KAPREALIAN ENGINEERING
INCORPORATED

September 9, 1992

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

RE: Unocal Service Station #5366
7375 Amador Valley Boulevard
Dublin, California

Gentlemen:

Per the request of Mr. Ron Bock of Unocal Corporation, enclosed please find our report dated June 30, 1992, for the above referenced site.

If you should have any questions, please feel free to call our office at (510) 602-5100.

Sincerely,

Kaprealian Engineering, Inc.

Judy A. Dewey

jad\82

Enclosure

cc: Ron Bock, Unocal Corporation

2401 Stanwell Drive, Suite 400
Concord, California 94520
Tel: 510.602.5100 Fax: 510.687 0602

KAPREALIAN ENGINEERING
INCORPORATED

KEI-P88-0205.QR16
June 30, 1992

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

Attention: Mr. Ron Bock

RE: Quarterly Report
Unocal Service Station #5366
7375 Amador Valley Boulevard
Dublin, California

Dear Mr. Bock:

This report presents the results of the most recent quarter of monitoring and sampling of the monitoring wells at the referenced site by Kaprealian Engineering, Inc. (KEI), per KEI's report KEI-P88-0205.QR3 dated February 15, 1989. All of the wells are currently monitored monthly, well MW1 is sampled on a quarterly basis, and upgradient well MW2 is sampled on an annual basis. This report covers the work performed by KEI from March through May of 1992.

SITE DESCRIPTION AND BACKGROUND

The subject site is presently used as a service station. The site is located near the center of the southeast end of San Ramon Valley. The site is situated at the west corner of the intersection of Village Parkway and Amador Valley Boulevard in Dublin, California. A BP service station, an Arco service station, and a former Shell station are located at the other three corners of this intersection. A Location Map, a Site Vicinity Map, and Site Plans are attached to this report.

KEI's initial work at the site began on February 18, 1988, and consisted of soil sampling following the removal of three underground fuel storage tanks. The tanks consisted of one 10,000 gallon unleaded gasoline tank, one 10,000 gallon super unleaded gasoline tank, and one 10,000 gallon diesel fuel tank. The tanks were made of steel and had various sized holes at the bottom of the tanks, ranging from a quarter-inch to one-inch in diameter. Ground water was encountered in the tank pit at a depth of 10.5 feet below grade, thus prohibiting the collection of soil samples from beneath the tanks. Six soil samples, labeled S1 through S4, S2D, and S4D, were collected from the sidewalls of the fuel tank pit. The soil

2401 Stanwell Drive, Suite 400
Concord, California 94520
Tel. 510.602.5100 Fax: 510.687 0602

sample collection points are shown on the attached Site Plan, Figure 2. The fuel tank pit was then excavated to a depth of approximately 13 feet below grade. After 9,000 gallons of water were pumped from the former tank pit, one ground water sample, labeled W1, was collected. In addition, a second water sample, labeled W2, was collected from a second excavation where the new tanks were installed.

Samples were analyzed at HAZCAT Mobile Organics Laboratory in San Carlos, California, a state-certified laboratory. Soil samples S2, S3, and S4, and the water samples, were analyzed for total petroleum hydrocarbons (TPH) as gasoline, and benzene, toluene, xylenes, and ethylbenzene (BTX&E). Soil samples S1, S2D, and S4D, and the water samples, were also analyzed for TPH as diesel. The analytical results of soil samples S2, S3, and S4 showed levels of TPH as gasoline at 14 ppm, 14 ppm, and 1,700 ppm, respectively. The analytical results of the water samples showed 91,000 ppb of TPH as gasoline and 8,200 ppb of benzene in sample W1, and 120 ppb of TPH as gasoline with a non-detectable level of benzene in sample W2. Analytical results of the soil and water samples are listed in Table 3. Documentation of the tank removal procedures, sample collection techniques, and the analytical results are presented in KEI's report (KEI-J88-025) dated February 25, 1988. Based on the analytical results, KEI recommended the installation of four monitoring wells to begin to determine the extent of the soil and ground water contamination, and to determine the direction of ground water flow.

On April 14, 1988, four two-inch diameter monitoring wells, designated as MW1 through MW4 on the attached Site Plan, Figure 1, were installed at the site. The wells were drilled and completed to total depths of 20 feet below grade. Ground water was encountered at depths ranging from 14 to 16 feet beneath the surface during drilling. The wells were developed on April 26, 1988, and were initially sampled on April 29, 1988.

The samples were analyzed at HAZCAT Organics Laboratory in San Carlos, California, for TPH as gasoline and BTX&E. In addition, the soil samples collected from boring MW3 (adjacent to the waste oil tank) were analyzed for TPH as diesel, total oil and grease (TOG), and EPA method 8010 compounds. The soil sample results showed low to non-detectable levels of TPH as gasoline and BTX&E in all wells, except well MW1, which showed a TPH as gasoline level of 340 ppm in the soil sample collected at a depth of 10 feet below grade. Analytical results of the soil samples are summarized in Table 4.

The analytical results of the water samples collected on April 29, 1988, indicated non-detectable levels of TPH as gasoline and benzene in wells MW3 and MW4. Analytical results of the water samples collected from wells MW1 and MW2 showed TPH as gasoline at levels of 10,000 ppb and 170 ppb, respectively, with benzene levels of 960 ppb and 2.7 ppb, respectively. Analytical results of the water samples are summarized in Table 2. Documentation of monitoring well installation protocol, sample collection techniques, and the analytical results are presented in KEI's report (KEI-J88-025A-1) dated May 11, 1988. Based on the sample results, KEI recommended a monthly monitoring and quarterly sampling program for the four wells.

The four wells have been monitored monthly since April 29, 1988. In addition, all four wells were sampled quarterly from April 29, 1988, until May 18, 1990. Since that time, wells MW2, MW3, and MW4 have not been sampled (because previous samples collected from these wells indicated non-detectable levels of TPH as gasoline and benzene for three consecutive quarters). Beginning on August 15, 1990, only well MW1 has been sampled quarterly. Beginning on May 22, 1992, upgradient well MW2 was sampled on an annual basis.

As previously indicated, past activities at the site have led to a situation where some residual soil contamination is still present in the area between the old tank pit and the southwest side of the pump islands. As much contaminated soil as possible was removed during tank replacement in February of 1988 without compromising the structural integrity of the pump islands.

Three of the four corners at the intersection of Village Parkway and Amador Valley Boulevard have active service stations (BP, Arco, and Unocal). The fourth corner (southwest) was previously a Shell station, and has been converted into an oil changing facility. The respective locations of the service stations are shown on the attached Site Vicinity Map. In addition, immediately adjacent to and south of the former Shell station is a facility referred to as the Dodge Property, located at 7400 Amador Valley Boulevard, which also contained underground fuel storage tanks. During a site visit by KEI, it was determined that several monitoring wells have been installed at the former Shell station site (located south-southeast of the subject site), and at the BP station (located east-southeast of the subject site). In addition, KEI reviewed the files of the Regional Water Quality Control Board (RWQCB) on March 5, 1991, to obtain information regarding any subsurface investigations conducted at the above mentioned sites. The following is a summary of the file reviews:

1. Former Shell service station, located at 7194 Amador Valley Boulevard (southwest corner).

   Shell has installed 11 monitoring wells (six off-site) and one recovery well. One monitoring well was subsequently destroyed. Levels of TPH as gasoline have been detected in the ground water samples collected from the on-site wells at concentrations ranging from non-detectable to 200,000 ppb. The levels of TPH as gasoline detected in ground water samples collected from on-site wells on August 21, 1990 (the most recent data reviewed), ranged from non-detectable to 5,100 ppb. The ground water flow direction, as measured on August 20, 1990, appeared to be towards the north at the northern portion of the site, and towards the south at the southern portion of the site.

2. BP service station, located at 7197 Village Parkway (southeast corner).

   BP has installed six monitoring wells on-site. One monitoring well has consistently detected free product. The levels of TPH as gasoline detected in ground water samples collected from the six wells on September 6, 1990, (the most recent data reviewed) ranged from non-detectable to 470 ppb. The ground water flow direction is reportedly to the south-southwest.

3. Arco service station, located at northeast corner of Amador Valley Boulevard and Village Parkway.

   It is presently unknown to KEI whether any subsurface investigations have been conducted at the Arco site. The site is not currently listed on the RWQCB's fuel leak list.

4. Former Dutch Pride Dairy facility (currently referred to as the Dodge Property), located at 7400 Amador Valley Boulevard, adjacent to and south of the former Shell station.

   Two 10,000 gallon gasoline storage tanks were removed from the site in January of 1990. The analytical results of soil samples collected from the gasoline tank pit indicated levels of TPH as gasoline at concentrations ranging from non-detectable to 6,000 ppm. It is presently unknown to KEI whether any monitoring wells have been installed by the property owner or any tenants. A monitoring well installed by Shell (now destroyed) at the site showed levels of TPH as gasoline at concentrations ranging from non-detectable to 3,300 ppb within the ground water.

RECENT FIELD ACTIVITIES

The four wells (MW1, MW2, MW3, and MW4) were monitored three times, and wells MW1 and MW2 were sampled once during the quarter. In addition, monitoring well MW1 was purged of 50 and 55 gallons of water on April 22, 1992 and on March 17, 1992, respectively. During monitoring, the wells were checked for depth to water and the presence of free product. Prior to sampling, wells MW1 and MW2 were also checked for the presence of sheen. No free product or sheen was noted in any of the wells during the quarter. Monitoring data are summarized in Table 1.

Water samples were collected from monitoring wells MW1 and MW2 on May 22, 1992. Prior to sampling, the wells were each purged of 8 gallons by the use of a surface pump. Water samples were then collected by the use of a clean Teflon bailer. The samples were decanted into clean VOA vials that were then sealed with Teflon-lined screw caps and stored in a cooler, on ice, until delivery to the state-certified laboratory.

HYDROLOGY AND GEOLOGY

Based on the water level data gathered on May 22, 1992, the ground water flow direction at the Unocal site appeared to be toward the east-northeast (slightly changed from the east-southeasterly flow direction from previous quarters), with an average hydraulic gradient of approximately 0.007. Water levels have decreased during the quarter, showing a net decrease of 1.47 to 1.95 feet in all wells since February 25, 1992. The measured depth to ground water at the site on May 22, 1992, ranged between 10.66 and 11.00 feet below grade.

KEI conducted joint monitoring on February 25, 1992, for the wells at the Unocal, BP, and the former Shell service station. The ground water flow direction on that date was generally to the east over the majority of the study area, varying from the southeast in the vicinity of the former Shell station, to the northeast in the vicinity of the BP station, and to the east-northeast at the Unocal site.

The site is situated within the Dublin Subbasin of the Livermore Valley Ground Water Basin, as defined by the Alameda County Flood Control and Water Conservation District, and by the California Department of Water Resources Bulletin 118-2. Regionally, the ground water flow direction is toward the southeast, based on ground water contours presented in the Zone 7 Fall 1990 Ground Water Level Report.

Based on review of regional geologic maps (U.S. Geological Survey Professional Paper 943 "Flatland Deposits - Their Geology and Engineering Properties and their Importance to Comprehensive Planning" by E.J. Helley and K.R. Lajoie, 1979), the subject site is situated at a mapped geologic contact separating Holocene-age Fine-grained Alluvium (Qhaf) and Late-Pleistocene Alluvium (Qpa). The Fine-grained Alluvium is described as typically consisting of unconsolidated silt and clay materials that are rich in organic material and that are generally less than 10 feet thick. The Late-Pleistocene Alluvium is described as typically consisting of irregularly interbedded clay, silt, sand, and gravel that has a maximum thickness of up to 150 feet.

The results of our previous subsurface study indicate that the site is underlain predominantly by clay and silty clay soil materials to the maximum depth explored (20 feet below grade).

ANALYTICAL RESULTS

The ground water samples from wells MW1 and MW2 were analyzed at Sequoia Analytical Laboratory in Concord, California, and were accompanied by properly executed Chain of Custody documentation. The samples were analyzed for TPH as gasoline by EPA method 5030 in conjunction with modified 8015, and BTX&E by EPA method 8020.

The analytical results of the water sample collected from monitoring well MW2 indicated non-detectable levels of TPH as gasoline and BTX&E. TPH as gasoline and benzene were detected in well MW1 at concentrations of 2,500 ppb and 120 ppb, respectively. The analytical results of the ground water samples are summarized in Table 2. Copies of the analytical results and Chain of Custody documentation are attached to this report.

DISCUSSION AND RECOMMENDATIONS

Based on the analytical results collected and evaluated to date, and no evidence of free product or sheen in any of the wells, KEI recommends reducing the frequency of monitoring of the existing wells from monthly to quarterly. In addition, KEI also recommends the continuation of the quarterly sampling of downgradient monitoring well MW1, and the annual sampling of well MW2.

A joint monitoring event between the Unocal, BP, and former Shell service stations was not conducted this quarter. However, KEI will attempt to reschedule joint monitoring and sampling of all monitoring wells at the BP and former Shell service stations, in order to verify the previous easterly regional ground water flow direction, and to assess the current ground water quality in the vicinity of the three sites.

DISTRIBUTION

A copy of this report should be sent to Alameda County Health Care Services Agency, and to the RWQCB, San Francisco Bay Region.

LIMITATIONS

Environmental changes, either naturally-occurring or artificially-induced, may cause changes in ground water levels and flow paths, thereby changing the extent and concentration of any contaminants.

Our studies assume that the field and laboratory data are reasonably representative of the site as a whole, and assume that subsurface conditions are reasonably conducive to interpolation and extrapolation.

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

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

Sincerely,

Kaprealian Engineering, Inc.

Thomas J. Berkins
Senior Environmental Engineer

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

License No. 1633
Exp. Date 6/30/92

Robert H. Kezerian, P.E.
Project Engineer

\bp

Attachments: Tables 1 through 4
Location Map
Site Vicinity Map
Site Plans - Figures 1 & 2
Laboratory Analyses
Chain of Custody documentation

KEI-P88-0205.QR16
June 30, 1992

TABLE 1

SUMMARY OF MONITORING DATA

Well No.	Ground Water Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Sheen	Water Purged (gallons)
(Monitored and Sampled on May 22, 1992)					
MW1	326.06	10.66	0	No	8
MW2	326.54	10.82	0	No	8
MW3*	326.53	11.00	0	--	0
MW4*	326.00	11.00	0	--	0
(Monitored on April 22, 1992)					
MW1	326.52	10.20	0	--	50
MW2	326.96	10.40	0	--	0
MW3	326.98	10.55	0	--	0
MW4	326.48	10.52	0	--	0
(Monitored on March 17, 1992)					
MW1	327.26	9.46	0	--	55
MW2	327.97	9.39	0	--	0
MW3	327.93	9.60	0	--	0
MW4	327.23	9.77	0	--	0

Well #	Surface Elevation** (feet)
MW1	336.72
MW2	337.36
MW3	337.53
MW4	337.00

* Monitored only.

** The elevations of the tops of the well covers have been surveyed relative to Mean Sea Level.

-- Sheen determination was not performed.

KEI-P88-0205.QR16
June 30, 1992

TABLE 2

SUMMARY OF LABORATORY ANALYSES
WATER ppb

Date	Sample Well #	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethylbenzene
5/22/92	MW1	2,500	120	ND	37	230
	MW2	ND	ND	ND	ND	ND
2/25/92	MW1	3,900	500	ND	400	450
11/13/91	MW1	860	40	ND	2.5	11
8/12/91	MW1	1,100	68	2.6	9.3	210
5/15/91	MW1	2,100	220	ND	27	360
2/14/91	MW1	1,900	150	2.9	43	340
11/14/90	MW1	2,000	110	0.52	16	410
8/15/90	MW1	2,200	160	ND	45	570
5/18/90	MW1	2,000	140	1.8	19	460
	MW2	ND	ND	ND	ND	ND
	MW3	ND	ND	ND	ND	ND
	MW4	ND	ND	ND	ND	ND
2/06/90	MW1	2,700	170	ND	29	350
	MW2	ND	ND	ND	ND	ND
	MW3	ND	ND	ND	ND	ND
	MW4	ND	ND	ND	ND	ND
10/20/89	MW1	ND	ND	ND	ND	ND
	MW2	ND	ND	ND	ND	ND
	MW3*	ND	ND	ND	ND	0.38
	MW4	ND	ND	ND	ND	ND
7/27/89	MW1	1,900	130	6.3	68	ND
	MW2	ND	ND	ND	ND	ND
	MW3**	ND	ND	ND	ND	ND
	MW4	ND	0.34	ND	ND	ND
5/22/89	MW3	ND	ND	ND	ND	ND
4/28/89	MW1	1,000	97	0.8	24	170
	MW2	ND	ND	ND	ND	ND
	MW3***	880	9.6	9.7	12.7	19
	MW4	ND	0.3	ND	ND	ND

KEI-P88-0205.QR16
June 30, 1992

TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER ppb

Date	Sample Well #	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethylbenzene
1/26/89	MW1	1,900	240	1.8	30	81
	MW2	ND	ND	ND	ND	ND
	MW3****	ND	ND	ND	ND	ND
	MW4	ND	0.67	ND	ND	ND
10/28/88	MW1	5,200	150	ND	12	250
	MW2	ND	ND	ND	ND	ND
	MW3****	--	ND	ND	ND	ND
	MW4	ND	ND	ND	ND	ND
7/25/88	MW1	6,100	170	2.1	94	94
	MW2	ND	ND	ND	ND	ND
	MW3****	--	ND	ND	ND	ND
	MW4	ND	ND	ND	ND	ND
4/29/88	MW1	10,000	960	17	1,500	870
	MW2	170	2.7	0.6	13	ND
	MW3	ND	ND	ND	ND	ND
	MW4	ND	ND	ND	ND	ND

\+ TPH as diesel, all EPA method 8010 constituents, and TOG were non-detectable.

* TPH as diesel and all EPA method 8010 constituents were non-detectable. TOG showed 2.5 ppm.

** TPH as diesel and all EPA method 8010 constituents were non-detectable. TOG showed 1.6 ppm.

*** TPH as diesel was 72 ppb, TOG, and all EPA method 8010 constituents were non-detectable.

**** TPH as diesel and all EPA method 8010 constituents were non-detectable.

ND = Non-detectable.

-- Indicates analysis was not performed.

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

KEI-P88-0205.QR16
June 30, 1992

TABLE 3

SUMMARY OF LABORATORY ANALYSES
SOIL

Date	Sample #	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene
2/18/88	S1	ND	--	--	--	--	--
	S2	--	14	0.8	ND	2.7	4.6
	S2D	ND	--	--	--	--	--
	S3	--	14	1.1	ND	0.7	7.1
	S4	--	1,700	8.0	22	340	62
	S4D	83	--	--	--	--	--

-- Indicates analysis was not performed.

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

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Sample #	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene
2/19/88	W1	91,000	8,200	1,200	5,300	4,300
	W2	120	ND	5.0	12	2.4

-- Indicates analysis was not performed.

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

KEI-P88-0205.QR16
June 30, 1992

TABLE 4

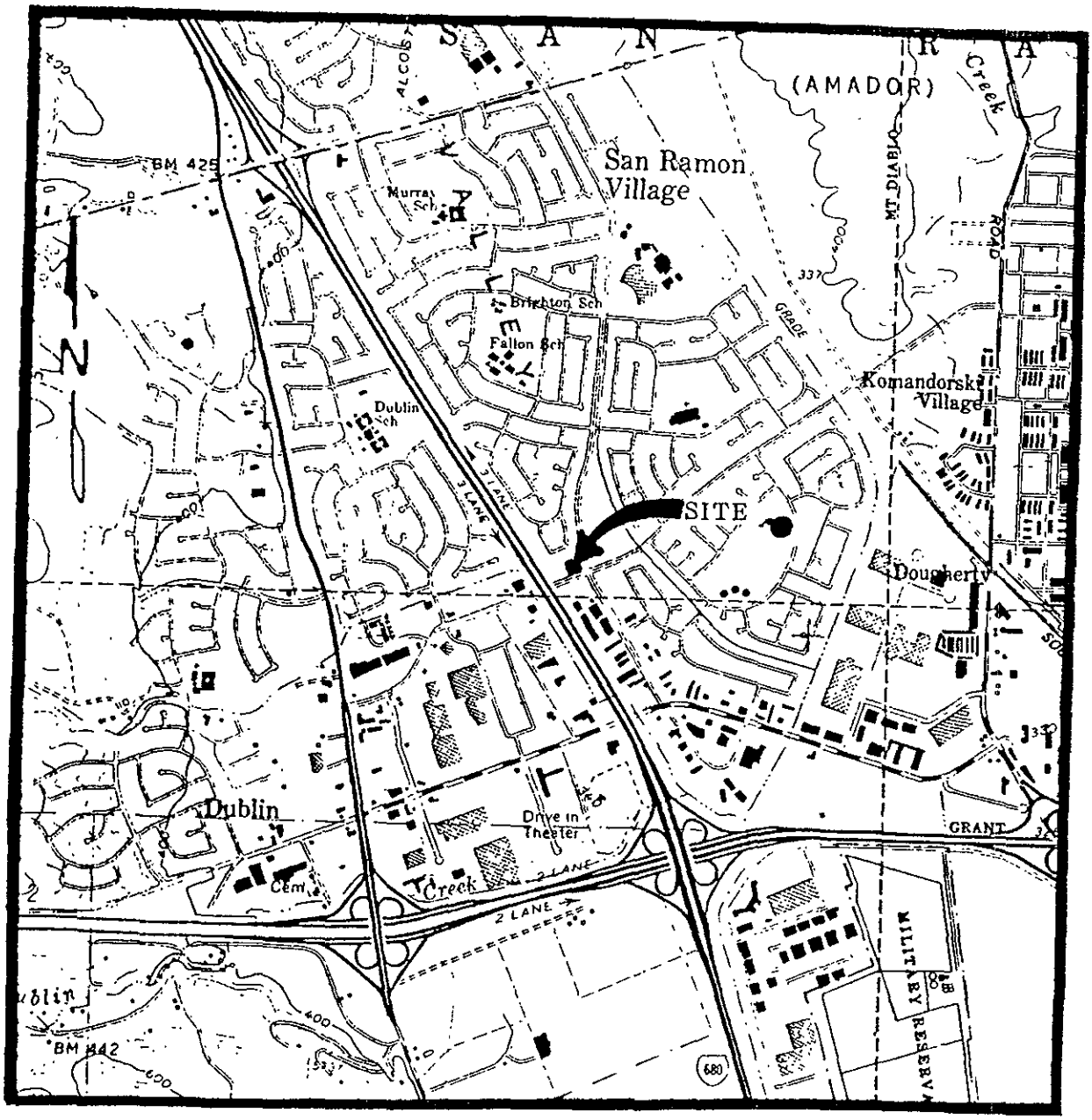
SUMMARY OF LABORATORY ANALYSES
SOIL

Date	Sample Number	Depth (feet)	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene
4/14/88	MW1(10)	10	340	ND	ND	ND	ND
	MW1(15)	15	11	ND	ND	ND	ND
	MW2(10)	10	ND	ND	ND	ND	ND
	MW3(5)*	5	ND	ND	ND	ND	ND
	MW3(10)*	10	--	--	--	--	--
	MW4(10)	10	4.9	ND	ND	ND	ND

* TOG and TPH as diesel were non-detectable; MW3(10) had non-detectable levels of EPA methods 8010 and 8020 priority pollutants.

-- Indicates analysis was not performed.

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

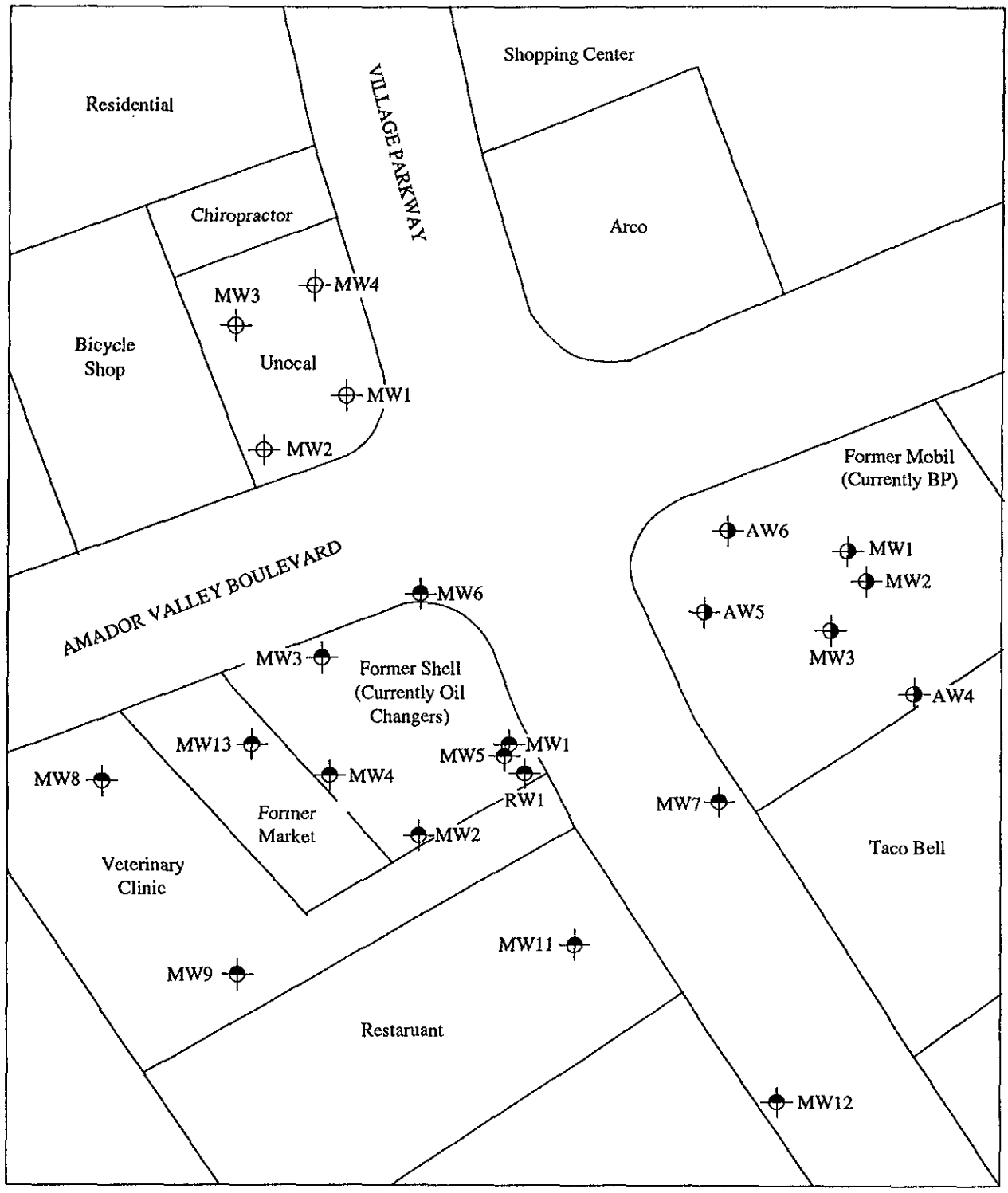


Base modified from 7.5 minute U.S.G.S. Dublin Quadrangle
(photorevised 1980)

0 2000 4000

Approx. scale feet

KAPREALIAN ENGINEERING INCORPORATED	UNOCAL SERVICE STATION #5366 7375 AMADOR VALLEY BLVD DUBLIN, CA	LOCATION MAP



LEGEND

- Monitoring well (Unocal)
- Monitoring well (BP)
- Monitoring well (Shell)

Base modified from Alton Geo Science, adjacent properties map, project #30-095

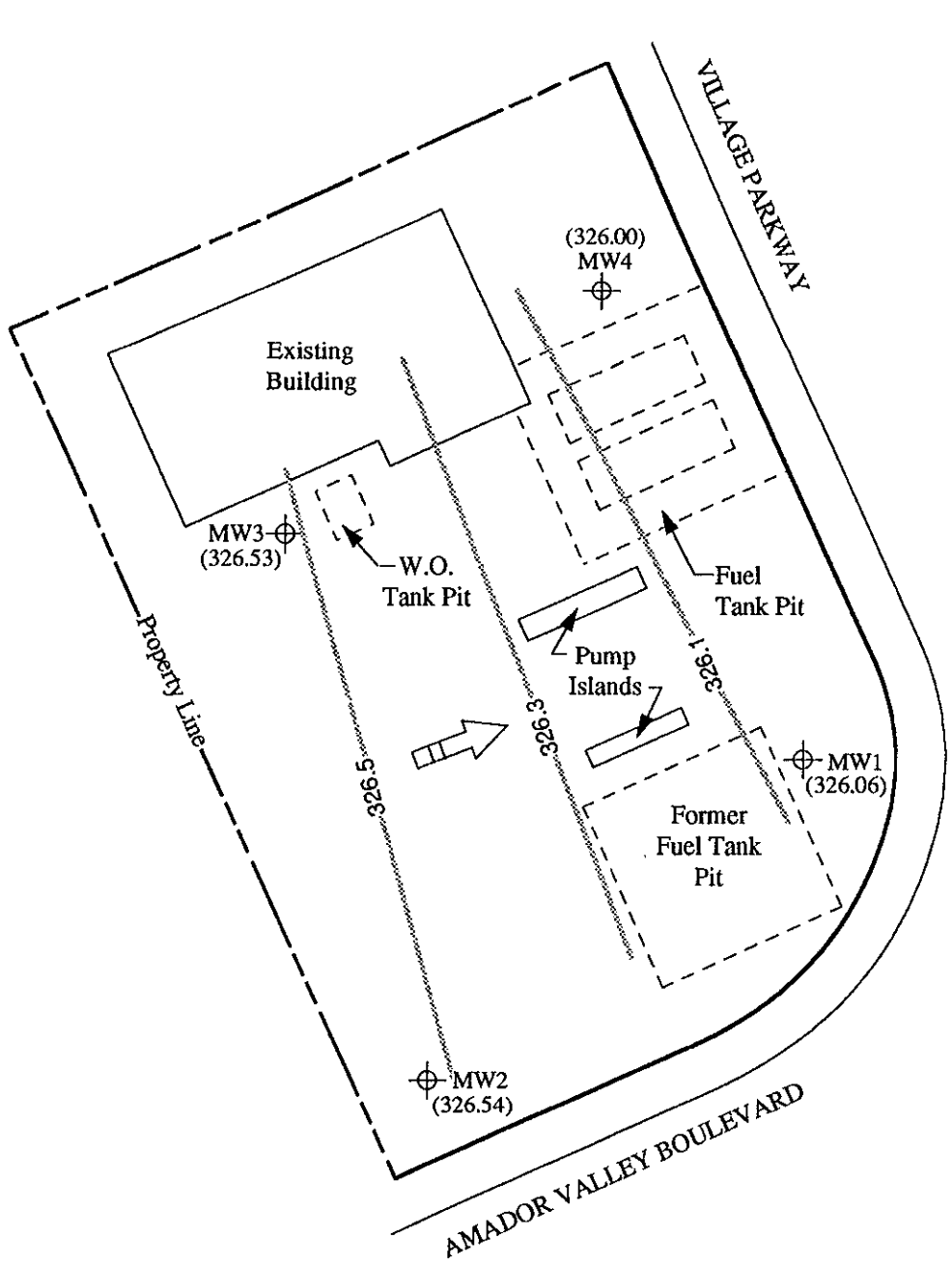
0 100 200

Approx. scale feet

KAPREALIAN ENGINEERING INCORPORATED

UNOCAL SERVICE STATION #5366
7375 AMADOR VALLEY BLVD.
DUBLIN, CA

SITE VICINITY MAP



SITE PLAN

LEGEND

- Monitoring well
- ( ) Ground water elevation in feet above Mean Sea Level on 5/22/92
- Direction of ground water flow
- Contours of ground water elevation

0 30 60

Approx. scale feet

KAPREALIAN ENGINEERING
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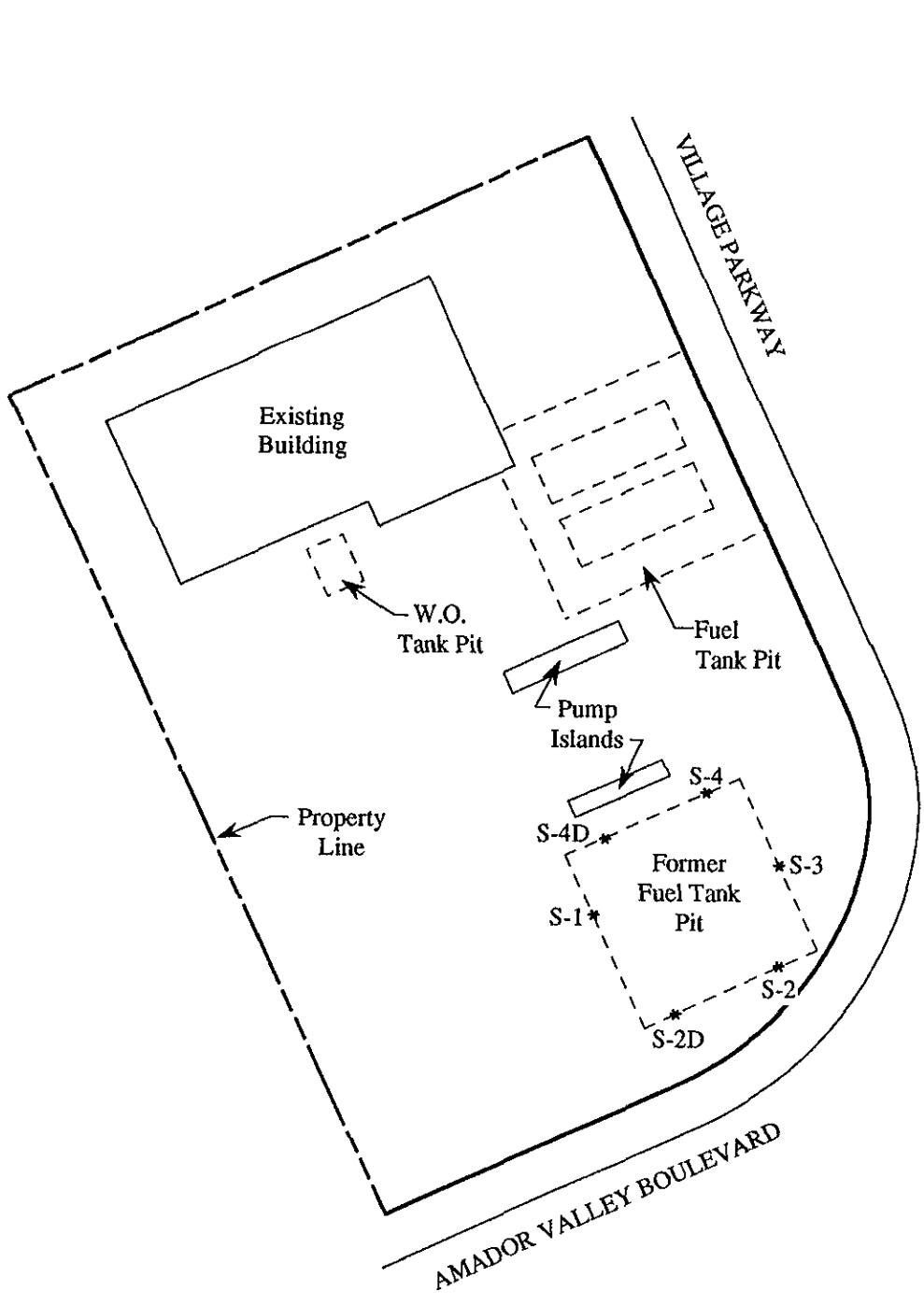
UNOCAL SERVICE STATION #5366
7375 AMADOR VALLEY BLVD.
DUBLIN, CA

FIGURE
1



SITE PLAN

LEGEND

* Sample Point Location

0 30 60

Approx. scale feet

KAPREALIAN ENGINEERING INCORPORATED

UNOCAL SERVICE STATION #5366
7375 AMADOR VALLEY BLVD.
DUBLIN, CA

FIGURE
2

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Kapreallan Engineering, Inc.	Client Project ID:	Unocal, 7375 Amador Valley Rd., Dublin	Sampled:	May 22, 1992
2401 Stanwell Drive, Suite 400	Matrix Descript:	Water	Received:	May 22, 1992
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Analyzed:	May 29, 1992
Attention: Mardo Kapreallan, P.E.	First Sample #:	205-1194	Reported:	Jun 5, 1992

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)
205-1194	MW 1	2,500	120	N.D.	230	37
205-1195	MW 2	N.D.	N.D.	N.D.	N.D.	N.D.
Method Detection Limits:		**30**	**0.30**	**0.30**	**0.30**	**0.30**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.

SEQUOIA ANALYTICAL

Scott A. Chieffo
Project Manager

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Kapreallan Engineering, Inc.
2401 Stanwell Drive, Suite 400
Concord, CA 94520
Attention: Mardo Kapreallan, P.E.

Client Project ID: Unocal, 7375 Amador Valley Rd., Dublin
QC Sample Group: 2051194-195
Reported: Jun 5, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020
Analyst:	J.F.	J.F.	J.F.	J.F.
Reporting Units:	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	May 29, 1992	May 29, 1992	May 29, 1992	May 29, 1992
QC Sample #:	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	20	20	20	60
Conc. Matrix Spike:	25	24	23	67
Matrix Spike % Recovery:	125	120	115	112
Conc. Matrix Spike Dup.:	25	24	23	67
Matrix Spike Duplicate % Recovery:	125	120	115	112
Relative % Difference:	0.0	0.0	0.0	0.0

Laboratory blank contained the following analytes: None Detected

SEQUOIA ANALYTICAL

Scott A. Chieffo
Project Manager

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

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

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

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

Client Project ID: Unocal, 7375 Amador Valley Rd., Dublin
QC Sample Group: 2051194-195
Reported: Jun 5, 1992

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020
Analyst:	J.F.	J.F.	J.F.
Reporting Units:	µg/L	µg/L	µg/L
Date Analyzed:	May 29, 1992	May 29, 1992	May 29, 1992
Sample #:	205-1194	205-1195	Matrix Blank
Surrogate % Recovery:	112	110	110

SEQUOIA ANALYTICAL

Scott A. Chleffo
Project Manager

% 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

KEI

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: Ravi (KEI)

WITNESSING AGENCY:

SITE NAME & ADDRESS: UNOCAL DUBLIN 7375 AMADOR VALLEY RD

ANALYSES REQUESTED: TPHG, BTXE

TURN AROUND TIME: REGULAR

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPHG	BTXE						REMARKS
MW1	5-22			x	x		2	VOA	x	x						2051194AB
MW2	"			x	x		"		x	x						↓ 1195AB

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Ravi (KEI)	5-22-92 / 1831	A. Nishan
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
h. Walled	5/22/92 1130	Jim Lan
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Jim Lan	5/22/92 1415	Karen [illegible]
Relinquished by: (Signature)	Date/Time	Received by: (Signature)

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

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

Signature	Title	Date
A. Nishan	Analyst	5/22/92