

- October 19, 1990
SCI 447.019

Mr. Jonathan Redding
Fitzgerald, Abbott & Beardsley
1221 Broadway, 21st Floor
Oakland, California 94612

Preliminary Subsurface Investigation
1432 Harrison Street
Oakland, California

Dear Mr. Redding:

This letter records our services to date regarding subsurface investigations and analytical testing performed at the referenced site. Results of a prior phase of investigation and analytical testing were transmitted to you in a previous letter dated August 18, 1990. A plan showing the location of the structure is presented on Plate 1.

Since the investigation recorded in our August 18th letter, our services have included (1) observing a geophysical survey performed by JR Associates within the building, (2) drilling six additional test borings within the structure, and (3) performing analytical tests on selected samples from the borings.

Geophysical Investigation

A ground-penetrating radar survey was performed in an effort to determine if additional underground storage tanks existed within the structure. Surveys were performed in areas suspected of containing underground storage tanks. During the survey, two waste oil tanks were discovered in the basement of the structure. In addition, an "anomalous" radar image was also revealed during the survey near the area identified on Plate 1 as the suspected former tank location. These areas were investigated further by drilling soil borings, as discussed in the following sections.

Subsurface Investigation

Six additional test borings (3 through 8) were drilled in areas of potential environmental concern. Their locations are indicated on Plate 1. Borings 1 and 2 were drilled previously near underground gasoline storage tanks beneath the Harrison Street sidewalk. Boring 3 was drilled adjacent to a wash area sump. Boring 4 was located next to an existing hydraulic automobile lift. Boring 5 was drilled near the anomalous area identified by the geophysical survey. These three borings extended to depths of approximately 25 feet below the ground surface.

■ **Subsurface Consultants, Inc.**

Mr. Jonathan Redding
Fitzgerald, Abbott & Beardsley
SCI 447.019
October 19, 1990
Page 2

Test Boring 6 was drilled adjacent to the waste oil tanks, discovered in the basement of the structure. This boring extended to a depth of about 10 feet below the basement floor, which was just above groundwater in the area. Borings 7 and 8 were drilled within the central portion of the structure, in an effort to determine if contamination associated with the gasoline tanks extended beneath the building. These borings extended about 25 feet below the floor of the garage.

Test Borings 3 through 8 were drilled using four-inch diameter, solid-flight auger drilling equipment. Our geologist observed drilling operations, prepared detailed logs of the materials encountered, and obtained undisturbed samples of the soils encountered. Upon conclusion of drilling, the test borings were backfilled with cement grout. Soil cuttings generated during drilling were placed in steel barrels and left on-site.

Soil samples were retained in brass sample liners. The ends of the liners were covered with Teflon sheeting, capped, and sealed with duct tape. Samples were refrigerated on-site in ice chests and remained so until delivery to the analytical laboratory. Chain-of-custody records accompanied the samples to the analytical laboratory. Copies of the test boring logs are presented on Plates 2 through 7; chain-of-custody documents are attached.

Soil and Groundwater Conditions

Our test borings indicate that the site is underlain by dense, fine-grained sands containing varying amounts of silt and clay. These soils extend to the depths explored, about 25 feet below sidewalk grades. According to a geologic map by Radbruch¹, these sediments are part of the Merritt Sand formation.

Groundwater was encountered at depths varying from about 23 to 25 feet below the Harrison Garage floor slab during drilling. This level does not likely represent stabilized groundwater conditions. Data regarding past and present groundwater flow directions is currently unavailable. However, regional topographic contours would suggest a groundwater flow direction to the east, toward Lake Merritt.

¹ Radbruch, D., Areal and Engineering Geology of the Oakland West Quadrangle, California, USGS Misc. Geologic Investigations, Map I-239, 1957.

Mr. Jonathan Redding
 Fitzgerald, Abbott & Beardsley
 SCI 447.019
 October 19, 1990
 Page 3

Analytical Testing

Seven soil samples were selected for chemical analysis, based on visual/olfactory inspection and organic vapor meter (OVM) screening. The soil samples were analyzed by Curtis & Tompkins, Ltd., a laboratory certified by the California Department of Health Services for the tests performed. Selected samples were analyzed for total volatile hydrocarbons (TVH), benzene, toluene, xylene, and ethylbenzene (BTXE), total extractable hydrocarbons (TEH), total oil and grease (TOG), chlorinated hydrocarbons (EPA 8010), polychlorinated biphenyls (PCBs), and soluble lead. The results of the analytical testing are summarized on Plate 1 and in the following table:

Table 1. Contaminant Concentrations in Soil

Boring & Depth	TVH ¹ (ppm)	B ² (ppb)	T ³ (ppb)	X ⁴ (ppb)	E ⁵ (ppb)	TOG ⁶ (ppm)	TEH ⁷	OTHER
							(ppm) Keros./Diesel	8010/Sol Pb/PCBs ---/(ppm)/(ppb)
B1 @ 20'	6.300	99.000	490.000	610.000	110.000	---	---/---	---/---/---
B2 @ 18.5'	9.300	98.000	900.000	1,100.000	190.000	---	---/---	---/0.21/---
B3	--- ⁸	---	---	---	---	---	---/---	---/---/---
B4 @ 10'	---	---	---	---	---	6.300	ND ⁹ /1.700	---/---/---
B5 @ 22.5'	110	24	210	1,300	69	---	---/---	---/---/---
B6 @ 9'	---	ND	ND	ND	ND	ND	98/ND	ND/0.06/9 (Arochlor 1260)
B6 @ 9.5'	---	---	---	---	---	ND	140/ND	---/---/---
B7 @ 13'	ND	ND	ND	ND	ND			
B7 @ 20'	2.500	3.500	34.000	130.000	33.000	---	---/---	---/0.07/---
B8 @ 22.5'	1.200	2.300	38.000	89.000	18.000	---	---/---	---/---/---

- 1 Total Volatile Hydrocarbons, mg/kg = ppm
- 2 Benzene, ug/kg = ppb
- 3 Toluene
- 4 Xylene
- 5 Ethylbenzene
- 6 Total Oil & Grease
- 7 Total Extractable Hydrocarbons (as kerosene and diesel)
- 8 Not tested for
- 9 Not detected

Mr. Jonathan Redding
Fitzgerald, Abbott & Beardsley
SCI 447.019
October 19, 1990
Page 4

Conclusions

Existing Gasoline Storage Tanks

The previous investigation performed by SCI revealed the presence of gasoline-contaminated soils beneath two gasoline tanks located under the sidewalk adjacent to Harrison Street. Based on the gasoline concentrations found in the soils, it appears probable that free product exists on the groundwater surface. Soil samples situated just above groundwater from Borings 7, 8 and 5 contain gasoline concentrations of 2500, 1200 and 110 mg/kg, respectively. Judging from the concentration, we conclude that free gasoline product likely exists in a relatively large area, extending eastward beyond Boring 8. It appears probable that gasoline tank related contamination has impacted soils more than 100 feet from the tanks. Gasoline concentrations in Borings 5, 7 and 8 exceed current remediation guidelines, as promulgated by the ACHCSA. Consequently, we conclude that remediation of the gasoline-contaminated soils will be required.

Because it appears probable that free product exists on the groundwater surface, it is likely that groundwater quality has been degraded. The severity of groundwater impacts remains unknown. Further investigation will be required to determine the extent and severity of the groundwater problem. However, based on experience in the area, we judge that groundwater remediation will be required.

Hydraulic Hoist Area

Analytical test results from samples obtained from Boring 4 indicate concentrations of oil and grease of 6300 ppm and TEH (as diesel) of 1700 ppm in soils situated at a depth of about 10 feet. The soil sample analyzed was obtained from near an hydraulic automobile lift. Based on our observations and experience, we judge that these hydrocarbons are most likely associated with hydraulic fluids used in the lift. The data indicates that soil contamination has occurred, most likely as a result of leakage from the hydraulic lift cylinder. The concentrations are sufficiently high that they exceed current hydrocarbon regulatory agency cleanup guidelines. Consequently, we conclude that soil remediation will likely be required in this location.

Mr. Jonathan Redding
Fitzgerald, Abbott & Beardsley
SCI 447.019
October 19, 1990
Page 5

Waste Oil Tanks

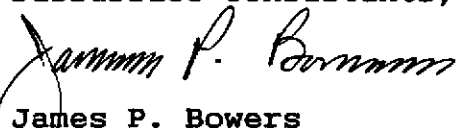
A test boring drilled adjacent to the waste oil tanks located in the basement of the structure encountered soils possessing relatively strong hydrocarbon odors. Soil samples taken from depths of about nine feet below the basement floor, which was just above groundwater, indicated hydrocarbon (as kerosene) concentrations up to 140 mg/kg. In addition, a very low concentration of PCBs (9 ug/kg) as Arochlor 1260 was reported by the laboratory to be present in the soils. In our opinion, the hydrocarbon source is most likely the adjacent waste oil tank(s). It is possible that our test boring was situated on the upgradient side of the tanks and hence may have been positioned near the edge of the contaminated soil area. Further study is required to evaluate the extent of contamination and remediation.

If you have any questions regarding our services to date or conclusions, please call.

Yours very truly,

5 mg/kg ppm PCB = haz.

Subsurface Consultants, Inc.


James P. Bowers
Geotechnical Engineer 157 (expires 3/31/91)

CRF:JPB:gf

Attachments: Analytical Test Results, Plate 1
Plates 2 through 7, Boring Logs
Plate 8, Unified Soil Classification System
Analytical Test Reports
Chain-of-Custody Documents

ALICE STREET

WASTE OIL TANKS
(BASEMENT)

Kerosine 98ppm
TOG ND
PCB 9 ppb(Arochlor 1260)
EPA 140ppm Kerosine range
TCH

Suspected
hydraulic
gradient
↑
toward
L. Merritt

WASHRACK SUMP

HYDRAULIC LIFT AREA

SUSPECTED FORMER TANK LOCATION

Diesel 1700 ppm
TOG 6300 ppm

alk 10'
Benz 24ppb
Toluene 210ppb
Xylenes 1300ppb

Gasoline 110 ppm

Gasoline 1200 ppm



1432
HARRISON
STREET

FUEL PUMPS

Gasoline 2500 ppm

13'
3500ppb benzene

Gasoline 6300 ppm

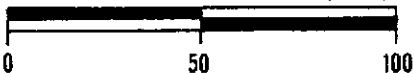
79,000ppb benzene

Gasoline 9300 ppm

98,000ppb benzene

HARRISON STREET

APPROXIMATE SCALE (feet)



ANALYTICAL TEST RESULTS

HARRISON STREET GARAGE - OAKLAND, CA

PLATE

JOB NUMBER
447.019

DATE
9/26/90

APPROVED

1

Subsurface Consultants

LOG OF TEST BORING 3

EQUIPMENT 4" Solid Stem Auger

DATE DRILLED 9/17/90

ELEVATION --

LABORATORY TESTS

MOISTURE
CONTENT
%

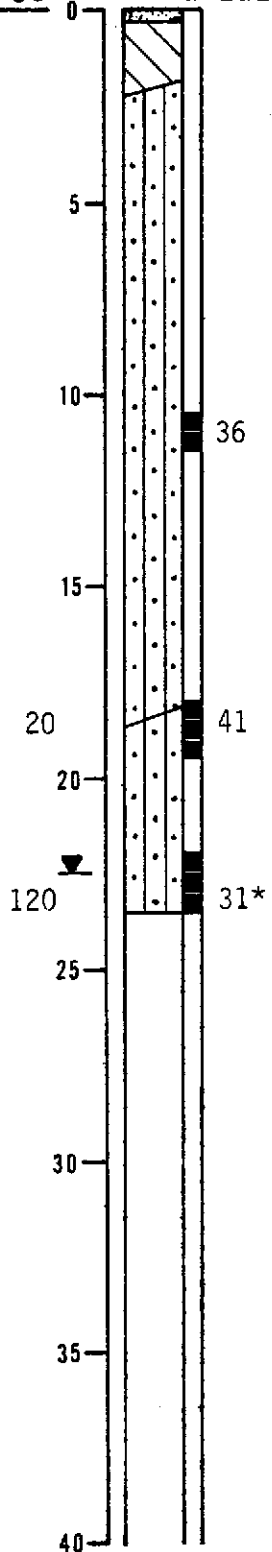
DRY
DENSITY
(PCF)

OWM
(ppm)

DEPTH
(FT)

SAMPLE

BLOWS
PER
FOOT



CONCRETE SLAB - 4" thick
DARK BROWN SANDY CLAY (CL)
medium stiff, moist
BROWN SILTY SAND (SM)
dense, moist

decrease in silty and clay
content

GREEN GRAY SILTY SAND (SM/SP)
dense, moist

GROUNDWATER LEVEL DURING DRILLING
boring backfilled with neat
cement grout

SAMPLER TYPES:
CALIFORNIA DRIVE
O.D.: 2.5 inches
I.D.: 2.0 inches

*STANDARD PENETRATION TEST
O.D.: 2.0 inches
I.D.: 1.4 inches

HAMMER WEIGHT: 140 pounds
HAMMER DROP: 30 inches

Subsurface Consultants

HARRISON STREET GARAGE - OAKLAND, CA

JOB NUMBER
447.019

DATE
10/18/90

APPROVED

PLATE

2

LOG OF TEST BORING 4

EQUIPMENT 4" Solid Stem Auger

DATE DRILLED 9/17/90

ELEVATION --

LABORATORY TESTS

MOISTURE
CONTENT
%

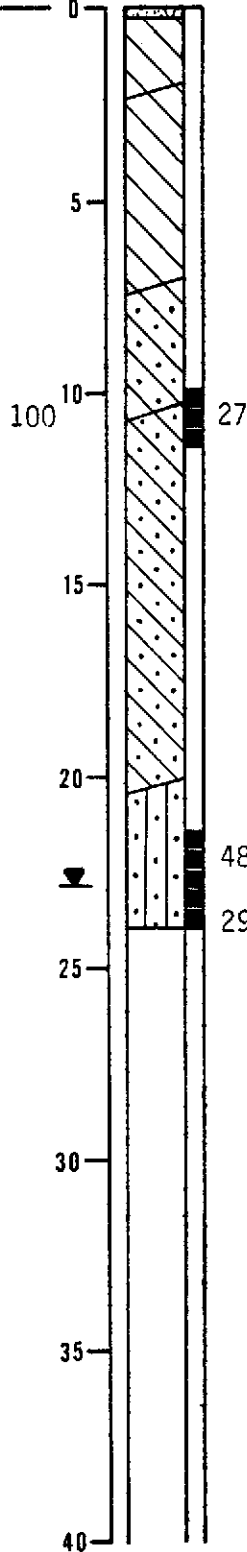
DRY
DENSITY
(PCF)

OWM
(ppm)

DEPTH
(FT)

SAMPLE

BLOWS
PER
FOOT



CONCRETE SLAB - 4" thick
DARK BROWN SANDY CLAY (CL)
medium stiff, moist
BROWN SANDY CLAY (CL)
medium stiff to stiff, moist

GRAY-GREEN CLAYEY SAND (SC)
dense, moist, strong petroleum
product odor

BROWN CLAYEY SAND (SC)
dense, moist

GRAY BROWN SILTY SAND (SM/SP)
dense, moist

GROUNDWATER LEVEL DURING DRILLING
boring backfilled with neat
cement grout

Subsurface Consultants

HARRISON STREET GARAGE - OAKLAND, CA

JOB NUMBER
447.019

DATE
10/18/90

APPROVED

PLATE

3

LOG OF TEST BORING 5

EQUIPMENT: 4" Solid Flight Auger

DATE DRILLED 9/17/90

ELEVATION --

LABORATORY TESTS

MOISTURE
CONTENT
%

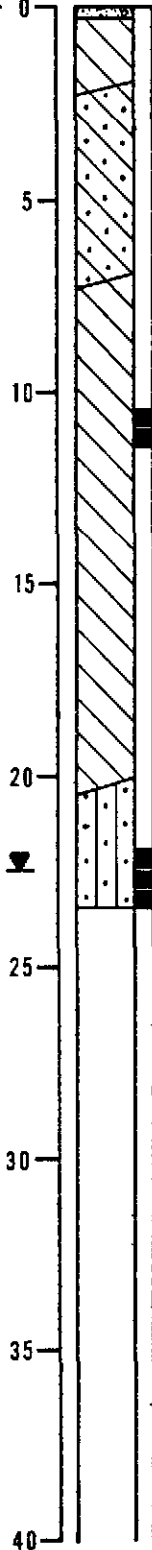
DRY
DENSITY
(PCF)

OVN
(ppm)

DEPTH
(FT)

SAMPLE

BLOWS
PER
FOOT



CONCRETE SLAB - 4" thick
DARK BROWN SILTY CLAY (CL)
medium stiff, moist
BROWN CLAYEY SAND (SC)
medium dense, moist

RED-BROWN SANDY CLAY (CL)
stiff, moist

GRAY GREEN SILTY SAND (SM/SP)
dense, moist to wet, gasoline
odor
GROUNDWATER LEVEL DURING DRILLING
boring backfilled with neat
cement grout

Subsurface Consultants

HARRISON STREET GARAGE - OAKLAND, CA

JOB NUMBER
447.019

DATE
10/18/90

APPROVED

PLATE

4

LOG OF TEST BORING 6

EQUIPMENT 3" Solid Flight Auger

DATE DRILLED 9/17/90

ELEVATION --

LABORATORY TESTS

MOISTURE
CONTENT
%

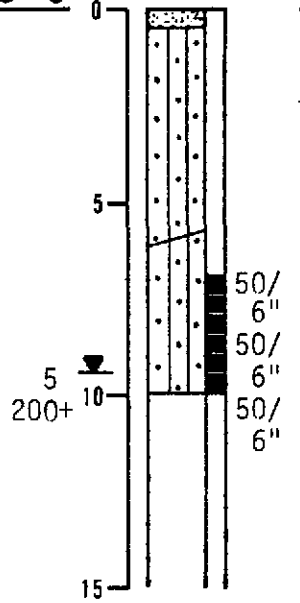
DRY
DENSITY
(PCF)

OVN
(ppm)

DEPTH
(FT)

SAMPLE

BLOWS
PER
FOOT



CONCRETE SLAB - 6" thick
DARK BROWN SILTY SAND (SM)
dense, moist

GRAY BROWN SILTY SAND (SM/SP)
dense, moist, strong hydrocarbon
odor

GROUNDWATER LEVEL DURING DRILLING
boring backfilled with neat
cement grout

HAMMER WEIGHT: 70 pounds
HAMMER DROP: 30 inches

Subsurface Consultants

HARRISON STREET GARAGE - OAKLAND, CA

JOB NUMBER
447.019

DATE
10/18/90

APPROVED

PLATE

5

LOG OF TEST BORING 7

EQUIPMENT: 3" Solid Flight Auger

DATE DRILLED 9/21/90

ELEVATION --

LABORATORY TESTS

MOISTURE
CONTENT
%

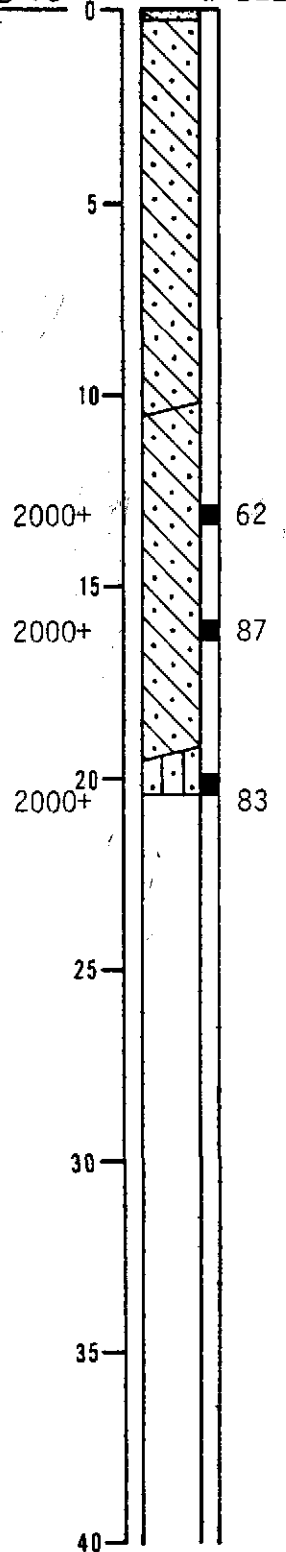
DRY
DENSITY
(PCF)

OVN
(ppm)

DEPTH
(FT)

SAMPLE

BLOWS
PER
FOOT



CONCRETE SLAB - 4" thick
BROWN CLAYEY SAND (SC)
dense, moist

GRAY BROWN CLAYEY SAND (SC)
dense, moist, slight gasoline
odor

slight gasoline odor

GRAY GREEN SILTY SAND (SM/SP)
dense, moist, strong gasoline
odor
boring backfilled with neat
cement grout

Subsurface Consultants

HARRISON STREET GARAGE - OAKLAND, CA

JOB NUMBER
447.019

DATE
10/18/90

APPROVED

PLATE

6

LOG OF TEST BORING 8

EQUIPMENT 3" Solid Flight Auger

DATE DRILLED 9/21/90

ELEVATION --

LABORATORY TESTS

MOISTURE
CONTENT
%

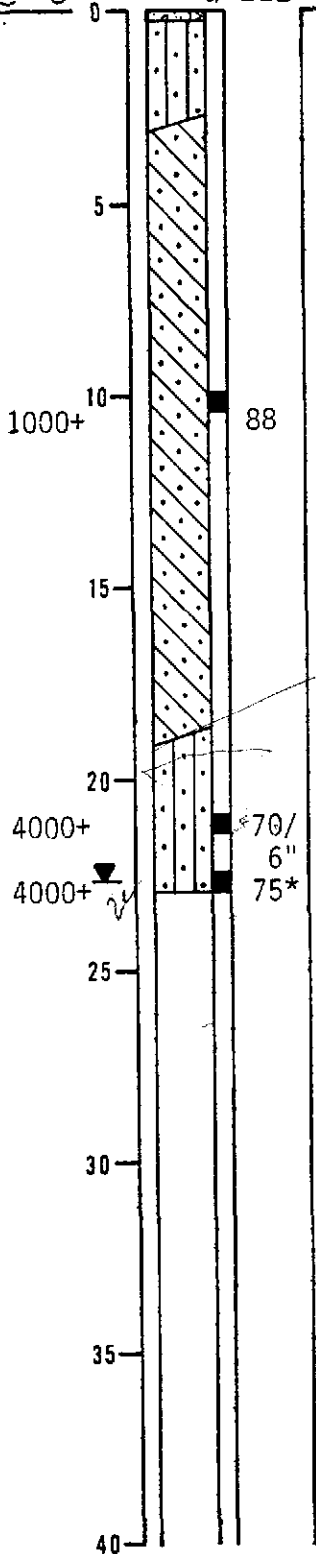
DRY
DENSITY
(PCF)

OVN
(ppm)

DEPTH
(FT)

SAMPLE

BLOWS
PER
FOOT



CONCRETE SLAB - 4" thick
DARK BROWN SILTY SAND (SM)
very loose, moist
BROWN CLAYEY SAND (SC)
dense, moist

color change to red brown

BROWN SILTY SAND (SM/SP)
dense, moist
strong gasoline odor @ 22.5 feet

GROUNDWATER LEVEL DURING DRILLING
boring backfilled with neat
cement grout

Subsurface Consultants

HARRISON STREET GARAGE - OAKLAND, CA

PLATE

JOB NUMBER
447.019

DATE
10/18/90

APPROVED

7

GENERAL SOIL CATEGORIES		SYMBOLS	TYPICAL SOIL TYPES		
COARSE GRAINED SOILS More than half is larger than No. 200 sieve	GRAVEL More than half coarse fraction is larger than No. 4 sieve size	Clean Gravel with little or no fines	GW 	Well Graded Gravel, Gravel-Sand Mixtures	
			GP 	Poorly Graded Gravel, Gravel-Sand Mixtures	
		Gravel with more than 12% fines	GM 	Silty Gravel, Poorly Graded Gravel-Sand-Silt Mixtures	
			GC 	Clayey Gravel, Poorly Graded Gravel-Sand-Clay Mixtures	
	SAND More than half coarse fraction is smaller than No. 4 sieve size	Clean sand with little or no fines	SW 	Well Graded Sand, Gravelly Sand	
			SP 	Poorly Graded Sand, Gravelly Sand	
		Sand with more than 12% fines	SM 	Silty Sand, Poorly Graded Sand-Silt Mixtures	
			SC 	Clayey Sand, Poorly Graded Sand-Clay Mixtures	
			SILT AND CLAY Liquid Limit Less than 50%	ML 	Inorganic Silt and Very Fine Sand, Rock Flour, Silty or Clayey Fine Sand, or Clayey Silt with Slight Plasticity
				CL 	Inorganic Clay of Low to Medium Plasticity, Gravelly Clay, Sandy Clay, Silty Clay, Lean Clay
OL 	Organic Clay and Organic Silty Clay of Low Plasticity				
SILT AND CLAY Liquid Limit Greater than 50%	MH 	Inorganic Silt, Micaceous or Diatomaceous Fine Sandy or Silty Soils, Elastic Silt			
	CH 	Inorganic Clay of High Plasticity, Fat Clay			
	OH 	Organic Clay of Medium to High Plasticity, Organic Silt			
HIGHLY ORGANIC SOILS		PT 	Peat and Other Highly Organic Soils		

UNIFIED SOIL CLASSIFICATION SYSTEM

Subsurface Consultants

HARRISON STREET GARAGE - OAKLAND, CA

JOB NUMBER
447.019

DATE
10/18/90

APPROVED

PLATE

8



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 09/19/90

DATE REPORTED: 09/28/90

LAB NUMBER: 101685

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 3 SOIL SAMPLES

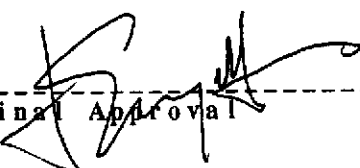
PROJECT #: 447.019

LOCATION: 1432 HARRISON ST. GARAGE

RESULTS: SEE ATTACHED



QA/QC Approval



Final Approval



LABORATORY NUMBER: 101685
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 447.019
LOCATION: 1432 HARRISON ST. GARAGE

DATE RECEIVED: 09/19/90
DATE EXTRACTED: 09/19/90
DATE ANALYZED: 09/21/90
DATE REPORTED: 09/28/90

Extractable Petroleum Hydrocarbons in Soils & Wastes
California DOHS Method
LUFT Manual October 1989

LAB ID	CLIENT ID	KEROSENE RANGE (mg/Kg)	DIESEL RANGE (mg/Kg)	REPORTING LIMIT (mg/Kg)
101685-1	B6 @ 9'	98	ND	10
101685-3	B4 @ 10'	ND	1,700	100

ND = Not Detected at or above reporting limit.

QA/QC SUMMARY

```

=====
RPD, %                                2
RECOVERY, %                            87
=====

```



LAB NUMBER: 101685
CLIENT: SUBSURFACE CONSULTANTS
PROJECT # : 447.019
LOCATION: 1432 HARRISON ST. GARAGE

DATE RECEIVED: 09/19/90
DATE ANALYZED: 09/27/90
DATE REPORTED: 09/28/90

ANALYSIS: HYDROCARBON OIL AND GREASE
METHOD: SMWW 17:5520 E&F

LAB ID	SAMPLE ID	RESULT	UNITS	REPORTING LIMIT
101685-1	B6 @ 9'	ND	mg / Kg	50
101685-3	B4 @ 10'	6,300	mg / Kg	50

ND = Not detected at or above reporting limit

QA/QC SUMMARY

RPD, %	1
RECOVERY, %	90



LABORATORY NUMBER: 101685
CLIENT: SUBSURFACE CONSULTANTS
JOB NUMBER: 447.019
JOB LOCATION: 1432 HARRISON ST. GARAGE

DATE RECEIVED: 09/19/90
DATE ANALYZED: 09/21/90
DATE REPORTED: 09/28/90

Total Volatile Hydrocarbons with BTXE in Soils & Wastes
TVH by California DOHS Method/LUFT Manual October 1989
BTXE by EPA 5030/8020

LAB ID	CLIENT ID	TVH AS GASOLINE (mg/Kg)	BENZENE (ug/Kg)	TOLUENE (ug/Kg)	ETHYL BENZENE (ug/Kg)	TOTAL XYLENES (ug/Kg)
101685-2	B5 @ 22 1/2'	110	24	210	69	1,300

QA/QC SUMMARY

```

=====
RPD, %                               3
RECOVERY, %                           106
=====

```



LAB NUMBER: 101685
CLIENT: SUBSURFACE CONSULTANTS
PROJECT #: 447.019
SAMPLE ID: B6 @ 9'

DATE RECEIVED: 09/19/90
DATE ANALYZED: 09/27/90
DATE REPORTED: 09/28/90

=====

POLYCHLORINATED BIPHENYLS (PCBs)
ANALYSIS METHOD: EPA 8080
EXTRACTION METHOD: EPA 3550

=====

AROCLOR TYPE	RESULT (ug/Kg)	REPORTING LIMIT (ug/Kg)
AROCLOR 1221	ND	17
AROCLOR 1232	ND	17
AROCLOR 1016	ND	17
AROCLOR 1242	ND	17
AROCLOR 1248	ND	17
AROCLOR 1254	ND	17
AROCLOR 1260	DETECTED(9.0)	17

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====

RPD, %	1
RECOVERY, %	80

=====

LABORATORY NUMBER: 101685-1
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 447.019
SAMPLE ID: B6 @ 9'

DATE RECEIVED: 09/19/90
DATE ANALYZED: 09/21/90
DATE REPORTED: 09/28/90

EPA 8010: Volatile Halocarbons in Soil & Wastes
Extraction Method: EPA 5030 - Purge & Trap

Compound	RESULT ug/Kg	REPORTING LIMIT ug/Kg
chloromethane	ND	10
bromomethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
methylene chloride	ND	5.0
trichlorofluoromethane	ND	5.0
1,1-dichloroethene	ND	5.0
1,1-dichloroethane	ND	5.0
1,2-dichloroethene (total)	ND	5.0
chloroform	ND	5.0
freon 113	ND	5.0
1,2-dichloroethane	ND	5.0
1,1,1-trichloroethane	ND	5.0
carbon tetrachloride	ND	5.0
bromodichloromethane	ND	5.0
1,2-dichloropropane	ND	5.0
cis-1,3-dichloropropene	ND	5.0
trichloroethylene	ND	5.0
1,1,2-trichloroethane	ND	5.0
trans-1,3-dichloropropene	ND	5.0
dibromochloromethane	ND	5.0
2-chloroethylvinyl ether	ND	10
bromoform	ND	5.0
tetrachloroethylene	ND	5.0
1,1,2,2-tetrachloroethane	ND	5.0
chlorobenzene	ND	5.0
1,3-dichlorobenzene	ND	5.0
1,2-dichlorobenzene	ND	5.0
1,4-dichlorobenzene	ND	5.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====

Duplicate: Relative % Difference	34
Spike: Average % Recovery	75



LABORATORY NUMBER: 101685-1
CLIENT: SUBSURFACE CONSULTANTS
PROJECT #: 447.019
LOCATION: 1432 HARRISON ST. GARAGE
SAMPLE ID: B6 @ 9'

DATE RECEIVED: 09/19/90
DATE ANALYZED: 09/21/90
DATE REPORTED: 09/28/90

EPA 8020: Volatile Aromatic Hydrocarbons in Soils & Wastes
Extraction Method: EPA 5030 - Purge & Trap

COMPOUND	Result ug/Kg	Reporting Limit ug/Kg
Benzene.....	ND	5.0
Toluene.....	ND	5.0
Ethyl Benzene.....	ND	5.0
Total Xylenes.....	ND	5.0
Chlorobenzene.....	ND	5.0
1,4-Dichlorobenzene.....	ND	5.0
1,3-Dichlorobenzene.....	ND	5.0
1,2-Dichlorobenzene.....	ND	5.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

RPD, %	11
RECOVERY, %	93



Curtis & Tompkins, Ltd., Analytical Laboratories. Since 1878

2323 Fifth Street, Berkeley, CA 94710. Phone (415) 486-0900

DATE RECEIVED: 09/19/90

DATE REPORTED: 09/28/90

LAB NUMBER: 101743

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 1 SOIL SAMPLE

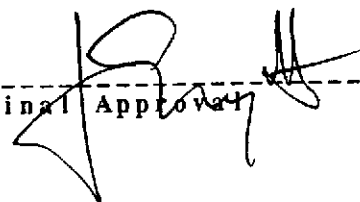
PROJECT #: 447.019

LOCATION: 1432 HARRISON ST. GARAGE

RESULTS: SEE ATTACHED



QA/QC Approval



Final Approval

LABORATORY NUMBER: 101743
CLIENT: SUBSURFACE CONSULTANTS
PROJECT #: 447.019
LOCATION: 1432 HARRISON ST. GARAGE

DATE RECEIVED: 09/19/90
DATE REQUESTED: 09/24/90
DATE ANALYZED: 09/27/90
DATE REPORTED: 09/28/90

=====
ANALYSIS: SOLUBLE LEAD
ANALYSIS METHOD: EPA 7420
EXTRACTION BY WASTE EXTRACTION TEST: CCR TITLE 26 SECTION 22-66700
=====

LAB ID	CLIENT ID	RESULT	UNITS	REPORTING LIMIT
101743-1	B6 @ 9'	0.06	mg/L	0.05

QA/QC SUMMARY

=====
RPD, % 1
RECOVERY, % 103
=====



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710. Phone (415) 486-0900

RECEIVED

OCT 01 1990

AM
7/8/03 10:01:30

DATE RECEIVED: 09/24/90

DATE REPORTED: 09/26/90

LAB NUMBER: 101735

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 1 SOIL SAMPLE

PROJECT #: 447.019

LOCATION: 1432 HARRISON STREET GARAGE

RESULTS: SEE ATTACHED



QA/QC Approval



Final Approval

Berkeley

Wilmington

Los Angeles



LABORATORY NUMBER: 101735
CLIENT: SUBSURFACE CONSULTANTS
JOB NUMBER: 447.019
JOB LOCATION: 1432 HARRISON STREET GARAGE

DATE RECEIVED: 09/24/90
DATE ANALYZED: 09/25/90
DATE REPORTED: 09/26/90

Total Volatile Hydrocarbons with BTXE in Soils & Wastes
TVH by California DOHS Method/LUFT Manual October 1989
BTXE by EPA 5030/8020

LAB ID	CLIENT ID	TVH AS GASOLINE (mg/Kg)	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
101735-1	B8 @ 22.5'	1,200	2.3	38	18	89

QA/QC SUMMARY

RPD, %	<1
RECOVERY, %	100



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 10/02/90

DATE REPORTED: 10/04/90

LAB NUMBER: 101822


CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 2 SOIL SAMPLES

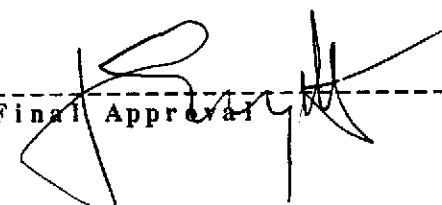
PROJECT #: 447.019

LOCATION: 1432 HARRISON ST. GARAGE

RESULTS: SEE ATTACHED



QA/QC Approval



Final Approval

LAB NUMBER: 101822
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT # : 447.019
 LOCATION: 1432 HARRISON ST. GARAGE

DATE RECEIVED: 10/02/90
 DATE ANALYZED: 10/04/90
 DATE REPORTED: 10/04/90

ANALYSIS: HYDROCARBON OIL AND GREASE
 METHOD: SMWW 17:5520F (503E)

LAB ID	SAMPLE ID	RESULT	UNITS	REPORTING LIMIT
101822-1	B6 @ 9 1/2'	ND	mg /Kg	50

ND = Not detected at or above reporting limit

QA/QC SUMMARY

RPD, %	12
RECOVERY, %	77

LABORATORY NUMBER: 101822
 CLIENT: SUBSURFACE CONSULTANTS
 JOB NUMBER: 447.019
 JOB LOCATION: 1432 HARRISON ST. GARAGE

DATE RECEIVED: 10/02/90
 DATE ANALYZED: 10/04/90
 DATE REPORTED: 10/04/90

Total Volatile Hydrocarbons with BTXE in Soils & Wastes
 TVH by California DOHS Method/LUFT Manual October 1989
 BTXE by EPA 5030/8020

LAB ID	CLIENT ID	TVH AS GASOLINE (mg/Kg)	BENZENE (ug/Kg)	TOLUENE (ug/Kg)	ETHYL BENZENE (ug/Kg)	TOTAL XYLENES (ug/Kg)
101822-2	B7 @ 13'	ND(1.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)

ND = Not detected at or above reporting limit; Reporting limit
 indicated in parentheses.

QA/QC SUMMARY

RPD, % 7
 RECOVERY, % 116



LABORATORY NUMBER: 101822
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 447.019
LOCATION: 1432 HARRISON ST. GARAGE

DATE RECEIVED: 10/02/90
DATE EXTRACTED: 10/03/90
DATE ANALYZED: 10/03/90
DATE REPORTED: 10/04/90

Extractable Petroleum Hydrocarbons in Soils & Wastes
California DOHS Method
LUFT Manual October 1989

LAB ID	CLIENT ID	KEROSENE RANGE (mg/Kg)	DIESEL RANGE (mg/Kg)	REPORTING LIMIT (mg/Kg)
101822-1	B6 @ 9 1/2'	140	ND	10

ND = Not Detected at or above reporting limit.



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 07/27/90
DATE REPORTED: 09/28/90

LAB NUMBER: 101742

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 1 SOIL SAMPLE

PROJECT #: 447.019
LOCATION: 1432 HARRISON ST. GARAGE

RESULTS: SEE ATTACHED

Mac

QA/QC Approval

[Signature]

Final Approval



LABORATORY NUMBER: 101742
CLIENT: SUBSURFACE CONSULTANTS
PROJECT #: 447.019
LOCATION: 1432 HARRISON ST. GARAGE

DATE RECEIVED: 07/27/90
DATE REQUESTED: 09/24/90
DATE ANALYZED: 09/27/90
DATE REPORTED: 09/28/90

=====
ANALYSIS: SOLUBLE LEAD
ANALYSIS METHOD: EPA 7420
EXTRACTION BY WASTE EXTRACTION TEST: CCR TITLE 26 SECTION 22-66700
=====

LAB ID	CLIENT ID	RESULT	UNITS	REPORTING LIMIT
101742-1	2 @ 18.5	0.21	mg/L	0.05

QA/QC SUMMARY

RPD, %	1
RECOVERY, %	103



RECEIVED

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710. Phone (415) 486-0909

AUG 20 1990

7,8,9,10,11,12,1,2,3,4,5,6 PM

DATE RECEIVED: 07/27/90
DATE REPORTED: 08/14/90

LAB NUMBER: 101213

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 2 SOIL SAMPLES

PROJECT #: 447.019
LOCATION: HARRISON GARAGE

RESULTS: SEE ATTACHED

[Signature]

QA/QC Approval
[Signature]

Final Approval

LABORATORY NUMBER: 101213
 CLIENT: SUBSURFACE CONSULTANTS
 JOB NUMBER: 447.019
 JOB LOCATION: HARRISON GARAGE

DATE RECEIVED: 07/27/90
 DATE ANALYZED: 08/14/90
 DATE REPORTED: 08/14/90

Total Volatile Hydrocarbons with BTXE in Soils & Wastes
 TVH by California DOHS Method/LUFT Manual October 1989
 BTXE by EPA 5030/8020

LAB ID	CLIENT ID	TVH AS GASOLINE (mg/Kg)	BENZENE (ug/Kg)	TOLUENE (ug/Kg)	ETHYL BENZENE (ug/Kg)	TOTAL XYLENES (ug/Kg)
101213-1	1 @ 20.0	6,300	99,000	490,000	110,000	610,000
101213-2	2 @ 18.5	9,300	98,000	900,000	190,000	1,100,000

QA/QC SUMMARY

RPD, %	2
RECOVERY, %	93



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 09/24/90

DATE REPORTED: 10/02/90

LAB NUMBER: 101738

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 1 SOIL SAMPLE

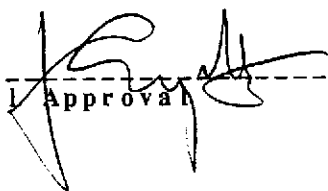
PROJECT #: 447.019

LOCATION: 1432 HARRISON ST. GARAGE

RESULTS: SEE ATTACHED



QA/QC Approval



Final Approval



LABORATORY NUMBER: 101738
CLIENT: SUBSURFACE CONSULTANTS
PROJECT #: 447.019
LOCATION: 1432 HARRISON ST. GARAGE

DATE RECEIVED: 09/24/90
DATE ANALYZED: 09/27/90
DATE REPORTED: 10/02/90

=====
ANALYSIS: SOLUBLE LEAD
ANALYSIS METHOD: EPA 7420
EXTRACTION BY WASTE EXTRACTION TEST: CCR TITLE 26 SECTION 22-66700
=====

LAB ID	CLIENT ID	RESULT	UNITS	REPORTING LIMIT
101738-1	B7 @ 20'	0.07	mg/L	0.05

QA/QC SUMMARY

=====
RPD, % 1
RECOVERY, % 103
=====



LABORATORY NUMBER: 101738
CLIENT: SUBSURFACE CONSULTANTS
JOB NUMBER: 447.019
JOB LOCATION: 1432 HARRISON ST. GARAGE

DATE RECEIVED: 09/24/90
DATE ANALYZED: 10/01/90
DATE REPORTED: 10/02/90

Total Volatile Hydrocarbons with BTXE in Soils & Wastes
TVH by California DOHS Method/LUFT Manual October 1989
BTXE by EPA 5030/8020

LAB ID	CLIENT ID	TVH AS GASOLINE (mg/Kg)	BENZENE (ug/Kg)	TOLUENE (ug/Kg)	ETHYL BENZENE (ug/Kg)	TOTAL XYLENES (ug/Kg)
101738-1	B7 @ 20'	2,500	3,500	34,000	33,000	130,000

QA/QC SUMMARY

RPD, %	6
RECOVERY, %	101

Subsurface Consultants

CHAIN OF CUSTODY RECORD
& ANALYTICAL TEST REQUEST

Project Name: 1432 HARRISON ST. GARAGE
 SCI Job Number: 117.019
 Project Contact at SCI: CRAG FLETCHER
 Sampled By: CRAG FLETCHER
 Analytical Laboratory: Curtis + Tompkins
 Analytical Turnaround: RAPID

Sample ID	Sample Type ¹	Container Type ²	Sampling Date	Hold	Analysis	Analytical Method
<u>B6 @ 9 1/2'</u>	<u>S</u>	<u>BT</u>	<u>9/17/90</u>		<u>TEH</u>	<u>8015 mod / 3550</u>
					<u>TOG</u>	<u>SMWN 503E</u>
<u>B7 @ 13'</u>	<u>S</u>	<u>BT</u>	<u>9/21/90</u>		<u>TVH/BTXE</u>	<u>8015 mod / 8020</u>

* * * * *

Released by: *[Signature]* Date: 10/2/90
 Released by Courier: _____ Date: _____
 Received by Laboratory: *Nancy White* Date: 10/2/90
 Relinquished by Laboratory: _____ Date: _____
 Received by: _____ Date: _____

¹ Sample Type: W = water, S = soil, O = other (specify)
² Container Type: V = VOA, P = plastic, G = glass, T = brass tube,
 O = other (specify)

Notes to Laboratory:
 -Notify SCI if there are any anomalous peaks on GC or other scans
 -Questions/clarifications...contact SCI at (415) 268-0461

Project Name: HARRISON GARAGE
 SCI Job Number: 447.019
 Project Contact at SCI: JIM BOWERS
 Sampled By: FERNANDO VELEZ
 Analytical Laboratory: CURTIS & TOMPKINS
 Analytical Turnaround: NORMAL

Sample ID	Sample Type ¹	Container Type ²	Sampling Date	Hold	Analysis	Analytical Method
<u>1 @ 20.0</u>	<u>S</u>	<u>T</u>	<u>7/25/90</u>		<u>TVH + BTXE</u>	
<u>2 @ 18.5</u>	<u>S</u>	<u>T</u>	<u>7/25/90</u>		<u>TVH + BTXE</u>	
	<u>"</u>	<u>"</u>	<u>"</u>		<u>SOLUBLE LEAD</u>	<u>(added 9/24/90)</u>

* * * * *

Released by: *Jim L. Bowers* Date: _____
 Released by Courier: _____ Date: _____
 Received by Laboratory: *Nancy Fisher* Date: 7/27/90
 Relinquished by Laboratory: _____ Date: _____
 Received by: _____ Date: _____

¹ Sample Type: W = water, S = soil, O = other (specify)
² Container Type: V = VOA, P = plastic, G = glass, T = brass tube, O = other (specify)

Notes to Laboratory:
 -Notify SCI if there are any anomalous peaks on GC or other scans
 -Questions/clarifications...contact SCI at (415) 268-0461

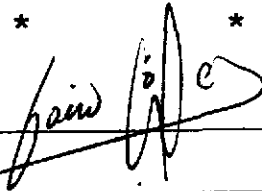
Subsurface Consultants

CHAIN-OF-CUSTODY-RECORD
& ANALYTICAL TEST REQUEST

Project Name: 1432 HARRISON ST. GARAGE
 SCI Job Number: 447.019
 Project Contact at SCI: JIM BOWERS / CRAIG FLETCHER
 Sampled By: CRAIG FLETCHER
 Analytical Laboratory: KURTIS O TOMPKINS
 Analytical Turnaround: NORMAL

Sample ID	Sample Type ¹	Container Type ²	Sampling Date	Hold	Analysis	Analytical Method
B6 @ 9'	S	BT	9/17/90		TOG	503E
					TEH	8015 mod / 3550
					Purgeable Halocarbons	8010
					PCB's	8080
					Purgeable Aromatics	8020
					soluble Lead	(Added 9/14/90)
B5 @ 22 1/2'	S	BT	9/17/90		TVH/BTXE	8015 mod / 8020
B4 @ 10'	S	BT	9/17/90		TOG	503E
					TEH	8015 mod / 3550

* * * * *

Released by:  Date: 9-19-90
 Released by Courier: _____ Date: _____
 Received by SCI: _____ Date: _____
 Received by Laboratory: VanasseHatten Date: 9/19/90 9:00am
 Relinquished by: _____ Date: _____

¹ Sample Type: W=Water, S=Soil, O=Other (specify)
² Container Type: V=VOA, P=Plastic, G=Glass, T=Brass Tube, O=Other (specify)

NOTES TO LABORATORY:
 - Notify SCI if there are any anomalous peaks on GC or other scans
 - Questions/clarifications - Contact SCI at (415) 268-0461