GeoStrategies Inc.

QUARTERLY MONITORING REPORT

UNOCAL Service Station No. 5325
3220 Lakeshore Avenue
Oakland, California

781401-11

June 19, 1992

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

June 19, 1992

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

Attn: Mr. Tim Howard

Re: QUARTERLY MONITORING REPORT
Unocal Service Station #5325
3220 Lakeshore Avenue
Oakland, California

Mr. Howard:

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

There are currently three monitoring wells at the site; Wells U-1, U-2, and U-3 (Plate 2). These wells were installed in 1990 by GSI.

CURRENT QUARTER SAMPLING RESULTS

Depth to water measurements were obtained in each monitoring well on February 12, 1992. Static ground-water levels were measured from the surveyed top of the well box and recorded to the nearest ± 0.01 foot. Water-level elevations were referenced to Mean Sea Level (MSL) datum and are presented in Table 1. Water-level data were used to construct a quarterly potentiometric map (Plate 3). Shallow ground-water flow direction is to the south with an approximate hydraulic gradient of 0.005.

Each well was checked for the presence of floating product. Floating product was not observed in the wells this quarter.

Ground-water samples were collected on February 12, 1992. 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 ground-water samples were analyzed by Sequoia Analytical, a California State-certified laboratory located in Redwood City, California. The laboratory analytical report and Chain-of-Custody form are included in Appendix A. These data are summarized and included with the historical chemical analytical data presented in Table 2. A chemical concentration map for benzene is presented on Plate 4. Groundwater sampling field methods and procedures are included in Appendix B. Field methods and procedures were presented in a previous GSI report dated April 28, 1992.

If you have any questions, please call.

GeoStrategies Inc. by,

Ellen C. Fostersmith
Geologist

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

ECF/DML/shl

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

Appendix A: Laboratory Analytical Report and Chain-of-Custody Form
Appendix B: Field Methods and Procedures

QC Review: _____

781401-11

TABLE 1

FIELD MONITORING DATA

WELL NO.	MONITORING DATE	CASING DIA. (IN)	TOTAL WELL DEPTH (FT)	WELL ELEV. (FT)	DEPTH TO WATER (FT)	PRODUCT THICKNESS (FT)	STATIC WATER ELEV. (FT)	PURGED WELL VOLUMES	pH	TEMPERATURE (F)	CONDUCTIVITY (u MHOS/CM)
U-1	5-May-92	3	20.2	5.75	8.63	----	-2.88	5	7.52	66.3	1960
U-2	5-May-92	3	19.9	4.94	8.01	----	-3.07	2	7.05	68.2	2950
U-3	5-May-92	3	20.0	8.14	12.04	----	-3.90	2	7.23	65.4	896

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

TABLE 2

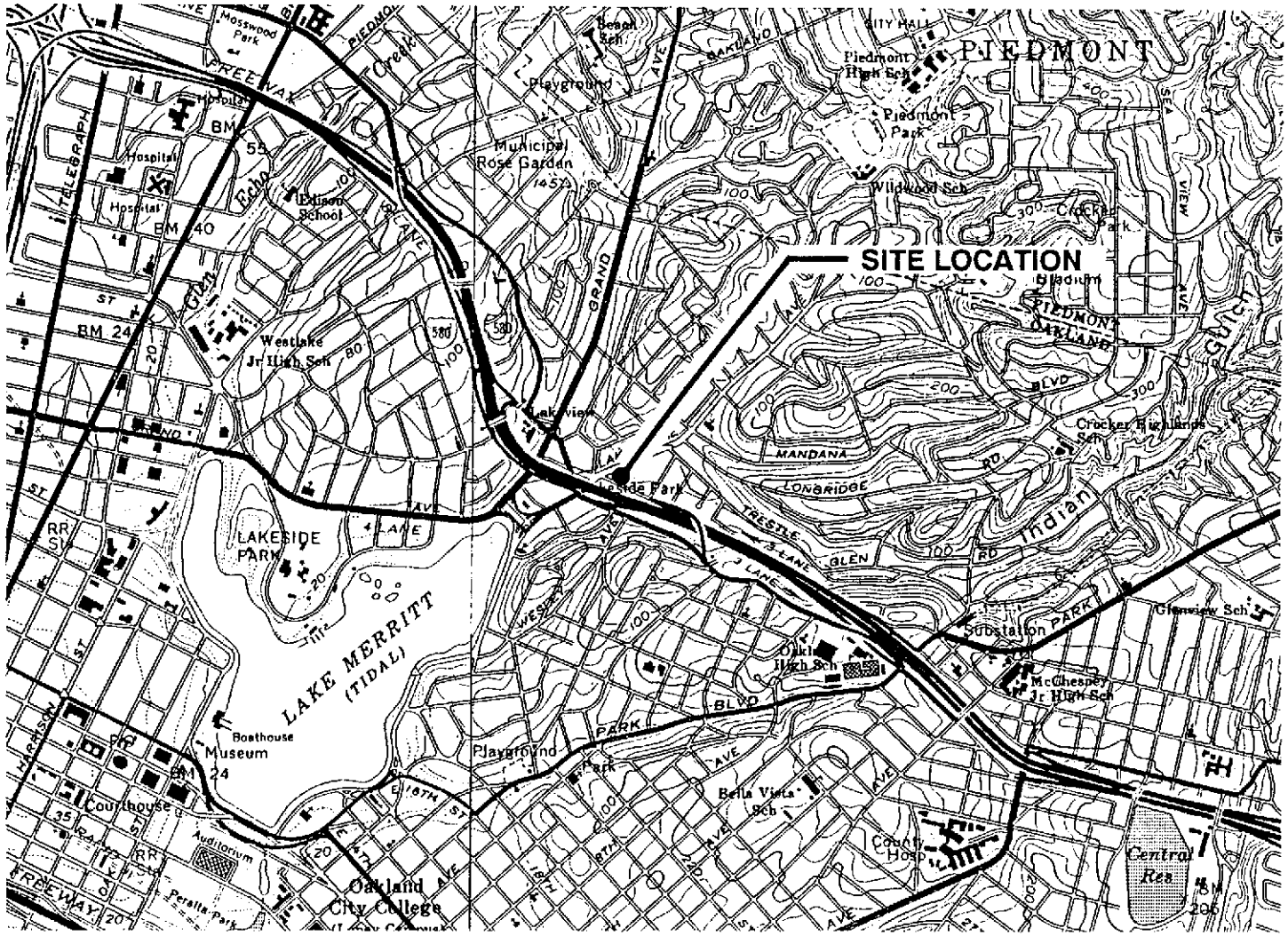
HISTORICAL GROUND-WATER QUALITY DATABASE

SAMPLE DATE	SAMPLE POINT	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	ETHYLBENZENE (PPB)	XYLENES (PPB)
08-Oct-90	U-1	690.	38.	75.	8.6	130.
07-Jan-91	U-1	250.	22.	16.	4.2	17.
01-Apr-91	U-1	160.	13.	8.6	1.0	15.
03-Jul-91	U-1	140	21	4.3	0.36	17
09-Oct-91	U-1	<30	<0.30	<0.30	<0.30	<0.30
12-Feb-92	U-1	250	<0.30	<0.30	<0.30	<0.30
05-May-92	U-1	230	1.2	<0.5	<0.5	<0.5
08-Oct-90	U-2	780.	27.	46.	15.	130.
07-Jan-91	U-2	1900.	67.	5.8	58.	69.
01-Apr-91	U-2	1700.	250.	89.	34.	190.
03-Jul-91	U-2	2100	150	25	3.1	290
09-Oct-91	U-2	230	7.1	<0.30	<0.30	11
12-Feb-92	U-2	410	1.9	<0.30	0.36	0.40
05-May-92	U-2	1600	120	52	6.2	290
08-Oct-90	U-3	<50.	<0.5	<0.5	<0.5	<0.5
07-Jan-91	U-3	<50.	<0.5	<0.5	<0.5	1.8
01-Apr-91	U-3	<50.	1.0	2.9	0.53	5.4
03-Jul-91	U-3	<30	<0.30	<0.30	<0.30	<0.30
09-Oct-91	U-3	<30	<0.30	<0.30	<0.30	<0.30
12-Feb-92	U-3	<30	<0.30	<0.30	<0.30	<0.30
05-May-92	U-3	<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).



Base Map: USGS Topographic Map

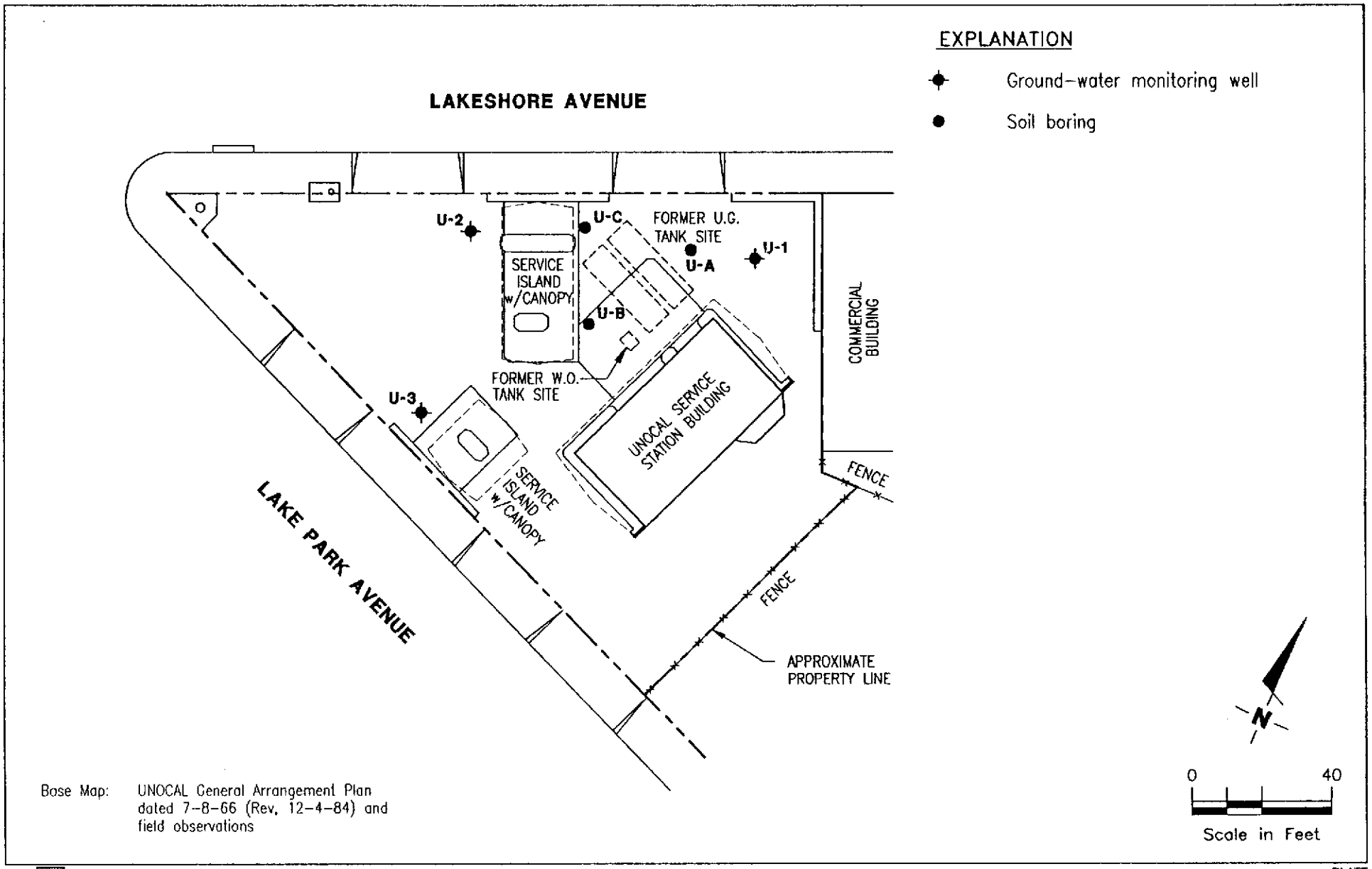
Approximate Scale: 1" = 2000'

GeoStrategies Inc.

Vicinity Map
UNOCAL Service Station #5325
3220 Lakeshore Avenue
Oakland, California

PLATE 1

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE
7814		6/90	



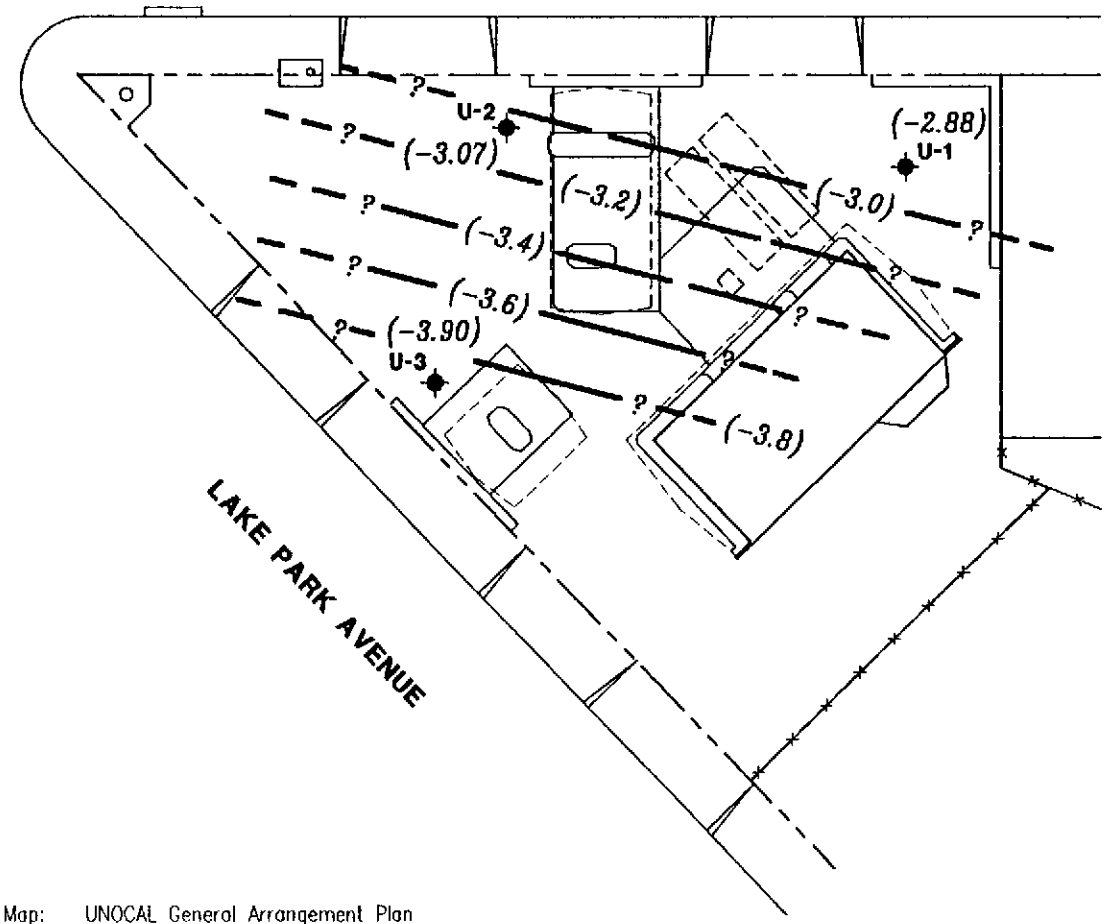
Base Map: UNOCAL General Arrangement Plan dated 7-8-66 (Rev. 12-4-84) and field observations

GeoStrategies Inc.

SITE PLAN
UNOCAL Service Station #5325
3220 Lakeshore Avenue
Oakland, California

PLATE 2

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
7814		5/92	



EXPLANATION

- Ground-water monitoring well
- 99.99 — Ground-water elevation contour Approximate Gradient = 0.01
- **99.99** Ground-water elevation in feet referenced to Mean Sea Level (MSL) measured on May 5, 1992

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

Approximate Ground-water Flow Direction

N

0 40

Scale in Feet

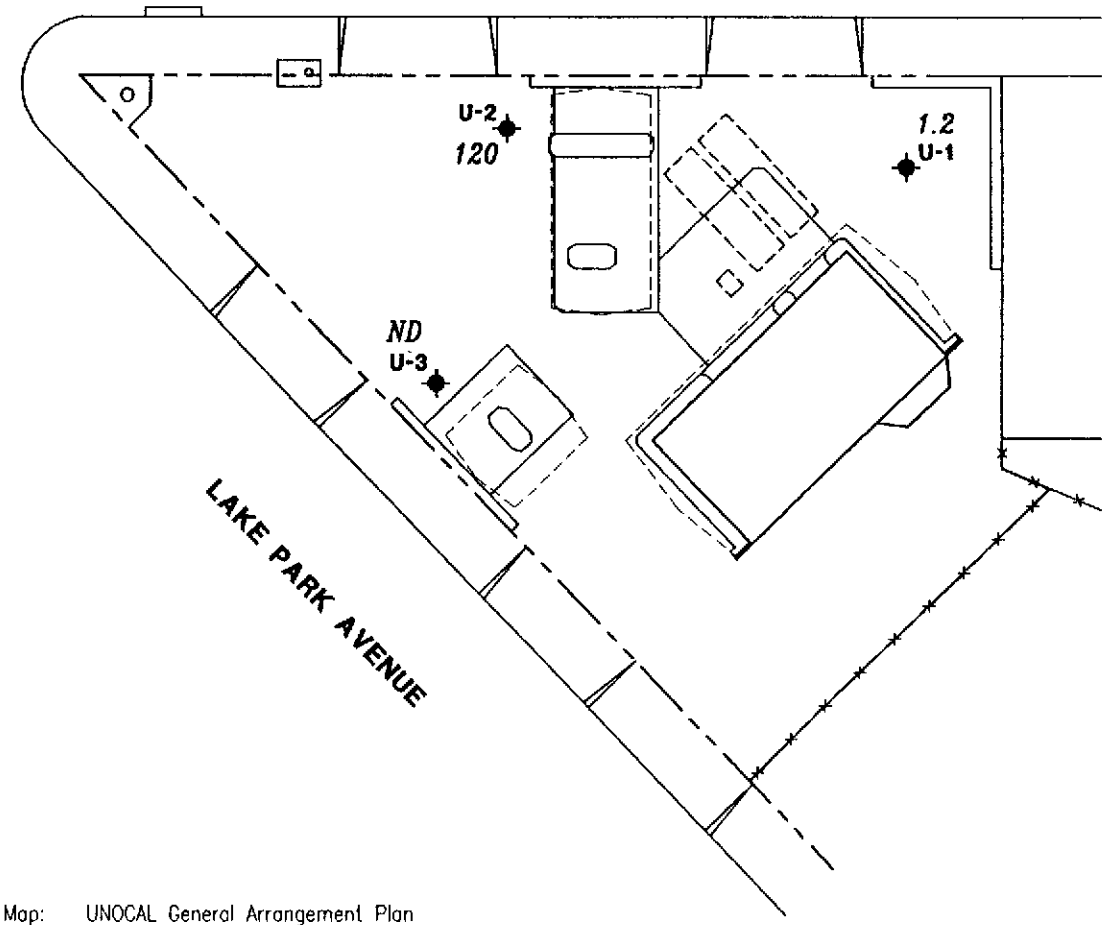
Base Map: UNOCAL General Arrangement Plan dated 7-8-66 (Rev, 12-4-84) and field observations

GeoStrategies Inc.

POTENTIOMETRIC MAP
UNOCAL Service Station #5325
3220 Lakeshore Avenue
Oakland, California

PLATE **3**

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
781401-11	S	7/92	



EXPLANATION

✦	Ground–water monitoring well
0.05	Benzene concentration in ppb sampled on May 5, 1992
ND	Not Detected (See laboratory reports for detection limits)

Base Map: UNOCAL General Arrangement Plan dated 7-8-66 (Rev, 12-4-84) and field observations

N

0 40

Scale in Feet

GeoStrategies Inc.

BENZENE CONCENTRATION MAP
UNOCAL Service Station #5325
3220 Lakeshore Avenue
Oakland, California

PLATE **4**

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
781401–11		7/92	

NATIONAL
ENVIRONMENTAL
TESTING, INC.

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

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

Date: 05/27/1992
NET Client Acct No: 67900
NET Pacific Job No: 92.2627
Received: 05/09/1992

Client Reference Information

Unocal 5325, 3220 Lakeshore Ave., Oakland, Job 3814.01

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: 05/27/1992
Client Name: Gettler-Ryan Inc.
NET Job No: 92.2627 Page: 2

Ref: Unocal 5325, 3220 Lakeshore Ave., Oakland, Job 3814.01

Parameter	Method	Reporting Limit	Descriptor, Lab No. and Results U-1 05/05/1992 14:25 122608	U-2 05/05/1992 13:55 122609	Units
TPH (Gas/BTXE,Liquid)					
METHOD 5030 (GC,FID)			--	--	
DATE ANALYZED			05-18-92	05-18-92	
DILUTION FACTOR*			1	10	
as Gasoline	5030	50	230	1,600	ug/L
METHOD 8020 (GC,Liquid)			--	--	
DATE ANALYZED			05-18-92	05-18-92	
DILUTION FACTOR*			1	10	
Benzene	8020	0.5	1.2	120	ug/L
Ethylbenzene	8020	0.5	ND	6.2	ug/L
Toluene	8020	0.5	ND	52	ug/L
Xylenes (Total)	8020	0.5	ND	290	ug/L
SURROGATE RESULTS			--	--	
Bromofluorobenzene	5030		81	93	% Rec.

NET Pacific, Inc

Client No: 67900
Client Name: Gettler-Ryan Inc.
NET Job No: 92.2627

Date: 05/27/1992
Page: 3

Ref: Unocal 5325, 3220 Lakeshore Ave., Oakland, Job 3814.01

Parameter	Method	Reporting Limit	Descriptor, Lab No. and Results U-3 05/05/1992 13:33 122610	Trip Blank 122611	Units
TPH (Gas/BTXE,Liquid)					
METHOD 5030 (GC,FID)			--	--	
DATE ANALYZED			05-18-92	05-18-92	
DILUTION FACTOR*			1	1	
as Gasoline	5030	50	ND	ND	ug/L
METHOD 8020 (GC,Liquid)			--	--	
DATE ANALYZED			05-18-92	05-18-92	
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		90	98	% Rec.

NET Pacific, Inc

Client No: 67900
Client Name: Gettler-Ryan Inc.
NET Job No: 92.2627

Date: 05/27/1992

Ref: Unocal 5325, 3220 Lakeshore Ave., Oakland, Job 3814.01

QUALITY CONTROL DATA

Parameter	Reporting Limits	Units	Cal Verf Stand % Recovery	Blank Data	Spike % Recovery	Duplicate Spike % Recovery	RPD
Gasoline	50	ug/L	104	ND	103	102	2.0
Benzene	0.5	ug/L	80	ND	100	98	2.0
Toluene	0.5	ug/L	85	ND	100	99	1.0

COMMENT: Blank Results were ND on other analytes tested.

NET Pacific, Inc

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 [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.

Getter - Ryan Inc. ENVIRONMENTAL DIVISION

2861 Chain of Custody

COMPANY Unocal SS #5725 JOB NO. 6263

JOB LOCATION 3220 Lakeshore Ave

CITY Oakland PHONE NO. (510) 783-7500

AUTHORIZED Frank Cline DATE 5-5-92 P.O. NO. 3814.01

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
U-1	3	H_2O	5-5-92/1425	THC (gas) BTXE	
U-2	↓	↓	↓/1355	↓	
U-3	↓	↓	↓/1333	↓	
trip	1	↓	—/—	↓	

CUSTODY SEALED 5-5
@ 8:0 scals intact
A.L.

RELINQUISHED BY: Guadalupe Sanchez 5-5-92 1525

RECEIVED BY: Refrig #1 5-5-92 1525

RELINQUISHED BY: 5-6-92 9:30

RECEIVED BY: Jason Bear 5-8 11:10

RELINQUISHED BY: 5-7 8:00

RECEIVED BY LAB: A. Lopez 5-9-92 0700

DESIGNATED LABORATORY: NET DHS #:

REMARKS: Normal TAT

DATE COMPLETED: 5-5-92 FOREMAN G. Sanchez