

January 12, 1996

Ms. Eva Chu
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway
Alameda, California 94502

RE: Quarterly Summary Report-Fourth Quarter 1995
Unocal Service Station No. 7176
7850 Amador Valley Boulevard
Dublin, California

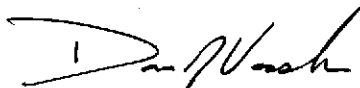
Dear Ms. Mih:

As directed by Ed Ralston of Unocal Corporation-CERT, Enviro Inc. is submitting the Quarterly Summary Report for the above referenced site.

If you have any questions please call (707) 935-4850.

Sincerely,

Enviros, Inc.



David J. Vossler
Project Manager

Attachment: Quarterly Summary Report-Fourth Quarter 1995

cc: Ed Ralston, Unocal

QUARTERLY SUMMARY REPORT
4th Quarter 1995
(October-December)

UNOCAL SERVICE STATION No. 7176
7850 Amador Valley Boulevard
Dublin, California

CITY/COUNTY ID No.: Dublin

COUNTY: Alameda

BACKGROUND:

The site is currently occupied by an operating Unocal service station. The former UST's were replaced and the waste oil tank was removed. Soil and groundwater investigations have been performed. Hydrocarbon-impacted soils were delineated in the vicinity of the former USTs, product lines, and dispensers. The majority of the impacted soils (1,863 tons) were excavated and transported to an approved landfill. Drilled six soil borings and installed three groundwater monitoring wells.

RECENT QUARTER ACTIVITIES:

Installed Oxygen Release Compound (ORC) socks in the three monitoring wells and one tank backfill well. Performed groundwater monitoring and quarterly summary report.

NEXT QUARTER ACTIVITIES:

Perform quarterly groundwater monitoring and summary reporting.

CHARACTERIZATION/REMEDIAL STATUS:

| | |
|--|--------------------|
| Soil contamination delineated? | <u>yes</u> |
| Dissolved groundwater plume delineated? | <u>no</u> |
| Free product delineated? | <u>N/A</u> |
| Volume of GW contamination recovered this quarter? | <u>26 gal.</u> |
| Total volume to date? | <u>15,456 gal.</u> |
| Soil remediation in progress? | <u>no</u> |
| Dissolved/free product remediation in progress? | <u>yes (ORC)</u> |
| - Anticipated completion? | <u>unknown</u> |

CONSULTANT/CONTRACTOR: Enviro, Inc.
P.O. Box 259
270 Perkins Street
Sonoma, California 95476
P.M. - David J. Vossler
Tel: (707) 935-4850
Fax: (707) 935-6649

MONITORING
PURGING
DISPOSING
SAMPLING

MPDS

SERVICES, INCORPORATED

ENVIRONMENTAL
PROTECTION
95.001-2 PK 2:15

December 29, 1995

Alameda County Health Care Services
1131 Harbor Bay Parkway
Alameda, California 94502

Attention: Ms. Eva Chu

RE: Unocal Service Station #7176
7850 Amador Valley Boulevard
Dublin, California

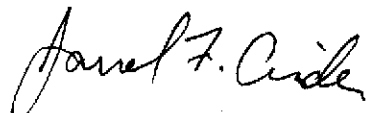
Dear Ms. Chu:

Per the request of the Unocal Corporation Project Manager, Mr. Edward C. Ralston, enclosed please find our report (MPDS-UN7176-01) dated November 13, 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) 277-2311.

Sincerely,

MPDS Services, Inc.



Jarrel F. Crider

/jfc

Enclosure

cc: Mr. Edward C. Ralston

1/2/96 Need to

- ① delineate extent of GW plume
- ② quantify MTBE and analyze for PNAS on well U-1

ENVIRONMENTAL
PROTECTION
95 JAN -2 PM 2:15

MPDS-UN7176-01
November 13, 1995

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

Attention: Mr. Edward C. Ralston

RE: Quarterly Data Report
Unocal Service Station #7176
7850 Amador Valley Boulevard
Dublin, California

Dear Mr. Ralston:

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 October 12, 1995. Prior to sampling, the wells were each purged of between 7.5 and 10 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 and/or one-liter amber bottles, as appropriate, 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 and Field blank samples (denoted as ES1 and ES3 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. Dissolved oxygen

concentration readings in ground water samples collected from monitoring wells U-1 through U-3 and from sample point CC1 (Figure 1) are presented in Table 4. The concentrations of Total Petroleum Hydrocarbons (TPH) as gasoline, TPH as diesel, 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 Ms. Eva Chu of the Alameda County Health Care Services Agency.

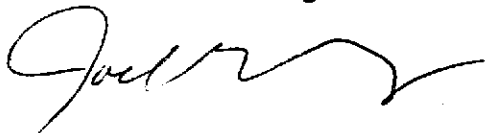
If you have any questions regarding this report, please do not hesitate to call at (510) 602-5120.

Sincerely,

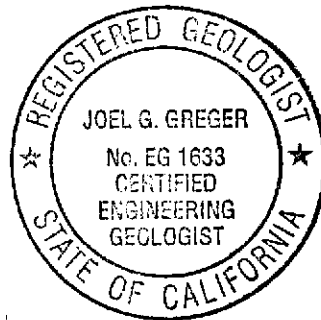
MPDS Services, Inc.



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 through 4
Location Map
Figures 1 & 2
Laboratory Analyses
Chain of Custody documentation

cc: Clyde Galantine, Enviros, Inc.

TABLE 1

SUMMARY OF MONITORING DATA

| <u>Well #</u> | <u>Ground Water Elevation (feet)</u> | <u>Depth to Water (feet)♦</u> | <u>Total Well Depth (feet)</u> | <u>Product Thickness (feet)</u> | <u>Sheen</u> | <u>Water Purged (gallons)</u> |
|---------------|--------------------------------------|-------------------------------|--------------------------------|---------------------------------|--------------|-------------------------------|
|---------------|--------------------------------------|-------------------------------|--------------------------------|---------------------------------|--------------|-------------------------------|

(Monitored and Sampled October 12, 1995)

| | | | | | | |
|-----|--------|-------|-------|---|----|-----|
| U-1 | 340.24 | 15.38 | 29.15 | 0 | No | 10 |
| U-2 | 340.58 | 16.01 | 26.15 | 0 | No | 7.5 |
| U-3 | 340.53 | 17.60 | 29.06 | 0 | No | 8.5 |

(Monitored and Sampled on July 8, 1995)

| | | | | | | |
|-----|--------|-------|-------|---|----|----|
| U-1 | 343.03 | 12.59 | 30.00 | 0 | -- | NA |
| U-2 | 343.91 | 12.68 | 30.00 | 0 | -- | NA |
| U-3 | 343.55 | 14.58 | 30.00 | 0 | -- | NA |

| <u>Well #</u> | <u>Well Casing Elevation (feet)*</u> |
|---------------|--------------------------------------|
| U-1 | 355.62 |
| U-2 | 356.59 |
| U-3 | 358.13 |

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

* The elevations of the top of the well casings are relative to Mean Sea Level (MSL), per the Benchmark AM-STW1977 located at the easterly return at the most easterly corner of intersection of Amador Valley Blvd. and Starward Street (Elevation = 344.17 feet MSL).

-- Sheen determination was not performed.

NA = Not available.

Note: Monitoring data prior to October 12, 1995, were provided by Enviros, Inc.

TABLE 2

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

(Measured on October 12, 1995)

| <u>Well #</u> | <u>Gallons per Casing Volume</u> | <u>Time</u> | <u>Gallons Purged</u> | <u>Casing Volumes Purged</u> | <u>Temperature (°F)</u> | <u>Conductivity ([μmhos/cm] x100)</u> | <u>pH</u> |
|---------------|----------------------------------|-------------|-----------------------|------------------------------|-------------------------|---------------------------------------|-----------|
| U-1 | 2.34 | 12:10 | 0 | 0 | 79.9 | 14.27 | 6.91 |
| | | | 2.5 | 1.07 | 73.7 | 11.59 | 6.62 |
| | | | 5 | 2.14 | 71.5 | 12.16 | 6.53 |
| | | | 7.5 | 3.21 | 70.4 | 12.36 | 6.52 |
| | | | 10 | 4.27 | 69.8 | 12.26 | 6.51 |
| U-2 | 1.72 | 11:20 | 0 | 0 | 74.6 | 10.12 | 7.00 |
| | | | 2 | 1.16 | 73.2 | 10.45 | 6.75 |
| | | | 4 | 2.33 | 72.6 | 12.83 | 6.66 |
| | | | 6 | 3.49 | 72.3 | 13.24 | 6.61 |
| | | | 7.5 | 4.36 | 72.3 | 13.98 | 6.56 |
| U-3 | 2.04 | 09:30 | 0 | 0 | 57.7 | 8.75 | 6.94 |
| | | | 2 | 0.98 | 63.8 | 10.95 | 6.92 |
| | | | 4 | 1.96 | 66.7 | 13.01 | 6.84 |
| | | | 6 | 2.94 | 67.6 | 13.66 | 6.79 |
| | | | 8.5 | 4.17 | 68.1 | 13.87 | 6.79 |

TABLE 3

**SUMMARY OF LABORATORY ANALYSES
 WATER**

| Date | Well # | TPH as Diesel | TPH as Gasoline | Benzene | Toluene | Ethyl-benzene | Xylenes |
|----------|--------|---------------|-----------------|---------|---------|---------------|---------|
| 10/12/95 | U-1▼ | 4,200♦ | 33,000 | 1,400 | ND | 1,400 | 3,100 |
| | U-2▼ | 3,600♦ | 24,000 | 310 | 60 | 1,900 | 190 |
| | U-3 | 470♦♦ | 560 | ND | 0.87 | 0.70 | 1.1 |
| 7/08/95 | U-1 | 9,400* | 39,000 | 1,500 | 19 | 1,600 | 5,200 |
| | U-2 | 4,700* | 17,000 | 430 | ND | 2,200 | 590 |
| | U-3 | 710* | 1,100** | 0.57 | 2.1 | 1.7 | 2.4 |

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

* = Unidentified Hydrocarbon C9-C24

** = Gas and Unidentified Hydrocarbons >C12

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

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

ND = Non-detectable.

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

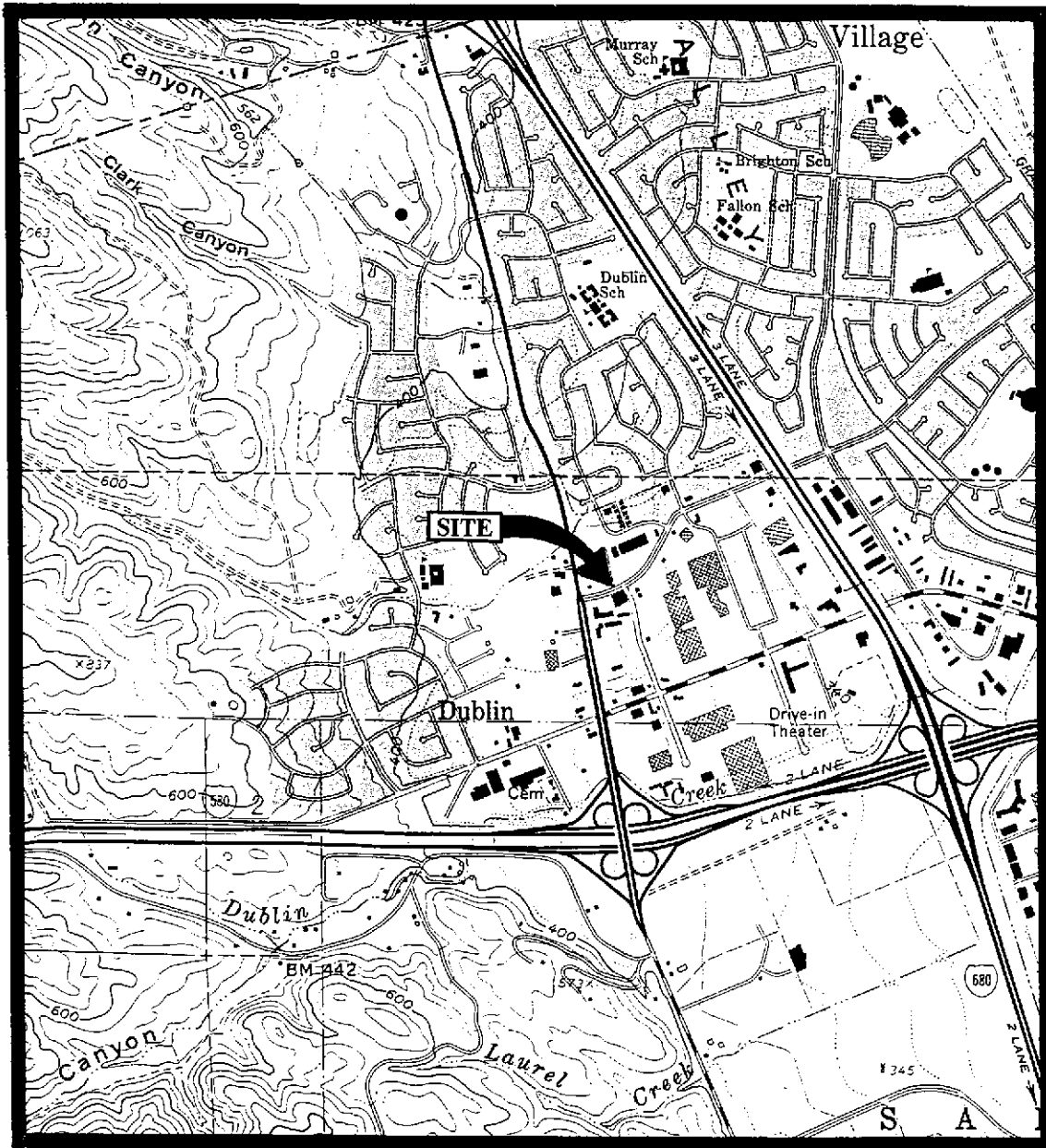
Note: Laboratory analyses data prior to October 12, 1995, were provided by Enviros, Inc.

TABLE 4

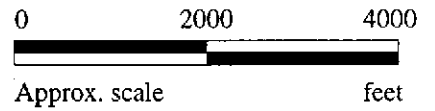
DISSOLVED OXYGEN CONCENTRATIONS (O₂)
WATER

| <u>Date</u> | <u>Well #</u> | <u>O₂ (ppm)</u> |
|-------------|---------------|--------------------------------|
| 11/07/95 | U-1 | 12.32 |
| | U-2 | 14.85 |
| | U-3 | 17.67 |
| 10/02/95 | CC1* | 2.83 |

* For the location of sample point CC1, see Figure 1.



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

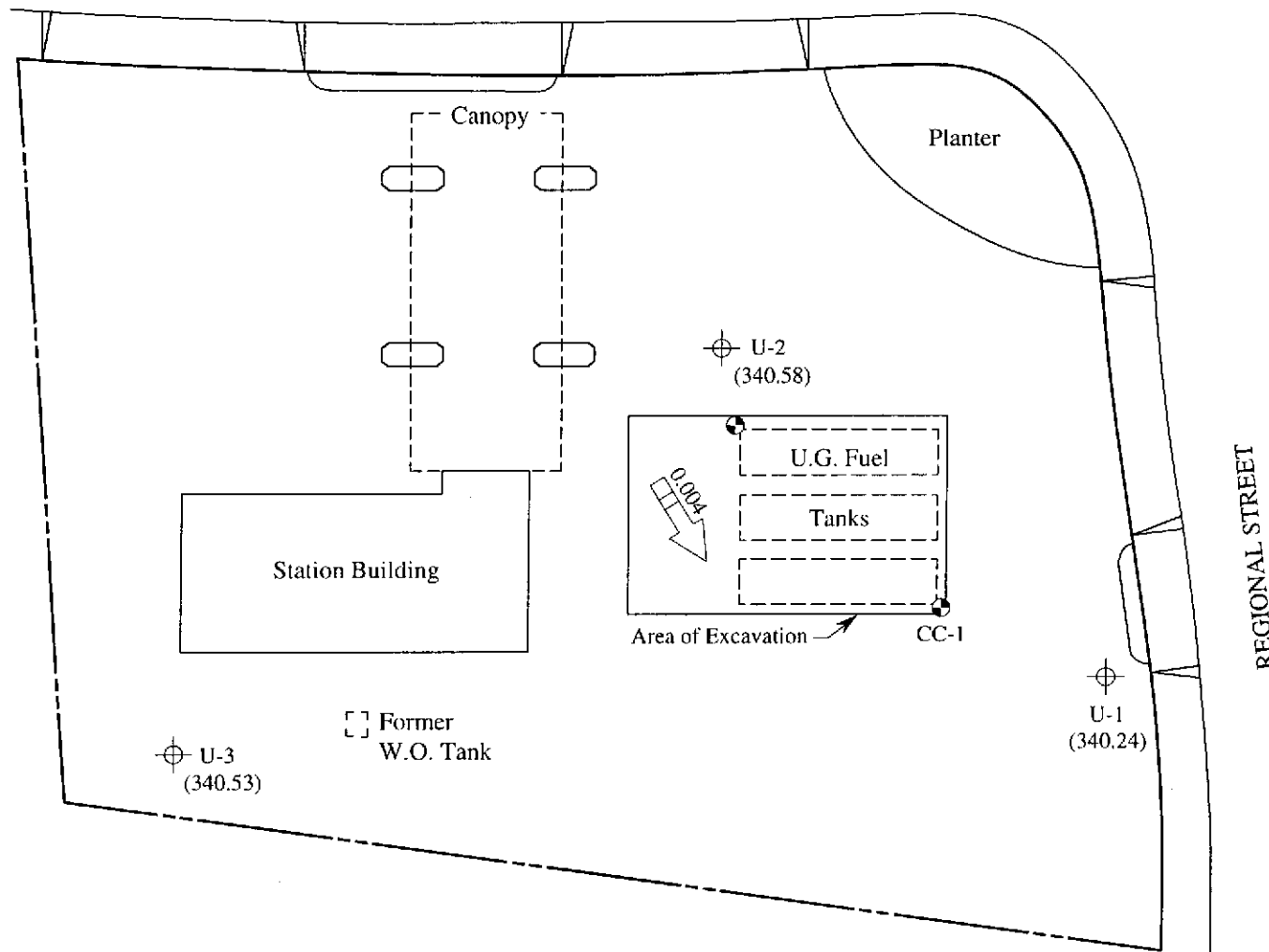


MPDS SERVICES, INCORPORATED

**UNOCAL SERVICE STATION #7176
7850 AMADOR VALLEY BOULEVARD
DUBLIN, CALIFORNIA**

**LOCATION
MAP**

AMADOR VALLEY BOULEVARD



LEGEND

- Monitoring well
- Conductor casing
- Ground water elevation in feet above Mean Sea Level
- Direction of ground water flow with approximate hydraulic gradient



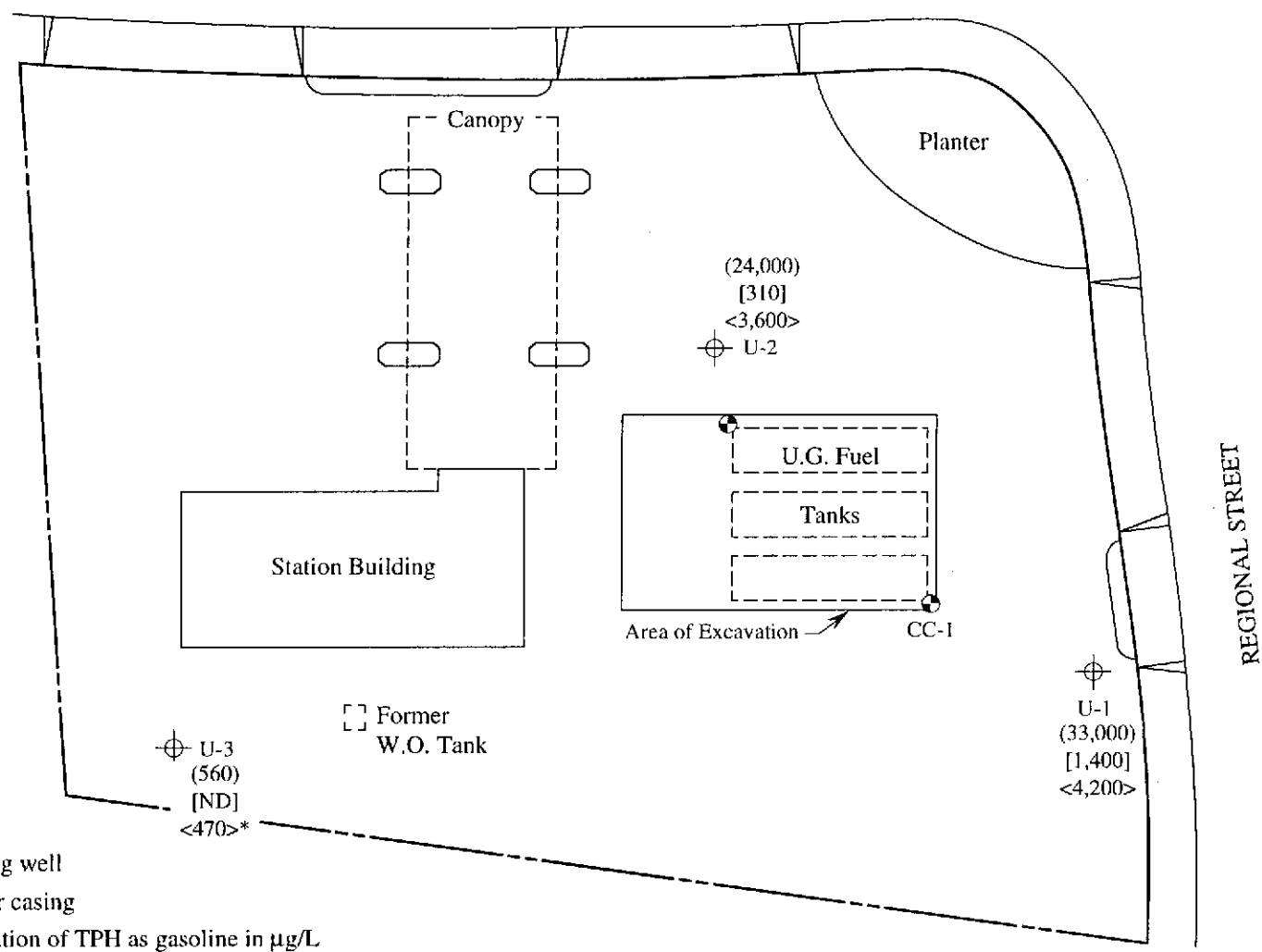
GROUND WATER FLOW DIRECTION MAP FOR THE OCTOBER 12, 1995 MONITORING EVENT

UNOCAL SERVICE STATION #7176
 7850 AMADOR VALLEY BOULEVARD
 DUBLIN, CALIFORNIA



FIGURE
1

AMADOR VALLEY BOULEVARD



(24,000)
[310]
<3,600>
⊕ U-2

⊕ U-1
(33,000)
[1,400]
<4,200>

⊕ U-3
(560)
[ND]
<470>*

LEGEND

- ⊕ Monitoring well
- ⊙ Conductor casing
- () Concentration of TPH as gasoline in $\mu\text{g/L}$
- [] Concentration of benzene in $\mu\text{g/L}$
- < > Concentration of TPH as diesel in $\mu\text{g/L}$
- ND Non-detectable

* The lab reported that the hydrocarbons detected did not appear to be diesel.



PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON OCTOBER 12, 1995

UNOCAL SERVICE STATION #7176
7850 AMADOR VALLEY BOULEVARD
DUBLIN, CALIFORNIA



FIGURE
2



| | | |
|-----------------------------|---|------------------------|
| MPDS Services | Client Project ID: Unocal #7176, 7850 Amador Valley Rd. | Sampled: Oct 12, 1995 |
| 2401 Stanwell Dr., Ste. 300 | Matrix Descript: Water | Received: Oct 12, 1995 |
| Concord, CA 94520 | Analysis Method: EPA 5030/8015 Mod./8020 | Reported: Oct 27, 1995 |
| Attention: Sarkis Karkarian | First Sample #: 510-0892 | |

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 |
|---------------|--------------------|--------------------------------|-----------------|-----------------|-----------------------|-----------------------|
| 510-0892 | U1 | 33,000 | 1,400 | ND | 1,400 | 3,100 |
| 510-0893 | U2 | 24,000 | 310 | 60 | 1,900 | 190 |
| 510-0894 | U3 | 560 | ND | 0.87 | 0.70 | 1.1 |
| 510-0895 | ES1 | ND | ND | ND | ND | ND |
| 510-0896 | ES3 | ND | ND | ND | ND | ND |

| | | | | | |
|--------------------------|-----------|-------------|-------------|-------------|-------------|
| 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, #2000

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 #7176, 7850 Amador Valley Rd. Matrix Descript: Water Analysis Method: EPA 5030/8015 Mod./8020 First Sample #: 510-0892 | Dublin | Sampled: Oct 12, 1995 Received: Oct 12, 1995 Reported: Oct 27, 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 |
|---------------|--------------------|----------------------|-----------------|---------------|---------------|---|
| 510-0892 | U1 | Gasoline | 100 | 10/26/95 | HP-1 | 107 |
| 510-0893 | U2 | Gasoline | 1.0 | 10/26/95 | HP-1 | 95 |
| 510-0894 | U3 | Gasoline | 1.0 | 10/26/95 | HP-1 | 95 |
| 510-0895 | ES1 | -- | 1.0 | 10/26/95 | HP-1 | 100 |
| 510-0896 | ES3 | -- | 1.0 | 10/26/95 | HP-1 | 102 |

SEQUOIA ANALYTICAL, #2000

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 #7176, 7850 Amador Valley Rd. Sample Matrix: Water Analysis Method: EPA 3510/8015 Mod. First Sample #: 510-0892 | Dublin | Sampled: Oct 12, 1995 Received: Oct 12, 1995 Reported: Oct 27, 1995 |
|--|--|--------|---|

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

| Analyte | Reporting Limit µg/L | Sample I.D. 510-0892 U1^ | Sample I.D. 510-0893 U2^ | Sample I.D. 510-0894 U3* |
|--------------------------|-------------------------|--------------------------------|--------------------------------|--------------------------------|
| Extractable Hydrocarbons | 50 | 4200 | 3600 | 470 |

| | | | |
|-----------------------|---|---|--------------------------------------|
| Chromatogram Pattern: | Diesel & Unidentified Hydrocarbons <C15; >C16 | Diesel & Unidentified Hydrocarbons <C15 | Unidentified Hydrocarbons <C15; >C16 |
|-----------------------|---|---|--------------------------------------|

Quality Control Data

| | | | |
|-------------------------------------|----------|----------|----------|
| Report Limit Multiplication Factor: | 1.0 | 1.0 | 1.0 |
| Date Extracted: | 10/17/95 | 10/17/95 | 10/17/95 |
| Date Analyzed: | 10/17/95 | 10/17/95 | 10/17/95 |
| Instrument Identification: | HP-3A | HP-3A | HP-3A |

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

SEQUOIA ANALYTICAL, #1271

Signature on File

Alan B. Kemp
Project Manager

Please Note:

^ This sample appears to contain diesel and non-diesel mixtures. "Unidentified Hydrocarbons < C15" are probably gasoline; > C16 refers to unidentified peaks in the total oil and grease range.
* This sample does not appear to contain diesel. "Unidentified Hydrocarbons < C15" are probably gasoline; > C16 refers to unidentified peaks in the total oil and grease range.





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

Client Project ID: Unocal #7176, 7850 Amador Valley Rd., Dublin
Matrix: Liquid

QC Sample Group: 5100892-896

Reported: Oct 27, 1995

QUALITY CONTROL DATA REPORT

| ANALYTE | Benzene | Toluene | Ethyl Benzene | Xylenes |
|----------|----------|----------|------------------|----------|
| Method: | EPA 8020 | EPA 8020 | EPA 8020 | EPA 8020 |
| Analyst: | N.Zahedi | N.Zahedi | N.Zahedi | N.Zahedi |

| | | | | |
|---------------------|----------|----------|----------|----------|
| MS/MSD | | | | |
| Batch#: | 5100561 | 5100561 | 5100561 | 5100561 |
| Date Prepared: | 10/26/95 | 10/26/95 | 10/26/95 | 10/26/95 |
| Date Analyzed: | 10/26/95 | 10/26/95 | 10/26/95 | 10/26/95 |
| Instrument I.D.#: | HP-1 | HP-1 | HP-1 | HP-1 |
| Conc. Spiked: | 10 µg/L | 10 µg/L | 10 µg/L | 30 µg/L |
| Matrix Spike | | | | |
| % Recovery: | 91 | 91 | 92 | 94 |
| Matrix Spike | | | | |
| Duplicate % | | | | |
| Recovery: | 90 | 90 | 90 | 92 |
| Relative % | | | | |
| Difference: | 1.1 | 1.1 | 2.2 | 2.2 |

| | | | | |
|-------------------|---|---|---|---|
| LCS Batch#: | - | - | - | - |
| Date Prepared: | - | - | - | - |
| Date Analyzed: | - | - | - | - |
| Instrument I.D.#: | - | - | - | - |
| LCS % | | | | |
| Recovery: | - | - | - | - |

| | | | | |
|-------------------|--------|--------|--------|--------|
| % 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, #2000

Signature on File

Alan B. Kemp
Project Manager





MPDS Services Client Project ID: Unocal #7176, 7850 Amador Valley Rd., Dublin
 2401 Stanwell Dr., Ste. 300 Matrix: Liquid
 Concord, CA 94520
 Attention: Sarkis Karkarian QC Sample Group: 5100892-895 Reported: Oct 27, 1995

QUALITY CONTROL DATA REPORT

ANALYTE Diesel
Method: EPA 8015
Analyst: J. Dinsay

MS/MSD
Batch#: BLK101795
Date Prepared: 10/17/95
Date Analyzed: 10/17/95
Instrument I.D.#: GCHP-3A
Conc. Spiked: 300 µg/L
Matrix Spike
% Recovery: 93
Matrix Spike Duplicate % Recovery: 83
Relative % Difference: 11

LCS Batch#: LCS101795
Date Prepared: 10/17/95
Date Analyzed: 10/17/95
Instrument I.D.#: GCHP-3A
LCS % Recovery: 87

% Recovery Control Limits: 38-122

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

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

Date: 10/30/95

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

Client Project I.D. - **Unocal #7176, Dublin**

Sequoia Work Order # - **9510234**

Sample Number:

5100892

5100893

Sample Description:

U1

U2

SEQUOIA ANALYTICAL, #1271


Alan B. Kemp
Project Manager



