MONITORING
PURGING
DISPOSING
SAMPLING

MPDS SERVICES, INCORPORATED

ENVIRONMENTAL PROTECTION
96 MAY 15 PM 1:50

# 1059

May 14, 1996

Alameda County Health Care Services
1131 Harbor Bay Parkway
Alameda, CA 94501

RE: Unocal Service Station #5325
3220 Lakeshore Avenue
Oakland, California

Per the request of the Unocal Corporation Project Manager, Mr. David B. De Witt, enclosed please find our most recent data report for the above referenced site.

Should you have any questions regarding the reporting of data, please feel free to call our office at (510) 602-5120. Any other questions may be directed to the Project Manager at (510) 277-2384.

Sincerely,

MPDS Services, Inc.

Jarrel F. Crider

/dr

Enclosure

cc: Mr. David B. De Witt

2401 Stanwell Drive, Suite 400, Concord, CA 94520
TEL: (510) 602-5120 FAX: (510) 689-1918

MONITORING
PURGING
DISPOSING
SAMPLING
MPDS SERVICES, INCORPORATED

MPDS-UN5325-10
April 11, 1996

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

Attention: Mr. David De Witt

RE: Quarterly Data Report
Unocal Service Station #5325
3220 Lakeshore Avenue
Oakland, California

Dear Mr. De Witt:

This data report presents the results of the most recent quarter of monitoring and sampling of the monitoring wells at the referenced site by MPDS Services, Inc.

RECENT FIELD ACTIVITIES

The monitoring wells that were monitored and sampled during this quarter are indicated in Table 1. A skimmer was present in well U-1. Prior to sampling, the wells were checked for depth to water and the presence of free product or sheen. The monitoring data and the ground water elevations are summarized in Table 1. The ground water flow direction during the most recent quarter are shown on the attached Figure 1.

Ground water samples were collected on March 18, 1996. Prior to sampling, the wells were each purged of between 10 and 36 gallons of water. During purging operations, the field parameters pH, temperature, and electrical conductivity were recorded and are presented in Table 2. Once the field parameters were observed to stabilize, and where possible, a minimum of approximately four casing volumes had been removed from each well, samples were then collected using a clean Teflon bailer. The samples were decanted into clean VOA vials, which were then sealed with Teflon-lined screw caps, labeled, and stored in a cooler, on ice, until delivery to a state-certified laboratory. Trip blank, Equipment blank and Field blank samples (denoted as ES-1, ES-2 and ES-3 respectively) were also collected for quality assurance and control. MPDS Services, Inc. transported the purged ground water to the Unocal Refinery located in Rodeo, California, for treatment and discharge to San Pablo Bay under NPDES permit.

ANALYTICAL RESULTS

The ground water samples were analyzed at Sequoia Analytical Laboratory and were accompanied by properly executed Chain of Custody documenta-

tion. The analytical results of the ground water samples collected to date are summarized in Table 3. The concentrations of Total Petroleum Hydrocarbons (TPH) as gasoline and benzene detected in the ground water samples collected this quarter are shown on the attached Figure 2. Copies of the laboratory analytical results and the Chain of Custody documentation are attached to this report.

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.

DISTRIBUTION

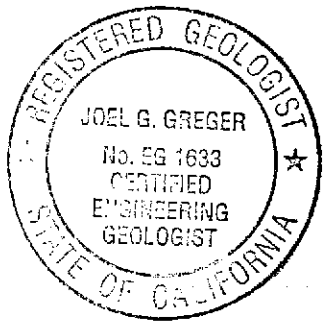
A copy of this report should be sent to the Alameda County Health Care Services Agency.

If you have any questions regarding this report, please do not hesitate to call Mr. Joel G. Greger at (510) 602-5120.

Sincerely,

MPDS Services, 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

/bp

Attachments: Tables 1, 2 & 3
Location Map
Figures 1 & 2
Laboratory Analyses
Chain of Custody documentation

cc: Mr. Greg Gurss, GeoStrategies, Inc., Rancho Cordova

## TABLE 1

SUMMARY OF MONITORING 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 18, 1996)** | | | | | | |
| U-1 | 0.21 | 8.25 | 19.80 | 0 | No | 14 |
| U-2 | 1.17 | 6.45 | 19.60 | 0 | No | 10 |
| U-3 | -0.12 | 11.10 | 19.85 | 0 | No | 12 |
| U-4 | 1.49 | 9.66 | 20.20 | 0 | No | 20 |
| U-5 | 0.33 | 6.65 | 20.15 | 0 | No | 36 |
| U-6 | 0.28 | 6.86 | 23.85 | 0 | No | 12 |
| **(Monitored and Sampled on December 19, 1995)** | | | | | | |
| U-1 | -0.50▲ | 8.98 | 19.80 | 0.03 | N/A | 0 (<1) |
| U-2 | 0.32 | 7.30 | 19.61 | 0 | No | 9 |
| U-3 | -0.47 | 11.45 | 19.85 | 0 | No | 12.5 |
| U-4 | 1.17 | 9.98 | 20.20 | 0 | No | 20 |
| U-5 | -0.19 | 7.17 | 20.15 | 0 | No | 34 |
| U-6 | -0.61 | 7.75 | 23.85 | 0 | No | 11 |
| **(Monitored and Sampled on September 19, 1995)** | | | | | | |
| U-1 | -0.53▲ | 9.29 | 19.81 | 0.40 | N/A | 0 (24) |
| U-2 | -0.08 | 7.70 | 19.51 | 0 | No | 10 |
| U-3 | -0.57 | 11.55 | 19.85 | 0 | No | 12 |
| U-4 | 0.98 | 10.17 | 20.20 | 0 | No | 18 |
| U-5 | -0.01 | 6.99 | 20.15 | 0 | No | 35 |
| U-6 | -0.56 | 7.70 | 23.86 | 0 | No | 11 |
| **(Monitored and Sampled on June 21, 1995)** | | | | | | |
| U-1 | -0.69▲ | 9.30 | 19.80 | 0.20 | N/A | 0 (32) |
| U-2 | 0.64 | 6.98 | 19.50 | 0 | No | 10 |
| U-3 | -0.39 | 11.37 | 19.81 | 0 | No | 10 |
| U-4 | 1.61 | 9.54 | 20.16 | 0 | No | 18 |
| U-5 | -0.13 | 7.11 | 20.04 | 0 | No | 34 |
| U-6 | -0.46 | 7.60 | 23.76 | 0 | No | 11 |

**TABLE 1 (Continued)**

SUMMARY OF MONITORING DATA

| Well # | Well Casing Elevation (feet)* |
|---|---|
| U-1 | 8.46 |
| U-2 | 7.62 |
| U-3 | 10.98 |
| U-4 | 11.15 |
| U-5 | 6.98 |
| U-6 | 7.14 |

◆ The depth to water level and total well depth measurements are taken from the top of the well casings.

▲ Ground water elevation corrected due to the presence of free product (correction factor = 0.75).

(x) Amount of product purged in ounces.

* The elevations of the top of the well casings are surveyed relative to City of Oakland benchmark, at the northeasterly corner of Weller and Cheney Avenue (elevation = 9.055', city datum; add 3.00' to U.S.G.S. datum).

N/A = Not applicable.

## TABLE 2

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

**(Measured on March 18, 1996)**

| Well # | Gallons per Casing Volume | Time | Gallons Purged | Casing Volumes Purged | Temperature (°F) | Conductivity ([µmhos/cm] x100) | pH |
|---|---|---|---|---|---|---|---|
| U-1 | 4.27 | 11:30 | 0 | 0 | 75.6 | 9.46 | 7.75 |
| | | | 4 | 0.94 | 66.6 | 7.58 | 7.26 |
| | | | 8 | 1.87 | 66.8 | 8.86 | 7.36 |
| | | | 12 | 2.81 | 66.9 | 11.06 | 7.33 |
| | | 12:00 | 14 | 3.28 | 67.3 | 10.75 | 7.40 |
| | | | WELL DEWATERED | | | | |
| U-2 | 4.87 | 10:30 | 0 | 0 | 71.0 | 14.39 | 7.53 |
| | | | 5 | 1.03 | 68.8 | 10.38 | 7.39 |
| | | | 8 | 1.64 | 68.7 | 12.13 | 7.35 |
| | | 11:00 | 10 | 2.05 | 69.6 | 12.03 | 7.28 |
| | | | WELL DEWATERED | | | | |
| U-3 | 3.24 | 12:30 | 0 | 0 | 76.2 | 11.59 | 7.52 |
| | | | 3 | 0.93 | 69.1 | 8.95 | 7.71 |
| | | | 6 | 1.85 | 67.2 | 8.95 | 7.46 |
| | | | 9 | 2.78 | 69.8 | 9.36 | 7.46 |
| | | 13:05 | 12 | 3.70 | 70.4 | 9.42 | 7.49 |
| | | | WELL DEWATERED | | | | |
| U-4 | 6.85 | 13:30 | 0 | 0 | 77.4 | 8.12 | 7.75 |
| | | | 7 | 1.02 | 68.6 | 8.29 | 7.78 |
| | | | 14 | 2.04 | 68.9 | 8.09 | 7.87 |
| | | | 18 | 2.63 | 69.8 | 8.53 | 7.70 |
| | | | 19 | 2.77 | 75.7 | 9.81 | 7.64 |
| | | 14:00 | 20 | 2.92 | 77.8 | 10.20 | 7.58 |
| | | | WELL DEWATERED | | | | |
| U-5 | 8.78 | 14:30 | 0 | 0 | 77.6 | 17.44 | 7.11 |
| | | | 9 | 1.03 | 68.7 | 17.89 | 7.12 |
| | | | 18 | 2.05 | 67.1 | 19.92 | 6.78 |
| | | | 27 | 3.08 | 68.2 | 38.0 | 6.99 |
| | | 14:45 | 36 | 4.10 | 69.0 | 37.6 | 7.10 |

**TABLE 2 (Continued)**

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

**(Measured on March 18, 1996)**

| Well # | Gallons per Casing Volume | Time | Gallons Purged | Casing Volumes Purged | Temperature (°F) | Conductivity ([μmhos/cm] x100) | pH |
|---|---|---|---|---|---|---|---|
| U-6 | 2.89 | 09:35 | 0 | 0 | 60.1 | 13.14 | 7.08 |
| | | | 3 | 1.04 | 61.8 | 13.89 | 6.94 |
| | | | 6 | 2.08 | 61.9 | 15.39 | 6.74 |
| | | | 9 | 3.11 | 63.0 | 16.09 | 6.69 |
| | | 09:45 | 12 | 4.15 | 63.5 | 15.98 | 6.72 |

## TABLE 3

SUMMARY OF LABORATORY ANALYSES
WATER

| Well # | Date | TPH as Gasoline | Benzene | Toluene | Ethyl-benzene | Xylenes |
|---|---|---|---|---|---|---|
| U-1 | 3/18/96★ | 27,000 | ND | 2,300 | 1,400 | 11,000 |
| | 12/19/96 | NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT | | | | |
| | 9/19/95 | NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT | | | | |
| | 6/21/95 | NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT | | | | |
| | 3/25/95 | NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT | | | | |
| | 12/24/94 | 50,000 | 2,500 | 9,700 | 2,400 | 17,000 |
| | 9/22/94 | 6,100♦ | ND | ND | ND | ND |
| | 6/22/94 | 200 | ND | ND | 5.9 | 21 |
| | 2/16/94 | 6,800♦♦ | ND | ND | ND | ND |
| | 11/16/93 | 690♦ | ND | ND | ND | ND |
| | 8/08/93 | 4,900** | 79 | ND | 832 | 270 |
| | 5/07/93 | 8,700 | 600 | 240 | 650 | 3,300 |
| | 2/22/93 | 34,000 | 1,400 | 5,500 | 910 | 7,300 |
| | 8/20/92 | 400* | 1 | ND | ND | 0.6 |
| | 6/11/92 | 1,000 | 80 | 1.4 | 6.7 | 41 |
| | 5/05/92 | 230 | 1.2 | ND | ND | ND |
| | 2/12/92 | 250 | ND | ND | ND | ND |
| | 10/09/91 | ND | ND | ND | ND | ND |
| | 7/03/91 | 140 | 21 | 4.3 | 0.36 | 17 |
| | 4/01/91 | 160 | 13 | 8.6 | 1.0 | 15 |
| | 1/07/91 | 250 | 22 | 16 | 4.2 | 17 |
| | 8/10/90 | 690 | 38 | 75 | 8.6 | 130 |
| U-2 | 3/18/96★ | 12,000 | 2,200 | ND | 1,200 | 2,200 |
| | 12/19/95▼▼ | 1,600 | 140 | 55 | 52 | 270 |
| | 9/19/95▼ | 3,000 | 610 | ND | 78 | 240 |
| | 6/21/95 | 16,000 | 2,100 | ND | 1,800 | 1,700 |
| | 3/25/95 | 170,000 | 1,900 | 21,000 | 4,800 | 33,000 |
| | 12/24/94 | 32,000 | 1,500 | 890 | 1,300 | 5,000 |
| | 9/22/94 | 8,500♦ | 29 | ND | ND | ND |
| | 6/22/94 | 31,000 | 2,200 | 62 | 1,500 | 3,500 |
| | 2/16/94 | 980♦♦ | 49 | 13 | 2.7 | 40 |
| | 11/16/93 | 510♦ | ND | ND | ND | ND |
| | 8/08/93 | 5,600** | 420 | ND | 410 | 670 |
| | 5/07/93 | 17,000 | 1,800 | 660 | 1,700 | 4,000 |
| | 2/22/93 | 3,400 | 2,400 | 2,100 | 1,200 | 5,800 |
| | 8/20/92 | 700 | 28 | 6.5 | 1.3 | 4.6 |
| | 6/11/92 | 620 | 17 | 2.1 | ND | 37 |
| | 5/05/92 | 1,600 | 120 | 52 | 6.2 | 290 |
| | 2/12/92 | 410 | 1.9 | ND | 0.36 | 0.40 |
| | 10/09/91 | 230 | 7.1 | ND | ND | 11 |

**TABLE 3 (Continued)**

SUMMARY OF LABORATORY ANALYSES
WATER

| Well # | Date | TPH as Gasoline | Benzene | Toluene | Ethyl-benzene | Xylenes |
|---|---|---|---|---|---|---|
| U-2 (Cont) | | | | | | |
| | 7/03/91 | 2,100 | 150 | 25 | 3.1 | 290 |
| | 4/01/91 | 1,700 | 250 | 89 | 34 | 190 |
| | 1/07/91 | 1,900 | 67 | 5.8 | 58 | 69 |
| | 8/10/90 | 780 | 27 | 46 | 15 | 130 |
| U-3 | 3/18/96★ | ND | ND | ND | ND | ND |
| | 12/19/95 | ND | ND | ND | ND | ND |
| | 9/19/95▼ | ND | ND | ND | ND | ND |
| | 6/21/95 | ND | ND | ND | ND | ND |
| | 3/25/95 | ND | ND | ND | ND | ND |
| | 12/24/94 | ND | ND | ND | ND | ND |
| | 9/22/94 | ND | ND | ND | ND | ND |
| | 6/22/94 | ND | ND | ND | ND | ND |
| | 2/16/94 | ND | ND | ND | ND | ND |
| | 11/16/93 | ND | ND | ND | ND | ND |
| | 8/08/93 | 210 | 5.0 | 9.7 | 0.7 | 4.1 |
| | 5/07/93 | ND | ND | ND | ND | ND |
| | 2/22/93 | ND | ND | ND | ND | ND |
| | 8/20/92 | ND | ND | ND | ND | ND |
| | 6/11/92 | ND | ND | ND | ND | ND |
| | 5/05/92 | ND | ND | ND | ND | ND |
| | 2/12/92 | ND | ND | ND | ND | ND |
| | 10/09/91 | ND | ND | ND | ND | ND |
| | 7/03/91 | ND | ND | ND | ND | ND |
| | 4/01/91 | ND | 1.0 | 2.9 | 0.53 | 5.4 |
| | 1/07/91 | ND | ND | ND | ND | 1.8 |
| | 8/10/90 | ND | ND | ND | ND | ND |
| U-4 | 3/18/96★ | ND | ND | ND | ND | ND |
| | 12/19/95 | ND | ND | ND | ND | ND |
| | 9/19/95 | ND | ND | ND | ND | ND |
| | 6/21/95 | ND | ND | ND | ND | ND |
| | 3/25/95 | ND | ND | ND | ND | ND |
| | 12/24/94 | ND | ND | ND | ND | ND |
| | 9/22/94 | ND | 0.78 | 1.3 | ND | 1.4 |
| | 6/22/94 | ND | ND | ND | ND | ND |

**TABLE 3 (Continued)**

SUMMARY OF LABORATORY ANALYSES
WATER

| Well # | Date | TPH as Gasoline | Benzene | Toluene | Ethyl-benzene | Xylenes |
|---|---|---|---|---|---|---|
| U-5 | 3/18/96★ | 100 | 0.67 | 0.50 | 0.51 | 5.4 |
| | 12/19/95 | ND | ND | ND | ND | ND |
| | 9/19/95▼ | 850 | 14 | 7.1 | 13 | 66 |
| | 6/21/95 | 400 | 2.3 | ND | 9.1 | 3.5 |
| | 3/25/95 | 44,000 | 390 | 960 | 1,500 | 7,600 |
| | 12/24/94 | 8,700 | 560 | 70 | 670 | 430 |
| | 9/22/94 | 170 | 8.4 | 10 | 8.5 | 18 |
| | 6/22/94 | 210 | 7.1 | 13 | 4.5 | 26 |
| U-6 | 3/18/96★ | ND | ND | ND | ND | ND |
| | 12/19/95▼▼ | 210 | 2.5 | 1.0 | 2.9 | 17 |
| | 9/19/95▼ | ND | ND | ND | ND | ND |
| | 6/21/95 | ND | ND | ND | ND | ND |
| | 3/25/95 | 47,000 | 450 | 1,300 | 1,700 | 8,200 |
| | 12/24/94 | 6,900 | 500 | 59 | 600 | 380 |
| | 9/22/94 | 130 | 1.3 | 0.80 | ND | 0.73 |
| | 6/22/94 | ND | ND | ND | ND | ND |

★ On March 18, 1996, MTBE was non-detectable in U-3, U-4, and U-5. MTBE was detected at concentrations of 4,900 µg/L, 22,000 µg/L, and 870 µg/L in wells U-1, U-2, and U-6, respectively.

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

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

* The positive result for gasoline does not appear to have a typical gasoline pattern.

** The concentration reported as gasoline is primarily due to the presence of a combination of gasoline and a discrete peak not indicative of gasoline.

▼ Sequoia Analytical Laboratory has potentially identified the presence of MTBE at reportable levels in the groundwater sample collected from this well.

▼▼ Sequoia Analytical Laboratory has identified the presence of MTBE at a level above or equal to the taste and odor threshold of 40 µg/L in the sample collected from this well.

MTBE = methyl tert butyl ether.

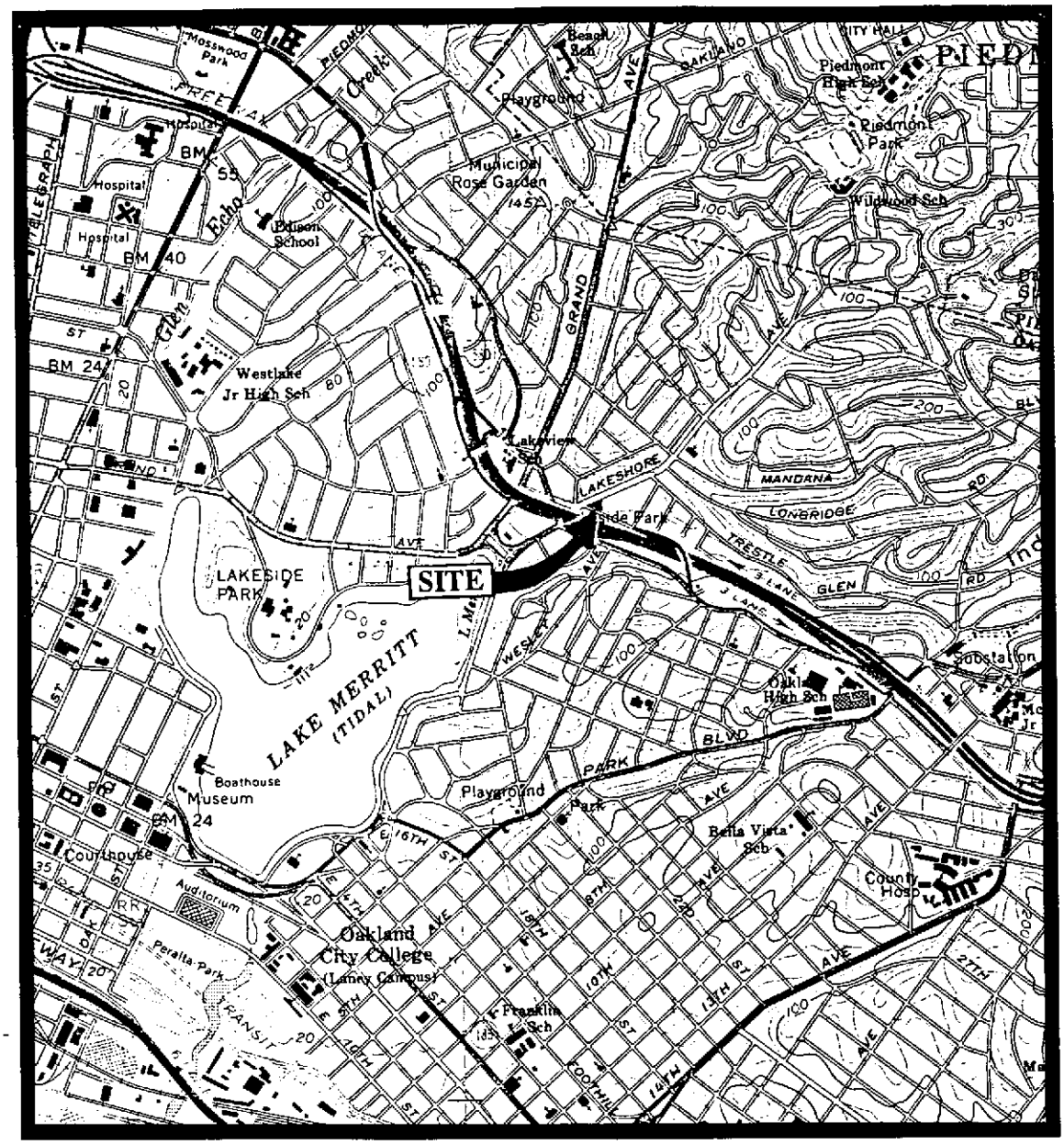
ND = Non-detectable.

**TABLE 3 (Continued)**

SUMMARY OF LABORATORY ANALYSES
WATER

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

**Note:**
- The detection limit for results reported as ND by Sequoia Analytical Laboratory is equal to the stated detection limit times the dilution factor indicated on the laboratory analytical sheets.
- Prior to August 1, 1995, the total purgeable petroleum hydrocarbon (TPH as gasoline) quantification range used by Sequoia Analytical Laboratory was C4 - C12. Since August 1, 1995, the quantification range used by Sequoia Analytical Laboratory is C6 - C12.
- Laboratory analyses data prior to November 16, 1993, were provided by GeoStrategies, Inc.

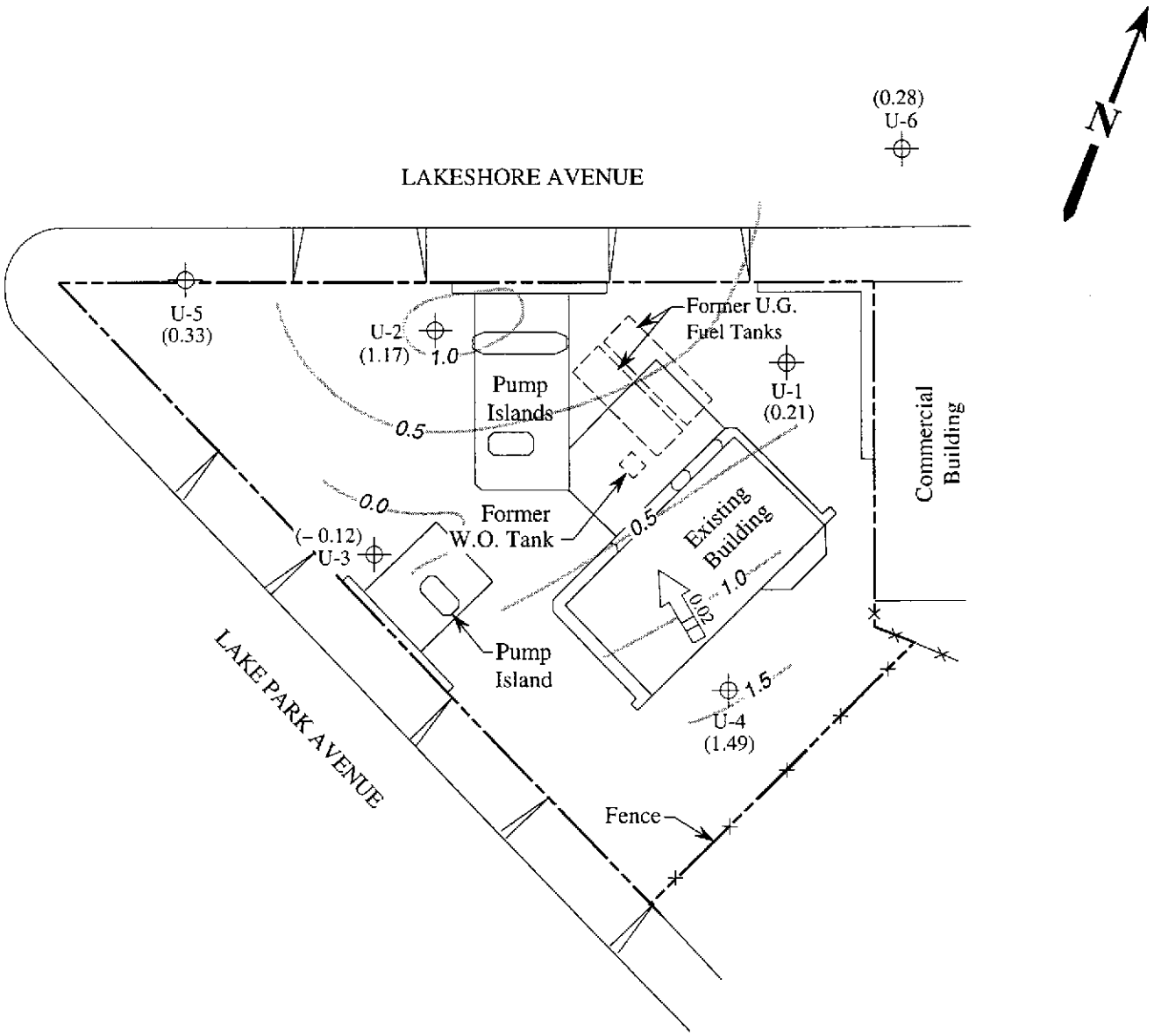



Base modified from 7.5 minute U.S.G.S.
Oakland East and West Quadrangles
(both photorevised 1980)

0 2000 4000

Approx. scale feet

| | | |
|---|---|---|
| mpds SERVICES, INCORPORATED | **UNOCAL SERVICE STATION #5325**<br>**3220 LAKESHORE AVENUE**<br>**OAKLAND, CALIFORNIA** | **LOCATION MAP** |




LEGEND

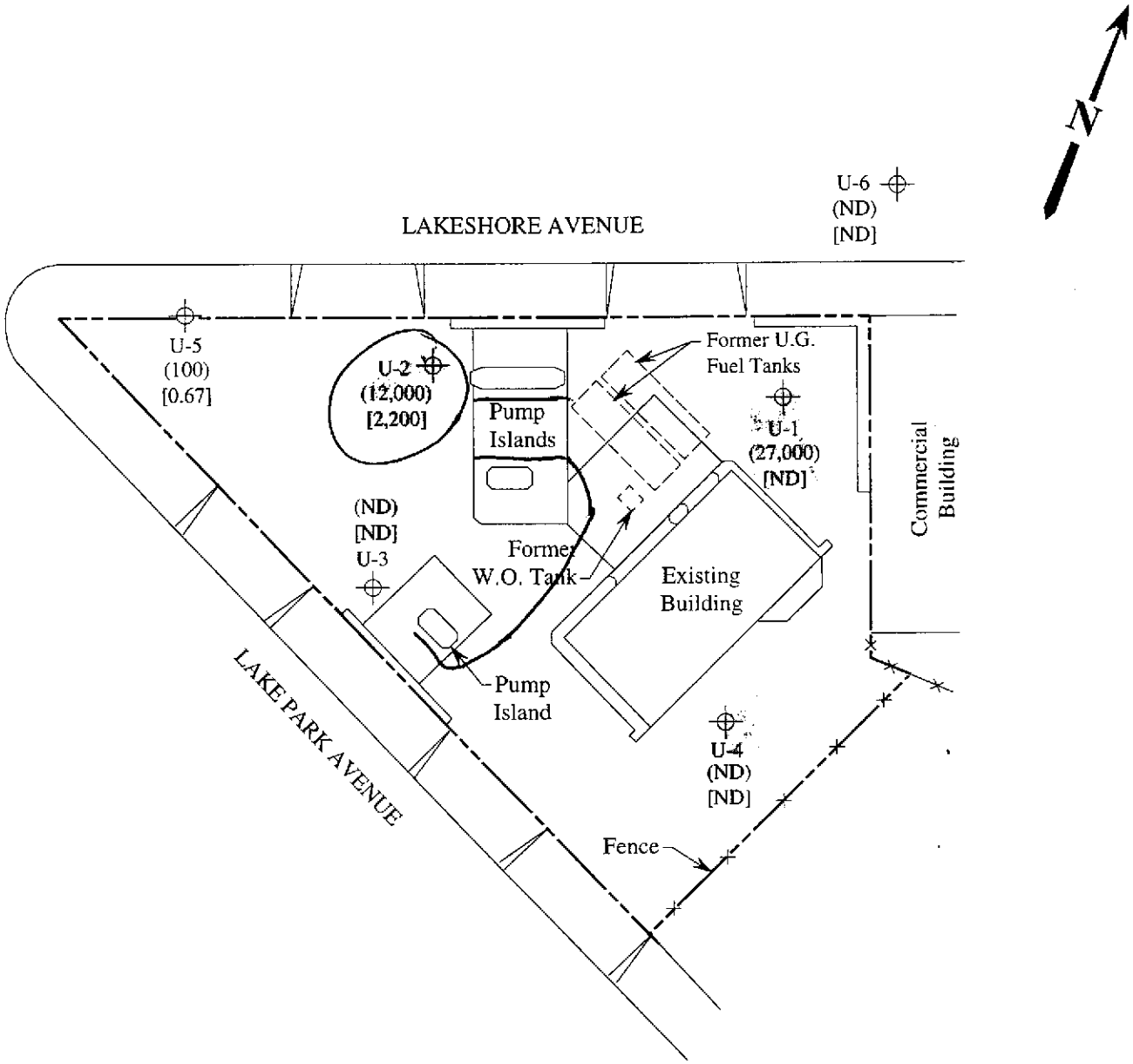
- Monitoring well
- ( ) Ground water elevation relative to Mean Sea Level
- #.## Direction of ground water flow with approximate hydraulic gradient
- Contours of ground water elevation

0 40 80

Approx. scale feet

**POTENTIOMETRIC SURFACE MAP FOR THE MARCH 18, 1996 MONITORING EVENT**

| | | |
|---|---|---|
| mpds SERVICES, INCORPORATED | **UNOCAL SERVICE STATION #5325**<br>**3220 LAKESHORE AVENUE**<br>**OAKLAND, CALIFORNIA** | FIGURE<br>**1** |




LEGEND

- ⊕ Monitoring well
- ( ) Concentration of TPH as gasoline in µg/L
- [ ] Concentration of benzene in µg/L
- ND Non-detectable

0 40 80

Approx. scale feet

**PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON MARCH 18, 1996**

mpds SERVICES, INCORPORATED

**UNOCAL SERVICE STATION #5325**
**3220 LAKESHORE AVENUE**
**OAKLAND, CALIFORNIA**

FIGURE
**2**

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

| | | | |
|---|---|---|---|
| MPDS Services | Client Project ID: | Unocal #5325, 3220 Lakeshore Ave, Oakland | Sampled: Mar 18, 1996 |
| 2401 Stanwell Dr., Ste. 300 | Matrix Descript: | Water | Received: Mar 18, 1996 |
| Concord, CA 94520 | Analysis Method: | EPA 5030/8015 Mod./8020 | Reported: Apr 5, 1996 |
| Attention: Jarrel Crider | First Sample #: | 603-1644 | |

## TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

| Sample Number | Sample Description | Purgeable Hydrocarbons µg/L | Benzene µg/L | Toluene µg/L | Ethyl Benzene µg/L | Total Xylenes µg/L | MTBE µg/L |
|---|---|---|---|---|---|---|---|
| 603-1644 | U1 | 27,000 | ND | 2,300 | 1,400 | 11,000 | 4,900 |
| 603-1645 | U2 | 12,000 | 2,200 | ND | 1,200 | 2,200 | 22,000 |
| 603-1646 | U3 | ND | ND | ND | ND | ND | ND |
| 603-1647 | U4 | ND | ND | ND | ND | ND | ND |
| 603-1648 | U5 | 100 | 0.67 | 0.50 | 0.51 | 5.4 | ND |
| 603-1649 | U6 | ND | ND | ND | ND | ND | 870 |
| 603-1650 | ES1 | ND | ND | ND | ND | ND | - |
| 603-1651 | ES2 | ND | ND | ND | ND | ND | - |
| 603-1652 | ES3 | ND | ND | ND | ND | ND | - |
| **Detection Limits:** | | **50** | **0.50** | **0.50** | **0.50** | **0.50** | **40** |

Total Purgeable Petroleum Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as ND were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL, #1894**

Signature on File

Alan B. Kemp
Project Manager



6031644.MPD <1>

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

| | | | | |
|---|---|---|---|---|
| MPDS Services | Client Project ID: | Unocal #5325, 3220 Lakeshore Ave, Oakland | Sampled: | Mar 18, 1996 |
| 2401 Stanwell Dr., Ste. 300 | Matrix Descript: | Water | Received: | Mar 18, 1996 |
| Concord, CA 94520 | Analysis Method: | EPA 5030/8015 Mod./8020 | Reported: | Apr 5, 1996 |
| Attention: Jarrel Crider | First Sample #: | 603-1644 | | |

## TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

| Sample Number | Sample Description | Chromatogram Pattern | DL Mult. Factor | Date Analyzed | Instrument ID | Surrogate Recovery, % QC Limits: 70-130 |
|---|---|---|---|---|---|---|
| 603-1644 | U1 | Gasoline | 2,000 | 3/31/96 | HP-2 | 80 |
| 603-1645 | U2 | Gasoline | 2,000 | 3/31/96 | HP-2 | 84 |
| 603-1646 | U3 | -- | 1.0 | 3/31/96 | HP-2 | 82 |
| 603-1647 | U4 | -- | 1.0 | 3/31/96 | HP-2 | 89 |
| 603-1648 | U5 | Gasoline | 1.0 | 3/31/96 | HP-2 | 77 |
| 603-1649 | U6 | -- | 1.0 - 2.0 | 3/31/96 | HP-2 | 70 |
| 603-1650 | ES1 | -- | 1.0 | 3/31/96 | HP-2 | 81 |
| 603-1651 | ES2 | -- | 1.0 | 3/31/96 | HP-2 | 86 |
| 603-1652 | ES3 | -- | 1.0 | 3/31/96 | HP-2 | 86 |

**SEQUOIA ANALYTICAL, #1894**

Signature on File

Alan B. Kemp
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

MPDS Services
2401 Stanwell Dr., Ste. 300
Concord, CA 94520
Attention: Jarrel Crider

Client Project ID: Unocal #5325, 3220 Lakeshore Ave, Oakland
Matrix: Liquid
QC Sample Group: 6031644-652
Reported: Apr 5, 1996

# QUALITY CONTROL DATA REPORT

| ANALYTE | Benzene | Toluene | Ethyl Benzene | Xylenes |
|---|---|---|---|---|
| Method: | EPA 8020 | EPA 8020 | EPA 8020 | EPA 8020 |
| Analyst: | ZT | ZT | ZT | ZT |
| MS/MSD Batch#: | 6031058 | 6031058 | 6031058 | 6031058 |
| Date Prepared: | 3/31/96 | 3/31/96 | 3/31/96 | 3/31/96 |
| Date Analyzed: | 3/31/96 | 3/31/96 | 3/31/96 | 3/31/96 |
| Instrument I.D.#: | HP-2 | HP-2 | HP-2 | HP-2 |
| Conc. Spiked: | 10 µg/L | 10 µg/L | 10 µg/L | 30 µg/L |
| Matrix Spike % Recovery: | 71 | 85 | 79 | 99 |
| Matrix Spike Duplicate % Recovery: | 72 | 87 | 81 | 97 |
| Relative % Difference: | 1.4 | 1.2 | 2.5 | 2.0 |
| LCS Batch#: | LCS033196 | LCS033196 | LCS033196 | LCS033196 |
| Date Prepared: | 3/31/96 | 3/31/96 | 3/31/96 | 3/31/96 |
| Date Analyzed: | 3/31/96 | 3/31/96 | 3/31/96 | 3/31/96 |
| Instrument I.D.#: | HP-2 | HP-2 | HP-2 | HP-2 |
| LCS % Recovery: | 86 | 103 | 92 | 116 |
| % Recovery Control Limits: | 80-120 | 80-120 | 80-120 | 80-120 |

**SEQUOIA ANALYTICAL, #1894**

Signature on File

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.

mpds SERVICES, INCORPORATED
2401 Stanwell Drive, Suite 400
Concord, California 94520
Tel: (510) 602-5100, Fax: (510) 689-1918

# CHAIN OF CUSTODY

SAMPLER: RAY MARANGOSIAN
WITNESSING AGENCY:
UNOCAL S/S # 5325 CITY: OAKLAND
ADDRESS: 3220 Lakeshore Ave

| SAMPLE ID NO. | DATE | TIME | WATER | GRAB | COMP | NO. OF CONT. | SAMPLING LOCATION | TPH-GAS BTEX | TPH-DIESEL | TOG | 8010 | MTBE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| U1 | 3.18.96 | 12:10 | X | X | | 2 | Well | X | | | | X | | 6031644 | A,B |
| U2 | " | 11:10 | " | " | | " | " | " | | | | " | | 6031645 | |
| U3 | " | 13:15 | " | " | | " | " | " | | | | " | | 6031646 | |
| U4 | " | 14:10 | " | " | | " | " | " | | | | " | | 6031647 | |
| U5 | " | 15:00 | " | " | | " | " | " | | | | " | | 6031648 | |
| U6 | " | 9:55 | " | " | | " | " | " | | | | " | | 6031649 | |

ANALYSES REQUESTED

TURN AROUND TIME: REGULAR

REMARKS

| RELINQUISHED BY: | DATE/TIME | RECEIVED BY: | DATE/TIME |
|---|---|---|---|
| Ray Marangosian | 3.18.96 16:40 | Tony Mack | 16:40 3/18/96 |
| (SIGNATURE) | | (SIGNATURE) | 1430 3-19 |
| (SIGNATURE) | 3-19 | (SIGNATURE) | 3/19 1430 |
| (SIGNATURE) | | (SIGNATURE) | |
| (SIGNATURE) | | (SIGNATURE) | |

THE FOLLOWING MUST BE COMPLETED BY THE LABORATORY ACCEPTING SAMPLES FOR ANALYSES:

1. HAVE ALL SAMPLES RECEIVED FOR ANALYSIS BEEN STORED ON ICE? Y
2. WILL SAMPLES REMAIN REFRIGERATED UNTIL ANALYZED? Y
3. DID ANY SAMPLES RECEIVED FOR ANALYSIS HAVE HEAD SPACE? Some N
4. WERE SAMPLES IN APPROPRIATE CONTAINERS AND PROPERLY PACKAGED? Y

SIGNATURE: Tony Mack TITLE: analyst DATE: 3-18-96

Note: All water containers to be sampled for TPHG/BTEX, 8010 & 8240 are preserved with HCL. All water containers to be sampled for Lead or Metals are preserved with HNO3. All other containers are unpreserved.

mpds SERVICES, INCORPORATED
2401 Stanwell Drive, Suite 400
Concord, California 94520
Tel: (510) 602-5100, Fax: (510) 689-1918

# CHAIN OF CUSTODY

96053652

SAMPLER: RAY MARANGOSIAN

WITNESSING AGENCY:

UNOCAL S/S # 5325 CITY: OAKLAND

ADDRESS: 3220 Lakeshore Ave

TURN AROUND TIME: REGULAR

| SAMPLE ID NO. | DATE | TIME | WATER | GRAB | COMP | NO. OF CONT. | SAMPLING LOCATION | TPH-GAS BTEX | TPH-DIESEL | TOG | 8010 | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ES1 | 3.18.96 | | X | X | | 1 | | X | | | | | | 6031650 | |
| ES2 | 4 | | X | X | | 1 | | X | | | | | | 6031651 | |
| ES3 | 4 | | X | X | | 1 | | X | | | | | | 6031652 | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | |

| RELINQUISHED BY: | DATE/TIME | RECEIVED BY: | DATE/TIME |
|---|---|---|---|
| Ray Marangosian (SIGNATURE) | 3-18-96 16:40 | (SIGNATURE) | 3/18/96 16:40 |
| (SIGNATURE) | | (SIGNATURE) | 3-19 14:30 |
| (SIGNATURE) | 3-19 | (SIGNATURE) | 3/19 1430 |
| (SIGNATURE) | | (SIGNATURE) | |
| (SIGNATURE) | | (SIGNATURE) | |

THE FOLLOWING MUST BE COMPLETED BY THE LABORATORY ACCEPTING SAMPLES FOR ANALYSES:

1. HAVE ALL SAMPLES RECEIVED FOR ANALYSIS BEEN STORED ON ICE? Y
2. WILL SAMPLES REMAIN REFRIGERATED UNTIL ANALYZED? Y
3. DID ANY SAMPLES RECEIVED FOR ANALYSIS HAVE HEAD SPACE? N
4. WERE SAMPLES IN APPROPRIATE CONTAINERS AND PROPERLY PACKAGED? Y

SIGNATURE: TITLE: Analyst DATE: 3/18/96

Note: All water containers to be sampled for TPHG/BTEX, 8010 & 8240 are preserved with HCL. All water containers to be sampled for Lead or Metals are preserved with HNO3. All other containers are unpreserved.