

March 11, 1991
SCI 537.006

Ms. Maryann Leshin
City of Emeryville
2200 Powell Street, 12th Floor
Emeryville, California 94608

**Consultation
Analytical Test Results
1056 48th Street
Emeryville, California**

Dear Ms. Leshin:

This letter presents results of our consultation regarding analytical tests of soil samples from the subject site. We previously performed a geotechnical investigation of the site and presented the results in our report data January 29, 1991. During the geotechnical investigation, we obtained four near-surface soil samples for analytical testing. A description of the sampling method and the results of the analytical tests were presented in our letter dated February 8, 1991.

In summary, four soil samples were composited into one sample for analytical testing. The test results indicated concentrations of extractable petroleum hydrocarbons (diesel), polynuclear aromatic hydrocarbons, and volatile halocarbons (1,1,1-trichloroethane). In addition, concentrations of cadmium, cyanide and lead were of potential concern.

Analytical tests were performed on a composited sample to economically search for a large number of contaminants in a large number of samples. Because the samples were composited, the actual concentration and location of the contaminants were unknown. Accordingly, during this assessment, the four individual soil samples that made up the composited sample were analyzed for:

1. Total extractable hydrocarbons (EPA 3550/8015),
2. Total and soluble cadmium and lead (EPA 6010 and 7420, and CCR Title 26 Section 22-66700),

■ **Subsurface Consultants, Inc.**

Ms. Maryann Leshin
City of Emeryville
March 11, 1991
SCI 537.006
Page 2

3. Cyanide (EPA 335.2 modified),
4. Volatile halocarbons (EPA 5030/8010), and
5. Polynuclear aromatic hydrocarbons (EPA 3350/8100).

Analytical testing was performed by Curtis & Tompkins Ltd., a State of California Department of Health Services (DHS) certified analytical laboratory for the tests performed. Copies of the analytical test reports, and copies of the Chain-of-Custody Records are attached. The analytical test results are presented in Table 1.

The analytical test results indicate that detectable concentrations of diesel, cyanide, polynuclear aromatic hydrocarbons, and cadmium and lead exist at the site. Although 1,1,1-trichloroethane was detected in the composited sample, none was detected in the individual samples. The concentrations of each of the contaminants in each boring are shown on the attached Site Plan, Plate 1. Our conclusions and recommendations regarding each contaminant are presented in the following paragraphs.

Diesel

Diesel was detected in all four of the test borings in concentrations ranging from 10 to 97 mg/kg. The clean up level often imposed by regulatory agencies for diesel is 100 mg/kg. The source of diesel at the site is currently uncertain. However, because the site was formerly occupied by a residence, it is not likely that an underground diesel storage tank formerly existed at the site. It is possible that the diesel is related to the use of the site as a parking area. If this is the case, the diesel concentrations should decrease with depth. We recommend that additional test borings be drilled at the site to determine the vertical extent of diesel.

Table 1. Analytical Test Results

A. Organic Compounds

Sample	(12 ppm) Total Extractable Hydrocarbons ¹ (mg/kg)	(40 ppb) Volatile Halocarbons (ug/kg)	(5.6 ppm) Cyanide (mg/kg)	✓ Polynuclear Aromatic Hydrocarbons (ug/kg)
B1 @ 1'	11	ND ²	0.3	ND
B2 @ 1'	10	ND	ND	ND
B3 @ 1'	24	ND	0.4	1,060 ³
B4 @ 1'	97	ND	ND	31,020 ⁴

B. Cadmium and Lead

Sample	Cadmium ⁵		Lead ⁶	
	Total (mg/kg) <i>100 mg/kg</i>	Soluble (mg/L) <i>(1 mg/l)</i>	Total (mg/kg) <i>1000 mg/kg</i>	Soluble (mg/L) <i>5 mg/l</i>
B1 @ 1'	2.3	0.02	23	0.24
B2 @ 1'	1.7	0.04	18	0.28
B3 @ 1'	3.1	0.08	280	9.4 →
B4 @ 1'	2.0	0.04	91	3.2

- 1 Diesel Range
- 2 None detected, see attached laboratory test reports for detection limits
- 3 Nine compounds detected, with concentrations ranging from 56 to 200 ug/kg; see attached laboratory rest reports for detected compounds
- 4 Thirteen compounds detected, with concentrations ranging from 220 to 6400 ug/kg; see attached laboratory test reports for detected compounds
- 5 Total Threshold Limit Concentration = 100 mg/kg, Soluble Threshold Limit Concentration = 1.0 mg/L
- 6 TTLC = 1000 mg/kg, STLC = 5.0 mg/L

Ms. Maryann Leshin
City of Emeryville
March 11, 1991
SCI 537.006
Page 4

Cyanide

Cyanide was encountered in Borings ~~3 and 4~~ at concentrations of 0.3 and 0.4 mg/kg. These are at or near the detection limit of 0.3 mg/kg. The source of cyanide at the residential site is unknown. However, we speculate that the ~~problem~~ is related to use of a ~~material~~. We recommend that additional test borings be drilled at the site to determine if higher concentrations exist, and the lateral and vertical extent of soil containing cyanide. There are no regulatory guidelines regarding acceptable concentrations of ~~cyanide~~. If the additional investigation reveals similar very low cyanide concentrations (at or near the detection limit), ~~we believe that the risk of cyanide related problems at the site is also likely to be very low.~~

If you desire, ~~the risk of cyanide related problems at the site can be more accurately determined by performing toxicity assays,~~ which tests if living organisms are affected by the in-place cyanide concentrations. Alternatively, ~~the risk of exposure to the cyanide contaminated soil can be reduced by limiting access to the soils containing cyanide.~~ This can be done by covering the soils with ~~decks, structures, pavements and/or clean fill.~~

Polynuclear Aromatic Hydrocarbons

~~Polynuclear aromatic hydrocarbons (PNA's) were detected at Borings 3 and 4, located near the former structure. The cumulative concentration of all of the PNA's ranged from 1060 to 21,000 mg/kg. No specific regulatory criteria exists for cleanup of PNA's in soil. However, these concentrations indicate that remediation may be necessary. PNA's exist in asphalt pavements, wood preservatives, common roofing materials and partially burnt materials. We understand that the former structure was removed because it had burned. Preliminary indications are that the source of PNA's was the burnt structure. We recommend that additional test borings be drilled at the site to determine the lateral and vertical extent of the PNA's.~~

Cadmium and Lead

~~Cadmium and lead were detected in all four of the test borings. All four of the cadmium concentrations, and the lead concentrations at test Borings 1 and 2, were relatively low and consistent with typical background levels in the area. However, concentrations at ~~test Boring 3~~, located near the former structure, were elevated. The soluble lead concentration at test Boring 3 (~~9.4 mg/l~~) is above the Soluble Threshold Limit Concentration of 5.0 mg/l. Accordingly, this is considered to be~~

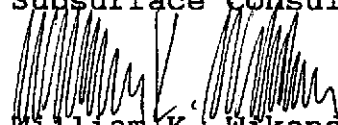
Ms. Maryann Leshin
City of Emeryville
March 11, 1991
SCI 537.006
Page 5

~~hazardous material requiring remediation.~~ The source of lead is likely to be ~~paint and solder from the former structure.~~ We recommend that additional test borings be drilled at the site to ~~determine the lateral and vertical extent of lead.~~

If you have questions regarding our conclusions or recommendations, please call.

Yours very truly,

Subsurface Consultants, Inc.



William K. Wikander
Geotechnical Engineer 892 (expires 12/31/92)

WKW:RWR:ddh

4 copies submitted

Attachments: Plate 1 - Site Plan
 Analytical Test Reports
 Chain-of-Custody Records

ADJACENT RESIDENCE

FORMER TEMESCAL CREEK CHANNEL

ESTIMATED LIMIT OF CREEK CHANNEL FILL

APPROXIMATE OUTLINE OF FORMER STRUCTURE IDENTIFIED ON 1959 AIRPHOTO

SIDEWALK
48TH STREET

1

DIESEL: 11 mg/kg
 CYANIDE: 0.3 mg/kg
 PNA's: ND
 CADMIUM (TOTAL): 2.3 mg/kg
 (SOLUBLE): 0.02 mg/L
 LEAD (TOTAL): 23 mg/kg
 (SOLUBLE): 0.24 mg/L
 VOLATILE HALOCARBONS: ND

3

DIESEL: 24 mg/kg
 CYANIDE: 0.4 mg/kg
PNA's: 1060 ug/kg
 CADMIUM (TOTAL): 3.1 mg/kg
 (SOLUBLE): 0.08 mg/L
LEAD (TOTAL): 280 mg/kg
(SOLUBLE): 9.4 mg/L
 VOLATILE HALOCARBONS: ND

2

DIESEL: 97 mg/kg
 CYANIDE: ND
PNA's: 31,020 ug/kg
 CADMIUM (TOTAL): 2.0 mg/kg
 (SOLUBLE): 0.04 mg/L
LEAD (TOTAL): 91 mg/kg
(SOLUBLE): 3.2 mg/L
 VOLATILE HALOCARBONS: ND

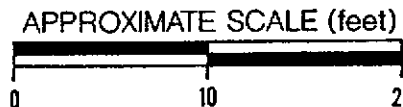
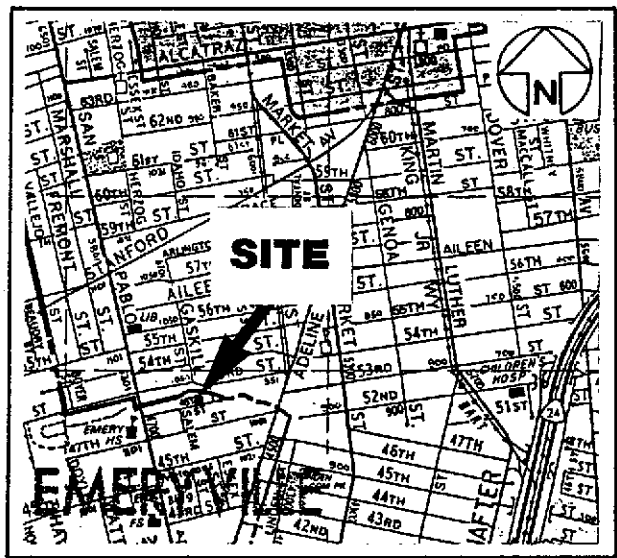
4

DIESEL: 10
 CYANIDE: ND
 PNA's: ND
 CADMIUM (TOTAL): 1.7 mg/kg
 (SOLUBLE): 0.04 mg/L
 LEAD (TOTAL): 18 mg/kg
 (SOLUBLE): 0.28 mg/L
 VOLATILE HALOCARBONS: ND

ADJACENT RESIDENCE

⊕ TEST BORING
 -x- FENCE

VICINITY MAP



SITE PLAN

Subsurface Consultants

1056 48TH STREET - EMERYVILLE, CA		PLATE
JOB NUMBER	DATE	APPROVED
537.006	12/7/90	
		1



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

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

DATE RECEIVED: 12/04/90

DATE REPORTED: 02/15/91

LAB NUMBER: 102952

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: FOUR SOIL SAMPLES

PROJECT ID: 537.006

LOCATION: 1056 48th Street

RESULTS: SEE ATTACHED

QA/QC Approval

Final Approval

LABORATORY NUMBER: 102952
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT ID: 537.006
 LOCATION: 1056 48th Street

DATE RECEIVED: 12/04/90
 DATE REQUESTED: 02/07/91
 DATE EXTRACTED: 02/08/91
 DATE ANALYZED: 02/12/91
 DATE REPORTED: 02/15/91

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

LAB ID	SAMPLE ID	KEROSENE RANGE (mg / Kg)	DIESEL RANGE (mg / Kg)	REPORTING LIMIT* (mg / Kg)
102952-1	B1@1'	ND	11	1
102952-2	B2@1'	ND	10	1
102952-3	B3@1'	ND	24	1
102952-4	B4@1'	ND	97	1

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

RPD, %	8
RECOVERY, %	86

LABORATORY NUMBER: 102952-1
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT ID: 537.006
 SAMPLE ID: B1@1'

DATE RECEIVED: 12/04/90
 DATE REQUESTED: 02/07/91
 DATE ANALYZED: 02/12/91
 DATE REPORTED: 02/15/91

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 3
 Spike: Average % Recovery 88

LABORATORY NUMBER: 102952-2
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT ID: 537.006
 SAMPLE ID: B2@1'

DATE RECEIVED: 12/04/90
 DATE REQUESTED: 02/07/91
 DATE ANALYZED: 02/13/91
 DATE REPORTED: 02/15/91

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	12
Spike: Average % Recovery	94



LABORATORY NUMBER: 102952-3
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT ID: 537.006
 SAMPLE ID: B3@1'

DATE RECEIVED: 12/04/90
 DATE REQUESTED: 02/07/91
 DATE ANALYZED: 02/12/91
 DATE REPORTED: 02/15/91

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	3
Spike: Average % Recovery	88



LABORATORY NUMBER: 102952-4
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 537.006
SAMPLE ID: B4@1'

DATE RECEIVED: 12/04/90
DATE REQUESTED: 02/07/91
DATE ANALYZED: 02/12/91
DATE REPORTED: 02/15/91

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	3
Spike: Average % Recovery	88

LABORATORY NUMBER: 102952-1
 CLIENT: SUBSURFACE CONSULTANTS
 JOB #: 537.006
 SAMPLE ID: B1@1'

DATE RECEIVED: 12/04/90
 DATE REQUESTED: 02/07/91
 DATE EXTRACTED: 02/12/91
 DATE ANALYZED: 02/13/91
 DATE REPORTED: 02/15/91

Polynuclear Aromatic Hydrocarbons in Soils & Wastes by EPA 8270
 Extraction Method: EPA 3550

COMPOUND	RESULT	REPORTING LIMIT
	ug/Kg	ug/Kg
Naphthalene	ND	50
Acenaphthylene	ND	50
Acenaphthene	ND	50
Fluorene	ND	50
Phenanthrene	ND	50
Anthracene	ND	50
Fluoranthene	ND	50
Pyrene	ND	50
Benzo(a)anthracene	ND	50
Chrysene	ND	50
Benzo(b)fluoranthene	ND	50
Benzo(k)fluoranthene	ND	50
Benzo(a)pyrene	ND	50
Indeno(1,2,3-cd)pyrene	ND	50
Dibenzo(a,h)anthracene	ND	50
Benzo(g,h,i)perylene	ND	50

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

	%
2-Fluorophenol	90
Phenol-d6	99
2,4,6-Tribromophenol	113
Nitrobenzene-d5	82
2-Fluorobiphenyl	92
Terphenyl-d14	73



LABORATORY NUMBER: 102952-2
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 537.006
SAMPLE ID: B2@1'

DATE RECEIVED: 12/04/90
DATE REQUESTED: 02/07/91
DATE EXTRACTED: 02/12/91
DATE ANALYZED: 02/12/91
DATE REPORTED: 02/15/91

Polynuclear Aromatic Hydrocarbons in Soils & Wastes by EPA 8270
Extraction Method: EPA 3550

COMPOUND	RESULT	REPORTING LIMIT
	ug/Kg	ug/Kg
Naphthalene	ND	50
Acenaphthylene	ND	50
Acenaphthene	ND	50
Fluorene	ND	50
Phenanthrene	ND	50
Anthracene	ND	50
Fluoranthene	ND	50
Pyrene	ND	50
Benzo(a)anthracene	ND	50
Chrysene	ND	50
Benzo(b)fluoranthene	ND	50
Benzo(k)fluoranthene	ND	50
Benzo(a)pyrene	ND	50
Indeno(1,2,3-cd)pyrene	ND	50
Dibenzo(a,h)anthracene	ND	50
Benzo(g,h,i)perylene	ND	50

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

	%
2-Fluorophenol	98
Phenol-d6	107
2,4,6-Tribromophenol	117
Nitrobenzene-d5	89
2-Fluorobiphenyl	96
Terphenyl-d14	75

LABORATORY NUMBER: 102952-3
 CLIENT: SUBSURFACE CONSULTANTS
 JOB #: 537.006
 SAMPLE ID: B3@1'

DATE RECEIVED: 12/04/90
 DATE REQUESTED: 02/07/91
 DATE EXTRACTED: 02/12/91
 DATE ANALYZED: 02/13/91
 DATE REPORTED: 02/15/91

Polynuclear Aromatic Hydrocarbons in Soils & Wastes by EPA 8270
 Extraction Method: EPA 3550

COMPOUND	RESULT ug/Kg	REPORTING LIMIT ug/Kg
Naphthalene	ND	50
Acenaphthylene	ND	50
Acenaphthene	ND	50
Fluorene	ND	50
Phenanthrene	110	50
Anthracene	ND	50
Fluoranthene	190	50
Pyrene	200	50
Benzo(a)anthracene	71	50
Chrysene	76	50
Benzo(b)fluoranthene	190	50
Benzo(k)fluoranthene	ND	50
Benzo(a)pyrene	100	50
Indeno(1,2,3-cd)pyrene	56	50
Dibenzo(a,h)anthracene	ND	50
Benzo(g,h,i)perylene	67	50

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

	%
2-Fluorophenol	89
Phenol-d6	98
2,4,6-Tribromophenol	113
Nitrobenzene-d5	83
2-Fluorobiphenyl	93
Terphenyl-d14	74

LABORATORY NUMBER: 102952-4
 CLIENT: SUBSURFACE CONSULTANTS
 JOB #: 537.006
 SAMPLE ID: B4@1'

DATE RECEIVED: 12/04/90
 DATE REQUESTED: 02/07/91
 DATE EXTRACTED: 02/12/91
 DATE ANALYZED: 02/13/91
 DATE REPORTED: 02/15/91

Polynuclear Aromatic Hydrocarbons in Soils & Wastes by EPA 8270
 Extraction Method: EPA 3550

COMPOUND	RESULT ug/Kg	REPORTING LIMIT ug/Kg
Naphthalene	480	50
Acenaphthylene	930	50
Acenaphthene	ND	50
Fluorene	190	50
Phenanthrene	6200	50
Anthracene	220	50
Fluoranthene	6200	50
Pyrene	6400	50
Benzo(a)anthracene	1100	50
Chrysene	1500	50
Benzo(b)fluoranthene	3200	50
Benzo(k)fluoranthene	ND	50
Benzo(a)pyrene	2000	50
Indeno(1,2,3-cd)pyrene	1200	50
Dibenzo(a,h)anthracene	ND	50
Benzo(g,h,i)perylene	1400	50

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

	%
2-Fluorophenol	90
Phenol-d6	99
2,4,6-Tribromophenol	101
Nitrobenzene-d5	82
2-Fluorobiphenyl	91
Terphenyl-d14	80



LABORATORY NUMBER: 102952
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 537.006

DATE RECEIVED: 12/04/90
DATE REQUESTED: 02/07/91
DATE ANALYZED: 02/14/91
DATE REPORTED: 02/15/91

=====

ANALYSIS: CYANIDE
ANALYSIS METHOD: EPA 335.2 MODIFIED

=====

LAB ID	SAMPLE ID	RESULT	UNITS	REPORTING LIMIT
102952-1	B1@1'	0.3	mg / Kg	0.3
102952-2	B2@1'	ND	mg / Kg	0.3
102952-3	B3@1'	0.4	mg / Kg	0.3
102952-4	B4@1'	ND	mg / Kg	0.3

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====

RPD, %	2
RECOVERY, %	88

=====

LABORATORY NUMBER: 102952
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT ID: 537.006

DATE RECEIVED: 12/04/90
 DATE REQUESTED: 02/07/91
 DATE ANALYZED: 02/08/91
 DATE REPORTED: 02/15/91

=====
 ANALYSIS: CADMIUM
 ANALYSIS METHOD: EPA 6010
 =====

LAB ID	SAMPLE ID	RESULT	UNITS	REPORTING LIMIT
102952-1	B1@1'	2.3	mg /Kg	0.5
102952-2	B2@1'	1.7	mg /Kg	0.5
102952-3	B3@1'	3.1	mg /Kg	0.5
102952-4	B4@1'	2.0	mg /Kg	0.5

QA/QC SUMMARY

=====
 RPD, % 8
 RECOVERY, % 110
 =====

LABORATORY NUMBER: 102952
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT ID: 537.006

DATE RECEIVED: 12/04/90
 DATE REQUESTED: 02/07/91
 DATE ANALYZED: 02/08/91
 DATE REPORTED: 02/15/91

=====
 ANALYSIS: LEAD
 ANALYSIS METHOD: EPA 7420/EPA 6010*
 =====

LAB ID	SAMPLE ID	RESULT	UNITS	REPORTING LIMIT
102952-1	B1@1'	23	mg / Kg	2.5
102952-2	B2@1'	18	mg / Kg	2.5
102952-3	B3@1'	280*	mg / Kg	2.5
102952-4	B4@1'	91	mg / Kg	2.5

QA/QC SUMMARY

=====
 RPD, % 16
 RECOVERY, % 118
 =====

LABORATORY NUMBER: 102952
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT ID: 537.006
 LOCATION: 1056 48th Street

DATE RECEIVED: 12/04/90
 DATE REQUESTED: 02/07/91
 DATE ANALYZED: 02/11/91
 DATE REPORTED: 02/15/91

=====
 ANALYSIS: SOLUBLE CADMIUM
 EXTRACTION BY WASTE EXTRACTION TEST: CCR TITLE 26 SECTION 22-66700
 ANALYSIS METHOD: EPA 6010
 =====

LAB ID	CLIENT ID	RESULT	UNITS	REPORTING LIMIT
102952-1	B1@1'	0.02	mg/L	0.01
102952-2	B2@1'	0.04	mg/L	0.01
102952-3	B3@1'	0.08	mg/L	0.01
102952-4	B4@1'	0.04	mg/L	0.01

QA/QC SUMMARY

=====
 RPD, % <1
 RECOVERY, % 109
 =====

LABORATORY NUMBER: 102952
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT ID: 537.006
 LOCATION: 1056 48th Street

DATE RECEIVED: 12/04/90
 DATE REQUESTED: 02/07/91
 DATE ANALYZED: 02/11/91
 DATE REPORTED: 02/15/91

=====
 ANALYSIS: SOLUBLE LEAD
 EXTRACTION BY WASTE EXTRACTION TEST: CCR TITLE 26 SECTION 22-66700
 ANALYSIS METHOD: EPA 7420/EPA 6010*
 =====

LAB ID	CLIENT ID	RESULT	UNITS	REPORTING LIMIT
102952-1	B1@1'	0.24	mg/L	0.05
102952-2	B2@1'	0.28	mg/L	0.05
102952-3	B3@1'	9.4*	mg/L	0.05
102952-4	B4@1'	3.2*	mg/L	0.05

QA/QC SUMMARY

=====
 RPD, % 4
 RECOVERY, % 109
 =====

102952

Subsurface Consultants

~~CHAIN OF CUSTODY RECORD~~
ANALYTICAL TEST REQUEST

Project Name: 1056 48th STREET

SCI Job Number: 537.006

Project Contact at SCI: BILL WIKANDER

Sampled By: CRAIG FLETCHER

Analytical Laboratory: CUETIS & TOMPKINS

Analytical Turnaround: STANDARD

Sample ID	Sample Type ¹	Container Type ²	Sampling Date	Hold	Analysis	Analytical Method
1 B101'	SOIL	BRASS TUBE	12/4/90		* TEH TOTAL CADMIUM; LEAD SOLUBLE CADMIUM; LEAD CYANIDE PERSISTENT HALOCARBONS PNA'S	EPA 8015 MOD.
2 B201'	↓	↓	↓			CAM-WET
3 B301'	↓	↓	↓			EPA 335.2 MOD.
4 B401'	↓	↓	↓			EPA 8100
						EPA 8100

* NOTE: PLEASE TEST EACH SAMPLE FOR ALL OF THESE CONTAMINANTS

* * * * *

Released by: _____ Received by: _____ Date: _____

Released by: _____ Received by: _____ Date: _____

Received by Laboratory: _____ Date: _____

Released by Laboratory: _____ Date: _____

Released 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: 1056 48th Street 102457

SCI Job Number: 537.006

Project Contact at SCI: CRAIG FLETCHER / BILL WIKANDER

Sampled By: CRAIG FLETCHER

Analytical Laboratory: Curtis Tompkins

Analytical Turnaround: NORMAL

Sample ID	Sample Type ¹	Container Type ²	Sampling Date	Hold	Analysis	Analytical Method
B1 @ 1'	S	T	12/4/90		TVH/BTXE	8015/8020
2-B2 @ 2'	↓	↓	↓		TEH	3550/8015
3-B3 @ 3'	↓	↓	↓		TOG	5520 E/F
4-B4 @ 4'	↓	↓	↓		Purg. Haloc.	8010
					Title 26 Metals	6010
					Cyanide	SMWW 17/4500CN-E
					Semivolatile Org's.	3550/8220*
					* Pesticides: PCB's	

* * * * *

Released by: [Signature] Date: 12/4/90

Released by Courier: _____ Date: _____

Received by Laboratory: [Signature] Date: 12-4-90 M:30

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