



GeoStrategies Inc.

April 7, 1993

Alameda County Health Agency
Division of Hazardous Materials'
Department of Environmental Health
80 Swan Way, Room 200
Oakland, California 94521

Attention: Ms. Pamela Evans

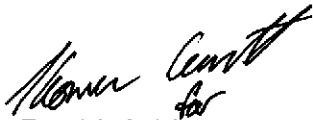
Reference: UNOCAL Service Station No. 5760
376 Lewelling Boulevard
San Lorenzo, California

Ms. Evans:

As requested by Ms. Penny Silzer of UNOCAL Corporation, we are forwarding a copy of the Quarterly Monitoring Report for the above referenced location. This report presents the results of the first quarterly groundwater sampling for 1993 conducted at this site.

If you have any questions or comments, please call.

Sincerely,


David J. Vossler
Senior Geologist

Enclosure

cc: Ms. Penny Silzer, UNOCAL Corporation
Mr. Richard Hiatt, Regional Water Quality Control Board

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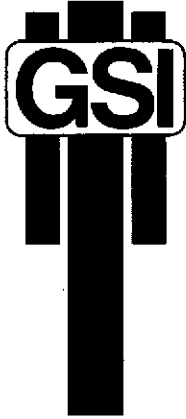
GeoStrategies Inc.

QUARTERLY MONITORING REPORT

**UNOCAL Service Station No. 5760
376 Lewelling Boulevard
San Lorenzo, California**

780980-14

April 7, 1993



GeoStrategies Inc.

April 7, 1993

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

Attn: Ms. Penny L. Silzer

Re: QUARTERLY MONITORING REPORT
UNOCAL Service Station No. 5760
376 Lewelling Boulevard
San Lorenzo, California

Ms. Silzer:

This Quarterly Monitoring Report has been prepared by GeoStrategies Inc. (GSI) and presents the results of the 1993 first quarter sampling for the above referenced site (Plate 1).

There are currently eight monitoring wells at the site: Wells U-1 through U-8 (Plate 2). These wells were installed in 1988, 1990 and 1992 by Woodward-Clyde Consultants and GSI.

CURRENT QUARTER SAMPLING RESULTS

Depth to water measurements were obtained in each monitoring well on **February 12, 1993**. 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 0.003.**

780980-14

GeoStrategies Inc.

UNOCAL Corporation
March 23, 1993
Page 2

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.

Ground-water samples were collected on February 12, 1993. 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, Inc., a California State-certified laboratory located in Santa Rosa, California. The laboratory analytical report and Chain-of-Custody form are included in Appendix B. These data are summarized and included with the historical chemical analytical data presented in Table 2. A chemical isoconcentration map for benzene is presented on Plate 4. Groundwater sampling field methods and procedures are included in a previous GSI report dated May 19, 1992.

Panned Site Activities


- Install downgradient monitoring well upon receipt of access agreement from downgradient property owner (Plate 2).


GeoStrategies Inc.

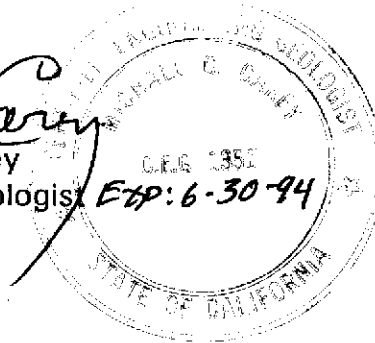
UNOCAL Corporation
April 7, 1993
Page 3

If you have any questions, please call.

GeoStrategies Inc. by,


Ellen C. Fostersmith
Geologist


Michael C. Carey
Engineering Geologist
CEG 1351
ETP: 6-30-94



ECF/MCC/rmt

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

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

QC Review 

780980-14

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	TEMP. (F)	CONDUCTIVITY (uHMOS/cm)
U-1	12-Feb-93	3	30.5	40.51	17.09	---	23.42	5	7.03	63.4	1258
U-2	12-Feb-93	3	30.0	41.62	18.00	---	23.62	5	7.07	64.9	631
U-3	12-Feb-93	3	25.0	39.64	16.34	---	23.30	5	7.06	66.7	1445
U-4	12-Feb-93	3	28.0	40.53	17.21	---	23.32	5	6.97	63.5	1509
U-5	12-Feb-93	2	30.0	39.52	16.54	---	22.98	5	7.07	67.8	1485
U-6	12-Feb-93	2	30.0	37.80	14.75	---	23.05	5	7.03	67.4	1244
U-7	12-Feb-93	2	35.0	37.37	14.37	---	23.00	5	7.17	64.5	1027
U-8	12-Feb-93	2	35.0	38.81	15.60	---	23.21	5	7.18	63.9	1154

- 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)
09-Feb-88	U-1	93000.	3600.	11000.	---	20000.
20-Mar-90	U-1	36000.	2100.	5500.	1900.	9300.
05-Jun-90	U-1	46000.	2300.	5500.	2500.	11000.
24-Aug-90	U-1	27000.	1200.	1800.	1400.	5500.
10-Jan-92	U-1	**				
06-Aug-92	U-1	Floating Product 0.01 ft				
20-Nov-92	U-1	Floating Product 0.02 ft				
12-Feb-93	U-1	70000	2200	8400	3100	18000
23-Aug-90	U-2	<50.	<0.5	<0.5	<0.5	<0.5
05-Dec-90	U-2	<50	<0.3	<0.3	<0.3	<0.3
04-Mar-91	U-2	<50.	<0.5	0.9	<0.5	2.6
03-Jun-91	U-2	<30	<0.30	<0.30	<0.30	<0.30
19-Sep-91	U-2	<30	<0.30	<0.30	<0.30	<0.30
04-Dec-91	U-2	<30	<0.30	<0.30	<0.30	<0.30
05-Mar-92	U-2	<30	<0.30	0.36	<0.30	<0.30
07-Apr-92	U-2	<50	<0.5	<0.5	<0.5	<0.5
06-Aug-92	U-2	<50	<0.5	<0.5	<0.5	<0.5
20-Nov-92	U-2	<50	<0.5	<0.5	<0.5	<0.5
12-Feb-93	U-2	<50	<0.5	<0.5	<0.5	<0.5
23-Aug-90	U-3	110000.	4400.	13000.	2800.	17000.
05-Dec-90	U-3	69000	1900	3500	1600	9800
18-Jan-91	U-3	51000.	1700.	3100.	1500.	7500.
04-Mar-91	U-3	84000.	1400.	10000.	2900.	17000.
03-Jun-91	U-3	130000	5800	19000	4600	24000
19-Sep-91	U-3	61000	3300	9700	2800	15000
04-Dec-91	U-3	75000	2500	6100	1900	11000
05-Mar-92	U-3	160000	5300	15000	5400	26000
07-Apr-92	U-3	97000	6100	16000	5400	28000
06-Aug-92	U-3	140,000	5,100	13,000	5,000	23,000
20-Nov-92	U-3	50000	3200	4700	1900	10000
12-Feb-93	U-3	80000	3700	9400	3700	18000
23-Aug-90	U-4	<50.	<0.5	1.0	<0.5	1.8
05-Dec-90	U-4	<50	<0.3	<0.3	<0.3	<0.3
18-Jan-91	U-4	<50.	<0.5	<0.5	<0.5	<0.5

TABLE 2
HISTORICAL GROUND-WATER QUALITY DATABASE

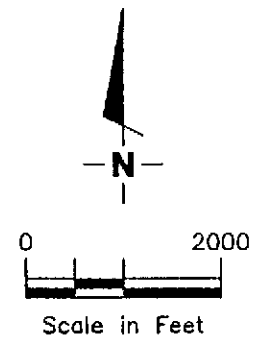
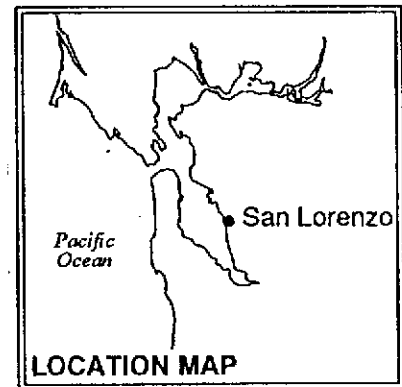
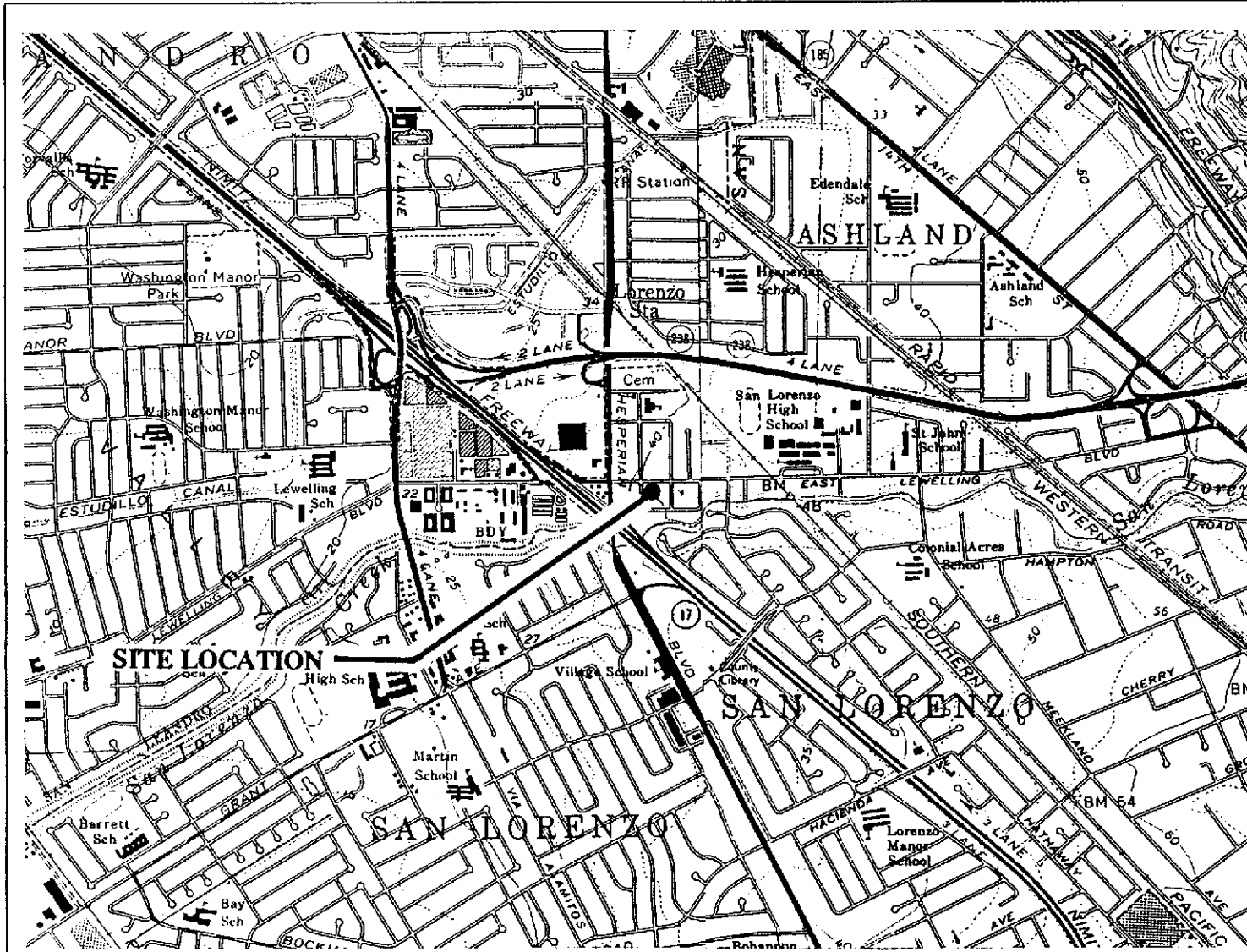
SAMPLE DATE	SAMPLE POINT	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	ETHYLBENZENE (PPB)	XYLENES (PPB)
04-Mar-91	U-4	<50.	<0.5	<0.5	<0.5	<0.5
03-Jun-91	U-4	<30	<0.30	<0.30	<0.30	<0.30
19-Sep-91	U-4	<30	<0.30	<0.30	<0.30	<0.30
04-Dec-91	U-4	<30	<0.30	<0.30	<0.30	<0.30
05-Mar-92	U-4	<30	<0.30	<0.30	<0.30	<0.30
07-Apr-92	U-4	<50	<0.5	<0.5	<0.5	<0.5
06-Aug-92	U-4	<50	<0.5	<0.5	<0.5	<0.5
20-Nov-92	U-4	<50	<0.5	2.5	<0.5	<0.5
12-Feb-93	U-4	<50	<0.5	<0.5	<0.5	<0.5
07-Apr-92	U-5	<50	<0.5	<0.5	<0.5	<0.5
06-Aug-92	U-5	<50	<0.5	<0.5	<0.5	<0.5
20-Nov-92	U-5	<50	<0.5	<0.5	<0.5	<0.5
12-Feb-93	U-5	<50	<0.5	<0.5	<0.5	<0.5
07-Apr-92	U-6	6600	90	<0.5	820	1200
06-Aug-92	U-6	9200	160	<0.5	360	150
20-Nov-92	U-6	NA				
12-Feb-93	U-6	2600	27	<0.5	120	51
07-Apr-92	U-7	<50	<0.5	<0.5	<0.5	<0.5
06-Aug-92	U-7	<50	<0.5	<0.5	<0.5	<0.5
20-Nov-92	U-7	<50	<0.5	<0.5	<0.5	<0.5
12-Feb-93	U-7	<50	<0.5	<0.5	<0.5	<0.5
07-Apr-92	U-8	<50	<0.5	<0.5	<0.5	<0.5
06-Aug-92	U-8	<50	<0.5	<0.5	<0.5	<0.5
12-Feb-93	U-8	<50	<0.5	<0.5	<0.5	<0.5

TPH-G = Total Petroleum Hydrocarbons calculated as Gasoline
 PPB = Parts Per Billion
 N/A = Not Accessible

** = Product Skimmer installed in well

Notes:

1. All data shown as <x are reported as ND (none detected).
2. Ethylbenzene and xylenes were combined prior to March 1990.



Base Map: USGS Topographic Map



GeoStrategies Inc.

VICINITY MAP
 UNOCAL Service Station #5760
 376 Lewelling Boulevard
 San Lorenzo, California

PLATE

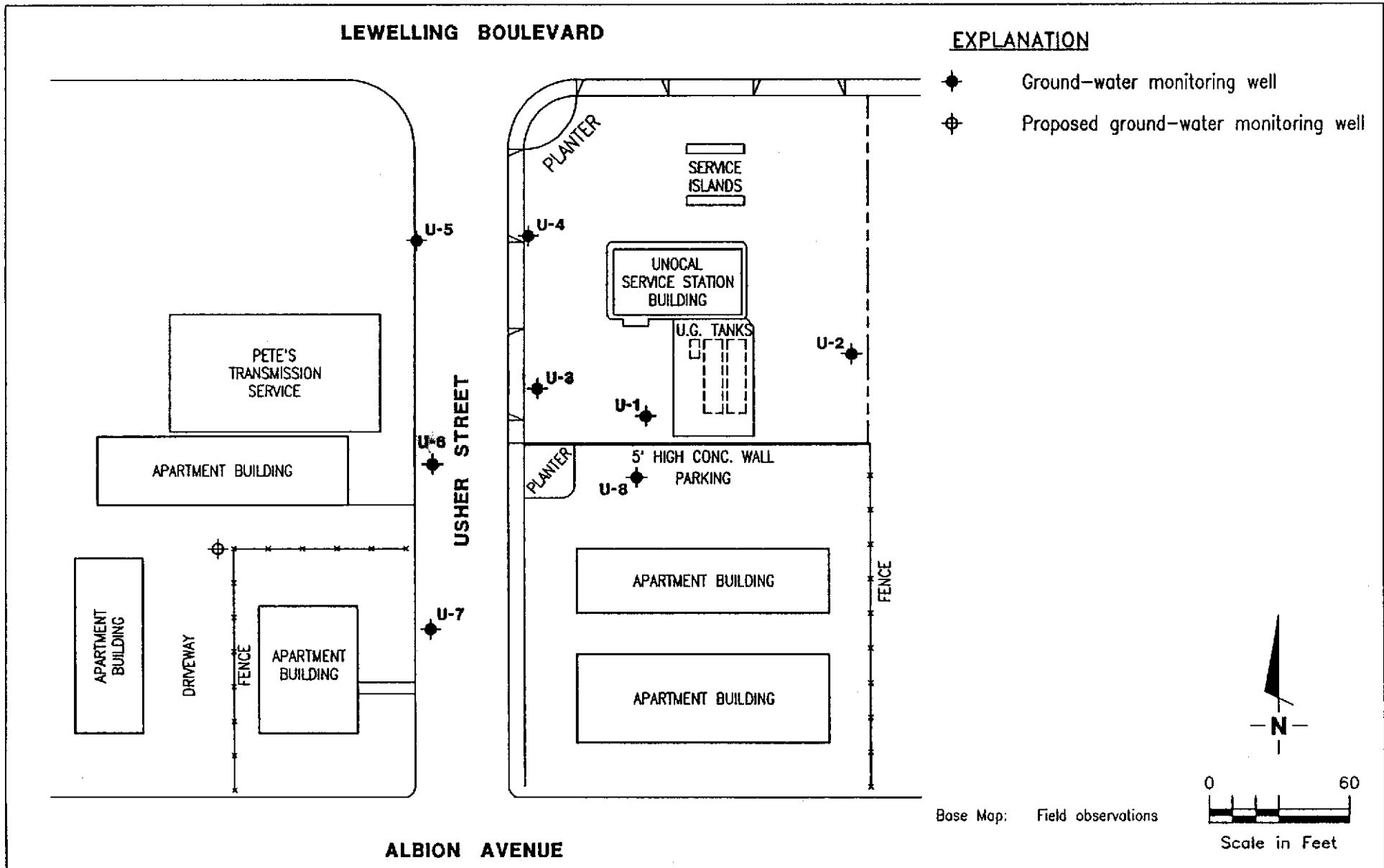
1

JOB NUMBER
7809

REVIEWED BY
ML

DATE
2/91

REVISED DATE



GeoStrategies Inc.

SITE PLAN
 UNOCAL Service Station #5760
 376 Lewelling Boulevard
 San Lorenzo, California

PLATE

2

JOB NUMBER
7809

REVIEWED BY
TDC

DATE
3/93

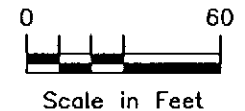
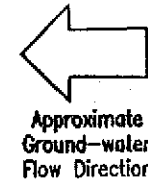
REVISED DATE

LEWELLING BOULEVARD

EXPLANATION

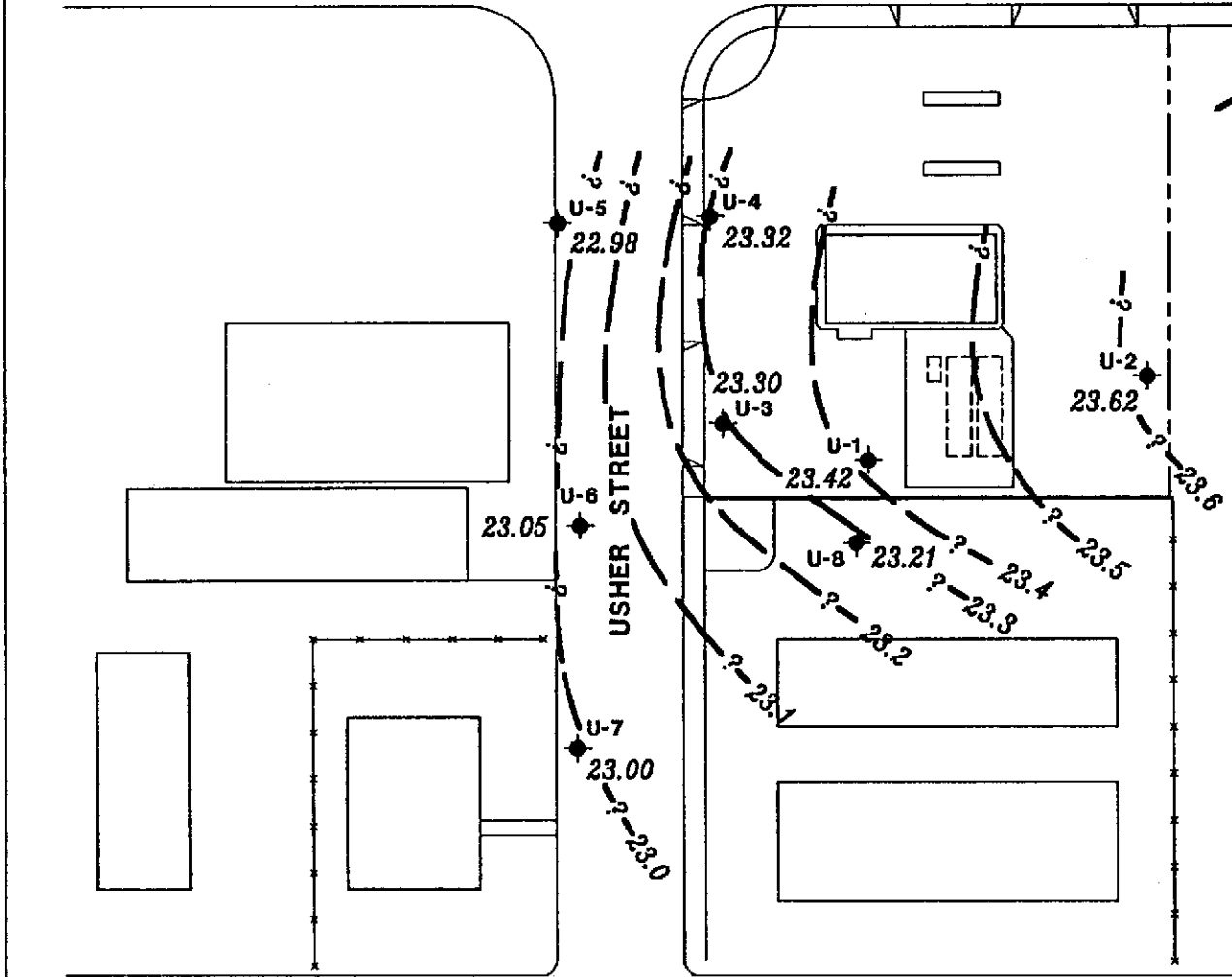
- ◆ Ground-water monitoring well
- - - 99.99 - - - Ground-water elevation contour. Approximate Gradient = 0.003
- 99.99 Ground-water elevation in feet referenced to Mean Sea Level (MSL) measured on February 12, 1993

NOTES: 1. Contours may be influenced by irrigation practices and/or site construction activities.



Base Map: Field observations

ALBION AVENUE



GeoStrategies Inc.

POTENTIOMETRIC MAP
 UNOCAL Service Station #5760
 376 Lewelling Boulevard
 San Lorenzo, California

PLATE

3

JOB NUMBER
780980-14

REVIEWED BY
TDL

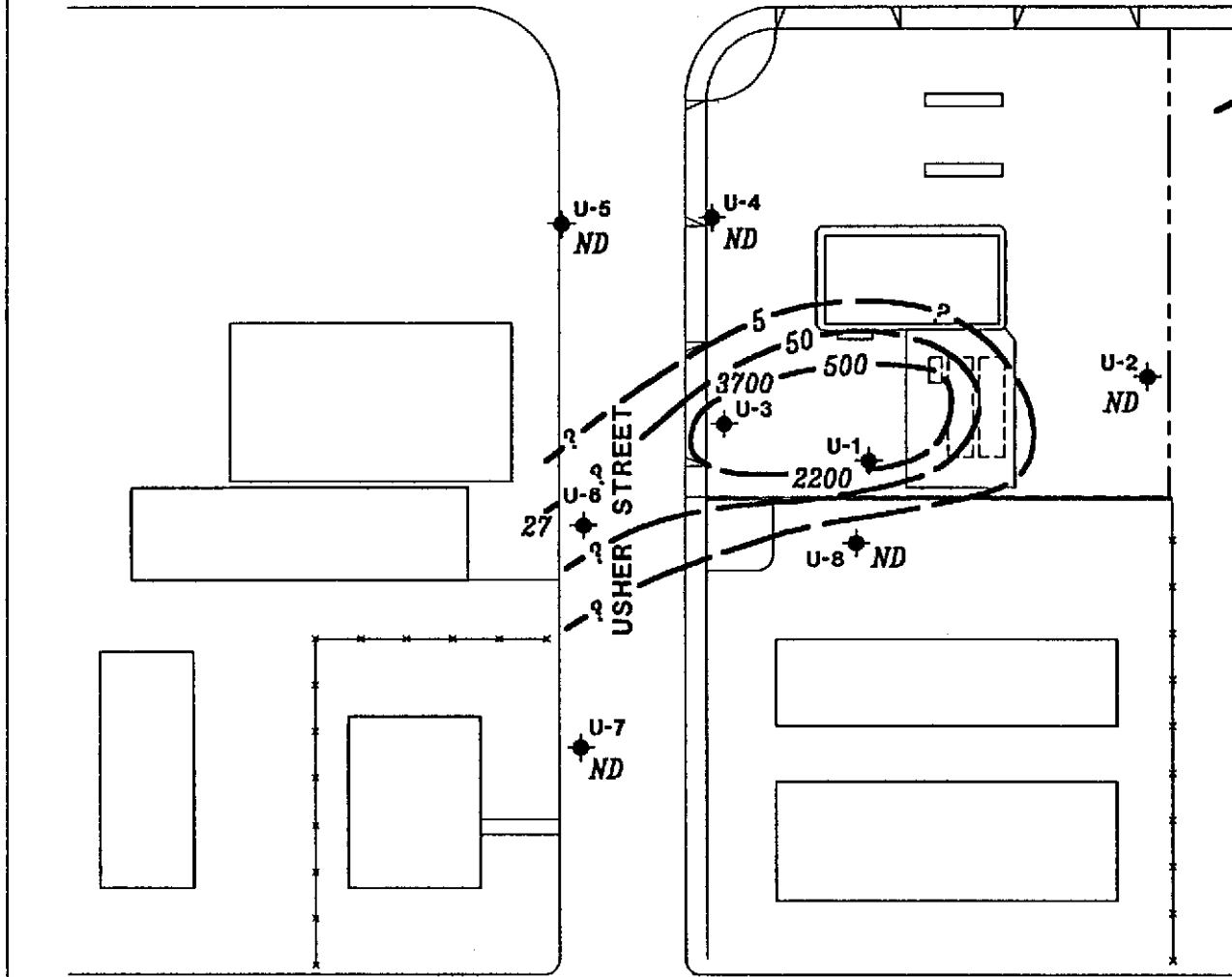
DATE
3/93

REVISED DATE

LEWELLING BOULEVARD

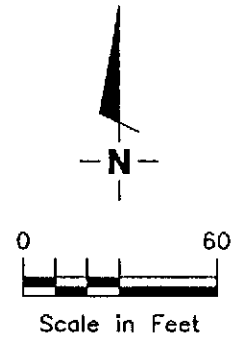
EXPLANATION

- ◆ Ground-water monitoring well
- Benzene isoconcentration contour
- 0.05 Benzene concentration in ppb sampled on February 12, 1993
- ND Not Detected (See laboratory reports for detection limits)



ALBION AVENUE

Base Map: Field observations



GeoStrategies Inc.

BENZENE ISOCONCENTRATION MAP
 UNOCAL Service Station #5760
 376 Lewelling Boulevard
 San Lorenzo, California

PLATE

4

JOB NUMBER
780980-14

REVIEWED BY
TDL

DATE
3/93

REVISED DATE

GeoStrategies Inc.

**APPENDIX A
FIELD DATA SHEETS**

GETTLER-RYAN INC.

General and Environmental Contractors

WELL SAMPLING FIELD DATA SHEET

COMPANY Unocal #5760 JOB # 9809-80
 LOCATION 376 Lewelling Blvd DATE 2-12-93
 CITY San Lorenzo TIME _____

Well ID. U-1 Well Condition OK
 Well Diameter 3/2 in. Hydrocarbon Thickness _____ ft.
 Total Depth 30.5 ft.
 Depth to Liquid- 17.09 ft.
 (# of casing volumes) 5 x 13.41 x(VF) .17 (.38) = (Estimated Purge Volume) 25.5 gal. (5.1)

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

Purging Equipment DD
 Sampling Equipment Bailer

Starting Time 11:45 Purging Flow Rate _____ gpm.
 (Estimated Purge Volume) _____ gal. / (Purging Flow Rate) _____ gpm. = (Anticipated Purging Time) 8.5 min.

Time	pH	Conductivity	Temperature	Volume
<u>1147</u>	<u>7.16</u>	<u>1269</u>	<u>63.3</u>	<u>3 gal</u>
<u>1150</u>	<u>7.14</u>	<u>1242</u>	<u>63.6</u>	<u>12 gal</u>
<u>1154</u>	<u>7.12</u>	<u>1284</u>	<u>63.5</u>	<u>24 gal</u>
<u>1200</u>	<u>7.03</u>	<u>1258</u>	<u>63.4</u>	<u>26 gal</u>

Did well dewater? NO If yes, time _____ Volume _____
 Sampling Time 1200 Weather Conditions Sunny
 Analysis gas BTXE Bottles Used 3X40ml
 Chain of Custody Number _____

COMMENTS _____

GETTLER-RYAN INC.

General and Environmental Contractors

WELL SAMPLING FIELD DATA SHEET

COMPANY Unocal #5760 JOB # 9809.80
 LOCATION 376 Lewelling Blvd DATE 2-12-93
 CITY San Lorenzo TIME _____

Well ID. U-2 Well Condition OK
 Well Diameter 3 1/2 in. Hydrocarbon Thickness _____ ft.
 Total Depth 30.0 ft.
 Depth to Liquid- 18.00 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 12.0 x (VF) .28 = (Estimated Purge Volume) 28.0 gal.
 (4.6)
 Purging Equipment DD
 Sampling Equipment Bailer

Starting Time 1025 Purging Flow Rate 3 gpm.
 (Estimated Purge Volume) 28 gal. / (Purging Flow Rate) 3 gpm. = (Anticipated Purging Time) 7.7 min.

Time	pH	Conductivity	Temperature	Volume
<u>1026</u>	<u>7.46</u>	<u>1221</u>	<u>64.0</u>	<u>3 gal</u>
<u>1029</u>	<u>7.37</u>	<u>840</u>	<u>64.2</u>	<u>12</u>
<u>1032</u>	<u>7.31</u>	<u>746</u>	<u>65.1</u>	<u>21</u>
<u>1038</u>	<u>7.07</u>	<u>631</u>	<u>64.9</u>	<u>23</u> ✓

Did well dewater? NO If yes, time _____ Volume _____
 Sampling Time 1038 Weather Conditions sun
 Analysis for BTXE Bottles Used 3x4oz
 Chain of Custody Number _____

COMMENTS _____
 FOREMAN G. Sant

GETTLER-RYAN INC.

General and Environmental Contractors

WELL SAMPLING FIELD DATA SHEET

COMPANY Unocal #5760 JOB # 9809-80
 LOCATION 376 Lewelling Blvd DATE 2-12-93
 CITY San Lorenzo TIME _____

Well ID. U-3 Well Condition OK
 Well Diameter 3/2 in Hydrocarbon Thickness _____ ft.
 Total Depth 25.0 ft.
 Depth to Liquid- 16.34 ft.
 (# of casing volumes) 5 x 8.66 x (VF) .17 .38 = (Estimated Purge Volume) 16.5 gal.
 (3.3)

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

Purging Equipment DD
 Sampling Equipment Bailer

Starting Time _____ Purging Flow Rate _____ gpm.
 (Estimated Purge Volume) _____ gal. / (Purging Flow Rate) _____ gpm. = (Anticipated Purging Time) 8.3 min.

Time	pH	Conductivity	Temperature	Volume
<u>1053</u>	<u>7.10</u>	<u>1232</u>	<u>67.1</u>	<u>2 gal</u>
<u>1056</u>	<u>7.17</u>	<u>1437</u>	<u>67.3</u>	<u>8 gal</u>
<u>1100</u>	<u>7.15</u>	<u>1448</u>	<u>67.4</u>	<u>16 gal</u>
<u>1105</u>	<u>7.06</u>	<u>1445</u>	<u>66.7</u>	<u>17 gal</u>

Did well dewater? NO If yes, time _____ Volume _____
 Sampling Time 1105 Weather Conditions sun
 Analysis gas BTXE Bottles Used 3x40ml
 Chain of Custody Number _____

COMMENTS

1

GETTLER-RYAN INC.

General and Environmental Contractors

WELL SAMPLING FIELD DATA SHEET

COMPANY Unocal #5760 JOB # 9809-80
 LOCATION 376 Lewelling Blvd DATE 2-12-93
 CITY San Lorenzo TIME _____

Well ID. U-4 Well Condition OK
 Well Diameter 3/2 in. Hydrocarbon Thickness _____ ft.
 Total Depth 28.0 ft.
 Depth to Liquid- 17.21 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 10.79 x (VF) .17 .38 = (Estimated Purge Volume) 20.5 gal.
 (4.1)

Purging Equipment DD
 Sampling Equipment Bailer

Starting Time 11:06 Purging Flow Rate 3 gpm.
 (Estimated Purge Volume) 20.5 gal. / (Purging Flow Rate) 3 gpm. = (Anticipated Purging Time) 6.8 min.

Time	pH	Conductivity	Temperature	Volume
1117	7.15	1449	63.3	3 gal
1120	7.12	1467	63.2	12
1123	7.14	1485	63.8	21
1128	6.97	1509	63.5	22

Did well dewater? No If yes, time _____ Volume _____

Sampling Time 1128 Weather Conditions sun

Analysis gas BTXE Bottles Used 3x40ml

Chain of Custody Number _____

COMMENTS _____

GETTLER-RYAN INC.

General and Environmental Contractors

WELL SAMPLING FIELD DATA SHEET

COMPANY Unocal #5760 JOB # 9809-80
 LOCATION 376 Lewelling Blvd DATE 2-12-93
 CITY San Lorenzo TIME _____

Well ID. U-5 Well Condition OK
 Well Diameter 3/2 in Hydrocarbon Thickness _____ ft.
 Total Depth 30.0 ft
 Depth to Liquid- 16.54 ft
 (# of casing volumes) 5 x 13.46 x (VF) .17 .38 = (Estimated Purge Volume) 11.5 gal.
 (2-3)
 Purging Equipment DD
 Sampling Equipment Bailer

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

Starting Time 10:00 Purging Flow Rate _____ gpm.
 (Estimated Purge Volume) _____ gal. / (Purging Flow Rate) _____ gpm. = (Anticipated Purging Time) 5.8 min.

Time	pH	Conductivity	Temperature	Volume
<u>1001</u>	<u>7.21</u>	<u>1364</u>	<u>65.9</u>	<u>2 gal</u>
<u>1003</u>	<u>7.13</u>	<u>1416</u>	<u>67.1</u>	<u>6</u>
<u>1006</u>	<u>7.17</u>	<u>1447</u>	<u>67.3</u>	<u>12</u>
<u>1011</u>	<u>7.07</u>	<u>1485</u>	<u>67.8</u>	<u>13</u> ✓

Did well dewater? No If yes, time _____ Volume _____

Sampling Time 1011 Weather Conditions sun

Analysis gas BTXE Bottles Used 3x40ml

Chain of Custody Number _____

COMMENTS _____

GETTLER-RYAN INC.

General and Environmental Contractors

WELL SAMPLING FIELD DATA SHEET

COMPANY Unocal #5760 JOB # 9809-80
 LOCATION 376 Lewelling Blvd DATE 2-12-93
 CITY San Lorenzo TIME _____

Well ID. U-6 Well Condition OK
 Well Diameter 3/2 in. Hydrocarbon Thickness _____ ft.
 Total Depth 30.0 ft.
 Depth to Liquid- 14.75 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 15.25 x (VF) .17 .38 = (Estimated Purge Volume) 13.0 gal. (2.6)
 Purging Equipment DD
 Sampling Equipment Bailer

Starting Time 9:40 Purging Flow Rate 2 gpm.
 (Estimated Purge Volume) 13 gal. / (Purging Flow Rate) 2 gpm. = (Anticipated Purging Time) 6.5 min.

Time	pH	Conductivity	Temperature	Volume
9:41	7.10	1180	65.5	2 gal
9:43	7.02	1206	67.2	6
9:46	7.05	1208	67.1	12
9:50	7.03	1244	67.4	13

Did well dewater? NO If yes, time _____ Volume _____
 Sampling Time 9:50 Weather Conditions sun
 Analysis gas BTAE Bottles Used 3x40ml
 Chain of Custody Number _____

COMMENTS

G. Sanchez

GETTLER-RYAN INC.

General and Environmental Contractors

WELL SAMPLING FIELD DATA SHEET

COMPANY Unocal #5760 JOB # 9809-80
 LOCATION 376 Lewelling Blvd DATE 2-12-93
 CITY San Lorenzo TIME _____

Well ID. U-7 Well Condition OK
 Well Diameter 3/2 in. Hydrocarbon Thickness _____ ft.
 Total Depth 35.0 ft.
 Depth to Liquid- 14.77 ft.
 # of casing volumes 5 x 20.63 x (VF) (.17) .38 = (Estimated Purge Volume) 17.5 gal. (3.5)
 Purging Equipment DD
 Sampling Equipment Bailer

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

Starting Time 9:20 Purging Flow Rate 2 gpm.
 Estimated Purge Volume 17.5 gal. / (Purging Flow Rate) 2 gpm. = (Anticipated Purging Time) 8.8 min.

Time	pH	Conductivity	Temperature	Volume
9:21	7.30	1050	63.0	2 gal
9:24	7.27	1038	64.3	8
9:28	7.25	1048	64.2	16
9:33	7.17	1027	64.5	18

Did well dewater? No If yes, time _____ Volume _____

Sampling Time 9:33 Weather Conditions Sun

Analysis gas BTAE Bottles Used 3x40ml

Chain of Custody Number _____

COMMENTS _____

G. Sanchez

GETTLER-RYAN INC.

General and Environmental Contractors

WELL SAMPLING FIELD DATA SHEET

COMPANY Unocal #5760 JOB # 9809-80
 LOCATION 376 Leuwelling Blvd DATE 2-12-93
 CITY San Lorenzo TIME _____

Well ID. U-8 Well Condition OK
 Well Diameter 3/2 in. Hydrocarbon Thickness _____ ft.

Total Depth 35.0 ft.

Depth to Liquid- 15.60 ft.

(# of casing volumes) 5 x 19.40

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

x(VF) .17 .38 = (Estimated Purge Volume) 16.5 gal.
 (3.3)

Purging Equipment DI

Sampling Equipment Bailer

Starting Time 8:50 Purging Flow Rate 2 gpm.
 (Estimated Purge Volume) 16.5 gal. / (Purging Flow Rate) 2 gpm. = (Anticipated Purging Time) 8.3 min.

Time	pH	Conductivity	Temperature	Volume
8:51	7.38	1174	61.8	2 gal
8:54	7.25	1165	63.9	8
8:58	7.24	1162	64.0	16
9:03	7.18	1154	63.9	17

Did well dewater? NO If yes, time _____ Volume _____

Sampling Time 9:03 Weather Conditions sun

Analysis gas BTXE Bottles Used 3x40ml

Chain of Custody Number _____

COMMENTS _____

FOREMAN G. Sanchez 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

RECEIVED

Frank Cline Gettler-Ryan Inc. 2150 W. Winton Avenue Hayward, CA 94545

FEB 25 1993

GETTLER-RYAN INC GENERAL CONTRACTOR

Date: 02/23/1993 NET Client Acct. No: 67900 NET Pacific Job No: 93.00567 Received: 02/17/1993

Client Reference Information

Unocal-5760, 376 Lewelling Blvd., San Lorenzo, 9809.80

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:

[Signature] Jules Skamarack Laboratory Manager

Enclosure(s)



Client Acct: 67900
Client Name: Gettler-Ryan Inc.
NET Log No: 93.00567

Date: 02/23/1993
Page: 2

Ref: Unocal-5760, 376 Lewelling Blvd., San Lorenzo, 9809.80

SAMPLE DESCRIPTION: U-1
Date Taken: 02/12/1993
Time Taken: 12:00
LAB Job No: (-151225)

Parameter	Results	Reporting Limit	Units	Method
TPH (Gas/BTEX, Liquid)				
METHOD 5030 (GC, FID)	--			
DATE ANALYZED	02-17-93			
DILUTION FACTOR*	100			
as Gasoline	70,000	50	ug/L	5030
METHOD 8020 (GC, Liquid)	--			
DATE ANALYZED	02-17-93			
DILUTION FACTOR*	100			
Benzene	2,200	0.5	ug/L	8020
Ethylbenzene	3,100	0.5	ug/L	8020
Toluene	8,400	0.5	ug/L	8020
Xylenes (Total)	18,000	0.5	ug/L	8020
SURROGATE RESULTS	--			
Bromofluorobenzene	89		% Rec.	5030



Client Acct: 67900
Client Name: Gettler-Ryan Inc.
NET Log No: 93.00567

Date: 02/23/1993
Page: 3

Ref: Unocal-5760, 376 Lewelling Blvd., San Lorenzo, 9809.80

SAMPLE DESCRIPTION: U-2
Date Taken: 02/12/1993
Time Taken: 10:38
LAB Job No: (-151226)

Parameter	Results	Reporting Limit	Units	Method
TPH (Gas/BTXE,Liquid)				
METHOD 5030 (GC,FID)	--			
DATE ANALYZED	02-19-93			
DILUTION FACTOR*	1			
as Gasoline	ND	50	ug/L	5030
METHOD 8020 (GC,Liquid)	--			
DATE ANALYZED	02-19-93			
DILUTION FACTOR*	1			
Benzene	ND	0.5	ug/L	8020
Ethylbenzene	ND	0.5	ug/L	8020
Toluene	ND	0.5	ug/L	8020
Xylenes (Total)	ND	0.5	ug/L	8020
SURROGATE RESULTS	--			
Bromofluorobenzene	89		% Rec.	5030



Client Acct: 67900
Client Name: Gettler-Ryan Inc.
NET Log No: 93.00567

Date: 02/23/1993
Page: 4

Ref: Unocal-5760, 376 Lewelling Blvd., San Lorenzo, 9809.80

SAMPLE DESCRIPTION: U-3
Date Taken: 02/12/1993
Time Taken: 11:05
LAB Job No: (-151227)

Parameter	Results	Reporting Limit	Units	Method
TPH (Gas/BTXE,Liquid)				
METHOD 5030 (GC,FID)	--			
DATE ANALYZED	02-18-93			
DILUTION FACTOR*	100			
as Gasoline	80,000	50	ug/L	5030
METHOD 8020 (GC,Liquid)	--			
DATE ANALYZED	02-18-93			
DILUTION FACTOR*	100			
Benzene	3,700	0.5	ug/L	8020
Ethylbenzene	3,700	0.5	ug/L	8020
Toluene	9,400	0.5	ug/L	8020
Xylenes (Total)	18,000	0.5	ug/L	8020
SURROGATE RESULTS	--			
Bromofluorobenzene	89		% Rec.	5030



Client Acct: 67900
Client Name: Gettler-Ryan Inc.
NET Log No: 93.00567

Date: 02/23/1993
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Ref: Unocal-5760, 376 Lewelling Blvd., San Lorenzo, 9809.80

SAMPLE DESCRIPTION: U-4
Date Taken: 02/12/1993
Time Taken: 11:28
LAB Job No: (-151228)

Parameter	Results	Reporting Limit	Units	Method
TPH (Gas/BTXE,Liquid)				
METHOD 5030 (GC,FID)	--			
DATE ANALYZED	02-17-93			
DILUTION FACTOR*	1			
as Gasoline	ND	50	ug/L	5030
METHOD 8020 (GC,Liquid)	--			
DATE ANALYZED	02-17-93			
DILUTION FACTOR*	1			
Benzene	ND	0.5	ug/L	8020
Ethylbenzene	ND	0.5	ug/L	8020
Toluene	ND	0.5	ug/L	8020
Xylenes (Total)	ND	0.5	ug/L	8020
SURROGATE RESULTS	--			
Bromofluorobenzene	91		% Rec.	5030



Client Acct: 67900
Client Name: Gettler-Ryan Inc.
NET Log No: 93.00567

Date: 02/23/1993
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Ref: Unocal-5760, 376 Lewelling Blvd., San Lorenzo, 9809.80

SAMPLE DESCRIPTION: U-5
Date Taken: 02/12/1993
Time Taken: 10:11
LAB Job No: (-151229)

Parameter	Results	Reporting Limit	Units	Method
TPH (Gas/BTXE,Liquid)				
METHOD 5030 (GC,FID)	--			
DATE ANALYZED	02-17-93			
DILUTION FACTOR*	1			
as Gasoline	ND	50	ug/L	5030
METHOD 8020 (GC,Liquid)	--			
DATE ANALYZED	02-17-93			
DILUTION FACTOR*	1			
Benzene	ND	0.5	ug/L	8020
Ethylbenzene	ND	0.5	ug/L	8020
Toluene	ND	0.5	ug/L	8020
Xylenes (Total)	ND	0.5	ug/L	8020
SURROGATE RESULTS	--			
Bromofluorobenzene	93		% Rec.	5030



Client Acct: 67900
Client Name: Gettler-Ryan Inc.
NET Log No: 93.00567

Date: 02/23/1993
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Ref: Unocal-5760, 376 Lewelling Blvd., San Lorenzo, 9809.80

SAMPLE DESCRIPTION: U-6
Date Taken: 02/12/1993
Time Taken: 09:50
LAB Job No: (-151230)

Parameter	Results	Reporting Limit	Units	Method
TPH (Gas/BTXE,Liquid)				
METHOD 5030 (GC,FID)	--			
DATE ANALYZED	02-17-93			
DILUTION FACTOR*	1			
as Gasoline	2,600	50	ug/L	5030
METHOD 8020 (GC,Liquid)	--			
DATE ANALYZED	02-17-93			
DILUTION FACTOR*	1			
Benzene	27	0.5	ug/L	8020
Ethylbenzene	120	0.5	ug/L	8020
Toluene	ND	0.5	ug/L	8020
Xylenes (Total)	51	0.5	ug/L	8020
SURROGATE RESULTS	--			
Bromofluorobenzene	96		% Rec.	5030



Client Acct: 67900
Client Name: Gettler-Ryan Inc.
NET Log No: 93.00567

Date: 02/23/1993
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Ref: Unocal-5760, 376 Lewelling Blvd., San Lorenzo, 9809.80

SAMPLE DESCRIPTION: U-7
Date Taken: 02/12/1993
Time Taken: 09:33
LAB Job No: (-151231)

Parameter	Results	Reporting Limit	Units	Method
TPH (Gas/BTXE,Liquid)				
METHOD 5030 (GC,FID)	--			
DATE ANALYZED	02-17-93			
DILUTION FACTOR*	1			
as Gasoline	ND	50	ug/L	5030
METHOD 8020 (GC,Liquid)	--			
DATE ANALYZED	02-17-93			
DILUTION FACTOR*	1			
Benzene	ND	0.5	ug/L	8020
Ethylbenzene	ND	0.5	ug/L	8020
Toluene	ND	0.5	ug/L	8020
Xylenes (Total)	ND	0.5	ug/L	8020
SURROGATE RESULTS	--			
Bromofluorobenzene	92		% Rec.	5030



Client Acct: 67900
Client Name: Gettler-Ryan Inc.
NET Log No: 93.00567

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Ref: Unocal-5760, 376 Lewelling Blvd., San Lorenzo, 9809.80

SAMPLE DESCRIPTION: U-8
Date Taken: 02/12/1993
Time Taken: 09:03
LAB Job No: (-151232)

Parameter	Results	Reporting Limit	Units	Method
TPH (Gas/BTXE,Liquid)				
METHOD 5030 (GC,FID)	--			
DATE ANALYZED	02-17-93			
DILUTION FACTOR*	1			
as Gasoline	ND	50	ug/L	5030
METHOD 8020 (GC,Liquid)	--			
DATE ANALYZED	02-17-93			
DILUTION FACTOR*	1			
Benzene	ND	0.5	ug/L	8020
Ethylbenzene	ND	0.5	ug/L	8020
Toluene	ND	0.5	ug/L	8020
Xylenes (Total)	ND	0.5	ug/L	8020
SURROGATE RESULTS	--			
Bromofluorobenzene	89		% Rec.	5030



Client Acct: 67900
Client Name: Gettler-Ryan Inc.
NET Log No: 93.00567

Date: 02/23/1993
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Ref: Unocal-5760, 376 Lewelling Blvd., San Lorenzo, 9809.80

SAMPLE DESCRIPTION: Trip
Date Taken:
Time Taken:
LAB Job No: (-151233)

Parameter	Results	Reporting Limit	Units	Method
TPH (Gas/BTXE,Liquid)				
METHOD 5030 (GC,FID)	--			
DATE ANALYZED	02-17-93			
DILUTION FACTOR*	1			
as Gasoline	ND	50	ug/L	5030
METHOD 8020 (GC,Liquid)	--			
DATE ANALYZED	02-17-93			
DILUTION FACTOR*	1			
Benzene	ND	0.5	ug/L	8020
Ethylbenzene	ND	0.5	ug/L	8020
Toluene	ND	0.5	ug/L	8020
Xylenes (Total)	ND	0.5	ug/L	8020
SURROGATE RESULTS	--			
Bromofluorobenzene	90		% Rec.	5030



Client Acct: 67900
Client Name: Gettler-Ryan Inc.
NET Log No: 93.00567

Date: 02/23/1993
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Ref: Unocal-5760, 376 Lewelling Blvd., San Lorenzo, 9809.80

QUALITY CONTROL DATA

<u>Parameter</u>	<u>Reporting Limits</u>	<u>Units</u>	<u>Cal Verif Stand % Recovery</u>	<u>Blank Data</u>	<u>Spike % Recovery</u>	<u>Duplicate Spike % Recovery</u>	<u>RPD</u>
Gasoline	50	ug/L	104	ND	103	104	1.5
Benzene	0.5	ug/L	87	ND	103	103	<1
Toluene	0.5	ug/L	87	ND	100	99	1.8
Gasoline	50	ug/L	95	ND	98	105	6.7
Benzene	0.5	ug/L	91	ND	103	105	2.6
Toluene	0.5	ug/L	87	ND	100	106	5.6
Gasoline	50	ug/L	110	ND	109	115	4.7
Benzene	0.5	ug/L	98	ND	101	107	5.9
Toluene	0.5	ug/L	107	ND	99	105	5.2

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, $100 \text{ [Value 1 - Value 2] / mean value}$.
- 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.

Gettler - Ryan Inc.

ENVIRONMENTAL DIVISION

3186 Chain of C .ody

COMPANY Unocal Corp. SS # 5760

JOB NO. 2170

JOB LOCATION 376 Lewelling Blvd

CITY San Lorenzo

PHONE NO. (510) 783-7500

AUTHORIZED Frank Cline

DATE 2-12-93

P.O. NO. 9809.80

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
U-1	3	H ₂ O	2-12-93/1200	THC (gas) BTXE	
U-2	↓	↓	1/1038		
U-3			1/1105		
U-4			1/1128		
U-5			1/1011		
U-6			1/950		
U-7			1/933		
U-8			1/903		
trip			2		↓

RELINQUISHED BY: [Signature] 2-12-93 1501

RECEIVED BY: [Signature] 2/12/93 1501

RELINQUISHED BY: [Signature] 2-16-93 1120

RECEIVED BY: Andy Mackey 2-16-93 1120

RELINQUISHED BY: Andy Mackey 2-16-93 1700

RECEIVED BY LAB: [Signature] 2/17/93 0800

DESIGNATED LABORATORY: ONET

DHS #:

REMARKS: Normal TAT

(CUSTODY SEALED -)
(CUSTODY SEALED 2-16)
@1700 AD
seals intact. A.C.

DATE COMPLETED 2-12-93

FOREMAN G. Sanchez