 1/2 in
79.29	9.5	3/8 in
59.46	4.75	No. 4
37.45	2	No. 10
26.71	0.991	No. 18
19.67	0.495	No. 35
13.50	0.295	No. 50
11.75	0.18	No. 80
8.65	0.075	No. 200
8.1	0.0357	
7.0	0.0228	
5.8	0.0163	
5.8	0.0133	
5.2	0.0104	
4.7	0.0083	
4.1	0.0068	
4.1	0.0055	
3.5	0.0048	
2.9	0.0014	

Sample Composition:

(1) Gravel, passing 3-in. and retained on No. 4 Sieve	40.54	%
(2a) Coarse Sand, passing No. 4 and retained on No. 10 Sieve	22.01	%
(2b) Medium Sand, passing No. 10 and retained on No. 48 Sieve	23.95	%
(2c) Fine Sand, passing No. 48 and retained on No. 200 Sieve	4.85	%
(3) Silt size, 0.074 to 0.005 mm	5.16	%
(4) Clay Size, smaller than 0.005 mm	3.49	%
	100	%

SEQUOIA ANALYTICAL, #1210

Alan B. Kemp
Project Manager

Sequoia Analytical

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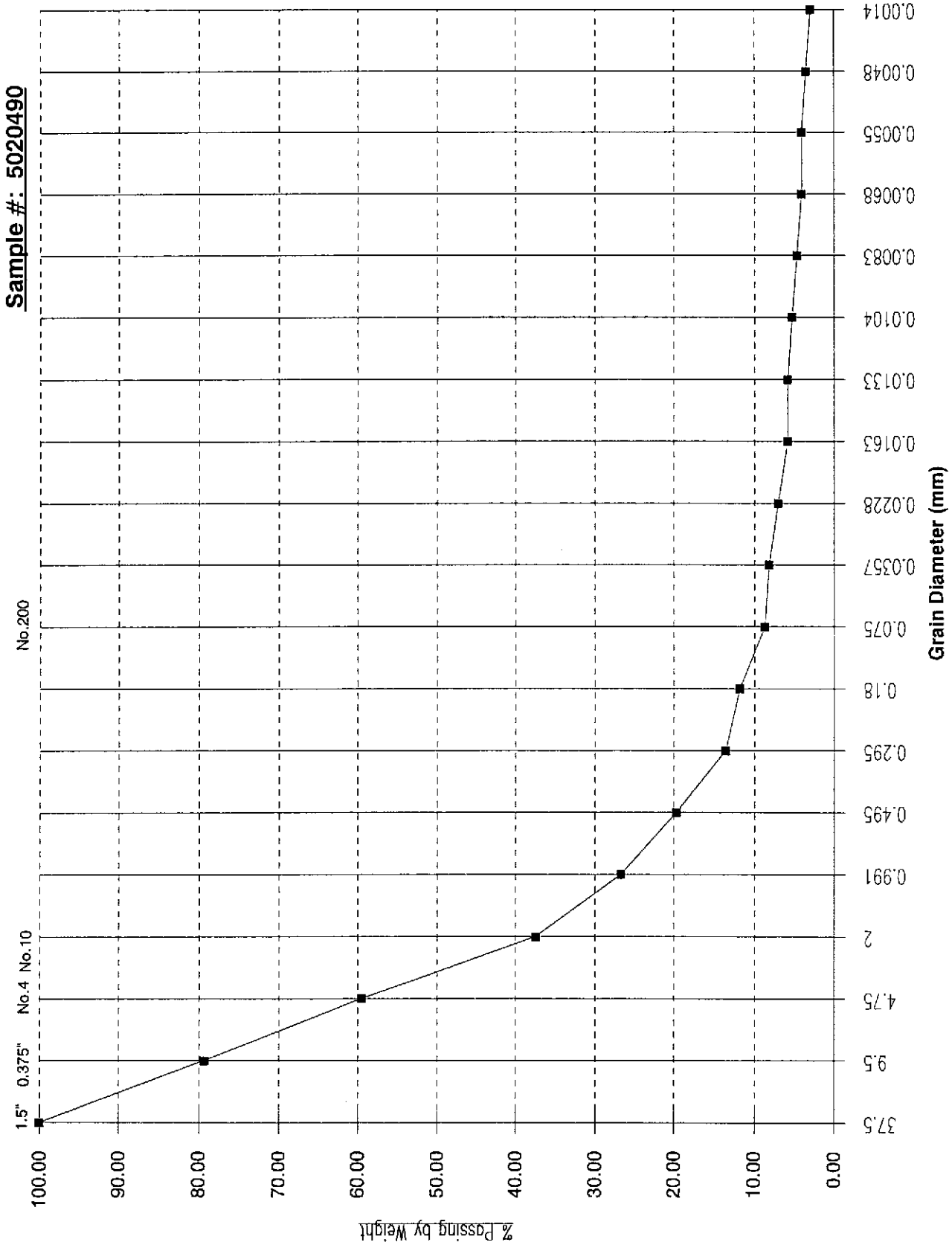
Graph of Acquired Data

Sample #: 5020490



UNOCAL 76

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East 11115 Montgomery, Suite B • Spokane, WA 99206 • (509) 924-9200
15055 S.W. Sequoia Pkwy, Suite 110 • Portland, OR 97222 • (503) 624-9800

Company Name: Kaprealian Engineering, Inc.
Address: 2401 Stanwell Dr., Suite #400
City: Concord State: CA Zip Code: 94520
Telephone: (510) 602-5100 FAX #: (510) 687-0602
Report To: Ave Sampler: Tom Seeliger

Project Name: 4191 Yst Street, Pleasanton
UNOCAL Project Manager: Bob Baust
Release #:
Site #: 7376
QC Data: ☒ Level D (Standard) ☐ Level C ☐ Level B ☐ Level A

Turnaround Time: ☒ 10 Work Days ☐ 5 Work Days ☐ 3 Work Days ☐ 2 Work Days ☐ 1 Work Day ☐ 2-8 Hours

☐ Drinking Water ☐ Waste Water ☐ Other

CODE: ☐ Misc. ☒ Detect. ☐ Eval. ☐ Remed. ☐ Demol. ☐ Closure

Analyses Requested

	Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	Sieve/Hydrometer									Comments
1.	MW2B(85)	2/6/95	soil	1	tube	5020490	X									
2.																
3.																
4.																
5.																
6.																
7.																
8.																
9.																
10.																

Relinquished By: Tom Seeliger	Date: 2/8/95	Time: 11:45 AM	Received By: [illegible]	Date: 2/8/95	Time: 11:45 AM
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab:	Date:	Time:

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

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