Unocal Corporation
2000 Crow Canyon Place, Suite 400
P.O. Box 5155
San Ramon, California 94583
Telephone (510) 867-0760
Facsimile (510) 277-2309

UNOCAL 76

January 14, 1993

Mr. David Reimer
41 Kensington Ct.
Kensington, CA 94707

Northern Region
Corporate Environmental
Remediation & Technology

RE:
Access Permission
Lot Southwest of
Unocal Service Station #5760
376 Lewelling Blvd.
San Lorenzo, CA

Neighbor to site.

Dear Mr. Reimer,

The purpose of this letter is to provide you with reports and agency letters, to follow up on our meeting on December 15, 1992 at the subject site and to request that you grant Unocal access to your property for installation of a groundwater monitoring well.

Reports and Agency Letters
Unocal is in the process of assessing groundwater conditions in vicinity of the subject service station. Please refer to plate 4 in the attached Well Installation Report dated June 15, 1992. This map shows the concentration of dissolved gasoline in the groundwater. As you can see, the plume is defined to non-detectable concentrations every direction except toward your property.

Unocal has been requested by Alameda County to further define the extent of contamination in a letter dated July 1, 1992. In response, Unocal submitted a workplan dated September 1, 1992 for the installation of one additional down gradient groundwater monitoring well. Alameda County approved this work plan on September 11, 1992.

Meeting Follow-up
On October 29, 1992, you were contacted by J. E. Mason of Unocal for permission to install a well on your property. On December 15, 1992, I met with you at the site to discuss your concerns about the well installation. I provided you with the names and phone numbers of property owners with groundwater monitoring wells in the vicinity and with contacts at government agencies concerned with the site.

At that time, you suggested that you may grant access if Unocal posted a performance bond. In order for me to address this issue, please provide a written request explaining your rationale and describing the type of bond you require. I will forward this information to our legal and real estate departments for their review and approval.

You also requested references for sites where off-site wells have been decommissioned. I was not able to locate a site where Unocal has installed an off-site well, completed the investigation and cleanup, received closure and abandoned the well in the San Francisco Bay area. Unfortunately, regulatory agencies are reluctant to grant closure on cases with any groundwater contamination.

Please understand that environmental cleanups, especially those that involve groundwater contamination, may require years to complete. You must also understand that cleanups at service stations are relatively new with required investigations and cleanups coming about only in the last few years. Therefore, I have been unable to find a site locally that meets your criteria.

Access Request

I have provided you with the information you requested to the best of my knowledge. It is highly probable that groundwater beneath your site has been or may soon be impacted. I am requesting your cooperation in allowing Unocal to fully investigate the extent of groundwater contamination. Please sign the license agreements provided by J. E. Mason and return them to Unocal.

Please be aware that pursuant to Section 13267 of the California Water Code, by not allowing Unocal access to your property, you may be required by Alameda County and/or the Regional Water Quality Control Board to submit a plan for defining the extent of contamination on your property at your own cost.

Your immediate attention to this matter would be greatly appreciated. If you have any questions or comments, please feel free to call me. I can be reached at (510) 277-2320.

Sincerely,

Penny Silzer
Environmental Geologist
Unocal Corporation

Attachments

cc: R. E. Bock (w/o)
J. L. Cierley (w/o)
N. P. Mead (w/o)
Rich Hiett - RWQCB (w/o)
Juliet Shin - Alameda County
Dave Vossler - GSI (w/o)

GeoStrategies Inc.

WELL INSTALLATION REPORT

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

780902-10

June 15, 1992

GeoStrategies Inc.

June 15, 1992

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 Well Installation Report for the above referenced location. This report presents the results of the installation of four off-site groundwater monitoring wells and the second quarterly ground-water sampling conducted at this site.

If you have any questions or comments, please call.

Very truly yours,

David J. Vossler
Senior Geologist

Enclosure

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

GeoStrategies Inc.

WELL INSTALLATION REPORT

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

780902-10

June 15, 1992

GeoStrategies Inc.
2140 WEST WINTON AVENUE
HAYWARD, CALIFORNIA 94545
(510) 352-4800

June 15, 1992

UNOCAL Corporation
2000 Crow Canyon Place
San Ramon, California 94583

Attn: Ms. Penny Silzer

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

Dear Ms. Silzer:

This Well Installation Report has been prepared for the above referenced site.

If you have any questions, please call.

GeoStrategies Inc. by,

Thomas D. Leavitt
Geologist

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

REGISTERED PROFESSIONAL ENGINEER
DIANE M. LUNDQUIST
NO. C46725
CIVIL
STATE OF CALIFORNIA

TDL/DML/shl

QC Review DJV

1.0 EXECUTIVE SUMMARY

The results of the field activities and chemical analyses for the UNOCAL Service Station No. 5760 in San Lorenzo, California, are summarized below:

- o On January 10, 1992 Gettler-Ryan Inc. (G-R) installed a product skimmer in Well U-1, to expedite product recovery at this site.
- o On March 12 and 13, 1992 four exploratory soil borings were drilled, sampled at five foot intervals and lithologically logged to depths of between 31.5 and 36.5 feet below grade. These borings were completed as ground-water monitoring wells (U-5 through U-8).
- o Selected soil samples were chemically analyzed for Total Petroleum Hydrocarbons calculated as Gasoline (TPH-Gasoline), and Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX). Soil samples submitted for analysis were reported as none detected (ND) for TPH-Gasoline and BTEX.
- o Groundwater samples from Wells U-2 through U-8 were collected by G-R on April 7, 1991. Groundwater samples were analyzed for TPH-Gasoline and BTEX. Groundwater samples collected from Wells U-2, U-4, U-5, U-7 and U-8 were reported as ND for TPH-Gasoline and BTEX. TPH-Gasoline was detected in Wells U-3 and U-6 at concentrations of 97,000 and 6,600 parts per billion (ppb) respectively. Benzene was detected in wells U-3 and U-6 at concentrations of 6,100 and 90 ppb respectively.

2.0 INTRODUCTION

This report has been prepared by GeoStrategies Inc. (GSI) for UNOCAL Service Station No. 5760, located at 376 Lewelling Boulevard, San Lorenzo, California (Plate 1). Four exploratory soil borings were drilled on March 12 and 13, 1992, and completed as ground-water monitoring wells U-5 through U-8. The well locations are shown on Plate 2. Ground-water samples for the second quarter of 1992 were collected on April 7, 1992, by G-R, and submitted for chemical analyses. In addition, a well survey is included identifying water supplies wells and their uses with in a 1/2-mile radius of the site. The results of the field activities and chemical analyses are discussed in this report. Field work was performed to comply with current State of California Water Resources Control Board (SWRCB) guidelines. GSI Field Methods and Procedures were presented in the GSI Site Update/Work Plan Report dated February 22, 1991.

2.1 Site History

The underground storage tanks were replaced at this site during November and December 1987. Well U-1 was installed in February 1988 in response to contamination observed during the underground tank replacement. A ground-water sample collected from monitoring well U-1 on February 9, 1988 contained benzene at a concentration of 3,600 ppb. Woodward-Clyde Consultants (WCC) documented the well installation in a report dated March 25, 1988. On August 6, 1990 GSI installed three additional groundwater monitoring wells (U-2 through U-4). The results of this phase of work are documented in the GSI Well Installation Report dated November 16, 1990.

3.0 SITE ACTIVITIES

3.1 Field Procedures

Four exploratory soil borings (U-5 through U-8) were drilled using a truck-mounted hollow-stem auger rig. Soil samples were collected from approximately 5-foot intervals with a modified California split-spoon sampler fitted with pre-cleaned stainless steel liners. Soil samples were described and exploratory boring logs were prepared by a GSI geologist using the Unified Soil Classification System (ASTM D2488-84) and Munsell Soil Color Charts. Exploratory Boring Logs are presented in Appendix A.

Soil samples retained for chemical analyses were sealed on both ends with aluminum foil and plastic end caps. Samples were then labeled and entered onto a Chain-of-Custody form, and transported in a cooler with blue ice to Sequoia Analytical, a State-certified environmental laboratory located in Redwood City, California.

A 4-inch long stainless steel liner of soil from each sampled interval was used to perform head-space analysis in the field to qualitatively screen for the presence of organic vapors. Head-space analysis involved transferring soil from the stainless steel liners into a clean jar and immediately covering the jar with aluminum foil, secured with a ring-type threaded lid. After approximately 20 minutes, the foil was pierced and the head-space within the jar was tested for organic vapor measured in parts per million (ppm) using an Organic Vapor Meter (OVM) photoionization detector. Head-space analyses are summarized on the Exploratory Boring Logs presented in Appendix A.

3.3 Well Installation

Wells U-5 through U-8 were installed to a depth of between 28.0 and 35.0 feet below ground surface. These wells were constructed using 2-inch-diameter Schedule 40 PVC casing and 0.020-inch machine-slotted well screen. Well screen intervals were extended at least two feet above the first encountered water-bearing zone. Lonestar #2/12 graded sand was placed in the annular space across the entire screened interval, and two feet above the top of the screen. A minimum one-foot bentonite seal followed by a neat-cement grout seal was placed above the sand to just below grade. The wells were completed at ground surface using a water-proof well cap, lock, and traffic-rated vault installed in concrete. Well construction details are presented in Appendix A.

3.4 Soil and Ground-water Analyses

Soil and ground-water samples were analyzed for TPH-Gasoline according to EPA Method 8015 (Modified) and BTEX according to EPA Method 8020. Soil samples were analyzed by Sequoia Analytical, a State-certified laboratory located in Redwood City, California. Ground - water samples were analyzed by National Environmental Testing, Inc. (NET Pacific), located in Santa Rosa, California.

3.5 Potentiometric Data and Floating Product Measurements

Water-levels were measured in site monitoring wells prior to ground-water sampling on April 7, 1992. Water levels were measured with an electronic oil-water interface probe and recorded to the nearest $\pm$0.01 foot, measured from the surveyed top of well box. A potentiometric map prepared from ground-water level data (Plate 3) indicates shallow groundwater flows towards the southwest beneath the site, with an approximate calculated hydraulic gradient of 0.003. Table 1 presents field monitoring data.

The wells were inspected for the presence of floating product with the electronic oil-water interface probe. A clear acrylic bailer was used to visually confirm interface probe results. Floating product was not observed in monitoring wells sampled this quarter. Well U-1 contains a product skimmer.

4.0 HYDROGEOLOGIC CONDITIONS AND SITE GEOLOGY

The site is located approximately 500 feet north of San Lorenzo Creek. Local geology has been described as being flatland Holocene-age alluvial deposits consisting of unconsolidated moderately sorted permeable fine sand, silt, and clayey silt with a few thin beds of coarse sand. (Helley and Lajoie, 1979)

Available boring logs indicate the subsurface lithology consists of interfingering units of clay, silt and sands to a depth of 18 feet, where groundwater was encountered. The aquifer zone consists of a fairly continuous sand layer of between 5 and 10 feet in thickness. Below this sand zone is a clay/silt rich zone approximately 5 to 10 feet in thickness. This clay zone may act locally as a aquitard impeding the vertical migration of petroleum hydrocarbons in soils and groundwater.

Groundwater was first encountered at approximately 18 feet below the surface. The water-bearing zone appears to be unconfined in nature.

5.0 RESULTS

5.1 Soil Chemical Analytical Results

Soil samples from the newly installed Wells U-5 through U-8 were reported as ND for TPH-Gasoline and BTEX. The soil analytical report and Chain-of-Custody Form are presented in Appendix B. These data are summarized in table 2.

5.2 Groundwater Chemical Analytical Results

Groundwater samples collected from Wells U-2, U-4, U-5, U-7 and U-8 were reported as ND for TPH-Gasoline and BTEX. TPH-Gasoline was detected in Wells U-3 and U-6 at concentrations of 97000 and 6600 ppb respectively. Benzene was detected in wells U-3 and U-6 at concentrations of 6100 and 90 ppb respectively. TPH-Gasoline and Benzene Isoconcentration maps are presented on Plates 4 and 5, respectively.

The groundwater analytical report and Chain-of-Custody form are presented in Appendix C. These data are summarized and included in the historical chemical ground-water quality data base presented in Table 3.

5.3 Quality Control

Quality Control (QC) samples for this ground-water sampling included a trip blank (TB) and a duplicate sample (UD-4). The trip blank was prepared in the Sequoia laboratory using organic-free water to evaluate laboratory and field sample handling and transport. The duplicate sample was collected as a split (second sample) to quantitatively assess laboratory procedures and analytical precision. Quality Control analytical results are presented in Appendix C.

6.0 WELL SURVEY RESULTS

A well survey was conducted to identify water supply wells and their uses within a 1/2-mile-radius of the site. This information was obtained from records at the Alameda County Flood Control and Water Conservation District. As indicated on Plate 1, six wells are located within a 1/2-mile-radius of the site. Five wells are up-gradient (No.1 through No.4 and No.6) and one well is cross-gradient (No. 5). Table 4 summarizes well survey data; well number, well location, total depth, year installed, and usage (status of the six wells).

7.0 DISCUSSION

The hydrocarbon plume appears, to be delineated by ND (TPH-Gasoline/Benzene) concentrations; to the east by Wells U-2, to the south by Well U-8, to the northwest by Wells U-4 and U-5, and to the southwest by Well U-7. The downgradient (western) extent of the plume has not been delineated. Well survey data indicate that six wells are located within a 1/2-mile-radius of the site. No wells are located down-gradient within a 1/2-mile of the site.

8.0 RECOMMENDATIONS

- Continue quarterly ground-water monitoring and sampling to assess dissolved hydrocarbon concentrations in the shallow groundwater. An additional groundwater monitoring well will be required downgradient to delineate the hydrocarbon plume.

LIST OF ATTACHMENTS

REFERENCES CITED

GeoStrategies Inc., 1990, Well Installation Report:
Report No. 7809-3, dated November 16, 1990.

Helley, E.J. and others, 1979, Flatland deposits of the San Francisco Bay Region, California - Their geology and engineering properties, and their importance to comprehensive planning:
U.S. Geological Survey Professional Paper 943.

Woodward-Clyde Consultants, 1988, Well Installation Report:
Report No. 8820011A-0015, dated March 25, 1988.

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-2	07-Apr-92	3	30.1	41.62	18.73	----	22.89	5	7.10	64.2	526
U-3	07-Apr-92	3	25.4	39.64	17.12	----	22.52	3	6.91	68.5	1219
U-4	07-Apr-92	3	28.1	40.53	17.96	----	22.57	5	6.93	68.0	1153
U-5	07-Apr-92	2	28.6	39.52	17.16	----	22.36	5	7.42	67.6	1152
U-6	07-Apr-92	2	28.2	37.80	15.47	----	22.33	5	7.10	66.4	1138
U-7	07-Apr-92	2	35.5	37.37	15.12	----	22.25	5	7.18	64.2	841
U-8	07-Apr-92	2	30.1	38.81	16.37	----	22.44	5	7.08	63.7	932

Notes: 1. Static water elevations referenced to Mean Sea Level (MSL).
2. Physical parameter measurements represent stabilized values.
3. Well U-1 contains a product skimmer.

TABLE 2

SOIL ANALYSES DATA

WELL I.D.	SAMPLE DATE	ANALYZED DATE	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)
U-5-16.5	12-Mar-92	16-Mar-92	<1	<0.0050	<0.0050	<0.0050	<0.0050
U-6-16.5	13-Mar-92	13-Mar-92	<1	<0.0050	<0.0050	<0.0050	<0.0050
U-7-16.0	13-Mar-92	16-Mar-92	<1	<0.0050	<0.0050	<0.0050	<0.0050
U-8-16.5	12-Mar-92	16-Mar-92	<1	<0.0050	<0.0050	<0.0050	<0.0050

TPH-G = Total Petroleum Hydrocarbons calculated as Gasoline
PPM = Parts Per Million

Note 1. All data shown as <x are reported as ND (none detected).
2. The last number of the sample I.D. corresponds to the depth below grade the s

TABLE 3

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	PRODUCT SKIMMER INSTALLED IN WELL				
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
23-Aug-90	U-3	110000.	4400.	13000.	2800.	17000.
05-Dec-90	U-3*	49000	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	64000	3300	9700	2800	15000
04-Dec-91	U-3	78000	2500	8100	1900	11000
05-Mar-92	U-3	160000	5300	15000	5400	26000
07-Apr-92	U-3	97000	6100	16000	5400	28000
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

TABLE 3

HISTORICAL GROUND-WATER QUALITY DATABASE

SAMPLE DATE	SAMPLE POINT	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	ETHYLBENZENE (PPB)	XYLENES (PPB)
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
07-Apr-92	U-5	<50	<0.5	<0.5	<0.5	<0.5
07-Apr-92	U-6	6600	90	<0.5	820	1200
07-Apr-92	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

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).

2. *Analytical data for Wells U-3 and U-4 have been changed to reflect the correct values.

3. Ethylbenzene and Xylenes were combined prior to March 1990.

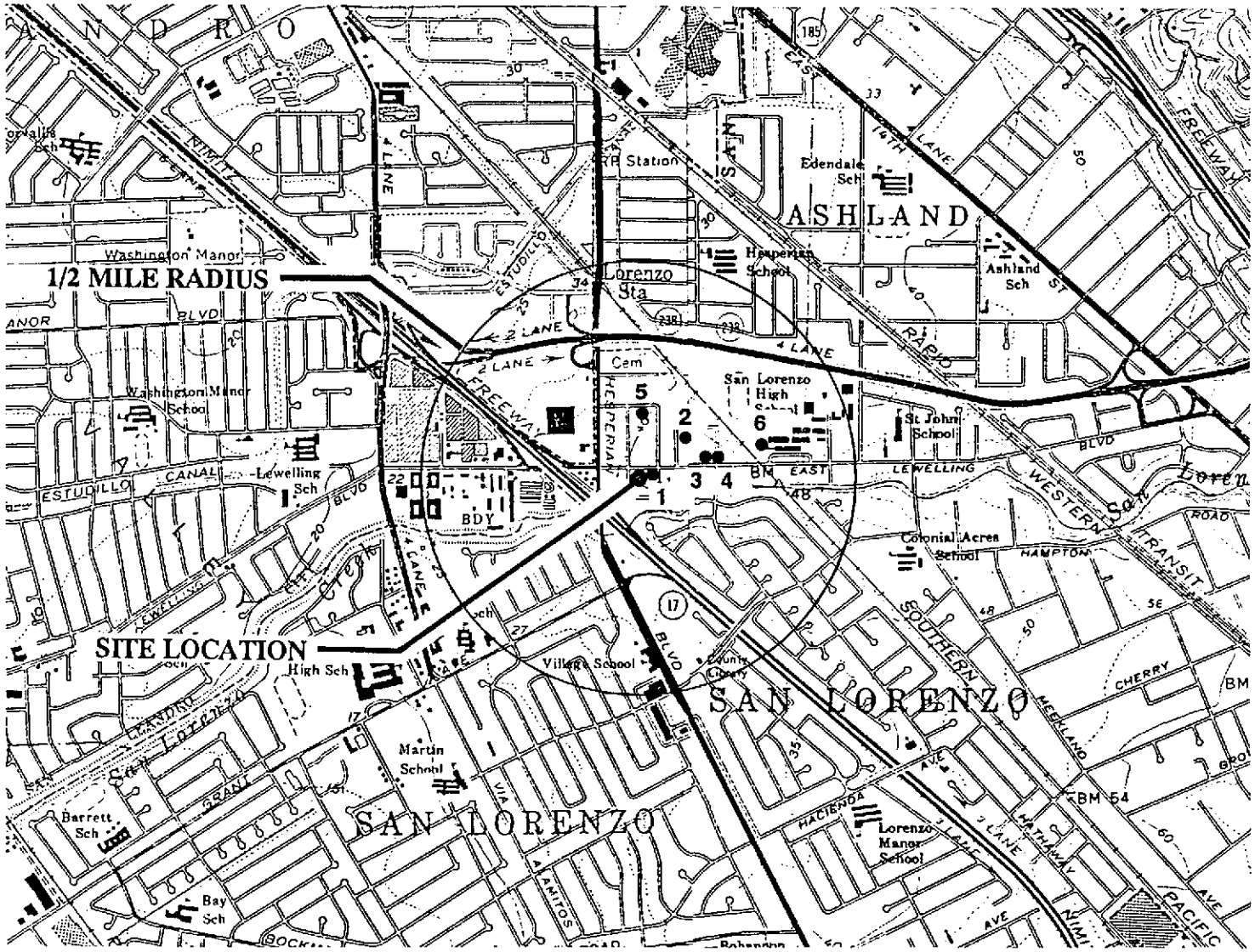
TABLE 4

SUMMARY OF ONE-HALF MILE RADIUS WELL SURVEY
^ UNOCAL Service Station No. 5760
376 Lewelling Boulevard, San Lorenzo, California

MAP ID	WELL NUMBER	WELL LOCATION	TOTAL DEPTH (FT)	YEAR DRILLED	USAGE (STATUS)
1	352W7F1	15559 Usher St.	25	NA	Irrigation
2	352W7F2	15594 Sharon St.	27	1955	Irrigation
3	352W7J4	177 Lewelling Blvd.	48	1946	Irrigation
4	352W7J5	165 Lewelling Blvd.	48	1947	Irrigation
5	352W7G1	Sycamore	270	1935	Irrigation
6	352W7G3	San Lorenzo H.S.	616	1951	Irrigation

Alameda County Flood Control and Water conservation District.
NA = Not Available

Notes: 1. This survey does not include monitoring wells or piezometers located nearby sites where subsurface investigations are on-going as these are not considered water producing wells
2. Information regarding type of and method used for sealing wells is not available.
3. Locations are approximated on the vicinity map (Plate 1).



● Well location

N

0 2000

Scale in Feet

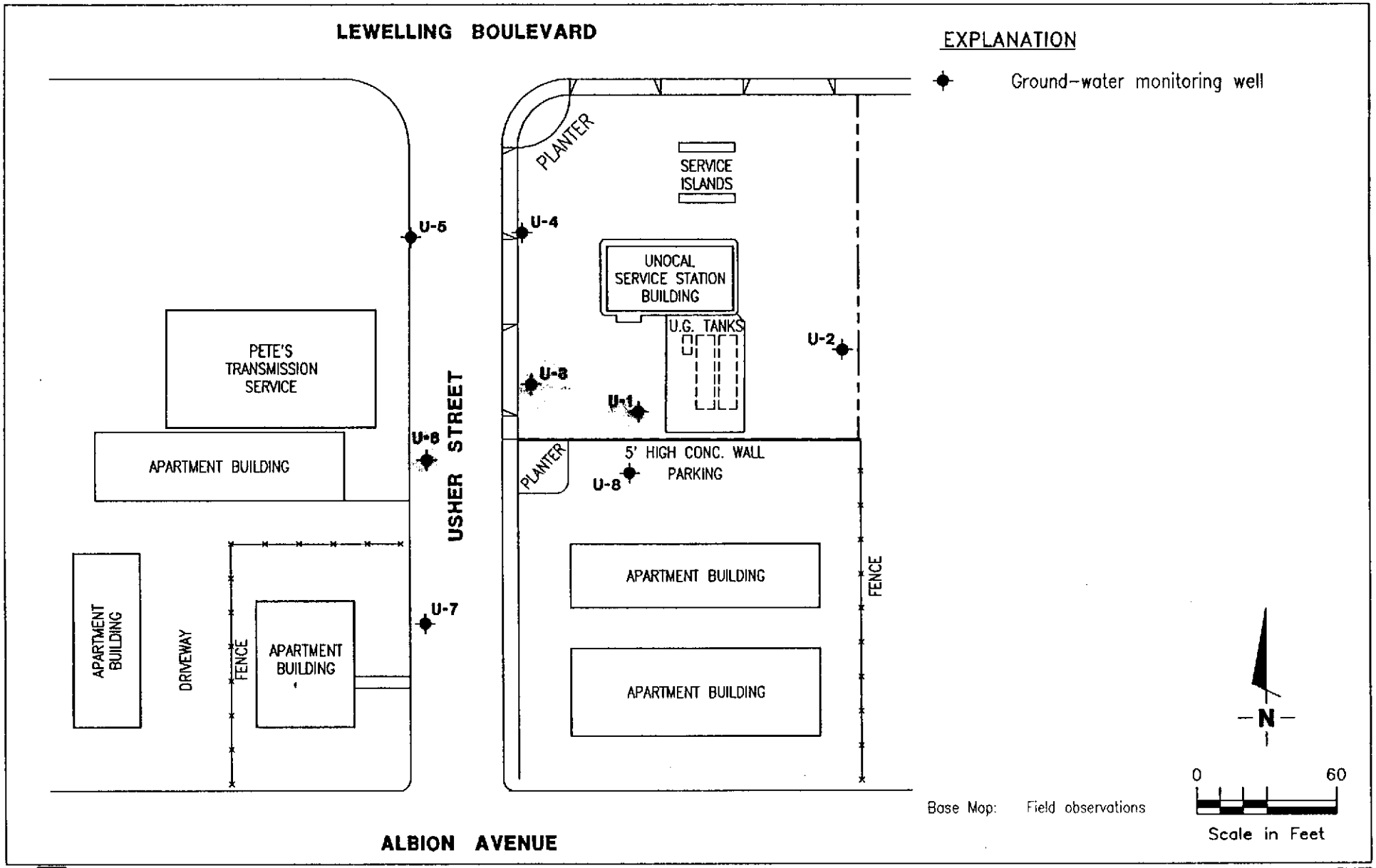
Base Map: USGS Topographic Map

GeoStrategies Inc.

Vicinity Map with 1/2 Mile Well Survey
UNOCAL Service Station #5760
376 Lewelling Boulevard
San Lorenzo, California

PLATE **1**

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
780902-10		5/92	

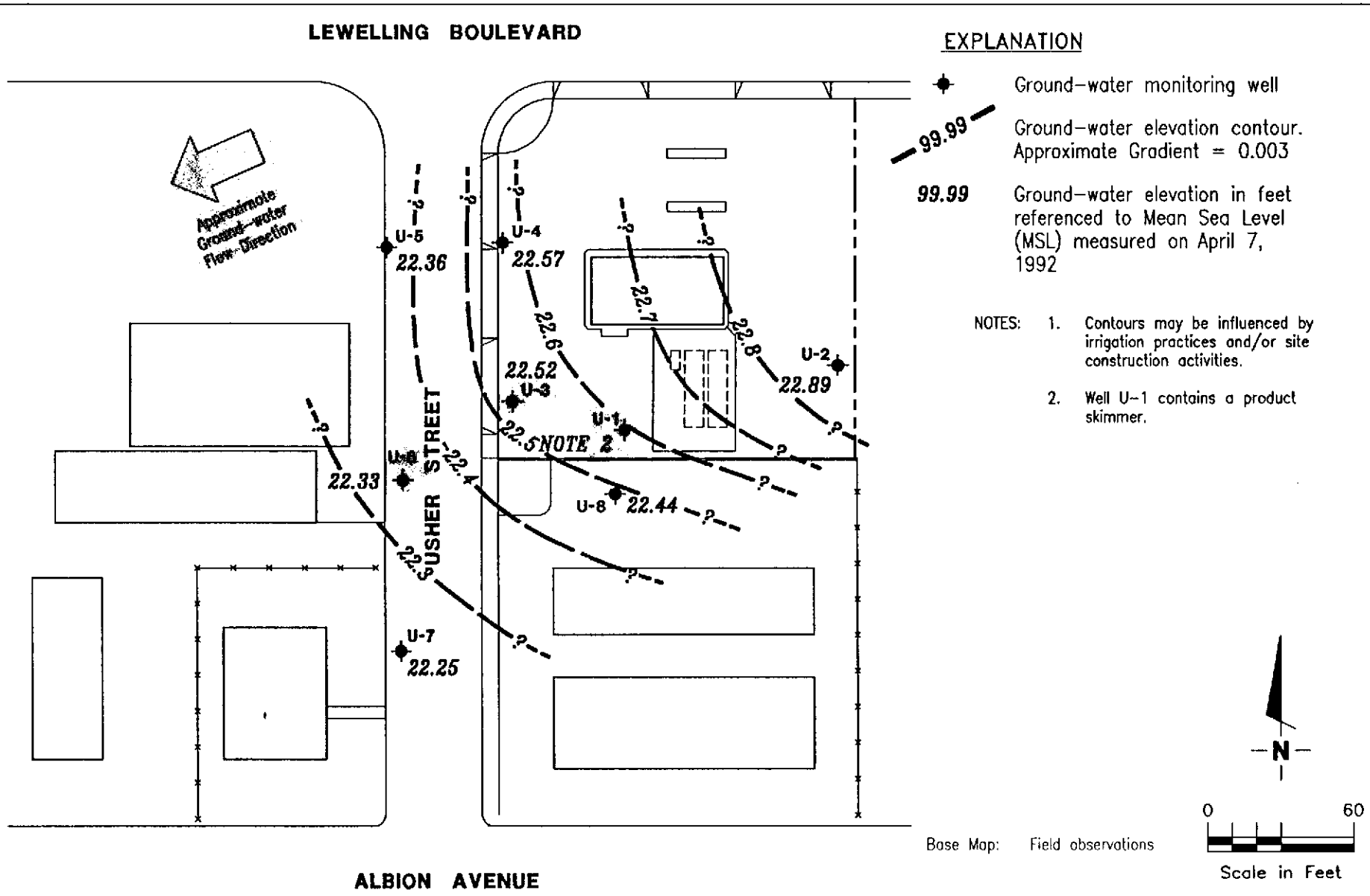


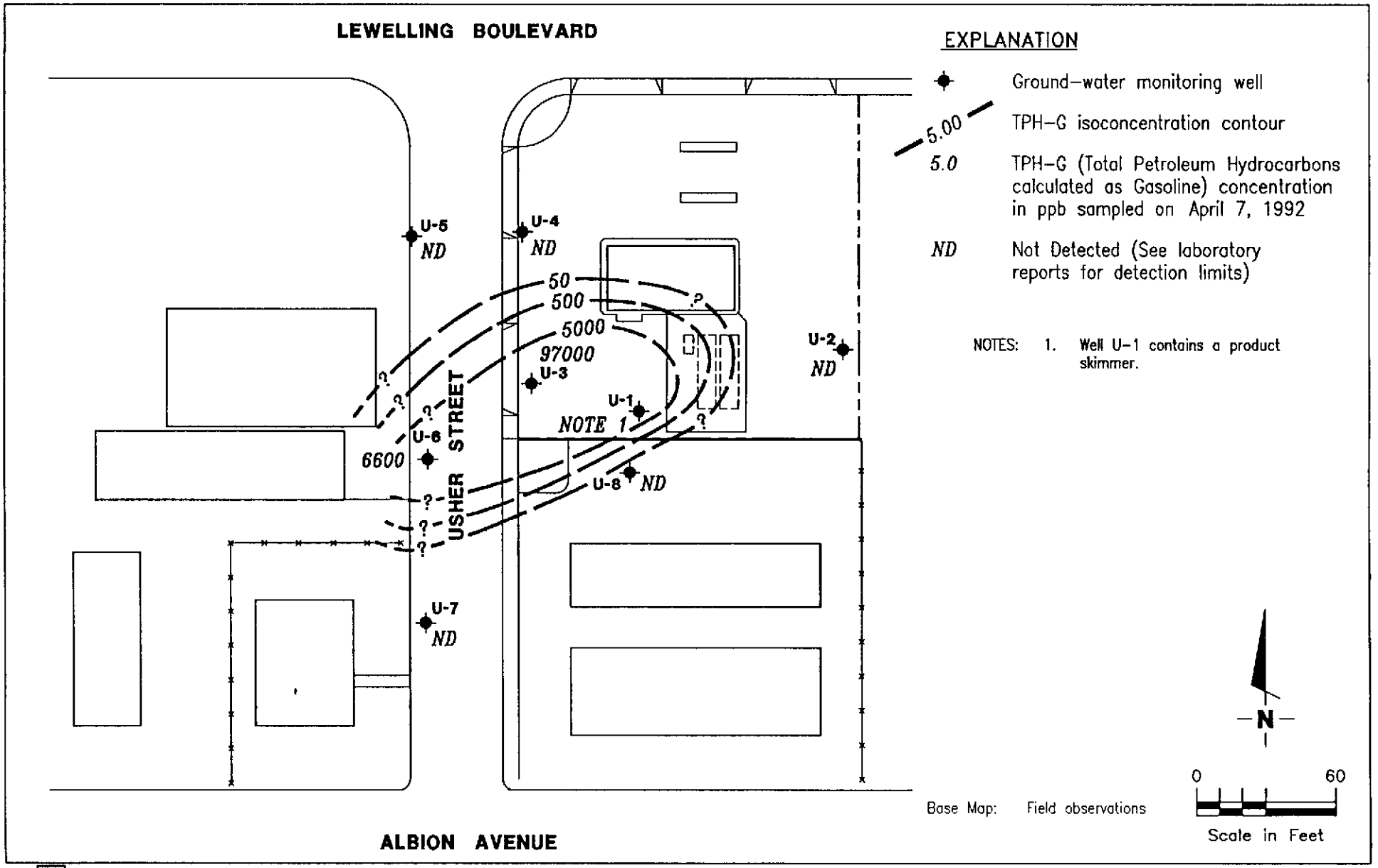
GeoStrategies Inc.

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

PLATE 2

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
7809		5/92	


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 April 7, 1992
NOTES:
1. Contours may be influenced by irrigation practices and/or site construction activities.
2. Well U-1 contains a product skimmer.
Approximate Ground-water Flow Direction
U-5
22.36
U-4
22.57
U-2
22.89
22.52
U-3
U-1
22.5 NOTE 2
U-6
22.33
U-8
22.44
USHER STREET
U-7
22.25
22.7
22.8
22.6
22.1
N
0
60
Scale in Feet
Base Map: Field observations
ALBION AVENUE
GeoStrategies Inc.
POTENTIOMETRIC MAP
UNOCAL Service Station #5760
376 Lewelling Boulevard
San Lorenzo, California
PLATE
3
JOB NUMBER
780902-10
REVIEWED BY
DATE
5/92
REVISED DATE

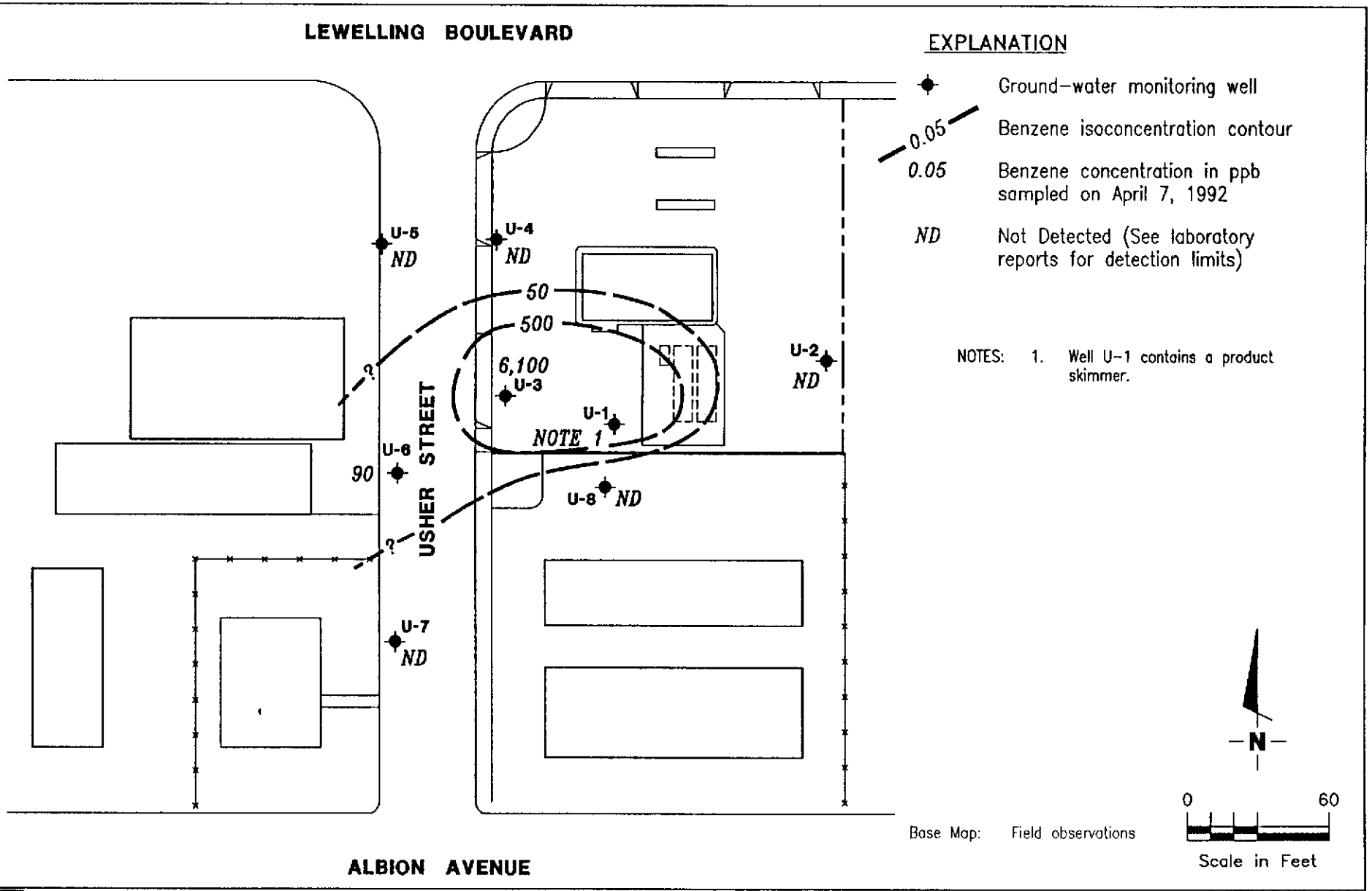


GeoStrategies Inc.

TPH–G ISOCONCENTRATION MAP
UNOCAL Service Station #5760
376 Lewelling Boulevard
San Lorenzo, California

PLATE
4

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
780902–10		5/92	



GeoStrategies Inc.

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

PLATE 5

JOB NUMBER 780902-10

REVIEWED BY

DATE 5/92

REVISED DATE

APPENDIX A

EXPLORATORY BORING LOGS AND WELL CONSTRUCTION DETAILS

MAJOR DIVISIONS					TYPICAL NAMES
COARSE-GRAINED SOILS MORE THAN HALF IS COARSER THAN NO. 200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW		WELL GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES
			GP		POORLY GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES
		GRAVELS WITH OVER 15% FINES	GM		SILTY GRAVELS, SILTY GRAVELS WITH SAND
			GC		CLAYEY GRAVELS, CLAYEY GRAVELS WITH SAND
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LITTLE OR NO FINES	SW		WELL GRADED SANDS WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES
			SP		POORLY GRADED SANDS WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES
		SANDS WITH OVER 15% FINES	SM		SILTY SANDS WITH OR WITHOUT GRAVEL
			SC		CLAYEY SANDS WITH OR WITHOUT GRAVEL
FINE-GRAINED SOILS MORE THAN HALF IS FINER THAN NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50% OR LESS		ML		INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTS WITH SANDS AND GRAVELS
			CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY CLAYS WITH SANDS AND GRAVELS, LEAN CLAYS
			OL		ORGANIC SILTS OR CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50%		MH		INORGANIC SILTS, MICACEOUS OR DIATOMACIOUS, FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH		INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH		ORGANIC SILTS OR CLAYS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS			PT		PEAT AND OTHER HIGHLY ORGANIC SOILS

LL - Liquid Limit (%)

PI - Plastic Index (%)

PID - Volatile Vapors in ppm

MA - Particle Size Analysis

2.5 YR 6/2 - Soil Color according to Munsell Soil Color Charts (1975 Edition)

5 GY 5/2 - GSA Rock Color Chart

☒ - No Soil Sample Recovered

■ - "Undisturbed" Sample

⊠ - Bulk or Classification Sample

▽ - First Encountered Ground Water Level

▼ - Piezometric Ground Water Level

Penetration - Sample drive hammer weight - 140 pounds falling 30 inches. Blows required to drive sampler 1 foot are indicated on the logs

GeoStrategies Inc.

Unified Soil Classification - ASTM D 2488-85 and Key to Test Data

Field location of boring:

(See Plate 2)

Project No.:	780902	Date: 3/12/92	Boring No: U-5
Client:	Unocal Service Station #5760		
Location:	376 Lewelling		
City:	San Lorenzo, California		Sheet 1 of 2
Logged by:	TDL	Driller: W. Hazmat	

Drilling method: Hollow Stem Auger

Hole diameter: 8 Inches

Casing installation data:

Top of Box Elevation: Datum:

Water Level	20.0 Ft	18.0 Ft		
Time	1:20	2:30		
Date	3/12	3/12		

PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
								Pavement Section 1.0 feet
				1				
				2				SAND (SP) dark brown (10 YR 3/3) loose; damp; 100% fine sand; trace fines.
				3				
				4				
				5				
		S&H						
0	18			6				Medium dense at 5.5 feet.
				7				
				8				
				9				
				10				
		S&H						SAND WITH SILT (SW-SM) dark brown (10 YR 3/3)
0	12			11				medium dense; damp; 90% fine sand, 10% silt.
				12				
				13				
				14				
				15				
		S&H						SILT (ML) very dark grayish brown (10 YR 3/2) stiff;
0	9		U-5-16.5	16				damp; 90% silt; 10% fine sand; slightly clayey; rootholes
				17				
				18		▼		
				19				
				20		▽		

Remarks:

GeoStrategies Inc.

Log of Boring

BORING NO. U-5

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
780902		3/90		

Field location of boring:

(See Plate 2)

Project No.:	780902	Date: 3/12/92	Boring No: U-5
Client:	Unocal Service Station #5760		
Location:	376 Lewelling		
City:	San Lorenzo, California		Sheet 2 of 2
Logged by:	TDL	Driller: W. Hazmat	

Casing installation data:

Drilling method: Hollow Stem Auger

Hole diameter: 8 inches

Top of Box Elevation: Datum:

Water Level								
Time								
Date								

PID (ppm)	Blows/ft.* or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
		S&H		21				SAND WITH SILT (SW-SM) very dark gray (10 YR 3/1) medium dense; saturated; 90% fine sand, 10% silt.
0	15							
				22				
				23				
				24				
				25				
		S&H		26				CLAY (CL) dark gray (10 YR 4/1) very stiff; saturated; 95% clay, 5% sand; slightly silty; mottling; nodules.
0	18							
				27				
				28				
				29				
				30				
		S&H		31				SILT WITH SAND (ML) brown (10 YR 4/3) stiff; saturated; 85% silt, 15% fine sand; slightly clayey.
0	8							
				32				
				33				Bottom of boring 31.5 feet.
				34				3/12/92
				35				
				36				
				37				
				38				
				39				
				40				

Remarks: Quickly saw 2 blades, 9809

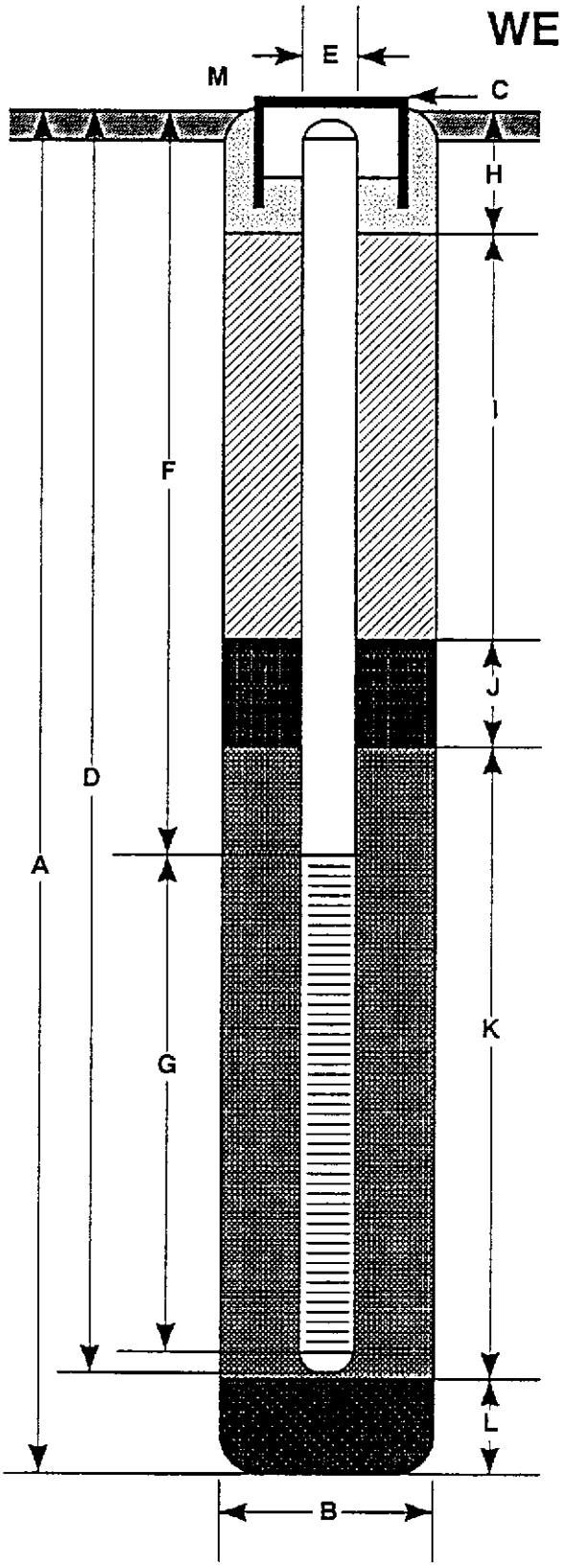
GeoStrategies Inc.

Log of Boring

BORING NO. U-5

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
780902		3/92		

WELL CONSTRUCTION DETAIL



A Total Depth of Boring 31.5 ft.

B Diameter of Boring 8 in.
Drilling Method Hollow Stem Auger

C Top of Box Elevation 39.52 ft.
[X] Referenced to Mean Sea Level
[ ] Referenced to Project Datum

D Casing Length 30 ft.
Material Schedule 40 PVC

E Casing Diameter 2 in.

F Depth to Top Perforations 15 ft.

G Perforated Length 15 ft.
Perforated Interval from 15 to 30 ft.
Perforation Type Machine slot
Perforation Size 0.02 in.

H Surface Seal from 0 to 1 ft.
Seal Material Cement

I Backfill from 1 to 11 ft.
Backfill Material 11-Sack cement

J Seal from 11 to 13 ft.
Seal Material Bentonite

K Gravel Pack from 13 to 30 ft.
Pack Material Lone Star 2/12

L Bottom Seal None ft.
Seal Material

M Traffic-rated vault, locking cap and lock

Note: Depths measured from initial ground surface.

GeoStrategies Inc.

Well Construction Detail

WELL NO.
U-5

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
780902		3/92		

Field location of boring:

(See Plate 2)

Project No.: 780902	Date: 3/13/92	Boring No: U-6	
Client: Unocal Service Station #5760			
Location: 376 Lewelling			
City: San Lorenzo, California		Sheet 1 of 2	
Logged by: TDL	Driller: W. Hazmat		

Drilling method: Hollow Stem Auger

Hole diameter: 8 Inch

Casing installation data:

Top of Box Elevation: Datum:

Water Level	20.0 Ft.			
Time	10:40			
Date	3/13			

PID (ppm)	Blows/ft.* or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
				1				Pavement section 1.0 foot
		S&H		6				SAND (SP) brown (10 YR 4/3) loose; damp; 100% fine
0	5							sand; trace clay
		S&H		11				SILT (ML) dark gray (10 YR 4/1) stiff; damp; 90% silt,10%
0	11							fine sand, trace clay.
		S&H		16				Rootholes, mottling.
0	8		U-6-16.5					

Remarks:

* Converted to equivalent Standard Penetration blows/ft.

GeoStrategies Inc.

Log of Boring

BORING NO. U-6

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
780902		3/92		

Field location of boring:

(See Plate 2)

Project No.: 7809	Date: 3/13/92	Boring No: U-6	
Client: Unocal Service Station #5760			
Location: 376 Lewelling			
City: San Lorenzo, California		Sheet 2 of 2	
Logged by: TDL	Driller: W. Hazmat		

Drilling method: Hollow Stem Auger

Hole diameter: 8 Inches

Casing installation data:

Top of Box Elevation: Datum:

Water Level				
Time				
Date				

PID (ppm)	Blows/ft.* or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
		S&H		21				SAND (SP) dark gray (5 YR 4/1) medium dense; saturated; 100% fine sand.
0	12							
				22				CLAY (CL) very dark gray (5 YR 3/1) stiff; saturated; 90% clay, 10% sand, trace silt.
				23				
				24				
				25				Color change to olive (5 YR 5/3) , very stiff; mottling at 25 feet.
0	26	S&H		26				
				27				
				28				
				29				
				30				
		S&H		31				SILT (ML) brown (10 YR 5/3) very stiff; saturated; 80% silt, 20% sand, slightly clayey; mottling.
0	26							SAND (SP) brown (10 YR 4/3) dense; saturated; 100% fine sand, slightly clayey.
				32				
				33				
				34				
				35				Bottom of boring 31.5 feet.
				36				3/13/92
				37				
				38				
				39				
				40				

Remarks:

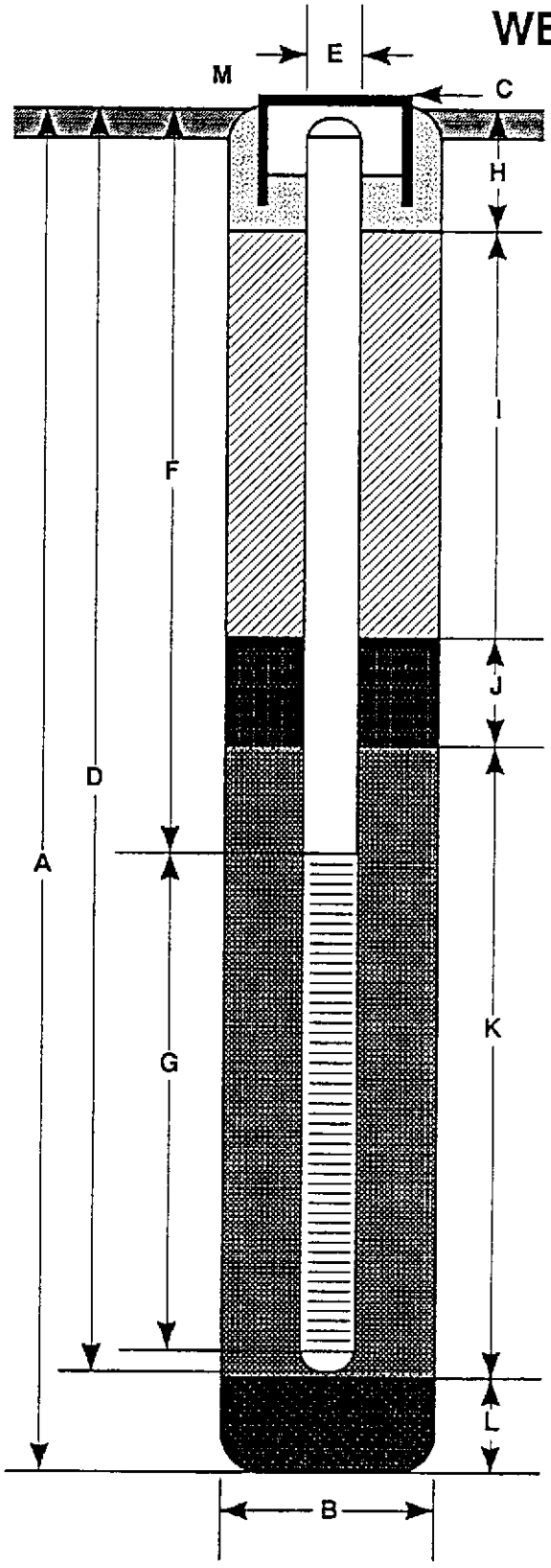
GeoStrategies Inc.

Log of Boring

BORING NO. U-6

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
780902		3/92		

WELL CONSTRUCTION DETAIL



A Total Depth of Boring 31.5 ft.

B Diameter of Boring 8 in.
Drilling Method Hollow Stem Auger

C Top of Box Elevation 37.80 ft.
[X] Referenced to Mean Sea Level
[ ] Referenced to Project Datum

D Casing Length 28 ft.
Material Schedule 40 PVC

E Casing Diameter 2 in.

F Depth to Top Perforations 13 ft.

G Perforated Length 15 ft.
Perforated Interval from 13 to 28 ft.
Perforation Type Factory Slot
Perforation Size 0.02 in.

H Surface Seal from 0 to 1 ft.
Seal Material Cement

I Backfill from 1 to 9 ft.
Backfill Material 11-Sack cement

J Seal from 9 to 11 ft.
Seal Material Bentonite

K Gravel Pack from 11 to 28 ft.
Pack Material Lonestar 2/12

L Bottom Seal 2 ft.
Seal Material Bentonite

M Traffic-rated vault, locking cap and lock

Note: Depths measured from initial ground surface.

GeoStrategies Inc.

Well Construction Detail

WELL NO.
U-6

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
780902		3/92		

Field location of boring: (See Plate 2)	Project No.: 780902	Date: 3/13/92	Boring No: U-7
	Client: Unocal Service Station #5760		
	Location: 376 Lewelling		
	City: San Lorenzo, California		Sheet 1 of 2
	Logged by: TDL	Driller: W. Hazmat	
Drilling method: Hollow Stem Auger	Casing installation data:		
Hole diameter: 8-inch	Top of Box Elevation:	Datum:	

Water Level	20.0 Ft.	
Time	1:40	
Date	3/13	

PID (ppm)	Blows/ft.* or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
				1				Pavement section 1.0 foot
				2				SAND (SP) brown (10 YR 4/3) loose; damp; 100% fine sand; roots
				3				
				4				
				5				Medium dense at 5 feet.
0	19	S&H		6				
				7				
				8				
				9				
				10				
		S&H		11				Color change to olive gray (5 YR 4/2); roots.
0	22			12				
				13				
				14				
				15				
		S&H	U-7-	16				CLAY (CL) very dark grayish brown (10 YR 3/2) stiff; moist; trace sand.
0	11		16.0	17				
				18				
				19				
				20		▽		Saturated at 20 feet.

Remarks:

* Converted to equivalent Standard Penetration blows/ft.

GeoStrategies Inc.

Log of Boring

BORING NO. U-7

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
780902		3/92		

Field location of boring:	Project No.: 780902	Date: 3/13/92	Boring No:
(See Plate 2)	Client: Unocal Service Station #5760		U-7
	Location: 376 Lewelling		
	City: San Lorenzo, California		Sheet 2
	Logged by: TDL	Driller: W. Hazmat	of 2

Drilling method: Hollow Stem Auger

Hole diameter: 8 inches

Casing installation data:

Top of Box Elevation: Datum:

Water Level	20.0 Ft.			
Time	12:10			
Date	3/13			

PID (ppm)	Blows/ft.* or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
				20				No sample recovery (heaving sands)
				21				
				22				
				23				
				24				
				25				
		S&H						SAND (SP) dark gray (10 YR 4/1) medium dense;
0	23			26				saturated; 100% medium to coarse subrounded sand.
				27				
				28				
		S&H		29				
0	18			30				
				31				
				32				
				33				
				34				
				35				CLAY (CL) brown (10 YR 5/3) very stiff; saturated; 100%
0	19	S&H		36				fines, slightly silty.
				37				Bottom of boring 36.5 feet.
				38				3/13/92
				39				
				40				

Remarks:

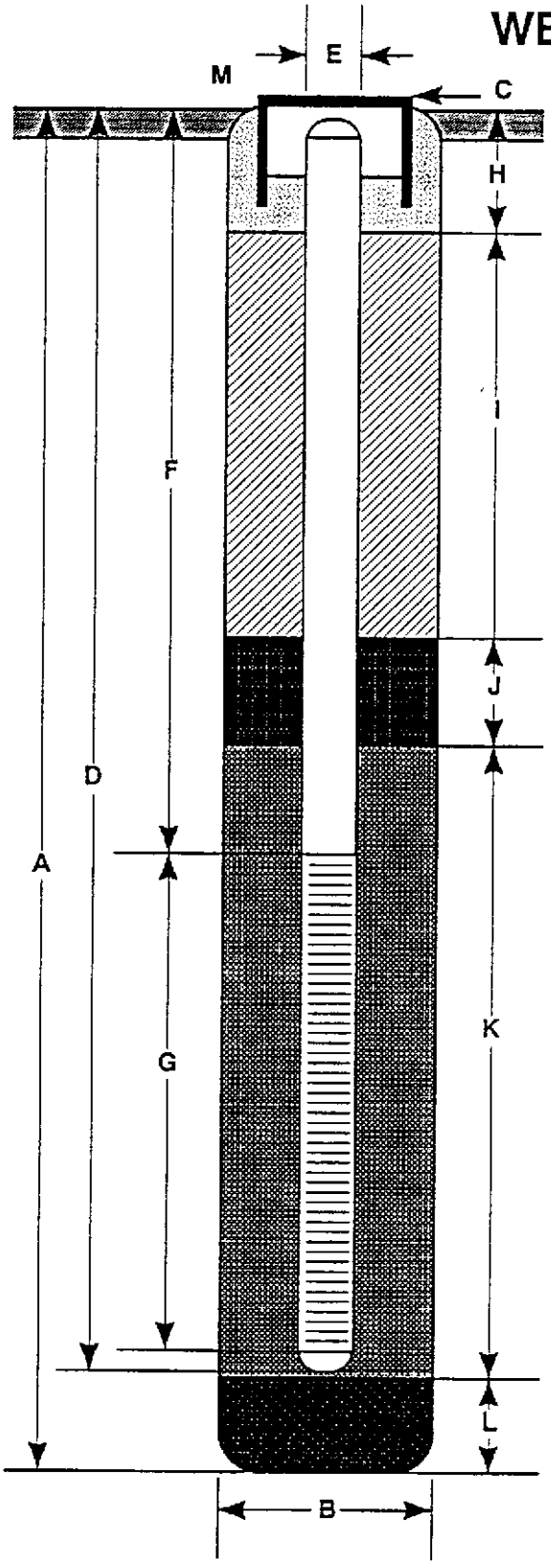
GeoStrategies Inc.

Log of Boring

BORING NO. U-7

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
780902		3/92		

WELL CONSTRUCTION DETAIL



A Total Depth of Boring 36.5 ft.

B Diameter of Boring 8 in.
Drilling Method Hollow Stem Auger

C Top of Box Elevation 37.37 ft.
[X] Referenced to Mean Sea Level
[ ] Referenced to Project Datum

D Casing Length 35 ft.
Material Schedule 40 PVC

E Casing Diameter 2 in.

F Depth to Top Perforations 15 ft.

G Perforated Length 20 ft.
Perforated Interval from 15 to 35 ft.
Perforation Type Machine slot
Perforation Size 0.02 in.

H Surface Seal from 0 to 1 ft.
Seal Material Cement

I Backfill from 1 to 11 ft.
Backfill Material 11-Sack cement

J Seal from 11 to 13 ft.
Seal Material Bentonite

K Gravel Pack from 13 to 35 ft.
Pack Material Lonestar 2/12

L Bottom Seal none ft.
Seal Material

M Traffic-rated vault, locking cap and lock.

Note: Depths measured from initial ground surface.

GeoStrategies Inc.

Well Construction Detail

WELL NO. U-7

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
780902		3/92		

Field location of boring:

(See Plate 2)

Project No.:	780902	Date: 3/12/92	Boring No. U-8
Client:	Unocal Service Station #5760		
Location:	376 Lewelling		
City:	San Lorenzo, California		Sheet 1 of 2
Logged by:	TDL	Driller: W. Hazmat	

Drilling method: Hollow Stem Auger

Hole diameter: 8 inch

Casing installation data:

Top of Box Elevation: Datum:

Water Level	20 Ft.	17.5 Ft.		
Time	10:30	2:30		
Date	3/12	3/12		

PID (ppm)	Blows/ft.* or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
				1				Pavement section 1.0 foot
				2				SANDY CLAY (CL) very dark grayish brown (10 YR 3/2) soft; damp; 60% clay; 40% fine sand.
		S&H		5				
0	7			6				SAND WITH SILT (SW-SM) dark brown (10 YR 3/3) loose; damp; 90% fine sand; 10% silt.
		S&H		10				
0	7			11				SANDY CLAY (CL) dark gray (10 YR 4/1) stiff; damp; 70% clay, 30% fine sand; mottled; rootholes.
		S&H		15				
0	12		U-8-16.5	16				Decrease sand to 10%
				18		▼		
				20		▽		

Remarks:

* Converted to equivalent Standard Penetration blows/ft.

GeoStrategies Inc.

Log of Boring

BORING NO. U-8

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
780902		3/92		

Field location of boring:	Project No.: 780902	Date: 3/12/92	Boring No:
(See Plate 2)	Client: Unocal Service Station #5760		U-8
	Location: 376 Lewelling		
	City: San Lorenzo, California		Sheet 2
	Logged by: TDL	Driller: W. Hazmat	of 2
Drilling method: Hollow Stem Auger	Casing installation data:		
Hole diameter: 8 Inches	Top of Box Elevation:	Datum:	

	Water Level			
	Time			
	Date			

PID (ppm)	Blows/ft.* or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
		S&H		21				SAND (SP) brown (10 YR 4/3) medium dense; saturated;
0	26							80% fine sand, 20% medium sand
				22				
				23				
				24				
				25				
		S&H		26				CLAY (CL) very dark gray (10 YR 3/1) very stiff;
0	24							saturated; 80% clay, 20% silt; trace firm sand.
				27				
				28				
				29				
				30				
		S&H		31				SILT WITH SAND (ML) dark grayish brown (10 YR 4/2)
0	23							very stiff; saturated; 75% silt; 25% fine sand,
				32				moderately clay.
				33				
				34				Bottom of boring 31.5 feet.
				35				3/12/92
				36				
				37				
				38				
				39				
				40				

Remarks:

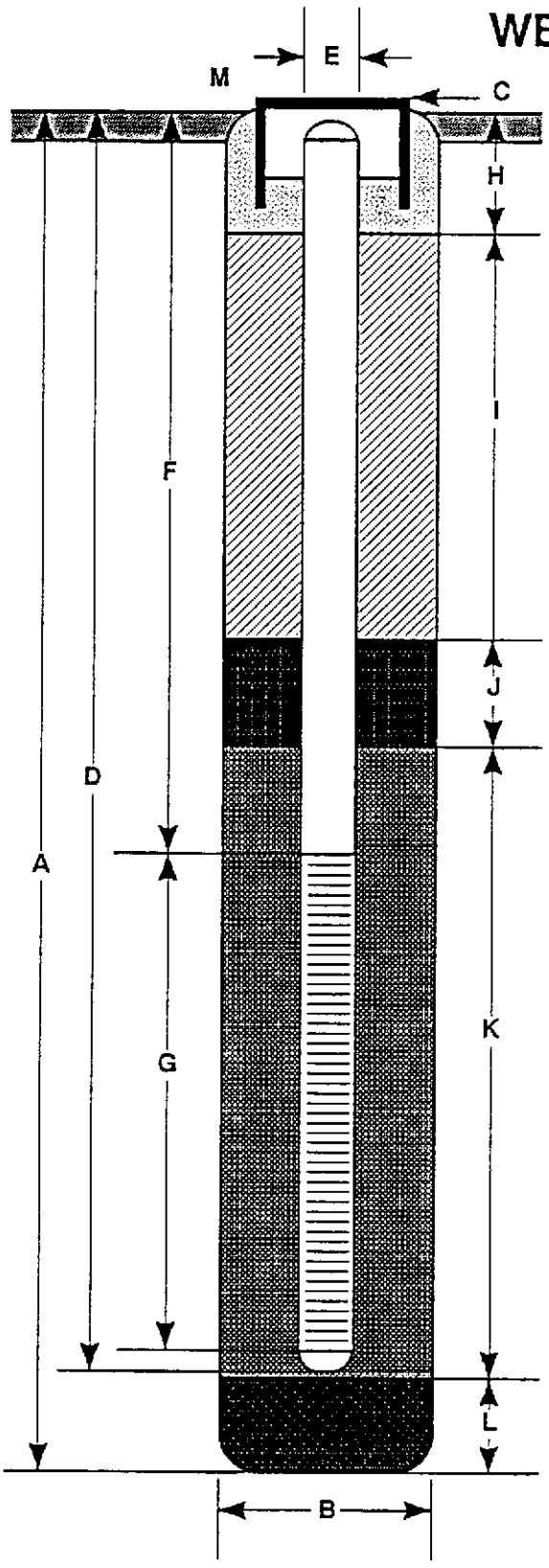
GeoStrategies Inc.

Log of Boring

BORING NO. U-8

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
780902		3/92		

WELL CONSTRUCTION DETAIL



A Total Depth of Boring 31.5 ft.

B Diameter of Boring 8 in.
Drilling Method Hollow Stem Auger

C Top of Box Elevation 38.81 ft.
[X] Referenced to Mean Sea Level
[ ] Referenced to Project Datum

D Casing Length 30 ft.
Material Schedule 40 PVC

E Casing Diameter 2 in.

F Depth to Top Perforations 15 ft.

G Perforated Length 15 ft.
Perforated Interval from 15 to 30 ft.
Perforation Type Machine slot
Perforation Size 0.02 in.

H Surface Seal from 0 to 1 ft.
Seal Material Cement

I Backfill from 1 to 11 ft.
Backfill Material 11-Sack cement

J Seal from 11 to 13 ft.
Seal Material Bentonite

K Gravel Pack from 13 to 30 ft.
Pack Material Lone Star, 2/12

L Bottom Seal None ft.
Seal Material

M Traffic-rate vault, locking cap and lock

Note: Depths measured from initial ground surface.

GeoStrategies Inc.

Well Construction Detail

WELL NO. U-8

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
780902		3/92		

APPENDIX B

SOIL LABORATORY ANALYTICAL REPORT AND CHAIN-OF-CUSTODY FORM

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Gettler Ryan	Client Project ID:	Unocal 5760, San Lorenzo	Sampled:	Mar 13, 1992
2150 W. Winton Avenue	Matrix Descript:	Soil	Received:	Mar 13, 1992
Hayward, CA 94545	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Mar 16, 1992
Attention: Penny Silzer	First Sample #:	203-2474	Reported:	Mar 23, 1992

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
203-2474	UP-1 A-D	N.D.	N.D.	N.D.	N.D.	N.D.
203-2475	U-5-16.5	N.D.	N.D.	N.D.	N.D.	N.D.
203-2476	U-6-16.5	N.D.	N.D.	N.D.	N.D.	N.D.
203-2477	U-7-16.0	N.D.	N.D.	N.D.	N.D.	N.D.
203-2478	U-8-16.5	N.D.	N.D.	N.D.	N.D.	N.D.
Detection Limits:		**1.0**	**0.0050**	**0.0050**	**0.0050**	**0.0050**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Vickie Tague
Project Manager

2032474.GET <1>

809.02

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Gettler Ryan	Client Project ID:	Unocal 5760, San Lorenzo	Sampled:	Mar 13, 1992
2150 W. Winton Avenue	Sample Descript:	Soil	Received:	Mar 13, 1992
Hayward, CA 94545	Analysis Method:	California LUFT Manual, 12/87		
Attention: Penny Silzer	First Sample #:	293-2474	Analyzed:	Mar 17, 1992
			Reported:	Mar 23, 1992

ORGANIC LEAD

Sample Number	Sample Description	Sample Results mg/kg (ppm)
293-2474	UP-1 A-D	0.11

Detection Limits:	0.050

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Vickie Tague
Project Manager

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Gettler Ryan
2150 W. Winton Avenue
Hayward, CA 94545
Attention: Penny Silzer

Client Project ID: Unocal 5760, San Lorenzo

QC Sample Group: 2032474-78

Reported: Mar 23, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	C. Donohue	C. Donohue	C. Donohue	C. Donohue
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Mar 16, 1992	Mar 16, 1992	Mar 16, 1992	Mar 16, 1992
QC Sample #:	GBLK031692	GBLK031692	GBLK031692	GBLK031692
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.20	0.20	0.20	0.60
Conc. Matrix Spike:	0.18	0.17	0.18	0.52
Matrix Spike % Recovery:	90	85	90	87
Conc. Matrix Spike Dup.:	0.18	0.18	0.18	0.54
Matrix Spike Duplicate % Recovery:	90	90	90	83
Relative % Difference:	0.0	5.7	0.0	3.8

SEQUOIA ANALYTICAL

Vickie Tague
Project Manager

% Recovery: $\frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$

Relative % Difference: $\frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}} \times 100$

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Gettler Ryan
2150 W. Winton Avenue
Hayward, CA 94545
Attention: Penny Sllzer

Client Project ID: Unocal 5760, San Lorenzo

QC Sample Group: 203-2474

Reported: Mar 23, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Organic Lead

Method:	LUFT
Analyst:	S. Chin
Reporting Units:	mg/kg
Date Analyzed:	Mar 17, 1992
QC Sample #:	203-2475

Sample Conc.:	N.D.
Spike Conc. Added:	0.12
Conc. Matrix Spike:	0.11
Matrix Spike % Recovery:	92
Conc. Matrix Spike Dup.:	0.11
Matrix Spike Duplicate % Recovery:	92
Relative % Difference:	0.0

SEQUOIA ANALYTICAL

Vickie Tague
Project Manager

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

Gettler - Ryan Inc. — ENVIRONMENTAL DIVISION — 1313 **Chain of Custody**

COMPANY UNOCAL JOB NO. 780902

JOB LOCATION 376 Lewelling SS# 5760

CITY SAN LORENZO PHONE NO.

AUTHORIZED Penny Sitzer DATE P.O. NO.

COPY

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
UP-1A	1	Soil		Composite TPH-Gas/BTEX Org. Lead	2032474
UP-1B	1				
UP-1C	1				
UP-1D	1				
U-5-16.5	one	Soil		TPH-Gas/BTEX	2032475
U-6-16.5					76
U-7-16.0					77
U-8-16.5					78

RELINQUISHED BY: Thomas Gettler 16:40 3/13/92

RECEIVED BY: T. Gettler

RELINQUISHED BY: T. Gettler 1730 3/13/92

RECEIVED BY: A. Nagel

RELINQUISHED BY:

RECEIVED BY LAB:

DESIGNATED LABORATORY: DHS #:

REMARKS: Normal Tat

DATE COMPLETED FOREMAN

APPENDIX C
GROUNDWATER 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

John Werfal
Gettler-Ryan Inc.
2150 W. Winton Avenue
Hayward, CA 94545

Date: 04/27/1992
NET Client Acct No: 67900
NET Pacific Job No: 92.1968
Received: 04/09/1992
REVISED: 05-01-92

Client Reference Information

Unocal Corp. 376 Lewelling Blvd. San Lorenzo, SS: 5760

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)

NET Pacific, Inc

Client No: 67900 Date: 04/27/1992
Client Name: Gettler-Ryan Inc.
NET Job No: 92.1968 Page: 2

Ref: Unocal Corp. 376 Lewelling Blvd. San Lorenzo, SS: 5760

Descriptor, Lab No. and Results

Parameter	Method	Reporting Limit	U-2 04/07/1992 11:26 119356	U-3 04/07/1992 12:03 119357	Units
TPH (Gas/BTXE,Liquid)					
METHOD 5030 (GC,FID)			--	--	
DATE ANALYZED			04-21-92	04-21-92	
DILUTION FACTOR*			1	100	
as Gasoline	5030	50	ND	97,000	ug/L
METHOD 8020 (GC,Liquid)			--	--	
DATE ANALYZED			04-21-92	04-22-92	
DILUTION FACTOR*			1	500	
Benzene	8020	0.5	ND	6,100	ug/L
Ethylbenzene	8020	0.5	ND	5,400	ug/L
Toluene	8020	0.5	ND	16,000	ug/L
Xylenes (Total)	8020	0.5	ND	28,000	ug/L
SURROGATE RESULTS			--	--	
Bromofluorobenzene	5030		106	122	% Rec.

NET Pacific, Inc

Client No: 67900 Date: 04/27/1992
Client Name: Gettler-Ryan Inc.
NET Job No: 92.1968 Page: 3

Ref: Unocal Corp. 376 Lewelling Blvd. San Lorenzo, SS: 5760

Descriptor, Lab No. and Results

Parameter	Method	Reporting Limit	U-4 04/07/1992 10:33 119358	U-5 04/07/1992 09:23 119359	Units
TPH (Gas/BTXE,Liquid)					
METHOD 5030 (GC,FID)			--	--	
DATE ANALYZED			04-21-92	04-21-92	
DILUTION FACTOR*			1	1	
as Gasoline	5030	50	ND	ND	ug/L
METHOD 8020 (GC,Liquid)			--	--	
DATE ANALYZED			04-21-92	04-21-92	
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		99	97	% Rec.

NET Pacific, Inc

Client No: 67900 Date: 04/27/1992
Client Name: Gettler-Ryan Inc.
NET Job No: 92.1968 Page: 4

Ref: Unocal Corp. 376 Lewelling Blvd. San Lorenzo, SS: 5760

Descriptor, Lab No. and Results

Parameter	Method	Reporting Limit	U-6 04/07/1992 09:40 119360	U-7 04/07/1992 09:56 119361	Units
TPH (Gas/BTXE,Liquid)					
METHOD 5030 (GC,FID)			--	--	
DATE ANALYZED			04-21-92	04-21-92	
DILUTION FACTOR*			10	1	
as Gasoline	5030	50	6,600	ND	ug/L
METHOD 8020 (GC,Liquid)			--	--	
DATE ANALYZED			04-21-92	04-21-92	
DILUTION FACTOR*			10	1	
Benzene	8020	0.5	90	ND	ug/L
Ethylbenzene	8020	0.5	820	ND	ug/L
Toluene	8020	0.5	ND	ND	ug/L
Xylenes (Total)	8020	0.5	1,200	ND	ug/L
SURROGATE RESULTS			--	--	
Bromofluorobenzene	5030		119	98	% Rec.

NET Pacific, Inc

Client No: 67900 Date: 04/27/1992
Client Name: Gettler-Ryan Inc.
NET Job No: 92.1968 Page: 5

Ref: Unocal Corp. 376 Lewelling Blvd. San Lorenzo, SS: 5760

Descriptor, Lab No. and Results

Parameter	Method	Reporting Limit	U-8 04/07/1992 10:14 119362	UD-4 04/07/1992 119363	Units
TPH (Gas/BTXE,Liquid)					
METHOD 5030 (GC,FID)			--	--	
DATE ANALYZED			04-21-92	04-21-92	
DILUTION FACTOR*			1	1	
as Gasoline	5030	50	ND	ND	ug/L
METHOD 8020 (GC,Liquid)			--	--	
DATE ANALYZED			04-21-92	04-21-92	
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		70	94	% Rec.

NET Pacific, Inc

Client No: 67900 Date: 04/27/1992
Client Name: Gettler-Ryan Inc.
NET Job No: 92.1968 Page: 6

Ref: Unocal Corp. 376 Lewelling Blvd. San Lorenzo, SS: 5760

Descriptor, Lab No. and Results

Parameter	Method	Reporting Limit	Trip 04/07/1992 119364	Units
TPH (Gas/BTXE,Liquid)				
METHOD 5030 (GC,FID)			--	
DATE ANALYZED			04-21-92	
DILUTION FACTOR*			1	
as Gasoline	5030	50	ND	ug/L
METHOD 8020 (GC,Liquid)			--	
DATE ANALYZED			04-21-92	
DILUTION FACTOR*			1	
Benzene	8020	0.5	ND	ug/L
Ethylbenzene	8020	0.5	ND	ug/L
Toluene	8020	0.5	ND	ug/L
Xylenes (Total)	8020	0.5	ND	ug/L
SURROGATE RESULTS			--	
Bromofluorobenzene	5030		88	% Rec.

NET Pacific, Inc

Client No: 67900 Date: 04/27/1992
Client Name: Gettler-Ryan Inc.
NET Job No: 92.1968 Page: 7

Ref: Unocal Corp. 376 Lewelling Blvd. San Lorenzo, SS: 5760

QUALITY CONTROL DATA

Parameter	Reporting Limits	Units	Cal Verf Stand % Recovery	Blank Data	Spike % Recovery	Duplicate Spike % Recovery	RPD
Gasoline	50	ug/L	95	ND	88	92	4.4
Benzene	0.5	ug/L	92	ND	89	91	2.2
Toluene	0.5	ug/L	90	ND	93	95	2.1
Gasoline	50	ug/L	98	ND	90	84	6.9
Benzene	0.5	ug/L	97	ND	98	86	13
Toluene	0.5	ug/L	101	ND	99	90	9.5

COMMENT: Blank Results were ND on other analytes tested.