

MONITORING
PURGING
DISPOSING
SAMPLING

MPDS

SERVICES, INCORPORATED

10/12/95

November 7, 1995

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

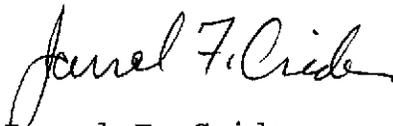
RE: Unocal Service Station #5325
3220 Lakeshore Avenue
Oakland, California

Per the request of the Unocal Corporation Project Manager, Mr. David B. De Witt, enclosed please find our report (MPDS-UN5325-08) dated October 12, 1995 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

/jfc

Enclosure

cc: Mr. David B. De Witt

ENVIRONMENTAL
PROTECTION
95 NOV -9 PM 2:20

MPDS-UN5325-08
October 12, 1995

2004

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. 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 is shown on the attached Figure 1.

Ground water samples were collected on September 19, 1995. Prior to sampling, the wells were each purged of between 10 and 35 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 documentation. 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. Nubar Srabian at (510) 602-5120.

Sincerely,

MPDS Services, Inc.


Sarkis Karkarian
Staff Engineer



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

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

/jfc

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

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

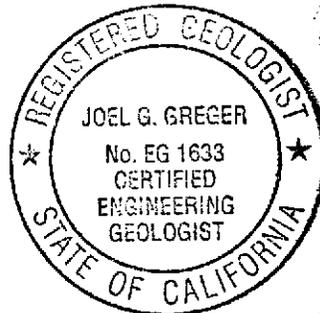


TABLE 1

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 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 |

(Monitored and Sampled on March 25, 1995)

| | | | | | | |
|-----|-------|-------|-------|------|-----|--------|
| U-1 | 1.02▲ | 7.72 | 19.87 | 0.37 | N/A | 1 (10) |
| U-2 | 0.61 | 7.01 | 19.55 | 0 | No | 19 |
| U-3 | 0.02 | 10.96 | 19.80 | 0 | No | 8.5 |
| U-4 | 1.64 | 9.51 | 20.25 | 0 | No | 18 |
| U-5 | 0.63 | 6.35 | 20.08 | 0 | No | 36 |
| U-6 | 0.85 | 6.29 | 23.80 | 0 | No | 12 |

(Monitored and Sampled on December 24, 1994)

| | | | | | | |
|-----|-------|-------|-------|---|----|----|
| U-1 | 0.42 | 8.04 | 19.85 | 0 | No | 18 |
| U-2 | 0.35 | 7.27 | 19.55 | 0 | No | 8 |
| U-3 | -0.30 | 11.28 | 19.79 | 0 | No | 6 |
| U-4 | 1.34 | 9.81 | 20.24 | 0 | No | 15 |
| U-5 | 0.55 | 6.43 | 20.07 | 0 | No | 36 |
| U-6 | 0.47 | 6.67 | 23.80 | 0 | No | 12 |

TABLE 1 (Continued)

SUMMARY OF MONITORING DATA

| <u>Well #</u> | <u>Well Casing Elevation (feet)*</u> |
|---------------|--|
| 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 September 19, 1995)

| Well # | Gallons per Casing Volume | Time | Gallons Purged | Casing Volumes Purged | Temper- ature (°F) | Conductivity ([μmhos/cm] x1000) | pH |
|----------------|---------------------------------|----------------|-------------------|-----------------------------|--------------------------|---------------------------------------|------|
| U-2 | 4.37 | 11:20 | 0 | 0 | 69.4 | 3.89 | 7.22 |
| | | | 4.5 | 1.03 | 70.3 | 2.87 | 6.55 |
| | | | 7.5 | 1.72 | 75.6 | 3.19 | 6.53 |
| | | 12:20 | 10 | 2.29 | 80.8 | 3.67 | 7.25 |
| | | WELL DEWATERED | | | | | |
| U-3 | 3.07 | 12:55 | 0 | 0 | 63.1 | 1.415 | 7.95 |
| | | | 3 | 0.98 | 79.1 | 1.178 | 7.23 |
| | | | 6 | 1.95 | 82.7 | 1.225 | 7.40 |
| | | | 8 | 2.61 | 82.1 | 1.264 | 7.32 |
| | | | 11 | 3.58 | 75.9 | 1.104 | 7.36 |
| | | 13:35 | 12 | 3.91 | 76.4 | 1.190 | 7.22 |
| WELL DEWATERED | | | | | | | |
| U-4 | 6.52 | 14:05 | 0 | 0 | 88.0 | 1.260 | 7.58 |
| | | | 6.5 | 1.00 | 77.8 | 0.961 | 7.41 |
| | | | 13 | 1.99 | 76.6 | 0.950 | 7.27 |
| | | | 17 | 2.61 | 78.8 | 1.150 | 7.40 |
| | | 14:35 | 18 | 2.76 | 80.9 | 1.002 | 7.65 |
| WELL DEWATERED | | | | | | | |
| U-5 | 8.55 | 10:35 | 0 | 0 | 73.6 | 3.35 | 7.02 |
| | | | 9 | 1.05 | 72.7 | 2.53 | 6.56 |
| | | | 18 | 2.11 | 72.6 | 2.87 | 6.39 |
| | | | 27 | 3.16 | 71.8 | 3.53 | 6.45 |
| | | 10:50 | 35 | 4.09 | 71.7 | 3.83 | 6.51 |
| U-6 | 2.75 | 9:55 | 0 | 0 | 61.9 | 1.760 | 6.96 |
| | | | 3 | 1.09 | 67.7 | 1.984 | 7.07 |
| | | | 6 | 2.18 | 68.1 | 1.989 | 6.81 |
| | | | 9 | 3.27 | 67.9 | 1.991 | 6.89 |
| | | 10:05 | 11 | 4.00 | 68.0 | 1.996 | 7.98 |

TABLE 3

**SUMMARY OF LABORATORY ANALYSES
 WATER**

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

TABLE 3 (Continued)

**SUMMARY OF LABORATORY ANALYSES
 WATER**

| Date | Well # | TPH as Gasoline | Benzene | Toluene | Ethyl-benzene | Xylenes |
|----------|--------|-----------------|---------|---------|---------------|---------|
| 7/03/91 | U-2 | 2,100 | 150 | 25 | 3.1 | 290 |
| 4/01/91 | U-2 | 1,700 | 250 | 89 | 34 | 190 |
| 1/07/91 | U-2 | 1,900 | 67 | 5.8 | 58 | 69 |
| 8/10/90 | U-2 | 780 | 27 | 46 | 15 | 130 |
| 9/19/95 | U-3▼ | ND | ND | ND | ND | ND |
| 6/21/95 | U-3 | ND | ND | ND | ND | ND |
| 3/25/95 | U-3 | ND | ND | ND | ND | ND |
| 12/24/94 | U-3 | ND | ND | ND | ND | ND |
| 9/22/94 | U-3 | ND | ND | ND | ND | ND |
| 6/22/94 | U-3 | ND | ND | ND | ND | ND |
| 2/16/94 | U-3 | ND | ND | ND | ND | ND |
| 11/16/93 | U-3 | ND | ND | ND | ND | ND |
| 8/08/93 | U-3 | 210 | 5.0 | 9.7 | 0.7 | 4.1 |
| 5/07/93 | U-3 | ND | ND | ND | ND | ND |
| 2/22/93 | U-3 | ND | ND | ND | ND | ND |
| 8/20/92 | U-3 | ND | ND | ND | ND | ND |
| 6/11/92 | U-3 | ND | ND | ND | ND | ND |
| 5/05/92 | U-3 | ND | ND | ND | ND | ND |
| 2/12/92 | U-3 | ND | ND | ND | ND | ND |
| 10/09/91 | U-3 | ND | ND | ND | ND | ND |
| 7/03/91 | U-3 | ND | ND | ND | ND | ND |
| 4/01/91 | U-3 | ND | 1.0 | 2.9 | 0.53 | 5.4 |
| 1/07/91 | U-3 | ND | ND | ND | ND | 1.8 |
| 8/10/90 | U-3 | ND | ND | ND | ND | ND |
| 9/19/95 | U-4 | ND | ND | ND | ND | ND |
| 6/21/95 | U-4 | ND | ND | ND | ND | ND |
| 3/25/95 | U-4 | ND | ND | ND | ND | ND |
| 12/24/94 | U-4 | ND | ND | ND | ND | ND |
| 9/22/94 | U-4 | ND | 0.78 | 1.3 | ND | 1.4 |
| 6/22/94 | U-4 | ND | ND | ND | ND | ND |
| 9/19/95 | U-5▼ | 850 | 14 | 7.1 | 13 | 66 |
| 6/21/95 | U-5 | 400 | 2.3 | ND | 9.1 | 3.5 |
| 3/25/95 | U-5 | 44,000 | 390 | 960 | 1,500 | 7,600 |
| 12/24/94 | U-5 | 8,700 | 560 | 70 | 670 | 430 |
| 9/22/94 | U-5 | 170 | 8.4 | 10 | 8.5 | 18 |
| 6/22/94 | U-5 | 210 | 7.1 | 13 | 4.5 | 26 |

TABLE 3 (Continued)

SUMMARY OF LABORATORY ANALYSES
 WATER

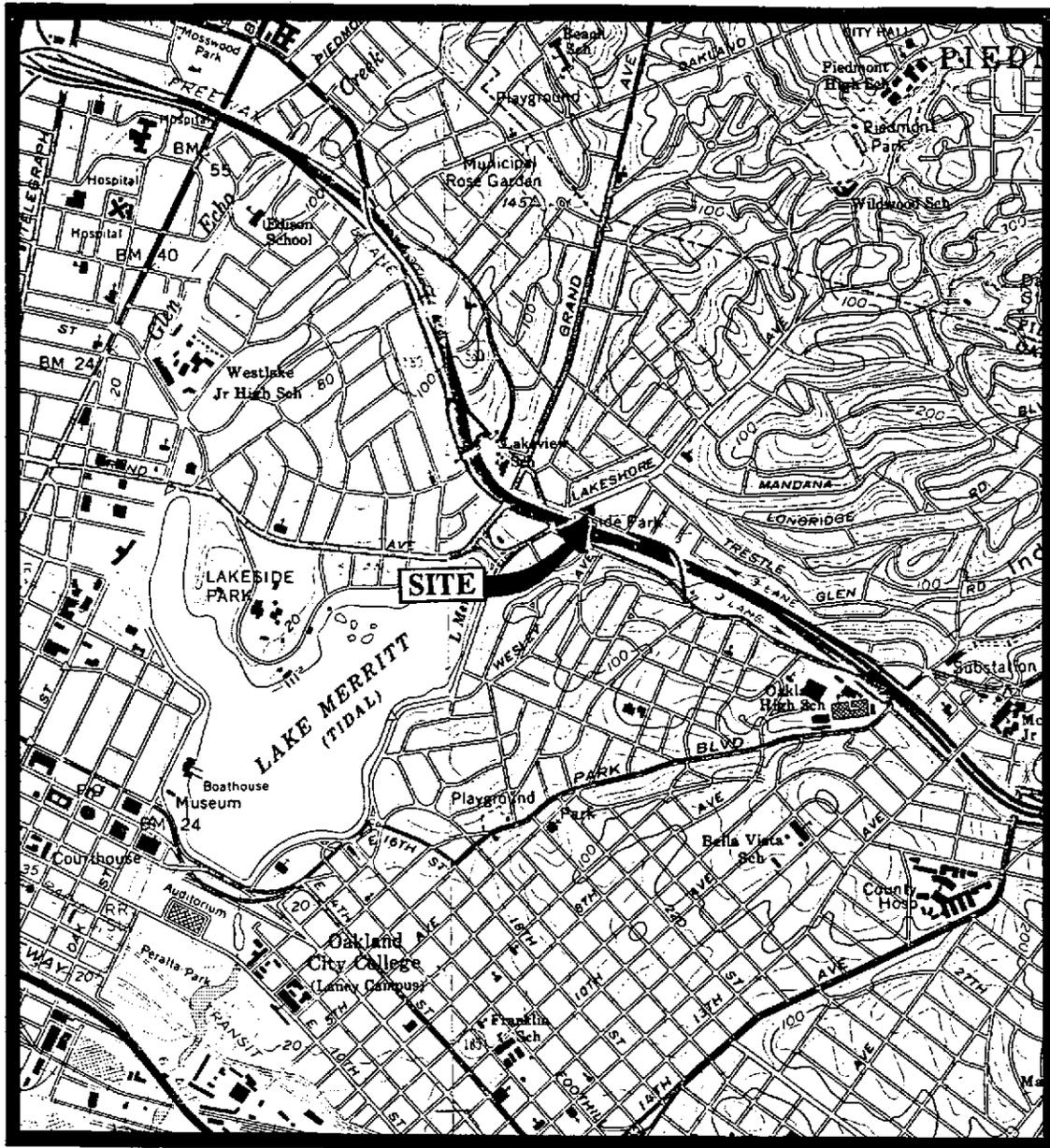
| Date | Well # | TPH as Gasoline | Benzene | Toluene | Ethyl-benzene | Xylenes |
|----------|--------|-----------------|---------|---------|---------------|---------|
| 9/19/95 | U-6▼ | ND | ND | ND | ND | ND |
| 6/21/95 | U-6 | ND | ND | ND | ND | ND |
| 3/25/95 | U-6 | 47,000 | 450 | 1,300 | 1,700 | 8,200 |
| 12/24/94 | U-6 | 6,900 | 500 | 59 | 600 | 380 |
| 9/22/94 | U-6 | 130 | 1.3 | 0.80 | ND | 0.73 |
| 6/22/94 | U-6 | ND | ND | ND | ND | ND |

- ◆ 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.

ND = Non-detectable.

Results are in micrograms per liter ($\mu\text{g/L}$), unless otherwise indicated.

Note: Laboratory analyses data prior to November 16, 1993, were provided by GeoStrategies, Inc.



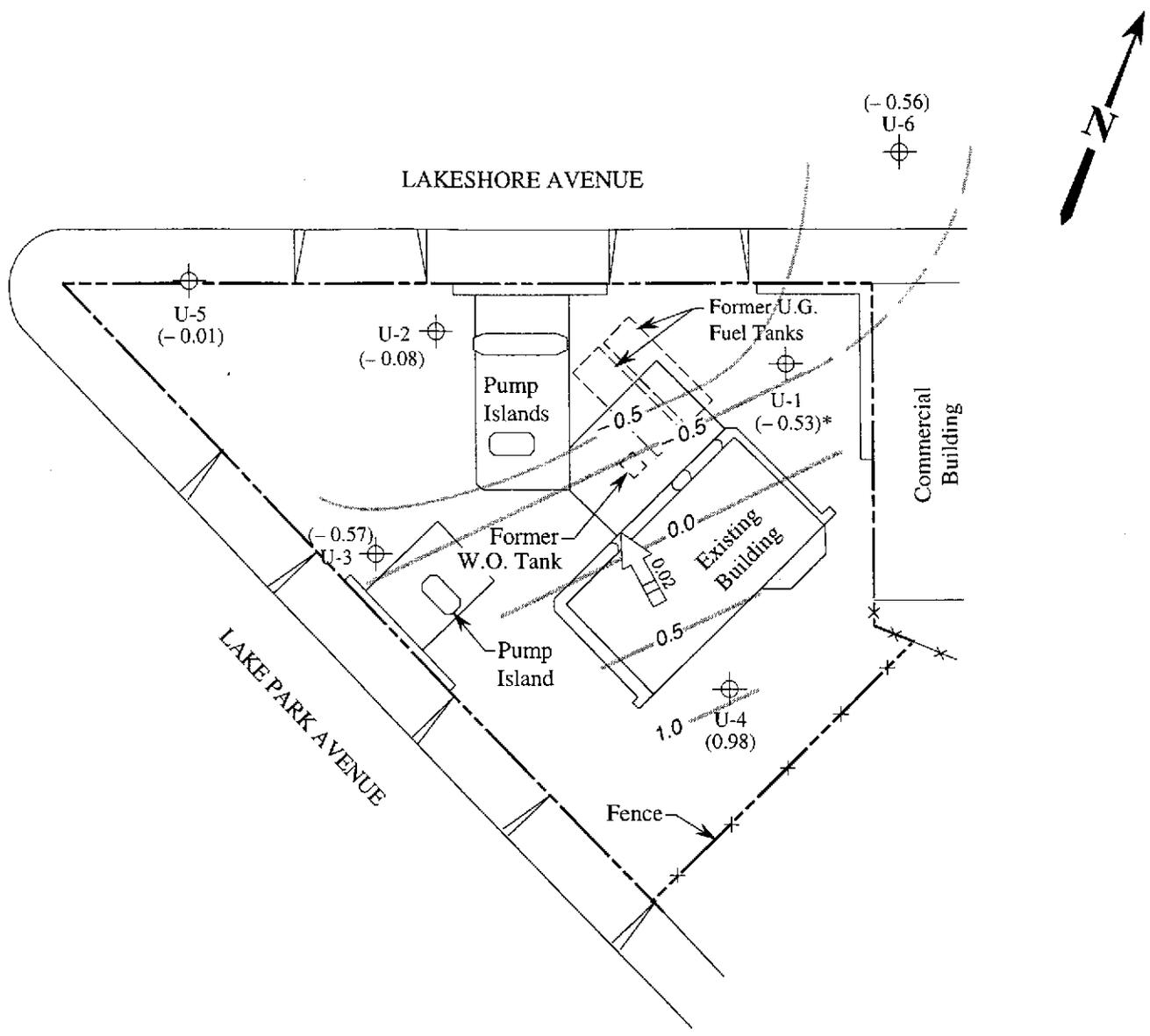
Base modified from 7.5 minute U.S.G.S.
 Oakland East and West Quadrangles
 (both photorevised 1980)



mpds SERVICES, INCORPORATED

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

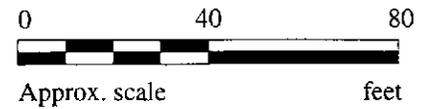
**LOCATION
 MAP**



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

* Ground water elevation corrected due to the presence of free product



POTENTIOMETRIC SURFACE MAP FOR THE SEPTEMBER 19, 1995 MONITORING EVENT



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

**FIGURE
1**



| | | | |
|--|---|---------|--|
| MPDS Services 2401 Stanwell Dr., Ste. 300 Concord, CA 94520 Attention: Sarkis Karkarian | Client Project ID: Unocal #5325, 3220 Lakeshore Ave., Matrix Descript: Water Analysis Method: EPA 5030/8015 Mod./8020 First Sample #: 509-1636 | Oakland | Sampled: Sep 19, 1995 Received: Sep 19, 1995 Reported: Oct 5, 1995 |
|--|---|---------|--|

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 |
|---------------|--------------------|--------------------------------|-----------------|-----------------|-----------------------|-----------------------|
| 509-1636 | U2 | 3,000 | 610 | ND | 78 | 240 |
| 509-1637 | U3 | ND | ND | ND | ND | ND |
| 509-1638 | U4 | ND | ND | ND | ND | ND |
| 509-1639 | U5 | 850 | 14 | 7.1 | 13 | 66 |
| 509-1640 | U6 | ND | ND | ND | ND | ND |
| 509-1641 | ES1 | ND | ND | ND | ND | ND |
| 509-1642 | ES2 | ND | ND | 2.8 | ND | 1.0 |
| 509-1643 | ES3 | ND | ND | 2.0 | ND | 0.53 |

| | | | | | |
|--------------------------|-----------|-------------|-------------|-------------|-------------|
| Detection Limits: | 50 | 0.50 | 0.50 | 0.50 | 0.50 |
|--------------------------|-----------|-------------|-------------|-------------|-------------|

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, #1271

Signature on File

Alan B. Kemp
Project Manager





Sequoia Analytical

680 Chesapeake Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 8

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834

(415) 364-9600
(510) 988-9600
(916) 921-9600

FAX (415) 364-9233
FAX (510) 988-9673
FAX (916) 921-0100

| | | | |
|--|---|---------|--|
| MPDS Services 2401 Stanwell Dr., Ste. 300 Concord, CA 94520 Attention: Sarkis Karkarian | Client Project ID: Unocal #5325, 3220 Lakeshore Ave., Matrix Descript: Water Analysis Method: EPA 5030/8015 Mod./8020 First Sample #: 509-1636 | Oakland | Sampled: Sep 19, 1995 Received: Sep 19, 1995 Reported: Oct 5, 1995 |
|--|---|---------|--|

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 |
|---------------|--------------------|----------------------|-----------------|---------------|---------------|---|
| 509-1636 | U2 | Gasoline | 10 | 10/3/95 | HP-9 | 76 |
| 509-1637 | U3 | -- | 1.0 | 10/3/95 | HP-9 | 101 |
| 509-1638 | U4 | -- | 1.0 | 10/3/95 | HP-9 | 100 |
| 509-1639 | U5 | Gasoline | 1.0 | 10/3/95 | HP-9 | 88 |
| 509-1640 | U6 | -- | 1.0 | 10/3/95 | HP-9 | 99 |
| 509-1641 | ES1 | -- | 1.0 | 10/3/95 | HP-9 | 93 |
| 509-1642 | ES2 | -- | 1.0 | 10/3/95 | HP-9 | 99 |
| 509-1643 | ES3 | -- | 1.0 | 10/4/95 | HP-2 | 91 |

SEQUOIA ANALYTICAL, #1271

Signature on File

Alan B. Kemp
Project Manager

5091636.MPD <2>





| | | |
|--|--|-----------------------|
| MPDS Services 2401 Stanwell Dr., Ste. 300 Concord, CA 94520 Attention: Sarkis Karkarian | Client Project ID: Unocal #5325, 3220 Lakeshore Ave., Oakland Matrix: Liquid QC Sample Group: 5091636-43 | Reported: Oct 5, 1995 |
|--|--|-----------------------|

QUALITY CONTROL DATA REPORT

| ANALYTE | Benzene | Toluene | Ethyl Benzene | Xylenes |
|-----------------|----------|----------|------------------|----------|
| Method: | EPA 8020 | EPA 8020 | EPA 8020 | EPA 8020 |
| Analyst: | K.Nill | K.Nill | K.Nill | K.Nill |

| | | | | |
|---|---------|---------|---------|---------|
| MS/MSD Batch#: | 5091382 | 5091382 | 5091382 | 5091382 |
| Date Prepared: | 10/3/95 | 10/3/95 | 10/3/95 | 10/3/95 |
| Date Analyzed: | 10/3/95 | 10/3/95 | 10/3/95 | 10/3/95 |
| Instrument I.D.#: | HP-9 | HP-9 | HP-9 | HP-9 |
| Conc. Spiked: | 20 µg/L | 20 µg/L | 20 µg/L | 60 µg/L |
| Matrix Spike % Recovery: | 110 | 110 | 115 | 23 |
| Matrix Spike Duplicate % Recovery: | 115 | 120 | 115 | 126 |
| Relative % Difference: | 4.4 | 8.7 | 0.0 | 2.7 |

| | | | | |
|----------------------------|------------|------------|------------|------------|
| LCS Batch#: | 4LCS100395 | 4LCS100395 | 4LCS100395 | 4LCS100395 |
| Date Prepared: | 10/3/95 | 10/3/95 | 10/3/95 | 10/3/95 |
| Date Analyzed: | 10/3/95 | 10/3/95 | 10/3/95 | 10/3/95 |
| Instrument I.D.#: | HP-9 | HP-9 | HP-9 | HP-9 |
| LCS % Recovery: | 109 | 112 | 111 | 122 |

| | | | | |
|---------------------------------------|--------|--------|--------|--------|
| % Recovery Control Limits: | 71-133 | 72-128 | 72-130 | 71-120 |
|---------------------------------------|--------|--------|--------|--------|

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.

SEQUOIA ANALYTICAL, #1271

Signature on File

Alan B. Kemp
Project Manager





MPDS Services
2401 Stanwell Dr., Ste. 300
Concord, CA 94520
Attention: Sarkis Karkarian

Client Project ID: Unocal #5325, 3220 Lakeshore Ave., Oakland
Matrix: Liquid

QC Sample Group: 5091636-43

Reported: Oct 5, 1995

QUALITY CONTROL DATA REPORT

| ANALYTE | Benzene | Toluene | Ethyl Benzene | Xylenes |
|-----------------|-------------|-------------|------------------|-------------|
| Method: | EPA 8020 | EPA 8020 | EPA 8020 | EPA 8020 |
| Analyst: | M. Creusere | M. Creusere | M. Creusere | M. Creusere |

MS/MSD

| | | | | |
|---|---------|---------|---------|---------|
| Batch#: | 5092002 | 5092002 | 5092002 | 5092002 |
| Date Prepared: | 10/4/95 | 10/4/95 | 10/4/95 | 10/4/95 |
| Date Analyzed: | 10/4/95 | 10/4/95 | 10/4/95 | 10/4/95 |
| Instrument I.D.#: | HP-2 | HP-2 | HP-2 | HP-2 |
| Conc. Spiked: | 20 µg/L | 20 µg/L | 20 µg/L | 60 µg/L |
| Matrix Spike % Recovery: | 115 | 110 | 115 | 112 |
| Matrix Spike Duplicate % Recovery: | 115 | 110 | 115 | 115 |
| Relative % Difference: | 0.0 | 0.0 | 0.0 | 2.9 |

| | | | | |
|----------------------------|------------|------------|------------|------------|
| LCS Batch#: | 1LCS100495 | 1LCS100495 | 1LCS100495 | 1LCS100495 |
| Date Prepared: | 10/4/95 | 10/4/95 | 10/4/95 | 10/4/95 |
| Date Analyzed: | 10/4/95 | 10/4/95 | 10/4/95 | 10/4/95 |
| Instrument I.D.#: | HP-2 | HP-2 | HP-2 | HP-2 |
| LCS % Recovery: | 102 | 98 | 104 | 100 |

| | | | | |
|---------------------------------------|--------|--------|--------|--------|
| % Recovery Control Limits: | 71-133 | 72-128 | 72-130 | 71-120 |
|---------------------------------------|--------|--------|--------|--------|

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.

SEQUOIA ANALYTICAL, #1271

Signature on File

Alan B. Kemp
Project Manager





Sequoia Analytical

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Concord CA 94520
Attention: Sarkis Karkarian

Date: 10/6/95

Sequoia Analytical has potentially identified the presence of MTBE at reportable levels for the following site(s):

Client Project I.D. - **Unocal #5325- Oakland**

Sequoia Work Order # - **9509348**

Sample Number:

Sample Description:

5091636

U2

5091637

U3

5091639

U5

5091640

U6

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager



