GeoStrategies Inc.

QUARTERLY MONITORING REPORT

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

781902-6

February 5, 1993

GeoStrategies Inc.

February 5, 1993

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

Attn: Mr. Ed Ralston

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

Mr. Ralston:

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

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

CURRENT QUARTER SAMPLING RESULTS

Depth to water measurements were obtained in each monitoring well on November 23, 1992. Static ground-water 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) datum and are presented in Table 1. Water-level data were used to construct a quarterly potentiometric map (Plate 3). Shallow ground-water flow direction is to the west with an approximate hydraulic gradient of 0.01.

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

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Ground-water samples were collected on November 23, 1992. Samples were analyzed for Total Petroleum Hydrocarbons calculated as Gasoline (TPH-Gasoline), according to EPA Method 5030 (Modified) and for Benzene, Toluene, Ethylbenzene, Xylenes (BTEX) according to EPA Method 8020. The ground-water samples were analyzed by National Environmental Testing (NET) Pacific, Inc., a California State-certified laboratory located in Santa Rosa, California. The laboratory analytical report and Chain-of-Custody form is included in Appendix B. These data are summarized and included with the historical chemical analytical data presented in Table 2. A chemical concentration map for benzene is presented on Plate 4. Groundwater sampling field methods and procedures were present in a previous GSI report dated April 15, 1992.

PLANNED SITE ACTIVITIES

Based on the Historical Groundwater Quality Database (Table 2), GSI recommends this site be reduced to semiannual groundwater sampling for 1993.

If you have any questions, please call.

GeoStrategies Inc. by,

Ellen C. Fostersmith
Geologist

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

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

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

QC Review: _____

781902-6

TABLES

TABLE 1

FIELD MONITORING DATA

WELL NO.	MONITORING DATE	CASING DIA. (IN)	TOTAL WELL DEPTH (FT)	WELL ELEV. (FT)	DEPTH TO WATER (FT)	PRODUCT THICKNESS (FT)	STATIC WATER ELEV. (FT)	PURGED WELL VOLUMES	pH	TEMPERATURE (F)	CONDUCTIVITY (u MHOS/CM)
U-1	23-Nov-92	2	30.2	17.24	10.44	----	6.80	5	7.54	67.1	597
U-2	23-Nov-92	2	30.6	16.85	9.35	----	7.50	5	7.64	66.1	492
U-3	23-Nov-92	2	30.2	17.76	10.79	----	6.97	5	7.53	67.7	679

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

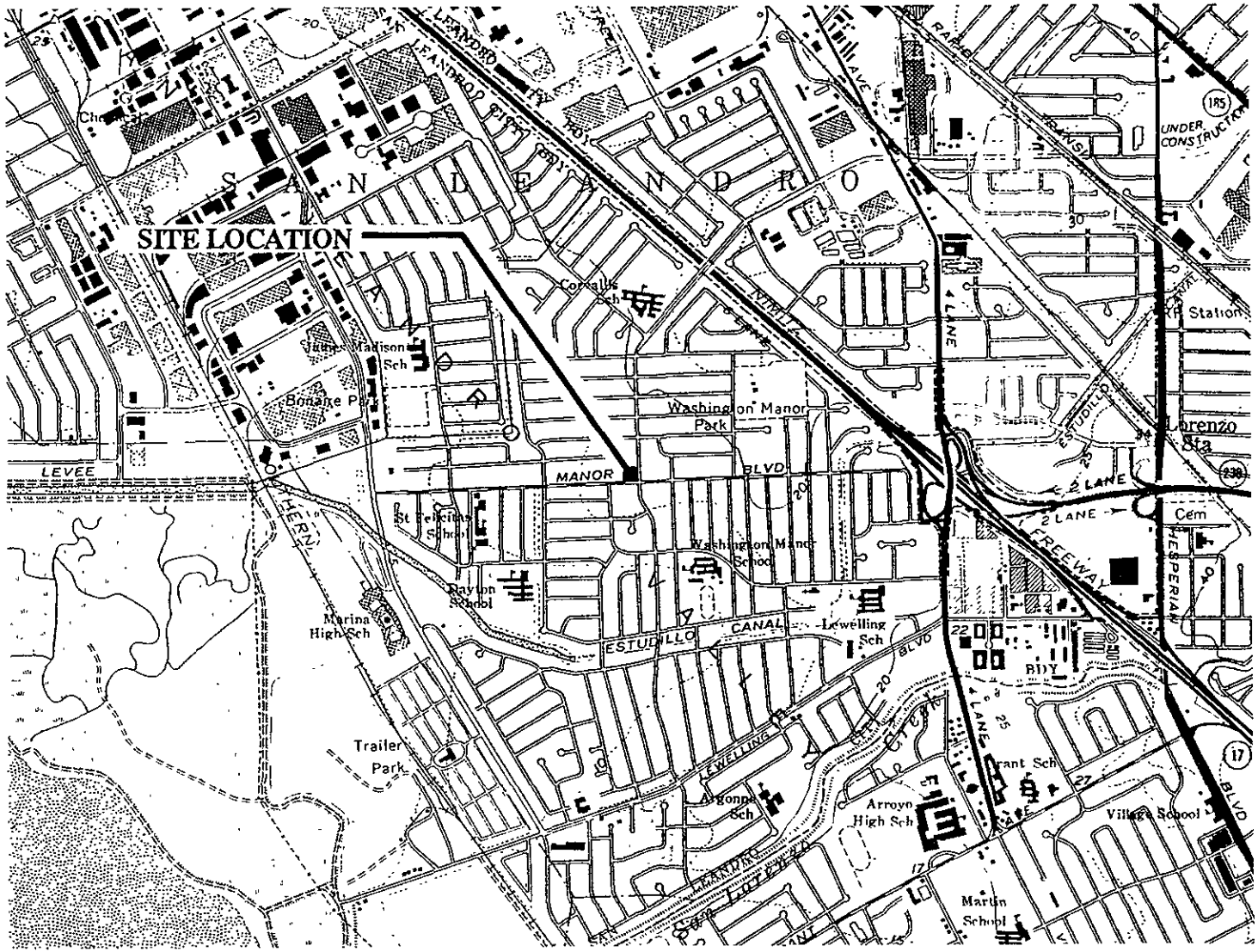
TABLE 2

HISTORICAL GROUND-WATER QUALITY DATABASE

SAMPLE DATE	SAMPLE POINT	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	ETHYLBENZENE (PPB)	XYLENES (PPB)	OIL & GREASE (PPM)
30-Sep-91	U-1	<30	<0.30	<0.30	<0.30	<0.30	N/A
12-Feb-92	U-1	<30	<0.30	<0.30	<0.30	<0.30	N/A
01-May-92	U-1	<50	0.8	<0.5	<0.5	<0.5	N/A
20-Aug-92	U-1	<50	<0.5	<0.5	<0.5	<0.5	N/A
23-Nov-92	U-1	<50	<0.5	<0.5	<0.5	<0.5	N/A
30-Sep-91	U-2	<30	<0.30	<0.30	<0.30	<0.30	N/A
12-Feb-92	U-2	<30	<0.30	<0.30	<0.30	<0.30	N/A
01-May-92	U-2	<50	<0.5	<0.5	<0.5	<0.5	N/A
20-Aug-92	U-2	<50	<0.5	<0.5	<0.5	<0.5	N/A
23-Nov-92	U-2	<50	<0.5	<0.5	<0.5	<0.5	N/A
30-Sep-91	U-3	<30	<0.30	<0.30	<0.30	<0.30	<5.0
12-Feb-92	U-3	<30	1.7	<0.30	<0.30	<0.30	N/A
01-May-92	U-3	<50	1.2	<0.5	<0.5	<0.5	N/A
20-Aug-92	U-3	<50	3.6	<0.5	<0.5	<0.5	N/A
23-Nov-92	U-3	<50	2.4	<0.5	<0.5	<0.5	N/A

TPH-G = Total Petroleum Hydrocarbons calculated as Gasoline
PPB = Parts Per Billion
PPM = Parts Per Million
NOTE 1. All data shown as <X are reported as ND (none detected)

ILLUSTRATIONS



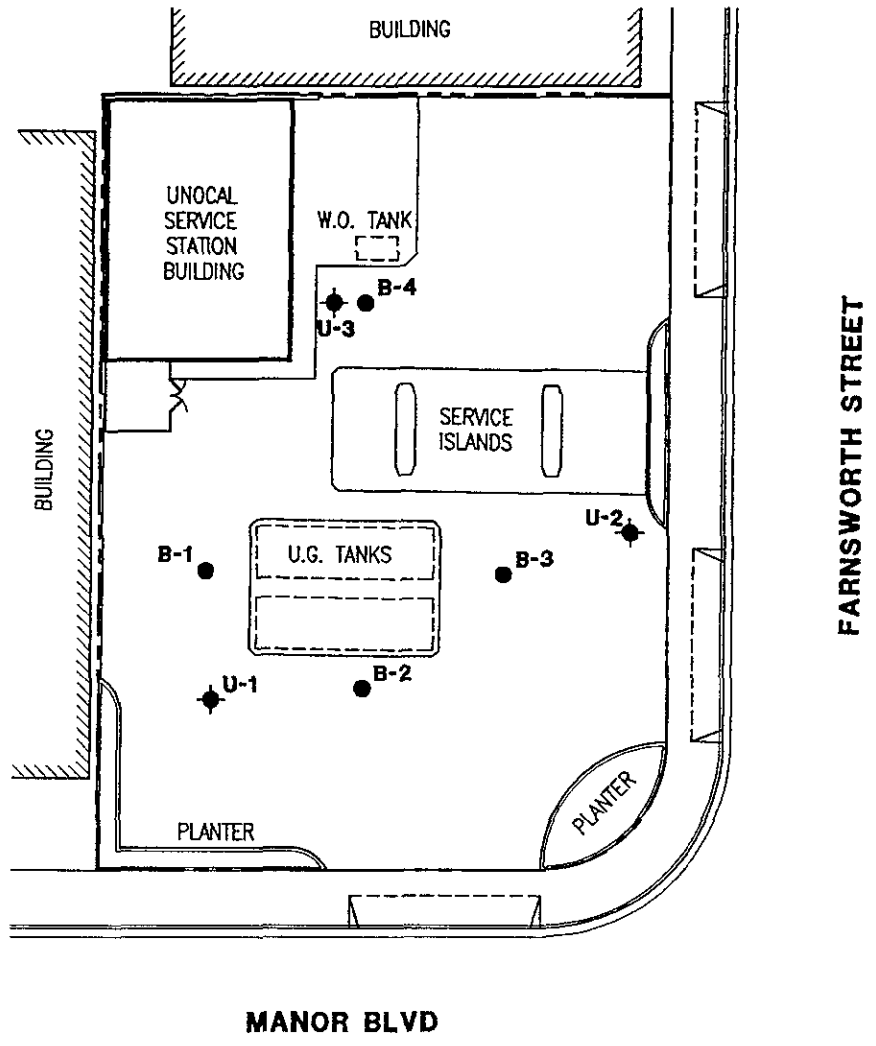
Base Map: USGS Topographic Map

GeoStrategies Inc.

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

PLATE
1

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
7819		5/91	



EXPLANATION

- Ground-water monitoring well
- Soil boring

N

0 30

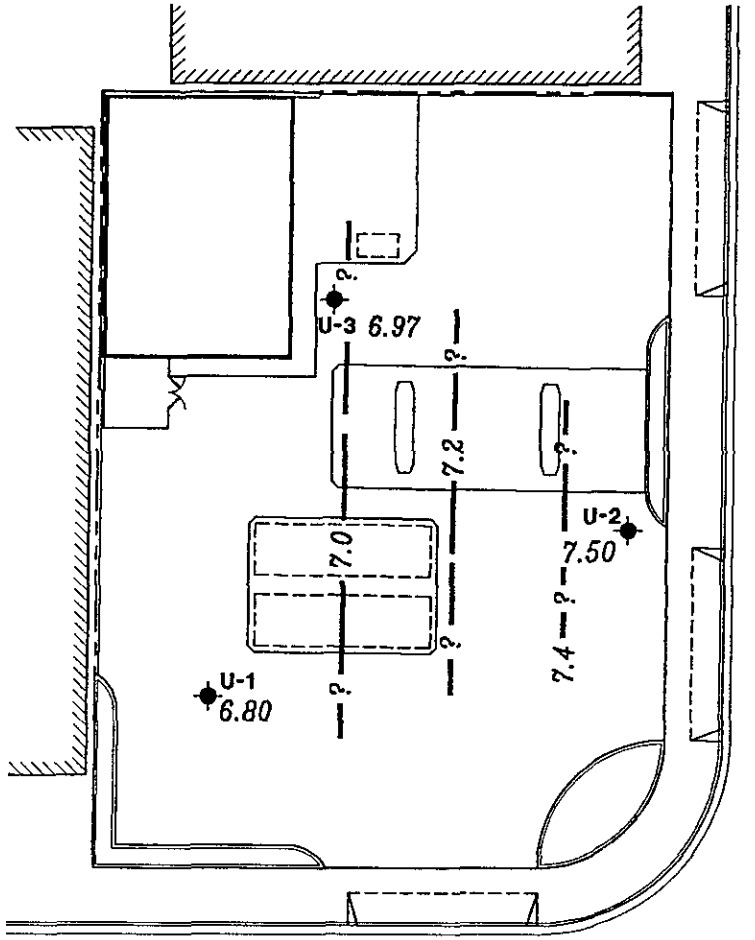
Scale in Feet

GeoStrategies Inc.

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

PLATE 2

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
7819		5/92	



FARNSWORTH STREET

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 November 23, 1992

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

Approximate Ground-water Flow Direction

N

0 30

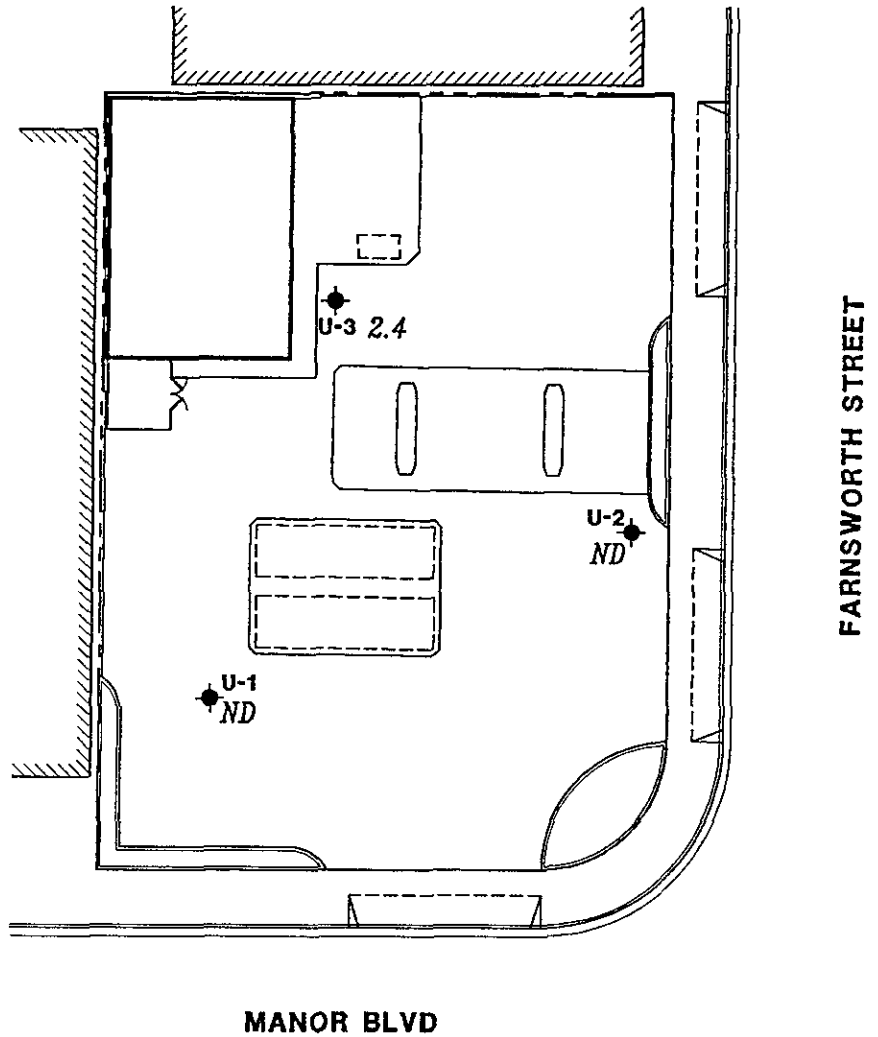
Scale in Feet

GeoStrategies Inc.

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

PLATE 3

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
781902-6		1/93	



EXPLANATION

✦	Ground–water monitoring well
0.05	Benzene concentration in ppb sampled on November 23, 1992
ND	Not Detected (See laboratory reports for detection limits)

N

0 30

Scale in Feet

GeoStrategies Inc.

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

PLATE 4

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
781902–6		1/93	

GeoStrategies Inc.

February 5, 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. 3690
1499 Farnsworth Street
San Leandro, California

Ms. Evans:

As requested by Mr. Ed Ralston of UNOCAL Corporation, we are forwarding a copy of the Quarterly Monitoring Report dated February 5, 1993 prepared for the above referenced location. This report presents the fourth quarterly groundwater sampling performed at the above mentioned site.

If you should have any questions or comments, please call.

Sincerely,

David J. Vossler
Senior Geologist

DJV/
Enclosure

cc: Mr. Ed Ralston, UNOCAL Corporation
Mr. Richard Hiett, Regional Water Quality Control Board

:ellenu\819final.wp

APPENDIX A
FIELD DATA SHEETS

GETTLER-RYAN INC.

General and Environmental Contractors

WELL SAMPLING FIELD DATA SHEET

COMPANY Unocal JOB # 3819.02

LOCATION 14999 Farnsworth DATE 11-23-92

CITY San Leandro TIME

Well ID. U-1 Well Condition OK

Well Diameter 2 in. Hydrocarbon Thickness — ft.

Total Depth 30.2 ft.

Depth to Liquid- 10.44 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 19.76 x(VF) .17 = (Estimated Purge Volume) 16.8 gal. (3.4)

Purging Equipment DD

Sampling Equipment Bailer

Starting Time 1552 Purging Flow Rate 3 gpm.

(Estimated Purge Volume) 16.8 gal. / (Purging Flow Rate) 3 gpm. = (Anticipated Purging Time) 5.4 min.

Time	pH	Conductivity	Temperature	Volume
1553	7.78	474	66.8	3 gal
1555	7.77	517	66.4	9
1557	7.76	498	66.2	15
1631	7.54	597	67.1	16

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

Sampling Time 1631 Weather Conditions Clr

Analysis gas (BTXE) Bottles Used 3x40 ml

Chain of Custody Number

COMMENTS

FOREMAN ASSISTANT

GETTLER-RYAN INC.

General and Environmental Contractors

WELL SAMPLING
FIELD DATA SHEET

COMPANY Unocal JOB # 3819.02

LOCATION 14999 Farnsworth DATE 11-23-92

CITY San Leandro TIME

Well ID. U-2 Well Condition OK

Well Diameter 2 in. Hydrocarbon Thickness — ft.

Total Depth 30.6 ft.

Depth to Liquid- 9.35 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 21.25 x(VF) .17 = (Estimated Purge Volume) 18.1 gal. (3.6)

Purging Equipment DD

Sampling Equipment Bailer

Starting Time 1538 Purging Flow Rate 3 gpm.

(Estimated Purge Volume) 18.1 gal. / (Purging Flow Rate) 3 gpm. = (Anticipated Purging Time) 6 min.

Time	pH	Conductivity	Temperature	Volume
1539	7.57	463	67.2	3 gal
1541	7.74	474	65.7	9
1544	7.76	509	65.8	18
1625	7.64	492	66.1	19

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

Sampling Time 1625 Weather Conditions Plc

Analysis gas (BTXE) Bottles Used 3x40ml

Chain of Custody Number

COMMENTS

FOREMAN

GETTLER-RYAN INC.

General and Environmental Contractors

WELL SAMPLING FIELD DATA SHEET

COMPANY Unocal JOB # 3819.02

LOCATION 14999 Farnsworth DATE 11-23-92

CITY San Leandro TIME

Well ID. U-3 Well Condition OK

Well Diameter 2 in. Hydrocarbon Thickness — ft.

Total Depth 30.2 ft.

Depth to Liquid- 10.79 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 19.41 x(VF) .17 = (Estimated Purge Volume) 16.5 gal. (3.3)

Purging Equipment DD

Sampling Equipment Bailer

Starting Time 1604 Purging Flow Rate 3 gpm.

(Estimated Purge Volume) 16.5 gal. / (Purging Flow Rate) 3 gpm. = (Anticipated Purging Time) 5.5 min.

Time	pH	Conductivity	Temperature	Volume
1605	7.66	542	67.3	3 gal
1607	7.64	590	67.8	9
1609	7.63	600	67.5	15
1617	7.53	679	67.7	16

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

Sampling Time 1617 Weather Conditions Clr

Analysis gas (BTXE) Bottles Used 3x40 ml

Chain of Custody Number

COMMENTS

FOREMAN

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

NATIONAL ENVIRONMENTAL TESTING, INC.

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

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

Date: 12/17/1992
NET Client Acct No: 67900
NET Pacific Job No: 92.49497
Received: 11/25/1992

Client Reference Information

Unocal-14999 Farnsworth, San Leandro, PO.No: 3819.02

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

Approved by:

Jules Skamarack
Laboratory Manager

JS:rct
Enclosure(s)

Ref: Unocal-14999 Farnsworth, San Leandro, PO.No: 3819.02

			Descriptor, Lab No. and Results		
			U-1	U-2	
Parameter	Method	Reporting Limit	11/23/1992 16:31 145660	11/23/1992 16:25 145661	Units
TPH (Gas/BTXE,Liquid)					
METHOD 5030 (GC,FID)			--	--	
DATE ANALYZED			12-02-92	12-02-92	
DILUTION FACTOR*			1	1	
as Gasoline	5030	50	ND	ND	ug/L
METHOD 8020 (GC,Liquid)			--	--	
DATE ANALYZED			12-02-92	12-02-92	
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		79	70	% Rec.

Ref: Unocal-14999 Farnsworth, San Leandro, PO.No: 3819.02

			Descriptor, Lab No. and Results		
			U-3	TB	
			11/23/1992 16:17	11/23/1992	
Parameter	Method	Reporting Limit	145662	145663	Units
TPH (Gas/BTXE,Liquid)					
METHOD 5030 (GC,FID)			--	--	
DATE ANALYZED			12-02-92	12-02-92	
DILUTION FACTOR*			1	1	
as Gasoline	5030	50	ND	ND	ug/L
METHOD 8020 (GC,Liquid)			--	--	
DATE ANALYZED			12-02-92	12-02-92	
DILUTION FACTOR*			1	1	
Benzene	8020	0.5	2.4	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		75	78	% Rec.

Ref: Unocal-14999 Farnsworth, San Leandro, PO.No: 3819.02

QUALITY CONTROL DATA

Parameter	Reporting Limits	Units	Cal Verf Stand % Recovery	Blank Data	Spike % Recovery	Duplicate Spike % Recovery	RPD
Gasoline	50	ug/L	98	ND	100	101	1.0
Benzene	0.5	ug/L	91	ND	96	96	<1
Toluene	0.5	ug/L	87	ND	95	96	<1

COMMENT: Blank Results were ND on other analytes tested.

NET®

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.

Gettler - Ryan Inc. — ENVIRONMENTAL DIVISION — 3122 **Chain of Custody**

COMPANY Unocal JOB NO. 9962

JOB LOCATION 14999 FARNSWORTH

CITY SAN LEANDRO PHONE NO. (510) 783-7500

AUTHORIZED F. Cline DATE 11-23-92 P.O. NO. 3819.02

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
U-1	3	H_2O	11-23-92/1631	THC (gas) BTXE	
U-2	↓	↓	↓/1625	↓	
U-3	↓	↓	↓/1617	↓	
TB	1	↓	—		

CUSTODY SEALED 11/24/92 @1900 MWT Seals intact. A.L.

RELINQUISHED BY: 11-23-92

RECEIVED BY: 11-24-92 1100

RELINQUISHED BY: 11-24-92 1350

RECEIVED BY: Mike Tauzi 11/24/92

RELINQUISHED BY: Mike Tauzi

RECEIVED BY LAB: A. Lopez 11/25/92 0800

DESIGNATED LABORATORY: NET DHS #:

REMARKS: NORMAL TAT

DATE COMPLETED 11-23-92 FOREMAN