GeoStrategies Inc.

93 NOV -1 AM 11:55

October 29, 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. Tina Berry of the UNOCAL Corporation, we are forwarding a copy of the Quarterly Monitoring Report dated September 30, 1993 for the above referenced location. This report presents the results of third quarter 1993 groundwater monitoring and sampling.

If you have questions or comments, please call.

GeoStrategies Inc. by,

Cliff M. Garratt
Project Manager

enclosure

cc: Ms. Tina Berry, UNOCAL Corporation
Mr. Richard Hiett, RWQCB - San Francisco Bay Region

:ellenu\809final.wp

GeoStrategies Inc.

QUARTERLY MONITORING REPORT

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

780980-17

September 30, 1993

GeoStrategies Inc.

September 30, 1993

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

Attn: Ms. Tina Berry

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

Ms. Berry:

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

There are currently nine monitoring wells at the site: Wells U-1 through U-9 (Plate 2). These wells were installed between 1988 and 1993 by Woodward-Clyde Consultants and GSI.

CURRENT QUARTER SAMPLING RESULTS

Depth-to-water measurements were obtained in each monitoring well on September 9, 1993. Static groundwater levels were measured from the surveyed top of the well box and recorded to the nearest $\pm$0.01 foot. Water-level elevations were referenced to Mean Sea Level (MSL) and are presented in Table 1. Water-level data were used to construct a quarterly potentiometric map (Plate 3). Shallow groundwater flow direction is to the west with an approximate hydraulic gradient of 0.005.

780980-17

Each well was inspected for the presence of floating product. **Floating product was not observed in the wells this quarter. Floating product has not been observed since November, 1992.** Field data sheets are included in Appendix A.

Groundwater samples were collected on September 9, 1993. Samples were analyzed for Total Petroleum Hydrocarbons calculated as Gasoline (TPH-Gasoline), according to EPA Method 8015 (Modified), and for Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) according to EPA Method 8020. The groundwater samples were analyzed by Anametrix Inc., a California State-certified laboratory located in San Jose, 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.

If you have any questions, please call.

GeoStrategies Inc. by,

For
Ellen C. Fostersmith
Geologist

Stephen J. Carter
Project Manager
RG 5577

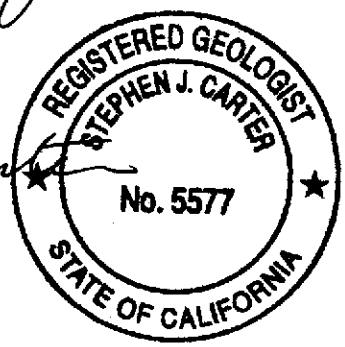


Plate 1. Vicinity Map
Plate 2. Site Plan
Plate 3. Potentiometric Map
Plate 4. Benzene Isoconcentration Map

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

QC Review

780980-17

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 (uMHOS/cm)
U-1	09-Sep-93	3	30.5	40.51	17.77	---	22.74	5	6.96	69.6	1099
U-2	09-Sep-93	3	30.0	41.62	18.68	---	22.94	5	7.00	66.0	708
U-3	09-Sep-93	3	25.0	39.64	17.04	---	22.60	5	7.08	70.6	1360
U-4	09-Sep-93	3	28.0	40.53	16.89	---	23.64	6	6.75	69.6	1530
U-5	09-Sep-93	2	30.0	39.61	16.90	---	22.71	5	7.19	70.9	1274
U-6	09-Sep-93	2	30.0	37.94	15.56	---	22.38	5	7.00	71.4	1130
U-7	09-Sep-93	2	35.0	37.49	15.23	---	22.26	5	6.75	66.6	877
U-8	09-Sep-93	2	35.0	38.94	16.38	---	22.56	5	7.33	72.2	863
U-9	09-Sep-93	2	28.7	37.88	15.79	---	22.09	5	7.07	69.5	1169

Notes: 1. Static water elevations referenced to Mean Sea Level (MSL). Depth to water measured from surveyed top of box.
2. Physical parameter measurements represent stabilized values.

TABLE 2

HISTORICAL GROUNDWATER 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.
05-Dec-90	U-1	Floating Product 0.10 ft				
04-Mar-91	U-1	Floating Product 0.05 ft				
03-Jun-91	U-1	Floating Product 0.06 ft				
19-Sep-91	U-1	Floating Product 0.04 ft				
04-Dec-91	U-1	Floating Product 0.36 ft				
05-Mar-92	U-1	Floating Product 0.02 ft				
07-Apr-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
04-Jun-93	U-1	35000	1300	5700	900	9200
09-Sep-93	U-1	**67000**	**2900**	**18000**	**6200**	**32000**
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
04-Jun-93	U-2	<50	<0.5	<0.5	<0.5	<0.5
09-Sep-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.

TABLE 2

HISTORICAL GROUNDWATER QUALITY DATABASE

SAMPLE DATE	SAMPLE POINT	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	ETHYLBENZENE (PPB)	XYLENES (PPB)
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
04-Jun-93	U-3	92000	2900	8700	4300	20000
09-Sep-93	U-3	110000	2800	10000	6500	31000
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
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
04-Jun-93	U-4	<50	<0.5	<0.5	<0.5	<0.5
09-Sep-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
04-Jun-93	U-5	<50	<0.5	<0.5	<0.5	<0.5
09-Sep-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

TABLE 2

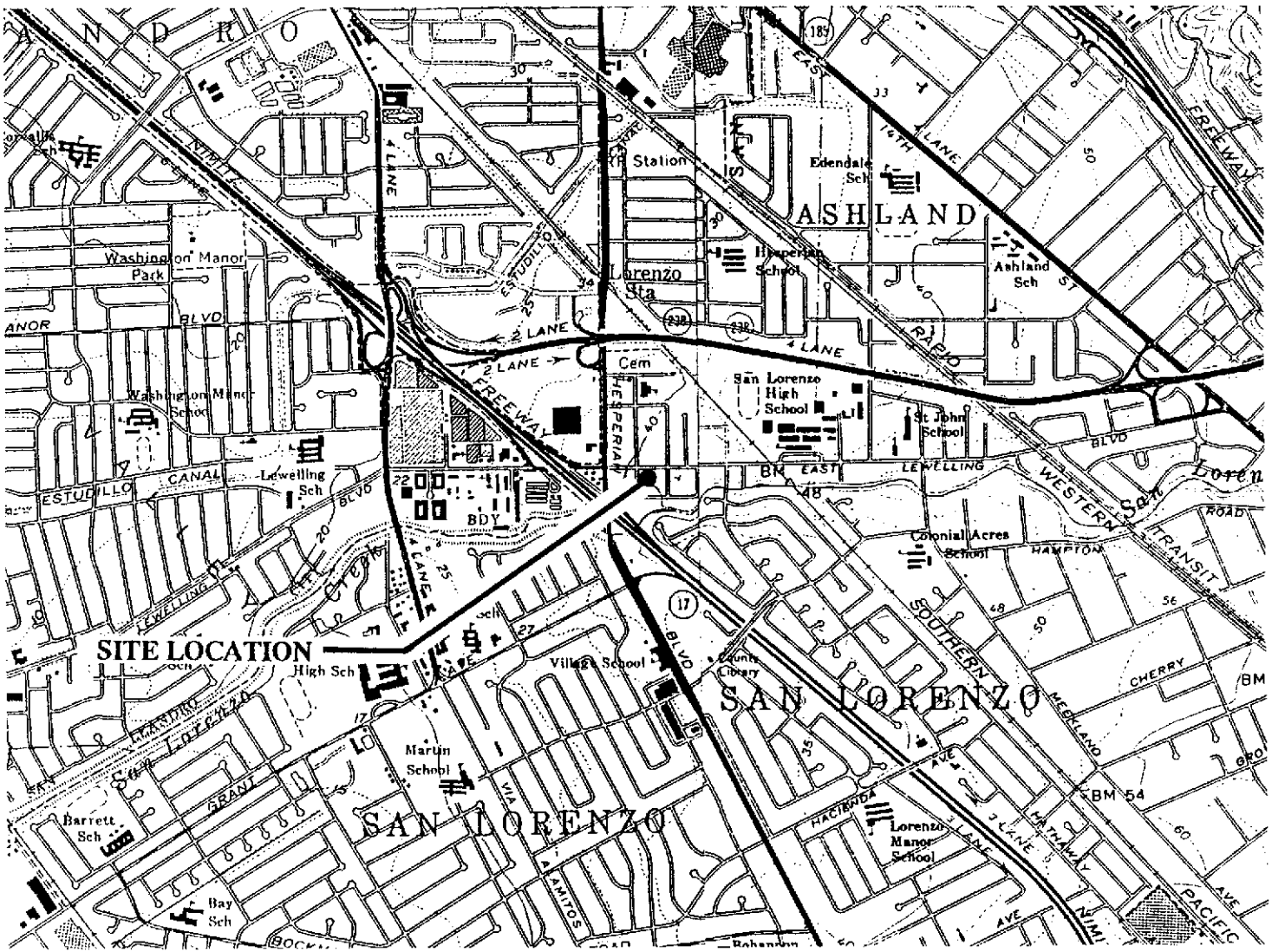
HISTORICAL GROUNDWATER QUALITY DATABASE

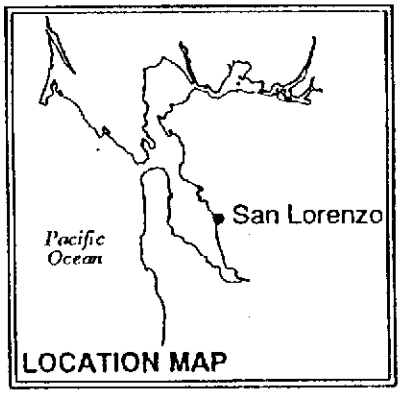
SAMPLE DATE	SAMPLE POINT	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	ETHYLBENZENE (PPB)	XYLENES (PPB)
04-Jun-93	U-6	13000	100	38	450	320
09-Sep-93	U-6	**6300 + +**	**29**	<5	**120**	**34**
07-Apr-92	U-7	<50	<0.5	<0.5	<0.5	<0.5
06-Aug-92	U-7	<50	<0.5	<0.5	<0.5	<0.5
20-Nov-92	U-7	<50	<0.5	<0.5	<0.5	<0.5
12-Feb-93	U-7	<50	<0.5	<0.5	<0.5	<0.5
04-Jun-93	U-7	<50	<0.5	<0.5	<0.5	<0.5
09-Sep-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
04-Jun-93	U-8	<50	<0.5	<0.5	<0.5	<0.5
09-Sep-93	U-8	<50	<0.5	<0.5	<0.5	<0.5
04-Jun-93	U-9	2100 +	<2.5	<2.5	<2.5	<2.5
09-Sep-93	U-9	1200 +	<1.0	<1.0	<1.0	<1.0

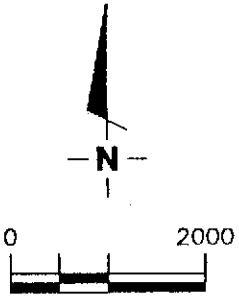
TPH-G = Total Petroleum Hydrocarbons calculated as Gasoline
PPB = Parts Per Billion
N/A = Not Accessible

** = Product Skimmer installed in well
\+ = The concentration reported as gasoline is primarily due to the presence of a discrete hydrocarbon peak not indicative of standard gasoline.
+ + = The concentration reported as gasoline for sample U-6 is primarily due to the presence of a combination of gasoline and a discrete peak not indicative of gasoline.

Notes:
1. All data shown as <x are reported as ND (none detected).
2. Ethylbenzene and xylenes were combined prior to March 1990.
3. Laboratory values are reported in units of ug/L, which generally are synonymous with parts per billion (ppb).







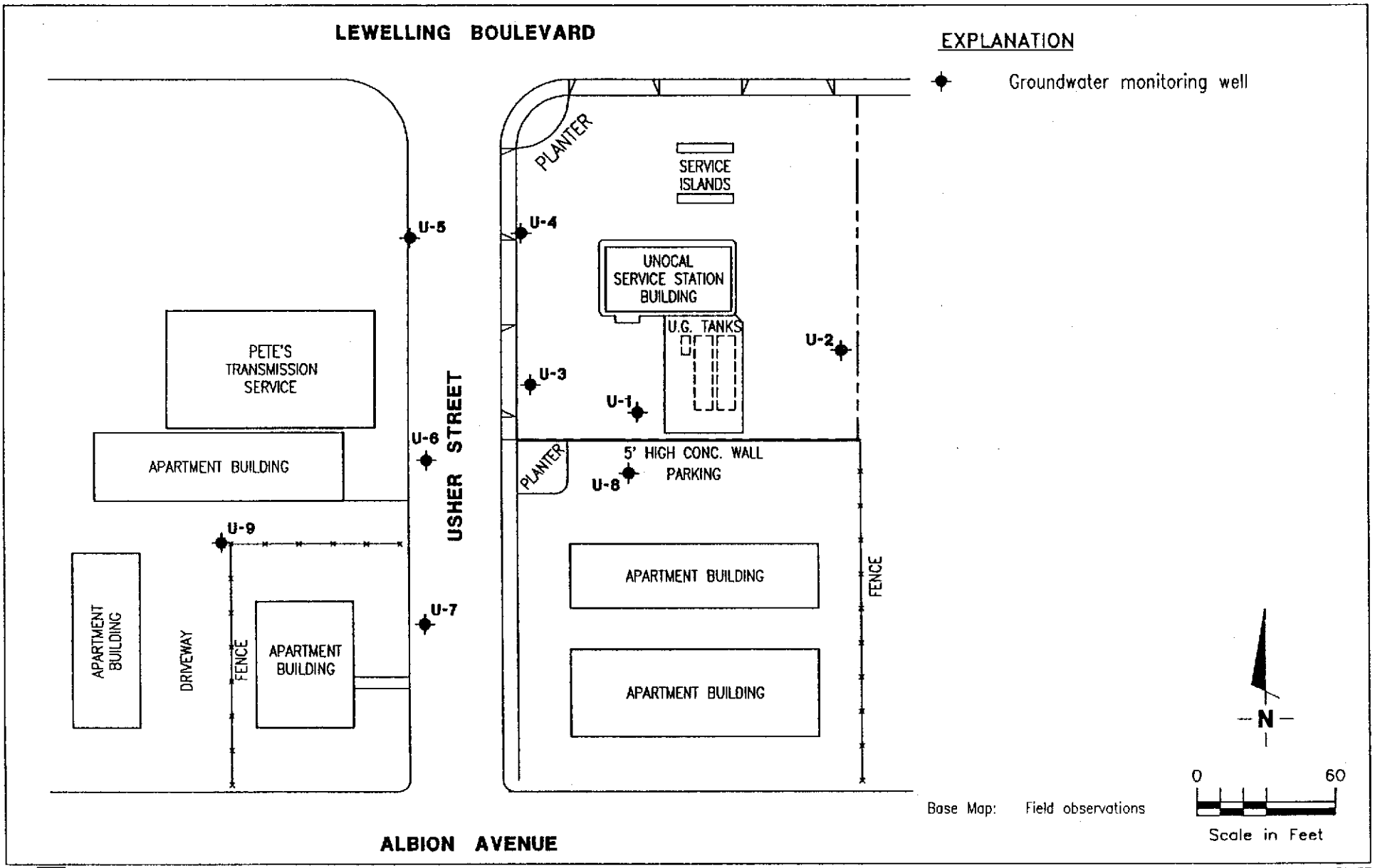
Base Map: USGS Topographic Map

GeoStrategies Inc.

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

PLATE **1**

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
7809		2/91	

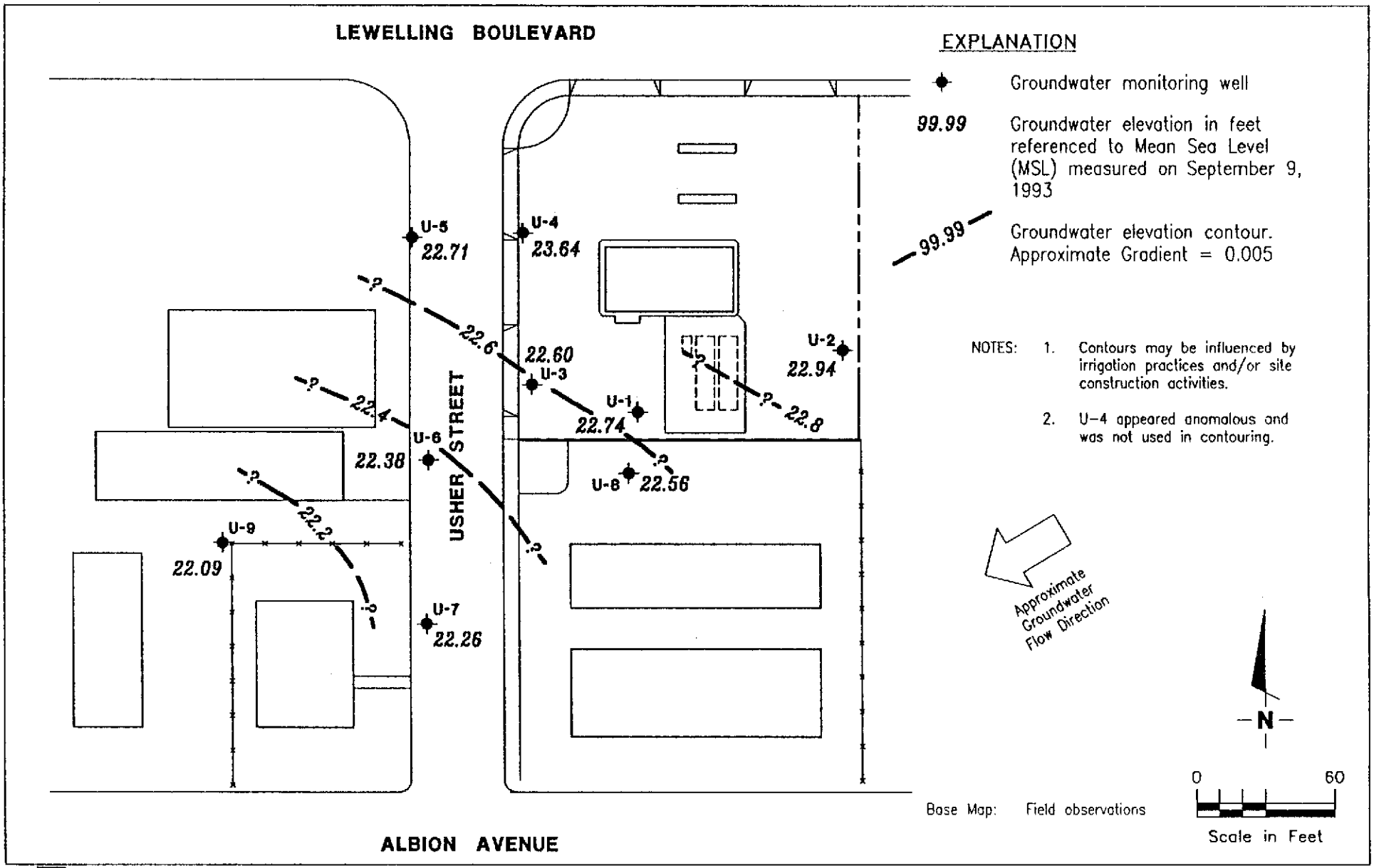


GeoStrategies Inc.

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

PLATE
2

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
7809		7/93	

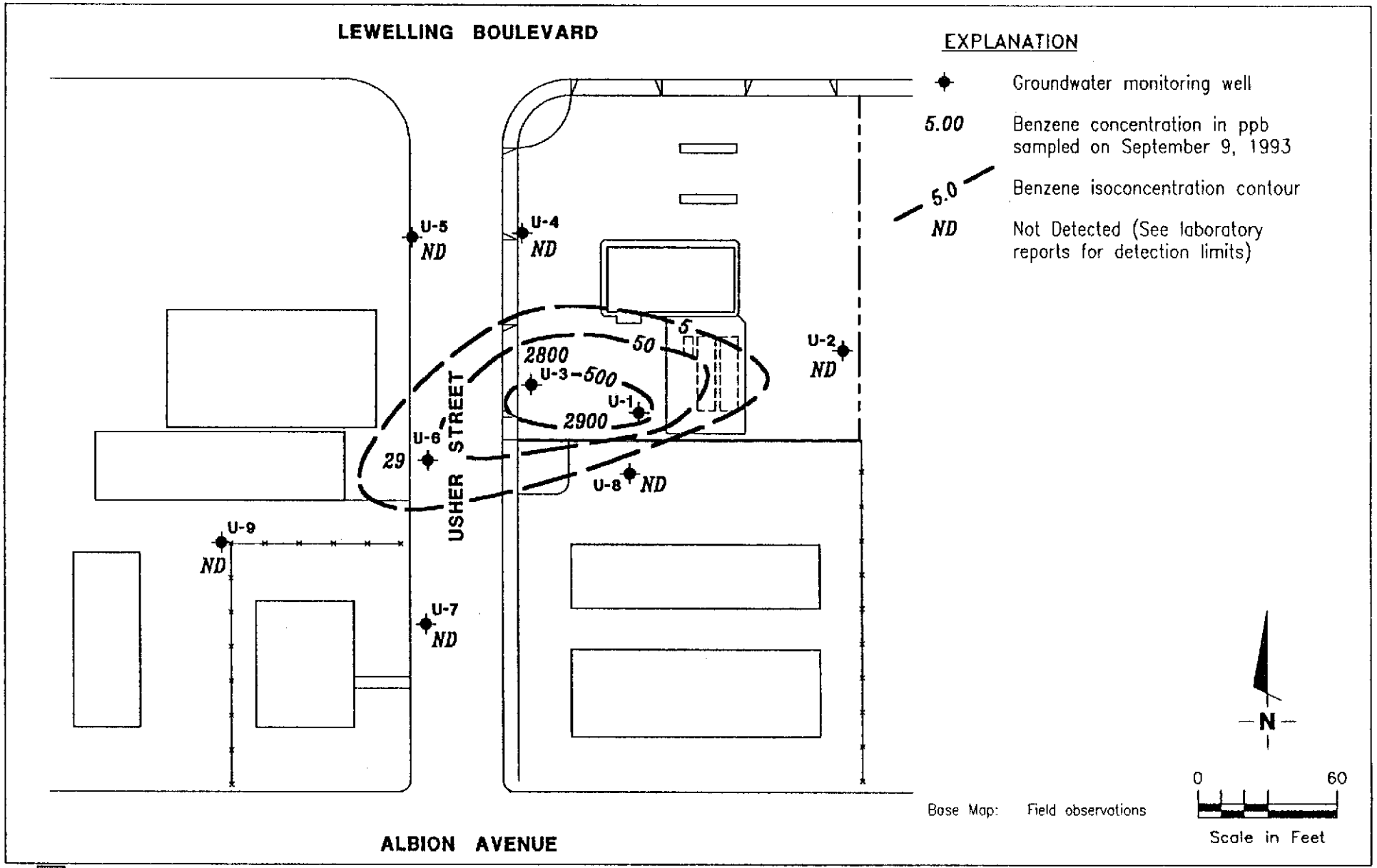


GeoStrategies Inc.

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

PLATE **3**

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
780980-17		9/93	



GeoStrategies Inc.

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

PLATE
4

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
780980-17		9/93	

APPENDIX A
FIELD DATA SHEETS

GETTLER-RYAN INC.

General and Environmental Contractors

OBSERVATION WELL DAILY MONITOR RECORD

COMPANY Unocal #5760 JOB # 9809.8C

LOCATION 376 Lewelling Blvd DATE 9-9-93

CITY San Lorenzo CA TIME

Depth of Well

WELL	DEPTH TO LIQUID (DTH) OR (DTW)	HYDROCARBON THICKNESS (HT) BEFORE	AFTER	AMOUNT PUMPED	COMMENTS
4-1	17.77	17.49	30.5	0.28	
4-2	18.68	18.37	30.0	0.31	
4-3	17.04	16.62	25.0	0.42	
4-4	16.89	16.61	28.0	0.29	
4-5	16.90	16.60	30.6	0.30	
4-6	~~15.10~~ 15.56	~~14.84~~ 15.30	30.0	0.26	
4-7	~~15.09~~ 15.23	~~15.30~~ 14.84	35.0	0.39	
4-8	16.38	16.00	35.0	0.38	
4-9	15.79	15.21	28.7	0.58	
				18 - 1.59	
				19 - 1.26	

PRODUCT TANK: TOTAL FLOWMETER

WATER OTHER

COMMENTS

E. C. [illegible]

GETTLER-RYAN INC.

General and Environmental Contractors

WELL SAMPLING FIELD DATA SHEET

COMPANY Unocal # 5760 JOB # 9809.80

LOCATION 376 Lewelling Blvd DATE ~~6-4-93~~ 9-9-93

CITY San Lorenzo CA. TIME

Well ID. MW-1

Well Condition okay

Well Diameter (3") 2" in. Hydrocarbon Thickness ft.

Total Depth 30.5 ft.

Depth to Liquid- 17.77 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 12.73 x(VF) 0.38 0.17 = (Estimated Purge Volume) 4.8 2.4 gal.

Purging Equipment Suction

Sampling Equipment Bailer

Starting Time 13:14 Purging Flow Rate 2.5 gpm.

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

Time	pH	Conductivity	Temperature	Volume
13:16	7.25	1008	71.3	5
13:18	7.02	1092	69.7	10
13:20	6.99	1096	69.6	15
13:22	6.96	1101	69.6	20
13:24	6.96	1099	69.6	25

Did well dewater? NO If yes, time Volume

Sampling Time 13:29 Weather Conditions

Analysis Gas BTXE Bottles Used

Chain of Custody Number

COMMENTS

FOREMAN F. Cline ASSISTANT

GETTLER-RYAN, INC.

General and Environmental Contractors

WELL SAMPLING FIELD DATA SHEET

COMPANY Unocal # 5760 JOB # 9809.80

LOCATION 376 Lewelling Blvd DATE ~~6-4-93~~ 9-9-93

CITY San Lorenzo CA TIME

Well ID. U-2

Well Diameter (3") 2" in.

Total Depth 30.0 ft.

Depth to Liquid- 18.68 ft.

Well Condition

Hydrocarbon Thickness 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 11.32 x(VF) 0.38 0.17 = (Estimated Purge Volume) 43 21.5 gal.

Purging Equipment Suction

Sampling Equipment Bailer

Starting Time 10:48 Purging Flow Rate 2.2 gpm.

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

Time	pH	Conductivity	Temperature	Volume
10:50	7.17	826	66.0	4.4
10:52	7.06	737	66.1	8.8
10:54	7.03	710	65.8	13.2
10:56	6.98	705	66.0	17.6
10:58	7.00	708	66.0	22.0

Did well dewater? No If yes, time Volume

Sampling Time 11:00 Weather Conditions

Analysis Gas BTXE Bottles Used

Chain of Custody Number

COMMENTS

FOREMAN F Cline ASSISTANT

GETTLER-RYAN INC.

General and Environmental Contractors

WELL SAMPLING
FIELD DATA SHEET

COMPANY Unocal # 5760 JOB # 9809.80

LOCATION 376 Lewelling Blvd DATE ~~6-9-93~~ 9-9-93

CITY San Lorenzo CA. TIME

Well ID. U-3 Well Condition day

Well Diameter (3") 2" in. Hydrocarbon Thickness ft.

Total Depth 25.0 ft.

Depth to Liquid 17.04 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 7.96 x(VF) 0.38 0.17 = (Estimated Purge Volume) 3.0 1.5 gal.

Purging Equipment Suction

Sampling Equipment Bailer

Starting Time 12:55 Purging Flow Rate 1.5 gpm.

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

Time	pH	Conductivity	Temperature	Volume
12:57	7.19	1375	72.7	3
12:59	6.98	1404	72.2	6
13:01	6.78	1403	20.6	9
13:03	7.07	1350	20.6	12
13:05	7.08	1360	70.6	15

Did well dewater? No If yes, time Volume

Sampling Time 13:08 Weather Conditions

Analysis Gas BTXE Bottles Used

Chain of Custody Number

COMMENTS

FOREMAN F. Cline ASSISTANT

GETTLER-RYAN INC.

General and Environmental Contractors

WELL SAMPLING FIELD DATA SHEET

COMPANY Unocal # 5760 JOB # 9809.80

LOCATION 376 Lewelling Blvd DATE ~~6-9-93~~ 9-9-93

CITY San Lorenzo CA. TIME

Well ID. U-4

Well Condition okay

Well Diameter (3") 2" in

Hydrocarbon Thickness — ft.

Total Depth ~~30.0~~ 28.0 ft.

Depth to Liquid- 16.89 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 13.11 x(VF) 0.38 0.17 = (Estimated Purge Volume) 4.9 2.5 gal.

Purging Equipment Suction

Sampling Equipment Bailer

Starting Time 10:20 Purging Flow Rate 1.7 gpm.

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

Time	pH	Conductivity	Temperature	Volume
10:23	6.85	1555	69.8	5.1
10:26	6.81	1535	69.7	10.2
10:29	6.71	1534	69.4	15.3
10:32	6.73	1527	69.5	20.4
10:35	6.75	1530	69.6	25.0

Did well dewater? No If yes, time Volume

Sampling Time 10:37 Weather Conditions

Analysis Gas BTXE Bottles Used

Chain of Custody Number

COMMENTS

FOREMAN F. Cline ASSISTANT

GETTLER-RYAN INC.

General and Environmental Contractors

WELL SAMPLING FIELD DATA SHEET

COMPANY Unocal # 5760 JOB # 9809.80

LOCATION 376 Lewelling Blvd DATE ~~6-9-93~~ 9-9-93

CITY San Lorenzo CA. TIME

Well ID. U-5 Well Condition Okay

Well Diameter 3" (2") in. Hydrocarbon Thickness ft.

Total Depth 30.10 ft.

Depth to Liquid- 16.90 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 13.10 x(VF) 0.38 0.17 = (Estimated Purge Volume) 2.2 11.1 gal.

Purging Equipment Suction

Sampling Equipment Bailer

Starting Time 11:10 Purging Flow Rate 1.1 gpm.

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

Time	pH	Conductivity	Temperature	Volume
11:12	7.13	1240	72.1	2.2
11:14	7.18	1292	72.3	4.4
11:16	7.11	1275	70.9	6.6
11:18	7.20	1273	71.0	8.8
11:20	7.19	1274	70.9	11.0

Did well dewater? NO If yes, time Volume

Sampling Time 11:24 Weather Conditions

Analysis Gas BTXE Bottles Used

Chain of Custody Number

COMMENTS

FOREMAN F. Cline ASSISTANT

GETTLER-RYAN INC.

General and Environmental Contractors

WELL SAMPLING FIELD DATA SHEET

COMPANY Unocal # 5760 JOB # 9809.80

LOCATION 376 Lewelling Blvd DATE ~~6-4-93~~ 9-9-93

CITY San Lorenzo CA TIME

Well ID. U-6 Well Condition Okay

Well Diameter 3" (2") in. Hydrocarbon Thickness ft.

Total Depth 30.0 ft.

Depth to Liquid ~~14.84~~ 15.56 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 14.44 x(VF) 0.38 0.17 = (Estimated Purge Volume) 2.45 12.3 gal.

Purging Equipment Suction

Sampling Equipment Bailer

Starting Time 12:15 Purging Flow Rate 1.3 gpm.

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

Time	pH	Conductivity	Temperature	Volume
12:17	6.75	1053	72.0	2.6
12:19	6.75	1121	71.5	5.2
12:21	7.06	1126	71.4	7.8
12:23	7.00	1133	71.5	10.4
12:25	7.00	1130	71.4	13.0

Did well dewater? No If yes, time Volume

Sampling Time 12:29 Weather Conditions

Analysis Gas BTXE Bottles Used

Chain of Custody Number

COMMENTS

FOREMAN FCline ASSISTANT

GETTLER-RYAN INC.

General and Environmental Contractors

WELL SAMPLING FIELD DATA SHEET

COMPANY Unocal # 5760 JOB # 9809.80

LOCATION 376 Lewelling Blvd DATE ~~6-4-93~~ 9-9-93

CITY San Lorenzo CA. TIME

Well ID. U-7 Well Condition Okay

Well Diameter 3" (2") in. Hydrocarbon Thickness — ft.

Total Depth 35.0 ft.

Depth to Liquid- 15.23 ~~15.64~~ 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 19.77 x(VF) 0.38 0.17 = (Estimated Purge Volume) 3.36 1.68 gal.

Purging Equipment Suction

Sampling Equipment Bailer

Starting Time 11:48 Purging Flow Rate 1.7 gpm.

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

Time	pH	Conductivity	Temperature	Volume
11:50	7.35	952	67.9	3.4
11:52	6.75	890	66.8	6.8
11:54	6.75	877	66.7	10.2
11:56	6.75	878	66.5	13.6
11:58	6.75	877	66.6	16.9

Did well dewater? No If yes, time Volume

Sampling Time 12:02 Weather Conditions

Analysis Gas BTXE Bottles Used

Chain of Custody Number

COMMENTS

FOREMAN F. Cline ASSISTANT

GETTLER-RYAN INC.

General and Environmental Contractors

WELL SAMPLING FIELD DATA SHEET

COMPANY Unocal # 5760 JOB # 9809.80

LOCATION 376 Lewelling Blvd DATE ~~6-4-93~~ 9-9-93

CITY San Lorenzo CA. TIME

Well ID. U-8 Well Condition okay

Well Diameter 3" (2") in. Hydrocarbon Thickness ft.

Total Depth 35.0 ft.

Depth to Liquid 16.00 16.38 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 18.62 x(VF) 0.38 0.17 = (Estimated Purge Volume) 3.2 16 gal.

Purging Equipment Suction

Sampling Equipment Bailer

Starting Time 12:33 Purging Flow Rate 1.6 gpm.

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

Time	pH	Conductivity	Temperature	Volume
12:35	7.27	877	72.9	3.2
12:37	7.32	867	72.3	6.4
12:39	7.32	869	72.3	9.6
12:41	7.34	861	72.1	12.8
12:43	7.33	863	72.2	16.0

Did well dewater? NO If yes, time Volume

Sampling Time 12:47 Weather Conditions

Analysis Gas BTXE Bottles Used

Chain of Custody Number

COMMENTS

FOREMAN F Cline ASSISTANT

GETTLER-RYAN INC.

General and Environmental Contractors

WELL SAMPLING
FIELD DATA SHEET

COMPANY Unocal # 5760 JOB # 9809.80

LOCATION 376 Lewelling Blvd DATE ~~6-9-93~~ 9-9-93

CITY San Lorenzo CA TIME

Well ID. U-9

Well Condition clear

Well Diameter 3" (2") in.

Hydrocarbon Thickness — ft.

Total Depth 28.7' ft.

Depth to Liquid- 15.79 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 12.91 x(VF) 0.38 0.17 = (Estimated Purge Volume) 2.2 11.0 gal.

Purging Equipment Suction

Sampling Equipment Bailer

Starting Time 11:28 Purging Flow Rate gpm.

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

Time	pH	Conductivity	Temperature	Volume
11:30	7.08	1181	72.0	2.2
11:32	7.20	1170	70.6	4.4
11:34	7.06	1166	69.1	6.6
11:36	7.08	1188	69.5	8.8
11:38	7.07	1189	69.5	11.0

Did well dewater? No If yes, time Volume

Sampling Time 11:42 Weather Conditions

Analysis Gas BTXE Bottles Used

Chain of Custody Number

COMMENTS

FOREMAN Fidel ASSISTANT

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

Inchcape Testing Services
Anametrix Laboratories

1961 Concourse Drive
Suite E
San Jose, CA 95131
Tel: 408-432-8192
Fax: 408-432-8198

MR. TOM PAULSON
GETTLER RYAN/GEOSTRATEGIES
2150 W. WINTON AVENUE
HAYWARD, CA 94566

Workorder # : 9309126
Date Received : 09/10/93
Project ID : 9809.80
Purchase Order: 9809.80

The following samples were received at Anametrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9309126- 1	U-1
9309126- 2	U-2
9309126- 3	U-3
9309126- 4	U-4
9309126- 5	U-5
9309126- 6	U-6
9309126- 7	U-7
9309126- 8	U-8
9309126- 9	U-9
9309126-10	TB

This report consists of 8 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anametrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

Corinne Ham for
Sarah Schoen, Ph.D.
Laboratory Director

09/22/93
Date

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MR. TOM PAULSON
GETTLER RYAN/GEOSTRATEGIES
2150 W. WINTON AVENUE
HAYWARD, CA 94566

Workorder # : 9309126
Date Received : 09/10/93
Project ID : 9809.80
Purchase Order: 9809.80
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9309126- 1	U-1	WATER	09/09/93	TPHgBTEX
9309126- 2	U-2	WATER	09/09/93	TPHgBTEX
9309126- 3	U-3	WATER	09/09/93	TPHgBTEX
9309126- 4	U-4	WATER	09/09/93	TPHgBTEX
9309126- 5	U-5	WATER	09/09/93	TPHgBTEX
9309126- 6	U-6	WATER	09/09/93	TPHgBTEX
9309126- 7	U-7	WATER	09/09/93	TPHgBTEX
9309126- 8	U-8	WATER	09/09/93	TPHgBTEX
9309126- 9	U-9	WATER	09/09/93	TPHgBTEX
9309126-10	TB	WATER	08/31/93	TPHgBTEX

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MR. TOM PAULSON
GETTLER RYAN/GEOSTRATEGIES
2150 W. WINTON AVENUE
HAYWARD, CA 94566

Workorder # : 9309126
Date Received : 09/10/93
Project ID : 9809.80
Purchase Order: 9809.80
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- The concentration reported as gasoline for sample U-6 is primarily due to the presence of a combination of gasoline and a discrete peak not indicative of gasoline.
- The concentration reported as gasoline for sample U-9 is primarily due to the presence of a discrete peak not indicative of gasoline.

Cheryl Bulmer 9/21/93
Department Supervisor Date

Reggie Dawson 9/22/93
Chemist Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9309126
Matrix : WATER
Date Sampled : 09/09/93

Project Number : 9809.80
Date Released : 09/21/93

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# U-1 -01	Sample I.D.# U-2 -02	Sample I.D.# U-3 -03	Sample I.D.# U-4 -04	Sample I.D.# U-5 -05
Benzene	0.5	**2900**	ND	**2800**	ND	ND
Toluene	0.5	**18000**	ND	**10000**	ND	ND
Ethylbenzene	0.5	**6200**	ND	**6500**	ND	ND
Total Xylenes	0.5	**32000**	ND	**31000**	ND	ND
TPH as Gasoline	50	**67000**	ND	**110000**	ND	ND
% Surrogate Recovery		94%	98%	97%	99%	98%
Instrument I.D.		HP4	HP4	HP4	HP4	HP4
Date Analyzed		09/14/93	09/14/93	09/14/93	09/14/93	09/14/93
RLMF		500	1	500	1	1

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.
RLMF - Reporting Limit Multiplication Factor (Dilution).

Anametrix control limits for surrogate p-Bromofluorobenzene recovery are 61-139%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Peggie Davison 9/22/93
Analyst Date

Cheryl Balma 9/21/93
Supervisor Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9309126
Matrix : WATER
Date Sampled : 08/31 & 09/09/93

Project Number : 9809.80
Date Released : 09/21/93

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# U-6 -06	Sample I.D.# U-7 -07	Sample I.D.# U-8 -08	Sample I.D.# U-9 -09	Sample I.D.# TB -10
Benzene	0.5	**29**	ND	ND	ND	ND
Toluene	0.5	ND	ND	ND	ND	ND
Ethylbenzene	0.5	**120**	ND	ND	ND	ND
Total Xylenes	0.5	**34**	ND	ND	ND	ND
TPH as Gasoline	50	**6300**	ND	ND	**1200**	ND
% Surrogate Recovery		122%	99%	93%	126%	99%
Instrument I.D.		HP4	HP4	HP4	HP4	HP21
Date Analyzed		09/14/93	09/14/93	09/14/93	09/15/93	09/17/93
RLMF		10	1	1	2	1

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.
RLMF - Reporting Limit Multiplication Factor (Dilution).

Anametrix control limits for surrogate p-Bromofluorobenzene recovery are 61-139%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Analyst Peggie Davison 9/22/93 Date

Supervisor Cheryl Balmer 9/21/93 Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9309126
Matrix : WATER
Date Sampled : N/A

Project Number : 9809.80
Date Released : 09/21/93

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# BS1401E2 BLANK	Sample I.D.# BS1502E2 BLANK	Sample I.D.# BS1701E2 BLANK
Benzene	0.5	ND	ND	ND
Toluene	0.5	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND
Total Xylenes	0.5	ND	ND	ND
TPH as Gasoline	50	ND	ND	ND
% Surrogate Recovery		97%	92%	105%
Instrument I.D.		HP4	HP4	HP21
Date Analyzed		09/14/93	09/15/93	09/17/93
RLMF		1	1	1

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.
RLMF - Reporting Limit Multiplication Factor (Dilution).

Anametrix control limits for surrogate p-Bromofluorobenzene recovery are 61-139%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Reggie Dawson 9/22/93
Analyst Date

Cheryl Balmer 9/21/93
Supervisor Date

TOTAL VOLATILE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT
EPA METHOD 5030 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : LAB CONTROL SAMPLE
Matrix : WATER
Date Sampled : N/A
Date Analyzed : 09/14/93

Anametrix I.D. : MS1402E1
Analyst : AD
Supervisor : [illegible]
Date Released : 09/21/93
Instrument I.D.: HP4

COMPOUND	SPIKE AMT. (ug/L)	REC LCS (ug/L)	%REC LCS	% REC LIMITS
GASOLINE	500	450	90%	67-127
p-BFB			90%	61-139

* Quality control established by Anametrix, Inc.

TOTAL VOLATILE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT
EPA METHOD 5030 WITH GC/PID
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: LAB CONTROL SAMPLE	Anametrix I.D.	: MS1501E3
Matrix	: WATER	Analyst	: ED
Date Sampled	: N/A	Supervisor	:
Date Analyzed	: 09/15/93	Date Released	: 09/21/93
		Instrument I.D.	: HP4

COMPOUND	SPIKE AMT. (ug/L)	LCS (ug/L)	REC LCS	%REC LIMITS
Benzene	20.0	16.8	84%	52-133
Toluene	20.0	20.9	104%	57-136
Ethylbenzene	20.0	21.2	106%	56-139
TOTAL Xylenes	20.0	22.0	110%	56-141
P-BFB			89%	61-139

* Limits established by Anametrix, Inc.

TOTAL VOLATILE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT
EPA METHOD 5030 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : LAB CONTROL SAMPLE
Matrix : WATER
Date Sampled : N/A
Date Analyzed : 09/17/93

Anametrix I.D. : MS1702E1
Analyst : RD
Supervisor : [signature]
Date Released : 09/21/93
Instrument I.D.: HP21

COMPOUND	SPIKE AMT. (ug/L)	REC LCS (ug/L)	%REC LCS	% REC LIMITS
GASOLINE	500	510	102%	67-127
p-BFB			101%	61-139

* Quality control established by Anametrix, Inc.

Gettler - Ryan Inc. 9309126 (18) ENVIRONMENTAL DIVISION 5259 **Chain of Custody**

COMPANY Unocal #5760 JOB NO.

JOB LOCATION 376 Lewelling Blvd

CITY San Lorenzo CA PHONE NO.

AUTHORIZED Tom Paulson DATE 9-9-93 P.O. NO. 9809.80

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
U-1	3	Liquid	9-9-93 / 13:29	TPH (Gas) BTEX	(1)
U-2			/ 11:00		(2)
U-3			/ 13:08		(3)
U-4			/ 10:37		(4)
U-5			/ 11:24		(5)
U-6			/ 12:29		(6)
U-7			/ 12:02		(7)
U-8			/ 12:47		(8)
U-9			/ 11:42		(9)
TB	2		→		(10)

RELINQUISHED BY: 9-10-93 12:05 RECEIVED BY:

RELINQUISHED BY: RECEIVED BY:

RELINQUISHED BY: RECEIVED BY LAB: Randy C. Falcon 9/10/93 12:05

DESIGNATED LABORATORY: Anametrix DHS #:

REMARKS: Normal TAT

DATE COMPLETED 9-9-93 FOREMAN Ed Cline

ORIGINAL