gettler — ryan inc.
general contractors

June 12, 1990

Alameda County Health Agency
Department of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

Attention: Mr. Barney Chan

Reference: Unocal Service Station No. 5325
3220 Lakeshore Avenue
Oakland, California 94610

Gentlemen:

As requested by Mr. Ron Bock of Unocal Corporation, we are forwarding a copy of the Soil Boring Report prepared for the above referenced location. The enclosed report presents the results of the soil analyses conducted on samples collected from borings located adjacent to the underground storage tanks. The soil sampling and analyses were conducted to assess soil conditions prior to the pending tank replacement at the site.

Should you have any questions or comments regarding this project, please do not hesitate to call.

Sincerely,

John P. Werfal
Project Manager

JPW/ch

enclosure

cc: Mr. Ron Bock, Unocal Corporation

1992 national avenue • hayward, california 94545-1787 • 783-7500

GeoStrategies Inc.

SOIL BORING REPORT

UNOCAL Service Station #5325
3220 Lakeshore Avenue
Oakland, California

Report No. 7814-1

June 12, 1990

GeoStrategies Inc.
2140 WEST WINTON AVENUE
HAYWARD, CALIFORNIA 94545
(415) 352-4800

June 12, 1990

Gettler-Ryan Inc.
2150 West Winton Avenue
Hayward, California 94545

Attn: Mr. John Werfal

Re: SOIL BORING REPORT
UNOCAL Service Station #5325
3220 Lakeshore Avenue
Oakland, California

Gentlemen:

This letter presents the results of the soil borings drilled at the above referenced location (Plate 1). Three shallow soil borings were drilled and soil samples were collected and analyzed to characterize petroleum hydrocarbon content of the soils prior to underground storage tank (UGST) replacement.

The site is located on the eastern corner at the intersection of Lakeshore Avenue and Lake Park Avenue (Plate 2) in Oakland, California.

ACTIVITIES PERFORMED

On May 24, 1990, GeoStrategies Inc. (GSI) and Gettler-Ryan Inc. (G-R) drilled three exploratory soil borings (U-A, U-B, and U-C) using hand auger tools. Soil samples were collected at three to four-foot depth intervals using a drive-hammer soil sampler fitted with precleaned brass tube liners. Soil samples were sealed by placing aluminum foil and plastic caps over both ends of the brass tubes. Selected samples were labeled, entered onto a Chain-of-Custody form, placed in a cooler with blue ice, and transported to Superior Analytical Laboratory (Superior) for analyses. Superior is a State-certified environmental laboratory located in San Francisco, California.

Soil samples were analyzed for Total Petroleum Hydrocarbons calculated as Gasoline (TPH-Gasoline) according to EPA Method 8015 (Modified) and Benzene, Toluene, Ethylbenzene, and Xylenes according to EPA Method 8020.

The soil borings were backfilled with bentonite pellets from the bottom of the boring up to 1 foot above first encountered groundwater and cuttings were used to backfill the remainder of the boring.

RESULTS

The three borings were drilled through approximately 5 to 8.5 feet of trench and UGST backfill material consisting of clay, silt, and sand. Native clay and organic clay soils were encountered beneath the fill material.

Boring U-A was drilled through the existing UGST complex to a total depth of approximately 12.5 feet. The highest concentrations of TPH-Gasoline were detected in the soil sample from the 7.0 foot depth interval (2100 ppm). Soil samples from 5.0 feet and 12.5 feet contained 18 and 260 ppm, respectively.

Boring U-B was drilled to approximately 12.5 feet below grade adjacent to the UGST complex and near an existing piping trench. The soil samples collected from depths of 4.5 and 8.5 feet contained TPH-Gasoline concentrations of 3100 and 1600 ppm, respectively. The sample collected from the 10.5 foot depth interval contained 2 ppm TPH-Gasoline.

Boring U-C was drilled to approximately 10.5 feet below grade adjacent to the UGST complex and near an existing piping trench. The soil sample from the 4.5 foot depth interval contained 7500 ppm TPH-Gasoline. The soil samples from 7.5 and 10 feet contained 86 and 3 ppm TPH-Gasoline, respectively.

Groundwater was first encountered in all three borings at depths ranging from 7 to 8.5 feet below ground surface. The boreholes were left open for several hours; the sediments and fill material did not yield water to the boreholes.

The chemical analytical data for the analyzed soil samples are summarized in Table 1 and the Superior analytical reports are attached to this report. Soil boring locations are shown on Plate 2.

CONCLUSIONS

The results of the soil boring investigation at this site indicate that shallow soils contain elevated concentrations of petroleum hydrocarbons (18 to 7500 ppm). Soils approximately 9 to 10 feet below ground surface appear to contain significantly less petroleum hydrocarbons (2 to 260 ppm).

Groundwater was first encountered in fill material an native clay soils at a depth of approximately 8 feet below ground surface. The encountered lithologies did not yield water to the boreholes suggesting the overall permeability for the fill material and native clay soil is very low.

PLANNED SITE ACTIVITIES

The following scope of work will be conducted at this site during the scheduled UGST replacement project:

- Soil samples will be collected per the San Francisco Bay Regional Water Quality Control Board guidelines and the direction of the Alameda County Department of Environmental Health. Native soil beneath the UGSTs, from the UGST excavation sidewalls, and along the excavated piping trenches will be sampled and analyzed.

- Contaminated soils around the storage tank complex will be removed. The lateral extent of the excavation will be limited by existing structures (station building, canopy, and dispenser islands) and the streets.

- A mobile laboratory will be present on-site to assure that chemical analytical results are available as soon as possible.

- Excavated soils will be screened and stockpiled on-site. Soils will be separated during excavation according to contaminant levels. Stockpiled soils will be sampled (one composite of four samples per 50 cubic yards) and analyzed for TPH-Gasoline, BTEX, and one sample will be analyzed for organic lead. Soils will be disposed at the proper facilities upon receipt of chemical analytical data.

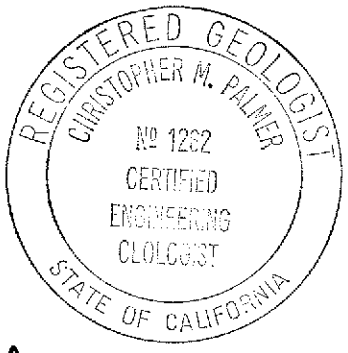
- Should the results of the excavation sampling program indicate that petroleum hydrocarbons remain in unexcavated soils beneath the site, an exploratory soil boring program will be conducted to assess the extent of petroleum hydrocarbons.

If you have any questions, please call.

GeoStrategies Inc. by,

Matthew J. Janowiak
Geologist

Jeffrey L. Peterson
Senior Hydrogeologist
R.E.A. 1021



Christopher M. Palmer
C.E.G. 1262, R.E.A. 285

MJJ/JLP/kjj

Plate 1. Vicinity Map
Plate 2. Site Plan

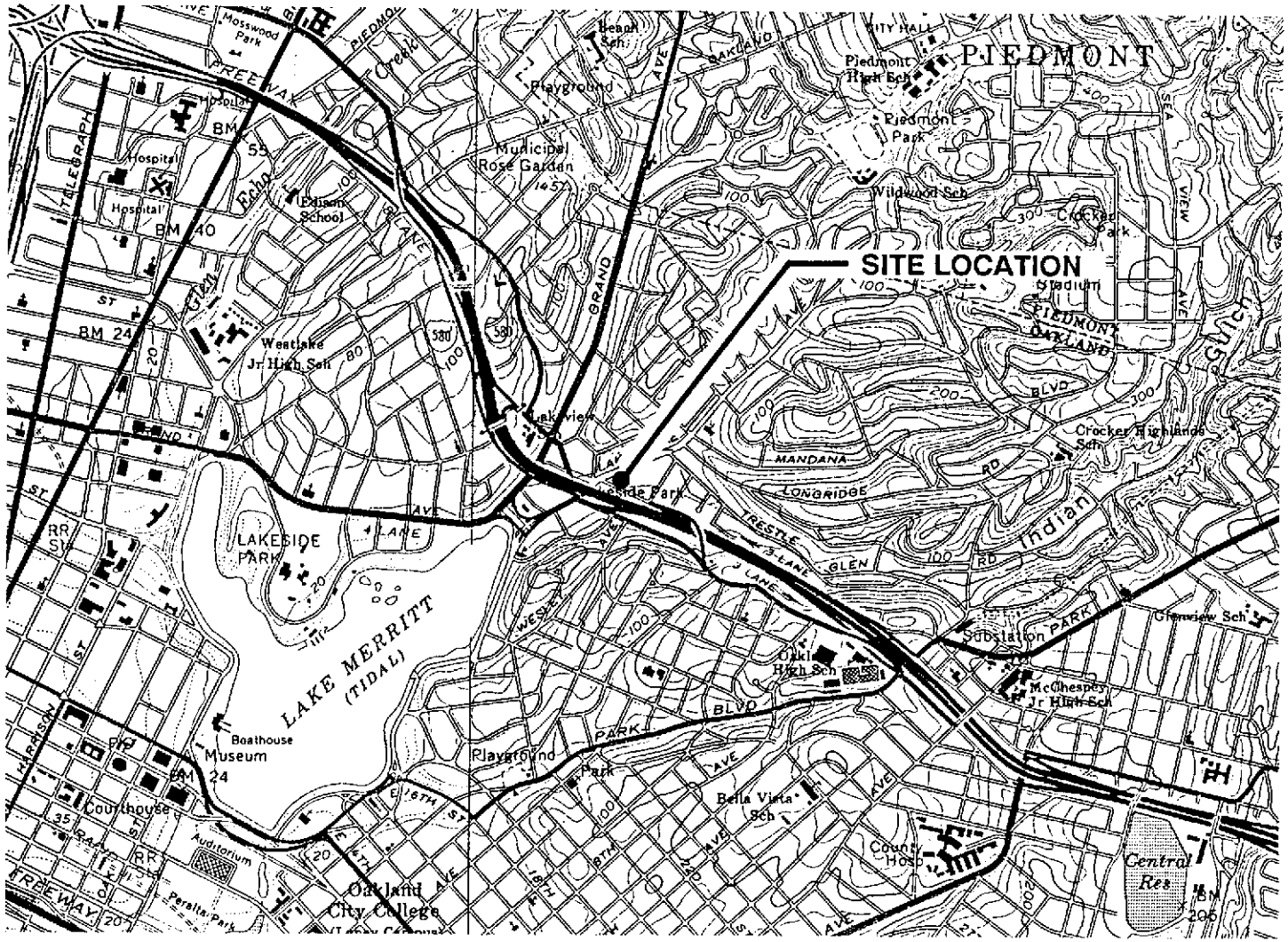
Superior Analytical Laboratory Inc. Analytical Report

TABLE 1

SOIL ANALYSES DATA

SAMPLE NO	SAMPLE DATE	ANALYZED DATE	TPH (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)
U-A-5	24-May-90	02-Jun-90	18	0.12	0.069	0.52	0.46
U-A-7	24-May-90	02-Jun-90	2100	1.3	27	32	190
U-A-12.5	24-May-90	02-Jun-90	260	0.28	2.4	3	18
U-B-4.5	24-May-90	02-Jun-90	3100	2.6	44	46	250
U-B-8.5	24-May-90	02-Jun-90	1600	5.3	31	22	120
U-B-10.5	24-May-90	02-Jun-90	2	0.014	0.11	0.045	0.21
U-C-4.5	24-May-90	02-Jun-90	7500	13	250	160	990
U-C-7.5	24-May-90	02-Jun-90	86	0.46	3.2	1.7	10
U-C-10	24-May-90	02-Jun-90	3	0.031	0.13	0.08	0.38

TPH = Total Petroleum Hydrocarbons as Gasoline
PPM = Parts Per Million



Base Map: USGS Topographic Map

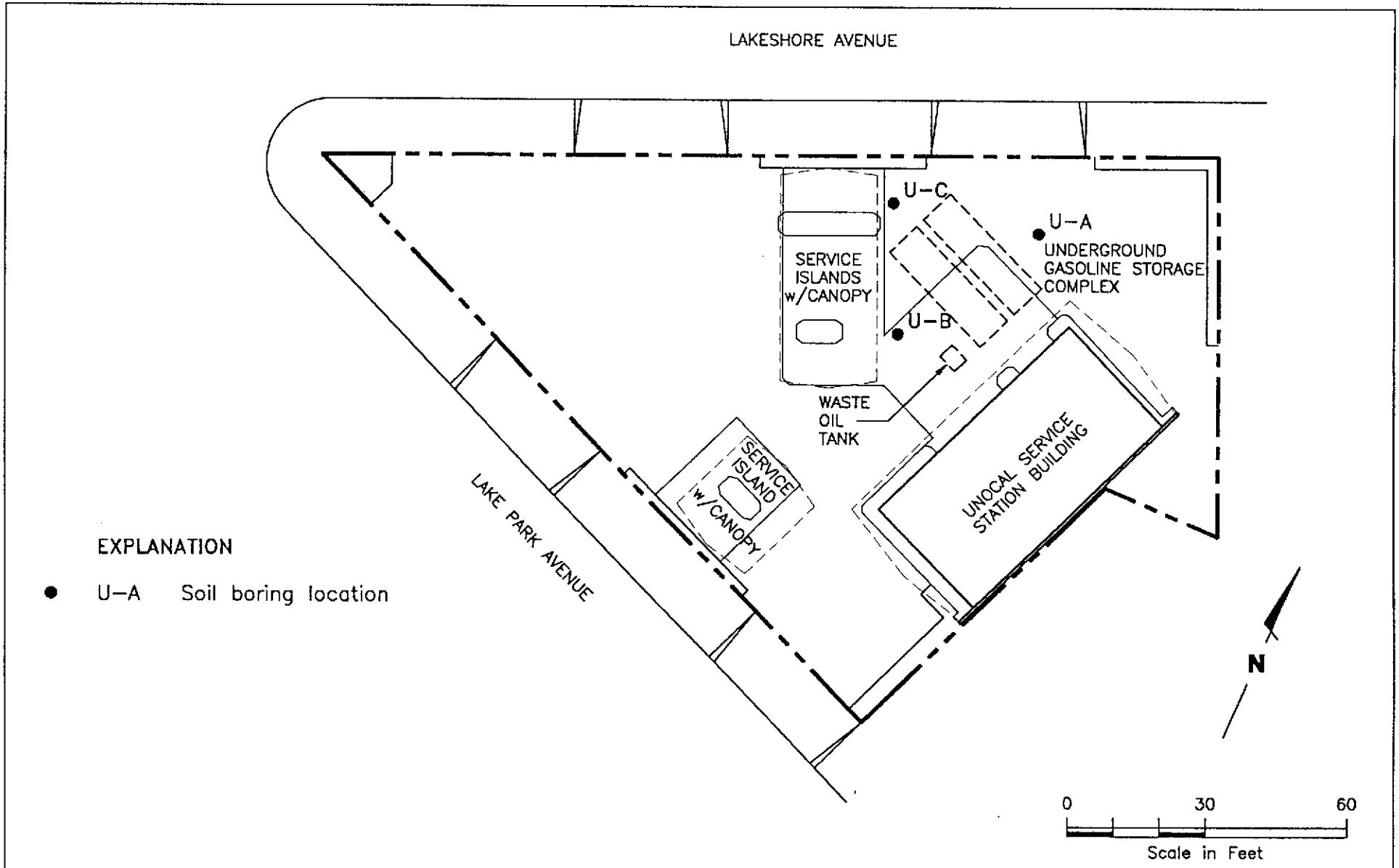
Approximate Scale: 1" = 2000'

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	



EXPLANATION

● U-A Soil boring location

GeoStrategies Inc.

Site Plan
UNOCAL Service Station #5325
3220 Lakeshore Avenue
Oakland, California

PLATE 2

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE
7814	Cumpleg 1262	6/90	

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 80909
CLIENT: Gettler Ryan Co.
CLIENT JOB NO.: 9814

DATE RECEIVED: 05/25/90
DATE REPORTED: 06/02/90

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 5030 and 8015

LAB #	Sample Identification	Concentration (mg/Kg) Gasoline Range
1	U-A-5.0	18
2	U-A-7.0	2100
3	U-A 12.5	260
4	U-B 4.5	3100
5	U-B 8.5	1600
6	U-B 10.5	2
7	U-C 4.5	7500
8	U-C 7.5	86
9	U-C 10.0	3

mg/kg - parts per million (ppm)

Method Detection Limit for Gasoline in Soil: 1 mg/Kg

QAQC Summary:

Daily Standard run at 2mg/L: RPD Gasoline = 5
MS/MSD Average Recovery = 94%: Duplicate RPD = 6

Richard Srna, Ph.D.
Laboratory Manager

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 80909
CLIENT: Gettler Ryan Co.
CLIENT JOB NO.: 9814

DATE RECEIVED: 05/25/90
DATE REPORTED: 06/02/90

ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

LAB #	Sample Identification	Concentration(ug/Kg) Benzene	Toluene	Ethyl Benzene	Xylenes
1	U-A-5.0	120	69	520	460
2	U-A-7.0	1300	27000	32000	190000
3	U-A 12.5	280	2400	3000	18000
4	U-B 4.5	2600	44000	46000	250000
5	U-B 8.5	5300	31000	22000	120000
6	U-B 10.5	14	110	45	210
7	U-C 4.5	13000	250000	160000	990000
8	U-C 7.5	460	3200	1700	10000
9	U-C 10.0	31	130	80	380

ug/Kg - parts per billion (ppb)

Method Detection Limit in Soil: 3 ug/Kg

QAQC Summary:

Daily Standard run at 20ug/L: RPD = <15%
MS/MSD Average Recovery = 97 %: Duplicate RPD = <3

Richard Srna, Ph.D.
Laboratory Manager

80909

Gettler - Ryan Inc. — ENVIRONMENTAL DIVISION

Chain of Custody

COMPANY UNOCAL JOB NO. 9814

JOB LOCATION 3220 LAKESHORE AVE. / LAKE PARK

CITY OAKLAND PHONE NO.

AUTHORIZED JOHN WERFAL DATE 5/24/90 P.O. NO.

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
U-A-5.0	1	SOIL	5/24/90	TPH-GASOLINE, BTEX	
U-A-7.0	1	SOIL			
U-A-12.5	1				
U-B-4.5	1				
U-B-8.5	1				
U-B-10.5	1				
U-C-4.5	1				
U-C-7.5	1				
U-C-10.0	1				

RELINQUISHED BY: Robert C. Mallory 10:55 5/25/90

RECEIVED BY: Lori Marshall 5/25/90 10:55

RELINQUISHED BY:

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY LAB: 5/25/90

DESIGNATED LABORATORY: DHS #:

REMARKS: 5 DAY TAT

DATE COMPLETED FOREMAN