



**GeoStrategies Inc.**

**SOIL STOCKPILE SAMPLING AND REMOVAL**

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

Report No. 7814-4

October 18, 1990



**GeoStrategies Inc.**

2140 WEST WINTON AVENUE  
HAYWARD, CALIFORNIA 94545

REGISTERED  
ENGINEERING  
GEOLOGIST  
CHRISTOPHER M. PALMER  
STATE OF CALIFORNIA  
(415) 352-4800

October 18, 1990

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

Attn: Mr. John Werfal

Re: SOIL STOCKPILE SAMPLING AND REMOVAL  
UNOCAL Service Station No. 5325  
3220 Lakeshore Avenue  
Oakland, California

Gentlemen:

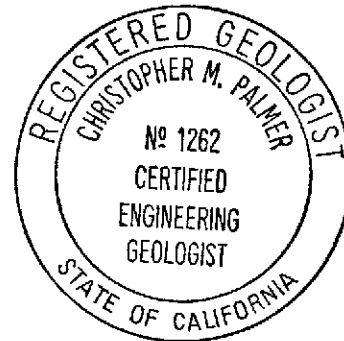
This Soil Stockpile Sampling and Removal Report has been prepared for the above referenced site.

If you have any questions, please call.

GeoStrategies Inc. by,

Robert A. Lauritzen  
Geologist

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



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

RAL/JLP/mlg

Plate 1. Vicinity Map  
Plate 2. Site Plan  
Plate 3. Soil Stockpile Sample Location Map  
Appendix A. Soil Analytical Reports

Report No. 7814-4

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Gettler-Ryan Inc.  
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### EXECUTIVE SUMMARY

This document summarizes the soil stockpile sampling, analyses, and removal which occurred during June 1990 at the UNOCAL Service Station No. 5325. The site is located at 3220 Lakeshore Avenue in Oakland, California (Plates 1 and 2).

- o In June 1990, approximately 800 cubic yards of soil were excavated from around the underground storage tanks (UGSTs) and pipe trenches during the tank replacement activities. Approximately 50 cubic yards of soil were excavated from around the waste oil tank.
- o Approximately 525 cubic yards of stockpiled soils were sampled, analyzed, profiled, and transported to GSX's Lokern Road disposal facility located in Buttonwillow, California. Approximately 50 cubic yards of stockpiled soils from around the waste oil tank were also transported to the GSX disposal facility. All contaminated soils which contained greater than 1,000 parts per million (ppm) of TPH-Gasoline were hauled under a hazardous waste manifest.
- o Sandy tank backfill soils were aerated on-site in compliance with Bay Area Air Quality Management District's (BAAQMD) Regulation 8, Rule 40. The aerated soils were resampled and analyzed. Upon receipt of chemical analytical data which confirmed that TPH-Gasoline concentrations had been reduced in the soils to less than 100 ppm, and were disposed at a Class III facility.

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Gettler-Ryan Inc.  
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## INTRODUCTION

This report presents the results of soil stockpile sampling and disposal which occurred at the UNOCAL Service Station No. 5325 during the Underground Storage Tank (UGST) replacement. The field work was conducted from June 19, 1990 to August 16, 1990.

The site is located at the intersection of Lakeshore Avenue and Lake Park Avenue in Oakland. The excavated soils contained sandy tank backfill material and clayey native soils which were excavated due to suspected contamination during the UGST replacement. Soil sampling results from the UGST and piping trench excavations were presented in GSI report dated June 21, 1990.

## METHODS AND PROCEDURES

Soil samples were collected by filling precleaned brass tubes with stockpiled soil. Prior to filling the tubes, fresh soils were exposed by removing the upper 6 to 12 inches of soil from the surface. The brass tubes were then packed with the freshly exposed soil, covered on both ends with aluminum foil and plastic end caps, labeled, placed into a cooler with blue ice, and entered onto a Chain-of-Custody form. Samples were then transported to a State-certified environmental laboratory for analyses. Four brass tubes were collected from different locations on the stockpile for every 50 cubic yards of soil. The laboratory composited the samples and analyzed the composite sample as one.

Prior to the removal of the underground storage tanks, two composite soil samples (US-1 and US-2) were collected from the tank backfill material. These initial samples were submitted, analyzed and the data used for disposal soil profiling.

Stockpiled soils from the UGST excavation were analyzed for Total Petroleum Hydrocarbons calculated as Gasoline (TPH-Gasoline) according to EPA Method 8015 (Modified) and Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) according to EPA Method 8020. Soils collected from the waste oil tank excavation stockpile were analyzed for TPH-Gasoline, BTEX, TPH-Diesel according to EPA Method 8015 (Modified), and Total Recoverable Petroleum Hydrocarbons according to EPA Method 418.1.

## GeoStrategies Inc.

Gettler-Ryan Inc.  
October 18, 1990  
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Prior to removing stockpiled soils from the site, composite samples from the waste oil tank soils and the UGST soils were analyzed for disposal profile purposes. These analyses included CAC metals, PCBs, Total Cyanides, Sulfide, Total Organic Halogens (TOX), and organic lead. Soil composite sample locations are shown on Plate 3. Analytical methods are discussed in the International Technology (IT) Analytical Services certified analytical reports presented in Appendix A.

### RESULTS

Approximately 800 cubic yards of soil were excavated from the UGST complex and pipe trenches. Approximately 525 yards of soil containing greater than 1,000 ppm TPH-Gasoline were manifested and transported to GSX's Lokern Road disposal facility located in Buttonwillow, California. Approximately 50 cubic yards of waste oil excavation soil was also transported to the GSX facility in Buttonwillow, California. Initial soil stockpile chemical analytical data for TPH-Gasoline and BTEX are summarized in Table 1.

The remaining 225 cubic yards of stockpiled soil was aerated on-site in compliance with BAAQMD's Regulation 8, Rule 40. During the aeration project, allowable volumes (Regulation 8, Rule 40, Table 1) of soil were thinly spread on a plastic liner over the asphalt lot behind the service station building and periodically turned with a backhoe bucket. The aerated soils were sampled and analyzed according to the methods outlined above. When the results of the analyses were received and the soils were reported to contain less than 100 ppm TPH-Gasoline, the aerated soils were stockpiled and additional unaerated soils were spread and periodically turned. This process was repeated until the analytical results indicated that all soils contained less than 100 ppm TPH-Gasoline. Upon receipt of laboratory analytical data, the aerated soil was hauled to an appropriate disposal facility.

Soil aeration was performed in accordance with BAAQMD guidelines and soils which were not being actively aerated remained covered with plastic sheets. IT Analytical Services certified analytical reports are presented in Appendix A and soil aeration chemical data are presented in Table 2.

## GeoStrategies Inc.

Gettler-Ryan Inc.  
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### SUMMARY

Native clayey material could not be effectively aerated, therefore, it was transported to the GSX Lokern Road disposal facility located in Buttonwillow, California. Sandy UGST backfill material was aerated on-site and disposed of when chemical analyses verified that TPH-Gasoline content was less than 100 ppm.

TABLE 1

## SOIL ANALYSIS DATA

SAMPLE NO	SAMPLE DATE	ANALYSIS DATE	TPH (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)
US-1 a-d	20-Jun-90	03-Jul-90	1800.	0.740	21.	29.	190.
US-2 a-d	20-Jun-90	03-Jul-90	1100.	<0.500	11.	15.	94.
US-3 a-d	20-Jun-90	03-Jul-90	1100.	<0.300	16.	20.	140.
US-4 a-d	20-Jun-90	03-Jul-90	1600.	1.8	40.	29.	190.
US-5 a-d	20-Jun-90	03-Jul-90	1200.	2.0	37.	22.	160.
US-6 a-d	20-Jun-90	25-Jun-90	1800.	6.6	90.	53.	320.
US-7 a-d	20-Jun-90	03-Jul-90	2800.	2.2	59.	36.	350.
US-8 a-d	20-Jun-90	03-Jul-90	510.	0.4	10.	10.	83.
US-9 a-d	20-Jun-90	03-Jul-90	1600.	<0.3	2.7	6.1	190.
US-10 a-d	20-Jun-90	03-Jul-90	3400.	<0.3	56.	46.	400.
US-11 a-d	22-Jun-90	27-Jun-90	1700.	3.1	65.	58.	320.
US-12 a-d	20-Jun-90	03-Jul-90	280.	0.66	9.1	4.9	45.
US-13 a-d	21-Jun-90	03-Jul-90	870.	<0.3	1.8	1.5	82.
US-14 a-d	21-Jun-90	03-Jul-90	1700.	1.4	33.	28.	210.
US-15 a-d	21-Jun-90	03-Jul-90	1200.	0.36	2.7	2.4	160.
US-16 a-d	21-Jun-90	03-Jul-90	450.	0.35	0.48	1.3	30.

TABLE 2

## AERATED SOIL ANALYSIS DATA

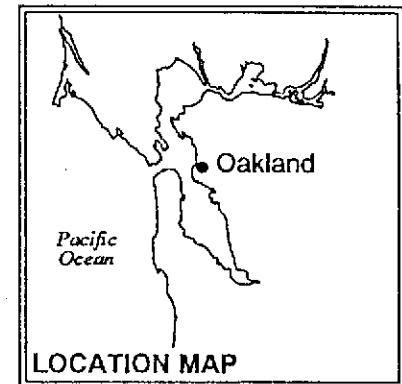
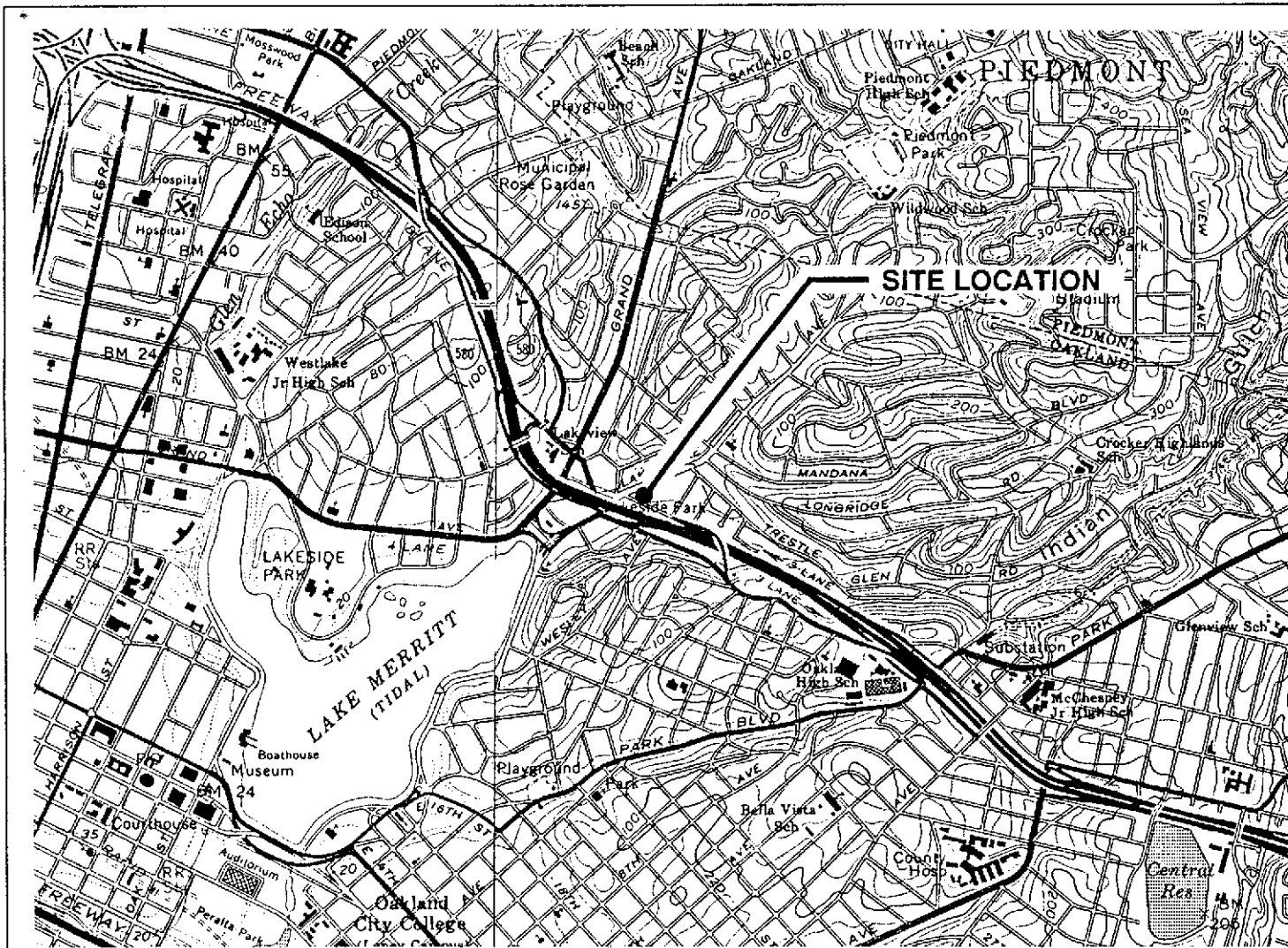
SAMPLE NO.	SAMPLE DATE	ANALYSIS DATE	TPH (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)	ORGANIC LEAD (PPM)
US-17 a-d	18-Jul-90	19-Jul-90	4.7	<0.02	0.03	0.04	0.21	N/A
US-18 a-d	18-Jul-90	19-Jul-90	13.	<0.04	0.05	<0.04	0.22	<1.0
US-19 a-d	24-Jul-90	26-Jul-90	24.	<0.08	<0.08	<0.08	0.12	N/A
US-20 a-d	24-Jul-90	26-Jul-90	93.	<0.2	<0.2	<0.2	<0.2	N/A
US-21 a-d	02-Aug-90	03-Aug-90	60.	<0.20	<0.20	<0.20	0.66	N/A

PPM = Parts Per Million

N/A = Not Analyzed

Note: These results are from aerated soil samples.





Base Map: USGS Topographic Map

Approximate Scale: 1" = 2000'



GeoStrategies Inc.

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

PLATE

1

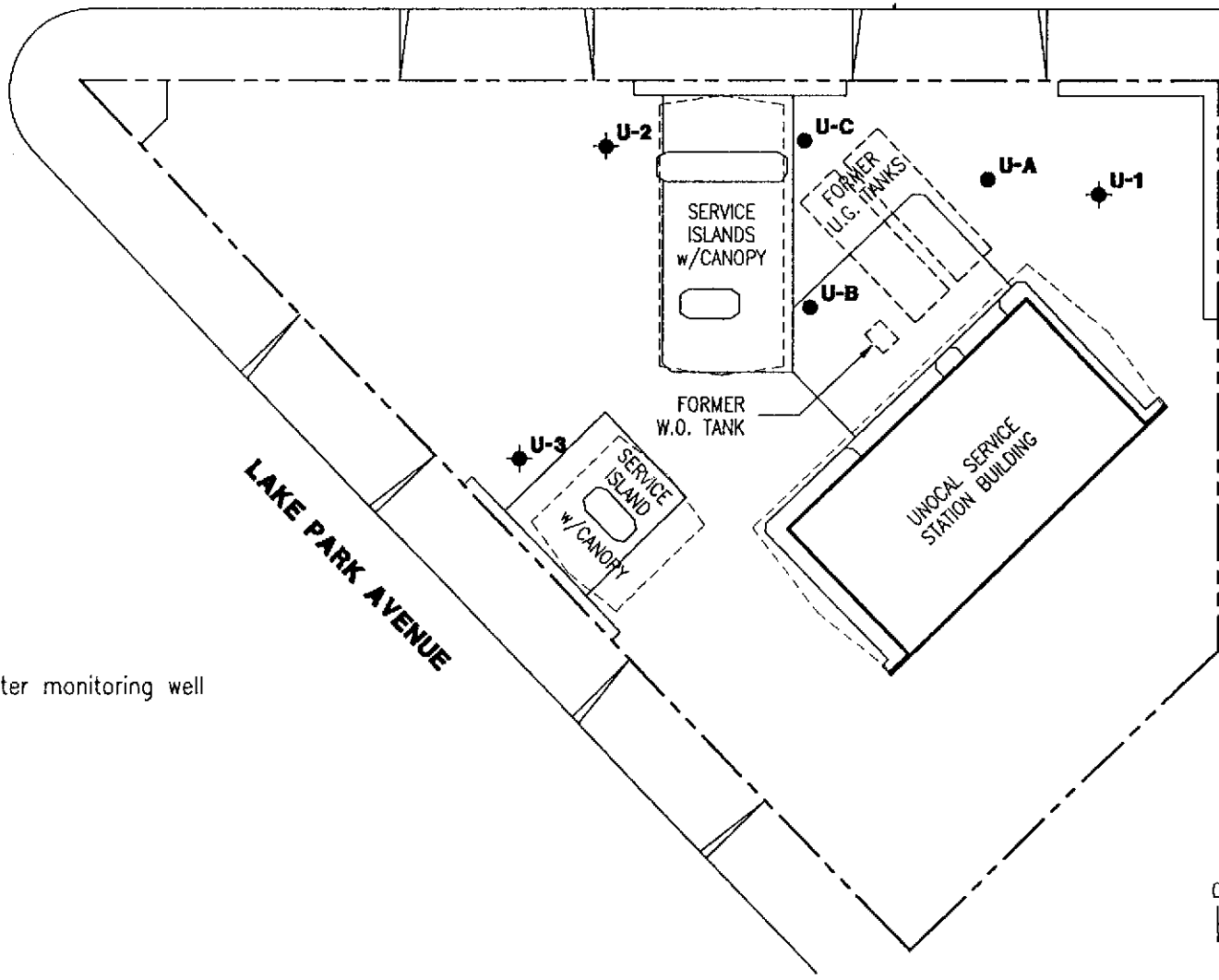
JOB NUMBER  
7814

REVIEWED BY RG/CEG

DATE  
6/90

REVISED DATE

LAKESHORE AVENUE



EXPLANATION

- Soil boring
- ◆ Ground-water monitoring well



GeoStrategies Inc.

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

PLATE

2

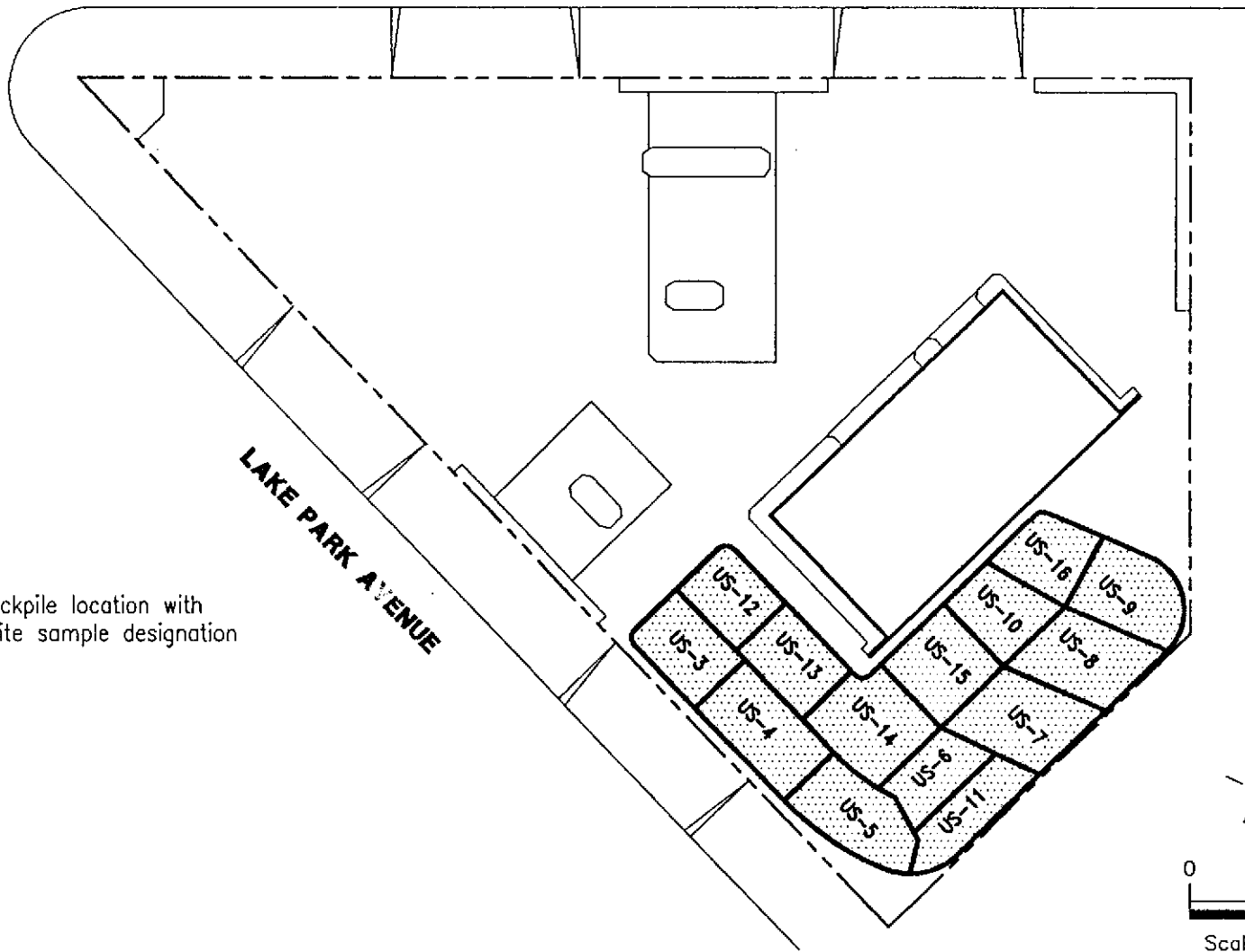
JOB NUMBER  
7814

REVIEWED BY RG/CEG  
*RG/CEG 12/02*

DATE  
10/90

REVISED DATE

LAKESHORE AVENUE



**EXPLANATION**



US-1 Soil stockpile location with composite sample designation



GeoStrategies Inc.

STOCKPILE SOIL SAMPLE, LOCATION MAP  
UNOCAL Service Station #5325  
3220 Lakeshore Avenue  
Oakland, California

PLATE

**3**

JOB NUMBER  
7814

REVIEWED BY RC/CEG  
*UMP* *04/12/92*

DATE  
10/90

REVISED DATE

# 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.: 81071  
CLIENT: Gettler Ryan Co.  
CLIENT JOB NO.: UNOCAL 7814

DATE RECEIVED: 06/22/90  
DATE REPORTED: 07/03/90

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

LAB #	Sample Identification	Concentration (mg/Kg) Gasoline Range
1	US-1a-d Comp.	1800
2	US-2a-d Comp.	1100
3	US-3a-d Comp.	1100
4	US-4a-d Comp.	1600
5	US-5a-d Comp.	1200
6	US-7a-d Comp.	2800
7	US-8a-d Comp.	510
8	US-9a-d Comp.	1600
9	US-10a-d Comp.	3400
10	US-12a-d Comp.	280
11	US-13a-d Comp.	870
12	US-14a-d Comp.	1700
13	US-15a-d Comp.	1200
14	US-16a-d Comp.	450


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 = 14%  
MS/MSD Average Recovery = 99%: Duplicate RPD = <4%

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.: 81071  
CLIENT: Gettler Ryan Co.  
CLIENT JOB NO.: UNOCAL 7814

DATE RECEIVED: 06/22/90  
DATE REPORTED: 07/03/90

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	US-1a-d Comp.	740	21000	29000	190000
2	US-2a-d Comp.	ND<500*	11000	15000	94000
3	US-3a-d Comp.	ND<300	16000	20000	140000
4	US-4a-d Comp.	1800	40000	29000	190000
5	US-5a-d Comp.	2000	37000	22000	150000
6	US-7a-d Comp.	2200	59000	36000	350000
7	US-8a-d Comp.	400	10000	10000	83000
8	US-9a-d Comp.	ND<300	2700	5100	190000
9	US-10a-d Comp.	ND<300	55000	46000	400000
10	US-12a-d Comp.	660	9100	4900	45000
11	US-13a-d Comp.	ND<300	1800	1500	82000
12	US-14a-d Comp.	1400	33000	28000	210000
13	US-15a-d Comp.	350	2700	2400	160000
14	US-16a-d Comp.	350.	480	1300	30000

\* Due to coelution quantitation impractical below this level

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 = 109%: Duplicate RPD = <5%

Richard Srna, Ph.D.

  
Laboratory Manager

OUTSTANDING QUALITY AND SERVICE

Gettler - Ryan Inc.

ENVIRONMENTAL DIVISION

0607 Chain of Custody

COMPANY UNOCAL

JOB NO. \_\_\_\_\_

JOB LOCATION 3220 Lake Shore Ave

CITY Oakland

PHONE NO. \_\_\_\_\_

AUTHORIZED John Wervfal

DATE 6-22-90

P.O. NO. \_\_\_\_\_

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
US-1a-d	4	Soil	6-20-90	Gas, BTEX	1
US-2a-d	4				2
US-3a-d	4				3
US-4a-d					4
US-5a-d					5
US-7a-d					6
US-8a-d					7
US-9a-d					8
US-10a-d					9
US-12a-d			6-21-90		10
US-13a-d			6-21-90		11
<del>US-14a-d</del>					

RELINQUISHED BY: Mat Janowick 6-22

RECEIVED BY: [Signature] 6-22-90

RELINQUISHED BY: \_\_\_\_\_

RECEIVED BY: \_\_\_\_\_

RELINQUISHED BY: Bob Bell

RECEIVED BY LAB: [Signature] 6/22/90

DESIGNATED LABORATORY: Superior

DHS #: \_\_\_\_\_

REMARKS: \_\_\_\_\_

DATE COMPLETED 6-22-90

FOREMAN Mat Janowick





INTERNATIONAL  
TECHNOLOGY  
CORPORATION

# ANALYTICAL SERVICES

## CERTIFICATE OF ANALYSIS

Date: 06/27/90

Gettler-Ryan  
2150 West Winton  
Hayward, CA 94545  
John Werfal

Work Order: T0-06-216

P.O. Number: 7814


This is the Certificate of Analysis for the following samples:

Client Work ID: GR7814, Unocal SS# 5325  
Date Received: 06/21/90  
Number of Samples: 8; 2 composites of 4  
Sample Type: solid

### TABLE OF CONTENTS FOR ANALYTICAL RESULTS

<u>PAGES</u>	<u>LABORATORY #</u>	<u>SAMPLE IDENTIFICATION</u>
4	T0-06-216-01	U-WO-A
	T0-06-216-02	U-WO-B
	T0-06-216-03	U-WO-C
	T0-06-216-04	U-WO-D
7	T0-06-216-05	US-6A
	T0-06-216-06	US-6B
	T0-06-216-07	US-6C
	T0-06-216-08	US-6D

Reviewed and Approved:

  
Suzanne Vaudry  
Project Manager

American Council of Independent Laboratories  
International Association of Environmental Testing Laboratories  
American Association for Laboratory Accreditation



Company: Gettler-Ryan

Date: 06/27/90

Client Work ID: GR7814, Unocal SS# 5325

Work Order: T0-06-216

TEST NAME: CAC Metals Analysis

SAMPLE ID: U-WO-A, U-WO-B, U-WO-C, U-WO-D [composite]

SAMPLE DATE: 06/20/90

LAB SAMPLE ID: T006216-01, T006216-02, T006216-03, T006216-04 [composite]

SAMPLE MATRIX: solid

RECEIPT CONDITION: Cool

RESULTS in Milligrams per Kilogram:

PARAMETER	METHOD	DETECTION	
		LIMIT	DETECTED
Antimony	6010	2.	None
Arsenic	7060	0.2	5.0
Barium	6010	0.2	65.
Beryllium	6010	0.2	0.4
Cadmium	6010	0.2	3.0
Chromium	6010	0.5	37.
Cobalt	6010	0.2	5.1
Copper	6010	0.5	16.
Lead	7421	0.1	15.
Mercury	7470	0.1	0.1
Molybdenum	6010	0.5	None
Nickel	6010	0.2	43.
Selenium	7740	4.	None
Silver	6010	0.2	None
Thallium	6010	0.2	None
Vanadium	6010	0.2	20.
Zinc	6010	0.5	55.

Company: Gettler-Ryan

Date: 06/27/90

Client Work ID: GR7814, Unocal SS# 5325

Work Order: T0-06-216

TEST NAME: General Chemistry

SAMPLE ID: U-WO-A, U-WO-B, U-WO-C, U-WO-D [composite]

SAMPLE DATE: 06/20/90

LAB SAMPLE ID: T006216-01, T006216-02, T006216-03, T006216-04 [composite]

SAMPLE MATRIX: solid

RECEIPT CONDITION: Cool

RESULTS in Milligrams per Kilogram:

PARAMETER	METHOD	DETECTION LIMIT	DETECTED
Cyanide (total)	9010	0.5	26.
Sulfide	9030	1.0	None
TOX	Mod. 9020	50.	None

Company: Gettler-Ryan

Date: 06/27/90

Client Work ID: GR7814, Unocal SS# 5325

Work Order: T0-06-216

TEST NAME: PCB

SAMPLE ID: U-WO-A, U-WO-B, U-WO-C, U-WO-D [composite]

SAMPLE DATE: 06/20/90

LAB SAMPLE ID: T006216-01, T006216-02, T006216-03, T006216-04 [composite]

SAMPLE MATRIX: solid

RECEIPT CONDITION: Cool

EXTRACTION DATE: 06/20/90

ANALYSIS DATE: 06/21/90

RESULTS in Milligrams per Kilogram:

PARAMETER	DETECTION LIMIT	DETECTED
PCB 1016	0.02	None
PCB 1221	0.02	None
PCB 1232	0.02	None
PCB 1242	0.02	None
PCB 1248	0.02	None
PCB 1254	0.02	None
PCB 1260	0.02	None
PCB 1262	0.02	None
PCB 1268	0.02	None

Company: Gettler-Ryan

Date: 06/21/90

Client Work ID: GR7814, Unocal SS# 5325

Work Order: T0-06-216

TEST NAME: General Chemistry

SAMPLE ID: US-6A, US-6B, US-6C, US-6D [composite]

SAMPLE DATE: 06/20/90

LAB SAMPLE ID: T006216-05, T006216-06, T006216-07, T006216-08 [composite]

SAMPLE MATRIX: solid

RECEIPT CONDITION: Cool

RESULTS in Milligrams per Kilogram:

PARAMETER	METHOD	DETECTION LIMIT	DETECTED
Cyanide (total)	9010	0.5	6.9
Sulfide	9030	1.0	None

Company: Gettler-Ryan

Date: 06/27/90

Client Work ID: GR7814, Unocal SS# 5325

Work Order: T0-06-216

TEST NAME: Metals Analysis

SAMPLE ID: US-6A, US-6B, US-6C, US-6D [composite]

SAMPLE DATE: 06/20/90

LAB SAMPLE ID: T006216-05, T006216-06, T006216-07, T006216-08 [composite]

SAMPLE MATRIX: solid

RECEIPT CONDITION: Cool

RESULTS in Milligrams per Kilogram:

PARAMETER	METHOD	DETECTION LIMIT	DETECTED
Lead	7421	0.1	15.0
Lead (org.)	DHS	1.0	None

IT ANALYTICAL SERVICES  
SAN JOSE, CACompany: Gettler-Ryan  
Date: 06/27/90  
Client Work ID: GR7814, Unocal SS# 5325

Work Order: T0-06-216

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: US-6A, US-6B, US-6C, US-6D [composite]

SAMPLE DATE: 06/20/90

LAB SAMPLE ID: T006216-05, T006216-06, T006216-07, T006216-08 [composite]

SAMPLE MATRIX: Solid

RECEIPT CONDITION: Cool

RESULTS in Milligrams per Kilogram:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020	06/25/90	06/25/90
Low Boiling Hydrocarbons	Mod.8015	06/25/90	06/25/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	50.	1,800.
BTEX		
Benzene	0.50	6.6
Toluene	0.50	90.
Ethylbenzene	0.50	53.
Xylenes (total)	1.	320.

Company: Gettler-Ryan

Date: 06/27/90

Client Work ID: GR7814, Unocal SS# 5325

Work Order: T0-06-216

TEST CODE CAC TEST NAME CAC Metals Analysis

The methods of analysis for metals and general chemistry are taken from E.P.A. protocol, using methods from SW-846, 3rd Edition or Methods for Chemical Analysis of Water and Wastes, 600/4-79-020. The method used is listed adjacent to the parameter in the table.

TEST CODE GEN TEST NAME General Chemistry

The methods of analysis for general chemistry are taken from E.P.A. protocol, using methods from SW-846, 3rd Edition or Methods for Chemical Analysis of Water and Wastes, 600/4-79-020. The method used is listed adjacent to the parameter in the table.

TEST CODE METALS TEST NAME Metals Analysis

The methods of analysis for metals are taken from E.P.A. protocol, using methods from SW-846, 3rd Edition or Methods for Chemical Analysis of Water and Wastes, 600/4-79-020. The method used is listed adjacent to the parameter in the table.

TEST CODE ORGPBS TEST NAME Organic Lead in Soil

The method of analysis of organic lead was taken from the California Department of Health Services, Method for Organic Lead Analysis.

TEST CODE PCB TEST NAME PCB

The method of analysis for polychlorinated biphenyl mixtures involves diluting or extracting the sample with solvent. The resulting extract is cleaned-up to remove interferences and examined by gas chromatography using an electron capture detector.

Company: Gettler-Ryan

Date: 06/27/90

Client Work ID: GR7814, Unocal SS# 5325

Work Order: T0-06-216

---

TEST CODE TPHVBS TEST NAME Gasoline/BTEX in Soil

The method of analysis for low boiling hydrocarbons is taken from EPA Methods 8015, 8020 and 5030. The sample is examined using the purge and trap technique. Final detection is by gas chromatography using a flame ionization detector as well as a photoionization detector. The result for total low boiling hydrocarbons is calculated as gasoline and includes benzene, toluene, ethylbenzene and xylenes.



COMPANY Unocal SS# 5325 JOB NO. 7814

JOB LOCATION 3220 Lakeshore Ave / Park Park Ave

CITY Oakland PHONE NO. \_\_\_\_\_

AUTHORIZED John Werf DATE 6-20-90 P.O. NO. \_\_\_\_\_

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
U-WO-a	1	Soil	6-20-90	Composite and analyze as one sample for: Total Sulfides Total Cyanide PCB's Total Organic Halides CAM Metals	Cool
U-WO-b	1	Soil			
U-WO-c	1	Soil			
U-WO-d	1	Soil			

*24 hr Rush*

RELINQUISHED BY: Matt Jaramich 6-21-90

RECEIVED BY: Doug Vasek 10:24 6-21-90

RELINQUISHED BY: Doug Vasek 10:27 6-21-90

RECEIVED BY: [Signature] 6-21-90 10:28

RELINQUISHED BY: [Signature] 6-21-90 14:34

RECEIVED BY LAB: [Signature] 6/21/90 1437

DESIGNATED LABORATORY: \_\_\_\_\_ DHS #: \_\_\_\_\_

REMARKS: Composite Samples U-WO-a, U-WO-b, U-WO-c, U-WO-d  
Analyze as one sample

*24 hr Rush*

DATE COMPLETED 6-21-90 FOREMAN Doug Vasek

Gettler - Ryan Inc.

TO-06-216  
ENVIRONMENTAL DIVISION

0602 Chain of Custody

COMPANY Vnocal SS# 5325

JOB NO. 7814

JOB LOCATION 3220 Lakeshore Ave / Lock Park Ave

CITY Oakland

PHONE NO. \_\_\_\_\_

AUTHORIZED John W. Fal

DATE 6-20-90

P.O. NO. \_\_\_\_\_

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
US-6a	1	Soil	6-20-90	Composite and analyze as one sample for: Total Sulfide Total Cyanide TPH-Gasoline Total Lead Organic Lead	Cool
US-6b	1	↓	↓		
US-6c	1	↓	↓		
US-6d	1	↓	↓		

*24hr Rush*

RELINQUISHED BY:

Mat Pawowick 6-21-90

RELINQUISHED BY:

Don Voshu 10:27 6-21-90

RELINQUISHED BY:

[Signature] 6-21-90 14:39

RECEIVED BY:

[Signature] 10:24 6-21-90

RECEIVED BY:

[Signature] 6-21-90 10:28

RECEIVED BY LAB:

[Signature] 6/21/90 1437

DESIGNATED LABORATORY:

DHS # \_\_\_\_\_

REMARKS:

Composite Sample US-6a, US-6b, US-6c, US-6d  
analyze as one sample

DATE COMPLETED

6-21-90

FOREMAN

Don Voshu



INTERNATIONAL  
TECHNOLOGY  
CORPORATION

# ANALYTICAL SERVICES

## CERTIFICATE OF ANALYSIS

Gettler-Ryan  
2150 West Winton  
Hayward, CA 94545  
John Werfal

Date: 07/05/90

Work Order: T0-06-254

P.O. Number: 7814

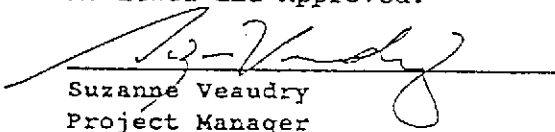
This is the Certificate of Analysis for the following samples:

Client Work ID: GR7814, Unocal SS# 5325  
Date Received: 06/25/90  
Number of Samples: 4 composited to 1  
Sample Type: solid

### TABLE OF CONTENTS FOR ANALYTICAL RESULTS

<u>PAGES</u>	<u>LABORATORY #</u>	<u>SAMPLE IDENTIFICATION</u>
2	T0-06-254-01	US-11A
	T0-06-254-02	US-11B
	T0-06-254-03	US-11C
	T0-06-254-04	US-11D

Reviewed and Approved:

  
Suzanne Veaudry  
Project Manager

American Council of Independent Laboratories  
International Association of Environmental Testing Laboratories  
American Association for Laboratory Accreditation

IT ANALYTICAL SERVICES  
SAN JOSE, CA

Company: Gettler-Ryan

Date: 07/05/90

Client work ID: GR7814, Unocal SS# 5325

Work Order: TO-06-254

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: US-11A, US-11B, US-11C, US-11D [composite]

SAMPLE DATE: 06/22/90

LAB SAMPLE ID: T006254-01, T006254-02, T006254-03, T006254-04 [composite]

SAMPLE MATRIX: solid

RECEIPT CONDITION: Cool

RESULTS in Milligrams per Kilogram:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020		06/27/90
Low Boiling Hydrocarbons	Mod.8015		06/27/90
High Boiling Hydrocarbons	Mod.8015	06/28/90	07/02/90
Oil and Grease	418.1	06/28/90	07/02/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	100.	1,700.
BTEX		
Benzene	1.	3.1
Toluene	1.	65.
Ethylbenzene	1.	58.
Xylenes (total)	2.	320.
High Boiling Hydrocarbons calculated as Diesel	200.	2,000.*
Oil and Grease	100.	180.

\*Compounds detected and calculated as diesel appear to be the less volatile constituents of gasoline.

Company: Gettler-Ryan

Date: 07/05/90

Client Work ID: GR7814, Unocal SS# 5325

Work Order: T0-06-254

---

TEST CODE TPHIRS TEST NAME EPA 418.1 in Soil

The method of analysis for total recoverable petroleum hydrocarbons is taken from E.P.A. Method 418.1. The sample is extracted with repeated portions of solvent and the extract is treated with silica gel to remove polar compounds. The extract is examined using infrared spectroscopy.

TEST CODE TPHN TEST NAME TPH High Boiling by 8015

The method of analysis for high boiling hydrocarbons involves extracting the samples with solvent and examining the extracts by gas chromatography using a flame ionization detector.

TEST CODE TPHVB TEST NAME TPH Gas, BTEX by 8015/8020

The method of analysis for low boiling hydrocarbons is taken from EPA Methods 8015, 8020 and 5030. The sample is examined using the purge and trap technique. Final detection is by gas chromatography using a flame ionization detector as well as a photoionization detector. The result for total low boiling hydrocarbons is calculated as gasoline and includes benzene, toluene, ethylbenzene and xylenes.





INTERNATIONAL  
TECHNOLOGY  
CORPORATION

# ANALYTICAL SERVICES

## CERTIFICATE OF ANALYSIS

Date: 07/20/90

Gettler-Ryan  
2150 West Winton  
Hayward, CA 94545  
John Werfal

Work Order: TO-07-160

P.O. Number: 7814

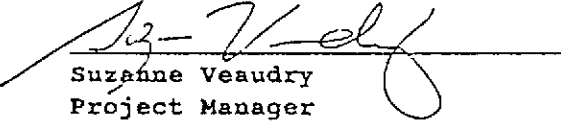
This is the Certificate of Analysis for the following samples:

Client Work ID: GR7814, Unocal  
Date Received: 07/18/90  
Number of Samples: 8, 2 composites of 4 each  
Sample Type: solid

### TABLE OF CONTENTS FOR ANALYTICAL RESULTS

<u>PAGES</u>	<u>LABORATORY #</u>	<u>SAMPLE IDENTIFICATION</u>
2	TO-07-160-01	US-17A
	TO-07-160-02	US-17B
	TO-07-160-03	US-17C
	TO-07-160-04	US-17D
4	TO-07-160-05	US-18A
	TO-07-160-06	US-18B
	TO-07-160-07	US-18C
	TO-07-160-08	US-18D

Reviewed and Approved:

  
Suzanne Veaudry  
Project Manager

Company: Gettler-Ryan  
 Date: 07/20/90  
 Client Work ID: GR7814, Unocal

Work Order: T0-07-160

## TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: US-17A , US-17B, US-17C, US-17D (Composite)  
 SAMPLE DATE: 07/18/90  
 LAB SAMPLE ID: T007160-01A, -02A, -03A, -04A (Composite)  
 SAMPLE MATRIX: solid  
 RECEIPT CONDITION: Cool

## RESULTS in Milligrams per Kilogram:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020	07/18/90	07/19/90
Low Boiling Hydrocarbons	Mod.8015	07/18/90	07/19/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	2.0	4.7
BTEX		
Benzene	0.02	None
Toluene	0.02	0.03
Ethylbenzene	0.02	0.04
Xylenes (total)	0.04	0.21



Company: Gettler-Ryan  
Date: 07/20/90  
Client Work ID: GR7814, Unocal

Work Order: T0-07-160

TEST NAME: Metals Analysis

SAMPLE ID: US-18A, US-18B, US-18C, US-18D (Composite)  
SAMPLE DATE: 07/18/90  
LAB SAMPLE ID: T007160-05A, -06A, -07A, -08A (Composite)  
SAMPLE MATRIX: solid  
RECEIPT CONDITION: Cool

RESULTS in Milligrams per Kilogram:

PARAMETER	METHOD	DETECTION LIMIT	DETECTED
Lead (org.)	DHS	1.0	None

Company: Gettler-Ryan

Date: 07/20/90

Client Work ID: GR7814, Unocal

Work Order: T0-07-160

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: US-18A, US-18B, US-18C, US-18D (Composite)

SAMPLE DATE: 07/18/90

LAB SAMPLE ID: T007160-05 A, -06A, -07A, -08A (Composite)

SAMPLE MATRIX: solid

RECEIPT CONDITION: Cool

RESULTS in Milligrams per Kilogram:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020	07/18/90	07/19/90
Low Boiling Hydrocarbons	Mod.8015	07/18/90	07/19/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	4.0	13.
BTEX		
Benzene	0.04	None
Toluene	0.04	0.05
Ethylbenzene	0.04	None
Xylenes (total)	0.08	0.22

Gettler - Ryan Inc. 7 T007-16C 1350 Chain of Custody  
ENVIRONMENTAL DIVISION  
 COMPANY UNOCAL JOB NO. 784  
 JOB LOCATION 3220 Lake Shore Ave  
 CITY Oakland PHONE NO. \_\_\_\_\_  
 AUTHORIZED J. W. Enfal DATE 7-18-90 P.O. NO. \_\_\_\_\_

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
US-17ad	4	Soil	7-18-90	Gas, BTEX	Cool
US-18ad	11	11	7-18-90	Gas, BTEX and Organic Lead	↓
Composite and analyze as one					

RELINQUISHED BY: Matt Janowiak 7-18-90 11:30 A.M. RECEIVED BY: \_\_\_\_\_

RELINQUISHED BY: \_\_\_\_\_ RECEIVED BY: \_\_\_\_\_

RELINQUISHED BY: \_\_\_\_\_ RECEIVED BY LAB: [Signature] 7/18/90 151130

DESIGNATED LABORATORY: IT San Jose DHS #: \_\_\_\_\_

REMARKS: 2-3 T-A-T

DATE COMPLETED 7-18-90 FOREMAN Matt Janowiak



INTERNATIONAL  
TECHNOLOGY  
CORPORATION

# ANALYTICAL SERVICES

## CERTIFICATE OF ANALYSIS

Date: 07/27/90

Gettler-Ryan  
2150 West Winton  
Hayward, CA 94545  
John Werfal

Work Order: TO-07-253

P.O. Number: 7814

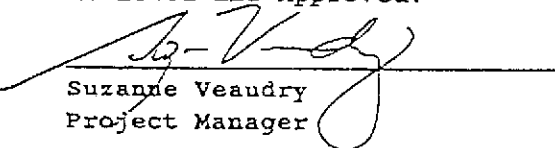
This is the Certificate of Analysis for the following samples:

Client Work ID: GR7814, Unocal 3220 LakeShore  
Date Received: 07/25/90  
Number of Samples: 8  
Sample Type: solid

### TABLE OF CONTENTS FOR ANALYTICAL RESULTS

<u>PAGES</u>	<u>LABORATORY #</u>	<u>SAMPLE IDENTIFICATION</u>
2	TO-07-253-01	US-19A
	TO-07-253-02	US-19B
	TO-07-253-03	US-19C
	TO-07-253-04	US-19D
3	TO-07-253-05	US-20A
	TO-07-253-06	US-20B
	TO-07-253-07	US-20C
	TO-07-253-08	US-20D

Reviewed and Approved:

  
Suzanne Veaudry  
Project Manager

American Council of Independent Laboratories  
International Association of Environmental Testing Laboratories  
American Association for Laboratory Accreditation

IT ANALYTICAL SERVICES  
SAN JOSE, CA

Company: Gettler-Ryan

Date: 07/27/90

Client Work ID: GR7814, Unocal 3220 Lake Shore

Work Order: TO-07-253

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: US-19A, US-19B, US-19C, US-19D [composite]

SAMPLE DATE: 07/24/90

LAB SAMPLE ID: T007253-01, -02, -03, -04 [composite]

SAMPLE MATRIX: solid

RECEIPT CONDITION: Cool

RESULTS in Milligrams per Kilogram:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020	07/26/90	07/26/90
Low Boiling Hydrocarbons	Mod.8015	07/26/90	07/26/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	8.0	24.
BTEX		
Benzene	0.08	None
Toluene	0.08	None
Ethylbenzene	0.08	None
Xylenes (total)	0.08	0.12

Company: Gettler-Ryan

Date: 07/27/90

Client Work ID: GR7814, Unocal 3220 LakeShore

Work Order: TO-07-253

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: US-20A, US-20B, US-20C, US-20D [composite]

SAMPLE DATE: 07/24/90

LAB SAMPLE ID: T007253-05, -06, -07, -08 [composite]

SAMPLE MATRIX: solid

RECEIPT CONDITION: Cool

RESULTS in Milligrams per Kilogram:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020	07/26/90	07/26/90
Low Boiling Hydrocarbons	Mod.8015	07/26/90	07/26/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	20.	93.
BTEX		
Benzene	0.2	None
Toluene	0.2	None
Ethylbenzene	0.2	None
Xylenes (total)	0.2	None

Company: Gettler-Ryan

Date: 07/27/90

Client Work ID: GR7814, Unocal 3220 Lake Shore

Work Order: TO-07-253

---

TEST CODE TPHVB TEST NAME TPH Gas, BTEX by 8015/8020

The method of analysis for low boiling hydrocarbons is taken from E.P.A. Methods 8015, 8020 and 5030. The sample is examined using the purge and trap technique. Final detection is by gas chromatography using a flame ionization detector as well as a photoionization detector. The result for total low boiling hydrocarbons is calculated as gasoline and includes benzene, toluene, ethylbenzene and xylenes.

Gettler - Ryan Inc.

TO-07-253  
ENVIRONMENTAL DIVISION

0644 Chain of Custody

COMPANY UNOCAL

JOB NO. 7814

JOB LOCATION 3220 Lake Shore Ave

CITY Oakland

PHONE NO.

AUTHORIZED John Wenzel

DATE 7-24-90

P.O. NO.

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
1 US-19a	1	Soil	7-24-90	Gas, BTEX	Cod (S)
2 US-19b	1			composite and analyze as one	}
3 US-19c	1				
4 US-19d	1				
5 US-20a	1				
6 US-20b	1			composite and analyze as one	}
7 US-20c	1				
8 US-20d	1				

RELINQUISHED BY:

*Matthew J. ...*

RECEIVED BY:

*[Signature]* 7-25-90 06:00

RELINQUISHED BY:

*[Signature]* 7-25-90 12:30

RECEIVED BY:

*[Signature]*

RELINQUISHED BY:

*[Signature]*

RECEIVED BY LAB:

*[Signature]* 7/25/90 1730

DESIGNATED LABORATORY:

IT San Jose

DHS #:

REMARKS:

1 ~~5~~-Day T-A-T

DATE COMPLETED

FOREMAN

*Matthew J. ...*





INTERNATIONAL  
TECHNOLOGY  
CORPORATION

# ANALYTICAL SERVICES

## CERTIFICATE OF ANALYSIS

Date: 08/08/90

Gettler-Ryan  
2150 West Winton  
Hayward, CA 94545  
John Werfal

Work Order: T0-08-023

P.O. Number: 7814

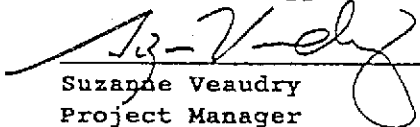
This is the Certificate of Analysis for the following samples:

Client Work ID: GR7814, Unocal #5325  
Date Received: 08/02/90  
Number of Samples: 4 composited to 1  
Sample Type: solid

### TABLE OF CONTENTS FOR ANALYTICAL RESULTS

<u>PAGES</u>	<u>LABORATORY #</u>	<u>SAMPLE IDENTIFICATION</u>
2	T0-08-023-01	US-21A
	T0-08-023-02	US-21B
	T0-08-023-03	US-21C
	T0-08-023-04	US-21D

Reviewed and Approved:

  
Suzanne Veaudry  
Project Manager

American Council of Independent Laboratories  
International Association of Environmental Testing Laboratories  
American Association for Laboratory Accreditation

Company: Gettler-Ryan

Date: 08/08/90

Client Work ID: GR7814, Unocal #5325

Work Order: TO-08-023

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: US-21A, US-21B, US-21C, US-21D [composite]

SAMPLE DATE: 08/02/90

LAB SAMPLE ID: T008023-01, T008023-02, T008023-03, T008023-04 [composite]

SAMPLE MATRIX: solid

RECEIPT CONDITION: Cool

RESULTS in Milligrams per Kilogram:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020	08/03/90	08/03/90
Low Boiling Hydrocarbons	Mod.8015	08/03/90	08/03/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	20.	60.
BTEX		
Benzene	0.20	None
Toluene	0.20	None
Ethylbenzene	0.20	None
Xylenes (total)	0.20	0.66

IT ANALYTICAL SERVICES  
SAN JOSE, CA

Company: Gettler-Ryan

Date: 08/08/90

Client Work ID: GR7814, Unocal #5325

Work Order: T0-08-023

---

TEST CODE TPHVB TEST NAME TPH Gas, BTEX by 8015/8020

The method of analysis for low boiling hydrocarbons is taken from E.P.A. Methods 8015, 8020 and 5030. The sample is examined using the purge and trap technique. Final detection is by gas chromatography using a flame ionization detector as well as a photoionization detector. The result for total low boiling hydrocarbons is calculated as gasoline and includes benzene, toluene, ethylbenzene and xylenes.

Gettler - Ryan Inc. 7 TO-08-023 D 0677 Chain of Custody  
ENVIRONMENTAL DIVISION  
 COMPANY UNOCAL #5325 JOB NO. 7814  
 JOB LOCATION 3220 Lake Shore Ave  
 CITY Oakland PHONE NO. \_\_\_\_\_  
 AUTHORIZED John Wersfal DATE 8-2-90 P.O. NO. \_\_\_\_\_

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
<u>US-21A</u>	<u>1</u>	<u>Soil</u>	<u>8-2-90</u>	<u>Gas, BTEX</u>	<u>COO1</u>
<u>US-21B</u>	<u>1</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u>US-21C</u>	<u>1</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u>US-21D</u>	<u>1</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

(Composite and analyze as one)

RELINQUISHED BY: Mat Parnovich 8-2-90  
 RELINQUISHED BY: \_\_\_\_\_

RECEIVED BY: [Signature] 8/2/90 1515  
 RECEIVED BY: \_\_\_\_\_

RELINQUISHED BY: \_\_\_\_\_

RECEIVED BY LAB: [Signature] 8-2-90 1515  
 \_\_\_\_\_

DESIGNATED LABORATORY: IT Sen Jose

DHS #: 137

REMARKS: 48 hr T-A-T

DATE COMPLETED \_\_\_\_\_

FOREMAN Mat Parnovich

**CERTIFICATE OF ANALYSIS**

Date: 07/20/90

Gettler-Ryan  
2150 West Winton  
Hayward, CA 94545  
John Werfal

Work Order: T0-07-160

P.O. Number: 7814

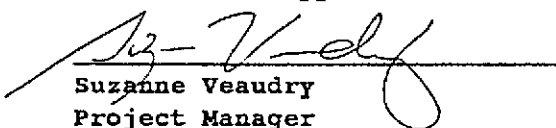
This is the Certificate of Analysis for the following samples:

Client Work ID: GR7814, Unocal  
Date Received: 07/18/90  
Number of Samples: 8, 2 composites of 4 each  
Sample Type: solid

**TABLE OF CONTENTS FOR ANALYTICAL RESULTS**

<u>PAGES</u>	<u>LABORATORY #</u>	<u>SAMPLE IDENTIFICATION</u>
2	T0-07-160-01	US-17A
	T0-07-160-02	US-17B
	T0-07-160-03	US-17C
	T0-07-160-04	US-17D
4	T0-07-160-05	US-18A
	T0-07-160-06	US-18B
	T0-07-160-07	US-18C
	T0-07-160-08	US-18D

Reviewed and Approved:

  
Suzanne Veaudry  
Project Manager

American Council of Independent Laboratories  
International Association of Environmental Testing Laboratories  
American Association for Laboratory Accreditation

Company: Gettler-Ryan  
 Date: 07/20/90  
 Client Work ID: GR7814, Unocal

Work Order: T0-07-160

## TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: US-17A , US-17B, US-17C, US-17D (Composite)  
 SAMPLE DATE: 07/18/90  
 LAB SAMPLE ID: T007160-01A, -02A, -03A, -04A (Composite)  
 SAMPLE MATRIX: solid  
 RECEIPT CONDITION: Cool

## RESULTS in Milligrams per Kilogram:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020	07/18/90	07/19/90
Low Boiling Hydrocarbons	Mod.8015	07/18/90	07/19/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	2.0	4.7
BTEX		
Benzene	0.02	None
Toluene	0.02	0.03
Ethylbenzene	0.02	0.04
Xylenes (total)	0.04	0.21

Company: Gettler-Ryan  
Date: 07/20/90  
Client Work ID: GR7814, Unocal

Work Order: T0-07-160

## TEST NAME: Metals Analysis

SAMPLE ID: US-18A, US-18B, US-18C, US-18D (Composite)  
SAMPLE DATE: 07/18/90  
LAB SAMPLE ID: T007160-05A, -06A, -07A, -08A (Composite)  
SAMPLE MATRIX: solid  
RECEIPT CONDITION: Cool

## RESULTS in Milligrams per Kilogram:

PARAMETER	METHOD	DETECTION LIMIT	DETECTED
Lead (org.)	DHS	1.0	None

Company: Gettler-Ryan

Date: 07/20/90

Client Work ID: GR7814, Unocal

Work Order: T0-07-160

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: US-18A, US-18B, US-18C, US-18D (Composite)

SAMPLE DATE: 07/18/90

LAB SAMPLE ID: T007160-05 A, -06A, -07A, -08A (Composite)

SAMPLE MATRIX: solid

RECEIPT CONDITION: Cool

RESULTS in Milligrams per Kilogram:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020	07/18/90	07/19/90
Low Boiling Hydrocarbons	Mod.8015	07/18/90	07/19/90

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	4.0	13.
BTEX		
Benzene	0.04	None
Toluene	0.04	0.05
Ethylbenzene	0.04	None
Xylenes (total)	0.08	0.22



Company: Gettler-Ryan  
Date: 07/20/90  
Client Work ID: GR7814, Unocal

Work Order: T0-07-160

---

TEST CODE METALS TEST NAME Metals Analysis

The methods of analysis for metals are taken from E.P.A. protocol, using methods from SW-846, 3rd Edition or Methods for Chemical Analysis of Water and Wastes, 600/4-79-020. The method used is listed adjacent to the parameter in in the table.

TEST CODE ORGPBS TEST NAME Organic Lead in Soil

The method of analysis of organic lead was taken from the California Department of Health Services, Method for Organic Lead Analysis.

TEST CODE TPHVB TEST NAME TPH Gas, BTEX by 8015/8020

The method of analysis for low boiling hydrocarbons is taken from E.P.A. Methods 8015, 8020 and 5030. The sample is examined using the purge and trap technique. Final detection is by gas chromatography using a flame ionization detector as well as a photoionization detector. The result for total low boiling hydrocarbons is calculated as gasoline and includes benzene, toluene, ethylbenzene and xylenes.