KAPREALIAN ENGINEERING
INCORPORATED

KEI-P88-0205.QR15
April 8, 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. The wells are currently being monitored monthly, and only downgradient well MW1 is being sampled on a quarterly basis. This report covers the work performed by KEI from December 1991 through February 1992.

SITE DESCRIPTION AND BACKGROUND

The subject site is presently used as a gasoline 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 sample collection points are shown on the attached Site Plan,

2401 Stanwell Drive, Suite 400
Concord, California 94520
Tel: 510.602.5100 Fax: 510.687.0602

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 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. A total of six soil samples were collected at depths ranging from 5 to 10 feet below grade. 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.

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 de-

stroyed. 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 only well MW1 was sampled once during the quarter. Monitoring well MW1 was also purged of 55 gallons of water on January 17,

1992. During monitoring, the wells were checked for depth to water and the presence of free product. Prior to sampling, well MW1 was also checked for the presence of sheen. No free product or sheen was noted in any of the wells during the quarter. On February 25, 1992, a joint monitoring program was also conducted at the nearby BP and former Shell service stations. Monitoring data from the Unocal site are summarized in Table 1, and monitoring data from the BP and former Shell service stations are summarized in Table 1a. Prior to conducting the joint monitoring, the surface of each well cover at the Unocal site was surveyed by Kier & Wright of Pleasanton, California, to Mean Sea Level (MSL) and to a vertical accuracy of 0.01 feet. The monitoring wells at the nearby BP and former Shell service stations have also been surveyed to MSL using the same benchmark as used by Unocal.

A water sample was collected from monitoring well MW1 on February 25, 1992, Prior to sampling, the well was purged of 8 gallons by the use of a surface pump. A sample was then collected by the use of a clean Teflon bailer. The sample was decanted into a 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 February 25, 1992, the ground water flow direction at the Unocal site appeared to be toward the east-southeast (which is relatively unchanged from previous quarters), with a hydraulic gradient that ranges between approximately 0.013 and 0.0027 over the majority of the site. Water levels have continuously increased during the quarter, showing a net increase of 2.21 to 2.65 feet in all wells since November 13, 1991. The measured depth to ground water at the site on February 25, 1992, ranged between 9.04 and 9.46 feet below grade.

As previously discussed, KEI conducted joint monitoring on February 25, 1992, on the wells at the Unocal, BP, and the former Shell service station. The data from the joint monitoring event is included on the Site Vicinity Map and is summarized in Tables 1 and 1a. The ground water flow direction is 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, as reported above.

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 irregular interbedded clay, silt, sand, and gravel that has a maximum thickness up to 150 feet.

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

ANALYTICAL RESULTS

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

Analytical results of the water sample collected from monitoring well MW1 indicated a level of TPH as gasoline at 3,900 ppb, and a level of benzene at 500 ppb. Xylenes and ethylbenzene levels in MW1 were 400 ppb and 450 ppb, respectively. The results of the ground water analyses are summarized in Table 2. Copies of the analytical results and Chain of Custody documentation are attached to this report.

DISCUSSION AND RECOMMENDATIONS

As discussed in the Site Description and Background section of this report, the reported ground water flow directions at the Unocal, BP, and former Shell service stations are complex. The recent joint monitoring conducted on February 25, 1992, confirms the previously reported complex flow directions (see the attached Site Vicinity Map). KEI recommends continuing the joint monitoring effort with the BP and former Shell service stations. In addition,

KEI also recommends conducting a joint sampling of all monitoring wells in order to assess the current ground water quality in the vicinity of the three sites.

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 the continuation of the current monthly monitoring program of the existing wells, per KEI's report (KEI-P88-0205.QR3) dated February 15, 1989. In addition, KEI recommends the continuation of the quarterly sampling of downgradient monitoring well MW1.

Lastly, upgradient monitoring well MW2 was last sampled on May 18, 1990 (approximately two years ago); therefore, KEI recommends that this well be sampled next quarter, and annually thereafter.

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
Senior Engineering Geologist

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

Timothy R. Ross
Project Manager

\bp

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

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TABLE 1

SUMMARY OF MONITORING DATA

| Well No. | Ground Water Elevation (feet) | Depth to Water (feet) | Product Thickness (feet) | Sheen | Water Purged (gallons) |
|---|---|---|---|---|---|
| **(Monitored and Sampled on February 25, 1992)** | | | | | |
| MW1 | 327.53 | 9.19 | 0 | No | 8 |
| MW2* | 328.32 | 9.04 | 0 | -- | 0 |
| MW3* | 328.48 | 9.05 | 0 | -- | 0 |
| MW4* | 327.54 | 9.46 | 0 | -- | 0 |
| **(Monitored on January 17, 1992)** | | | | | |
| MW1 | 325.63 | 11.09 | 0 | -- | 55 |
| MW2 | 326.14 | 11.22 | 0 | -- | 0 |
| MW3 | 326.19 | 11.34 | 0 | -- | 0 |
| MW4 | 325.59 | 11.41 | 0 | -- | 0 |
| **(Monitored on December 10, 1991)** | | | | | |
| MW1 | 325.18 | 11.54 | 0 | -- | 0 |
| MW2 | 325.63 | 11.73 | 0 | -- | 0 |
| MW3 | 325.65 | 11.88 | 0 | -- | 0 |
| MW4 | 325.10 | 11.90 | 0 | -- | 0 |

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

* Monitored only.

-- Sheen determination was not performed.

** The elevations of the tops of the well covers have been surveyed relative to MSL.

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TABLE 1a

SUMMARY OF MONITORING DATA

(BP Service Station and Former Shell Service Station)

| Well No. | Ground Water Elevation (feet) | Depth to Water (feet) | Top of Casing Elevation (feet) |
|---|---|---|---|
| **(BP Service Station Wells Monitored by Alton Geoscience on February 25, 1992)** | | | |
| MW1 | 326.89 | 8.28 | 335.17 |
| MW2 | 327.03 | 7.55 | 334.58 |
| MW3 | 326.98 | 8.15 | 335.13 |
| AW4 | 327.16 | 6.26 | 333.42 |
| AW5 | 326.90 | 7.89 | 334.79 |
| AW6 | 326.91 | 8.00 | 334.91 |
| **(Former Shell Service Stations Wells Monitored by Exceltech on February 25, 1992)** | | | |
| MW1 | 327.34 | 7.49 | 334.83 |
| MW2 | 327.30 | 9.66 | 336.96 |
| MW3 | 327.89 | 9.04 | 336.93 |
| MW4 | 327.69 | 9.45 | 337.14 |
| MW5 | 325.94 | 9.02 | 334.96 |
| MW6 | 326.98 | 8.44 | 335.42 |
| MW7 | 326.24 | 6.99 | 333.23 |
| MW8 | 326.35 | 7.45 | 335.80 |
| MW9 | 327.39 | 7.18 | 334.57 |
| MW11 | 326.99 | 7.21 | 334.20 |
| MW12 | 326.39 | 6.14 | 332.53 |
| MW13 | 327.98 | 7.66 | 335.64 |

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TABLE 2

SUMMARY OF LABORATORY ANALYSES
WATER

| Date | Sample Well # | TPH as Gasoline | Benzene | Toluene | Xylenes | Ethylbenzene |
|---|---|---|---|---|---|---|
| 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 |

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TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

| 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.

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TABLE 3

SUMMARY OF LABORATORY ANALYSES
SOIL

| Date | Sample # | TPH as Diesel | TPH as Gasoline | Benzene | Toluene | Xylenes | Ethyl-benzene |
|---|---|---|---|---|---|---|---|
| 2/18/88 | S1 | <10 | -- | -- | -- | -- | -- |
| | S2 | -- | 14 | 0.8 | <0.1 | 2.7 | 4.6 |
| | S2D | <10 | -- | -- | -- | -- | -- |
| | S3 | -- | 14 | 1.1 | <0.1 | 0.7 | 7.1 |
| | S4 | -- | 1,700 | 8.0 | 22 | 340 | 62 |
| | S4D | 83 | -- | -- | -- | -- | -- |

-- Indicates analysis 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 | <0.5 | 5.0 | 12 | 2.4 |

-- Indicates analysis was not performed.

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

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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 | <0.1 | <0.1 | <0.1 | <0.1 |
| | MW1(15) | 15 | 11 | <0.1 | <0.1 | <0.1 | <0.1 |
| | MW2(10) | 10 | <1.0 | <0.1 | <0.1 | <0.1 | <0.1 |
| | MW3(5)* | 5 | <1.0 | <0.1 | <0.1 | <0.1 | <0.1 |
| | MW3(10)* | 10 | -- | -- | -- | -- | -- |
| | MW4(10) | 10 | 4.9 | <0.1 | <0.1 | <0.1 | <0.1 |

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

-- Indicates analysis not was performed.

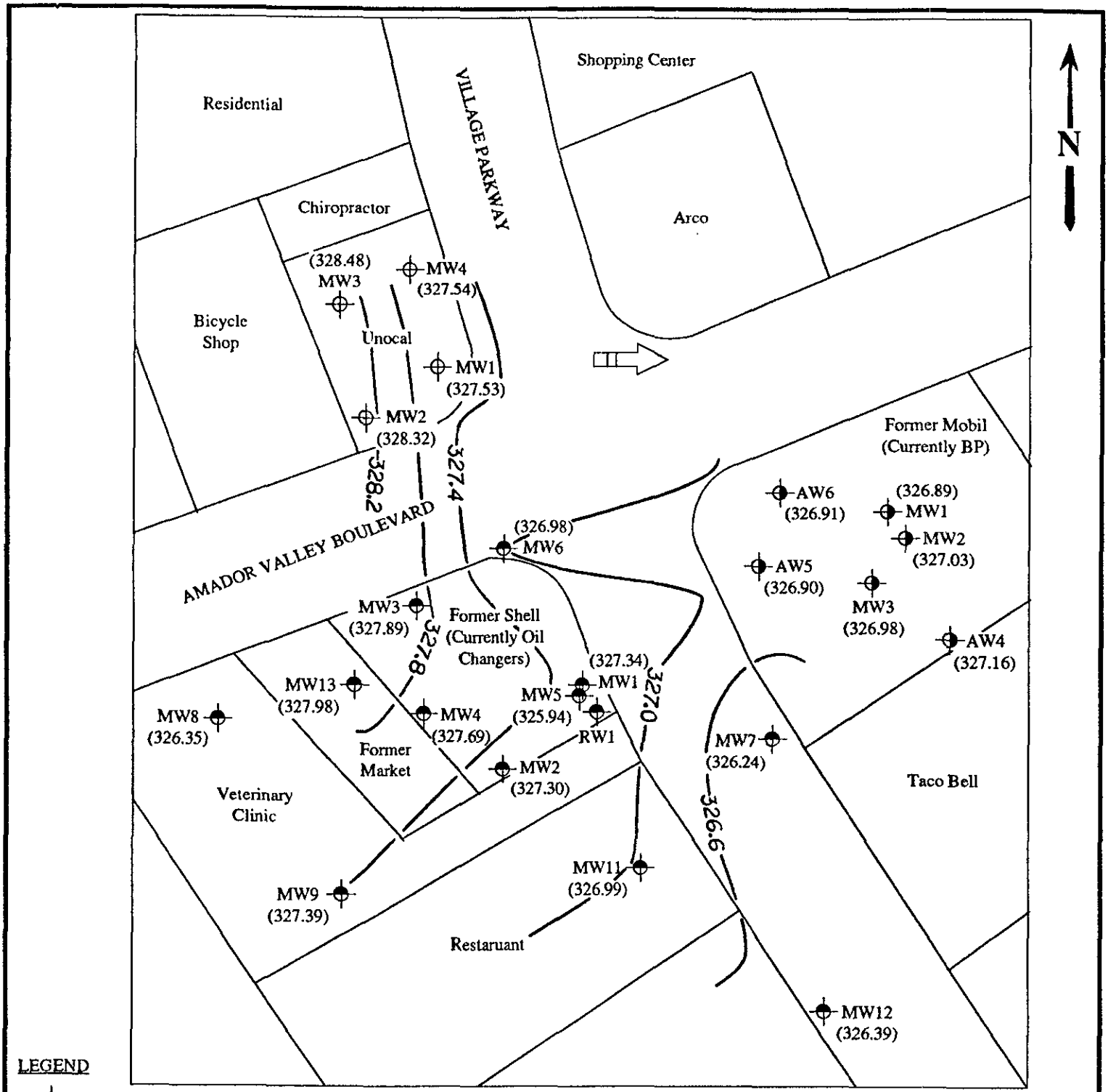
Results in parts per million (ppm), unless otherwise indicated.


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<br>7375 AMADOR VALLEY BLVD<br>DUBLIN, CA | LOCATION MAP |




LEGEND

- Monitoring well (Unocal)
- Monitoring well (BP)
- Monitoring well (Shell)
- ( ) Ground water elevation in feet above Mean Sea Level on 2/25/92
- Contours of Ground water elevation
- Direction of ground water flow

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

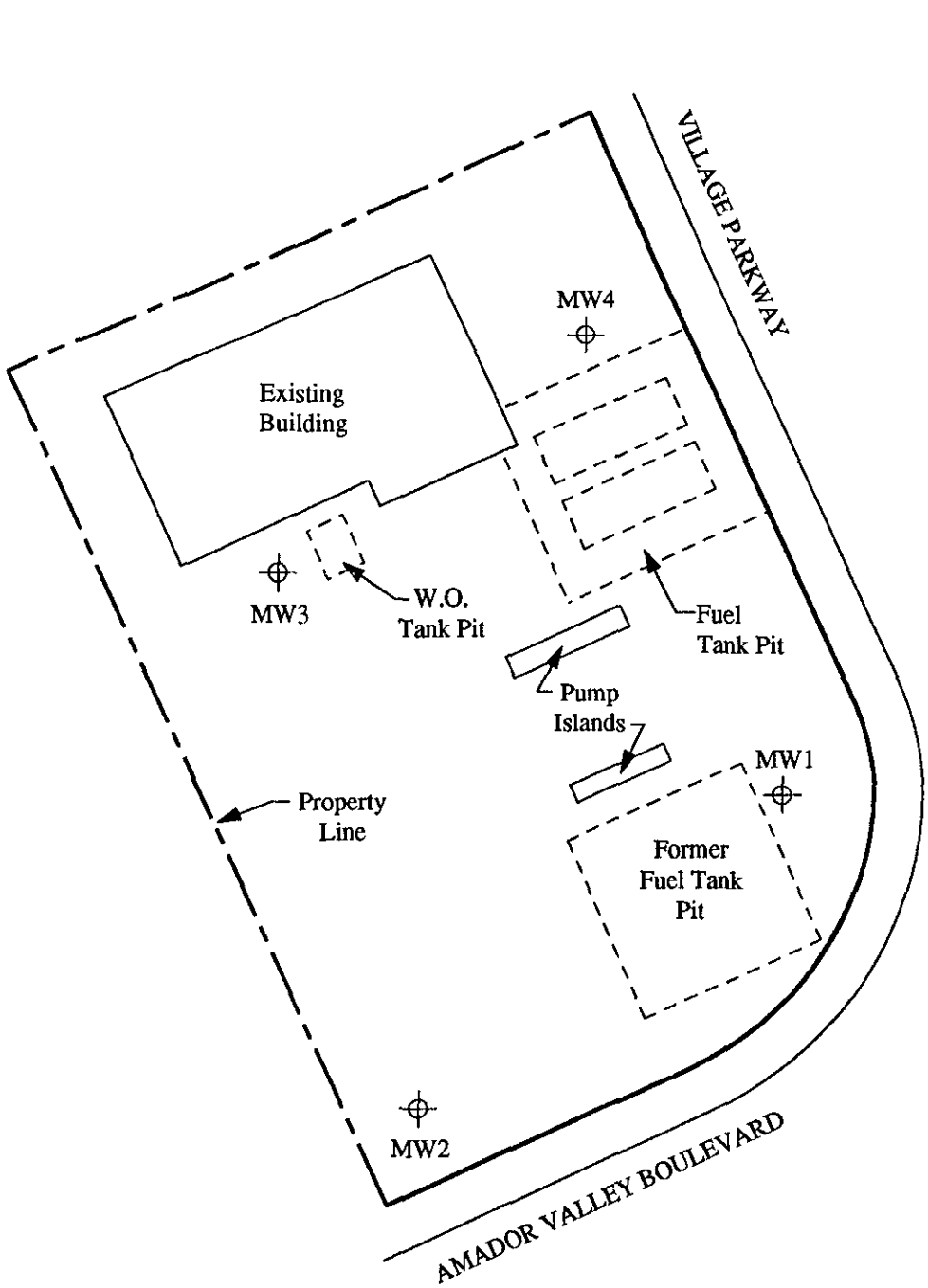
0 100 200

Approx. scale feet

KAPREALIAN ENGINEERING INCORPORATED

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

SITE VICINITY MAP




SITE PLAN

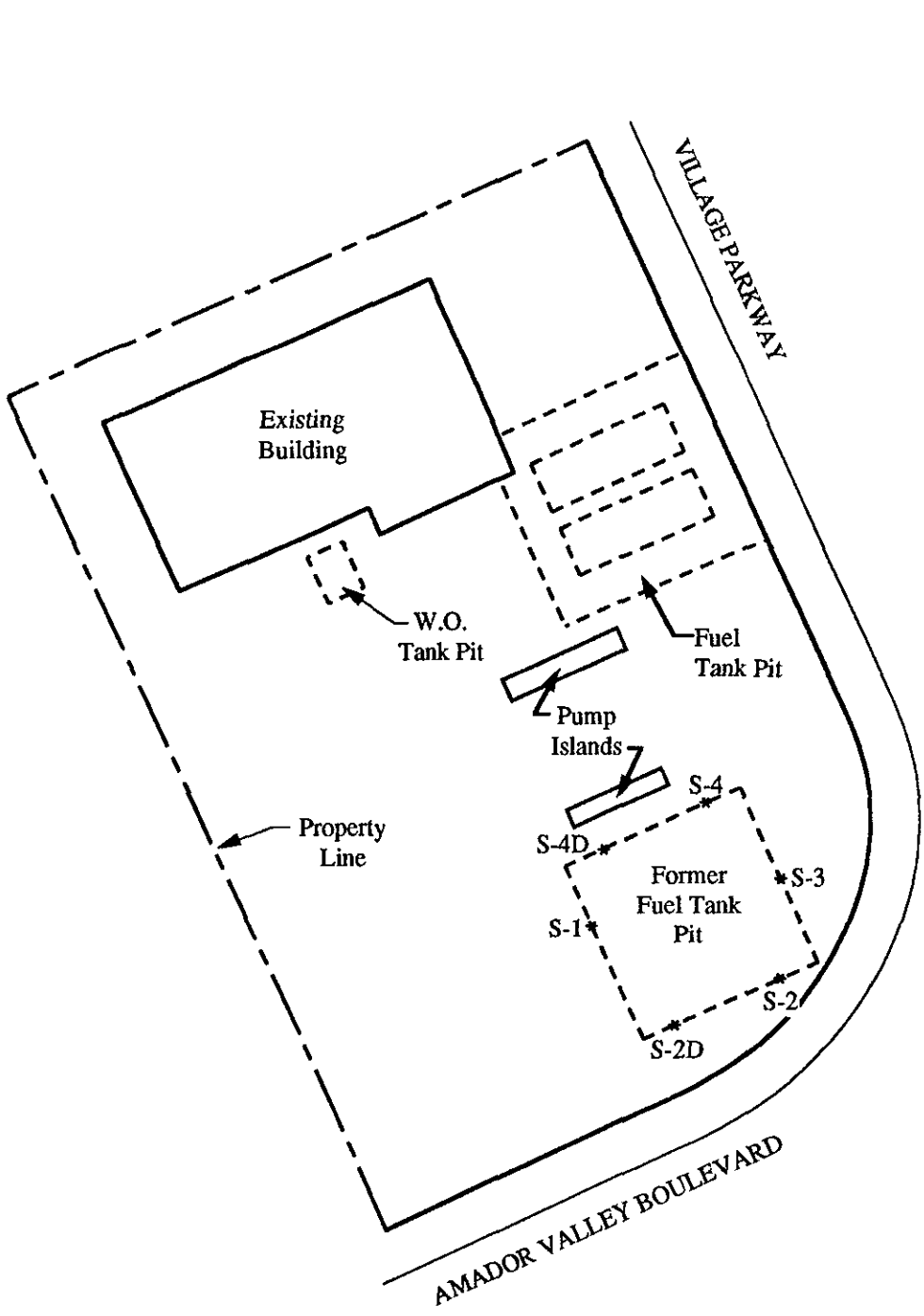
LEGEND

⊕ Monitoring Well

0 30 60

Approx. scale feet

| | | |
|---|---|---|
| KAPREALIAN ENGINEERING INCORPORATED | UNOCAL SERVICE STATION #5366<br>7375 AMADOR VALLEY BLVD.<br>DUBLIN, CA | FIGURE<br>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


| | | | | |
|---|---|---|---|---|
| Kaprealian Engineering, Inc. | Client Project ID: | Unocal/ 7375 Amador Valley Rd., Dublin | Sampled: | Feb 25, 1992 |
| P.O. Box 996 | Sample Descript.: | Water, MW-1 | Received: | Feb 25, 1992 |
| Benicia, CA 94510 | Analysis Method: | EPA 5030/ 8015/8020 | Analyzed: | 3/3-3/5/92 |
| Attention: Mardo Kaprealian, P.E. | Lab Number: | 202-0989 | Reported: | Mar 10, 1992 |

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

| Analyte | Method Detection Limit µg/L (ppb) | Sample Results µg/L (ppb) |
|---|---|---|
| Low to Medium Boiling Point Hydrocarbons | 30 | 3,900 |
| Benzene | 0.30 | 500 |
| Toluene | 0.30 | N.D. |
| Ethyl Benzene | 0.30 | 450 |
| Xylenes | 0.30 | 400 |

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

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

# SEQUOIA ANALYTICAL

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


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

Client Project ID: Unocal/ 7375 Amador Valley Rd., Dublin
QC Sample Group: 202-0989
Reported: Mar 10, 1992

## QUALITY CONTROL DATA REPORT

**SURROGATE**

| | EPA | EPA |
|---|---|---|
| Method: | 8015/8020 | 8015/8020 |
| Analyst: | K.N. | K.N. |
| Reporting Units: | µg/L | µg/L |
| Date Analyzed: | 3/3-3/5/92 | 3/3-3/5/92 |
| Sample #: | 202-0989 | Blank |
| **Surrogate % Recovery:** | *96* | *100* |

**SEQUOIA ANALYTICAL**

Belinda C. Vega
Laboratory Director

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

# SEQUOIA ANALYTICAL

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


Kaprealian Engineering, Inc. Client Project ID: Unocal/ 7375 Amador Valley Rd., Dublin
P.O. Box 996
Benicia, CA 94510
Attention: Mardo Kaprealian, P.E. QC Sample Group: 202-0989 Reported: Mar 10, 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: | K.E./K.N./J.F. | K.E./K.N./J.F. | K.E./K.N./J.F. | K.E./K.N./J.F. |
| Reporting Units: | µg/L | µg/L | µg/L | µg/L |
| Date Analyzed: | Mar 3, 1992 | Mar 3, 1992 | Mar 3, 1992 | Mar 3, 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:** | 17 | 17 | 18 | 54 |
| **Matrix Spike % Recovery:** | 85 | 85 | 90 | 90 |
| **Conc. Matrix Spike Dup.:** | 21 | 20 | 20 | 58 |
| **Matrix Spike Duplicate % Recovery:** | 105 | 100 | 100 | 96 |
| **Relative % Difference:** | 21 | 16 | 10 | 7.1 |

Laboratory blank contained the following analytes: None Detected

**SEQUOIA ANALYTICAL**

Belinda C. Vega
*Laboratory Director*

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

# KAPREALIAN ENGINEERING, INC.

## CHAIN OF CUSTODY

SAMPLER: Valtkes

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 | REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| MW-1 | 2/25/92 | 9:50 A.M. | | ✓ | ✓ | | 2 | Monitoring Well | 2020989AB |

Relinquished by: (Signature) W. Valtkes — Date/Time 2/25/92 3:35 PM — Received by: (Signature) Sophia Patigo

Relinquished by: (Signature) Sophia Patigo — Date/Time 2-26 11:45 AM — Received by: (Signature)

Relinquished by: (Signature) — Date/Time — Received by: (Signature)

Relinquished by: (Signature) — Date/Time — Received by: (Signature)

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

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

Signature: Sophia Patigo — Title: LOG-IN — Date: 2-25