

February 8, 1991
SCI 537.006

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

Analytical Test Results
1056 48th Street
Emeryville, California

Dear Ms. Leshin:

This letter presents results of analytical test results of soil samples from the subject site. We previously performed a geotechnical investigation of the site and presented the results in our report dated January 29, 1991.

During our geotechnical investigation, four test borings were drilled at the approximate locations shown on the attached Site Plan. The bore holes were drilled using truck-mounted, 8-inch-diameter, hollow-stem auger equipment. The drilling and sampling equipment was steam-cleaned prior to the start of each boring. Undisturbed soil samples for analytical testing were obtained from the upper about 1.5 feet of each boring. A total of four samples were obtained. The samples were retained in brass liners. Teflon sheets were placed over the liner ends prior to capping, taping and labeling. The samples were refrigerated until delivery to the analytical laboratory. The samples were accompanied by a Chain-of-Custody Record, a copy of which is attached.

The sampled soils consisted of fill (gravely clay at boring 1 and clayey sand at boring 4) and native soils (sandy clay at borings 2 and 3). No visual nor olfactory indications of contamination were noted. A more complete description of subsurface conditions is provided in the geotechnical report.

Analytical testing was performed by Curtis & Tompkins, Ltd., a State of California Department of Health Services (DOHS) certified analytical laboratory for the test performed. For reasons of economy, the four samples were composited into one sample for analytical testing. The analytical tests included:

■ **Subsurface Consultants, Inc.**

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1. Cyanide (EPA 335.2 modified),
2. Hydrocarbon oil and grease (SMWW17:5520 E & F),
3. Total volatile hydrocarbons with benzene, toluene, total xylenes and ethylbenzene (DOHS LUFT manual, October 1989 and EPA 8020),
4. Extractable petroleum hydrocarbons (DOHS LUFT manual, October 1989),
5. Title 26 metals (EPA 6010, 7471, 7740 and 7841),
6. Volatile halocarbons (EPA 8010), and
7. Semi-volatile organics (EPA 8270).

The results of the analytical tests are summarized in Tables 1 and 2. Copies of the laboratory analytical test reports are attached.

The results indicate concentrations of extractable petroleum hydrocarbons, polynuclear aromatic hydrocarbons (phenanthrene, fluoranthene and pyrene) and 1,1,1-trichloroethane in the composited sample. In addition cyanide and a number of Title 26 metals were detected in the composited sample; the concentrations of cadmium, cyanide and lead are of potential concern.

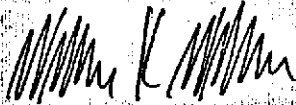
The analytical test results of the composited sample do not represent concentrations at specific locations; but instead are an average of the concentrations within the samples included in the composites. Accordingly, it is possible that some of the detected chemical/metals may not exist or may be at higher concentrations in the individual samples that make up the composite. We have recently been authorized to test the individual samples from the composite for the detected materials. The results will be presented at the completion of analytical testing.

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If you have questions, please call.

Yours very truly,

Subsurface Consultants, Inc.



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

WKW:RWR:sld

Attachments:

Table 1 and 2
Site Plan
Chain-Of-Custody Records
Laboratory Analytical Test Reports

2 copies submitted

Table 1. Chemical Concentrations in Soil Composite

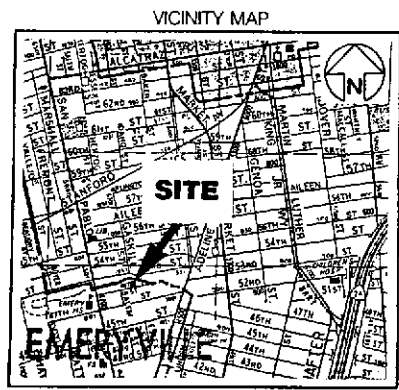
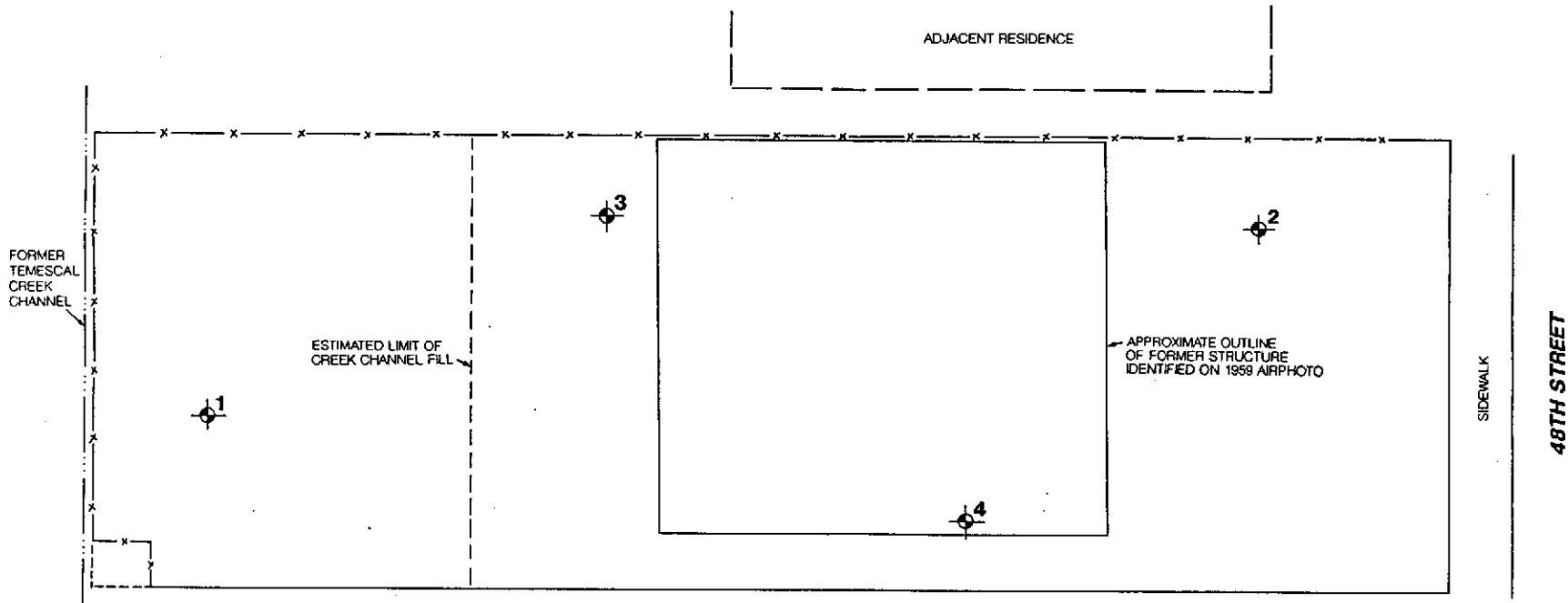
<u>Chemical/Chemical Analysis</u>	<u>Concentration¹</u>
Total Volatile Hydrocarbons (TVH) (EPA 5030/8015)	ND ²
Benzene, Toluene, Xylene, Ethylbenzene (BTXE) (EPA 5030/8020)	ND
Extractable Petroleum Hydrocarbons (EPA 3550/LUFT Manual October 1989) <i>metal</i>	12 ppm ³
Hydrocarbon Oil and Grease (EPA 3550/SMWW17:5520E&F)	ND
Volatile Halocarbons (EPA Method 5030/8010)	
1,1,1-Trichloroethane (TCA)	40 ppb
All other EPA 8010 Chemicals	ND
Semi-Volatile Organics (including pesticides) (EPA Method 3550/8270)	
Phenanthrene	600 ppb
Fluoranthene	570 ppb
Pyrene	660 ppb
All other EPA 8270 Compounds	ND
Cyanide (EPA Method 335.2 (modified))	5.6 ppm

- ¹ ppm = parts per million (mg/kg); ppb = parts per billion (ug/kg)
² ND = Not detected; see attached test data sheets for detection limits
³ As diesel

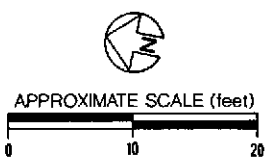
Table 2. Title 26 Metals in Soil Composite

Total Metal	Concentration (ppm) ¹	Regulatory Criteria (ppm)	
		TTL ²	STLC ³
Antimony (Sb)	ND ⁴	500	15
Arsenic (As)	ND	500	5
Barium (Ba)	160	10,000 ⁵	100 ⁶
Beryllium (Be)	ND	75	0.75
Cadmium (Cd)	2.7	100	1.0
Chromium (Cr) ⁷	32	2,500	560
Cobalt (Co)	11	8,000	80
Copper (Cu)	38	2,500	25
Lead (Pb)	140	1,000	5
Mercury (Hg)	0.7	20	0.2
Molybdenum (Mo)	ND	3,500	350
Nickel (Ni)	37	2,000	20
Selenium (Se)	ND	100	1.0
Silver (Ag)	ND	500	5
Thallium (Tl)	ND	700	7.0
Vanadium (V)	23	2,400	24
Zinc (Zn)	280	5,000	250

- 1 ppm = parts per million
- 2 Total Threshold Limit Concentration (22 CAC 66699)
- 3 Soluble Threshold Limit Concentration (22 CAC 66699) provided for reference only; should not be compared with test results.
- 4 ND = None detected; see attached test data sheets for detection limits
- 5 Excluding Barite and Barium Sulfate
- 6 Excluding Barite
- 7 Total Chromium Compounds



TEST BORING
 FENCE



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

Subsurface Consultants

CHAIN OF CUSTODY RECORD
& ANALYTICAL TEST REQUEST

Project Name: 1056 48th Street
 SCI Job Number: 537.006
 Project Contact at SCI: CRAIG FLETCHER / BILL WIKANDER
 Sampled By: CRAIG FLETCHER
 Analytical Laboratory: Curtis Tompkins
 Analytical Turnaround: NORMAL

RECEIVED

AM DEC 6 1990
 7:18, 9:10, 11:21, 12:31, 4:15, 6:16 PM

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
B2 @ 1'	↓	↓	↓		TEH	3550/8015
B3 @ 1'	↓	↓	↓		TOG	5520 E:F
B4 @ 1'	↓	↓	↓		Purg. Analoc.	8010
					Title 26 Metals	6010
					Cyanide	SMWW 17/4500CN-E
					Semivolatile Org's.	3550/8270*
					* PESTICIDES; PCB's	

* * * * *

Released by: John Wolfe 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



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

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

RECEIVED

JAN - 2 1991

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

DATE RECEIVED: 12/04/90
DATE REPORTED: 12/27/90

LAB NUMBER: 102457

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 1 SOIL COMPOSITE

PROJECT #: 537.006
LOCATION: 1056 48TH STREET

RESULTS: SEE ATTACHED



QA/QC Approval



Final Approval



LABORATORY NUMBER: 102457
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 537.006
LOCATION: 1056 48TH STREET

DATE RECEIVED: 12/04/90
DATE ANALYZED: 12/17/90
DATE REPORTED: 12/27/90

=====
ANALYSIS: CYANIDE
ANALYSIS METHOD: EPA 335.2 (MODIFIED)
=====

LAB ID	COMPOSITE ID	RESULT	UNITS	REPORTING LIMIT
102457-5	B1 @ 1'	5.6	mg/Kg	0.3
	B2 @ 1'			
	B3 @ 1'			
	B4 @ 1'			

QA/QC SUMMARY

=====
RPD, % <1
RECOVERY, % 101
=====

LAB NUMBER: 102457
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT #: 537.006
 LOCATION: 1056 48TH STREET

DATE RECEIVED: 12/04/90
 DATE ANALYZED: 12/11/90
 DATE REPORTED: 12/27/90

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

LAB ID	COMPOSITE ID	RESULT	UNITS	REPORTING LIMIT
102457-5	B1 @ 1'	ND	mg / Kg	50
	B2 @ 1'			
	B3 @ 1'			
	B4 @ 1'			

ND = Not detected at or above reporting limit

QA/QC SUMMARY

RPD, %	<1
RECOVERY, %	86



LABORATORY NUMBER: 102457
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 537.006
JOB LOCATION: 1056 48TH STREET

DATE RECEIVED: 12/04/90
DATE ANALYZED: 12/11/90
DATE REPORTED: 12/27/90

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

LAB ID	COMPOSITE ID	TVH AS GASOLINE (mg/Kg)	BENZENE (ug/Kg)	TOLUENE (ug/Kg)	ETHYL BENZENE (ug/Kg)	TOTAL XYLENES (ug/Kg)
102457-5	B1 @ 1'	ND(1.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
	B2 @ 1'					
	B3 @ 1'					
	B4 @ 1'					

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

QA/QC SUMMARY

```

=====
RPD, %                2
RECOVERY, %          102
=====

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LABORATORY NUMBER: 102457
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 537.006
LOCATION: 1056 48TH ST.

DATE RECEIVED: 12/04/90
DATE EXTRACTED: 12/10/90
DATE ANALYZED: 12/18/90
DATE REPORTED: 12/27/90

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

LAB ID	COMPOSITE ID	KEROSENE RANGE (mg/Kg)	DIESEL RANGE (mg/Kg)	REPORTING LIMIT* (mg/Kg)
102457-5	B1 @ 1'	ND	12	1.0
	B2 @ 1'			
	B3 @ 1'			
	B4 @ 1'			

ND = Not Detected at or above reporting limit.

*Reporting limit applies to all analytes.

QA/QC SUMMARY

RPD, %	2
RECOVERY, %	89

LABORATORY NUMBER: 102457-5
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT ID: 537.006
 COMPOSITE ID: B1 @ 1', B2 @ 1', B3 @ 1',
 B4 @ 1'

DATE RECEIVED: 12/04/90
 DATE ANALYZED: 12/07/90
 DATE REPORTED: 12/27/90

Title 26 Metals in Soils & Wastes
 Digestion Method: EPA 3050

METAL	RESULT mg/Kg	REPORTING LIMIT mg/Kg	METHOD
Antimony	ND	5	EPA 6010
Arsenic	ND	2.5	EPA 6010
Barium	160	0.5	EPA 6010
Beryllium	ND	0.5	EPA 6010
Cadmium	2.7	0.5	EPA 6010
Chromium (total)	32	0.5	EPA 6010
Cobalt	11	0.5	EPA 6010
Copper	38	1	EPA 6010
Lead	140	2.5	EPA 6010
Mercury	0.7	0.1	EPA 7471
Molybdenum	ND	0.5	EPA 6010
Nickel	37	0.5	EPA 6010
Selenium	ND	2.5	EPA 7740
Silver	ND	1	EPA 6010
Thallium	ND	5	EPA 7841
Vanadium	23	1	EPA 6010
Zinc	280	0.5	EPA 6010

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

	RPD, %	RECOVERY, %		RPD, %	RECOVERY, %
Antimony	7	90	Mercury	3	111
Arsenic	18	89	Molybdenum	4	93
Barium	4	91	Nickel	6	90
Beryllium	3	91	Selenium	5	91
Cadmium	4	86	Silver	1	94
Chromium	2	89	Thallium	3	86
Cobalt	1	92	Vanadium	<1	90
Copper	9	94	Zinc	2	91
Lead	<1	92			



LABORATORY NUMBER: 102457-5
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT ID: 537.006 - 1056 48TH ST.
 COMPOSITE ID: B1 @ 1', B2 @ 1', B3 @ 1',
 B4 @ 1'

DATE RECEIVED: 12/04/90
 DATE ANALYZED: 12/06/90
 DATE REPORTED: 12/27/90

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	40	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
 Spike: Average % Recovery

6
 93



LABORATORY NUMBER: 102457-5
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 537.006
COMPOSITE ID: B1 @ 1', B2 @ 1', B3 @ 1', B4 @ 1'

DATE RECEIVED: 12/04/90
DATE EXTRACTED: 12/10/90
DATE ANALYZED: 12/11/90
DATE REPORTED: 12/27/90

EPA 8270: Base/Neutral and Acid Extractables in Soils & Wastes
Extraction Method: EPA 3550 Sonication

ACID COMPOUNDS	RESULT ug/kg	REPORTING LIMIT ug/kg
Phenol	ND	330
2-Chlorophenol	ND	330
Benzyl Alcohol	ND	330
2-Methylphenol	ND	330
4-Methylphenol	ND	330
2-Nitrophenol	ND	1650
2,4-Dimethylphenol	ND	330
Benzoic Acid	ND	1650
2,4-Dichlorophenol	ND	330
4-Chloro-3-methylphenol	ND	330
2,4,6-Trichlorophenol	ND	330
2,4,5-Trichlorophenol	ND	1650
2,4-Dinitrophenol	ND	1650
4-Nitrophenol	ND	1650
4,6-Dinitro-2-methylphenol	ND	1650
Pentachlorophenol	ND	1650
BASE/NEUTRAL COMPOUNDS		
N-Nitrosodimethylamine	ND	330
Aniline	ND	330
Bis(2-chloroethyl)ether	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND	330
1,2-Dichlorobenzene	ND	330
Bis(2-chloroisopropyl)ether	ND	330
N-Nitroso-di-n-propylamine	ND	330
Hexachloroethane	ND	330
Nitrobenzene	ND	330
Isophorone	ND	330
Bis(2-chloroethoxy)methane	ND	330
1,2,4-Trichlorobenzene	ND	330
Naphthalene	ND	330
4-Chloroaniline	ND	330
Hexachlorobutadiene	ND	330
2-Methylnaphthalene	ND	330
Hexachlorocyclopentadiene	ND	330
2-Chloronaphthalene	ND	330
2-Nitroaniline	ND	1650



LABORATORY NUMBER: 102457-5
COMPOSITE ID: B1 @ 1', B2 @ 1', B3 @ 1', B4 @ 1'

EPA 8270

BASE/NEUTRAL COMPOUNDS

	RESULT	REPORTING
	ug/kg	LIMIT ug/kg
Dimethylphthalate	ND	330
Acenaphthylene	ND	330
2,6-Dinitrotoluene	ND	330
3-Nitroaniline	ND	1650
Acenaphthene	ND	330
Dibenzofuran	ND	330
2,4-Dinitrotoluene	ND	330
Diethylphthalate	ND	330
4-Chlorophenyl-phenylether	ND	330
Fluorene	ND	330
4-Nitroaniline	ND	1650
N-Nitrosodiphenylamine	ND	330
Azobenzene	ND	330
4-Bromophenyl-phenylether	ND	330
Hexachlorobenzene	ND	330
Phenanthrene	600	330
Anthracene	ND	330
Di-n-butylphthalate	ND	330
Fluoranthene	570	330
Benzidine	ND	330
Pyrene	660	330
Butylbenzylphthalate	ND	330
3,3'-Dichlorobenzidine	ND	1650
Benzo (a) anthracene	ND	330
Chrysene	ND	330
Bis (2-ethylhexyl)phthalate	ND	330
Di-n-octylphthalate	ND	330
Benzo (b) fluoranthene	ND	330
Benzo (k) fluoranthene	ND	330
Benzo (a) pyrene	ND	330
Indeno (1,2,3-cd) pyrene	ND	330
Dibenzo (a,h) anthracene	ND	330
Benzo (g,h,i) perylene	ND	330

ND = Not detected at or above reporting limit.



LABORATORY NUMBER: 102457-5

EPA 8270

COMPOSITE ID: B1 @ 1', B2 @ 1', B3 @ 1', B4 @ 1'

COMPOUND	RESULT ug/kg	REPORTING LIMIT ug/kg
CHLORINATED PESTICIDES		
alpha-BHC	ND	330
beta-BHC	ND	330
gamma-BHC	ND	330
delta-BHC	ND	330
Heptachlor	ND	330
Aldrin	ND	330
Heptachlor Epoxide	ND	330
Endosulfan I	ND	330
4,4'-DDE	ND	330
Dieldrin	ND	330
Endrin	ND	330
Endosulfan II	ND	330
4,4'-DDD	ND	330
Endrin Aldehyde	ND	330
Endosulfan Sulfate	ND	330
4,4'-DDT	ND	330
Chlordane	ND	1650
Toxaphene	ND	1650
Methoxychlor	ND	1650
Aroclor 1016	ND	1650
Aroclor 1221	ND	1650
Aroclor 1232	ND	1650
Aroclor 1242	ND	1650
Aroclor 1248	ND	1650
Aroclor 1254	ND	1650
Aroclor 1260	ND	1650

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

Compound	%Recovery	Compound	%Recovery
2-Fluorophenol	108	Nitrobenzene-d5	64
Phenol-d6	90	2-Fluorobiphenyl	67
2,4,6-Tribromophenol	75	Terphenyl-d14	43