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Alameda County  
Environmental Health

June 11, 1990

DRAFT

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 two to three-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.

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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

Boring U-A was drilled through the existing UGST complex to a total depth of approximately 12.5 feet below grade. Backfill material was encountered to a depth of approximately 5 feet below ground surface. Native soils encountered below 5 feet were primarily clays with varying amounts of organic content (peat). 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. Clay and sand fill material was encountered from below the asphalt to a depth of approximately 6 feet below grade. Native soils from 6 feet to 10.5 consisted primarily of clay with varying amounts of organic material. 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. The 12.0 soil sample could not be retrieved for analysis (refer to attached boring logs for U-B).

Boring U-C was drilled to approximately 5 feet below grade adjacent to the UGST complex and near an existing piping trench. Clay and sand fill material was encountered from below asphalt to a depth of approximately 7 feet below grade. Native soil underlying the fill material consisted primarily of clay. 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 chemical analytical data for all analyzed soil samples is 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 (above first encountered groundwater) 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).

Native clay soils which underlie the fill material may retard vertical migration of the petroleum hydrocarbons.

## PLANNED SITE ACTIVITIES

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

- o Soil samples will be collected in accordance with appropriate Regional Water Quality Control Board (RWQCB) guidelines (i.e. LUFT manual procedures). Native soil beneath the UGSTs, from the UGST excavation sidewalls, and along the excavated piping trenches will be sampled and analyzed.
- o 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.
- o A mobile laboratory will be present on-site to assure that chemical analytical results are available as soon as possible.
- o Excavated soils will be screened and stockpiled on-site. Soils will be separated during excavation according to contaminant levels using an Organic Vapor Monitor (OVM), and usual observations. Stockpiled soils will be sampled (one composite sample consisting of four soil samples per 50 cubic yards) and analyzed for TPH-Gasoline, BTEX, and an additional soil sample will be analyzed for organic lead. Soils will be disposed of at the proper facilities upon receipt of chemical analytical data.

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- o 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

Jeffery L. Peterson  
Senior Hydrogeologist  
R.E.A.

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

MJJ/JLP/mlg

Plate 1. Vicinity Map  
Plate 2. Site Plan

Superior Analytical Laboratory Inc. Analytical Report

Report No. 7814-1

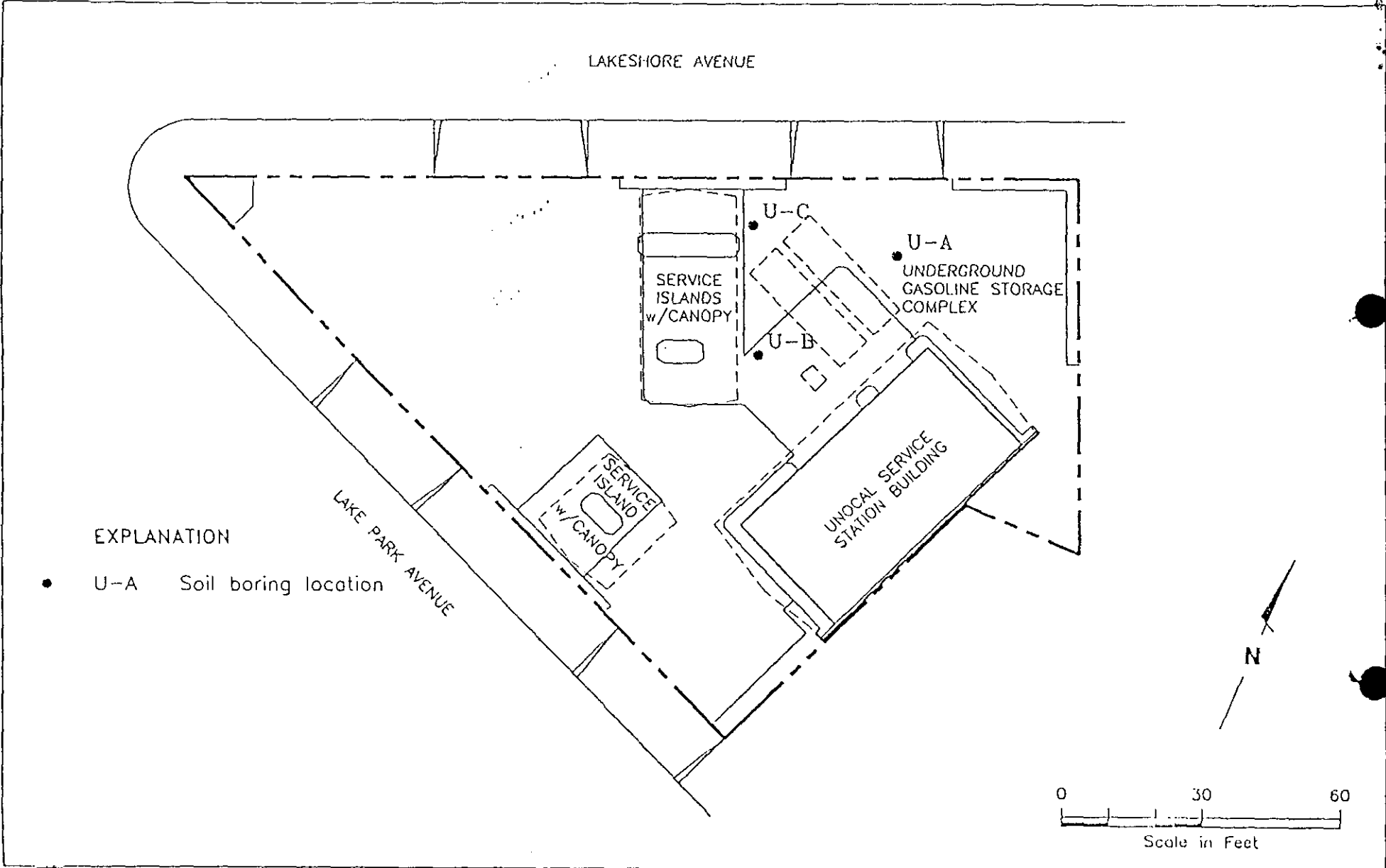
TABLE 1

## 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



EXPLANATION

- U-A Soil boring location



GeoStrategies Inc.

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

**DRAFT**

PLATE  
**2**

JOB NUMBER  
 7814

REVIEWED BY RG/CEG

DATE  
 Preliminary

REVISED DATE