



GeoStrategies Inc.

QUARTERLY MONITORING REPORT

Unocal Service Station No. 3690
14999 Farnsworth Street
San Leandro, California

781902-5

September 12, 1992



GeoStrategies Inc.

2140 WEST WINTON AVENUE
HAYWARD, CALIFORNIA 94545

(510) 352-4800

September 15, 1992

Unocal Corporation
P.O. Box 5155
San Ramon, California 94583

Attn: Mr. Ed Ralston

Re: QUARTERLY MONITORING REPORT
Unocal Service Station No. 3690
14999 Farnsworth Street
San Leandro, California

Mr. Ralston:

This Quarterly Monitoring Report has been prepared by GeoStrategies Inc. (GSI) and presents the results of the 1992 third quarter sampling for the above referenced site (Plate 1).

There are currently three monitoring wells at the site; Wells U-1, U-2 and U-3 (Plate 2). These wells were installed in 1991 by GSI.

CURRENT QUARTER SAMPLING RESULTS

Depth to water measurements were obtained in each monitoring well on August 20, 1992. Static ground-water levels were measured from the surveyed top of the well box and recorded to the nearest ± 0.01 foot. Water-level elevations were referenced to Mean Sea Level (MSL) datum and are presented in Table 1. Water-level data were used to construct a quarterly potentiometric map (Plate 3). Shallow ground-water flow direction is to the west with an approximate hydraulic gradient of 0.01.

Each well was checked for the presence of floating product. Floating product was not observed in the wells this quarter. The field data sheets are included in Appendix A.

GeoStrategies Inc.

Unocal Corporation
October 2, 1992
Page 2

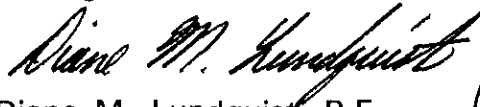
Ground-water samples were collected on August 20, 1992. Samples were analyzed for Total Petroleum Hydrocarbons calculated as Gasoline (TPH-Gasoline), according to EPA Method 8015 (Modified) and for Benzene, Toluene, Ethylbenzene, Xylenes (BTEX) according to EPA Method 8020. The ground-water samples were analyzed by National Environmental Testing (NET) Pacific, a California State - certified laboratory located in Santa Rosa, California. The laboratory analytical report and Chain-of-Custody form is included in Appendix B. These data are summarized and included with the historical chemical analytical data presented in Table 2. A chemical concentration map for benzene is presented on Plate 4. Groundwater sampling field methods and procedures were present in a previous GSI report dated April 15, 1992.

If you have any questions, please call.

GeoStrategies Inc. by,



Ellen C. Fostersmith
Geologist



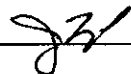
Diane M. Lundquist, P.E.
Senior Engineer
C 46725



ECF/DML/rmt

- Plate 1. Vicinity Map
- Plate 2. Site Plan
- Plate 3. Potentiometric Map
- Plate 4. Benzene Concentration Map

- Appendix A: Field Data Sheets
- Appendix B: Laboratory Analytical Report and Chain-of-Custody Form

QC Review:  _____

781902-5

GeoStrategies Inc.

TABLES

TABLE 1

FIELD MONITORING DATA

| WELL NO. | MONITORING DATE | CASING DIA. (IN) | TOTAL WELL DEPTH (FT) | WELL ELEV. (FT) | DEPTH TO WATER (FT) | PRODUCT THICKNESS (FT) | STATIC WATER ELEV. (FT) | PURGED WELL VOLUMES | pH | TEMPERATURE (F) | CONDUCTIVITY (u MHOS/CM) |
|----------|-----------------|------------------|-----------------------|-----------------|---------------------|------------------------|-------------------------|---------------------|------|-----------------|--------------------------|
| U-1 | 20-Aug-92 | 2 | 30.2 | 17.24 | 10.91 | ---- | 6.33 | 5 | 7.48 | 67.6 | 584 |
| U-2 | 20-Aug-92 | 2 | 30.6 | 16.85 | 9.75 | ---- | 7.10 | 5 | 7.53 | 67.1 | 535 |
| U-3 | 20-Aug-92 | 2 | 30.2 | 17.76 | 11.26 | ---- | 6.50 | 5 | 7.47 | 67.9 | 793 |

- Notes: 1. Static water elevations referenced to Mean Sea Level (MSL).
 2. Physical parameter measurements represent stabilized values.

TABLE 2

 =====
 HISTORICAL GROUND-WATER QUALITY DATABASE
 =====

| SAMPLE DATE | SAMPLE POINT | TPH-G (PPB) | BENZENE (PPB) | TOLUENE (PPB) | ETHYLBENZENE (PPB) | XYLENES (PPB) | OIL & GREASE (PPM) |
|----------------|-----------------|----------------|------------------|------------------|-----------------------|------------------|-----------------------|
| 30-Sep-91 | U-1 | <30 | <0.30 | <0.30 | <0.30 | <0.30 | N/A |
| 12-Feb-92 | U-1 | <30 | <0.30 | <0.30 | <0.30 | <0.30 | N/A |
| 01-May-92 | U-1 | <50 | 0.8 | <0.5 | <0.5 | <0.5 | N/A |
| 20-Aug-92 | U-1 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A |
| 30-Sep-91 | U-2 | <30 | <0.30 | <0.30 | <0.30 | <0.30 | N/A |
| 12-Feb-92 | U-2 | <30 | <0.30 | <0.30 | <0.30 | <0.30 | N/A |
| 01-May-92 | U-2 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A |
| 20-Aug-92 | U-2 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A |
| 30-Sep-91 | U-3 | <30 | <0.30 | <0.30 | <0.30 | <0.30 | <5.0 |
| 12-Feb-92 | U-3 | <30 | 1.7 | <0.30 | <0.30 | <0.30 | N/A |
| 01-May-92 | U-3 | <50 | 1.2 | <0.5 | <0.5 | <0.5 | N/A |
| 20-Aug-92 | U-3 | <50 | 3.6 | <0.5 | <0.5 | <0.5 | N/A |

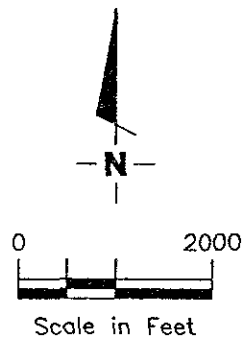
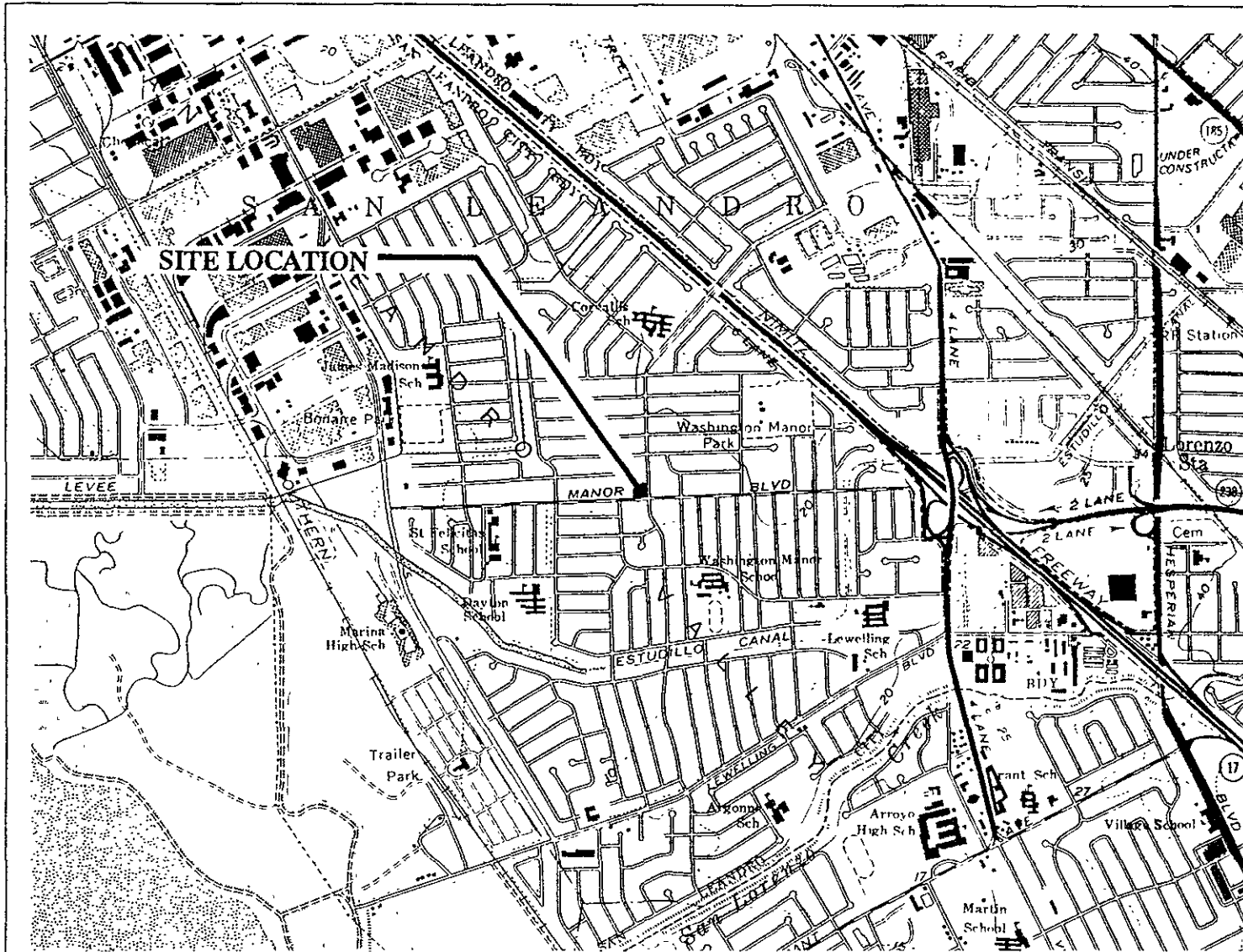
TPH-G = Total Petroleum Hydrocarbons calculated as Gasoline

PPB = Parts Per Billion

NOTE 1. All data shown as <X are reported as ND (none detected).

GeoStrategies Inc.

ILLUSTRATIONS



Base Map: USGS Topographic Map



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VICINITY MAP
 UNOCAL Service Station #3690
 14999 Farnsworth Street
 San Leandro, California

PLATE

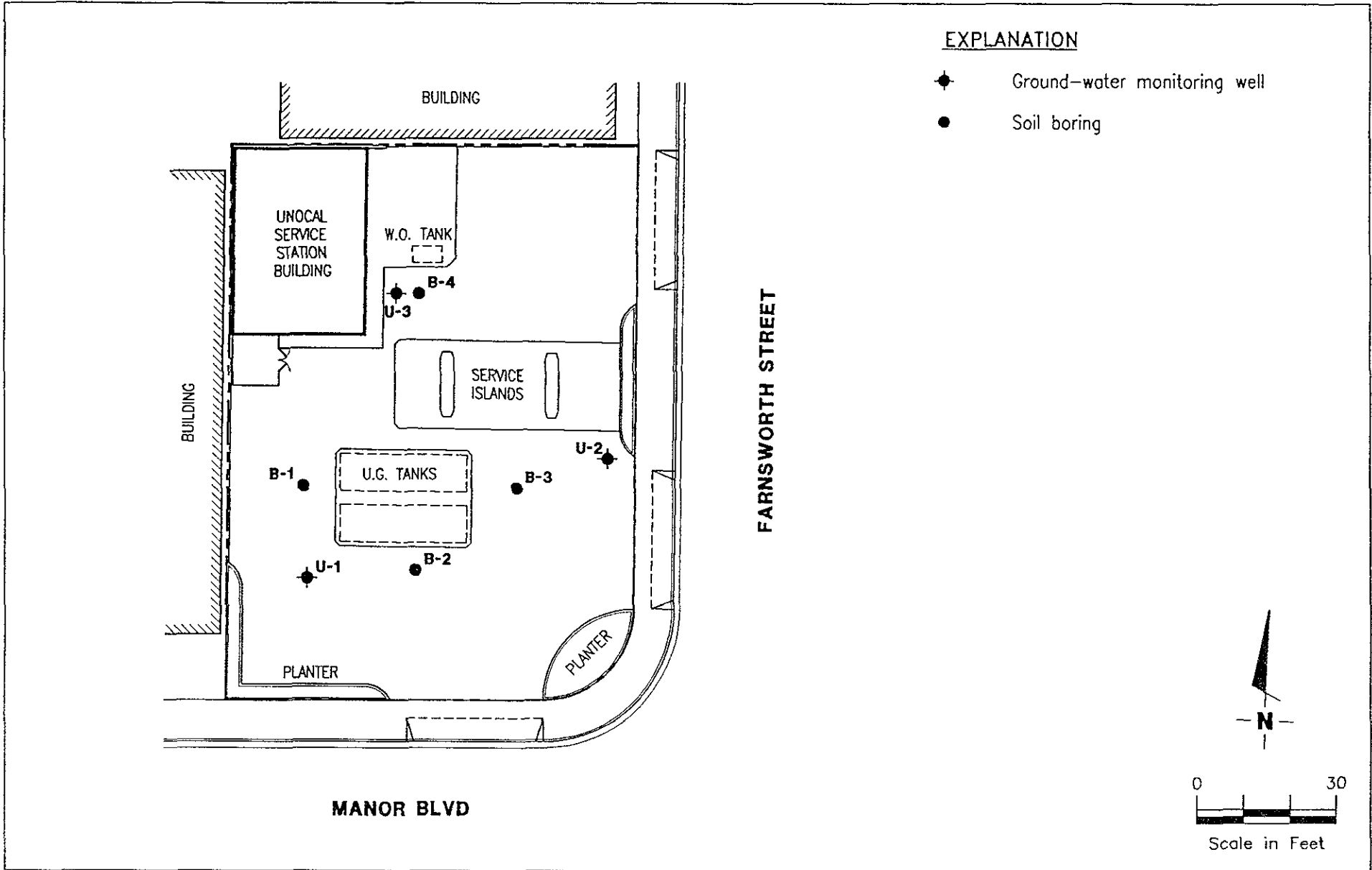
1

JOB NUMBER
7819

REVIEWED BY
any

DATE
5/91

REVISED DATE



GeoStrategies Inc.

SITE PLAN
 UNOCAL Service Station #3690
 14999 Farnsworth Street
 San Leandro, California

PLATE

2


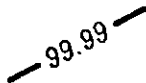
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7819

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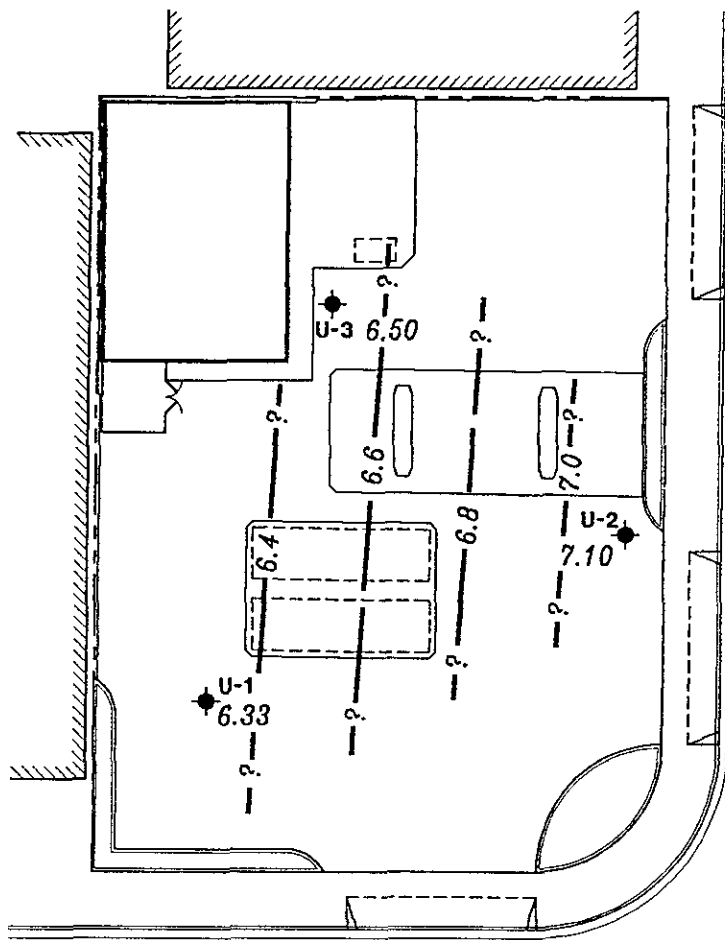
DATE
5/92

REVISED DATE

EXPLANATION


-  Ground-water monitoring well
-  Ground-water elevation contour
Approximate Gradient = 0.01
- 99.99 Ground-water elevation in feet
referenced to Mean Sea Level
(MSL) measured on August 20,
1992

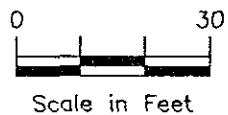
Note: Contours may be influenced by irrigation practices and/or site construction activities.



FARNSWORTH STREET

MANOR BLVD


Approximate
Ground-water
Flow Direction



GeoStrategies Inc.

POTENTIOMETRIC MAP
UNOCAL Service Station #3690
14999 Farnsworth Street
San Leandro, California

PLATE

3

JOB NUMBER
781902-5

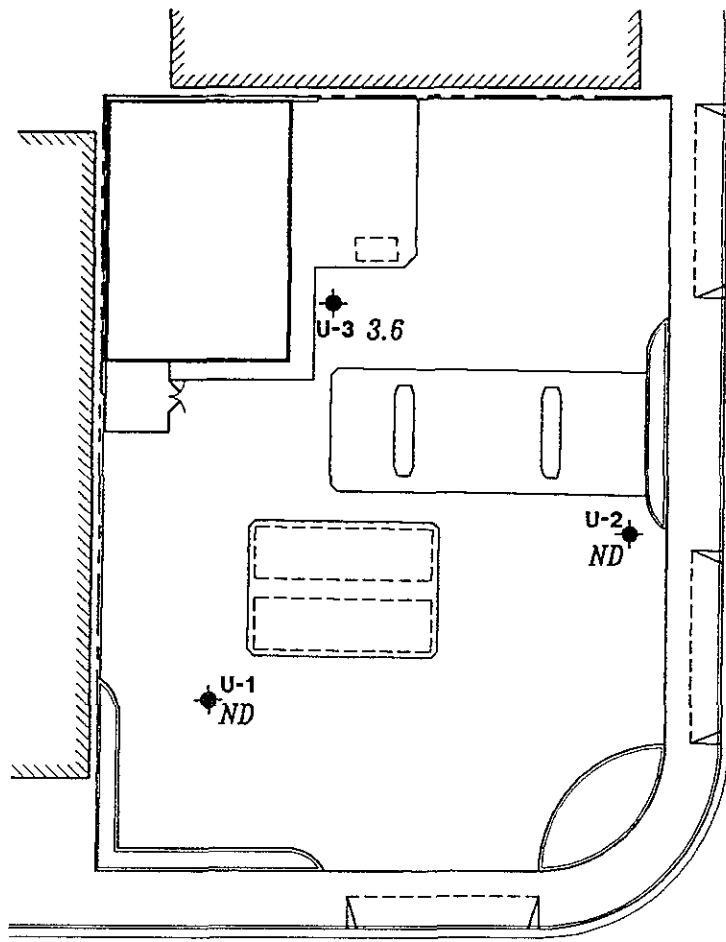
REVIEWED BY


DATE
10/92

REVISED DATE

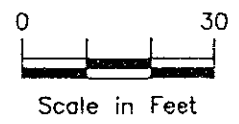
EXPLANATION

- ◆ Ground-water monitoring well
- 0.05 Benzene concentration in ppb sampled on August 20, 1992
- ND Not Detected (See laboratory reports for detection limits)



FARNSWORTH STREET

MANOR BLVD



GeoStrategies Inc.

BENZENE CONCENTRATION MAP
UNOCAL Service Station #3690
14999 Farnsworth Street
San Leandro, California

PLATE

4

JOB NUMBER
781902-5

REVIEWED BY
[Signature]

DATE
10/92

REVISED DATE

GeoStrategies Inc.

APPENDIX A
FIELD DATA SHEETS

1. 10/10/10

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GETTLER-RYAN INC.

General and Environmental Contractors

WELL SAMPLING FIELD DATA SHEET

COMPANY Unocal JOB # 3819.02
 LOCATION 14999 Farnsworth DATE 8-10-92
 CITY San Leandro TIME _____

Well ID. U-1 Well Condition OK
 Well Diameter 2 in. Hydrocarbon Thickness _____ ft.
 Total Depth 30.2 ft.

| | | | |
|--------------------|-----------|------------|------------|
| Volume Factor (VF) | 2" = 0.17 | 6" = 1.50 | 12" = 5.80 |
| | 3" = 0.38 | 8" = 2.80 | |
| | 4" = 0.66 | 10" = 4.10 | |

 Depth to Liquid- 10.91 ft.
 (# of casing volumes) 5 x 19.29 x(VF) 0.17 = (Estimated Purge Volume) 16.4 gal.
 (3.3)
 Purging Equipment DD
 Sampling Equipment Bailer

Starting Time 1007 Purging Flow Rate 3 gpm.
 (Estimated Purge Volume) 16.4 gal. / (Purging Flow Rate) 3 gpm. = (Anticipated Purging Time) 5.5 min.

| Time | pH | Conductivity | Temperature | Volume |
|------|------|--------------|-------------|--------|
| 1008 | 7.55 | 547 | 68.8 | 3 gal |
| 1010 | 7.52 | 566 | 69.4 | 9 |
| 1012 | 7.51 | 590 | 68.7 | 15 |
| 1017 | 7.48 | 584 | 67.6 | 16 |

Did well dewater? No If yes, time _____ Volume _____
 Sampling Time 1017 Weather Conditions Plc
 Analysis gas (BTXE) Bottles Used 3x40ml
 Chain of Custody Number _____

COMMENTS _____

FOREMAN _____

ASSISTANT 

GETTLER-RYAN, INC.

General and Environmental Contractors

WELL SAMPLING FIELD DATA SHEET

COMPANY Unocal JOB # 3819.02
 LOCATION 14999 Farnsworth DATE 8-20-92
 CITY San Leandro TIME _____

Well ID. U-2 Well Condition OK
 Well Diameter 2 in. Hydrocarbon Thickness _____ ft.
 Total Depth 306 ft.
 Depth to Liquid- 9.75 ft.

| | | | |
|--------------------|-----------|------------|------------|
| Volume Factor (VF) | 2" = 0.17 | 6" = 1.50 | 12" = 5.80 |
| | 3" = 0.38 | 8" = 2.60 | |
| | 4" = 0.66 | 10" = 4.10 | |

 (# of casing volumes) 5 x 20.85 x (VF) .17 = (Estimated Purge Volume) 17.7 gal. (3.5)
 Purging Equipment DD
 Sampling Equipment Bailer

Starting Time 1025 Purging Flow Rate 3 gpm.
 (Estimated Purge Volume) 17.7 gal. / (Purging Flow Rate) 3 gpm. = (Anticipated Purging Time) 5.9 min.

| Time | pH | Conductivity | Temperature | Volume |
|-------------|-------------|--------------|-------------|--------------|
| <u>1026</u> | <u>7.53</u> | <u>542</u> | <u>68.5</u> | <u>3 gal</u> |
| <u>1028</u> | <u>7.52</u> | <u>562</u> | <u>69.7</u> | <u>9</u> |
| <u>1031</u> | <u>7.53</u> | <u>538</u> | <u>67.7</u> | <u>18</u> |
| <u>1036</u> | <u>7.53</u> | <u>535</u> | <u>67.1</u> | <u>19</u> |

Did well dewater? NO If yes, time _____ Volume _____
 Sampling Time 1034 Weather Conditions Plc
 Analysis gas (BTXE) Bottles Used 3x40ml
 Chain of Custody Number _____

COMMENTS _____

FOREMAN _____

ASSISTANT 

GETTLER-RYAN INC.

General and Environmental Contractors

WELL SAMPLING FIELD DATA SHEET

COMPANY Unocal JOB # 3819.02
 LOCATION 14999 Farnsworth DATE 8-20-92
 CITY San Leandro TIME _____

Well ID. U-3 Well Condition OK
 Well Diameter 2 in. Hydrocarbon Thickness _____ ft.
 Total Depth 30.2 ft.
 Depth to Liquid- 11.26 ft.

| | | | |
|--------------------|-----------|------------|------------|
| Volume Factor (VF) | 2" = 0.17 | 6" = 1.50 | 12" = 5.80 |
| | 3" = 0.38 | 8" = 2.60 | |
| | 4" = 0.66 | 10" = 4.10 | |

 (# of casing volumes) 5 x 18.94 x (VF) 0.17 = (Estimated Purge Volume) 16.1 gal.
 (3.2)
 Purging Equipment DD
 Sampling Equipment Bailer

Starting Time 9:49 Purging Flow Rate 3 gpm.
 (Estimated Purge Volume) 16.1 gal. / (Purging Flow Rate) 3 gpm. = (Anticipated Purging Time) 5.4 min.

| Time | pH | Conductivity | Temperature | Volume |
|------------|-------------|--------------|-------------|--------------|
| <u>950</u> | <u>7.72</u> | <u>624</u> | <u>68.0</u> | <u>3 gal</u> |
| <u>952</u> | <u>7.67</u> | <u>618</u> | <u>67.9</u> | <u>9</u> |
| <u>954</u> | <u>7.53</u> | <u>687</u> | <u>68.0</u> | <u>15</u> |
| <u>959</u> | <u>7.47</u> | <u>793</u> | <u>67.9</u> | <u>16</u> ✓ |

Did well dewater? No If yes, time _____ Volume _____
 Sampling Time 959 Weather Conditions Plc
 Analysis gas (BTXE) Bottles Used 3x40ml
 Chain of Custody Number _____

COMMENTS _____

FOREMAN _____

ASSISTANT 

GeoStrategies Inc.

APPENDIX B
LABORATORY ANALYTICAL REPORT
AND
CHAIN-OF-CUSTODY FORM



NATIONAL
ENVIRONMENTAL
TESTING, INC.®

NET Pacific, Inc
435 Tesconi Circle
Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

Dave Vossler
Gettler-Ryan Inc.
2150 W. Winton Avenue
Hayward, CA 94545


Date: 08/28/1992
NET Client Acct No: 67900
NET Pacific Job No: 92.4661
Received: 08/22/1992

Client Reference Information

Unocal No. 3690 14999 Farnsworth San Leandro CA/3819.02

Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Approved by:


Jules Skamarack
Laboratory Manager

JS:rct
Enclosure(s)



Client No: 67900
 Client Name: Gettler-Ryan Inc.
 NET Job No: 92.4661

Date: 08/28/1992

Page: 2

Ref: Unocal No. 3690 14999 Farnsworth San Leandro CA/3819.02

Descriptor, Lab No. and Results

| Parameter | Method | Reporting Limit | U-1 | U-2 | Units |
|-------------------------|--------|--------------------|-------------------------------|-------------------------------|--------|
| | | | 08/20/1992 10:17 133956 | 08/20/1992 10:36 133957 | |
| TPH (Gas/BTXE,Liquid) | | | -- | -- | |
| METHOD 5030 (GC,FID) | | | | | |
| DATE ANALYZED | | | 08-25-92 | 08-25-92 | |
| DILUTION FACTOR* | | | 1 | 1 | |
| as Gasoline | 5030 | 50 | ND | ND | ug/L |
| METHOD 8020 (GC,Liquid) | | | -- | -- | |
| DATE ANALYZED | | | 08-25-92 | 08-25-92 | |
| DILUTION FACTOR* | | | 1 | 1 | |
| Benzene | 8020 | 0.5 | ND | ND | ug/L |
| Ethylbenzene | 8020 | 0.5 | ND | ND | ug/L |
| Toluene | 8020 | 0.5 | ND | ND | ug/L |
| Xylenes (Total) | 8020 | 0.5 | ND | ND | ug/L |
| SURROGATE RESULTS | | | -- | -- | |
| Bromofluorobenzene | 5030 | | 87 | 93 | % Rec. |



Client No: 67900
 Client Name: Gettler-Ryan Inc.
 NET Job No: 92.4661

Date: 08/28/1992

Page: 3

Ref: Unocal No. 3690 14999 Farnsworth San Leandro CA/3819.02

Descriptor, Lab No. and Results

| Parameter | Method | Reporting Limit | U-3 | Trip Blank | Units |
|--------------------------|--------|-----------------|-------------------------------|------------|--------|
| | | | 08/20/1992 09:59 133958 | 133959 | |
| TPH (Gas/BTXE, Liquid) | | | | | |
| METHOD 5030 (GC, FID) | | | | | |
| DATE ANALYZED | | | 08-25-92 | 08-25-92 | |
| DILUTION FACTOR* | | | 1 | 1 | |
| as Gasoline | 5030 | 50 | ND | ND | ug/L |
| METHOD 8020 (GC, Liquid) | | | | | |
| DATE ANALYZED | | | 08-25-92 | 08-25-92 | |
| DILUTION FACTOR* | | | 1 | 1 | |
| Benzene | 8020 | 0.5 | 3.6 | ND | ug/L |
| Ethylbenzene | 8020 | 0.5 | ND | ND | ug/L |
| Toluene | 8020 | 0.5 | ND | ND | ug/L |
| Xylenes (Total) | 8020 | 0.5 | ND | ND | ug/L |
| SURROGATE RESULTS | | | | | |
| Bromofluorobenzene | 5030 | | 94 | 90 | % Rec. |



Client No: 67900
Client Name: Gettler-Ryan Inc.
NET Job No: 92.4661

Date: 08/28/1992

Page: 4

Ref: Unocal No. 3690 14999 Farnsworth San Leandro CA/3819.02

QUALITY CONTROL DATA

| <u>Parameter</u> | <u>Reporting Limits</u> | <u>Units</u> | <u>Cal Verf Stand % Recovery</u> | <u>Blank Data</u> | <u>Spike % Recovery</u> | <u>Duplicate Spike % Recovery</u> | <u>RPD</u> |
|------------------|-------------------------|--------------|----------------------------------|-------------------|-------------------------|-----------------------------------|------------|
| Gasoline | 50 | ug/L | 97 | ND | 101 | 110 | 8.5 |
| Benzene | 0.5 | ug/L | 91 | ND | 92 | 94 | 2.7 |
| Toluene | 0.5 | ug/L | 100 | ND | 95 | 97 | 1.6 |

COMMENT: Blank Results were ND on other analytes tested.



KEY TO ABBREVIATIONS and METHOD REFERENCES

- < : Less than; When appearing in results column indicates analyte not detected at the value following. This datum supercedes the listed Reporting Limit.
- * : Reporting Limits are a function of the dilution factor for any given sample. To obtain the actual reporting limits for this sample, multiply the stated Reporting Limits by the dilution factor (but do not multiply reported values).
- ICVS : Initial Calibration Verification Standard (External Standard).
- mean : Average; sum of measurements divided by number of measurements.
- mg/Kg (ppm) : Concentration in units of milligrams of analyte per kilogram of sample, wet-weight basis (parts per million).
- mg/L : Concentration in units of milligrams of analyte per liter of sample.
- mL/L/hr : Milliliters per liter per hour.
- MPN/100 mL : Most probable number of bacteria per one hundred milliliters of sample.
- N/A : Not applicable.
- NA : Not analyzed.
- ND : Not detected; the analyte concentration is less than applicable listed reporting limit.
- NTU : Nephelometric turbidity units.
- RPD : Relative percent difference, $100 \text{ [Value 1 - Value 2]}/\text{mean value}$.
- SNA : Standard not available.
- ug/Kg (ppb) : Concentration in units of micrograms of analyte per kilogram of sample, wet-weight basis (parts per billion).
- ug/L : Concentration in units of micrograms of analyte per liter of sample.
- umhos/cm : Micromhos per centimeter.

Method References

Methods 100 through 493: see "Methods for Chemical Analysis of Water & Wastes", U.S. EPA, 600/4-79-020, rev. 1983.

Methods 601 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants" U.S. EPA, 40 CFR, Part 136, rev. 1988.

Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd edition, 1986.

SM: see "Standard Methods for the Examination of Water & Wastewater, 17th Edition, APHA, 1989.



GeoStrategies Inc.
 Environmental Consulting,
 Engineering and Geologic Services

Letter of Transmittal

Date: 10/2/92

 From: David J. Vossler Project No: 81902-5
 To: Ms. Pamela Evans Subject: UNOCAL S.S. # 3690
Alameda Co. Health Agency 14999 Farnsworth St.
Div. of Hazardous Materials San Leandro, CA
Dept. of Environmental Health
80 Swan Way Room 200
 The following items are: Enclosed Sent Separately
Oakland, CA 94521 via _____

| Date | Description | No. of Copies |
|---------|---|---------------|
| 10/2/92 | Quarterly Monitoring Report - 3rd Quarter | 1 |
| | | |
| | | |

- These are transmitted:
- At you request
 - For your action
 - For your approval
 - For your files
 - For your review
 - For your information
 - Preliminary
 - _____

Comments:

cc. Mr. Ed Ralston, UNOCAL Corp.
 Mr. Richard Hiatt, RW & CB

Norm Curtis
 (Signed)

2140 W. Winton Avenue, Hayward, CA 94545
 (510) 352-4800 - Fax (510) 783-1089

601 University Avenue, Sacramento, CA 95825
 (916) 568-7500 - Fax (916) 568-7504