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NAS KEY WEST
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FINAL REMEDIAL INVESTIGATION REPORT PHASE 1 FOR SITE 1, SITE 3, SITE 4, SITE 5,
SITE 7, SITE 8, SITE 9 AND SITE 10 APPENDIX G VOLUME 3 OF 5 NAS KEY WEST FL
5/1/1991
IT CORPORATION

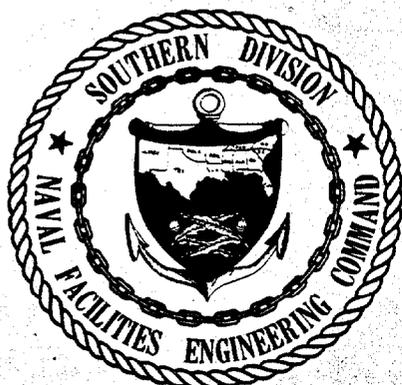
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FINAL REPORT



REMEDIAL INVESTIGATION - PHASE I FOR SITES 1, 3, 4, 5, 7, 8, 9, AND 10 APPENDIX G VOLUME III

NAVAL AIR STATION - KEY WEST
KEY WEST, FLORIDA
CONTRACT NO. N62467-88-C-0196
MAY, 1991



Prepared by:
IT CORPORATION
8600 HIDDEN RIVER PARKWAY, SUITE 100
TAMPA, FLORIDA 33637

RELEASE OF THIS DOCUMENT REQUIRES PRIOR NOTIFICATION OF
THE COMMANDING OFFICER OF NAS - KEY WEST

REMEDIAL INVESTIGATION/PHASE I REPORT
FOR SITES 1, 3, 4, 5, 7, 8, 9, AND 10
NAVAL AIR STATION - KEY WEST
KEY WEST, FLORIDA

APPENDIX G - CERTIFICATES OF ANALYSIS
VOLUME 3

PREPARED FOR

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON, SOUTH CAROLINA
CONTRACT NUMBER N62467-88-C-0196

PREPARED BY

IT CORPORATION
8600 HIDDEN RIVER PARKWAY
SUITE 100
TAMPA, FLORIDA 33637

IT PROJECT NUMBER 595392
MAY 1991

CERTIFICATE OF ANALYSIS

IT Corporation
3012 US Highway 301 North, Suite 1000
Tampa, FL 33619
ATTN: Mark Hampton

August 31, 1990

Job Number: ITCY 46120

P.O. Number: 595392.08

This is the Certificate of Analysis for the following samples:

Client Project ID: NAS-Key West
Date Received by Lab: 07/11/90
Number of Samples: Twelve (12)
Sample Type: Water - ten (10), Trip Blank - one (1),
Equipment Rinse - one (1)

I. Introduction

On 07/11/90, ten (10) water samples, one (1) trip blank, and one (1) equipment rinse arrived at the ITAS-Knoxville, Tennessee, laboratory from the Naval Air Station, Key West, Florida. The list of analytical tests performed, as well as date of receipt and analysis, can be found in the attached report.

II. Analytical Results/Methodology

The analytical results for this report are presented by analytical test. Each set of data will include sample identification information and the analytical results. Please note that CLP data are not blank corrected.

The samples were analyzed for Target Compound List (TCL) volatiles and semivolatiles by gas chromatography/mass spectroscopy (GC/MS) in accordance with the EPA CLP 2/88 Statement of Work.

The samples were analyzed for Target Compound List (TCL) pesticides and PCBs by gas chromatography/electron capture detection (GC/ECD) in accordance with the EPA CLP 2/88 Statement of Work.

Reviewed and Approved:



Alyce Moore
Laboratory Manager

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

II. Analytical Results/Methodology (continued)

The samples were analyzed for Target Analyte List (TAL) metals by cold vapor atomic absorption spectroscopy (CVAA), graphite furnace atomic absorption spectroscopy (GFAA), and inductively coupled plasma spectroscopy (ICP) in accordance with the EPA CLP 6/89 Statement of Work.

The samples were analyzed for total cyanide by manual distillation/colorimetric determination in accordance with the EPA CLP 6/89 Statement of Work.

III. Quality Control

The volatiles analyses were performed on 07/19/90 by purge and trap with a J&W DB-624 megabore column on a Finnigan OWA GC/MS/DS. The semivolatiles analyses were performed on 07/25 and 07/26/90 by direct injection of sample extract on a Restek RTX-5 capillary column on a VG TRIO-2 GC/MS/DS. The volatiles runs went well. Trichlorofluoromethane was incidentally picked up in a routine standard scan in some cases; it was listed in the TICs although quantitated against a standard. The trip blank showed a slightly high BFB surrogate recovery; this may have been system related, as there was generally high background at the time of the run. It was reanalyzed, this time showing very marginally high BFB recovery. Both sets of run data were submitted; the deviations did not appear significant, and all other samples had surrogates within limits. The semivolatiles runs also went well. Sample 04-ER showed one surrogate recovery a little below normal limits, but the sample was compliant overall. There were no other problems seen in final review of the data for either the volatiles or semivolatiles fraction. Associated QC samples for both fractions were analyzed with ITAS project ITCY 46120, sample 08-03-GW.

The pesticide/PCB analyses were performed from 07/25/90 to 08/14/90 using a mixed phase (SP2250/2401) Varian 3740B and (SPB-5) Varian 3700-F instruments. All water samples and the associated method blank were treated for sulfur interferences. This cleanup was performed on 07/25/90. Associated QC samples were analyzed with ITAS project ITCY 46115, sample 08-03-GW. No problems were encountered.

The samples were digested on 07/19/90 for ICP and 07/18/90 for GFAA. The samples for mercury analysis were prepared just prior to analysis. The CVAA analysis for mercury was performed on 07/14/90; the GFAA analysis for selenium was performed from 08/08 to 08/27/90; the remaining metals were analyzed by ICP on 08/10/90. All run QC was acceptable. Associated QC samples were analyzed with ITAS project ITCY 46115, sample 08-03-GW. These samples manifested extremely severe matrix interferences for analysis by GFAA, more than likely due to the high chloride content. Samples contained high levels of calcium, magnesium, and sodium which contributed to the interference problems. Elevated detection limits for silver, selenium, and thallium were reported due to these matrix interferences. Arsenic and lead were reported by ICP, because the ICP produced the better detection limit. The best achievable data were reported. No other problems were encountered.

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

III. Quality Control (continued)

The samples were analyzed for cyanide on 07/19/90. Associated QC samples were analyzed with ITAS project ITCY 46115, sample 08-03-GW. No problems were encountered.

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August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 1
Lab Sample ID: EB0719

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	2 J	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	2 J	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Analyzed: 07/19/90
Dilution Factor: 1

This method blank applies to the following samples: 01-01-GW, 01-02-GW, 01-03-GW, 04-02-GW, 04-02-GWD, 04-03-GW, 04-05-GW, 04-ER, 08-02-GW, 08-16-RGW, Trip Blank, Trip Blank RE.

Client Project ID: NAS-Key West

Job Number: ITCY 46120

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-16R-GW
Lab Sample ID: LL2787

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	2 BJ	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

B - Analyte was found in the blank as well as the sample.

Date Analyzed: 07/19/90

Dilution Factor: 1

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 08-16R-GW
Lab Sample ID: LL2787

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-01-GW

Lab Sample ID: LL2788

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	2 B _J	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

B - Analyte was found in the blank as well as the sample.

Date Analyzed: 07/19/90

Dilution Factor: 1

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August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-01-GW
Lab Sample ID: LL2788

Tentative Identification (1)

Concentration (2)

ethane, 1,2-dichloro-1,1,2-trichloro-

19

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

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August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-02-GW
Lab Sample ID: LL2789

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	2 B	1,1,2-trichloroethane	5 U
acetone	4 J	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	1 J
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

B - Analyte was found in the blank as well as the sample.

Date Analyzed: 07/19/90
Dilution Factor: 1

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August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-02-GW
Lab Sample ID: LL2789

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

Client Project ID: NAS-Key West

Job Number: ITCY 46120

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-03-GW

Lab Sample ID: LL2790

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	1 BJ	1,1,2-trichloroethane	5 U
acetone	2 J	benzene	5 U
carbon disulfide	1 BJ	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

B - Analyte was found in the blank as well as the sample.

Date Analyzed: 07/19/90

Dilution Factor: 1

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-03-GW
Lab Sample ID: LL2790

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in ug/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-02-GW
Lab Sample ID: LL2791

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	2 BJ	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	3 BJ	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

B - Analyte was found in the blank as well as the sample.

Date Analyzed: 07/19/90

Dilution Factor: 1

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 08-02-GW
Lab Sample ID: LL2791

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

Client Project ID: NAS-Key West

Job Number: ITCY 46120

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Trip Blank

Lab Sample ID: LL2793

Compound

Compound

chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	5 B	1,1,2-trichloroethane	5 U
acetone	7 J	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

B - Analyte was found in the blank as well as the sample.

Date Analyzed: 07/19/90

Dilution Factor: 1

IT Corporation
August 31, 1990

Client Project ID: NAS-Key West

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Job Number: ITCY 46120

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Trip Blank
Lab Sample ID: LL2793

Tentative Identification (1)

trichlorofluoromethane

Concentration (2)

5.9 *

Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

* - Quantitated against a daily calibration standard.

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Trip Blank RE
Lab Sample ID: LL2793R

Compound

Compound

chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	5 B	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

B - Analyte was found in the blank as well as the sample.

Date Analyzed: 07/19/90
Dilution Factor: 1

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Trip Blank RE
Lab Sample ID: LL2793R

Tentative Identification (1)

Concentration (2)

trichlorofluoromethane

4.1 *

Remarks: (1) Identification is based on computer search of N.B.S. Library.

(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

* - Quantitated against a daily calibration standard.

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 2
Lab Sample ID: EB07192

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	2 J	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	1 J	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Analyzed: 07/19/90
Dilution Factor: 1

This method blank applies to the following sample: 04-01-GW

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 2
Lab Sample ID: EB07192

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

WATER SURROGATE PERCENT RECOVERY SUMMARY

Sample No.	VOLATILE		
	Toluene-D8 (88-110%)*	BFB (86-115%)*	1,2 Dichloroethane-D4 (76-114%)*
01-01-GW	97	112	92
01-02-GW	94	110	92
01-03-GW	90	97	88
04-01-GW	95	100	91
04-02-GW	98	109	90
04-02-GWD	100	108	91
04-03-GW	95	112	93
04-05-GW	95	109	91
04-ER	101	115	98
08-02-GW	96	107	94
08-16R-GW	97	107	93
Method Blank 1	102	104	99
Method Blank 2	95	98	90
Trip Blank RE	103	116 **	99
Trip Blank	109	122 **	102

* - Values in parenthesis represent USEPA contract required QC limits.

** - Values are outside of contract required QC limits.

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

SEMIVOLATILE TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 1
Lab Sample ID: BLA1331

<u>Compound</u>		<u>Compound</u>	
phenol	10 U	bis(2-chloroethoxy)methane	10 U
bis(2-chloroethyl)ether	10 U	2,4-dichlorophenol	10 U
2-chlorophenol	10 U	1,2,4-trichlorobenzene	10 U
1,3-dichlorobenzene	10 U	naphthalene	10 U
1,4-dichlorobenzene	10 U	4-chloroaniline	10 U
benzyl alcohol	10 U	hexachlorobutadiene	10 U
1,2-dichlorobenzene	10 U	4-chloro-3-methylphenol	10 U
2-methylphenol	10 U	2-methylnaphthalene	10 U
bis(2-chloroisopropyl)ether	10 U	hexachlorocyclopentadiene	10 U
4-methylphenol	10 U	2,4,6-trichlorophenol	10 U
n-nitroso-di-n-propylamine	10 U	2,4,5-trichlorophenol	50 U
hexachloroethane	10 U	2-chloronaphthalene	10 U
nitrobenzene	10 U	2-nitroaniline	50 U
isophorone	10 U	dimethyl phthalate	10 U
2-nitrophenol	10 U	acenaphthylene	10 U
2,4-dimethylphenol	10 U	2,6-dinitrotoluene	10 U
benzoic acid	50 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/16/90
Date Analyzed: 07/25/90
Dilution Factor: 1

This method blank applies to the following samples: 01-01-GW, 01-02-GW, 01-03-GW, 04-01-GW, 04-02-GW, 04-02-GWD, 04-03-GW, 04-05-GW, 08-16R-GW.

Client Project ID: NAS-Key West

Job Number: ITCY 46120

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 1

Lab Sample ID: BLA1331

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	50 U	anthracene	10 U
acenaphthene	10 U	di-n-butylphthalate	10 U
2,4-dinitrophenol	50 U	fluoranthene	10 U
4-nitrophenol	50 U	pyrene	10 U
dibenzofuran	10 U	butylbenzylphthalate	10 U
2,4-dinitrotoluene	10 U	3,3'-dichlorobenzidine	20 U
diethylphthalate	10 U	benzo(a)anthracene	10 U
4-chlorophenyl-phenylether	10 U	chrysene	10 U
fluorene	10 U	bis(2-ethylhexyl)phthalate	10 U
4-nitroaniline	50 U	di-n-octylphthalate	10 U
4,6-dinitro-2-methylphenol	50 U	benzo(b)fluoranthene	10 U
n-nitrosodiphenylamine ¹	10 U	benzo(k)fluoranthene	10 U
4-bromophenyl-phenylether	10 U	benzo(a)pyrene	10 U
hexachlorobenzene	10 U	indeno(1,2,3-cd)pyrene	10 U
pentachlorophenol	50 U	dibenzo(a,h)anthracene	10 U
phenanthrene	10 U	benzo(g,h,i)perylene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/16/90

Date Analyzed: 07/25/90

Dilution Factor: 1

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 1
Lab Sample ID: BLA1331

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

IT Corporation
August 31, 1990

Client Project ID: NAS-Key West

Job Number: ITCY 46120

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-16R-GW
Lab Sample ID: LL2824

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	52 U	anthracene	10 U
acenaphthene	10 U	di-n-butylphthalate	10 U
2,4-dinitrophenol	52 U	fluoranthene	10 U
4-nitrophenol	52 U	pyrene	10 U
dibenzofuran	10 U	butylbenzylphthalate	10 U
2,4-dinitrotoluene	10 U	3,3'-dichlorobenzidine	21 U
diethylphthalate	10 U	benzo(a)anthracene	10 U
4-chlorophenyl-phenylether	10 U	chrysene	10 U
fluorene	10 U	bis(2-ethylhexyl)phthalate	10 U
4-nitroaniline	52 U	di-n-octylphthalate	10 U
4,6-dinitro-2-methylphenol	52 U	benzo(b)fluoranthene	10 U
n-nitrosodiphenylamine ¹	10 U	benzo(k)fluoranthene	10 U
4-bromophenyl-phenylether	10 U	benzo(a)pyrene	10 U
hexachlorobenzene	10 U	indeno(1,2,3-cd)pyrene	10 U
pentachlorophenol	52 U	dibenzo(a,h)anthracene	10 U
phenanthrene	10 U	benzo(g,h,i)perylene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/16/90
Date Analyzed: 07/26/90
Dilution Factor: 1

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 08-16R-GW
Lab Sample ID: LL2824

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

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August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

SEMIVOLATILE TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-01-GW
Lab Sample ID: LL2825

<u>Compound</u>		<u>Compound</u>	
phenol	11 U	bis(2-chloroethoxy)methane	11 U
bis(2-chloroethyl)ether	11 U	2,4-dichlorophenol	11 U
2-chlorophenol	11 U	1,2,4-trichlorobenzene	11 U
1,3-dichlorobenzene	11 U	naphthalene	11 U
1,4-dichlorobenzene	11 U	4-chloroaniline	11 U
benzyl alcohol	11 U	hexachlorobutadiene	11 U
1,2-dichlorobenzene	11 U	4-chloro-3-methylphenol	11 U
2-methylphenol	11 U	2-methylnaphthalene	11 U
bis(2-chloroisopropyl)ether	11 U	hexachlorocyclopentadiene	11 U
4-methylphenol	11 U	2,4,6-trichlorophenol	11 U
n-nitroso-di-n-propylamine	11 U	2,4,5-trichlorophenol	53 U
hexachloroethane	11 U	2-chloronaphthalene	11 U
nitrobenzene	11 U	2-nitroaniline	53 U
isophorone	11 U	dimethyl phthalate	11 U
2-nitrophenol	11 U	acenaphthylene	11 U
2,4-dimethylphenol	11 U	2,6-dinitrotoluene	11 U
benzoic acid	53 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/16/90
Date Analyzed: 07/26/90
Dilution Factor: 1

IT Corporation
 August 31, 1990

Client Project ID: NAS-Key West

Job Number: ITCY 46120

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 01-01-GW
 Lab Sample ID: LL2825

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	53 U	anthracene	11 U
acenaphthene	11 U	di-n-butylphthalate	11 U
2,4-dinitrophenol	53 U	fluoranthene	11 U
4-nitrophenol	53 U	pyrene	11 U
dibenzofuran	11 U	butylbenzylphthalate	11 U
2,4-dinitrotoluene	11 U	3,3'-dichlorobenzidine	21 U
diethylphthalate	11 U	benzo(a)anthracene	11 U
4-chlorophenyl-phenylether	11 U	chrysene	11 U
fluorene	11 U	bis(2-ethylhexyl)phthalate	11 U
4-nitroaniline	53 U	di-n-octylphthalate	11 U
4,6-dinitro-2-methylphenol	53 U	benzo(b)fluoranthene	11 U
n-nitrosodiphenylamine ¹	11 U	benzo(k)fluoranthene	11 U
4-bromophenyl-phenylether	11 U	benzo(a)pyrene	11 U
hexachlorobenzene	11 U	indeno(1,2,3-cd)pyrene	11 U
pentachlorophenol	53 U	dibenzo(a,h)anthracene	11 U
phenanthrene	11 U	benzo(g,h,i)perylene	11 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/16/90
 Date Analyzed: 07/26/90
 Dilution Factor: 1

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August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-01-GW

Lab Sample ID: LL2825

Tentative Identification (1)

Concentration (2)

bromacil

51

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

SEMIVOLATILE TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-02-GW
Lab Sample ID: LL2826

<u>Compound</u>		<u>Compound</u>	
phenol	12 U	bis(2-chloroethoxy)methane	12 U
bis(2-chloroethyl)ether	12 U	2,4-dichlorophenol	12 U
2-chlorophenol	12 U	1,2,4-trichlorobenzene	12 U
1,3-dichlorobenzene	12 U	naphthalene	12 U
1,4-dichlorobenzene	12 U	4-chloroaniline	12 U
benzyl alcohol	12 U	hexachlorobutadiene	12 U
1,2-dichlorobenzene	12 U	4-chloro-3-methylphenol	12 U
2-methylphenol	12 U	2-methylnaphthalene	12 U
bis(2-chloroisopropyl)ether	12 U	hexachlorocyclopentadiene	12 U
4-methylphenol	12 U	2,4,6-trichlorophenol	12 U
n-nitroso-di-n-propylamine	12 U	2,4,5-trichlorophenol	58 U
hexachloroethane	12 U	2-chloronaphthalene	12 U
nitrobenzene	12 U	2-nitroaniline	58 U
isophorone	12 U	dimethyl phthalate	12 U
2-nitrophenol	12 U	acenaphthylene	12 U
2,4-dimethylphenol	12 U	2,6-dinitrotoluene	12 U
benzoic acid	58 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/16/90
Date Analyzed: 07/26/90
Dilution Factor: 1

Client Project ID: NAS-Key West

Job Number: ITCY 46120

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 01-02-GW

Lab Sample ID: LL2826

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	58 U	anthracene	12 U
acenaphthene	12 U	di-n-butylphthalate	12 U
2,4-dinitrophenol	58 U	fluoranthene	12 U
4-nitrophenol	58 U	pyrene	12 U
dibenzofuran	12 U	butylbenzylphthalate	12 U
2,4-dinitrotoluene	12 U	3,3'-dichlorobenzidine	23 U
diethylphthalate	12 U	benzo(a)anthracene	12 U
4-chlorophenyl-phenylether	12 U	chrysene	12 U
luorene	12 U	bis(2-ethylhexyl)phthalate	12 U
4-nitroaniline	58 U	di-n-octylphthalate	12 U
4,6-dinitro-2-methylphenol	58 U	benzo(b)fluoranthene	12 U
n-nitrosodiphenylamine ¹	12 U	benzo(k)fluoranthene	12 U
4-bromophenyl-phenylether	12 U	benzo(a)pyrene	12 U
hexachlorobenzene	12 U	indeno(1,2,3-cd)pyrene	12 U
pentachlorophenol	58 U	dibenzo(a,h)anthracene	12 U
phenanthrene	12 U	benzo(g,h,i)perylene	12 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/16/90

Date Analyzed: 07/26/90

Dilution Factor: 1

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August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-02-GW
Lab Sample ID: LL2826

Tentative Identification (1)

Concentration (2)

cyclohexane, 1-bromo-2-chloro-

9.2

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

Client Project ID: NAS-Key West

Job Number: ITCY 46120

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 01-03-GW
Lab Sample ID: LL2827

<u>Compound</u>		<u>Compound</u>	
phenol	10 U	bis(2-chloroethoxy)methane	10 U
bis(2-chloroethyl)ether	10 U	2,4-dichlorophenol	10 U
2-chlorophenol	10 U	1,2,4-trichlorobenzene	10 U
1,3-dichlorobenzene	10 U	naphthalene	10 U
1,4-dichlorobenzene	10 U	4-chloroaniline	10 U
benzyl alcohol	10 U	hexachlorobutadiene	10 U
1,2-dichlorobenzene	10 U	4-chloro-3-methylphenol	10 U
2-methylphenol	10 U	2-methylnaphthalene	10 U
bis(2-chloroisopropyl)ether	10 U	hexachlorocyclopentadiene	10 U
4-methylphenol	10 U	2,4,6-trichlorophenol	10 U
n-nitroso-di-n-propylamine	10 U	2,4,5-trichlorophenol	52 U
hexachloroethane	10 U	2-chloronaphthalene	10 U
nitrobenzene	10 U	2-nitroaniline	52 U
isophorone	10 U	dimethyl phthalate	10 U
2-nitrophenol	10 U	acenaphthylene	10 U
2,4-dimethylphenol	10 U	2,6-dinitrotoluene	10 U
benzoic acid	52 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/16/90
Date Analyzed: 07/26/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 01-03-GW
Lab Sample ID: LL2827

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	52 U	anthracene	10 U
acenaphthene	10 U	di-n-butylphthalate	10 U
2,4-dinitrophenol	52 U	fluoranthene	10 U
4-nitrophenol	52 U	pyrene	10 U
dibenzofuran	10 U	butylbenzylphthalate	10 U
2,4-dinitrotoluene	10 U	3,3'-dichlorobenzidine	21 U
diethylphthalate	10 U	benzo(a)anthracene	10 U
4-chlorophenyl-phenylether	10 U	chrysene	10 U
fluorene	10 U	bis(2-ethylhexyl)phthalate	10 U
4-nitroaniline	52 U	di-n-octylphthalate	10 U
4,6-dinitro-2-methylphenol	52 U	benzo(b)fluoranthene	10 U
n-nitrosodiphenylamine ¹	10 U	benzo(k)fluoranthene	10 U
4-bromophenyl-phenylether	10 U	benzo(a)pyrene	10 U
hexachlorobenzene	10 U	indeno(1,2,3-cd)pyrene	10 U
pentachlorophenol	52 U	dibenzo(a,h)anthracene	10 U
phenanthrene	10 U	benzo(g,h,i)perylene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/16/90
Date Analyzed: 07/26/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-03-GW
Lab Sample ID: LL2827

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

IT Corporation
August 31, 1990

Client Project ID: NAS-Key West

Job Number: ITCY 46120

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 2
Lab Sample ID: BLA1336

<u>Compound</u>		<u>Compound</u>	
phenol	10 U	bis(2-chloroethoxy)methane	10 U
bis(2-chloroethyl)ether	10 U	2,4-dichlorophenol	10 U
2-chlorophenol	10 U	1,2,4-trichlorobenzene	10 U
1,3-dichlorobenzene	10 U	naphthalene	10 U
1,4-dichlorobenzene	10 U	4-chloroaniline	10 U
benzyl alcohol	10 U	hexachlorobutadiene	10 U
1,2-dichlorobenzene	10 U	4-chloro-3-methylphenol	10 U
2-methylphenol	10 U	2-methylnaphthalene	10 U
bis(2-chloroisopropyl)ether	10 U	hexachlorocyclopentadiene	10 U
4-methylphenol	10 U	2,4,6-trichlorophenol	10 U
n-nitroso-di-n-propylamine	10 U	2,4,5-trichlorophenol	50 U
hexachloroethane	10 U	2-chloronaphthalene	10 U
nitrobenzene	10 U	2-nitroaniline	50 U
isophorone	10 U	dimethyl phthalate	10 U
2-nitrophenol	10 U	acenaphthylene	10 U
2,4-dimethylphenol	10 U	2,6-dinitrotoluene	10 U
benzoic acid	50 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/16/90
Date Analyzed: 07/25/90
Dilution Factor: 1

This method blank applies to the following samples: 04-ER, 08-02-GW.

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 2
Lab Sample ID: BLA1336

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	50 U	anthracene	10 U
acenaphthene	10 U	di-n-butylphthalate	10 U
2,4-dinitrophenol	50 U	fluoranthene	10 U
4-nitrophenol	50 U	pyrene	10 U
dibenzofuran	10 U	butylbenzylphthalate	10 U
2,4-dinitrotoluene	10 U	3,3'-dichlorobenzidine	20 U
diethylphthalate	10 U	benzo(a)anthracene	10 U
4-chlorophenyl-phenylether	10 U	chrysene	10 U
fluorene	10 U	bis(2-ethylhexyl)phthalate	10 U
4-nitroaniline	50 U	di-n-octylphthalate	10 U
4,6-dinitro-2-methylphenol	50 U	benzo(b)fluoranthene	10 U
n-nitrosodiphenylamine ¹	10 U	benzo(k)fluoranthene	10 U
4-bromophenyl-phenylether	10 U	benzo(a)pyrene	10 U
hexachlorobenzene	10 U	indeno(1,2,3-cd)pyrene	10 U
pentachlorophenol	50 U	dibenzo(a,h)anthracene	10 U
phenanthrene	10 U	benzo(g,h,i)perylene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit
J - Indicates an estimated value less than the detection limit.
1 - Detected as diphenylamine.

Date Extracted: 07/16/90
Date Analyzed: 07/25/90
Dilution Factor: 1

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 2
Lab Sample ID: BLA1336

Tentative Identification (1)

Concentration (2)

2-pentanone, 4-hydroxy-4-methyl-

16 A

Remarks: (1) Identification is based on computer search of N.B.S. Library.

(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

A - Suspected aldol condensation product.

Client Project ID: NAS-Key West

Job Number: ITCY 46120

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-02-GW
Lab Sample ID: LL2828

<u>Compound</u>		<u>Compound</u>	
phenol	10 U	bis(2-chloroethoxy)methane	10 U
bis(2-chloroethyl)ether	10 U	2,4-dichlorophenol	10 U
2-chlorophenol	10 U	1,2,4-trichlorobenzene	10 U
1,3-dichlorobenzene	10 U	naphthalene	10 U
1,4-dichlorobenzene	10 U	4-chloroaniline	10 U
benzyl alcohol	10 U	hexachlorobutadiene	10 U
1,2-dichlorobenzene	10 U	4-chloro-3-methylphenol	10 U
2-methylphenol	10 U	2-methylnaphthalene	10 U
bis(2-chloroisopropyl)ether	10 U	hexachlorocyclopentadiene	10 U
4-methylphenol	10 U	2,4,6-trichlorophenol	10 U
n-nitroso-di-n-propylamine	10 U	2,4,5-trichlorophenol	50 U
hexachloroethane	10 U	2-chloronaphthalene	10 U
nitrobenzene	10 U	2-nitroaniline	50 U
isophorone	10 U	dimethyl phthalate	10 U
2-nitrophenol	10 U	acenaphthylene	10 U
2,4-dimethylphenol	10 U	2,6-dinitrotoluene	10 U
benzoic acid	50 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/16/90
Date Analyzed: 07/26/90
Dilution Factor: 1

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Client Project ID: NAS-Key West

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Job Number: ITCY 46120

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-02-GW

Lab Sample ID: LL2828

Compound

3-nitroaniline	50 U
acenaphthene	10 U
2,4-dinitrophenol	50 U
4-nitrophenol	50 U
dibenzofuran	10 U
2,4-dinitrotoluene	10 U
diethylphthalate	10 U
4-chlorophenyl-phenylether	10 U
fluorene	10 U
4-nitroaniline	50 U
4,6-dinitro-2-methylphenol	50 U
n-nitrosodiphenylamine ¹	10 U
4-bromophenyl-phenylether	10 U
hexachlorobenzene	10 U
pentachlorophenol	50 U
phenanthrene	10 U

Compound

anthracene	10 U
di-n-butylphthalate	10 U
fluoranthene	10 U
pyrene	10 U
butylbenzylphthalate	10 U
3,3'-dichlorobenzidine	20 U
benzo(a)anthracene	10 U
chrysene	10 U
bis(2-ethylhexyl)phthalate	10 U
di-n-octylphthalate	10 U
benzo(b)fluoranthene	10 U
benzo(k)fluoranthene	10 U
benzo(a)pyrene	10 U
indeno(1,2,3-cd)pyrene	10 U
dibenzo(a,h)anthracene	10 U
benzo(g,h,i)perylene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/16/90

Date Analyzed: 07/26/90

Dilution Factor: 1

Client Project ID: NAS-Key West

Job Number: ITCY 46120

WATER SURROGATE PERCENT RECOVERY SUMMARY

Sample No.	SEMI-VOLATILE					
	Nitro-Benzene-D5 (35-114%)*	2-Fluoro-Biphenyl (43-116%)*	Terphenyl-D14 (33-141%)*	Phenol-D5 (10-94%)*	2-Fluoro-Phenol (21-100%)*	2,4,6 Tribromo-Phenol (10-123%)*
01-01-GW	71	71	89	37	52	60
01-02-GW	50	53	85	14	22	46
01-03-GW	54	57	83	40	53	59
04-01-GW	60	61	88	49	62	68
04-02-GW	62	62	86	38	51	68
04-02-GWD	56	55	79	42	54	63
04-03-GW	54	54	90	48	61	66
04-05-GW	68	66	92	42	57	72
04-ER	79	77	83	28	20 **	34
08-02-GW	75	74	82	49	63	70
08-16R-GW	54	58	91	48	62	67
Method Blank 1	72	72	105	30	38	52
Method Blank 2	88	78	100	38	54	64

* - Values in parenthesis represent USEPA contract required QC limits.

** - Values are outside of contract required QC limits.

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank
Lab Sample ID: BLA1329

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.050 U	endosulfan sulfate	0.10 U
β -BHC	0.050 U	4,4'-DDT	0.10 U
δ -BHC	0.050 U	methoxychlor	0.50 U
γ -BHC (lindane)	0.050 U	endrin ketone	0.10 U
heptachlor	0.050 U	α -chlordane	0.50 U
aldrin	0.050 U	γ -chlordane	0.50 U
heptachlor epoxide	0.050 U	toxaphene	1.0 U
endosulfan I	0.050 U	Aroclor 1016	0.50 U
dieldrin	0.10 U	Aroclor 1221	0.50 U
4,4'-DDE	0.10 U	Aroclor 1232	0.50 U
endrin	0.10 U	Aroclor 1242	0.50 U
endosulfan II	0.10 U	Aroclor 1248	0.50 U
4,4'-DDD	0.10 U	Aroclor 1254	1.0 U
		Aroclor 1260	1.0 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/16/90
Date Analyzed: 07/26/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-01-GW
Lab Sample ID: LL2825

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.051 U	endosulfan sulfate	0.10 U
β -BHC	0.051 U	4,4'-DDT	0.10 U
δ -BHC	0.051 U	methoxychlor	0.51 U
γ -BHC (lindane)	0.051 U	endrin ketone	0.10 U
heptachlor	0.051 U	α -chlordane	0.51 U
aldrin	0.051 U	γ -chlordane	0.51 U
heptachlor epoxide	0.051 U	toxaphene	1.0 U
endosulfan I	0.051 U	Aroclor 1016	0.51 U
dieldrin	0.10 U	Aroclor 1221	0.51 U
4,4'-DDE	0.10 U	Aroclor 1232	0.51 U
endrin	0.10 U	Aroclor 1242	0.51 U
endosulfan II	0.10 U	Aroclor 1248	0.51 U
4,4'-DDD	0.10 U	Aroclor 1254	1.0 U
		Aroclor 1260	1.0 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/16/90
Date Analyzed: 07/26/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-02-GW
Lab Sample ID: LL2826

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.051 U	endosulfan sulfate	0.10 U
β -BHC	0.051 U	4,4'-DDT	0.10 U
δ -BHC	0.051 U	methoxychlor	0.51 U
γ -BHC (lindane)	0.051 U	endrin ketone	0.10 U
heptachlor	0.051 U	α -chlordane	0.76 F
aldrin	0.051 U	γ -chlordane	0.86 F
heptachlor epoxide	0.051 U	toxaphene	1.0 U
endosulfan I	0.051 U	Aroclor 1016	0.51 U
dieldrin	0.10 U	Aroclor 1221	0.51 U
4,4'-DDE	0.10 U	Aroclor 1232	0.51 U
endrin	0.10 U	Aroclor 1242	0.51 U
endosulfan II	0.10 U	Aroclor 1248	0.51 U
4,4'-DDD	0.10 U	Aroclor 1254	1.0 U
		Aroclor 1260	1.0 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

F - Peak offscale and therefore out of linear range.

Date Extracted: 07/16/90
Date Analyzed: 07/26/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-02-GW DL
Lab Sample ID: LL2826-5

<u>Compound</u>			<u>Compound</u>		
α -BHC	0.26	U	endosulfan sulfate	0.51	U
β -BHC	0.26	U	4,4'-DDT	0.51	U
δ -BHC	0.26	U	methoxychlor	2.6	U
γ -BHC (lindane)	0.26	U	endrin ketone	0.51	U
heptachlor	0.26	U	α -chlordane	0.98	DJ
aldrin	0.26	U	γ -chlordane	1.1	DJ
heptachlor epoxide	0.26	U	toxaphene	5.1	U
endosulfan I	0.26	U	Aroclor 1016	2.6	U
dieldrin	0.51	U	Aroclor 1221	2.6	U
4,4'-DDE	0.51	U	Aroclor 1232	2.6	U
endrin	0.51	U	Aroclor 1242	2.6	U
endosulfan II	0.51	U	Aroclor 1248	2.6	U
4,4'-DDD	0.51	U	Aroclor 1254	5.1	U
			Aroclor 1260	5.1	U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

D - Compound analyzed at a secondary dilution factor.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/16/90
Date Analyzed: 07/28/90
Dilution Factor: 5

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-03-GW
Lab Sample ID: LL2827

<u>Compound</u>		<u>Compound</u>		
α -BHC	0.051 U	endosulfan sulfate	0.10	U
β -BHC	0.051 U	4,4'-DDT	0.10	U
δ -BHC	0.051 U	methoxychlor	0.51	U
γ -BHC (lindane)	0.051 U	endrin ketone	0.10	U
heptachlor	0.051 U	α -chlordane	0.51	U
aldrin	0.051 U	γ -chlordane	0.51	U
heptachlor epoxide	0.051 U	toxaphene	1.0	U
endosulfan I	0.051 U	Aroclor 1016	0.51	U
dieldrin	0.10 U	Aroclor 1221	0.51	U
4,4'-DDE	0.10 U	Aroclor 1232	0.51	U
endrin	0.10 U	Aroclor 1242	0.51	U
endosulfan II	0.10 U	Aroclor 1248	0.51	U
4,4'-DDD	0.10 U	Aroclor 1254	1.0	U
		Aroclor 1260	1.0	U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/16/90
Date Analyzed: 07/26/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

WATER SURROGATE PERCENT RECOVERY SUMMARY

<u>Sample No.</u>	<u>PESTICIDE</u>
	<u>Dibutylchlorodate</u> <u>(24-154%)*</u>
Method Blank	70
01-01-GW	115
01-02-GW	92
01-02-GW DL	99
01-03-GW	78
04-01-GW	75
04-02-GW	87
04-02-GWD	81
04-03-GW	94
04-05-GW	86
04-ER	92
08-02-GW	105
08-16R-GW	101

* - Values in parenthesis represent USEPA advisory QC limits.
DL - Dilution

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IT ANALYTICAL SERVICES
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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

TARGET ANALYTE LIST - INORGANICS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank
Lab Sample ID: PBWC2643/C2625

aluminum	40.0 U
antimony	30.0 U
arsenic	30.0 U
barium	2.0 U
beryllium	1.0 U
cadmium	5.0 U
calcium	30.0 U
chromium	10.0 U
cobalt	20.0 U
copper	10.0 U
iron	10.0 U
lead	30.0 U
magnesium	30.0 U
manganese	2.0 U
mercury	NR
nickel	20.0 U
potassium	1,000.0 U
selenium	2.0 U
silver	5.0 U
sodium	200.0 U
thallium	2.0 U
vanadium	10.0 U
zinc	12.0 B

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
B - Value greater than instrument detection limit, but less than contract required quantitation limit.
NR - Not required.

Date Digested: 07/18 and 07/19/90

Date Analyzed: 08/10/90 (ICP); 08/08 and 08/22/90 (GFAA); 07/14/90 (CVAA)

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IT ANALYTICAL SERVICES
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KNOXVILLE, TN

ient Project ID: NAS-Key West

Job Number: ITCY 46120

TARGET ANALYTE LIST - INORGANICS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-01-GW
Lab Sample ID: LL2801

aluminum	5,870	
antimony	30.0	U
arsenic	30.0	U
barium	227	E
beryllium	1.0	U
cadmium	5.0	U
calcium	11,200,000	
chromium	92.2	
cobalt	20.0	U
copper	64.5	
iron	5,100	E
lead	57.1	
magnesium	128,000	
manganese	134	
mercury	0.20	U
nickel	20.0	U
potassium	47,000	
selenium	10.0	UW
silver	50.0	U
sodium	800,000	
thallium	20.0	UW
vanadium	55.4	
zinc	171	

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
B - Value greater than instrument detection limit, but less than contract required quantitation limit.
E - Compound exceeded calibration range of instrument.
W - Post-digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.

Date Digested: 07/18 and 07/19/90

Date Analyzed: 08/10/90 (ICP); 08/08 and 08/22/90 (GFAA); 07/14/90 (CVAA)

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IT ANALYTICAL SERVICES
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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

TARGET ANALYTE LIST - INORGANICS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-02-GW

Lab Sample ID: LL2802

aluminum	34,900	
antimony	557	
arsenic	62.2	
barium	1,380	E
beryllium	1.0	U
cadmium	54.5	
calcium	1,720,000	
chromium	351	
cobalt	43.7	B
copper	9,520	
iron	155,000	E
lead	5,700	
magnesium	922,000	
manganese	2,940	
mercury	16.2	
nickel	303	
potassium	287,000	
selenium	10.0	UW
silver	250	U
sodium	7,840,000	
thallium	20.0	UW
vanadium	116	
zinc	15,200	

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
B - Value greater than instrument detection limit, but less than contract required quantitation limit.
E - Compound exceeded calibration range of instrument.
W - Post-digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.

Date Digested: 07/18 and 07/19/90

Date Analyzed: 08/10/90 (ICP); 08/08 and 08/22/90 (GFAA); 07/14/90 (CVAA)

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

TARGET ANALYTE LIST - INORGANICS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-03-GW
Lab Sample ID: LL2803

aluminum	46,500	
antimony	313	
arsenic	46.6	
barium	1,310	E
beryllium	1.0	U
cadmium	33.2	
calcium	2,150,000	
chromium	657	
cobalt	31.9	B
copper	10,200	
iron	81,000	E
lead	4,360	
magnesium	964,000	
manganese	921	
mercury	11.1	
nickel	277	
potassium	281,000	
selenium	10.0	UW
silver	250	U
sodium	7,830,000	
thallium	20.0	UW
vanadium	114	
zinc	10,400	

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
- B - Value greater than instrument detection limit, but less than contract required quantitation limit.
- E - Compound exceeded calibration range of instrument.
- W - Post-digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.

Date Digested: 07/18 and 07/19/90

Date Analyzed: 08/10/90 (ICP); 08/08 and 08/22/90 (GFAA); 07/14/90 (CVAA)

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

TARGET ANALYTE LIST - INORGANICS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 08-02-GW
Lab Sample ID: LL2804

aluminum	77,200	
antimony	57.5	B
arsenic	50.5	
barium	333	E
beryllium	1.5	B
cadmium	5.0	U
calcium	2,440,000	
chromium	49.2	
cobalt	20.0	U
copper	163	
iron	30,400	E
lead	497	
magnesium	1,090,000	
manganese	195	
mercury	1.1	W
nickel	27.2	B
potassium	315,000	
selenium	10.0	UW
silver	25.0	U
sodium	9,110,000	
thallium	20.0	U
vanadium	45.7	B
zinc	664	

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
B - Value greater than instrument detection limit, but less than contract required quantitation limit.
E - Compound exceeded calibration range of instrument.
W - Post-digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.

Date Digested: 07/18 and 07/19/90
Date Analyzed: 08/10/90 (ICP); 08/08 and 08/22/90 (GFAA); 07/14/90 (CVAA)



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ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

IT Corporation
3012 US Highway 301 North, Suite 1000
Tampa, FL 33619
ATTN: Mark Hampton

September 11, 1990

Job Number: ITCY 46151 (Appendix IX Data)

P.O. Number: 595392.08

This is the Certificate of Analysis for the following samples:

Client Project ID: NAS-Key West
Date Received by Lab: 07/14/90
Number of Samples: Two (2)
Sample Type: Water

I. Introduction

On 07/14/90, two (2) water samples arrived at the ITAS-Knoxville, Tennessee laboratory from the Naval Air Station, Key West, Florida. The list of analytical tests performed, as well as date of receipt and analysis, can be found in the attached report.

II. Analytical Results/Methodology

The analytical results for this report are presented by analytical test. Each set of data will include sample identification information and the analytical results. Please note that the data are not blank corrected.

The samples were analyzed for Appendix IX dioxins at the ITAS Special Analysis Laboratory, Knoxville, Tennessee. A copy of their report is included.

The samples were analyzed for Appendix IX organophosphorus pesticides and herbicides at the ITAS-San Jose, California laboratory. A copy of their report is also included.

The samples were analyzed for Appendix IX volatile organic compounds by gas chromatography/mass spectroscopy (GC/MS) in accordance with the EPA CLP 2/88 Statement of Work with modification for the addition of the Appendix IX analytes.

Reviewed and Approved:


Alyce Moore
Laboratory Manager

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

II. Analytical Results/Methodology (continued)

The samples were analyzed for Appendix IX semivolatile organic compounds by gas chromatography/mass spectroscopy (GC/MS) in accordance with EPA CLP 2/88 Statement of Work with modification for the addition of the Appendix IX analytes.

The samples were analyzed for Appendix IX organochlorine pesticides and PCB's by gas chromatography/electron capture detection (GC-ECD) in accordance with the EPA CLP 2/88 Statement of Work with modification for the addition of the Appendix IX analytes.

The samples were analyzed for Appendix IX metals by cold vapor atomic absorption spectroscopy (CVAA), graphite furnace atomic absorption spectroscopy (GFAA), and inductively coupled plasma spectroscopy (ICP) in accordance with the EPA CLP 6/89 Statement of Work with modification for the addition of the Appendix IX analytes.

The samples were analyzed for total cyanide by manual distillation/colorimetric determination in accordance with the EPA CLP 6/89 Statement of Work.

III. Quality Control

The volatiles analyses were performed on 07/23, 07/24, and 08/03/90 by purge and trap with a J&W DB-624 megabore column on a Finnigan OWA GC/MS/DS. The volatiles runs went well. MS/MSD analyses gave results that were all within limits, except for marginally low benzene recovery. Overall, the spike results indicated no significant problems with the volatiles analyses. Standardization was performed for all analytes, except that in the case of isobutanol, pyridine, and dioxane, the samples were evaluated based on previous standard runs on the same type of column used. This was done because running standards of these compounds tends to soil the system, and if concurrent with sample analysis, can create false positives.

The semivolatiles analyses were performed on 07/30, 08/01, 08/05, 08/07, 08/09, 08/10, 08/15, 08/17, and 08/22/90 by direct injection of sample extract on a Restek RTX-5 capillary column on a Finnigan 4500 GC/MS/DS. The semivolatiles runs went well; the analysis was carried over several days, with extensive standardization for all analytes. There was an oversight in that sample 10-01-GW was not initially extracted: this sample was eventually extracted beyond holding time, and analyzed on 08/22/90. MS/MSD analysis showed all parameters to be within CLP advisory limits. There were no other problems seen in the final review of the data for either the volatiles or semivolatiles fraction.

The samples were analyzed for Appendix IX organochlorine pesticides and PCBs from 07/26 to 08/01/90. MS/MSD results were within advisory limits with the exception of a slight variation in the endrin recovery. Since the recovery was on the high side of the limits, effect on the resulting data is not expected. No other problems were encountered.

III. Quality Control (continued)

The samples were digested on 07/24/90 for ICP and 07/23/90 for GFAA. The samples for mercury analysis were prepared just prior to analysis. The CVAA analysis for mercury was performed on 07/17/90; the GFAA analysis for selenium was performed on 08/03/90; the remaining metals were analyzed by ICP on 08/15/90. All run QC was acceptable. Results for arsenic, lead, and thallium were reported from ICP due to major interferences encountered and adverse effects on the GFAA instrument caused by the sample. In all cases, the best achievable data was reported. A duplicate/spike pair was prepared using sample number 04-04-GW. Spike recovery (accuracy) results were outside control limits for barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, thallium, vanadium, selenium, and zinc. A post digestion spike was performed verifying matrix interferences for 04-04-GW. Selenium was not recovered from the spike due to the evident matrix interferences which elevated the detection limit for the element to a level higher than that specified by CLP as the spiking level. Thallium was also not recovered from the spike. The level of magnesium in the sample, as well as the other mineral elements, caused matrix interferences for the element. The levels of interferences were such that interelement correction factors were not applicable. Thallium was run initially by GFAA prior to the variance granted by the client. Similar interferences were seen, and spike recoveries, at best, were 10%. Due to the nature of the sample, the data presented is the best achievable. Duplicate RPD (precision) results were within acceptable control limits for all requested metals on sample 04-04-GW. No other problems were encountered.

The samples were analyzed for total cyanide on 07/24/90. Matrix spike and duplicate results were within CLP advisory limits. No problems were encountered.

Client Project ID: NAS-Key West

Job Number: ITCY 46151
(Appendix IX)

APPENDIX IX VOLATILE ORGANIC ANALYSIS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank
Lab Sample ID: VB0724/VB0803

<u>Compound</u>		<u>Compound</u>	
acetone	10 U	1,2-dichloropropane	5 U
acetonitrile	100 U	cis-1,3-dichloropropene	5 U
acrolein	10 U	trans-1,3-dichloropropene	5 U
acrylonitrile	10 U	1,4-dioxane	1,000 U
benzene	5 U	ethyl benzene	5 U
bromodichloromethane	5 U	ethyl cyanide	100 U
bromoform	5 U	ethyl methacrylate	10 U
bromomethane	10 U	2-hexanone	10 U
2-butanone	10 U	iodomethane	5 U
carbon disulfide	5 U	isobutyl alcohol	2,000 U
carbon tetrachloride	5 U	methacrylonitrile	10 U
chlorobenzene	5 U	methyl methacrylate	10 U
chloroethane	10 U	4-methyl-2-pentanone	10 U
3-chloro-1-propene	5 U	methylene chloride	5 U
chloroform	5 U	pyridine	20,000 U
chloromethane	10 U	styrene	5 U
chloroprene	5 U	1,1,1,2-tetrachloroethane	5 U
1,2-dibromo-3-chloropropane	10 U	1,1,2,2-tetrachloroethane	5 U
dibromochloromethane	5 U	tetrachloroethene	5 U
1,2-dibromoethane	5 U	toluene	5 U
dibromomethane	10 U	1,1,1-trichloroethane	5 U
trans-1,4-dichloro-2-butene	20 U	1,1,2-trichloroethane	5 U
dichlorodifluoromethane	20 U	trichloroethene	5 U
1,1-dichloroethane	5 U	trichlorofluoromethane	5 U
1,2-dichloroethane	5 U	1,2,3-trichloropropane	5 U
1,1-dichloroethene	5 U	vinyl acetate	10 U
trans-1,2-dichloroethene	5 U	vinyl chloride	10 U
		xylenes (total)	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date of Analysis: 07/24/90 and 08/03/90
Dilution Factor: 1

APPENDIX IX SEMIVOLATILE ANALYSIS

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 1
Lab Sample ID: BLA1340

<u>Compound</u>		<u>Compound</u>	
phenol	10 U	bis(2-chloroethoxy)methane	10 U
bis(2-chloroethyl)ether	10 U	2,4-dichlorophenol	10 U
2-chlorophenol	10 U	1,2,4-trichlorobenzene	10 U
1,3-dichlorobenzene	10 U	naphthalene	10 U
1,4-dichlorobenzene	10 U	4-chloroaniline	10 U
benzyl alcohol	10 U	hexachlorobutadiene	10 U
1,2-dichlorobenzene	10 U	4-chloro-3-methylphenol	10 U
2-methylphenol	10 U	2-methylnaphthalene	10 U
bis(2-chloroisopropyl)ether	10 U	hexachlorocyclopentadiene	10 U
4-methylphenol	10 U	2,4,6-trichlorophenol	10 U
n-nitroso-di-n-propylamine	10 U	2,4,5-trichlorophenol	50 U
hexachloroethane	10 U	2-chloronaphthalene	10 U
nitrobenzene	10 U	2-nitroaniline	50 U
isophorone	10 U	dimethyl phthalate	10 U
2-nitrophenol	10 U	acenaphthylene	10 U
2,4-dimethylphenol	10 U	2,6-dinitrotoluene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/17/90
Date Analyzed: 07/30/90
Dilution Factor: 1.0

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KNOXVILLE, TN

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APPENDIX IX SEMIVOLATILE ANALYSIS (continued)

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 1
Lab Sample ID: BLA1340

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	50 U	anthracene	10 U
acenaphthene	10 U	di-n-butylphthalate	10 U
2,4-dinitrophenol	50 U	fluoranthene	10 U
4-nitrophenol	50 U	pyrene	10 U
dibenzofuran	10 U	butylbenzylphthalate	10 U
2,4-dinitrotoluene	10 U	3,3'-dichlorobenzidine	20 U
diethylphthalate	10 U	benzo(a)anthracene	10 U
4-chlorophenyl-phenylether	10 U	chrysene	10 U
fluorene	10 U	bis(2-ethylhexyl)phthalate	10 U
4-nitroaniline	50 U	di-n-octylphthalate	10 U
4,6-dinitro-2-methylphenol	50 U	benzo(b)fluoranthene	10 U
n-nitrosodiphenylamine ¹	10 U	benzo(k)fluoranthene	10 U
4-bromophenyl-phenylether	10 U	benzo(a)pyrene	10 U
hexachlorobenzene	10 U	indeno(1,2,3-cd)pyrene	10 U
pentachlorophenol	50 U	dibenzo(a,h)anthracene	10 U
phenanthrene	10 U	benzo(g,h,i)perylene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/17/90
Date Analyzed: 07/30/90
Dilution Factor: 1.0

Client Project ID: NAS-Key West

Job Number: ITCY 46151
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WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Results in µg/liter (ppb)

Client Sample ID: 04-04-GW
Lab Sample ID: LL2982

	<u>Conc. Spike Added</u>	<u>Sample Conc.</u>	<u>MS Conc.</u>	<u>MS % Rec.</u>
phenol	400	10 U	198	50
2-chlorophenol	400	10 U	239	60
1,4-dichlorobenzene	200	10 U	86.0	43
n-nitroso-di-n-propylamine	200	10 U	111	56
1,2,4-trichlorobenzene	200	10 U	90.4	45
4-chloro-3-methylphenol	400	10 U	236	59
acenaphthene	200	10 U	126	63
4-nitrophenol	400	50 U	182	46
2,4-dinitrotoluene	200	10 U	144	72
pentachlorophenol	400	50 U	210	52
pyrene	200	10 U	146	73

	<u>Conc. Spike Added</u>	<u>MSD Conc.</u>	<u>MSD % Rec.</u>	<u>RPD</u>
phenol	400	208	52	-4
2-chlorophenol	400	252	63	-5
1,4-dichlorobenzene	200	88.4	44	-2
n-nitroso-di-n-propylamine	200	106	53	6
1,2,4-trichlorobenzene	200	91.2	46	-2
4-chloro-3-methylphenol	400	246	62	-5
acenaphthene	200	125	62	2
4-nitrophenol	400	213	53	-14
2,4-dinitrotoluene	200	146	73	-1
pentachlorophenol	400	194	48	8
pyrene	200	145	72	1

RPD = Relative Percent Difference

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/17/90

Date Analyzed: 08/15/90

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APPENDIX IX SEMIVOLATILE ANALYSIS

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 2
Lab Sample ID: BLA1556

<u>Compound</u>		<u>Compound</u>	
phenol	10 U	bis(2-chloroethoxy)methane	10 U
bis(2-chloroethyl)ether	10 U	2,4-dichlorophenol	10 U
2-chlorophenol	10 U	1,2,4-trichlorobenzene	10 U
1,3-dichlorobenzene	10 U	naphthalene	10 U
1,4-dichlorobenzene	10 U	4-chloroaniline	10 U
benzyl alcohol	10 U	hexachlorobutadiene	10 U
1,2-dichlorobenzene	10 U	4-chloro-3-methylphenol	10 U
2-methylphenol	10 U	2-methylnaphthalene	10 U
bis(2-chloroisopropyl)ether	10 U	hexachlorocyclopentadiene	10 U
4-methylphenol	10 U	2,4,6-trichlorophenol	10 U
n-nitroso-di-n-propylamine	10 U	2,4,5-trichlorophenol	50 U
hexachloroethane	10 U	2-chloronaphthalene	10 U
nitrobenzene	10 U	2-nitroaniline	50 U
isophorone	10 U	dimethyl phthalate	10 U
2-nitrophenol	10 U	acenaphthylene	10 U
2,4-dimethylphenol	10 U	2,6-dinitrotoluene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 08/16/90
Date Analyzed: 08/22/90
Dilution Factor: 1.0

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APPENDIX IX SEMIVOLATILE ANALYSIS (continued)

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 2
Lab Sample ID: BLA1556

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	50 U	anthracene	10 U
acenaphthene	10 U	di-n-butylphthalate	10 U
2,4-dinitrophenol	50 U	fluoranthene	10 U
4-nitrophenol	50 U	pyrene	10 U
dibenzofuran	10 U	butylbenzylphthalate	10 U
2,4-dinitrotoluene	10 U	3,3'-dichlorobenzidine	20 U
diethylphthalate	10 U	benzo(a)anthracene	10 U
4-chlorophenyl-phenylether	10 U	chrysene	10 U
luorene	10 U	bis(2-ethylhexyl)phthalate	10 U
r-nitroaniline	50 U	di-n-octylphthalate	10 U
4,6-dinitro-2-methylphenol	50 U	benzo(b)fluoranthene	10 U
n-nitrosodiphenylamine ¹	10 U	benzo(k)fluoranthene	10 U
4-bromophenyl-phenylether	10 U	benzo(a)pyrene	10 U
hexachlorobenzene	10 U	indeno(1,2,3-cd)pyrene	10 U
pentachlorophenol	50 U	dibenzo(a,h)anthracene	10 U
phenanthrene	10 U	benzo(g,h,i)perylene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 08/16/90
Date Analyzed: 08/22/90
Dilution Factor: 1.0

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APPENDIX IX SEMIVOLATILE ANALYSIS (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 2
Lab Sample ID: BLA1556

n-nitrosodimethylamine	10 U	m-dinitrobenzene	10 U
2-picoline	70 U	pentachlorobenzene	20 U
n-nitrosomethylethylamine	10 U	2-naphthylamine	170 U
methyl methanesulfonate	10 U	1-naphthylamine	120 U
n-nitrosodiethylamine	10 U	2,3,4,6-tetrachlorophenol	10 U
ethyl methanesulfonate	10 U	5-nitro-o-toluidine	20 U
aniline	50 U	diphenylamine	10 U
pentachloroethane	20 U	tetraethyl dithiopyropho(3)	10 U
3-methylphenol	10 U	sym-trinitrobenzene	10 U
n-nitrosopyrrolidine	10 U	phenacetin	10 U
acetophenone	10 U	diallate	10 U
n-nitrosomorpholine	10 U	4-aminobiphenyl	50 U
o-toluidine	10 U	pronamide	30 U
n-nitrosopiperidine	10 U	pentachloronitrobenzene	20 U
o,o,o-triethylphosphorot(2)	10 U	dinoseb	20 U
2,6-dichlorophenol	10 U	4-nitroquinoline-1-oxide	10 U
hexachloropropene	20 U	methapyrilene	40 U
a,a-dimethylphenethylamine	10 U	aramite	10 U
n-nitrosodi-n-butylamine	20 U	p-(dimethylamino)azobenzene	30 U
p-phenylenediamine	50 U	3,3'-dimethylbenzidine	80 U
safrole	10 U	2-acetylaminofluorene	10 U
1,2,4,5-tetrachlorobenzene	10 U	7,12-dimethylbenz(a)anth(4)	20 U
isosafrole	10 U	hexachlorophene	50 U
1,4-naphthoquinone	10 U	3-methylcholanthrene	30 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

2 - o,o,o-triethylphosphorothioate

3 - tetraethyl dithiopyrophosphate

4 - 7,12-dimethylbenz(a)anthracene

Date Extracted: 08/16/90 Date Analyzed: 08/22/90 Dilution Factor: 1.0

This method blank applies to the following sample: 10-01-GW

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APPENDIX IX ORGANOCHLORINE PESTICIDES

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 10-01-GW DL
Lab Sample ID: LL2983 DL

<u>Compound</u>			<u>Compound</u>		
α -BHC	0.25	U	methoxychlor	2.5	U
β -BHC	0.25	U	chlordane	2.5	U
δ -BHC	0.25	U	toxaphene	5.0	U
γ -BHC (lindane)	0.25	U	Aroclor 1016	2.5	U
heptachlor	0.25	U	Aroclor 1221	2.5	U
aldrin	0.25	U	Aroclor 1232	2.5	U
heptachlor epoxide	0.25	U	Aroclor 1242	2.5	U
endosulfan I	0.25	U	Aroclor 1248	2.5	U
dieldrin	0.50	U	Aroclor 1254	5.0	U
4,4'-DDE	0.50	U	Aroclor 1260	5.0	U
endrin	0.50	U	endrin aldehyde	0.50	U
endosulfan II	0.50	U	isodrin	0.25	U
4,4'-DDD	0.50	U	kepone	0.50	U
endosulfan sulfate	0.50	U	chlorobenzilate	2.5	U
4,4'-DDT	0.50	U			

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/17/90
Date Analyzed: 07/28/90
Dilution Factor: 5.0

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WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Results in µg/liter (ppb)

Client Sample ID: 10-01-GW DL
Lab Sample ID: LL2983 DL

	<u>Conc. Spike Added</u>	<u>Sample Conc.</u>	<u>MS Conc.</u>	<u>MS % Rec.</u>
γ-BHC (lindane)	0.400	0.25 U	0.430	108
heptachlor	0.400	0.25 U	0.480	120
aldrin	0.400	0.25 U	0.370	92
dieldrin	1.00	0.50 U	0.920	92
endrin	1.00	0.50 U	1.24	124*
4,4'-DDT	1.00	0.50 U	1.04	104

	<u>Conc. Spike Added</u>	<u>MSD Conc.</u>	<u>MSD % Rec.</u>	<u>% RPD</u>
γ-BHC (lindane)	0.400	0.430	108	0
heptachlor	0.400	0.480	120	0
aldrin	0.400	0.390	98	-6
dieldrin	1.00	1.00	100	-8
endrin	1.00	1.40	140*	-12
4,4'-DDT	1.00	1.08	108	-4

RPD = Relative Percent Difference

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

* - Asterisked values are outside USEPA advisory QC limits.

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WATER SURROGATE PERCENT RECOVERY SUMMARY

<u>Sample No.</u>	<u>PESTICIDE</u>
	<u>Dibutylchloroendate</u> <u>(24-154%)*</u>
Method Blank 1	101
Method Blank 2	98
04-04-GW	98
10-01-GW	81
10-01-GW DL	89
10-01-GW MSD DL	114
10-01-GW MS DL	106

* - Values in parenthesis represent USEPA advisory QC limits.
DL - Dilution

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TARGET ANALYTE LIST - INORGANICS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank
Lab Sample ID: PBW-C2689/C2677

antimony	30.0 U
arsenic	30.0 U
barium	2.0 U
beryllium	1.0 U
cadmium	5.0 U
chromium	10.0 U
cobalt	20.0 U
copper	10.0 U
lead	30.0 U
nickel	20.0 U
selenium	2.0 U
silver	5.0 U
thallium	34.7
vanadium	10.0 U
zinc	14.8 B
tin	20.0 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
B - Value greater than instrument detection limit, but less than contract required quantitation limit.

Date Digested: 07/23 and 07/24/90
Date Analyzed: 08/15/90 (ICP)
08/03/90 (GFAA)
07/17/90 (CVAA)

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MATRIX SPIKE RECOVERY

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-04-GW S

Lab Sample ID: LL2988

	<u>Spiked Sample Result</u>	<u>Sample Result</u>	<u>Spike Added</u>	<u>% Recovery</u>
selenium	20.00 U	20.00 U	10.0	0.0 N

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

N - Out of USEPA advisory control limits (i.e., 75-125% Recovery)

Date Digested: 07/23 and 07/24/90

Date Analyzed: 08/03/90 (GFAA)

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POST DIGEST SPIKE RECOVERY

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-04-GW A

Lab Sample ID: LL2988

	<u>Spiked Sample Result</u>	<u>Sample Result</u>	<u>Spike Added</u>	<u>% Recovery</u>
aluminum	3,006.96	1,199.79	2,000.0	90.4
antimony	426.39	30.00 U	500.0	85.3
arsenic	1,634.81	30.00 U	2,000.0	81.7
barium	1,517.32	24.93 B	2,000.0	74.6
beryllium	38.29	1.00 U	50.0	76.6
cadmium	37.55	5.00 U	50.0	75.1
chromium	142.27	10.00 U	200.0	71.1
cobalt	350.81	20.00 U	500.0	70.2
copper	256.28	54.72	250.0	80.6
iron	6,107.38	5,346.87	1,000.0	76.1
lead	411.50	38.29	500.0	74.6
manganese	356.44	2.00 U	500.0	71.3
nickel	334.34	20.00 U	500.0	66.9
selenium	1,790.42	60.00 U	2,000.0	89.5
silver	5.06 B	5.00 U	50.0	10.1
thallium	30.00 U	30.00 U	2,000.0	0.0
vanadium	383.47	10.00 U	500.0	76.7
zinc	414.30	11.49 B	500.0	80.6

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

B - Value greater than instrument detection limit, but less than contract required quantitation limit.

Date Digested: 07/23 and 07/24/90

Date Analyzed: 08/15/90 (ICP)

08/03/90 (GFAA)

07/17/90 (CVAA)

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

II. Analytical Results/Methodology (continued)

The samples were analyzed for Target Analyte List (TAL) metals by cold vapor atomic absorption spectroscopy (CVAA), graphite furnace atomic absorption spectroscopy (GFAA), and inductively coupled plasma spectroscopy (ICP) in accordance with the EPA CLP 6/89 Statement of Work.

The samples were analyzed for total cyanide by manual distillation/colorimetric determination in accordance with the EPA CLP 6/89 Statement of Work.

III. Quality Control

The volatiles analyses were performed on 07/23, 07/24, and 08/03/90 by purge and trap with a J&W DB-624 megabore column on a Finnigan OWA GC/MS/DS. The semivolatiles analyses were performed on 07/30, 08/01, 08/05, 08/07, 08/09, 08/10, 08/15, 08/17, and 08/22/90 by direct injection of sample extract on a Restek RTX-5 capillary column on a Finnigan 4500 GC/MS/DS. The volatiles runs went well. The MSD of 01-03-GM-GW had one slightly low surrogate recovery, but the MS and unspiked sample were within limits. The MS/MSD results for this sample also showed a few low recoveries, but no major deviations. The soil MS/MSD analysis gave results that were all within limits. Overall, the spike results indicated no significant problems with the volatiles analyses. The semivolatiles runs went well; the analysis was carried over several days, with extensive standardization for all analytes. In the semivolatiles TICs, hydroxymethylpentanone was suspected by us of being an aldol product ("A" qualifier), possibly lab generated; also "phenol, 2,6-bis(1,1-dimethyl..." has been seen as lab background. In the soil samples, several relatively indistinguishable saturated hydrocarbons were seen. The two MS/MSD analyses showed only one parameter (92% recovery versus 89% limit), out of 44 overall, outside advisory limits. There were no other problems seen in final review of the data for either the volatiles or semivolatiles fraction.

The samples were extracted for TCL pesticides/PCBs on 07/17/90. The extracts were analyzed from 07/27 to 08/14/90. MS/MSD results were good for water sample 01-03-GM-GW, showing a slight variation between spikes for lindane. MS/MSD results for sample 05-SED-U were hindered by high levels of DDT native to the sample. Matrix interferences obscured recoveries for dieldrin as well. No other problems were encountered.

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

III. Quality Control (continued)

The samples were digested on 07/19 and 07/24/90 for ICP and 07/18 and 07/23/90 for GFAA. The samples for mercury analysis were prepared just prior to analysis. The CVAA analysis for mercury was performed on 07/17/90; the GFAA analysis for selenium was performed from 08/03 to 08/19/90; the remaining metals were analyzed by ICP from 08/07 to 08/15/90. All run QC was acceptable. Results for arsenic, lead, and thallium were reported from ICP due to major interferences encountered and adverse effects on the GFAA instrument caused by the sample. In all cases, the best achievable data were reported. A duplicate/spike pair was prepared using sample numbers 01-03-GM-GW and 05-SED-U. Spike recovery results for sample 01-03-GM-GW were outside control limits for aluminum, barium, beryllium, chromium, cobalt, manganese, nickel, silver, thallium, vanadium, and selenium. A post-digestion spike was performed, verifying matrix interferences for all outliers. Selenium was not recovered from the spike due to the evident matrix interferences which elevated the detection limit for the element to a level higher than that specified by CLP as the spiking level. Thallium was also not recovered from the spike. The level of magnesium in the sample, as well as the other mineral elements, caused matrix interferences for the element. The levels of interferences were such that interelement correction factors were not applicable. Thallium was run initially by GFAA prior to the variance granted by the client. Similar interferences were seen, and spike recoveries, at best, were 10%. Due to the nature of the sample, the data presented are the best achievable. Duplicate RPD (precision) results were within acceptable control limits for all requested elements for 01-03-GM-GW. Spike recovery results for sample 05-SED-U were outside control limits for cadmium, silver, zinc, and selenium. A post-digestion spike was performed, verifying matrix interferences for these outliers. Duplicate RPD (precision) results were outside control limits for lead and zinc only. Sample non-homogeneity may have been a factor in this variation. No other problems were encountered.

The samples were analyzed for cyanide on 07/24, 07/25, and 07/26/90. Matrix spike results showed interferences proven to be matrix related by the post-distillation spike. All precision results were within CLP advisory limits. No other problems were encountered.

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Job Number: ITCY 46151 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 1
Lab Sample ID: EB0723

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	2 J	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Analyzed: 07/23/90
Dilution Factor: 1

This method blank applies to the following samples: 01-01-GM-GW, 01-02-GW, 01-04-GWD, 01-04-GWO, 04-10-GW, 05-SW-D.

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 1
Lab Sample ID: EB0723

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-01-GM-GW

Lab Sample ID: LL2990

Compound

chloromethane	10 U
bromomethane	10 U
vinyl chloride	10 U
chloroethane	10 U
methylene chloride	2 BJ
acetone	10 U
carbon disulfide	5 U
1,1-dichloroethene	5 U
1,1-dichloroethane	5 U
1,2-dichloroethene (total)	5 U
chloroform	5 U
1,2-dichloroethane	5 U
2-butanone	10 U
1,1,1-trichloroethane	5 U
carbon tetrachloride	5 U
vinyl acetate	10 U
bromodichloromethane	5 U

Compound

1,2-dichloropropane	5 U
cis-1,3-dichloropropene	5 U
trichloroethene	5 U
dibromochloromethane	5 U
1,1,2-trichloroethane	5 U
benzene	5 U
trans-1,3-dichloropropene	5 U
bromoform	5 U
4-methyl-2-pentanone	10 U
2-hexanone	10 U
tetrachloroethene	5 U
1,1,2,2-tetrachloroethane	5 U
toluene	5 U
chlorobenzene	5 U
ethylbenzene	5 U
styrene	5 U
total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

B - Analyte was found in the blank as well as the sample.

Date Analyzed: 07/23/90

Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-01-GM-GW
Lab Sample ID: LL2990

<u>Tentative Identification (1)</u>	<u>Concentration (2)</u>
ethane, 1,2-dichloro-1,1,2-trichloro- diisopropyl ether (DOT)	5.5 11

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-04-GWO

Lab Sample ID: LL2994

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	1 J
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	1 BJ	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

B - Analyte was found in the blank as well as the sample.

Date Analyzed: 07/23/90

Dilution Factor: 1

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September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-04-GWO
Lab Sample ID: LL2994

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-04-GWD

Lab Sample ID: LL2995

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	1 J
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	1 BJ	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

B - Analyte was found in the blank as well as the sample.

Date Analyzed: 07/23/90

Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-04-GWD
Lab Sample ID: LL2995

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-02-GW
Lab Sample ID: LL2996

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	1 B _J	1,1,2-trichloroethane	5 U
acetone	6 J	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

B - Analyte was found in the blank as well as the sample.

Date Analyzed: 07/23/90

Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-02-GW
Lab Sample ID: LL2996

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 2
Lab Sample ID: EB07232

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	2 J	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Analyzed: 07/23/90
Dilution Factor: 1

This method blank applies to the following samples: 01-03-GM-GW, 01-03-GM-GW MS, 01-03-GM-GW MSD.

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 2
Lab Sample ID: EB07232

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-03-GM-GW
Lab Sample ID: LL2991

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	5 U	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Analyzed: 07/23/90
Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-03-GM-GW
Lab Sample ID: LL2991

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Results in µg/liter (ppb)

Client Sample ID: 01-03-GM-GW
Lab Sample ID: LL2991

	<u>Conc. Spike Added</u>	<u>Sample Conc.</u>	<u>MS Conc.</u>	<u>MS % Rec.</u>
1,1-dichloroethene	50.0	5 U	46.3	93
trichloroethene	50.0	5 U	42.0	84
benzene	50.0	5 U	34.4	69 *
toluene	50.0	5 U	39.8	80
chlorobenzene	50.0	5 U	44.9	90

	<u>Conc. Spike Added</u>	<u>MSD Conc.</u>	<u>MSD % Rec.</u>	<u>RPD</u>
1,1-dichloroethene	50.0	45.8	92	1
trichloroethene	50.0	39.4	79	6
benzene	50.0	32.4	65 *	6
toluene	50.0	37.1	74 *	8
chlorobenzene	50.0	42.6	85	6

RPD = Relative Percent Difference

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

* - Asterisked values are outside USEPA advisory QC limits.

Date Analyzed: 07/23/90

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 3
Lab Sample ID: EB0724

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	2 J	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Analyzed: 07/24/90
Dilution Factor: 1

This method blank applies to the following samples: 01-04-EB, 04-07-GW, 05-SW-U, 07-13-ER, 07-KWM11-GW, 07-KWM12-GW, 08-14-GW, 08-15-GW, Trip Blank 1, Trip Blank 2

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September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 07-KWM11-GW

Lab Sample ID: LL3000

Tentative Identification (1)

Concentration (2)

No additional peaks detected

Remarks: (1) Identification is based on computer search of N.B.S. Library.

(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

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September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 07-KWM12-GW
Lab Sample ID: LL3001

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	5 U	1,1,2-trichloroethane	5 U
acetone	15	benzene	5 U
carbon disulfide	1 J	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	1 J	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Analyzed: 07/24/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 07-KWM12-GW
Lab Sample ID: LL3001

Tentative Identification (1)

Concentration (2)

No additional peaks detected

Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 08-14-GW
Lab Sample ID: LL3002

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	5 U	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Analyzed: 07/24/90
Dilution Factor: 1

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September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 08-14-GW
Lab Sample ID: LL3002

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-15-GW
Lab Sample ID: LL3003

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	5 U	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
J - Indicates an estimated value less than the detection limit.

Date Analyzed: 07/24/90
Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 08-15-GW
Lab Sample ID: LL3003

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-04-EB
Lab Sample ID: LL3004

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	5 U	1,1,2-trichloroethane	5 U
acetone	24	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
J - Indicates an estimated value less than the detection limit.

Date Analyzed: 07/24/90
Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-04-EB
Lab Sample ID: LL3004

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

IT Corporation
 September 11, 1990

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 07-13-ER
 Lab Sample ID: LL3005

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	5 U	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
 J - Indicates an estimated value less than the detection limit.

Date Analyzed: 07/24/90
 Dilution Factor: 1

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September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Trip Blank 1
Lab Sample ID: LL3007

Tentative Identification (1)

Concentration (2)

trichlorofluoromethane

4.8 *

Remarks: (1) Identification is based on computer search of N.B.S. Library.

(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

* - Quantitated against daily standard.

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Trip Blank 2
Lab Sample ID: LL3008

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	3 B _J	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

B - Analyte was found in the blank as well as the sample.

Date Analyzed: 07/24/90
Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Trip Blank 2
Lab Sample ID: LL3008

Tentative Identification (1)

Concentration (2)

trichlorofluoromethane

5.2 *

Remarks: (1) Identification is based on computer search of N.B.S. Library.

(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

* - Quantitated against daily standard.

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

WATER SURROGATE PERCENT RECOVERY SUMMARY

Sample No.	VOLATILE		
	Toluene-D8 (88-110%)*	BFB (86-115%)*	1,2 Dichloroethane-D4 (76-114%)*
01-01-GM-GW	97	103	90
01-02-GW	98	104	95
01-03-GM-GW	92	94	86
01-04-EB	95	96	93
01-04-GWD	95	102	94
01-04-GWO	98	102	93
04-07-GW	100	104	103
04-10-GW	98	104	97
05-SW-D	100	105	98
05-SW-U	98	103	101
07-13-ER	96	100	97
07-KWM11-GW	97	101	100
07-KWM12-GW	103	107	106
08-14-GW	100	102	101
08-15-GW	106	111	106
Trip Blank 1	103	104	101
Trip Blank 2	106	106	106
01-03-GM-GW MS	95	96	85
01-03-GM-GW MSD	86 **	87	76
Method Blank 1	101	105	100
Method Blank 2	97	99	91
Method Blank 3	92	94	98

* - Values in parenthesis represent USEPA contract required QC limits.

** - Values are outside of contract required QC limits.

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in $\mu\text{g}/\text{kg}$ (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: Method Blank 4

Lab Sample ID: VB0723

Compound

Compound

chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	5 U	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Analyzed: 07/23/90

Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g}/\text{kg}$ (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: Method Blank 4
Lab Sample ID: VB0723

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 1
Lab Sample ID: BLA1350

<u>Compound</u>		<u>Compound</u>	
phenol	10 U	bis(2-chloroethoxy)methane	10 U
bis(2-chloroethyl)ether	10 U	2,4-dichlorophenol	10 U
2-chlorophenol	10 U	1,2,4-trichlorobenzene	10 U
1,3-dichlorobenzene	10 U	naphthalene	10 U
1,4-dichlorobenzene	10 U	4-chloroaniline	10 U
benzyl alcohol	10 U	hexachlorobutadiene	10 U
1,2-dichlorobenzene	10 U	4-chloro-3-methylphenol	10 U
2-methylphenol	10 U	2-methylnaphthalene	10 U
bis(2-chloroisopropyl)ether	10 U	hexachlorocyclopentadiene	10 U
4-methylphenol	10 U	2,4,6-trichlorophenol	10 U
n-nitroso-di-n-propylamine	10 U	2,4,5-trichlorophenol	50 U
hexachloroethane	10 U	2-chloronaphthalene	10 U
nitrobenzene	10 U	2-nitroaniline	50 U
isophorone	10 U	dimethyl phthalate	10 U
2-nitrophenol	10 U	acenaphthylene	10 U
2,4-dimethylphenol	10 U	2,6-dinitrotoluene	10 U
benzoic acid	50 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/18/90
Date Analyzed: 08/05/90
Dilution Factor: 1

This method blank applies to the following samples: 01-01-GM-GW, 01-02-GW, 01-03-GM-GW, 01-04-GWD, 01-04-GWO, 04-10-GW, 05-SW-D, 05-SW-U, 07-KWM11-GW, 07-KWM12-GW, 08-14-GW, 01-03-GM-GW MS, 01-03-GM-GW MSD.

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 1
Lab Sample ID: BLA1350

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	50 U	anthracene	10 U
acenaphthene	10 U	di-n-butylphthalate	10 U
2,4-dinitrophenol	50 U	fluoranthene	10 U
4-nitrophenol	50 U	pyrene	10 U
dibenzofuran	10 U	butylbenzylphthalate	10 U
2,4-dinitrotoluene	10 U	3,3'-dichlorobenzidine	20 U
diethylphthalate	10 U	benzo(a)anthracene	10 U
4-chlorophenyl-phenylether	10 U	chrysene	10 U
fluorene	10 U	bis(2-ethylhexyl)phthalate	10 U
4-nitroaniline	50 U	di-n-octylphthalate	10 U
4,6-dinitro-2-methylphenol	50 U	benzo(b)fluoranthene	10 U
n-nitrosodiphenylamine ¹	10 U	benzo(k)fluoranthene	10 U
4-bromophenyl-phenylether	10 U	benzo(a)pyrene	10 U
hexachlorobenzene	10 U	indeno(1,2,3-cd)pyrene	10 U
pentachlorophenol	50 U	dibenzo(a,h)anthracene	10 U
phenanthrene	10 U	benzo(g,h,i)perylene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/18/90
Date Analyzed: 08/05/90
Dilution Factor: 1

This method blank applies to the following samples: 01-01-GM-GW, 01-02-GW, 01-03-GM-GW, 01-04-GWD, 01-04-GW0, 04-10-GW, 05-SW-D, 05-SW-U, 07-KWM11-GW, 07-KWM12-GW, 08-14-GW, 01-03-GM-GW MS, 01-03-GM-GW MSD.

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 1
Lab Sample ID: BLA1350

Tentative Identification (1)

Concentration (2)

2-propenoic acid, 2-methyl-,
2-(dimethylamino) ethyl ester

8.2

Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-01-GM-GW
Lab Sample ID: LL3041

<u>Compound</u>		<u>Compound</u>	
phenol	10 U	bis(2-chloroethoxy)methane	10 U
bis(2-chloroethyl)ether	10 U	2,4-dichlorophenol	10 U
2-chlorophenol	10 U	1,2,4-trichlorobenzene	10 U
1,3-dichlorobenzene	10 U	naphthalene	10 U
1,4-dichlorobenzene	10 U	4-chloroaniline	10 U
benzyl alcohol	10 U	hexachlorobutadiene	10 U
1,2-dichlorobenzene	10 U	4-chloro-3-methylphenol	10 U
2-methylphenol	10 U	2-methylnaphthalene	10 U
bis(2-chloroisopropyl)ether	10 U	hexachlorocyclopentadiene	10 U
4-methylphenol	10 U	2,4,6-trichlorophenol	10 U
n-nitroso-di-n-propylamine	10 U	2,4,5-trichlorophenol	50 U
hexachloroethane	10 U	2-chloronaphthalene	10 U
nitrobenzene	10 U	2-nitroaniline	50 U
isophorone	10 U	dimethyl phthalate	10 U
2-nitrophenol	10 U	acenaphthylene	10 U
2,4-dimethylphenol	10 U	2,6-dinitrotoluene	10 U
benzoic acid	50 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/18/90
Date Analyzed: 08/05/90
Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-01-GM-GW
Lab Sample ID: LL3041

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	50 U	anthracene	10 U
acenaphthene	10 U	di-n-butylphthalate	10 U
2,4-dinitrophenol	50 U	fluoranthene	10 U
4-nitrophenol	50 U	pyrene	10 U
dibenzofuran	10 U	butylbenzylphthalate	10 U
2,4-dinitrotoluene	10 U	3,3'-dichlorobenzidine	20 U
diethylphthalate	10 U	benzo(a)anthracene	10 U
4-chlorophenyl-phenylether	10 U	chrysene	10 U
fluorene	10 U	bis(2-ethylhexyl)phthalate	10 U
4-nitroaniline	50 U	di-n-octylphthalate	10 U
4,6-dinitro-2-methylphenol	50 U	benzo(b)fluoranthene	10 U
n-nitrosodiphenylamine ¹	10 U	benzo(k)fluoranthene	10 U
4-bromophenyl-phenylether	10 U	benzo(a)pyrene	10 U
hexachlorobenzene	10 U	indeno(1,2,3-cd)pyrene	10 U
pentachlorophenol	50 U	dibenzo(a,h)anthracene	10 U
phenanthrene	10 U	benzo(g,h,i)perylene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/18/90
Date Analyzed: 08/05/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-01-GM-GW

Lab Sample ID: LL3041

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-03-GM-GW
Lab Sample ID: LL3042

<u>Compound</u>		<u>Compound</u>	
phenol	11 U	bis(2-chloroethoxy)methane	11 U
bis(2-chloroethyl)ether	11 U	2,4-dichlorophenol	11 U
2-chlorophenol	11 U	1,2,4-trichlorobenzene	11 U
1,3-dichlorobenzene	11 U	naphthalene	11 U
1,4-dichlorobenzene	11 U	4-chloroaniline	11 U
benzyl alcohol	11 U	hexachlorobutadiene	11 U
1,2-dichlorobenzene	11 U	4-chloro-3-methylphenol	11 U
2-methylphenol	11 U	2-methylnaphthalene	11 U
bis(2-chloroisopropyl)ether	11 U	hexachlorocyclopentadiene	11 U
4-methylphenol	11 U	2,4,6-trichlorophenol	11 U
n-nitroso-di-n-propylamine	11 U	2,4,5-trichlorophenol	56 U
hexachloroethane	11 U	2-chloronaphthalene	11 U
nitrobenzene	11 U	2-nitroaniline	56 U
isophorone	11 U	dimethyl phthalate	11 U
2-nitrophenol	11 U	acenaphthylene	11 U
2,4-dimethylphenol	11 U	2,6-dinitrotoluene	11 U
benzoic acid	56 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/18/90
Date Analyzed: 08/05/90
Dilution Factor: 1

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5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-03-GM-GW
Lab Sample ID: LL3042

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	56 U	anthracene	11 U
acenaphthene	11 U	di-n-butylphthalate	11 U
2,4-dinitrophenol	56 U	fluoranthene	11 U
4-nitrophenol	56 U	pyrene	11 U
dibenzofuran	11 U	butylbenzylphthalate	11 U
2,4-dinitrotoluene	11 U	3,3'-dichlorobenzidine	22 U
diethylphthalate	11 U	benzo(a)anthracene	11 U
4-chlorophenyl-phenylether	11 U	chrysene	11 U
fluorene	11 U	bis(2-ethylhexyl)phthalate	11 U
4-nitroaniline	56 U	di-n-octylphthalate	11 U
4,6-dinitro-2-methylphenol	56 U	benzo(b)fluoranthene	11 U
n-nitrosodiphenylamine ¹	11 U	benzo(k)fluoranthene	11 U
4-bromophenyl-phenylether	11 U	benzo(a)pyrene	11 U
hexachlorobenzene	11 U	indeno(1,2,3-cd)pyrene	11 U
pentachlorophenol	56 U	dibenzo(a,h)anthracene	11 U
phenanthrene	11 U	benzo(g,h,i)perylene	11 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/18/90
Date Analyzed: 08/05/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-03-GM-GW
Lab Sample ID: LL3042

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Results in µg/liter (ppb)

Client Sample ID: 01-03-GM-GW
Lab Sample ID: LL3042

	<u>Conc. Spike Added</u>	<u>Sample Conc.</u>	<u>MS Conc.</u>	<u>MS % Rec.</u>
phenol	400	11 U	212	53
2-chlorophenol	400	11 U	268	67
1,4-dichlorobenzene	200	11 U	105	52
n-nitroso-di-n-propylamine	200	11 U	121	60
1,2,4-trichlorobenzene	200	11 U	111	56
4-chloro-3-methylphenol	400	11 U	277	69
acenaphthene	200	11 U	128	64
4-nitrophenol	400	56 U	229	57
2,4-dinitrotoluene	200	11 U	149	74
pentachlorophenol	400	56 U	183	46
pyrene	200	11 U	141	70

	<u>Conc. Spike Added</u>	<u>MSD Conc.</u>	<u>MSD % Rec.</u>	<u>RPD</u>
phenol	400	183	46	14
2-chlorophenol	400	255	64	5
1,4-dichlorobenzene	200	101	50	4
n-nitroso-di-n-propylamine	200	124	62	-3
1,2,4-trichlorobenzene	200	109	54	4
4-chloro-3-methylphenol	400	271	68	1
acenaphthene	200	135	68	-6
4-nitrophenol	400	180	45	24
2,4-dinitrotoluene	200	153	76	-3
pentachlorophenol	400	144	36	24
pyrene	200	147	74	-6

RPD = Relative Percent Difference

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/18/90
Date Analyzed: 08/05/90

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-04-GW0

Lab Sample ID: LL3045

<u>Compound</u>		<u>Compound</u>	
phenol	10 U	bis(2-chloroethoxy)methane	10 U
bis(2-chloroethyl)ether	10 U	2,4-dichlorophenol	10 U
2-chlorophenol	10 U	1,2,4-trichlorobenzene	10 U
1,3-dichlorobenzene	10 U	naphthalene	10 U
1,4-dichlorobenzene	10 U	4-chloroaniline	10 U
benzyl alcohol	10 U	hexachlorobutadiene	10 U
1,2-dichlorobenzene	10 U	4-chloro-3-methylphenol	10 U
2-methylphenol	10 U	2-methylnaphthalene	10 U
bis(2-chloroisopropyl)ether	10 U	hexachlorocyclopentadiene	10 U
p-cresol	10 U	2,4,6-trichlorophenol	10 U
n-nitroso-di-n-propylamine	10 U	2,4,5-trichlorophenol	52 U
hexachloroethane	10 U	2-chloronaphthalene	10 U
nitrobenzene	10 U	2-nitroaniline	52 U
isophorone	10 U	dimethyl phthalate	10 U
2-nitrophenol	10 U	acenaphthylene	10 U
2,4-dimethylphenol	10 U	2,6-dinitrotoluene	10 U
benzoic acid	52 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/18/90

Date Analyzed: 08/06/90

Dilution Factor: 1

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-04-GW0
Lab Sample ID: LL3045

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	52 U	anthracene	10 U
acenaphthene	10 U	di-n-butylphthalate	10 U
2,4-dinitrophenol	52 U	fluoranthene	10 U
4-nitrophenol	52 U	pyrene	10 U
dibenzofuran	10 U	butylbenzylphthalate	10 U
2,4-dinitrotoluene	10 U	3,3'-dichlorobenzidine	21 U
diethylphthalate	10 U	benzo(a)anthracene	10 U
4-chlorophenyl-phenylether	10 U	chrysene	10 U
fluorene	10 U	bis(2-ethylhexyl)phthalate	10 U
4-nitroaniline	52 U	di-n-octylphthalate	10 U
4,6-dinitro-2-methylphenol	52 U	benzo(b)fluoranthene	10 U
n-nitrosodiphenylamine ¹	10 U	benzo(k)fluoranthene	10 U
4-bromophenyl-phenylether	10 U	benzo(a)pyrene	10 U
hexachlorobenzene	10 U	indeno(1,2,3-cd)pyrene	10 U
pentachlorophenol	52 U	dibenzo(a,h)anthracene	10 U
phenanthrene	10 U	benzo(g,h,i)perylene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/18/90
Date Analyzed: 08/06/90
Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-04-GWO
Lab Sample ID: LL3045

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 01-04-GWD
Lab Sample ID: LL3046

<u>Compound</u>		<u>Compound</u>	
phenol	10 U	bis(2-chloroethoxy)methane	10 U
bis(2-chloroethyl)ether	10 U	2,4-dichlorophenol	10 U
2-chlorophenol	10 U	1,2,4-trichlorobenzene	10 U
1,3-dichlorobenzene	10 U	naphthalene	10 U
1,4-dichlorobenzene	10 U	4-chloroaniline	10 U
benzyl alcohol	10 U	hexachlorobutadiene	10 U
1,2-dichlorobenzene	10 U	4-chloro-3-methylphenol	10 U
2-methylphenol	10 U	2-methylnaphthalene	10 U
bis(2-chloroisopropyl)ether	10 U	hexachlorocyclopentadiene	10 U
4-methylphenol	10 U	2,4,6-trichlorophenol	10 U
n-nitroso-di-n-propylamine	10 U	2,4,5-trichlorophenol	52 U
hexachloroethane	10 U	2-chloronaphthalene	10 U
nitrobenzene	10 U	2-nitroaniline	52 U
isophorone	10 U	dimethyl phthalate	10 U
2-nitrophenol	10 U	acenaphthylene	10 U
2,4-dimethylphenol	10 U	2,6-dinitrotoluene	10 U
benzoic acid	52 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/18/90
Date Analyzed: 08/06/90
Dilution Factor: 1

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 01-04-GWD

Lab Sample ID: LL3046

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	52 U	anthracene	10 U
acenaphthene	10 U	di-n-butylphthalate	10 U
2,4-dinitrophenol	52 U	fluoranthene	10 U
4-nitrophenol	52 U	pyrene	10 U
dibenzofuran	10 U	butylbenzylphthalate	10 U
2,4-dinitrotoluene	10 U	3,3'-dichlorobenzidine	21 U
diethylphthalate	10 U	benzo(a)anthracene	10 U
4-chlorophenyl-phenylether	10 U	chrysene	10 U
fluorene	10 U	bis(2-ethylhexyl)phthalate	10 U
4-nitroaniline	52 U	di-n-octylphthalate	10 U
4,6-dinitro-2-methylphenol	52 U	benzo(b)fluoranthene	10 U
n-nitrosodiphenylamine ¹	10 U	benzo(k)fluoranthene	10 U
4-bromophenyl-phenylether	10 U	benzo(a)pyrene	10 U
hexachlorobenzene	10 U	indeno(1,2,3-cd)pyrene	10 U
pentachlorophenol	52 U	dibenzo(a,h)anthracene	10 U
phenanthrene	10 U	benzo(g,h,i)perylene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/18/90

Date Analyzed: 08/06/90

Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-04-GWD
Lab Sample ID: LL3046

Tentative Identification (1)

Concentration (2)

2-propenoic acid, 2-methyl-,
2-(dimethylamino) ethyl ester

9.5 B

Remarks: (1) Identification is based on computer search of N.B.S. Library.

(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

B - Analyte was found in the blank as well as the sample.

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-02-GW

Lab Sample ID: LL3047

Compound

phenol	10 U
bis(2-chloroethyl)ether	10 U
2-chlorophenol	10 U
1,3-dichlorobenzene	10 U
1,4-dichlorobenzene	10 U
benzyl alcohol	10 U
1,2-dichlorobenzene	10 U
2-methylphenol	10 U
bis(2-chloroisopropyl)ether	10 U
4-methylphenol	10 U
n-nitroso-di-n-propylamine	10 U
hexachloroethane	10 U
nitrobenzene	10 U
isophorone	10 U
2-nitrophenol	10 U
2,4-dimethylphenol	10 U
benzoic acid	52 U

Compound

bis(2-chloroethoxy)methane	10 U
2,4-dichlorophenol	10 U
1,2,4-trichlorobenzene	10 U
naphthalene	10 U
4-chloroaniline	10 U
hexachlorobutadiene	10 U
4-chloro-3-methylphenol	10 U
2-methylnaphthalene	10 U
hexachlorocyclopentadiene	10 U
2,4,6-trichlorophenol	10 U
2,4,5-trichlorophenol	52 U
2-chloronaphthalene	10 U
2-nitroaniline	52 U
dimethyl phthalate	10 U
acenaphthylene	10 U
2,6-dinitrotoluene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/18/90

Date Analyzed: 08/06/90

Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 01-02-GW
Lab Sample ID: LL3047

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	52 U	anthracene	10 U
acenaphthene	10 U	di-n-butylphthalate	10 U
2,4-dinitrophenol	52 U	fluoranthene	10 U
4-nitrophenol	52 U	pyrene	10 U
dibenzofuran	10 U	butylbenzylphthalate	10 U
2,4-dinitrotoluene	10 U	3,3'-dichlorobenzidine	21 U
diethylphthalate	10 U	benzo(a)anthracene	10 U
4-chlorophenyl-phenylether	10 U	chrysene	10 U
fluorene	10 U	bis(2-ethylhexyl)phthalate	10 U
4-nitroaniline	52 U	di-n-octylphthalate	10 U
4,6-dinitro-2-methylphenol	52 U	benzo(b)fluoranthene	10 U
n-nitrosodiphenylamine ¹	10 U	benzo(k)fluoranthene	10 U
4-bromophenyl-phenylether	10 U	benzo(a)pyrene	10 U
hexachlorobenzene	10 U	indeno(1,2,3-cd)pyrene	10 U
pentachlorophenol	52 U	dibenzo(a,h)anthracene	10 U
phenanthrene	10 U	benzo(g,h,i)perylene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/18/90
Date Analyzed: 08/06/90
Dilution Factor: 1

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 1
Lab Sample ID: EB0719

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-02-GW
Lab Sample ID: LL2782

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	2 BJ	1,1,2-trichloroethane	5 U
acetone	4 J	benzene	5 U
carbon disulfide	5 B	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	2 J	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

B - Analyte was found in the blank as well as the sample.

Date Analyzed: 07/19/90

Dilution Factor: 1

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-02-GW
Lab Sample ID: LL2782

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

IT Corporation
August 31, 1990

Client Project ID: NAS-Key West

Job Number: ITCY 46120

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-02-GWD
Lab Sample ID: LL2783

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	2 BJ	1,1,2-trichloroethane	5 U
acetone	3 J	benzene	5 U
carbon disulfide	4 BJ	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	2 J	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

B - Analyte was found in the blank as well as the sample.

Date Analyzed: 07/19/90

Dilution Factor: 1

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-02-GWD
Lab Sample ID: LL2783

Tentative Identification (1)

Concentration (2)

trichlorofluoromethane

1.1 *

Remarks: (1) Identification is based on computer search of N.B.S. Library.

(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

* - Quantitated against a daily calibration standard.

Client Project ID: NAS-Key West

Job Number: ITCY 46120

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in ug/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-05-GW

Lab Sample ID: LL2784

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	2 BJ	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	5 B	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	7	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

B - Analyte was found in the blank as well as the sample.

Date Analyzed: 07/19/90

Dilution Factor: 1

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-05-GW
Lab Sample ID: LL2784

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

Client Project ID: NAS-Key West

Job Number: ITCY 46120

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-03-GW
Lab Sample ID: LL2785

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	2 BJ	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	2 BJ	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

B - Analyte was found in the blank as well as the sample.

Date Analyzed: 07/19/90
Dilution Factor: 1

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-03-GW
Lab Sample ID: LL2785

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-ER
Lab Sample ID: LL2792

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	2 B _J	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

B - Analyte was found in the blank as well as the sample.

Date Analyzed: 07/19/90

Dilution Factor: 1

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-ER
Lab Sample ID: LL2792

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-01-GW
Lab Sample ID: LL2781

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	1 BJ	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	5	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

B - Analyte was found in the blank as well as the sample.

Date Analyzed: 07/19/90
Dilution Factor: 1

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-01-GW
Lab Sample ID: LL2781

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-01-GW

Lab Sample ID: LL2818

Compound

Compound

phenol	10 U	bis(2-chloroethoxy)methane	10 U
bis(2-chloroethyl)ether	10 U	2,4-dichlorophenol	10 U
2-chlorophenol	10 U	1,2,4-trichlorobenzene	10 U
1,3-dichlorobenzene	10 U	naphthalene	10 U
1,4-dichlorobenzene	10 U	4-chloroaniline	10 U
benzyl alcohol	10 U	hexachlorobutadiene	10 U
1,2-dichlorobenzene	10 U	4-chloro-3-methylphenol	10 U
2-methylphenol	10 U	2-methylnaphthalene	10 U
bis(2-chloroisopropyl)ether	10 U	hexachlorocyclopentadiene	10 U
4-methylphenol	10 U	2,4,6-trichlorophenol	10 U
n-nitroso-di-n-propylamine	10 U	2,4,5-trichlorophenol	52 U
hexachloroethane	10 U	2-chloronaphthalene	10 U
nitrobenzene	10 U	2-nitroaniline	52 U
isophorone	10 U	dimethyl phthalate	10 U
2-nitrophenol	10 U	acenaphthylene	10 U
2,4-dimethylphenol	10 U	2,6-dinitrotoluene	10 U
benzoic acid	52 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/16/90

Date Analyzed: 07/25/90

Dilution Factor: 1

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-01-GW
Lab Sample ID: LL2818

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	52 U	anthracene	10 U
acenaphthene	10 U	di-n-butylphthalate	10 U
2,4-dinitrophenol	52 U	fluoranthene	10 U
4-nitrophenol	52 U	pyrene	10 U
dibenzofuran	10 U	butylbenzylphthalate	10 U
2,4-dinitrotoluene	10 U	3,3'-dichlorobenzidine	21 U
diethylphthalate	10 U	benzo(a)anthracene	10 U
4-chlorophenyl-phenylether	10 U	chrysene	10 U
fluorene	10 U	bis(2-ethylhexyl)phthalate	10 U
4-nitroaniline	52 U	di-n-octylphthalate	10 U
4,6-dinitro-2-methylphenol	52 U	benzo(b)fluoranthene	10 U
n-nitrosodiphenylamine ¹	10 U	benzo(k)fluoranthene	10 U
4-bromophenyl-phenylether	10 U	benzo(a)pyrene	10 U
hexachlorobenzene	10 U	indeno(1,2,3-cd)pyrene	10 U
pentachlorophenol	52 U	dibenzo(a,h)anthracene	10 U
phenanthrene	10 U	benzo(g,h,i)perylene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/16/90
Date Analyzed: 07/25/90
Dilution Factor: 1

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-01-GW
Lab Sample ID: LL2818

Tentative Identification (1)

Concentration (2)

hexathiepane
sulfur, mol. (S8)

19
280

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-02-GW
Lab Sample ID: LL2819

<u>Compound</u>		<u>Compound</u>	
phenol	10 U	bis(2-chloroethoxy)methane	10 U
bis(2-chloroethyl)ether	10 U	2,4-dichlorophenol	10 U
2-chlorophenol	10 U	1,2,4-trichlorobenzene	10 U
1,3-dichlorobenzene	10 U	naphthalene	10 U
1,4-dichlorobenzene	10 U	4-chloroaniline	3 J
benzyl alcohol	10 U	hexachlorobutadiene	10 U
1,2-dichlorobenzene	10 U	4-chloro-3-methylphenol	10 U
2-methylphenol	10 U	2-methylnaphthalene	10 U
bis(2-chloroisopropyl)ether	10 U	hexachlorocyclopentadiene	10 U
4-methylphenol	10 U	2,4,6-trichlorophenol	10 U
n-nitroso-di-n-propylamine	10 U	2,4,5-trichlorophenol	52 U
hexachloroethane	10 U	2-chloronaphthalene	10 U
nitrobenzene	10 U	2-nitroaniline	52 U
isophorone	10 U	dimethyl phthalate	10 U
2-nitrophenol	10 U	acenaphthylene	10 U
2,4-dimethylphenol	10 U	2,6-dinitrotoluene	10 U
benzoic acid	52 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/16/90
Date Analyzed: 07/25/90
Dilution Factor: 1

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-02-GW

Lab Sample ID: LL2819

Compound

3-nitroaniline	52 U
acenaphthene	10 U
2,4-dinitrophenol	52 U
4-nitrophenol	52 U
dibenzofuran	10 U
2,4-dinitrotoluene	10 U
diethylphthalate	10 U
4-chlorophenyl-phenylether	10 U
fluorene	10 U
4-nitroaniline	52 U
4,6-dinitro-2-methylphenol	52 U
n-nitrosodiphenylamine ¹	10 U
4-bromophenyl-phenylether	10 U
hexachlorobenzene	10 U
pentachlorophenol	52 U
phenanthrene	10 U

Compound

anthracene	10 U
di-n-butylphthalate	10 U
fluoranthene	10 U
pyrene	10 U
butylbenzylphthalate	10 U
3,3'-dichlorobenzidine	21 U
benzo(a)anthracene	10 U
chrysene	10 U
bis(2-ethylhexyl)phthalate	10 U
di-n-octylphthalate	10 U
benzo(b)fluoranthene	10 U
benzo(k)fluoranthene	10 U
benzo(a)pyrene	10 U
indeno(1,2,3-cd)pyrene	10 U
dibenzo(a,h)anthracene	10 U
benzo(g,h,i)perylene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/16/90

Date Analyzed: 07/25/90

Dilution Factor: 1

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-02-GW
Lab Sample ID: LL2819

<u>Tentative Identification</u> (1)	<u>Concentration</u> (2)
hexathiepane	130
1,2,4-trithiolane	39
lenthionine	29
sulfur, mol. (S8)	3,000
sulfur, mol. (S8)	130

Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

Client Project ID: NAS-Key West

Job Number: ITCY 46120

SEMIVOLATILE TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-02-GWD

Lab Sample ID: LL2820

Compound

phenol	11 U
bis(2-chloroethyl)ether	11 U
2-chlorophenol	11 U
1,3-dichlorobenzene	11 U
1,4-dichlorobenzene	11 U
benzyl alcohol	11 U
1,2-dichlorobenzene	11 U
2-methylphenol	11 U
bis(2-chloroisopropyl)ether	11 U
4-methylphenol	11 U
n-nitroso-di-n-propylamine	11 U
hexachloroethane	11 U
nitrobenzene	11 U
isophorone	11 U
2-nitrophenol	11 U
2,4-dimethylphenol	11 U
benzoic acid	56 U

Compound

bis(2-chloroethoxy)methane	11 U
2,4-dichlorophenol	11 U
1,2,4-trichlorobenzene	11 U
naphthalene	11 U
4-chloroaniline	11 U
hexachlorobutadiene	11 U
4-chloro-3-methylphenol	11 U
2-methylnaphthalene	11 U
hexachlorocyclopentadiene	11 U
2,4,6-trichlorophenol	11 U
2,4,5-trichlorophenol	56 U
2-chloronaphthalene	11 U
2-nitroaniline	56 U
dimethyl phthalate	11 U
acenaphthylene	11 U
2,6-dinitrotoluene	11 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/16/90

Date Analyzed: 07/25/90

Dilution Factor: 1

IT Corporation
August 31, 1990

Client Project ID: NAS-Key West

Job Number: ITCY 46120

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-02-GWD
Lab Sample ID: LL2820

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	56 U	anthracene	11 U
acenaphthene	11 U	di-n-butylphthalate	11 U
2,4-dinitrophenol	56 U	fluoranthene	11 U
4-nitrophenol	56 U	pyrene	11 U
dibenzofuran	11 U	butylbenzylphthalate	11 U
2,4-dinitrotoluene	11 U	3,3'-dichlorobenzidine	22 U
diethylphthalate	11 U	benzo(a)anthracene	11 U
4-chlorophenyl-phenylether	11 U	chrysene	11 U
fluorene	11 U	bis(2-ethylhexyl)phthalate	11 U
4-nitroaniline	56 U	di-n-octylphthalate	11 U
4,6-dinitro-2-methylphenol	56 U	benzo(b)fluoranthene	11 U
n-nitrosodiphenylamine ¹	11 U	benzo(k)fluoranthene	11 U
4-bromophenyl-phenylether	11 U	benzo(a)pyrene	11 U
hexachlorobenzene	11 U	indeno(1,2,3-cd)pyrene	11 U
pentachlorophenol	56 U	dibenzo(a,h)anthracene	11 U
phenanthrene	11 U	benzo(g,h,i)perylene	11 U

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
 J - Indicates an estimated value less than the detection limit.
 1 - Detected as diphenylamine.

Date Extracted: 07/16/90
Date Analyzed: 07/25/90
Dilution Factor: 1

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-02-GWD
Lab Sample ID: LL2820

<u>Tentative Identification</u> (1)	<u>Concentration</u> (2)
hexathiepane	140
1,2,4-trithiolane	33
lenthionine	24
sulfur, mol. (S8)	3,000
sulfur, mol. (S8)	190

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

IT Corporation
August 31, 1990

Client Project ID: NAS-Key West

Job Number: ITCY 46120

SEMIVOLATILE TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-05-GW
Lab Sample ID: LL2821

<u>Compound</u>		<u>Compound</u>	
phenol	11 U	bis(2-chloroethoxy)methane	11 U
bis(2-chloroethyl)ether	11 U	2,4-dichlorophenol	11 U
2-chlorophenol	11 U	1,2,4-trichlorobenzene	11 U
1,3-dichlorobenzene	11 U	naphthalene	11 U
1,4-dichlorobenzene	11 U	4-chloroaniline	11 U
benzyl alcohol	11 U	hexachlorobutadiene	11 U
1,2-dichlorobenzene	11 U	4-chloro-3-methylphenol	11 U
2-methylphenol	11 U	2-methylnaphthalene	11 U
bis(2-chloroisopropyl)ether	11 U	hexachlorocyclopentadiene	11 U
4-methylphenol	11 U	2,4,6-trichlorophenol	11 U
n-nitroso-di-n-propylamine	11 U	2,4,5-trichlorophenol	54 U
hexachloroethane	11 U	2-chloronaphthalene	11 U
nitrobenzene	11 U	2-nitroaniline	54 U
isophorone	11 U	dimethyl phthalate	11 U
2-nitrophenol	11 U	acenaphthylene	11 U
2,4-dimethylphenol	11 U	2,6-dinitrotoluene	11 U
benzoic acid	54 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/16/90
Date Analyzed: 07/26/90
Dilution Factor: 1

Client Project ID: NAS-Key West

Job Number: ITCY 46120

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-05-GW

Lab Sample ID: LL2821

Compound

3-nitroaniline	54 U
acenaphthene	11 U
2,4-dinitrophenol	54 U
4-nitrophenol	54 U
dibenzofuran	11 U
2,4-dinitrotoluene	11 U
diethylphthalate	11 U
4-chlorophenyl-phenylether	11 U
fluorene	11 U
4-nitroaniline	54 U
4,6-dinitro-2-methylphenol	54 U
n-nitrosodiphenylamine ¹	11 U
4-bromophenyl-phenylether	11 U
hexachlorobenzene	11 U
pentachlorophenol	54 U
phenanthrene	11 U

Compound

anthracene	11 U
di-n-butylphthalate	11 U
fluoranthene	11 U
pyrene	11 U
butylbenzylphthalate	11 U
3,3'-dichlorobenzidine	22 U
benzo(a)anthracene	11 U
chrysene	11 U
bis(2-ethylhexyl)phthalate	11 U
di-n-octylphthalate	11 U
benzo(b)fluoranthene	11 U
benzo(k)fluoranthene	11 U
benzo(a)pyrene	11 U
indeno(1,2,3-cd)pyrene	11 U
dibenzo(a,h)anthracene	11 U
benzo(g,h,i)perylene	11 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/16/90

Date Analyzed: 07/26/90

Dilution Factor: 1

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-05-GW
Lab Sample ID: LL2821

Tentative Identification (1)

Concentration (2)

sulfur, mol. (S8)

110

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

SEMIVOLATILE TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-03-GW
Lab Sample ID: LL2822

<u>Compound</u>		<u>Compound</u>	
phenol	10 U	bis(2-chloroethoxy)methane	10 U
bis(2-chloroethyl)ether	10 U	2,4-dichlorophenol	10 U
2-chlorophenol	10 U	1,2,4-trichlorobenzene	10 U
1,3-dichlorobenzene	10 U	naphthalene	10 U
1,4-dichlorobenzene	10 U	4-chloroaniline	10 U
benzyl alcohol	10 U	hexachlorobutadiene	10 U
1,2-dichlorobenzene	10 U	4-chloro-3-methylphenol	10 U
2-methylphenol	10 U	2-methylnaphthalene	10 U
bis(2-chloroisopropyl)ether	10 U	hexachlorocyclopentadiene	10 U
4-methylphenol	10 U	2,4,6-trichlorophenol	10 U
n-nitroso-di-n-propylamine	10 U	2,4,5-trichlorophenol	50 U
hexachloroethane	10 U	2-chloronaphthalene	10 U
nitrobenzene	10 U	2-nitroaniline	50 U
isophorone	10 U	dimethyl phthalate	10 U
2-nitrophenol	10 U	acenaphthylene	10 U
2,4-dimethylphenol	10 U	2,6-dinitrotoluene	10 U
benzoic acid	50 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/16/90
Date Analyzed: 07/26/90
Dilution Factor: 1

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-03-GW
Lab Sample ID: LL2822

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	50 U	anthracene	10 U
acenaphthene	10 U	di-n-butylphthalate	10 U
2,4-dinitrophenol	50 U	fluoranthene	10 U
4-nitrophenol	50 U	pyrene	10 U
dibenzofuran	10 U	butylbenzylphthalate	10 U
2,4-dinitrotoluene	10 U	3,3'-dichlorobenzidine	20 U
diethylphthalate	10 U	benzo(a)anthracene	10 U
4-chlorophenyl-phenylether	10 U	chrysene	10 U
fluorene	10 U	bis(2-ethylhexyl)phthalate	10 U
4-nitroaniline	50 U	di-n-octylphthalate	10 U
4,6-dinitro-2-methylphenol	50 U	benzo(b)fluoranthene	10 U
n-nitrosodiphenylamine ¹	10 U	benzo(k)fluoranthene	10 U
4-bromophenyl-phenylether	10 U	benzo(a)pyrene	10 U
hexachlorobenzene	10 U	indeno(1,2,3-cd)pyrene	10 U
pentachlorophenol	50 U	dibenzo(a,h)anthracene	10 U
phenanthrene	10 U	benzo(g,h,i)perylene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/16/90
Date Analyzed: 07/26/90
Dilution Factor: 1

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-03-GW
Lab Sample ID: LL2822

Tentative Identification (1)

Concentration (2)

2-pentanone, 4-hydroxy-4-methyl-
sulfur, mol. (S8)

10 A
88

Remarks: (1) Identification is based on computer search of N.B.S. Library.

(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

A - Suspected aldol condensation product.

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-16R-GW

Lab Sample ID: LL2824

<u>Compound</u>		<u>Compound</u>	
phenol	10 U	bis(2-chloroethoxy)methane	10 U
bis(2-chloroethyl)ether	10 U	2,4-dichlorophenol	10 U
2-chlorophenol	10 U	1,2,4-trichlorobenzene	10 U
1,3-dichlorobenzene	10 U	naphthalene	10 U
1,4-dichlorobenzene	10 U	4-chloroaniline	10 U
benzyl alcohol	10 U	hexachlorobutadiene	10 U
1,2-dichlorobenzene	10 U	4-chloro-3-methylphenol	10 U
2-methylphenol	10 U	2-methylnaphthalene	10 U
bis(2-chloroisopropyl)ether	10 U	hexachlorocyclopentadiene	10 U
4-methylphenol	10 U	2,4,6-trichlorophenol	10 U
n-nitroso-di-n-propylamine	10 U	2,4,5-trichlorophenol	52 U
hexachloroethane	10 U	2-chloronaphthalene	10 U
nitrobenzene	10 U	2-nitroaniline	52 U
isophorone	10 U	dimethyl phthalate	10 U
2-nitrophenol	10 U	acenaphthylene	10 U
2,4-dimethylphenol	10 U	2,6-dinitrotoluene	10 U
benzoic acid	52 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/16/90

Date Analyzed: 07/26/90

Dilution Factor: 1

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 08-02-GW
Lab Sample ID: LL2828

Tentative Identification (1)

Concentration (2)

benzamide, n,n-diethyl-3-methyl- sulfur, mol. (S8)	36 940
hexathiepane	26
2-butanone, 4-dimethylamino	12
lenthionine	12

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

SEMIVOLATILE TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-ER
Lab Sample ID: LL2829

<u>Compound</u>		<u>Compound</u>	
phenol	10 U	bis(2-chloroethoxy)methane	10 U
bis(2-chloroethyl)ether	10 U	2,4-dichlorophenol	10 U
2-chlorophenol	10 U	1,2,4-trichlorobenzene	10 U
1,3-dichlorobenzene	10 U	naphthalene	10 U
1,4-dichlorobenzene	10 U	4-chloroaniline	10 U
benzyl alcohol	10 U	hexachlorobutadiene	10 U
1,2-dichlorobenzene	10 U	4-chloro-3-methylphenol	10 U
2-methylphenol	10 U	2-methylnaphthalene	10 U
bis(2-chloroisopropyl)ether	10 U	hexachlorocyclopentadiene	10 U
4-methylphenol	10 U	2,4,6-trichlorophenol	10 U
n-nitroso-di-n-propylamine	10 U	2,4,5-trichlorophenol	50 U
hexachloroethane	10 U	2-chloronaphthalene	10 U
nitrobenzene	10 U	2-nitroaniline	50 U
isophorone	10 U	dimethyl phthalate	10 U
2-nitrophenol	10 U	acenaphthylene	10 U
2,4-dimethylphenol	10 U	2,6-dinitrotoluene	10 U
benzoic acid	50 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/16/90
Date Analyzed: 07/26/90
Dilution Factor: 1

Client Project ID: NAS-Key West

Job Number: ITCY 46120

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-ER

Lab Sample ID: LL2829

Compound

3-nitroaniline	50 U
acenaphthene	10 U
2,4-dinitrophenol	50 U
4-nitrophenol	50 U
dibenzofuran	10 U
2,4-dinitrotoluene	10 U
diethylphthalate	10 U
4-chlorophenyl-phenylether	10 U
fluorene	10 U
4-nitroaniline	50 U
4,6-dinitro-2-methylphenol	50 U
n-nitrosodiphenylamine ¹	10 U
4-bromophenyl-phenylether	10 U
hexachlorobenzene	10 U
pentachlorophenol	50 U
phenanthrene	10 U

Compound

anthracene	10 U
di-n-butylphthalate	10 U
fluoranthene	10 U
pyrene	10 U
butylbenzylphthalate	10 U
3,3'-dichlorobenzidine	20 U
benzo(a)anthracene	10 U
chrysene	10 U
bis(2-ethylhexyl)phthalate	10 U
di-n-octylphthalate	10 U
benzo(b)fluoranthene	10 U
benzo(k)fluoranthene	10 U
benzo(a)pyrene	10 U
indeno(1,2,3-cd)pyrene	10 U
dibenzo(a,h)anthracene	10 U
benzo(g,h,i)perylene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/16/90

Date Analyzed: 07/26/90

Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-ER
Lab Sample ID: LL2829

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-01-GW
Lab Sample ID: LL2818

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.053 U	endosulfan sulfate	0.11 U
β -BHC	0.053 U	4,4'-DDT	0.11 U
δ -BHC	0.053 U	methoxychlor	0.53 U
γ -BHC (lindane)	0.053 U	endrin ketone	0.11 U
heptachlor	0.053 U	α -chlordane	0.53 U
aldrin	0.053 U	γ -chlordane	0.53 U
heptachlor epoxide	0.053 U	toxaphene	1.1 U
endosulfan I	0.053 U	Aroclor 1016	0.53 U
dieldrin	0.11 U	Aroclor 1221	0.53 U
4,4'-DDE	0.11 U	Aroclor 1232	0.53 U
endrin	0.11 U	Aroclor 1242	0.53 U
endosulfan II	0.11 U	Aroclor 1248	0.53 U
4,4'-DDD	0.11 U	Aroclor 1254	1.1 U
		Aroclor 1260	1.1 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/16/90
Date Analyzed: 07/26/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-02-GW
Lab Sample ID: LL2819

<u>Compound</u>		<u>Compound</u>	
α-BHC	0.051 U	endosulfan sulfate	0.10 U
β-BHC	0.051 U	4,4'-DDT	0.10 U
δ-BHC	0.051 U	methoxychlor	0.51 U
γ-BHC (lindane)	0.051 U	endrin ketone	0.10 U
heptachlor	0.051 U	α-chlordane	0.51 U
aldrin	0.051 U	γ-chlordane	0.51 U
heptachlor epoxide	0.051 U	toxaphene	1.0 U
endosulfan I	0.051 U	Aroclor 1016	0.51 U
dieldrin	0.10 U	Aroclor 1221	0.51 U
4,4'-DDE	0.10 U	Aroclor 1232	0.51 U
endrin	0.10 U	Aroclor 1242	0.51 U
endosulfan II	0.10 U	Aroclor 1248	0.51 U
4,4'-DDD	0.10 U	Aroclor 1254	1.0 U
		Aroclor 1260	1.0 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/16/90
Date Analyzed: 07/26/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-02-GWD
Lab Sample ID: LL2820

<u>Compound</u>		<u>Compound</u>	
α-BHC	0.052 U	endosulfan sulfate	0.10 U
β-BHC	0.052 U	4,4'-DDT	0.10 U
δ-BHC	0.052 U	methoxychlor	0.52 U
γ-BHC (lindane)	0.052 U	endrin ketone	0.10 U
heptachlor	0.052 U	α-chlordane	0.52 U
aldrin	0.052 U	γ-chlordane	0.52 U
heptachlor epoxide	0.052 U	toxaphene	1.0 U
endosulfan I	0.052 U	Aroclor 1016	0.52 U
dieldrin	0.10 U	Aroclor 1221	0.52 U
4,4'-DDE	0.10 U	Aroclor 1232	0.52 U
endrin	0.10 U	Aroclor 1242	0.52 U
endosulfan II	0.10 U	Aroclor 1248	0.52 U
4,4'-DDD	0.10 U	Aroclor 1254	1.0 U
		Aroclor 1260	1.0 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/16/90
Date Analyzed: 07/26/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-05-GW
Lab Sample ID: LL2821

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.052 U	endosulfan sulfate	0.10 U
β -BHC	0.052 U	4,4'-DDT	0.10 U
δ -BHC	0.052 U	methoxychlor	0.52 U
γ -BHC (lindane)	0.052 U	endrin ketone	0.10 U
heptachlor	0.052 U	α -chlordane	0.52 U
aldrin	0.052 U	γ -chlordane	0.52 U
heptachlor epoxide	0.052 U	toxaphene	1.0 U
endosulfan I	0.052 U	Aroclor 1016	0.52 U
dieldrin	0.10 U	Aroclor 1221	0.52 U
4,4'-DDE	0.10 U	Aroclor 1232	0.52 U
endrin	0.10 U	Aroclor 1242	0.52 U
endosulfan II	0.10 U	Aroclor 1248	0.52 U
4,4'-DDD	0.10 U	Aroclor 1254	1.0 U
		Aroclor 1260	1.0 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/16/90
Date Analyzed: 07/26/90
Dilution Factor: 1

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5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-03-GW
Lab Sample ID: LL2822

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.056 U	endosulfan sulfate	0.11 U
β -BHC	0.056 U	4,4'-DDT	0.11 U
δ -BHC	0.056 U	methoxychlor	0.56 U
γ -BHC (lindane)	0.056 U	endrin ketone	0.11 U
heptachlor	0.056 U	α -chlordane	0.56 U
dieldrin	0.056 U	γ -chlordane	0.56 U
heptachlor epoxide	0.056 U	toxaphene	1.1 U
endosulfan I	0.056 U	Aroclor 1016	0.56 U
dieldrin	0.11 U	Aroclor 1221	0.56 U
4,4'-DDE	0.11 U	Aroclor 1232	0.56 U
endrin	0.11 U	Aroclor 1242	0.56 U
endosulfan II	0.11 U	Aroclor 1248	0.56 U
4,4'-DDD	0.11 U	Aroclor 1254	1.1 U
		Aroclor 1260	1.1 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/16/90
Date Analyzed: 07/26/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-16R-GW
Lab Sample ID: LL2824

<u>Compound</u>		<u>Compound</u>	
α-BHC	0.051 U	endosulfan sulfate	0.10 U
β-BHC	0.051 U	4,4'-DDT	0.10 U
δ-BHC	0.051 U	methoxychlor	0.51 U
γ-BHC (lindane)	0.051 U	endrin ketone	0.10 U
heptachlor	0.051 U	α-chlordane	0.51 U
aldrin	0.051 U	γ-chlordane	0.51 U
heptachlor epoxide	0.051 U	toxaphene	1.0 U
endosulfan I	0.051 U	Aroclor 1016	0.51 U
dieldrin	0.10 U	Aroclor 1221	0.51 U
4,4'-DDE	0.10 U	Aroclor 1232	0.51 U
endrin	0.10 U	Aroclor 1242	0.51 U
endosulfan II	0.10 U	Aroclor 1248	0.51 U
4,4'-DDD	0.10 U	Aroclor 1254	1.0 U
		Aroclor 1260	1.0 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/16/90
Date Analyzed: 07/26/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 08-02-GW
Lab Sample ID: LL2828

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.050 U	endosulfan sulfate	0.10 U
β -BHC	0.050 U	4,4'-DDT	0.10 U
δ -BHC	0.050 U	methoxychlor	0.50 U
γ -BHC (lindane)	0.050 U	endrin ketone	0.10 U
heptachlor	0.050 U	α -chlordane	0.50 U
aldrin	0.050 U	γ -chlordane	0.50 U
heptachlor epoxide	0.050 U	toxaphene	1.0 U
endosulfan I	0.050 U	Aroclor 1016	0.50 U
dieldrin	0.10 U	Aroclor 1221	0.50 U
4,4'-DDE	0.10 U	Aroclor 1232	0.50 U
endrin	0.10 U	Aroclor 1242	0.50 U
endosulfan II	0.10 U	Aroclor 1248	0.50 U
4,4'-DDD	0.10 U	Aroclor 1254	1.0 U
		Aroclor 1260	1.0 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/16/90
Date Analyzed: 07/26/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-ER
Lab Sample ID: LL2829

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.050 U	endosulfan sulfate	0.10 U
β -BHC	0.050 U	4,4'-DDT	0.10 U
δ -BHC	0.050 U	methoxychlor	0.50 U
γ -BHC (lindane)	0.050 U	endrin ketone	0.10 U
heptachlor	0.050 U	α -chlordane	0.50 U
aldrin	0.050 U	γ -chlordane	0.50 U
heptachlor epoxide	0.050 U	toxaphene	1.0 U
endosulfan I	0.050 U	Aroclor 1016	0.50 U
dieldrin	0.10 U	Aroclor 1221	0.50 U
4,4'-DDE	0.10 U	Aroclor 1232	0.50 U
endrin	0.10 U	Aroclor 1242	0.50 U
endosulfan II	0.10 U	Aroclor 1248	0.50 U
4,4'-DDD	0.10 U	Aroclor 1254	1.0 U
		Aroclor 1260	1.0 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/16/90
Date Analyzed: 07/26/90
Dilution Factor: 1

Client Project ID: NAS-Key West

Job Number: ITCY 46120

TARGET ANALYTE LIST - INORGANICS

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-01-GW
Lab Sample ID: LL2794

aluminum	27,000	
antimony	37.8	B
arsenic	30.0	U
barium	145	BE
beryllium	1.0	U
cadmium	5.0	U
calcium	8,880,000	
chromium	106	
cobalt	20.0	U
copper	67.2	
iron	14,300	E
lead	48.0	
magnesium	1,330,000	
manganese	53.6	
mercury	0.37	
nickel	35.3	B
potassium	377,000	
selenium	20.0	UW
silver	25.0	U
sodium	11,000,000	
thallium	20.0	UW
vanadium	106	
zinc	70.7	

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
- B - Value greater than instrument detection limit, but less than contract required quantitation limit.
- E - Compound exceeded calibration range of instrument.
- W - Post-digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.

Date Digested: 07/18 and 07/19/90

Date Analyzed: 08/10/90 (ICP); 08/08 and 08/22/90 (GFAA); 07/14/90 (CVAA)

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

TARGET ANALYTE LIST - INORGANICS

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-02-GW
Lab Sample ID: LL2795

aluminum	151	B
antimony	30.0	U
arsenic	30.0	U
barium	7.4	BE
beryllium	1.0	U
cadmium	5.0	U
calcium	637,000	
chromium	10.0	U
cobalt	20.0	U
copper	10.0	U
iron	282	E
lead	36.3	
magnesium	673,000	
manganese	2.0	U
mercury	0.20	U
nickel	20.0	U
potassium	197,000	
selenium	10.0	UW
silver	5.0	U
sodium	5,530,000	
thallium	20.0	UW
vanadium	10.0	U
zinc	17.6	B

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
B - Value greater than instrument detection limit, but less than contract required quantitation limit.
E - Compound exceeded calibration range of instrument.
W - Post-digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.

Date Digested: 07/18 and 07/19/90
Date Analyzed: 08/10/90 (ICP); 08/08 and 08/22/90 (GFAA); 07/14/90 (CVAA)

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

TARGET ANALYTE LIST - INORGANICS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-02-GWD
Lab Sample ID: LL2796

aluminum	3,600	
antimony	30.0	U
arsenic	59.0	
barium	67.9	BE
beryllium	1.0	U
cadmium	5.0	U
calcium	5,590,000	
chromium	35.6	
cobalt	20.0	U
copper	21.0	B
iron	2,790	E
lead	30.0	U
magnesium	695,000	
manganese	44.4	
mercury	0.20	U
nickel	20.0	U
potassium	197,000	
selenium	10.0	UW
silver	25.0	U
sodium	5,700,000	
thallium	20.0	UW
vanadium	16.9	B
zinc	21.7	

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
- B - Value greater than instrument detection limit, but less than contract required quantitation limit.
- E - Compound exceeded calibration range of instrument.
- W - Post-digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.

Date Digested: 07/18 and 07/19/90
Date Analyzed: 08/10/90 (ICP); 08/08 and 08/22/90 (GFAA); 07/14/90 (CVAA)

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

TARGET ANALYTE LIST - INORGANICS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-05-GW
Lab Sample ID: LL2797

aluminum	9,470	
antimony	35.8	B
arsenic	30.0	U
barium	116	BE
beryllium	1.0	U
cadmium	5.0	U
calcium	7,820,000	
chromium	56.0	
cobalt	20.0	U
copper	20.8	B
iron	10,700	E
lead	30.0	U
magnesium	211,000	
manganese	68.5	
mercury	0.30	
nickel	45.6	
potassium	66,900	
selenium	10.0	UW
silver	25.0	U
sodium	1,770,000	
thallium	20.0	UW
vanadium	41.2	B
zinc	60.7	

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
B - Value greater than instrument detection limit, but less than contract required quantitation limit.
E - Compound exceeded calibration range of instrument.
W - Post-digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.

Date Digested: 07/18 and 07/19/90

Date Analyzed: 08/10/90 (ICP); 08/08 and 08/22/90 (GFAA); 07/14/90 (CVAA)

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

TARGET ANALYTE LIST - INORGANICS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-03-GW
Lab Sample ID: LL2798

aluminum	75,800	
antimony	45.4	B
arsenic	30.0	U
barium	228	E
beryllium	1.0	U
cadmium	5.0	U
calcium	7,980,000	
chromium	60.5	
cobalt	20.0	U
copper	36.5	
iron	20,600	E
lead	60.8	
magnesium	1,380,000	
manganese	57.5	
mercury	0.30	
nickel	29.6	B
potassium	393,000	
selenium	20.0	UW
silver	25.0	U
sodium	11,500,000	
thallium	20.0	UW
vanadium	64.6	
zinc	49.8	

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
B - Value greater than instrument detection limit, but less than contract required quantitation limit.
E - Compound exceeded calibration range of instrument.
W - Post-digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.

Date Digested: 07/18 and 07/19/90
Date Analyzed: 08/10/90 (ICP); 08/08 and 08/22/90 (GFAA); 07/14/90 (CVAA)

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

TARGET ANALYTE LIST - INORGANICS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 08-16R-GW
Lab Sample ID: LL2800

aluminum	24,000	
antimony	59.7	B
arsenic	30.0	U
barium	330	E
beryllium	1.3	B
cadmium	5.0	U
calcium	3,420,000	
chromium	77.3	
cobalt	20.0	U
copper	262	
iron	35,200	E
lead	849	
magnesium	1,290,000	
manganese	210	
mercury	4.8	
nickel	26.1	B
potassium	379,000	
selenium	10.0	UW
silver	25.0	U
sodium	10,600,000	
thallium	20.0	UW
vanadium	94.6	
zinc	1,530	

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
B - Value greater than instrument detection limit, but less than contract required quantitation limit.
E - Compound exceeded calibration range of instrument.
W - Post-digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.

Date Digested: 07/18 and 07/19/90
Date Analyzed: 08/10/90 (ICP); 08/08 and 08/22/90 (GFAA); 07/14/90 (CVAA)

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

TARGET ANALYTE LIST - INORGANICS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-ER
Lab Sample ID: LL2805

aluminum	40.0	U
antimony	30.0	U
arsenic	30.0	U
barium	2.0	UE
beryllium	1.0	U
cadmium	5.0	U
calcium	254	B
chromium	10.0	U
cobalt	20.0	U
copper	10.0	U
iron	15.3	BE
lead	30.0	U
magnesium	30.0	U
manganese	2.0	U
mercury	0.30	
nickel	20.0	U
potassium	1,000	U
selenium	10.0	UW
silver	5.0	U
sodium	200	U
thallium	2.0	UW
vanadium	10.0	U
zinc	40.2	

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
- B - Value greater than instrument detection limit, but less than contract required quantitation limit.
- E - Compound exceeded calibration range of instrument.
- W - Post-digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.

Date Digested: 07/18 and 07/19/90

Date Analyzed: 08/10/90 (ICP); 08/08 and 08/22/90 (GFAA); 07/14/90 (CVAA)

IT Corporation
August 31, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46120

CYANIDE ANALYSIS

Results in mg/liter (ppm)

Sample Matrix: Water

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Result</u>
Method Blank	P1346	0.01 U
04-01-GW	LL2806	0.01 U
04-02-GW	LL2807	0.01 U
04-02-GWD	LL2808	0.01 U
04-05-GW	LL2809	0.01 U
04-03-GW	LL2810	0.01 U
08-16R-GW	LL2812	0.01 U
01-01-GW	LL2813	0.01 U
01-02-GW	LL2814	0.01 U
01-03-GW	LL2815	0.01 U
08-02-GW	LL2816	0.01 U
04-ER	LL2817	0.01 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Analyzed: 07/19/90

APPENDIX IX VOLATILE ORGANIC ANALYSIS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-04-GW
Lab Sample ID: LL2978

<u>Compound</u>		<u>Compound</u>	
acetone	1 J	1,2-dichloropropane	5 U
acetonitrile	200 U	cis-1,3-dichloropropene	5 U
acrolein	10 U	trans-1,3-dichloropropene	5 U
acrylonitrile	10 U	1,4-dioxane	1,000 U
benzene	5 U	ethyl benzene	5 U
bromodichloromethane	5 U	ethyl cyanide	100 U
bromoform	5 U	ethyl methacrylate	10 U
bromomethane	10 U	2-hexanone	10 U
2-butanone	10 U	iodomethane	5 U
carbon disulfide	5 U	isobutyl alcohol	2,000 U
carbon tetrachloride	5 U	methacrylonitrile	10 U
chlorobenzene	5 U	methyl methacrylate	10 U
chloroethane	10 U	4-methyl-2-pentanone	10 U
3-chloro-1-propene	5 U	methylene chloride	5 U
chloroform	5 U	pyridine	20,000 U
chloromethane	10 U	styrene	5 U
chloroprene	5 U	1,1,1,2-tetrachloroethane	5 U
1,2-dibromo-3-chloropropane	10 U	1,1,2,2-tetrachloroethane	5 U
dibromochloromethane	5 U	tetrachloroethene	5 U
1,2-dibromoethane	5 U	toluene	5 U
dibromomethane	10 U	1,1,1-trichloroethane	5 U
trans-1,4-dichloro-2-butene	20 U	1,1,2-trichloroethane	5 U
dichlorodifluoromethane	20 U	trichloroethene	5 U
1,1-dichloroethane	5 U	trichlorofluoromethane	5 U
1,2-dichloroethane	5 U	1,2,3-trichloropropane	5 U
1,1-dichloroethene	5 U	vinyl acetate	10 U
trans-1,2-dichloroethene	5 U	vinyl chloride	10 U
		xylenes (total)	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date of Analysis: 07/24/90
Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151
(Appendix IX)

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Results in $\mu\text{g/liter}$ (ppb)

Client Sample ID: 04-04-GW
Lab Sample ID: LL2978

	<u>Conc. Spike Added</u>	<u>Sample Conc.</u>	<u>MS Conc.</u>	<u>MS % Rec.</u>
1,1-dichloroethene	50.0	5 U	38.2	76
trichloroethene	50.0	5 U	42.9	86
benzene	50.0	5 U	38.2	76
toluene	50.0	5 U	41.2	82
chlorobenzene	50.0	5 U	46.8	94

	<u>Conc. Spike Added</u>	<u>MSD Conc.</u>	<u>MSD % Rec.</u>	<u>RPD</u>
1,1-dichloroethene	50.0	37.1	74	3
trichloroethene	50.0	41.5	83	4
benzene	50.0	36.4	73 *	4
toluene	50.0	39.6	79	4
chlorobenzene	50.0	45.0	90	4

RPD = Relative Percent Difference

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

* - Asterisked values are outside USEPA advisory QC limits.

Date Analyzed: 07/24/90

APPENDIX IX VOLATILE ORGANIC ANALYSIS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 10-01-GW
Lab Sample ID: LL2979

<u>Compound</u>		<u>Compound</u>	
acetone	10 U	1,2-dichloropropane	5 U
acetonitrile	200 U	cis-1,3-dichloropropene	5 U
acrolein	10 U	trans-1,3-dichloropropene	5 U
acrylonitrile	10 U	1,4-dioxane	1,000 U
benzene	5 U	ethyl benzene	5 U
bromodichloromethane	5 U	ethyl cyanide	100 U
bromoform	5 U	ethyl methacrylate	10 U
bromomethane	10 U	2-hexanone	10 U
2-butanone	10 U	iodomethane	5 U
carbon disulfide	5 U	isobutyl alcohol	2,000 U
carbon tetrachloride	5 U	methacrylonitrile	10 U
chlorobenzene	5 U	methyl methacrylate	10 U
chloroethane	10 U	4-methyl-2-pentanone	10 U
3-chloro-1-propene	5 U	methylene chloride	5 U
chloroform	5 U	pyridine	20,000 U
chloromethane	10 U	styrene	5 U
chloroprene	5 U	1,1,1,2-tetrachloroethane	5 U
1,2-dibromo-3-chloropropane	10 U	1,1,2,2-tetrachloroethane	5 U
dibromochloromethane	5 U	tetrachloroethene	5 U
1,2-dibromoethane	5 U	toluene	5 U
dibromomethane	10 U	1,1,1-trichloroethane	5 U
trans-1,4-dichloro-2-butene	20 U	1,1,2-trichloroethane	5 U
dichlorodifluoromethane	20 U	trichloroethene	5 U
1,1-dichloroethane	5 U	trichlorofluoromethane	5 U
1,2-dichloroethane	5 U	1,2,3-trichloropropane	5 U
1,1-dichloroethene	5 U	vinyl acetate	10 U
trans-1,2-dichloroethene	5 U	vinyl chloride	10 U
		xylene (total)	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date of Analysis: 07/24/90
Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151
(Appendix IX)

WATER SURROGATE PERCENT RECOVERY SUMMARY

Sample No.	VOLATILE		
	Toluene-D8 (88-110%)*	BFB (86-115%)*	1,2 Dichloroethane-D4 (76-114%)*
04-04-GW	94	96	83
10-01-GW	93	95	81
04-04-GW MS	96	102	84
04-04-GW MSD	94	100	81
Method Blank	96	97	85

* - Values in parenthesis represent USEPA contract required QC limits.

Client Project ID: NAS-Key West

Job Number: ITCY 46151
(Appendix IX)

APPENDIX IX SEMIVOLATILE ANALYSIS (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 1

Lab Sample ID: BLA1340

n-nitrosodimethylamine	10 U	m-dinitrobenzene	10 U
2-picoline	70 U	pentachlorobenzene	20 U
n-nitrosomethylethylamine	10 U	2-naphthylamine	170 U
methyl methanesulfonate	10 U	1-naphthylamine	120 U
n-nitrosodiethylamine	10 U	2,3,4,6-tetrachlorophenol	10 U
ethyl methanesulfonate	10 U	5-nitro-o-toluidine	20 U
aniline	50 U	diphenylamine	10 U
pentachloroethane	20 U	tetraethyl dithiopyropho(3)	10 U
3-methylphenol	10 U	sym-trinitrobenzene	10 U
n-nitrosopyrrolidine	10 U	phenacetin	10 U
acetophenone	10 U	diallate	10 U
n-nitrosomorpholine	10 U	4-aminobiphenyl	50 U
o-toluidine	10 U	pronamide	30 U
n-nitrosopiperidine	10 U	pentachloronitrobenzene	20 U
o,o,o-triethylphosphorot(2)	10 U	dinoseb	20 U
2,6-dichlorophenol	10 U	4-nitroquinoline-1-oxide	10 U
hexachloropropene	20 U	methapyrilene	40 U
a,a-dimethylphenethylamine	10 U	aramite	10 U
n-nitrosodi-n-butylamine	20 U	p-(dimethylamino)azobenzene	30 U
p-phenylenediamine	50 U	3,3'-dimethylbenzidine	80 U
safrole	10 U	2-acetylaminofluorene	10 U
1,2,4,5-tetrachlorobenzene	10 U	7,12-dimethylbenz(a)anth(4)	20 U
isosafrole	10 U	hexachlorophene	50 U
1,4-naphthoquinone	10 U	3-methylcholanthrene	30 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

2 - o,o,o-triethylphosphorothioate

3 - tetraethyl dithiopyrophosphate

4 - 7,12-dimethylbenz(a)anthracene

Date Extracted: 07/17/90 Date Analyzed: 07/30/90 Dilution Factor: 1.0

This method blank applies to the following samples: 04-04-GW, 04-04-GW MS, 04-04-GW MSD.

IT Corporation
September 11, 1990

Client Project ID: NAS-Key West

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN
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APPENDIX IX SEMIVOLATILE ANALYSIS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-04-GW
Lab Sample ID: LL2982

<u>Compound</u>		<u>Compound</u>	
phenol	10 U	bis(2-chloroethoxy)methane	10 U
bis(2-chloroethyl)ether	10 U	2,4-dichlorophenol	10 U
2-chlorophenol	10 U	1,2,4-trichlorobenzene	10 U
1,3-dichlorobenzene	10 U	naphthalene	10 U
1,4-dichlorobenzene	10 U	4-chloroaniline	10 U
benzyl alcohol	10 U	hexachlorobutadiene	10 U
1,2-dichlorobenzene	10 U	4-chloro-3-methylphenol	10 U
2-methylphenol	10 U	2-methylnaphthalene	10 U
bis(2-chloroisopropyl)ether	10 U	hexachlorocyclopentadiene	10 U
4-methylphenol	10 U	2,4,6-trichlorophenol	10 U
n-nitroso-di-n-propylamine	10 U	2,4,5-trichlorophenol	50 U
hexachloroethane	10 U	2-chloronaphthalene	10 U
nitrobenzene	10 U	2-nitroaniline	50 U
isophorone	10 U	dimethyl phthalate	10 U
2-nitrophenol	10 U	acenaphthylene	10 U
2,4-dimethylphenol	10 U	2,6-dinitrotoluene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/17/90
Date Analyzed: 08/15/90
Dilution Factor: 1.0

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151
(Appendix IX)

APPENDIX IX SEMIVOLATILE ANALYSIS (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-04-GW
Lab Sample ID: LL2982

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	50 U	anthracene	10 U
acenaphthene	10 U	di-n-butylphthalate	10 U
2,4-dinitrophenol	50 U	fluoranthene	10 U
4-nitrophenol	50 U	pyrene	10 U
dibenzofuran	10 U	butylbenzylphthalate	10 U
2,4-dinitrotoluene	10 U	3,3'-dichlorobenzidine	20 U
diethylphthalate	10 U	benzo(a)anthracene	10 U
4-chlorophenyl-phenylether	10 U	chrysene	10 U
fluorene	10 U	bis(2-ethylhexyl)phthalate	4 J
4-nitroaniline	50 U	di-n-octylphthalate	10 U
4,6-dinitro-2-methylphenol	50 U	benzo(b)fluoranthene	10 U
n-nitrosodiphenylamine ¹	10 U	benzo(k)fluoranthene	10 U
4-bromophenyl-phenylether	10 U	benzo(a)pyrene	10 U
hexachlorobenzene	10 U	indeno(1,2,3-cd)pyrene	10 U
pentachlorophenol	50 U	dibenzo(a,h)anthracene	10 U
phenanthrene	10 U	benzo(g,h,i)perylene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/17/90
Date Analyzed: 08/15/90
Dilution Factor: 1.0

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151
(Appendix IX)

APPENDIX IX SEMIVOLATILE ANALYSIS (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-04-GW
Lab Sample ID: LL2982

n-nitrosodimethylamine	10 U	m-dinitrobenzene	10 U
2-picoline	70 U	pentachlorobenzene	20 U
n-nitrosomethylethylamine	10 U	2-naphthylamine	170 U
methyl methanesulfonate	10 U	1-naphthylamine	120 U
n-nitrosodiethylamine	10 U	2,3,4,6-tetrachlorophenol	10 U
ethyl methanesulfonate	10 U	5-nitro-o-toluidine	20 U
aniline	50 U	diphenylamine	10 U
pentachloroethane	20 U	tetraethyl dithiopyropho(3)	10 U
3-methylphenol	10 U	sym-trinitrobenzene	10 U
n-nitrosopyrrolidine	10 U	phenacetin	10 U
acetophenone	10 U	diallate	10 U
n-nitrosomorpholine	10 U	4-aminobiphenyl	50 U
o-toluidine	10 U	pronamide	30 U
n-nitrosopiperidine	10 U	pentachloronitrobenzene	20 U
o,o,o-triethylphosphorot(2)	10 U	dinoseb	20 U
2,6-dichlorophenol	10 U	4-nitroquinoline-1-oxide	10 U
hexachloropropene	20 U	methapyrilene	40 U
a,a-dimethylphenethylamine	10 U	aramite	10 U
n-nitrosodi-n-butylamine	20 U	p-(dimethylamino)azobenzene	30 U
p-phenylenediamine	50 U	3,3'-dimethylbenzidine	80 U
safrole	10 U	2-acetylaminofluorene	10 U
1,2,4,5-tetrachlorobenzene	10 U	7,12-dimethylbenz(a)anth(4)	20 U
isofafrole	10 U	hexachlorophene	50 U
1,4-naphthoquinone	10 U	3-methylcholanthrene	30 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

2 - o,o,o-triethylphosphorothioate

3 - tetraethyl dithiopyrophosphate

4 - 7,12-dimethylbenz(a)anthracene

Date Extracted: 07/17/90
Date Analyzed: 08/15/90
Dilution Factor: 1.0

APPENDIX IX SEMIVOLATILE ANALYSIS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 10-01-GW

Lab Sample ID: LL2983

Compound

phenol	10 U
bis(2-chloroethyl)ether	10 U
2-chlorophenol	10 U
1,3-dichlorobenzene	10 U
1,4-dichlorobenzene	10 U
benzyl alcohol	10 U
1,2-dichlorobenzene	10 U
2-methylphenol	10 U
bis(2-chloroisopropyl)ether	10 U
4-methylphenol	10 U
n-nitroso-di-n-propylamine	10 U
hexachloroethane	10 U
nitrobenzene	10 U
isophorone	10 U
2-nitrophenol	10 U
2,4-dimethylphenol	10 U

Compound

bis(2-chloroethoxy)methane	10 U
2,4-dichlorophenol	10 U
1,2,4-trichlorobenzene	10 U
naphthalene	10 U
4-chloroaniline	10 U
hexachlorobutadiene	10 U
4-chloro-3-methylphenol	10 U
2-methylnaphthalene	10 U
hexachlorocyclopentadiene	10 U
2,4,6-trichlorophenol	10 U
2,4,5-trichlorophenol	50 U
2-chloronaphthalene	10 U
2-nitroaniline	50 U
dimethyl phthalate	10 U
acenaphthylene	10 U
2,6-dinitrotoluene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 08/16/90

Date Analyzed: 08/22/90

Dilution Factor: 1.0

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151
(Appendix IX)

APPENDIX IX SEMIVOLATILE ANALYSIS (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 10-01-GW
Lab Sample ID: LL2983

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	50 U	anthracene	10 U
acenaphthene	10 U	di-n-butylphthalate	10 U
2,4-dinitrophenol	50 U	fluoranthene	10 U
4-nitrophenol	50 U	pyrene	10 U
dibenzofuran	10 U	butylbenzylphthalate	10 U
2,4-dinitrotoluene	10 U	3,3'-dichlorobenzidine	20 U
diethylphthalate	10 U	benzo(a)anthracene	10 U
4-chlorophenyl-phenylether	10 U	chrysene	10 U
fluorene	10 U	bis(2-ethylhexyl)phthalate	10 U
4-nitroaniline	50 U	di-n-octylphthalate	10 U
4,6-dinitro-2-methylphenol	50 U	benzo(b)fluoranthene	10 U
n-nitrosodiphenylamine ¹	10 U	benzo(k)fluoranthene	10 U
4-bromophenyl-phenylether	10 U	benzo(a)pyrene	10 U
hexachlorobenzene	10 U	indeno(1,2,3-cd)pyrene	10 U
pentachlorophenol	50 U	dibenzo(a,h)anthracene	10 U
phenanthrene	10 U	benzo(g,h,i)perylene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 08/16/90
Date Analyzed: 08/22/90
Dilution Factor: 1.0

Client Project ID: NAS-Key West

Job Number: ITCY 46151
(Appendix IX)

APPENDIX IX SEMIVOLATILE ANALYSIS (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 10-01-GW
Lab Sample ID: LL2983

n-nitrosodimethylamine	10 U	m-dinitrobenzene	10 U
2-picoline	70 U	pentachlorobenzene	20 U
n-nitrosomethylethylamine	10 U	2-naphthylamine	170 U
methyl methanesulfonate	10 U	1-naphthylamine	120 U
n-nitrosodiethylamine	10 U	2,3,4,6-tetrachlorophenol	10 U
ethyl methanesulfonate	10 U	5-nitro-o-toluidine	20 U
aniline	50 U	diphenylamine	10 U
pentachloroethane	20 U	tetraethyl dithiopyropho(3)	10 U
3-methylphenol	10 U	sym-trinitrobenzene	10 U
n-nitrosopyrrolidine	10 U	phenacetin	10 U
acetophenone	10 U	diallate	10 U
n-nitrosomorpholine	10 U	4-aminobiphenyl	50 U
o-toluidine	10 U	pronamide	30 U
n-nitrosopiperidine	10 U	pentachloronitrobenzene	20 U
o,o,o-triethylphosphorot(2)	10 U	dinoseb	20 U
2,6-dichlorophenol	10 U	4-nitroquinoline-1-oxide	10 U
hexachloropropene	20 U	methapyrilene	40 U
a,a-dimethylphenethylamine	10 U	aramite	10 U
n-nitrosodi-n-butylamine	20 U	p-(dimethylamino)azobenzene	30 U
p-phenylenediamine	50 U	3,3'-dimethylbenzidine	80 U
safrole	10 U	2-acetylaminofluorene	10 U
1,2,4,5-tetrachlorobenzene	10 U	7,12-dimethylbenz(a)anth(4)	20 U
isosafrole	10 U	hexachlorophene	50 U
1,4-naphthoquinone	10 U	3-methylcholanthrene	30 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

2 - o,o,o-triethylphosphorothioate

3 - tetraethyl dithiopyrophosphate

4 - 7,12-dimethylbenz(a)anthracene

Date Extracted: 08/16/90
Date Analyzed: 08/22/90
Dilution Factor: 1.0

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151
(Appendix IX)

WATER SURROGATE PERCENT RECOVERY SUMMARY

Sample No.	SEMI-VOLATILE					
	Nitro- Benzene-D5 (35-114%)*	2-Fluoro- Biphenyl (43-116%)*	Terphenyl- D14 (33-141%)*	Phenol-D5 (10-94%)*	2-Fluoro- Phenol (21-100%)*	2,4,6 Tribromo- Phenol (10-123%)*
04-04-GW	55	43	67	36	48	46
10-01-GW	63	52	65	39	59	65
04-04-GW MS	54	52	78	52	62	56
04-04-GW MSD	54	50	78	56	64	55
Method Blank 1	88	76	97	31	43	71
Method Blank 2	62	56	96	29	46	74

* - Values in parenthesis represent USEPA contract required QC limits.

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IT ANALYTICAL SERVICES
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KNOXVILLE, TN

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(Appendix IX)

APPENDIX IX ORGANOCHLORINE PESTICIDES

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 1
Lab Sample ID: BLA1334

<u>Compound</u>		<u>Compound</u>	
α-BHC	0.050 U	methoxychlor	0.50 U
β-BHC	0.050 U	chlordan	0.50 U
δ-BHC	0.050 U	toxaphene	1.0 U
γ-BHC (lindane)	0.050 U	Aroclor 1016	0.50 U
heptachlor	0.050 U	Aroclor 1221	0.50 U
aldrin	0.050 U	Aroclor 1232	0.50 U
heptachlor epoxide	0.050 U	Aroclor 1242	0.50 U
endosulfan I	0.050 U	Aroclor 1248	0.50 U
dieldrin	0.10 U	Aroclor 1254	1.0 U
4,4'-DDE	0.10 U	Aroclor 1260	1.0 U
endrin	0.10 U	endrin aldehyde	0.10 U
endosulfan II	0.10 U	isodrin	0.050 U
4,4'-DDD	0.10 U	kepone	0.10 U
endosulfan sulfate	0.10 U	chlorobenzilate	0.50 U
4,4'-DDT	0.10 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/16/90
Date Analyzed: 07/26/90
Dilution Factor: 1.0

This method blank applies to the following sample: 04-04-GW

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September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151
(Appendix IX)

APPENDIX IX ORGANOCHLORINE PESTICIDES

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-04-GW
Lab Sample ID: LL2982

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.050 U	methoxychlor	0.50 U
β -BHC	0.050 U	chlordane	0.50 U
δ -BHC	0.050 U	toxaphene	1.0 U
γ -BHC (lindane)	0.050 U	Aroclor 1016	0.50 U
heptachlor	0.050 U	Aroclor 1221	0.50 U
aldrin	0.050 U	Aroclor 1232	0.50 U
heptachlor epoxide	0.050 U	Aroclor 1242	0.50 U
endosulfan I	0.050 U	Aroclor 1248	0.50 U
dieldrin	0.10 U	Aroclor 1254	1.0 U
4,4'-DDE	0.10 U	Aroclor 1260	1.0 U
endrin	0.10 U	endrin aldehyde	0.10 U
endosulfan II	0.10 U	isodrin	0.050 U
4,4'-DDD	0.10 U	kepone	0.10 U
endosulfan sulfate	0.10 U	chlorobenzilate	0.50 U
4,4'-DDT	0.10 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/16/90
Date Analyzed: 07/27/90
Dilution Factor: 1.0

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151
(Appendix IX)

APPENDIX IX ORGANOCHLORINE PESTICIDES

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank
Lab Sample ID: BLA1346

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.050 U	methoxychlor	0.50 U
β -BHC	0.050 U	chlordane	0.50 U
δ -BHC	0.050 U	toxaphene	1.0 U
γ -BHC (lindane)	0.050 U	Aroclor 1016	0.50 U
heptachlor	0.050 U	Aroclor 1221	0.50 U
aldrin	0.050 U	Aroclor 1232	0.50 U
heptachlor epoxide	0.050 U	Aroclor 1242	0.50 U
endosulfan I	0.050 U	Aroclor 1248	0.50 U
dieldrin	0.10 U	Aroclor 1254	1.0 U
4,4'-DDE	0.10 U	Aroclor 1260	1.0 U
endrin	0.10 U	endrin aldehyde	0.10 U
endosulfan II	0.10 U	isodrin	0.050 U
4,4'-DDD	0.10 U	kepone	0.10 U
endosulfan sulfate	0.10 U	chlorobenzilate	0.50 U
4,4'-DDT	0.10 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

F - Peak offscale and therefore out of linear range.

Z - Elevated CRQL reported due to matrix interferences obscuring the compound of interest.

DL - Dilution

Date Extracted: 07/17/90
Date Analyzed: 07/27/90
Dilution Factor: 1.0

This method blank applies to the following samples: 10-01-GW, 10-01-GW DL, 10-01-GW MS 10-01-GW MSD, 10-01-GW MSD DL, 10-01-GW MS DL.

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151
(Appendix IX)

APPENDIX IX ORGANOCHLORINE PESTICIDES

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 10-01-GW
Lab Sample ID: LL2983

<u>Compound</u>			<u>Compound</u>		
α -BHC	0.35	FZ	methoxychlor	0.50	U
β -BHC	1.0	FZ	chlordane	0.50	U
δ -BHC	0.30	FZ	toxaphene	1.0	U
γ -BHC (lindane)	0.75	FZ	Aroclor 1016	0.50	U
heptachlor	0.42	FZ	Aroclor 1221	0.50	U
aldrin	0.11	FZ	Aroclor 1232	0.50	U
heptachlor epoxide	0.050	U	Aroclor 1242	0.50	U
endosulfan I	0.050	U	Aroclor 1248	0.50	U
dieldrin	0.10	U	Aroclor 1254	1.0	U
4,4'-DDE	0.10	U	Aroclor 1260	1.0	U
endrin	0.10	U	endrin aldehyde	0.10	U
endosulfan II	0.10	U	isodrin	0.050	U
4,4'-DDD	0.10	U	kepone	0.10	U
endosulfan sulfate	0.10	U	chlorobenzilate	0.50	U
4,4'-DDT	0.10	U			

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

F - Peak offscale and therefore out of linear range.

Z - Elevated CRQL reported due to matrix interferences obscuring the compound of interest.

Date Extracted: 07/17/90
Date Analyzed: 07/27/90
Dilution Factor: 1.0

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151
(Appendix IX)

TARGET ANALYTE LIST - INORGANICS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-04-GW
Lab Sample ID: LL2988

antimony	30.0	U
arsenic	30.0	U
barium	24.9	B
beryllium	1.0	U
cadmium	5.0	U
chromium	10.0	U
cobalt	20.0	U
copper	54.7	
lead	38.3	
mercury	0.20	U
nickel	20.0	U
selenium	20.0	UW
silver	5.0	U
thallium	30.0	U
vanadium	10.0	U
zinc	11.5	B
tin	20.0	U

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
- B - Value greater than instrument detection limit, but less than contract required quantitation limit.
- W - Post digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.

Date Digested: 07/23 and 07/24/90
Date Analyzed: 08/15/90 (ICP)
08/03/90 (GFAA)
07/17/90 (CVAA)

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151
(Appendix IX)

MATRIX SPIKE RECOVERY

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-04-GW

Lab Sample ID: LL2988

	<u>Control Limit</u> <u>% Recovery</u>	<u>Spiked</u> <u>Sample Result</u>	<u>Sample</u> <u>Result</u>	<u>Spike</u> <u>Added</u>	<u>% Recovery</u>
antimony	75-125	398.91	30.00 U	500	79.8
arsenic	75-125	1,503.80	30.00 U	2,000	75.2
barium	75-125	1,370.50	24.93 B	2,000	67.3 N
beryllium	75-125	34.83	1.00 U	50	69.7 N
cadmium	75-125	36.12	5.00 U	50	72.2 N
chromium	75-125	130.60	10.00 U	200	65.3 N
cobalt	75-125	317.26	20.00 U	500	63.5 N
copper	75-125	239.18	54.72	250	73.8 N
lead	75-125	394.50	38.29	500	71.2 N
mercury	75-125	1.05	0.20 U	1	105.0
nickel	75-125	309.03	20.00 U	500	61.8 N
selenium	75-125	1,660.10	60.00 U	2,000	83.0
silver	75-125	38.95	5.00 U	50	77.9
thallium	75-125	30.00 U	30.00 U	2,000	0.0 N
vanadium	75-125	341.18	10.00 U	500	68.2 N
zinc	75-125	355.68	11.49 B	500	68.8 N
tin	75-125	20.00 U	20.00 U	2,000	0.0 N

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

B - Value greater than instrument detection limit, but less than contract required quantitation limit.

N - Out of USEPA advisory control limits (i.e., 75-125% Recovery)

Date Digested: 07/23 and 07/24/90

Date Analyzed: 08/15/90 (ICP)

08/03/90 (GFAA)

07/17/90 (CVAA)

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

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(Appendix IX)

POST DIGEST SPIKE RECOVERY

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-04-GW A
Lab Sample ID: LL2988

	<u>Spiked Sample Result</u>	<u>Sample Result</u>	<u>Spike Added</u>	<u>% Recovery</u>
selenium	20.0 U	20.0 U	10.0	0.0

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Digested: 07/23 and 07/24/90
Date Analyzed: 08/03/90 (GFAA)

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151
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DUPLICATE ANALYSIS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-04-GW
Lab Sample ID: LL2988

<u>Analyte</u>	<u>Control Limit</u>	<u>Original Sample</u>	<u>Duplicate</u>	<u>RPD</u>
antimony		30.00 U	30.00 U	
arsenic		30.00 U	30.00 U	
barium		24.93 B	24.93 B	0.0
beryllium		1.00 U	1.00 U	
cadmium		5.00 U	5.00 U	
chromium		10.00 U	10.00 U	
cobalt		20.00 U	20.00 U	
copper	25.0	54.72	58.88	7.3
lead		38.29	39.72	3.7
mercury		0.20 U	0.20 U	
nickel		20.00 U	20.00 U	
selenium		60.00 U	60.00 U	
silver		5.00 U	5.00 U	
thallium		30.00 U	30.00 U	
vanadium		10.00 U	10.00 U	
zinc		11.49 B	5.00 U	200.0

RPD = Relative Percent Difference

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

B - Value greater than instrument detection limit, but less than contract required quantitation limit.

Date Digested: 07/23 and 07/24/90
Date Analyzed: 08/15/90 (ICP)
08/03/90 (GFAA)
07/17/90 (CVAA)

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

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(Appendix IX)

DUPLICATE ANALYSIS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-04-GW
Lab Sample ID: LL2988

<u>Analyte</u>	<u>Original Sample</u>	<u>Duplicate</u>
selenium	20.0 U	20.0 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Digested: 07/23 and 07/24/90
Date Analyzed: 08/03/90 (GFAA)

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

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(Appendix IX)

TARGET ANALYTE LIST - INORGANICS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 10-01-GW
Lab Sample ID: LL2989

antimony	30.0	U
arsenic	39.3	
barium	41.2	B
beryllium	1.0	U
cadmium	5.0	U
chromium	17.0	
cobalt	20.0	U
copper	38.6	
lead	30.0	U
mercury	0.20	U
nickel	20.0	U
selenium	20.0	UW
silver	22.6	
thallium	30.0	U
vanadium	14.8	B
zinc	25.3	
tin	20.0	U

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
B - Value greater than instrument detection limit, but less than contract required quantitation limit.
W - Post digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.

Date Digested: 07/23 and 07/24/90
Date Analyzed: 08/15/90 (ICP)
08/03/90 (GFAA)
07/17/90 (CVAA)

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151
(Appendix IX)

CYANIDE ANALYSIS

Results in mg/liter (ppm)

Sample Matrix: Water

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Result</u>
Method Blank	P1355	0.01 U
04-04-GW	LL2980	0.01 U
10-01-GW	LL2981	0.01 U

Date Analyzed: 07/24/90

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

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(Appendix IX)

MATRIX SPIKE ANALYSIS

Results in mg/liter (ppm)

Sample Matrix: Water

Client Sample ID: 04-04-GW
Lab Sample ID: LL2980

<u>Compound</u>	<u>Conc. Spike Added</u>	<u>Sample Result</u>	<u>Conc. MS</u>	<u>% Rec.</u>
cyanide	0.20	0.01 U	0.17	85

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Analyzed: 07/24/90

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151
(Appendix IX)

DUPLICATE ANALYSIS

Results in mg/liter (ppm)

Sample Matrix: Water

Client Sample ID: 04-04-GW
Lab Sample ID: LL2980

<u>Compound</u>	<u>Original Sample</u>	<u>Duplicate</u>	<u>RPD</u>
cyanide	0.01 U	0.01 U	0

RPD = Relative Percent Difference

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Analyzed: 07/24/90

CERTIFICATE OF ANALYSIS

IT Corporation
3012 US Highway 301 North, Suite 1000
Tampa, FL 33619
ATTN: Mark Hampton

September 11, 1990

Job Number: ITCY 46151 (CLP Data)

P.O. Number: 595392

This is the Certificate of Analysis for the following samples:

Client Project ID: NAS-Key West
Date Received by Lab: 07/14/90
Number of Samples: Nineteen (19)
Sample Type: Water - fifteen (15), Soil - two (2), Trip Blanks - two (2)

I. Introduction

On 07/14/90, fifteen (15) water samples, two (2) soil samples, and two (2) trip blanks arrived at the ITAS-Knoxville, Tennessee, laboratory from the Naval Air Station, Key West, Florida. The list of analytical tests performed, as well as date of receipt and analysis, can be found in the attached report.

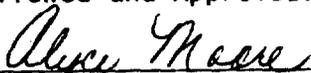
II. Analytical Results/Methodology

The analytical results for this report are presented by analytical test. Each set of data will include sample identification information and the analytical results. Please note that CLP data are not blank corrected and CLP soil results are reported on a dry weight basis.

The samples were analyzed for Target Compound List (TCL) volatiles and semivolatiles by gas chromatography/mass spectroscopy (GC/MS) in accordance with the EPA CLP 2/88 Statement of Work.

The samples were analyzed for Target Compound List (TCL) pesticides and PCBs by gas chromatography/electron capture detection (GC/ECD) in accordance with the EPA CLP 2/88 Statement of Work.

Reviewed and Approved:


Alyce Moore
Laboratory Manager

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

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-10-GW
Lab Sample ID: LL2997

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	7 J	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	1 BJ	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	1 J	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	1 J	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

B - Analyte was found in the blank as well as the sample.

Date Analyzed: 07/23/90
Dilution Factor: 1

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Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-10-GW
Lab Sample ID: LL2997

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 05-SW-D
Lab Sample ID: LL2998

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	1 BJ	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

B - Analyte was found in the blank as well as the sample.

Date Analyzed: 07/23/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 05-SW-D
Lab Sample ID: LL2998

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

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Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 3
Lab Sample ID: EB0724

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

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Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in ug/liter (ppb)

Sample Matrix: Water

Client Sample ID: 05-SW-U
Lab Sample ID: LL2999

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	1 BJ	1,1,2-trichloroethane	5 U
acetone	13	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
 J - Indicates an estimated value less than the detection limit.
 B - Analyte was found in the blank as well as the sample.

Date Analyzed: 07/24/90
Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 05-SW-U
Lab Sample ID: LL2999

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

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September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 07-KWM11-GW
Lab Sample ID: LL3000

Compound

chloromethane	10 U
bromomethane	10 U
vinyl chloride	10 U
chloroethane	10 U
methylene chloride	5 U
acetone	6 J
carbon disulfide	5 U
1,1-dichloroethene	5 U
1,1-dichloroethane	5 U
1,2-dichloroethene (total)	5 U
chloroform	5 U
1,2-dichloroethane	5 U
2-butanone	10 U
1,1,1-trichloroethane	5 U
carbon tetrachloride	5 U
vinyl acetate	10 U
bromodichloromethane	5 U

Compound

1,2-dichloropropane	5 U
cis-1,3-dichloropropene	5 U
trichloroethene	5 U
dibromochloromethane	5 U
1,1,2-trichloroethane	5 U
benzene	5 U
trans-1,3-dichloropropene	5 U
bromoform	5 U
4-methyl-2-pentanone	10 U
2-hexanone	10 U
tetrachloroethene	5 U
1,1,2,2-tetrachloroethane	5 U
toluene	5 U
chlorobenzene	5 U
ethylbenzene	5 U
styrene	5 U
total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Analyzed: 07/24/90
Dilution Factor: 1

IT Corporation
September 11, 1990

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 07-13-ER
Lab Sample ID: LL3005

<u>Tentative Identification (1)</u>	<u>Concentration (2)</u>
2-propanol (ACN)	7.2

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-07-GW
Lab Sample ID: LL3006

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	5 J	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	5 U	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	8	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Analyzed: 07/24/90
Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-07-GW
Lab Sample ID: LL3006

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Trip Blank 1
Lab Sample ID: LL3007

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	3 BJ	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

B - Analyte was found in the blank as well as the sample.

Date Analyzed: 07/24/90

Dilution Factor: 1

IT Corporation
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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in $\mu\text{g}/\text{kg}$ (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 05-SED-U

Lab Sample ID: LL3057

<u>Compound</u>		<u>Compound</u>	
chloromethane	42 U	1,2-dichloropropane	21 U
bromomethane	42 U	cis-1,3-dichloropropene	21 U
vinyl chloride	42 U	trichloroethene	21 U
chloroethane	42 U	dibromochloromethane	21 U
methylene chloride	53	1,1,2-trichloroethane	21 U
acetone	41 J	benzene	21 U
carbon disulfide	21 U	trans-1,3-dichloropropene	21 U
1,1-dichloroethene	21 U	bromoform	21 U
1,1-dichloroethane	21 U	4-methyl-2-pentanone	42 U
1,2-dichloroethene (total)	21 U	2-hexanone	42 U
chloroform	21 U	tetrachloroethene	21 U
1,2-dichloroethane	21 U	1,1,2,2-tetrachloroethane	21 U
2-butanone	42 U	toluene	21 U
1,1,1-trichloroethane	21 U	chlorobenzene	21 U
carbon tetrachloride	21 U	ethylbenzene	21 U
vinyl acetate	42 U	styrene	21 U
bromodichloromethane	21 U	total xylenes	21 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Analyzed: 07/23/90

Dilution Factor: 1

% Moisture: 76

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g}/\text{kg}$ (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 05-SED-U
Lab Sample ID: LL3057

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

IT Corporation
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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Results in $\mu\text{g}/\text{kg}$ (ppb) dry weight

Client Sample ID: 05-SED-U
Lab Sample ID: LL3057

	<u>Conc. Spike Added</u>	<u>Sample Conc.</u>	<u>MS Conc.</u>	<u>MS % Rec.</u>
1,1-dichloroethene	208	21 U	265	127
trichloroethene	208	21 U	196	94
benzene	208	21 U	201	97
toluene	208	21 U	201	97
chlorobenzene	208	21 U	210	101

	<u>Conc. Spike Added</u>	<u>MSD Conc.</u>	<u>MSD % Rec.</u>	<u>RPD</u>
1,1-dichloroethene	208	250	120	6
trichloroethene	208	191	92	2
benzene	208	191	92	5
toluene	208	191	92	5
chlorobenzene	208	203	98	3

RPD = Relative Percent Difference

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Analyzed: 07/23/90

IT Corporation
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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 05-SED-D
Lab Sample ID: LL3060

<u>Compound</u>		<u>Compound</u>	
chloromethane	20 U	1,2-dichloropropane	10 U
bromomethane	20 U	cis-1,3-dichloropropene	10 U
vinyl chloride	20 U	trichloroethene	10 U
chloroethane	20 U	dibromochloromethane	10 U
methylene chloride	10	1,1,2-trichloroethane	10 U
acetone	20 U	benzene	10 U
carbon disulfide	10 U	trans-1,3-dichloropropene	10 U
1,1-dichloroethene	10 U	bromoform	10 U
1,1-dichloroethane	10 U	4-methyl-2-pentanone	20 U
1,2-dichloroethene (total)	10 U	2-hexanone	20 U
chloroform	10 U	tetrachloroethene	10 U
1,2-dichloroethane	10 U	1,1,2,2-tetrachloroethane	10 U
2-butanone	20 U	toluene	10 U
1,1,1-trichloroethane	10 U	chlorobenzene	10 U
carbon tetrachloride	10 U	ethylbenzene	10 U
vinyl acetate	20 U	styrene	10 U
bromodichloromethane	10 U	total xylenes	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
J - Indicates an estimated value less than the detection limit.

Date Analyzed: 07/23/90
Dilution Factor: 1
% Moisture: 49

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g}/\text{kg}$ (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 05-SED-D
Lab Sample ID: LL3060

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

IT Corporation
 September 11, 1990

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SOIL SURROGATE PERCENT RECOVERY SUMMARY

Sample No.	VOLATILE		
	Toluene-D8 (81-117%)*	BFB (74-121%)*	1,2 Dichloroethane-D4 (70-121%)*
05-SED-D	98	89	77
05-SED-U	102	81	79
05-SED-U MS	100	85	77
05-SED-U MSD	94	88	74
Method Blank 4	96	98	88

* - Values in parenthesis represent USEPA contract required QC limits.

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-02-GW

Lab Sample ID: LL3047

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-10-GW
Lab Sample ID: LL3048

<u>Compound</u>		<u>Compound</u>	
phenol	10 U	bis(2-chloroethoxy)methane	10 U
bis(2-chloroethyl)ether	10 U	2,4-dichlorophenol	10 U
2-chlorophenol	10 U	1,2,4-trichlorobenzene	10 U
1,3-dichlorobenzene	10 U	naphthalene	10 U
1,4-dichlorobenzene	10 U	4-chloroaniline	10 U
benzyl alcohol	10 U	hexachlorobutadiene	10 U
1,2-dichlorobenzene	10 U	4-chloro-3-methylphenol	10 U
2-methylphenol	10 U	2-methylnaphthalene	10 U
bis(2-chloroisopropyl)ether	10 U	hexachlorocyclopentadiene	10 U
4-methylphenol	10 U	2,4,6-trichlorophenol	10 U
n-nitroso-di-n-propylamine	10 U	2,4,5-trichlorophenol	52 U
hexachloroethane	10 U	2-chloronaphthalene	10 U
nitrobenzene	10 U	2-nitroaniline	52 U
isophorone	10 U	dimethyl phthalate	10 U
2-nitrophenol	10 U	acenaphthylene	10 U
2,4-dimethylphenol	10 U	2,6-dinitrotoluene	10 U
benzoic acid	52 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/18/90
Date Analyzed: 08/06/90
Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-10-GW
Lab Sample ID: LL3048

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	52 U	anthracene	10 U
acenaphthene	10 U	di-n-butylphthalate	10 U
2,4-dinitrophenol	52 U	fluoranthene	10 U
4-nitrophenol	52 U	pyrene	10 U
dibenzofuran	10 U	butylbenzylphthalate	10 U
2,4-dinitrotoluene	10 U	3,3'-dichlorobenzidine	21 U
diethylphthalate	10 U	benzo(a)anthracene	10 U
4-chlorophenyl-phenylether	10 U	chrysene	10 U
fluorene	10 U	bis(2-ethylhexyl)phthalate	10 U
4-nitroaniline	52 U	di-n-octylphthalate	10 U
4,6-dinitro-2-methylphenol	52 U	benzo(b)fluoranthene	10 U
n-nitrosodiphenylamine ¹	10 U	benzo(k)fluoranthene	10 U
4-bromophenyl-phenylether	10 U	benzo(a)pyrene	10 U
hexachlorobenzene	10 U	indeno(1,2,3-cd)pyrene	10 U
pentachlorophenol	52 U	dibenzo(a,h)anthracene	10 U
phenanthrene	10 U	benzo(g,h,i)perylene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/18/90
Date Analyzed: 08/06/90
Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-10-GW
Lab Sample ID: LL3048

<u>Tentative Identification (1)</u>	<u>Concentration (2)</u>
octanoic acid	8.4
caprolactam	13
decanoic acid	9.5
2-propenoic acid, 2-methyl-, 2-(dimethylamino) ethyl ester	45 B
dodecanoic acid	29
2-butanone, 4-(dimethylamino)-3-methyl-	17
hexathiepane	9.7
hexadecanoic acid	12
sulfur, mol. (S8)	9.7

Remarks: (1) Identification is based on computer search of N.B.S. Library.

(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

B - Analyte was found in the blank as well as the sample.

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 05-SW-D
Lab Sample ID: LL3049

<u>Compound</u>		<u>Compound</u>	
phenol	13 U	bis(2-chloroethoxy)methane	13 U
bis(2-chloroethyl)ether	13 U	2,4-dichlorophenol	13 U
2-chlorophenol	13 U	1,2,4-trichlorobenzene	13 U
1,3-dichlorobenzene	13 U	naphthalene	13 U
1,4-dichlorobenzene	13 U	4-chloroaniline	13 U
benzyl alcohol	13 U	hexachlorobutadiene	13 U
1,2-dichlorobenzene	13 U	4-chloro-3-methylphenol	13 U
2-methylphenol	13 U	2-methylnaphthalene	13 U
bis(2-chloroisopropyl)ether	13 U	hexachlorocyclopentadiene	13 U
4-methylphenol	13 U	2,4,6-trichlorophenol	13 U
n-nitroso-di-n-propylamine	13 U	2,4,5-trichlorophenol	64 U
hexachloroethane	13 U	2-chloronaphthalene	13 U
nitrobenzene	13 U	2-nitroaniline	64 U
isophorone	13 U	dimethyl phthalate	13 U
2-nitrophenol	13 U	acenaphthylene	13 U
2,4-dimethylphenol	13 U	2,6-dinitrotoluene	13 U
benzoic acid	64 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/18/90
Date Analyzed: 08/07/90
Dilution Factor: 1

IT Corporation
September 11, 1990

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 05-SW-D
Lab Sample ID: LL3049

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	64 U	anthracene	13 U
acenaphthene	13 U	di-n-butylphthalate	13 U
2,4-dinitrophenol	64 U	fluoranthene	13 U
4-nitrophenol	64 U	pyrene	13 U
dibenzofuran	13 U	butylbenzylphthalate	13 U
2,4-dinitrotoluene	13 U	3,3'-dichlorobenzidine	25 U
diethylphthalate	13 U	benzo(a)anthracene	13 U
4-chlorophenyl-phenylether	13 U	chrysene	13 U
fluorene	13 U	bis(2-ethylhexyl)phthalate	13 U
4-nitroaniline	64 U	di-n-octylphthalate	13 U
4,6-dinitro-2-methylphenol	64 U	benzo(b)fluoranthene	13 U
n-nitrosodiphenylamine ¹	13 U	benzo(k)fluoranthene	13 U
4-bromophenyl-phenylether	13 U	benzo(a)pyrene	13 U
hexachlorobenzene	13 U	indeno(1,2,3-cd)pyrene	13 U
pentachlorophenol	64 U	dibenzo(a,h)anthracene	13 U
phenanthrene	13 U	benzo(g,h,i)perylene	13 U

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
J - Indicates an estimated value less than the detection limit.
1 - Detected as diphenylamine.

Date Extracted: 07/18/90
Date Analyzed: 08/07/90
Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 05-SW-D
Lab Sample ID: LL3049

Tentative Identification (1)

Concentration (2)

2-propenoic acid, 2-methyl-,
2-(dimethylamino) ethyl ester

18.0 B

Remarks: (1) Identification is based on computer search of N.B.S. Library.

(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

B - Analyte was found in the blank as well as the sample.

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 05-SW-U
Lab Sample ID: LL3050

<u>Compound</u>		<u>Compound</u>	
phenol	10 U	bis(2-chloroethoxy)methane	10 U
bis(2-chloroethyl)ether	10 U	2,4-dichlorophenol	10 U
2-chlorophenol	10 U	1,2,4-trichlorobenzene	10 U
1,3-dichlorobenzene	10 U	naphthalene	10 U
1,4-dichlorobenzene	10 U	4-chloroaniline	10 U
benzyl alcohol	5 J	hexachlorobutadiene	10 U
1,2-dichlorobenzene	10 U	4-chloro-3-methylphenol	10 U
2-methylphenol	10 U	2-methylnaphthalene	10 U
bis(2-chloroisopropyl)ether	10 U	hexachlorocyclopentadiene	10 U
4-methylphenol	10 U	2,4,6-trichlorophenol	10 U
n-nitroso-di-n-propylamine	10 U	2,4,5-trichlorophenol	50 U
hexachloroethane	10 U	2-chloronaphthalene	10 U
nitrobenzene	10 U	2-nitroaniline	50 U
isophorone	10 U	dimethyl phthalate	10 U
2-nitrophenol	10 U	acenaphthylene	10 U
2,4-dimethylphenol	10 U	2,6-dinitrotoluene	10 U
benzoic acid	50 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/18/90
Date Analyzed: 08/07/90
Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 05-SW-U
Lab Sample ID: LL3050

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	50 U	anthracene	10 U
acenaphthene	10 U	di-n-butylphthalate	10 U
2,4-dinitrophenol	50 U	fluoranthene	10 U
4-nitrophenol	50 U	pyrene	10 U
dibenzofuran	10 U	butylbenzylphthalate	10 U
2,4-dinitrotoluene	10 U	3,3'-dichlorobenzidine	20 U
diethylphthalate	10 U	benzo(a)anthracene	10 U
4-chlorophenyl-phenylether	10 U	chrysene	10 U
fluorene	10 U	bis(2-ethylhexyl)phthalate	10 U
4-nitroaniline	50 U	di-n-octylphthalate	10 U
4,6-dinitro-2-methylphenol	50 U	benzo(b)fluoranthene	10 U
n-nitrosodiphenylamine ¹	10 U	benzo(k)fluoranthene	10 U
4-bromophenyl-phenylether	10 U	benzo(a)pyrene	10 U
hexachlorobenzene	10 U	indeno(1,2,3-cd)pyrene	10 U
pentachlorophenol	50 U	dibenzo(a,h)anthracene	10 U
phenanthrene	10 U	benzo(g,h,i)perylene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/18/90
Date Analyzed: 08/07/90
Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 05-SW-U
Lab Sample ID: LL3050

Tentative Identification (1)

Concentration (2)

2-pentanone, 4-hydroxy-4-methyl-

17.0 AB

Remarks: (1) Identification is based on computer search of N.B.S. Library.

(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

A - Suspected aldol condensation product.

B - Analyte was found in the blank as well as the sample.

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 07-KWM11-GW
Lab Sample ID: LL3051

<u>Compound</u>		<u>Compound</u>	
phenol	10 U	bis(2-chloroethoxy)methane	10 U
bis(2-chloroethyl)ether	10 U	2,4-dichlorophenol	10 U
2-chlorophenol	10 U	1,2,4-trichlorobenzene	10 U
1,3-dichlorobenzene	10 U	naphthalene	10 U
1,4-dichlorobenzene	10 U	4-chloroaniline	10 U
benzyl alcohol	10 U	hexachlorobutadiene	10 U
1,2-dichlorobenzene	10 U	4-chloro-3-methylphenol	10 U
2-methylphenol	10 U	2-methylnaphthalene	10 U
bis(2-chloroisopropyl)ether	10 U	hexachlorocyclopentadiene	10 U
4-methylphenol	10 U	2,4,6-trichlorophenol	10 U
n-nitroso-di-n-propylamine	10 U	2,4,5-trichlorophenol	50 U
hexachloroethane	10 U	2-chloronaphthalene	10 U
nitrobenzene	10 U	2-nitroaniline	50 U
isophorone	10 U	dimethyl phthalate	10 U
2-nitrophenol	10 U	acenaphthylene	10 U
2,4-dimethylphenol	10 U	2,6-dinitrotoluene	10 U
benzoic acid	50 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/18/90
Date Analyzed: 08/09/90
Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in ug/liter (ppb)

Sample Matrix: Water

Client Sample ID: 07-KWM11-GW
Lab Sample ID: LL3051

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	50 U	anthracene	10 U
acenaphthene	10 U	di-n-butylphthalate	10 U
2,4-dinitrophenol	50 U	fluoranthene	10 U
4-nitrophenol	50 U	pyrene	10 U
dibenzofuran	10 U	butylbenzylphthalate	10 U
2,4-dinitrotoluene	10 U	3,3'-dichlorobenzidine	20 U
diethylphthalate	10 U	benzo(a)anthracene	10 U
4-chlorophenyl-phenylether	10 U	chrysene	10 U
fluorene	10 U	bis(2-ethylhexyl)phthalate	10 U
4-nitroaniline	50 U	di-n-octylphthalate	10 U
4,6-dinitro-2-methylphenol	50 U	benzo(b)fluoranthene	10 U
n-nitrosodiphenylamine ¹	10 U	benzo(k)fluoranthene	10 U
4-bromophenyl-phenylether	10 U	benzo(a)pyrene	10 U
hexachlorobenzene	10 U	indeno(1,2,3-cd)pyrene	10 U
pentachlorophenol	50 U	dibenzo(a,h)anthracene	10 U
phenanthrene	10 U	benzo(g,h,i)perylene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/18/90
Date Analyzed: 08/09/90
Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 07-KWM11-GW
Lab Sample ID: LL3051

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

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September 11, 1990

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 07-KWM12-GW
Lab Sample ID: LL3052

<u>Compound</u>		<u>Compound</u>	
phenol	11 U	bis(2-chloroethoxy)methane	11 U
bis(2-chloroethyl)ether	11 U	2,4-dichlorophenol	11 U
2-chlorophenol	11 U	1,2,4-trichlorobenzene	11 U
1,3-dichlorobenzene	11 U	naphthalene	11 U
1,4-dichlorobenzene	11 U	4-chloroaniline	11 U
benzyl alcohol	11 U	hexachlorobutadiene	11 U
1,2-dichlorobenzene	11 U	4-chloro-3-methylphenol	11 U
2-methylphenol	11 U	2-methylnaphthalene	11 U
bis(2-chloroisopropyl)ether	11 U	hexachlorocyclopentadiene	11 U
4-methylphenol	11 U	2,4,6-trichlorophenol	11 U
n-nitroso-di-n-propylamine	11 U	2,4,5-trichlorophenol	53 U
hexachloroethane	11 U	2-chloronaphthalene	11 U
nitrobenzene	11 U	2-nitroaniline	53 U
isophorone	11 U	dimethyl phthalate	11 U
2-nitrophenol	11 U	acenaphthylene	11 U
2,4-dimethylphenol	11 U	2,6-dinitrotoluene	11 U
benzoic acid	53 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/18/90
Date Analyzed: 08/09/90
Dilution Factor: 1

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 07-KWM12-GW

Lab Sample ID: LL3052

Compound

Compound

3-nitroaniline	53 U	anthracene	11 U
acenaphthene	11 U	di-n-butylphthalate	11 U
2,4-dinitrophenol	53 U	fluoranthene	11 U
4-nitrophenol	53 U	pyrene	11 U
dibenzofuran	11 U	butylbenzylphthalate	11 U
2,4-dinitrotoluene	11 U	3,3'-dichlorobenzidine	21 U
diethylphthalate	11 U	benzo(a)anthracene	11 U
4-chlorophenyl-phenylether	11 U	chrysene	11 U
fluorene	11 U	bis(2-ethylhexyl)phthalate	11 U
m-nitroaniline	53 U	di-n-octylphthalate	11 U
4,6-dinitro-2-methylphenol	53 U	benzo(b)fluoranthene	11 U
n-nitrosodiphenylamine ¹	11 U	benzo(k)fluoranthene	11 U
4-bromophenyl-phenylether	11 U	benzo(a)pyrene	11 U
hexachlorobenzene	11 U	indeno(1,2,3-cd)pyrene	11 U
pentachlorophenol	53 U	dibenzo(a,h)anthracene	11 U
phenanthrene	11 U	benzo(g,h,i)perylene	11 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/18/90

Date Analyzed: 08/09/90

Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 07-KWM12-GW
Lab Sample ID: LL3052

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 08-14-GW
Lab Sample ID: LL3053

<u>Compound</u>		<u>Compound</u>	
phenol	10 U	bis(2-chloroethoxy)methane	10 U
bis(2-chloroethyl)ether	10 U	2,4-dichlorophenol	10 U
2-chlorophenol	10 U	1,2,4-trichlorobenzene	10 U
1,3-dichlorobenzene	10 U	naphthalene	10 U
1,4-dichlorobenzene	10 U	4-chloroaniline	10 U
benzyl alcohol	10 U	hexachlorobutadiene	10 U
1,2-dichlorobenzene	10 U	4-chloro-3-methylphenol	10 U
2-methylphenol	10 U	2-methylnaphthalene	10 U
bis(2-chloroisopropyl)ether	10 U	hexachlorocyclopentadiene	10 U
4-methylphenol	10 U	2,4,6-trichlorophenol	10 U
n-nitroso-di-n-propylamine	10 U	2,4,5-trichlorophenol	51 U
hexachloroethane	10 U	2-chloronaphthalene	10 U
nitrobenzene	10 U	2-nitroaniline	51 U
isophorone	10 U	dimethyl phthalate	10 U
2-nitrophenol	10 U	acenaphthylene	10 U
2,4-dimethylphenol	10 U	2,6-dinitrotoluene	10 U
benzoic acid	51 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/18/90
Date Analyzed: 08/10/90
Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 08-14-GW
Lab Sample ID: LL3053

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	51 U	anthracene	10 U
acenaphthene	10 U	di-n-butylphthalate	10 U
2,4-dinitrophenol	51 U	fluoranthene	10 U
4-nitrophenol	51 U	pyrene	10 U
dibenzofuran	10 U	butylbenzylphthalate	10 U
2,4-dinitrotoluene	10 U	3,3'-dichlorobenzidine	20 U
diethylphthalate	10 U	benzo(a)anthracene	10 U
4-chlorophenyl-phenylether	10 U	chrysene	10 U
fluorene	10 U	bis(2-ethylhexyl)phthalate	10 U
4-nitroaniline	51 U	di-n-octylphthalate	10 U
4,6-dinitro-2-methylphenol	51 U	benzo(b)fluoranthene	10 U
n-nitrosodiphenylamine ¹	10 U	benzo(k)fluoranthene	10 U
4-bromophenyl-phenylether	10 U	benzo(a)pyrene	10 U
hexachlorobenzene	10 U	indeno(1,2,3-cd)pyrene	10 U
pentachlorophenol	51 U	dibenzo(a,h)anthracene	10 U
phenanthrene	10 U	benzo(g,h,i)perylene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/18/90
Date Analyzed: 08/10/90
Dilution Factor: 1

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September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-14-GW

Lab Sample ID: LL3053

Tentative Identification (1)

Concentration (2)

lenthionine	49
hexathiepane	39
unknown	29
sulfur, mol. (S8)	29

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 2
Lab Sample ID: BLA1356

<u>Compound</u>		<u>Compound</u>	
phenol	10 U	bis(2-chloroethoxy)methane	10 U
bis(2-chloroethyl)ether	10 U	2,4-dichlorophenol	10 U
2-chlorophenol	10 U	1,2,4-trichlorobenzene	10 U
1,3-dichlorobenzene	10 U	naphthalene	10 U
1,4-dichlorobenzene	10 U	4-chloroaniline	10 U
benzyl alcohol	10 U	hexachlorobutadiene	10 U
1,2-dichlorobenzene	10 U	4-chloro-3-methylphenol	10 U
2-methylphenol	10 U	2-methylnaphthalene	10 U
bis(2-chloroisopropyl)ether	10 U	hexachlorocyclopentadiene	10 U
4-methylphenol	10 U	2,4,6-trichlorophenol	10 U
n-nitroso-di-n-propylamine	10 U	2,4,5-trichlorophenol	50 U
hexachloroethane	10 U	2-chloronaphthalene	10 U
nitrobenzene	10 U	2-nitroaniline	50 U
isophorone	10 U	dimethyl phthalate	10 U
2-nitrophenol	10 U	acenaphthylene	10 U
2,4-dimethylphenol	10 U	2,6-dinitrotoluene	10 U
benzoic acid	50 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/18/90
Date Analyzed: 08/01/90
Dilution Factor: 1

This method blank applies to the following samples: 01-04-EB, 07-13-ER, 08-15-GW.

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 2
Lab Sample ID: BLA1356

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	50 U	anthracene	10 U
acenaphthene	10 U	di-n-butylphthalate	10 U
2,4-dinitrophenol	50 U	fluoranthene	10 U
4-nitrophenol	50 U	pyrene	10 U
dibenzofuran	10 U	butylbenzylphthalate	10 U
2,4-dinitrotoluene	10 U	3,3'-dichlorobenzidine	20 U
diethylphthalate	10 U	benzo(a)anthracene	10 U
4-chlorophenyl-phenylether	10 U	chrysene	10 U
luorene	10 U	bis(2-ethylhexyl)phthalate	25
4-nitroaniline	50 U	di-n-octylphthalate	10 U
4,6-dinitro-2-methylphenol	50 U	benzo(b)fluoranthene	10 U
n-nitrosodiphenylamine ¹	10 U	benzo(k)fluoranthene	10 U
4-bromophenyl-phenylether	10 U	benzo(a)pyrene	10 U
hexachlorobenzene	10 U	indeno(1,2,3-cd)pyrene	10 U
pentachlorophenol	50 U	dibenzo(a,h)anthracene	10 U
phenanthrene	10 U	benzo(g,h,i)perylene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/18/90
Date Analyzed: 08/01/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 2
Lab Sample ID: BLA1356

Tentative Identification (1)

Concentration (2)

No additional peaks detected

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 08-15-GW
Lab Sample ID: LL3054

<u>Compound</u>		<u>Compound</u>	
phenol	10 U	bis(2-chloroethoxy)methane	10 U
bis(2-chloroethyl)ether	10 U	2,4-dichlorophenol	10 U
2-chlorophenol	10 U	1,2,4-trichlorobenzene	10 U
1,3-dichlorobenzene	10 U	naphthalene	10 U
1,4-dichlorobenzene	10 U	4-chloroaniline	10 U
benzyl alcohol	10 U	hexachlorobutadiene	10 U
1,2-dichlorobenzene	10 U	4-chloro-3-methylphenol	10 U
2-methylphenol	10 U	2-methylnaphthalene	10 U
bis(2-chloroisopropyl)ether	10 U	hexachlorocyclopentadiene	10 U
4-methylphenol	10 U	2,4,6-trichlorophenol	10 U
n-nitroso-di-n-propylamine	10 U	2,4,5-trichlorophenol	50 U
hexachloroethane	10 U	2-chloronaphthalene	10 U
nitrobenzene	10 U	2-nitroaniline	50 U
isophorone	10 U	dimethyl phthalate	10 U
2-nitrophenol	10 U	acenaphthylene	10 U
2,4-dimethylphenol	10 U	2,6-dinitrotoluene	10 U
benzoic acid	50 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/18/90
Date Analyzed: 08/09/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in ug/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-15-GW
Lab Sample ID: LL3054

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	50 U	anthracene	10 U
acenaphthene	10 U	di-n-butylphthalate	10 U
2,4-dinitrophenol	50 U	fluoranthene	10 U
4-nitrophenol	50 U	pyrene	10 U
dibenzofuran	10 U	butylbenzylphthalate	10 U
2,4-dinitrotoluene	10 U	3,3'-dichlorobenzidine	20 U
diethylphthalate	10 U	benzo(a)anthracene	10 U
4-chlorophenyl-phenylether	10 U	chrysene	10 U
fluorene	10 U	bis(2-ethylhexyl)phthalate	3 BJ
4-nitroaniline	50 U	di-n-octylphthalate	10 U
4,6-dinitro-2-methylphenol	50 U	benzo(b)fluoranthene	10 U
n-nitrosodiphenylamine ¹	10 U	benzo(k)fluoranthene	10 U
4-bromophenyl-phenylether	10 U	benzo(a)pyrene	10 U
hexachlorobenzene	10 U	indeno(1,2,3-cd)pyrene	10 U
pentachlorophenol	50 U	dibenzo(a,h)anthracene	10 U
phenanthrene	10 U	benzo(g,h,i)perylene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

B - Analyte was found in the blank as well as the sample.

1 - Detected as diphenylamine.

Date Extracted: 07/18/90
Date Analyzed: 08/09/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 08-15-GW
Lab Sample ID: LL3054

Tentative Identification (1)

Concentration (2)

hexathiepane
sulfur, mol. (S8)

11
1,000

- Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 01-04-EB
Lab Sample ID: LL3055

<u>Compound</u>		<u>Compound</u>	
phenol	11 U	bis(2-chloroethoxy)methane	11 U
bis(2-chloroethyl)ether	11 U	2,4-dichlorophenol	11 U
2-chlorophenol	11 U	1,2,4-trichlorobenzene	11 U
1,3-dichlorobenzene	11 U	naphthalene	11 U
1,4-dichlorobenzene	11 U	4-chloroaniline	11 U
benzyl alcohol	11 U	hexachlorobutadiene	11 U
1,2-dichlorobenzene	11 U	4-chloro-3-methylphenol	11 U
2-methylphenol	11 U	2-methylnaphthalene	11 U
bis(2-chloroisopropyl)ether	11 U	hexachlorocyclopentadiene	11 U
4-methylphenol	11 U	2,4,6-trichlorophenol	11 U
n-nitroso-di-n-propylamine	11 U	2,4,5-trichlorophenol	53 U
hexachloroethane	11 U	2-chloronaphthalene	11 U
nitrobenzene	11 U	2-nitroaniline	53 U
isophorone	11 U	dimethyl phthalate	11 U
2-nitrophenol	11 U	acenaphthylene	11 U
2,4-dimethylphenol	11 U	2,6-dinitrotoluene	11 U
benzoic acid	53 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/18/90
Date Analyzed: 08/09/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-04-EB
Lab Sample ID: LL3055

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	53 U	anthracene	11 U
acenaphthene	11 U	di-n-butylphthalate	11 U
2,4-dinitrophenol	53 U	fluoranthene	11 U
4-nitrophenol	53 U	pyrene	11 U
dibenzofuran	11 U	butylbenzylphthalate	11 U
2,4-dinitrotoluene	11 U	3,3'-dichlorobenzidine	21 U
diethylphthalate	11 U	benzo(a)anthracene	11 U
4-chlorophenyl-phenylether	11 U	chrysene	11 U
fluorene	11 U	bis(2-ethylhexyl)phthalate	11 U
4-nitroaniline	53 U	di-n-octylphthalate	11 U
4,6-dinitro-2-methylphenol	53 U	benzo(b)fluoranthene	11 U
n-nitrosodiphenylamine ¹	11 U	benzo(k)fluoranthene	11 U
4-bromophenyl-phenylether	11 U	benzo(a)pyrene	11 U
hexachlorobenzene	11 U	indeno(1,2,3-cd)pyrene	11 U
pentachlorophenol	53 U	dibenzo(a,h)anthracene	11 U
phenanthrene	11 U	benzo(g,h,i)perylene	11 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/18/90
Date Analyzed: 08/09/90
Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-04-EB
Lab Sample ID: LL3055

Tentative Identification (1)

Concentration (2)

2-pentanone, 4-hydroxy-4-methyl-
phenol, 2,6-bis(1,1-dimethylethyl)-4-methyl-
benzophenone

12 A
8.5
110

Remarks: (1) Identification is based on computer search of N.B.S. Library.

(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

A - Suspected aldol condensation product.

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 07-13-ER
Lab Sample ID: LL3056

<u>Compound</u>		<u>Compound</u>	
phenol	10 U	bis(2-chloroethoxy)methane	10 U
bis(2-chloroethyl)ether	10 U	2,4-dichlorophenol	10 U
2-chlorophenol	10 U	1,2,4-trichlorobenzene	10 U
1,3-dichlorobenzene	10 U	naphthalene	10 U
1,4-dichlorobenzene	10 U	4-chloroaniline	10 U
benzyl alcohol	10 U	hexachlorobutadiene	10 U
1,2-dichlorobenzene	10 U	4-chloro-3-methylphenol	10 U
2-methylphenol	10 U	2-methylnaphthalene	10 U
bis(2-chloroisopropyl)ether	10 U	hexachlorocyclopentadiene	10 U
4-methylphenol	10 U	2,4,6-trichlorophenol	10 U
n-nitroso-di-n-propylamine	10 U	2,4,5-trichlorophenol	50 U
hexachloroethane	10 U	2-chloronaphthalene	10 U
nitrobenzene	10 U	2-nitroaniline	50 U
isophorone	10 U	dimethyl phthalate	10 U
2-nitrophenol	10 U	acenaphthylene	10 U
2,4-dimethylphenol	10 U	2,6-dinitrotoluene	10 U
benzoic acid	50 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/18/90
Date Analyzed: 08/09/90
Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 07-13-ER
Lab Sample ID: LL3056

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	50 U	anthracene	10 U
acenaphthene	10 U	di-n-butylphthalate	10 U
2,4-dinitrophenol	50 U	fluoranthene	10 U
4-nitrophenol	50 U	pyrene	10 U
dibenzofuran	10 U	butylbenzylphthalate	10 U
2,4-dinitrotoluene	10 U	3,3'-dichlorobenzidine	20 U
diethylphthalate	10 U	benzo(a)anthracene	10 U
4-chlorophenyl-phenylether	10 U	chrysene	10 U
fluorene	10 U	bis(2-ethylhexyl)phthalate	10 U
4-nitroaniline	50 U	di-n-octylphthalate	10 U
4,6-dinitro-2-methylphenol	50 U	benzo(b)fluoranthene	10 U
n-nitrosodiphenylamine ¹	10 U	benzo(k)fluoranthene	10 U
4-bromophenyl-phenylether	10 U	benzo(a)pyrene	10 U
hexachlorobenzene	10 U	indeno(1,2,3-cd)pyrene	10 U
pentachlorophenol	50 U	dibenzo(a,h)anthracene	10 U
phenanthrene	10 U	benzo(g,h,i)perylene	10 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/18/90
Date Analyzed: 08/09/90
Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 07-13-ER
Lab Sample ID: LL3056

Tentative Identification (1)

Concentration (2)

2-pentanone, 4-hydroxy-4-methyl-
benzophenone

19 A
11

Remarks: (1) Identification is based on computer search of N.B.S. Library.

(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

A - Suspected aldol condensation product.

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

WATER SURROGATE PERCENT RECOVERY SUMMARY

SEMI-VOLATILE

Sample No.	Nitro- Benzene-D5 (35-114%)*	2-Fluoro- Biphenyl (43-116%)*	Terphenyl- D14 (33-141%)*	Phenol-D5 (10-94%)*	2-Fluoro- Phenol (21-100%)*	2,4,6 Tribromo- Phenol (10-123%)*
01-01-GM-GW	63	57	74	33	47	68
01-02-GW	59	53	75	37	52	58
01-03-GM-GW	69	61	76	37	52	63
01-04-EB	69	71	100	29	44	68
01-04-GWD	62	53	71	24	37	58
01-04-GWO	64	56	80	27	41	66
04-10-GW	54	47	64	49	64	62
05-SW-D	57	52	81	52	65	66
05-SW-U	58	47	63	48	64	54
07-13-ER	62	64	93	29	46	65
07-KWM11-GW	58	52	77	46	61	66
07-KWM12-GW	47	47	82	46	61	70
08-14-GW	57	56	76	47	65	81
08-15-GW	67	63	58	37	55	47
01-03-GM-GW MS	67	55	70	56	66	57
01-03-GM-GW MSD	65	58	69	50	58	48
Method Blank 2	74	56	86	25	40	75
Method Blank 1	85	72	90	31	48	80

* - Values in parenthesis represent USEPA contract required QC limits.

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

Results in $\mu\text{g}/\text{kg}$ (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: Method Blank 3
Lab Sample ID: BLA1339

Compound

Compound

phenol	330 U	bis(2-chloroethoxy)methane	330 U
bis(2-chloroethyl)ether	330 U	2,4-dichlorophenol	330 U
2-chlorophenol	330 U	1,2,4-trichlorobenzene	330 U
1,3-dichlorobenzene	330 U	naphthalene	330 U
1,4-dichlorobenzene	330 U	4-chloroaniline	330 U
benzyl alcohol	330 U	hexachlorobutadiene	330 U
1,2-dichlorobenzene	330 U	4-chloro-3-methylphenol	330 U
2-methylphenol	330 U	2-methylnaphthalene	330 U
bis(2-chloroisopropyl)ether	330 U	hexachlorocyclopentadiene	330 U
4-methylphenol	330 U	2,4,6-trichlorophenol	330 U
n-nitroso-di-n-propylamine	330 U	2,4,5-trichlorophenol	1,600 U
hexachloroethane	330 U	2-chloronaphthalene	330 U
nitrobenzene	330 U	2-nitroaniline	1,600 U
isophorone	330 U	dimethyl phthalate	330 U
2-nitrophenol	330 U	acenaphthylene	330 U
2,4-dimethylphenol	330 U	2,6-dinitrotoluene	330 U
benzoic acid	1,600 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/17/90
Date Analyzed: 08/17/90
Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in ug/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: Method Blank 3
Lab Sample ID: BLA1339

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	1,600 U	anthracene	330 U
acenaphthene	330 U	di-n-butylphthalate	330 U
2,4-dinitrophenol	1,600 U	fluoranthene	330 U
4-nitrophenol	1,600 U	pyrene	330 U
dibenzofuran	330 U	butylbenzylphthalate	330 U
2,4-dinitrotoluene	330 U	3,3'-dichlorobenzidine	660 U
diethylphthalate	330 U	benzo(a)anthracene	330 U
4-chlorophenyl-phenylether	330 U	chrysene	330 U
fluorene	330 U	bis(2-ethylhexyl)phthalate	330 U
4-nitroaniline	1,600 U	di-n-octylphthalate	330 U
4,6-dinitro-2-methylphenol	1,600 U	benzo(b)fluoranthene	330 U
n-nitrosodiphenylamine ¹	330 U	benzo(k)fluoranthene	330 U
4-bromophenyl-phenylether	330 U	benzo(a)pyrene	330 U
hexachlorobenzene	330 U	indeno(1,2,3-cd)pyrene	330 U
pentachlorophenol	1,600 U	dibenzo(a,h)anthracene	330 U
phenanthrene	330 U	benzo(g,h,i)perylene	330 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/17/90
Date Analyzed: 08/17/90
Dilution Factor: 1

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g}/\text{kg}$ (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: Method Blank 3

Lab Sample ID: BLA1339

Tentative Identification (1)

Concentration (2)

unknown (hydroxypentanone?)	860 A
unknown (hydroxypentanone?)	1,500 A
2-pentanone, 4-hydroxy-4-methyl-	20,000 A
unknown (C9 saturated hydrocarbons)	220
unknown (C9 saturated hydrocarbons)	160
unknown (C10 saturated hydrocarbons)	160
unknown	930

Remarks: (1) Identification is based on computer search of N.B.S. Library.

(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

A - Suspected aldol condensation product.

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

Results in $\mu\text{g}/\text{kg}$ (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 05-SED-U
Lab Sample ID: LL3061

<u>Compound</u>		<u>Compound</u>	
phenol	5,500 U	bis(2-chloroethoxy)methane	5,500 U
bis(2-chloroethyl)ether	5,500 U	2,4-dichlorophenol	5,500 U
2-chlorophenol	5,500 U	1,2,4-trichlorobenzene	5,500 U
1,3-dichlorobenzene	5,500 U	naphthalene	5,500 U
1,4-dichlorobenzene	5,500 U	4-chloroaniline	5,500 U
benzyl alcohol	5,500 U	hexachlorobutadiene	5,500 U
1,2-dichlorobenzene	5,500 U	4-chloro-3-methylphenol	5,500 U
2-methylphenol	5,500 U	2-methylnaphthalene	5,500 U
bis(2-chloroisopropyl)ether	5,500 U	hexachlorocyclopentadiene	5,500 U
4-methylphenol	5,500 U	2,4,6-trichlorophenol	5,500 U
n-nitroso-di-n-propylamine	5,500 U	2,4,5-trichlorophenol	26,000 U
hexachloroethane	5,500 U	2-chloronaphthalene	5,500 U
nitrobenzene	5,500 U	2-nitroaniline	26,000 U
isophorone	5,500 U	dimethyl phthalate	5,500 U
2-nitrophenol	5,500 U	acenaphthylene	5,500 U
2,4-dimethylphenol	5,500 U	2,6-dinitrotoluene	5,500 U
benzoic acid	26,000 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/17/90
Date Analyzed: 08/17/90
Dilution Factor: 4
% Moisture: 76

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 05-SED-U
Lab Sample ID: LL3061

Compound

3-nitroaniline	26,000 U
acenaphthene	5,500 U
2,4-dinitrophenol	26,000 U
4-nitrophenol	26,000 U
dibenzofuran	5,500 U
2,4-dinitrotoluene	5,500 U
diethylphthalate	5,500 U
1-chlorophenyl-phenylether	5,500 U
fluorene	5,500 U
4-nitroaniline	26,000 U
4,6-dinitro-2-methylphenol	26,000 U
n-nitrosodiphenylamine ¹	5,500 U
4-bromophenyl-phenylether	5,500 U
hexachlorobenzene	5,500 U
pentachlorophenol	26,000 U
phenanthrene	5,500 U

Compound

anthracene	5,500 U
di-n-butylphthalate	1,900 J
fluoranthene	5,500 U
pyrene	5,500 U
butylbenzylphthalate	2,200 J
3,3'-dichlorobenzidine	11,000 U
benzo(a)anthracene	5,500 U
chrysene	5,500 U
bis(2-ethylhexyl)phthalate	3,900 J
di-n-octylphthalate	5,500 U
benzo(b)fluoranthene	5,500 U
benzo(k)fluoranthene	5,500 U
benzo(a)pyrene	5,500 U
indeno(1,2,3-cd)pyrene	5,500 U
dibenzo(a,h)anthracene	5,500 U
benzo(g,h,i)perylene	5,500 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/17/90
Date Analyzed: 08/17/90
Dilution Factor: 4
% Moisture: 76

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g}/\text{kg}$ (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 05-SED-U
Lab Sample ID: LL3061

<u>Tentative Identification (1)</u>	<u>Concentration (2)</u>
unknown (alcohol?)	5,100
unknown (hydroxypentanone?)	12,000 AB
2-pentanone, 4-hydroxy-4-methyl-	160,000 AB
unknown	21,000
3-heptanone, 2,4-dimethyl-	8,400 A
unknown	6,100 A
M,P'-DDD	8,500
hexanedioic acid, dioctyl ester	45,000
unknown (aromatic?)	8,000
unknown	34,000
unknown	14,000
unknown (aromatic?)	4,600
unknown (saturated hydrocarbons?)	8,400
unknown (saturated hydrocarbons)	13,000
unknown (saturated hydrocarbons)	18,000
unknown (saturated hydrocarbons)	7,300
unknown (saturated hydrocarbons)	5,800
unknown (saturated hydrocarbons)	18,000
unknown (saturated hydrocarbons)	6,700
unknown (saturated hydrocarbons)	35,000

Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

A - Suspected aldol condensation product.
B - Analyte was found in the blank as well as the sample.

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Results in ug/kg (ppb) dry weight

Client Sample ID: 05-SED-U
Lab Sample ID: LL3061

	<u>Conc. Spike Added</u>	<u>Sample Conc.</u>	<u>MS Conc.</u>	<u>MS % Rec.</u>
phenol	27,500	5,500 U	21,200	77
2-chlorophenol	27,500	5,500 U	21,900	80
1,4-dichlorobenzene	13,800	5,500 U	11,200	81
n-nitroso-di-n-propylamine	13,800	5,500 U	12,300	89
1,2,4-trichlorobenzene	13,800	5,500 U	11,200	81
4-chloro-3-methylphenol	27,500	5,500 U	20,700	75
acenaphthene	13,800	5,500 U	11,800	86
4-nitrophenol	27,500	26,000 U	22,800	83
2,4-dinitrotoluene	13,800	5,500 U	12,700	92 *
pentachlorophenol	27,500	26,000 U	18,400	67
pyrene	13,800	5,500 U	11,000	80

	<u>Conc. Spike Added</u>	<u>MSD Conc.</u>	<u>MSD % Rec.</u>	<u>RPD</u>
phenol	27,300	20,900	77	0
2-chlorophenol	27,300	21,200	78	3
1,4-dichlorobenzene	13,600	10,600	78	4
n-nitroso-di-n-propylamine	13,600	12,300	90	-1
1,2,4-trichlorobenzene	13,600	11,000	81	0
4-chloro-3-methylphenol	27,300	20,400	75	0
acenaphthene	13,600	11,400	84	2
4-nitrophenol	27,300	22,400	82	1
2,4-dinitrotoluene	13,600	12,000	88	4
pentachlorophenol	27,300	15,600	57	16
pyrene	13,600	11,400	84	-5

RPD = Relative Percent Difference

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

* - Value is outside of QC limits.

Date Extracted: 07/17/90

Date Analyzed: 08/17/90

IT Corporation
September 11, 1990

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

Results in $\mu\text{g}/\text{kg}$ (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 05-SED-D
Lab Sample ID: LL3064

<u>Compound</u>		<u>Compound</u>	
phenol	2,600 U	bis(2-chloroethoxy)methane	2,600 U
bis(2-chloroethyl)ether	2,600 U	2,4-dichlorophenol	2,600 U
2-chlorophenol	2,600 U	1,2,4-trichlorobenzene	2,600 U
1,3-dichlorobenzene	2,600 U	naphthalene	2,600 U
1,4-dichlorobenzene	2,600 U	4-chloroaniline	2,600 U
benzyl alcohol	2,600 U	hexachlorobutadiene	2,600 U
1,2-dichlorobenzene	2,600 U	4-chloro-3-methylphenol	2,600 U
2-methylphenol	2,600 U	2-methylnaphthalene	2,600 U
bis(2-chloroisopropyl)ether	2,600 U	hexachlorocyclopentadiene	2,600 U
4-methylphenol	2,600 U	2,4,6-trichlorophenol	2,600 U
n-nitroso-di-n-propylamine	2,600 U	2,4,5-trichlorophenol	12,000 U
hexachloroethane	2,600 U	2-chloronaphthalene	2,600 U
nitrobenzene	2,600 U	2-nitroaniline	12,000 U
isophorone	2,600 U	dimethyl phthalate	2,600 U
2-nitrophenol	2,600 U	acenaphthylene	2,600 U
2,4-dimethylphenol	2,600 U	2,6-dinitrotoluene	2,600 U
benzoic acid	12,000 U		

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/17/90
Date Analyzed: 08/18/90
Dilution Factor: 4
% Moisture: 49

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in $\mu\text{g}/\text{kg}$ (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 05-SED-D

Lab Sample ID: LL3064

Compound

3-nitroaniline	12,000 U
acenaphthene	2,600 U
2,4-dinitrophenol	12,000 U
4-nitrophenol	12,000 U
dibenzofuran	2,600 U
2,4-dinitrotoluene	2,600 U
diethylphthalate	2,600 U
4-chlorophenyl-phenylether	2,600 U
fluorene	2,600 U
4-nitroaniline	12,000 U
4,6-dinitro-2-methylphenol	12,000 U
n-nitrosodiphenylamine ¹	2,600 U
4-bromophenyl-phenylether	2,600 U
hexachlorobenzene	2,600 U
pentachlorophenol	12,000 U
phenanthrene	2,600 U

Compound

anthracene	2,600 U
di-n-butylphthalate	710 J
fluoranthene	2,600 U
pyrene	2,600 U
butylbenzylphthalate	530 J
3,3'-dichlorobenzidine	5,100 U
benzo(a)anthracene	2,600 U
chrysene	2,600 U
bis(2-ethylhexyl)phthalate	1,900 J
di-n-octylphthalate	2,600 U
benzo(b)fluoranthene	2,600 U
benzo(k)fluoranthene	2,600 U
benzo(a)pyrene	2,600 U
indeno(1,2,3-cd)pyrene	2,600 U
dibenzo(a,h)anthracene	2,600 U
benzo(g,h,i)perylene	2,600 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

J - Indicates an estimated value less than the detection limit.

1 - Detected as diphenylamine.

Date Extracted: 07/17/90

Date Analyzed: 08/18/90

Dilution Factor: 4

% Moisture: 49

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in $\mu\text{g}/\text{kg}$ (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 05-SED-D
Lab Sample ID: LL3064

<u>Tentative Identification (1)</u>	<u>Concentration (2)</u>
unknown (alcohol?)	1,200
unknown (hydroxypentanone?)	5,400 AB
2-pentanone, 4-hydroxy-4-methyl-	75,000 AB
unknown	1,700 AB
5-hexen-2-one, 5-methyl-	2,000 A
unknown	8,000
3-heptanone, 2,4-dimethyl-	3,000 A
unknown	1,100
unknown	2,300 A
1-octanol, 2-butyl-	1,000
benzene, 1,1'-(2-chloroethylidene) bis [4-chloro-	1,700
M,P'-DDD	4,500
M,P'-DDD	5,500
hexanedioic acid, dioctyl ester	16,000
unknown (saturated hydrocarbons)	1,300
unknown (saturated hydrocarbons)	1,200
unknown (saturated hydrocarbons)	2,600

Remarks: (1) Identification is based on computer search of N.B.S. Library.
(2) Concentration is based on a response factor of 1.00 relative to the internal standard.

A - Suspected aldol condensation product.
B - Analyte was found in the blank as well as the sample.

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SOIL SURROGATE PERCENT RECOVERY SUMMARY

Sample No.	SEMI-VOLATILE					
	Nitro- Benzene-D5 (23-120%)*	2-Fluoro- Biphenyl (30-116%)*	Terphenyl- D14 (18-137%)*	Phenol-D5 (24-113%)*	2-Fluoro- Phenol (26-121%)*	2,4,6 Tribromo- Phenol (18-122%)*
05-SED-D	94	75	94	83	84	64
05-SED-U	91	76	93	82	80	65
05-SED-U MS	95	79	90	84	87	62
05-SED-U MSD	94	77	94	85	83	61
Method Blank 3	79	68	84	68	67	65

* - Values in parenthesis represent USEPA contract required QC limits.

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 1
Lab Sample ID: BLA1345

<u>Compound</u>		<u>Compound</u>		
α -BHC	0.050 U	endosulfan sulfate	0.10	U
β -BHC	0.050 U	4,4'-DDT	0.10	U
δ -BHC	0.050 U	methoxychlor	0.50	U
γ -BHC (lindane)	0.050 U	endrin ketone	0.10	U
heptachlor	0.050 U	α -chlordane	0.50	U
aldrin	0.050 U	γ -chlordane	0.50	U
heptachlor epoxide	0.050 U	toxaphene	1.0	U
endosulfan I	0.050 U	Aroclor 1016	0.50	U
dieldrin	0.10 U	Aroclor 1221	0.50	U
4,4'-DDE	0.10 U	Aroclor 1232	0.50	U
endrin	0.10 U	Aroclor 1242	0.50	U
endosulfan II	0.10 U	Aroclor 1248	0.50	U
4,4'-DDD	0.10 U	Aroclor 1254	1.0	U
		Aroclor 1260	1.0	U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/17/90
Date Analyzed: 08/01/90
Dilution Factor: 1

This method blank applies to the following samples: 01-01-GM-GW, 01-02-GW, 01-03-GM-GW, 01-03-GM-GW MS, 01-03-GM-GW MSD, 01-04-GWD, 01-04-GWO, 04-10-GW, 05-SW-D, 05-SW-D DL, 05-SW-U, 07-KWM11-GW.

DL = Dilution

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IT ANALYTICAL SERVICES
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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-01-GM-GW
Lab Sample ID: LL3041

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.050 U	endosulfan sulfate	0.10 U
β -BHC	0.050 U	4,4'-DDT	0.10 U
δ -BHC	0.050 U	methoxychlor	0.50 U
γ -BHC (lindane)	0.050 U	endrin ketone	0.10 U
heptachlor	0.050 U	α -chlordane	0.50 U
aldrin	0.050 U	γ -chlordane	0.50 U
heptachlor epoxide	0.050 U	toxaphene	1.0 U
endosulfan I	0.050 U	Aroclor 1016	0.50 U
dieldrin	0.10 U	Aroclor 1221	0.50 U
4,4'-DDE	0.10 U	Aroclor 1232	0.50 U
endrin	0.10 U	Aroclor 1242	0.50 U
endosulfan II	0.10 U	Aroclor 1248	0.50 U
4,4'-DDD	0.10 U	Aroclor 1254	1.0 U
		Aroclor 1260	1.0 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/17/90
Date Analyzed: 08/01/90
Dilution Factor: 1

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Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-03-GM-GW
Lab Sample ID: LL3042

<u>Compound</u>		<u>Compound</u>		
α -BHC	0.050 U	endosulfan sulfate	0.10	U
β -BHC	0.050 U	4,4'-DDT	0.10	U
δ -BHC	0.050 U	methoxychlor	0.50	U
γ -BHC (lindane)	0.050 U	endrin ketone	0.10	U
heptachlor	0.050 U	α -chlordane	0.50	U
aldrin	0.050 U	γ -chlordane	0.50	U
heptachlor epoxide	0.050 U	toxaphene	1.0	U
endosulfan I	0.050 U	Aroclor 1016	0.50	U
dieldrin	0.10 U	Aroclor 1221	0.50	U
4,4'-DDE	0.10 U	Aroclor 1232	0.50	U
endrin	0.10 U	Aroclor 1242	0.50	U
endosulfan II	0.10 U	Aroclor 1248	0.50	U
4,4'-DDD	0.10 U	Aroclor 1254	1.0	U
		Aroclor 1260	1.0	U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/17/90
Date Analyzed: 07/27/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Results in $\mu\text{g/liter}$ (ppb)

Client Sample ID: 01-03-GM-GW
Lab Sample ID: LL3042

	<u>Conc. Spike Added</u>	<u>Sample Conc.</u>	<u>MS Conc.</u>	<u>MS % Rec.</u>
γ -BHC (lindane)	0.444	0.050 U	0.380	86
heptachlor	0.444	0.050 U	0.346	78
aldrin	0.444	0.050 U	0.333	75
dieldrin	1.11	0.10 U	0.932	84
endrin	1.11	0.10 U	1.13	102
4,4'-DDT	1.11	0.10 U	1.01	91

	<u>Conc. Spike Added</u>	<u>MSD Conc.</u>	<u>MSD % Rec.</u>	<u>% RPD</u>
γ -BHC (lindane)	0.444	0.317	71	19 *
heptachlor	0.444	0.291	66	17
aldrin	0.444	0.278	63	17
dieldrin	1.11	0.784	71	17
endrin	1.11	0.944	85	18
4,4'-DDT	1.11	0.846	76	18

RPD = Relative Percent Difference

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

* - Asterisked values are outside USEPA advisory QC limits.

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-04-GW0
Lab Sample ID: LL3045

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.052 U	endosulfan sulfate	0.10 U
β -BHC	0.052 U	4,4'-DDT	0.10 U
δ -BHC	0.052 U	methoxychlor	0.52 U
γ -BHC (lindane)	0.052 U	endrin ketone	0.10 U
heptachlor	0.052 U	α -chlordane	0.52 U
aldrin	0.052 U	γ -chlordane	0.52 U
heptachlor epoxide	0.052 U	toxaphene	1.0 U
endosulfan I	0.052 U	Aroclor 1016	0.52 U
dieldrin	0.10 U	Aroclor 1221	0.52 U
4,4'-DDE	0.10 U	Aroclor 1232	0.52 U
endrin	0.10 U	Aroclor 1242	0.52 U
endosulfan II	0.10 U	Aroclor 1248	0.52 U
4,4'-DDD	0.10 U	Aroclor 1254	1.0 U
		Aroclor 1260	1.0 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/17/90
Date Analyzed: 08/01/90
Dilution Factor: 1

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 01-04-GWD
Lab Sample ID: LL3046

<u>Compound</u>		<u>Compound</u>	
α-BHC	0.055 U	endosulfan sulfate	0.11 U
β-BHC	0.055 U	4,4'-DDT	0.11 U
δ-BHC	0.055 U	methoxychlor	0.55 U
γ-BHC (lindane)	0.055 U	endrin ketone	0.11 U
heptachlor	0.055 U	α-chlordane	0.55 U
aldrin	0.055 U	γ-chlordane	0.55 U
heptachlor epoxide	0.055 U	toxaphene	1.1 U
endosulfan I	0.055 U	Aroclor 1016	0.55 U
dieldrin	0.11 U	Aroclor 1221	0.55 U
4,4'-DDE	0.11 U	Aroclor 1232	0.55 U
endrin	0.11 U	Aroclor 1242	0.55 U
endosulfan II	0.11 U	Aroclor 1248	0.55 U
4,4'-DDD	0.11 U	Aroclor 1254	1.1 U
		Aroclor 1260	1.1 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/17/90
Date Analyzed: 08/01/90
Dilution Factor: 1

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-02-GW
Lab Sample ID: LL3047

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.053 U	endosulfan sulfate	0.11 U
β -BHC	0.053 U	4,4'-DDT	0.11 U
δ -BHC	0.053 U	methoxychlor	0.53 U
γ -BHC (lindane)	0.053 U	endrin ketone	0.11 U
heptachlor	0.053 U	α -chlordane	0.53 U
aldrin	0.053 U	γ -chlordane	0.53 U
heptachlor epoxide	0.053 U	toxaphene	1.1 U
endosulfan I	0.053 U	Aroclor 1016	0.53 U
dieldrin	0.11 U	Aroclor 1221	0.53 U
4,4'-DDE	0.11 U	Aroclor 1232	0.53 U
endrin	0.11 U	Aroclor 1242	0.53 U
endosulfan II	0.11 U	Aroclor 1248	0.53 U
4,4'-DDD	0.11 U	Aroclor 1254	1.1 U
		Aroclor 1260	1.1 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/17/90
Date Analyzed: 08/01/90
Dilution Factor: 1

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 04-10-GW
Lab Sample ID: LL3048

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.054 U	endosulfan sulfate	0.11 U
β -BHC	0.054 U	4,4'-DDT	0.11 U
δ -BHC	0.054 U	methoxychlor	0.54 U
γ -BHC (lindane)	0.054 U	endrin ketone	0.11 U
heptachlor	0.054 U	α -chlordane	0.54 U
aldrin	0.054 U	γ -chlordane	0.54 U
heptachlor epoxide	0.054 U	toxaphene	1.1 U
endosulfan I	0.054 U	Aroclor 1016	0.54 U
dieldrin	0.11 U	Aroclor 1221	0.54 U
4,4'-DDE	0.11 U	Aroclor 1232	0.54 U
endrin	0.11 U	Aroclor 1242	0.54 U
endosulfan II	0.11 U	Aroclor 1248	0.54 U
4,4'-DDD	0.11 U	Aroclor 1254	1.1 U
		Aroclor 1260	1.1 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/17/90
Date Analyzed: 08/01/90
Dilution Factor: 1

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 05-SW-D
Lab Sample ID: LL3049

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.050 U	endosulfan sulfate	0.10 U
β -BHC	0.066	4,4'-DDT	0.10 U
δ -BHC	0.050 U	methoxychlor	0.50 U
γ -BHC (lindane)	0.050 U	endrin ketone	0.10 U
heptachlor	0.062	α -chlordane	0.50 U
aldrin	0.097 ZF	γ -chlordane	0.50 U
heptachlor epoxide	0.050 U	toxaphene	1.0 U
endosulfan I	0.050 U	Aroclor 1016	0.50 U
dieldrin	0.10 U	Aroclor 1221	0.50 U
4,4'-DDE	0.10 U	Aroclor 1232	0.50 U
endrin	0.10 U	Aroclor 1242	0.50 U
endosulfan II	0.10 U	Aroclor 1248	0.50 U
4,4'-DDD	0.10 U	Aroclor 1254	1.0 U
		Aroclor 1260	1.0 U

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
Z - Elevated CRQL reported due to matrix interferences obscuring the compound of interest.
F - Peak offscale and therefore out of linear range.

Date Extracted: 07/17/90
Date Analyzed: 08/01/90
Dilution Factor: 1

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 05-SW-D DL

Lab Sample ID: LL3049 DL

Compound

α -BHC	0.10	U
β -BHC	0.15	D
δ -BHC	0.10	U
γ -BHC (lindane)	0.10	U
heptachlor	0.064	DJ
aldrin	0.11	DZ
heptachlor epoxide	0.10	U
endosulfan I	0.10	U
dieldrin	0.20	U
4,4'-DDE	0.20	U
endrin	0.20	U
endosulfan II	0.20	U
4,4'-DDD	0.20	U

Compound

endosulfan sulfate	0.20	U
4,4'-DDT	0.20	U
methoxychlor	1.0	U
endrin ketone	0.20	U
α -chlordane	1.0	U
γ -chlordane	1.0	U
toxaphene	2.0	U
Aroclor 1016	1.0	U
Aroclor 1221	1.0	U
Aroclor 1232	1.0	U
Aroclor 1242	1.0	U
Aroclor 1248	1.0	U
Aroclor 1254	2.0	U
Aroclor 1260	2.0	U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

D - Compound analyzed at a secondary dilution factor.

J - Indicates an estimated value less than the detection limit.

Z - Elevated CRQL reported due to matrix interferences obscuring the compound of interest.

Date Extracted: 07/17/90

Date Analyzed: 08/01/90

Dilution Factor: 2

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 05-SW-U
Lab Sample ID: LL3050

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.050 U	endosulfan sulfate	0.10 U
β -BHC	0.050 U	4,4'-DDT	0.10 U
δ -BHC	0.050 U	methoxychlor	0.50 U
γ -BHC (lindane)	0.050 U	endrin ketone	0.10 U
heptachlor	0.050 U	α -chlordane	0.50 U
aldrin	0.050 U	γ -chlordane	0.50 U
heptachlor epoxide	0.050 U	toxaphene	1.0 U
endosulfan I	0.050 U	Aroclor 1016	0.50 U
dieldrin	0.10 U	Aroclor 1221	0.50 U
4,4'-DDE	0.10 U	Aroclor 1232	0.50 U
endrin	0.10 U	Aroclor 1242	0.50 U
endosulfan II	0.10 U	Aroclor 1248	0.50 U
4,4'-DDD	0.24	Aroclor 1254	1.0 U
		Aroclor 1260	1.0 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/17/90
Date Analyzed: 08/01/90
Dilution Factor: 1

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 07-KWM11-GW
Lab Sample ID: LL3051

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.050 U	endosulfan sulfate	0.10 U
β -BHC	0.050 U	4,4'-DDT	0.10 U
δ -BHC	0.050 U	methoxychlor	0.50 U
γ -BHC (lindane)	0.050 U	endrin ketone	0.10 U
heptachlor	0.050 U	α -chlordane	0.50 U
aldrin	0.050 U	γ -chlordane	0.50 U
heptachlor epoxide	0.050 U	toxaphene	1.0 U
endosulfan I	0.050 U	Aroclor 1016	0.50 U
dieldrin	0.10 U	Aroclor 1221	0.50 U
4,4'-DDE	0.10 U	Aroclor 1232	0.50 U
endrin	0.10 U	Aroclor 1242	0.50 U
endosulfan II	0.10 U	Aroclor 1248	0.50 U
4,4'-DDD	0.10 U	Aroclor 1254	1.0 U
		Aroclor 1260	1.0 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/17/90
Date Analyzed: 08/01/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 2
Lab Sample ID: BLA1346

<u>Compound</u>		<u>Compound</u>	
α-BHC	0.050 U	endosulfan sulfate	0.10 U
β-BHC	0.050 U	4,4'-DDT	0.10 U
δ-BHC	0.050 U	methoxychlor	0.50 U
γ-BHC (lindane)	0.050 U	endrin ketone	0.10 U
heptachlor	0.050 U	α-chlordane	0.50 U
aldrin	0.050 U	γ-chlordane	0.50 U
heptachlor epoxide	0.050 U	toxaphene	1.0 U
endosulfan I	0.050 U	Aroclor 1016	0.50 U
dieldrin	0.10 U	Aroclor 1221	0.50 U
4,4'-DDE	0.10 U	Aroclor 1232	0.50 U
endrin	0.10 U	Aroclor 1242	0.50 U
endosulfan II	0.10 U	Aroclor 1248	0.50 U
4,4'-DDD	0.10 U	Aroclor 1254	1.0 U
		Aroclor 1260	1.0 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/17/90
Date Analyzed: 08/01/90
Dilution Factor: 1

This method blank applies to the following samples: 01-04-EB, 07-13-ER, 07-KWM12-GW, 08-14-GW, 08-15-GW.

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IT ANALYTICAL SERVICES
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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 07-KWM12-GW
Lab Sample ID: LL3052

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.054 U	endosulfan sulfate	0.11 U
β -BHC	0.054 U	4,4'-DDT	0.11 U
δ -BHC	0.054 U	methoxychlor	0.54 U
γ -BHC (lindane)	0.054 U	endrin ketone	0.11 U
heptachlor	0.054 U	α -chlordane	0.54 U
aldrin	0.054 U	γ -chlordane	0.54 U
heptachlor epoxide	0.054 U	toxaphene	1.1 U
endosulfan I	0.054 U	Aroclor 1016	0.54 U
dieldrin	0.11 U	Aroclor 1221	0.54 U
4,4'-DDE	0.11 U	Aroclor 1232	0.54 U
endrin	0.11 U	Aroclor 1242	0.54 U
endosulfan II	0.11 U	Aroclor 1248	0.54 U
4,4'-DDD	0.11 U	Aroclor 1254	1.1 U
		Aroclor 1260	1.1 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/17/90
Date Analyzed: 08/02/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 08-14-GW
Lab Sample ID: LL3053

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.052 U	endosulfan sulfate	0.10 U
β -BHC	0.052 U	4,4'-DDT	0.10 U
δ -BHC	0.052 U	methoxychlor	0.52 U
γ -BHC (lindane)	0.052 U	endrin ketone	0.10 U
heptachlor	0.052 U	α -chlordane	0.52 U
aldrin	0.052 U	γ -chlordane	0.52 U
heptachlor epoxide	0.052 U	toxaphene	1.0 U
endosulfan I	0.052 U	Aroclor 1016	0.52 U
dieldrin	0.10 U	Aroclor 1221	0.52 U
4,4'-DDE	0.10 U	Aroclor 1232	0.52 U
endrin	0.10 U	Aroclor 1242	0.52 U
endosulfan II	0.10 U	Aroclor 1248	0.52 U
4,4'-DDD	0.10 U	Aroclor 1254	1.0 U
		Aroclor 1260	1.0 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/17/90
Date Analyzed: 08/02/90
Dilution Factor: 1

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 08-15-GW
Lab Sample ID: LL3054

<u>Compound</u>		<u>Compound</u>		
α -BHC	0.055 U	endosulfan sulfate	0.11	U
β -BHC	0.055 U	4,4'-DDT	0.11	U
δ -BHC	0.055 U	methoxychlor	0.55	U
γ -BHC (lindane)	0.055 U	endrin ketone	0.11	U
heptachlor	0.055 U	α -chlordane	0.55	U
aldrin	0.055 U	γ -chlordane	0.55	U
heptachlor epoxide	0.055 U	toxaphene	1.1	U
endosulfan I	0.055 U	Aroclor 1016	0.55	U
dieldrin	0.11 U	Aroclor 1221	0.55	U
4,4'-DDE	0.11 U	Aroclor 1232	0.55	U
endrin	0.11 U	Aroclor 1242	0.55	U
endosulfan II	0.11 U	Aroclor 1248	0.55	U
4,4'-DDD	0.11 U	Aroclor 1254	1.1	U
		Aroclor 1260	1.1	U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/17/90
Date Analyzed: 08/02/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-04-EB
Lab Sample ID: LL3055

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.050 U	endosulfan sulfate	0.10 U
β -BHC	0.050 U	4,4'-DDT	0.10 U
δ -BHC	0.050 U	methoxychlor	0.50 U
γ -BHC (lindane)	0.050 U	endrin ketone	0.10 U
heptachlor	0.050 U	α -chlordane	0.50 U
aldrin	0.050 U	γ -chlordane	0.50 U
heptachlor epoxide	0.050 U	toxaphene	1.0 U
endosulfan I	0.050 U	Aroclor 1016	0.50 U
dieldrin	0.10 U	Aroclor 1221	0.50 U
4,4'-DDE	0.10 U	Aroclor 1232	0.50 U
endrin	0.10 U	Aroclor 1242	0.50 U
endosulfan II	0.10 U	Aroclor 1248	0.50 U
4,4'-DDD	0.10 U	Aroclor 1254	1.0 U
		Aroclor 1260	1.0 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/17/90
Date Analyzed: 08/02/90
Dilution Factor: 1

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 07-13-ER
Lab Sample ID: LL3056

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.050 U	endosulfan sulfate	0.10 U
β -BHC	0.050 U	4,4'-DDT	0.10 U
δ -BHC	0.050 U	methoxychlor	0.50 U
γ -BHC (lindane)	0.050 U	endrin ketone	0.10 U
heptachlor	0.050 U	α -chlordane	0.50 U
aldrin	0.050 U	γ -chlordane	0.50 U
heptachlor epoxide	0.050 U	toxaphene	1.0 U
endosulfan I	0.050 U	Aroclor 1016	0.50 U
dieldrin	0.10 U	Aroclor 1221	0.50 U
4,4'-DDE	0.10 U	Aroclor 1232	0.50 U
endrin	0.10 U	Aroclor 1242	0.50 U
endosulfan II	0.10 U	Aroclor 1248	0.50 U
4,4'-DDD	0.10 U	Aroclor 1254	1.0 U
		Aroclor 1260	1.0 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/17/90
Date Analyzed: 08/02/90
Dilution Factor: 1

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

WATER SURROGATE PERCENT RECOVERY SUMMARY

<u>Sample No.</u>	<u>PESTICIDE</u> <u>Dibutylchlorodate</u> <u>(24-154%)*</u>
Method Blank 2	98
Method Blank 1	93
01-01-GM-GW	93
01-02-GW	88
01-03-GM-GW	84
01-03-GM-GW MS	96
01-03-GM-GW MSD	80
01-04-EB	96
01-04-GWD	91
01-04-GWO	95
04-04-GW	98
04-10-GW	89
05-SW-D	89
05-SW-D DL	93
05-SW-U	90
07-KWM11-GW	86
07-KWM12-GW	84
08-14-GW	84
08-15-GW	72
07-13-ER	88

* - Values in parenthesis represent USEPA advisory QC limits.

DL = Dilution

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Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g}/\text{kg}$ (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: Method Blank 3
Lab Sample ID: BLA1339

Compound

α -BHC	8.0	U
β -BHC	8.0	U
δ -BHC	8.0	U
γ -BHC (lindane)	8.0	U
heptachlor	8.0	U
aldrin	8.0	U
heptachlor epoxide	8.0	U
endosulfan I	8.0	U
dieldrin	16	U
4,4'-DDE	16	U
endrin	16	U
endosulfan II	16	U
4,4'-DDD	16	U

Compound

endosulfan sulfate	16	U
4,4'-DDT	16	U
methoxychlor	80	U
endrin ketone	16	U
α -chlordane	80	U
γ -chlordane	80	U
toxaphene	160	U
Aroclor 1016	80	U
Aroclor 1221	80	U
Aroclor 1232	80	U
Aroclor 1242	80	U
Aroclor 1248	80	U
Aroclor 1254	160	U
Aroclor 1260	160	U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Extracted: 07/17/90
Date Analyzed: 08/11/90
Dilution Factor: 1

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Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g}/\text{kg}$ (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 05-SED-U
Lab Sample ID: LL3061

<u>Compound</u>		<u>Compound</u>	
α -BHC	660 U	endosulfan sulfate	1,300 U
β -BHC	660 U	4,4'-DDT	2,500
δ -BHC	660 U	methoxychlor	6,600 U
γ -BHC (lindane)	660 U	endrin ketone	1,300 U
heptachlor	660 U	α -chlordane	6,600 U
aldrin	660 U	γ -chlordane	6,600 U
heptachlor epoxide	660 U	toxaphene	13,000 U
endosulfan I	660 U	Aroclor 1016	6,600 U
dieldrin	1,300 U	Aroclor 1221	6,600 U
4,4'-DDE	1,800	Aroclor 1232	6,600 U
endrin	1,300 U	Aroclor 1242	6,600 U
endosulfan II	1,300 U	Aroclor 1248	6,600 U
4,4'-DDD	9,200 F	Aroclor 1254	13,000 U
		Aroclor 1260	13,000 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

F - Peak offscale and therefore out of linear range.

Date Extracted: 07/17/90
Date Analyzed: 08/14/90
Dilution Factor: 20
% Moisture: 76

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Results in µg/kg (ppb) dry weight

Client Sample ID: 05-SED-U
Lab Sample ID: LL3061

	<u>Conc. Spike Added</u>	<u>Sample Conc.</u>	<u>MS Conc.</u>	<u>MS % Rec.</u>
γ-BHC (lindane)	110	660 U	76.8	70
heptachlor	110	660 U	76.8	70
aldrin	110	660 U	71.3	65
dieldrin	274	1,300 U	2,320	847 *
endrin	274	1,300 U	148	54
4,4'-DDT	274	2,480	5,650	1,157 *

	<u>Conc. Spike Added</u>	<u>MSD Conc.</u>	<u>MSD % Rec.</u>	<u>% RPD</u>
γ-BHC (lindane)	109	98.4	90	-25
heptachlor	109	82.0	75	-7
aldrin	109	92.9	85	-27
dieldrin	273	4,210	1,542 *	-58 *
endrin	273	169	62	-14
4,4'-DDT	273	6,010	1,293 *	-11

RPD = Relative Percent Difference

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

* - Asterisked values are outside USEPA advisory QC limits.

Date Extracted: 07/17/90
Date Analyzed: 08/14/90

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g}/\text{kg}$ (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 05-SED-U DL
Lab Sample ID: LL3061 DL

<u>Compound</u>		<u>Compound</u>	
α -BHC	6,600 U	endosulfan sulfate	13,000 U
β -BHC	6,600 U	4,4'-DDT	3,000 DJ
δ -BHC	6,600 U	methoxychlor	66,000 U
γ -BHC (lindane)	6,600 U	endrin ketone	13,000 U
heptachlor	6,600 U	α -chlordane	66,000 U
aldrin	6,600 U	γ -chlordane	66,000 U
heptachlor epoxide	6,600 U	toxaphene	130,000 U
endosulfan I	6,600 U	Aroclor 1016	66,000 U
dieldrin	13,000 U	Aroclor 1221	66,000 U
4,4'-DDE	1,900 DJ	Aroclor 1232	66,000 U
endrin	13,000 U	Aroclor 1242	66,000 U
endosulfan II	13,000 U	Aroclor 1248	66,000 U
4,4'-DDD	13,000 DJ	Aroclor 1254	130,000 U
		Aroclor 1260	130,000 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

D - Compound analyzed at a secondary dilution factor.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/17/90
Date Analyzed: 08/14/90
Dilution Factor: 200
% Moisture: 76

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Results in $\mu\text{g}/\text{kg}$ (ppb) dry weight

Client Sample ID: 05-SED-U DL
Lab Sample ID: LL3061 DL

	<u>Conc. Spike Added</u>	<u>Sample Conc.</u>	<u>MS Conc.</u>	<u>MS % Rec.</u>
γ -BHC (lindane)	110	6,600 U	165	150 *
heptachlor	110	6,600 U	110	100
aldrin	110	6,600 U	165	150 *
dieldrin	274	13,000 U	3,290	1,201 *
endrin	274	13,000 U	219	80
4,4'-DDT	274	3,030	6,750	1,358 *

	<u>Conc. Spike Added</u>	<u>MSD Conc.</u>	<u>MSD % Rec.</u>	<u>% RPD</u>
γ -BHC (lindane)	109	109	100	40
heptachlor	109	109	100	0
aldrin	109	164	150 *	0
dieldrin	273	5,140	1,883 *	-44 *
endrin	273	164	60	29
4,4'-DDT	273	6,560	1,293 *	5

RPD = Relative Percent Difference

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

* - Asterisked values are outside USEPA advisory QC limits.

Date Extracted: 07/17/90

Date Analyzed: 08/14/90

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Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g}/\text{kg}$ (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 05-SED-D
Lab Sample ID: LL3064

<u>Compound</u>		<u>Compound</u>	
α -BHC	160 U	endosulfan sulfate	310 U
β -BHC	160 U	4,4'-DDT	1,800 F
δ -BHC	160 U	methoxychlor	1,600 U
γ -BHC (lindane)	160 U	endrin ketone	310 U
heptachlor	160 U	α -chlordane	1,600 U
aldrin	160 U	γ -chlordane	1,600 U
heptachlor epoxide	160 U	toxaphene	3,100 U
endosulfan I	160 U	Aroclor 1016	1,600 U
dieldrin	2,100 FZ	Aroclor 1221	1,600 U
4,4'-DDE	2,300 F	Aroclor 1232	1,600 U
endrin	310 U	Aroclor 1242	1,600 U
endosulfan II	310 U	Aroclor 1248	1,600 U
4,4'-DDD	5,000 F	Aroclor 1254	3,100 U
		Aroclor 1260	3,100 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

F - Peak offscale and therefore out of linear range.

Z - Elevated CRQL reported due to matrix interferences obscuring the compound of interest.

Date Extracted: 07/17/90
Date Analyzed: 08/14/90
Dilution Factor: 10
% Moisture: 49

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Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in $\mu\text{g}/\text{kg}$ (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 05-SED-D DL
Lab Sample ID: LL3064 DL

<u>Compound</u>		<u>Compound</u>	
α -BHC	1,600 U	endosulfan sulfate	3,100 U
β -BHC	1,600 U	4,4'-DDT	1,900 DJ
δ -BHC	1,600 U	methoxychlor	16,000 U
γ -BHC (lindane)	1,600 U	endrin ketone	3,100 U
heptachlor	1,600 U	α -chlordane	16,000 U
aldrin	1,600 U	γ -chlordane	16,000 U
heptachlor epoxide	1,600 U	toxaphene	31,000 U
endosulfan I	1,600 U	Aroclor 1016	16,000 U
dieldrin	3,100 U	Aroclor 1221	16,000 U
4,4'-DDE	2,800 DJ	Aroclor 1232	16,000 U
endrin	3,100 U	Aroclor 1242	16,000 U
endosulfan II	3,100 U	Aroclor 1248	16,000 U
4,4'-DDD	6,000 D	Aroclor 1254	31,000 U
		Aroclor 1260	31,000 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

D - Compound analyzed at a secondary dilution factor.

J - Indicates an estimated value less than the detection limit.

Date Extracted: 07/17/90
Date Analyzed: 08/14/90
Dilution Factor: 100
% Moisture: 49

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46151 (CLP Data)

SOIL SURROGATE PERCENT RECOVERY SUMMARY

<u>Sample No.</u>	<u>PESTICIDE</u>
	<u>Dibutylchloroendate</u> <u>(20-150%)*</u>
Method Blank 3	77
05-SED-D	92
05-SED-D DL	D
05-SED-U	122
05-SED-U DL	D
05-SED-U MS	76
05-SED-U MSD	96
05-SED-U MSD DL	D
05-SED-U MS DL	D

* - Values in parenthesis represent USEPA advisory QC limits.
D - Surrogates diluted out.

DL = Dilution

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IT ANALYTICAL SERVICES
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Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

METALS ANALYSIS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Lab Sample ID:	Method Blank <u>PBWC2640/C2622</u>
aluminum	40.0 U
antimony	30.0 U
arsenic	30.0 U
barium	2.0 U
beryllium	1.0 U
cadmium	5.0 U
calcium	30.0 U
chromium	10.0 U
cobalt	20.0 U
copper	10.0 U
iron	10.0 U
lead	30.0 U
magnesium	30.0 U
manganese	2.0 U
mercury	NR
nickel	20.0 U
potassium	1,000.0 U
selenium	2.0 U
silver	5.0 U
sodium	200.0 U
thallium	30.0 U
vanadium	10.0 U
zinc	5.0 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

NR - Not required.

Date Digested: 07/18 and 07/19/90

Date Analyzed: 08/15/90 (ICP); 08/03 to 08/19/90 (GFAA); 07/17/90 (CVAA)

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

METALS ANALYSIS

Results in ug/liter (ppb)

Sample Matrix: Water

Client Sample ID: Lab Sample ID:	01-01-GM-GW LL3009		01-03-GM-GW LL3010	
aluminum	162	B	2,120	
antimony	30.0	U	95.2	
arsenic	30.0	U	30.0	U
barium	45.1	B	73.8	B
beryllium	1.0	U	1.0	U
cadmium	5.0	U	5.0	U
calcium	431,000		5,140,000	
chromium	10.0	U	33.2	
cobalt	20.0	U	20.0	U
copper	48.8		136	
iron	258	E	3,790	E
lead	47.2		219	
magnesium	718,000		693,000	
manganese	8.4	B	41.7	
mercury	0.20	U	0.95	
nickel	20.0	U	25.9	B
potassium	208,000		201,000	
selenium	4.0	UW	20.0	UW
silver	5.0	U	25.0	U
sodium	5,720,000		5,590,000	
thallium	30.0	U	30.0	U
vanadium	10.0	U	63.3	
zinc	26.9		432	

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
- B - Value greater than instrument detection limit, but less than contract required quantitation limit.
- W - Post-digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.
- E - The reported value is estimated because of the presence of interference.

Date Digested: 07/18 and 07/19/90

Date Analyzed: 08/15/90 (ICP); 08/03 to 08/19/90 (GFAA); 07/17/90 (CVAA)

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IT ANALYTICAL SERVICES
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Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

MATRIX SPIKE RECOVERY

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 01-03-GM-GW

Lab Sample ID: LL3010

	<u>Control Limit</u> <u>% Recovery</u>	<u>Spiked</u> <u>Sample Result</u>	<u>Sample Result</u>	<u>Spike</u> <u>Added</u>	<u>% Recovery</u>
aluminum	75-125	3,589.03	2,119.18	2,000	73.5 N
antimony	75-125	505.46	95.17	500	82.1
arsenic	75-125	1,560.44	30.00 U	2,000	78.0
barium	75-125	1,558.60	73.85 B	2,000	74.2 N
beryllium	75-125	34.99	1.00 U	50	70.0 N
cadmium	75-125	38.32	5.00 U	50	76.6
chromium	75-125	161.41	33.25	200	64.1 N
cobalt	75-125	337.18	20.00 U	500	67.4 N
copper	75-125	335.79	136.30	250	79.8
iron	75-125	4,896.07	3,790.90	1,000	110.5
lead	75-125	606.60	218.99	500	77.5
manganese	75-125	376.25	41.71	500	66.9 N
mercury	75-125	2.17	0.95	1	122.0
nickel	75-125	349.74	25.92 B	500	64.8 N
selenium	75-125	1,734.84	60.00 U	2,000	86.7
silver	75-125	81.74	25.00 U	50	163.5 N
thallium	75-125	30.00 U	30.00 U	2,000	0.0 N
vanadium	75-125	410.30	63.30	500	69.4 N
zinc	75-125	811.65	431.63	500	76.0

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

B - Value greater than instrument detection limit, but less than contract required quantitation limit.

N - Out of USEPA advisory control limits (i.e., 75-125% recovery).

Date Digested: 07/18 and 07/19/90

Date Analyzed: 08/15/90 (ICP); 08/03 to 08/19/90 (GFAA); 07/17/90 (CVAA)

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

MATRIX SPIKE RECOVERY

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-03-GM-GW
Lab Sample ID: LL3010

	<u>Control Limit</u> <u>% Recovery</u>	<u>Spiked</u> <u>Sample Result</u>	<u>Sample Result</u>	<u>Spike</u> <u>Added</u>	<u>% Recovery</u>
selenium	75-125	20.0 U	20.0 U	10	0.0 N

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

N - Out of USEPA advisory control limits (i.e., 75-125% recovery).

Date Digested: 07/18 and 07/19/90
Date Analyzed: 08/03 to 08/19/90 (GFAA)

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

POST DIGEST MATRIX SPIKE RECOVERY

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-03-GM-GW
Lab Sample ID: LL3010

	<u>Spiked Sample Result</u>	<u>Sample Result</u>	<u>Spike Added</u>	<u>% Recovery</u>
aluminum	3,937.43	2,119.18	2,000	90.9
antimony	519.01	95.17	500	84.8
arsenic	1,645.55	30.00 U	2,000	82.3
barium	1,609.14	73.85 B	2,000	76.8
beryllium	34.93	1.00 U	50	69.9
cadmium	40.39	5.00 U	50	80.8
chromium	171.76	33.25	200	69.3
cobalt	356.38	20.00 U	500	71.3
opper	343.43	136.30	250	82.9
iron	4,594.55	3,790.90	1,000	80.4
lead	623.06	218.99	500	80.8
manganese	392.45	41.71	500	70.1
nickel	371.38	25.92 B	500	69.1
selenium	1,792.62	60.00 U	2,000	89.6
silver	70.56	5.00 U	50	141.1
thallium	30.00 U	30.00 U	2,000	0.0
vanadium	425.85	63.30	500	72.5
zinc	865.05	431.63	500	86.7

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

B - Value greater than instrument detection limit, but less than contract required quantitation limit.

Date Digested: 07/18 and 07/19/90

Date Analyzed: 08/15/90 (ICP); 08/03 to 08/19/90 (GFAA); 07/17/90 (CVAA)

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

POST DIGEST MATRIX SPIKE RECOVERY

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-03-GM-GW
Lab Sample ID: LL3010

	<u>Spiked Sample Result</u>	<u>Sample Result</u>	<u>Spike Added</u>	<u>% Recovery</u>
selenium	20 U	20 U	10.0	0.0

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Digested: 07/18 and 07/19/90
Date Analyzed: 08/03 to 08/19/90 (GFAA)

Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

DUPLICATE ANALYSIS

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 01-03-GM-GW
Lab Sample ID: LL3010

	<u>Control Limit</u>	<u>Original Sample</u>	<u>Duplicate</u>	<u>RPD</u>
aluminum		2,119.18	2,009.97	5.3
antimony	60.0	95.17	97.45	2.4
arsenic		30.00 U	30.00 U	
barium		73.85 B	82.40 B	10.9
beryllium		1.00 U	1.00 U	
cadmium		5.00 U	5.00 U	
calcium		5,143,400.00	4,968,000.00	3.5
chromium	10.0	33.25	32.44	2.5
cobalt		20.00 U	20.00 U	
copper		136.30	132.83	2.6
iron		3,790.90	4,358.12	13.9
lead		218.99	234.33	6.8
magnesium		692,750.00	681,160.00	1.7
manganese	15.0	41.71	43.45	4.1
mercury	0.2	0.95	0.99	4.1
nickel		25.92 B	24.90 B	4.0
potassium		200,616.37	203,580.85	1.5
selenium		60.00 U	60.00 U	
silver		5.00 U	25.00 U	
sodium		5,590,000.00	5,389,400.00	3.7
thallium		30.00 U	30.00 U	
vanadium	50.0	63.30	65.05	2.7
zinc		431.63	429.90	0.4

RPD = Relative Percent Difference

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

B - Value greater than instrument detection limit, but less than contract required quantitation limit.

Date Digested: 07/18 and 07/19/90

Date Analyzed: 08/15/90 (ICP); 08/03 to 08/19/90 (GFAA); 07/17/90 (CVAA)

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

DUPLICATE ANALYSIS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: 01-03-GM-GWD
Lab Sample ID: LL3010

	<u>Control Limit</u>	<u>Original Sample</u>	<u>Duplicate</u>	<u>RPD</u>
selenium		20.00 U	20.00 U	

RPD = Relative Percent Difference

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Digested: 07/18 and 07/19/90
Date Analyzed: 08/03 to 08/19/90 (GFAA)

Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

METALS ANALYSIS

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Lab Sample ID:	01-04-GWO <u>LL3013</u>	01-04-GWD <u>LL3014</u>	01-02-GW <u>LL3015</u>
aluminum	1,520	6,210	12,800
antimony	30.0 U	30.0 U	427
arsenic	30.0 U	30.0 U	30.0 U
barium	95.2 B	91.8 B	566
beryllium	1.0 U	1.0 U	1.0 U
cadmium	5.0 U	5.0 U	22.2
calcium	4,980,000	4,290,000	10,300,000
chromium	61.2	61.1	142
cobalt	20.0 U	20.0 U	20.0 U
copper	22.8 B	85.6	3,360
iron	793 E	3,040 E	89,500 E
lead	30.0 U	86.1	4,140
magnesium	157,000	159,000	811,000
manganese	40.6	65.6	1,360
mercury	0.20 U	0.20 U	2.4
nickel	20.0 U	20.0 U	88.2
potassium	55,200	56,200	244,000
selenium	10.0 U	20.0 UW	20.0 UW
silver	25.0 U	25.0 U	50.0 U
sodium	1,140,000	1,210,000	6,340,000
thallium	30.0 U	30.0 U	30.0 U
vanadium	42.1 B	39.4 B	96.8
zinc	64.2	209	7,320

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
- B - Value greater than instrument detection limit, but less than contract required quantitation limit.
- W - Post-digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.
- E - The reported value is estimated because of the presence of interference.

Date Digested: 07/18 and 07/19/90

Date Analyzed: 08/15/90 (ICP); 08/03 to 08/19/90 (GFAA); 07/17/90 (CVAA)

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

METALS ANALYSIS

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID:	04-10-GW		05-SW-D		05-SW-U	
Lab Sample ID:	<u>LL3016</u>		<u>LL3017</u>		<u>LL3018</u>	
aluminum	2,650		44.5	B	1,510	
antimony	32.6	B	30.0	U	30.0	U
arsenic	30.0	U	30.0	U	30.0	U
barium	61.1	B	16.3	B	15.6	B
beryllium	1.0	U	1.0	U	1.0	U
cadmium	5.0	U	5.0	U	5.0	U
calcium	2,590,000		246,000		242,000	
chromium	25.9		10.0	U	10.0	U
cobalt	20.0	U	20.0	U	20.0	U
copper	30.0		10.0	U	10.0	U
iron	7,340	E	112	E	236	E
lead	54.8		53.6		30.0	U
magnesium	948,000		819,000		792,000	
manganese	29.3		2.0	U	2.0	U
mercury	0.39		0.20	U	0.20	U
nickel	20.0	U	20.0	U	20.0	U
potassium	295,000		232,000		220,000	
selenium	10.0	UW	20.0	UW	2.0	UW
silver	25.0	U	6.8	B	8.2	B
sodium	8,170,000		6,590,000		6,410,000	
thallium	30.0	U	30.0	U	30.0	U
vanadium	24.4	B	10.0	U	10.0	U
zinc	142		22.4		36.6	

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- B - Value greater than instrument detection limit, but less than contract required quantitation limit.
- W - Post-digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.
- E - The reported value is estimated because of the presence of interference.

Date Digested: 07/18 and 07/19/90

Date Analyzed: 08/15/90 (ICP); 08/03 to 08/19/90 (GFAA); 07/17/90 (CVAA)

Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

METALS ANALYSIS

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Lab Sample ID:	07-KWM11-GW LL3019	07-KWM12-GW LL3020	08-14-GW LL3021
aluminum	1,930	5,930	2,530
antimony	30.0 U	116	30.0 U
arsenic	30.0 U	30.0 U	30.0 U
barium	47.4 B	247	51.8 B
beryllium	1.0 U	1.0 U	1.0 U
cadmium	5.0 U	5.0 U	23.9
calcium	677,000	1,440,000	369,000
chromium	10.0 U	28.8	10.0 U
cobalt	20.0 U	20.0 U	20.0 U
copper	154	215	1,780
iron	21,600 E	32,300 E	3,340 E
lead	462	718	30.0 U
magnesium	1,340,000	1,230,000	999,000
manganese	56.9	106	85.0
mercury	0.46	1.3	0.53
nickel	34.9 B	31.1 B	20.0 U
potassium	379,000	356,000	281,000
selenium	20.0 UW	20.0 UW	20.0 UW
silver	5.0 U	5.0 U	20.9
sodium	10,700,000	9,850,000	7,850,000
thallium	30.0 U	30.0 U	30.0 U
vanadium	10.0 U	19.4 B	10.0 U
zinc	344	3,950	840

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
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- W - Post-digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.
- E - The reported value is estimated because of the presence of interference.

Date Digested: 07/18 and 07/19/90

Date Analyzed: 08/15/90 (ICP); 08/03 to 08/19/90 (GFAA); 07/17/90 (CVAA)

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

METALS ANALYSIS

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Water

Client Sample ID: Lab Sample ID:	08-15-GW LL3022		01-04-EB LL3023		07-13-ER LL3024	
aluminum	148	B	40.0	U	40.0	U
antimony	30.0	U	30.0	U	30.0	U
arsenic	30.0	U	30.0	U	30.0	U
barium	14.4	B	2.0	U	2.0	U
beryllium	1.0	U	1.0	U	1.0	U
cadmium	5.0	U	5.0	U	5.0	U
calcium	353,000		30.0	U	717	B
chromium	10.0	U	10.0	U	10.0	U
cobalt	20.0	U	20.0	U	20.0	U
copper	10.0	U	10.0	U	10.0	U
iron	167	E	21.1	BE	84.6	BE
lead	37.8		30.0	U	30.0	U
magnesium	933,000		30.0	U	184	B
manganese	2.0	U	2.0	U	2.0	U
mercury	0.20	U	0.20	U	0.20	U
nickel	20.0	U	20.0	U	20.0	U
potassium	260,000		1,000	U	1,000	U
selenium	20.0	UW	2.0	U	2.0	U
silver	6.1	B	5.0	U	5.0	U
sodium	7,410,000		200	U	1,310	B
thallium	30.0	U	30.0	U	30.0	U
vanadium	10.0	U	10.0	U	10.0	U
zinc	5.0	U	45.0	U	52.8	U

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
- B - Value greater than instrument detection limit, but less than contract required quantitation limit.
- W - Post-digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.
- E - The reported value is estimated because of the presence of interference.

Date Digested: 07/18 and 07/19/90

Date Analyzed: 08/15/90 (ICP); 08/03 to 08/19/90 (GFAA); 07/17/90 (CVAA)

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

METALS ANALYSIS

Results in mg/kg (ppm) dry weight

Sample Matrix: Soil

Client Sample ID:	Method Blank
Lab Sample ID:	<u>PBSC2648/C4322/C2630/C2767</u>
aluminum	4.0 U
antimony	3.0 U
arsenic	3.0 U
barium	0.2 U
beryllium	0.1 U
cadmium	0.5 U
calcium	3.0 U
chromium	1.0 U
cobalt	2.0 U
copper	1.0 U
iron	1.0 U
lead	3.0 U
magnesium	3.0 U
manganese	0.2 U
mercury	0.02 U
nickel	2.0 U
potassium	100.0 U
selenium	0.20 U
silver	0.5 U
sodium	20.0 U
thallium	3.0 U
vanadium	1.0 U
zinc	1.617 B

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

B - Value greater than instrument detection limit, but less than contract required quantitation limit.

Date Digested: 07/18, 07/19, and 07/31/90

Date Analyzed: 08/15/90 (ICP); 08/03 - 08/19/90 (GFAA); 07/17/90 (CVAA)

IT Corporation
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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

METALS ANALYSIS

Results in mg/kg (ppm) dry weight

Sample Matrix: Soil

Client Sample ID:	05-SED-U
Lab Sample ID:	<u>LL3065</u>
aluminum	928
antimony	5.1 U
arsenic	5.1 U
barium	7.3 B
beryllium	0.17 U
cadmium	1.8
calcium	317,000
chromium	5.6
cobalt	3.4 U
copper	18.6
iron	1,230
lead	23.3
magnesium	3,100
manganese	10.0
mercury	0.03 U
nickel	3.4 U
potassium	170 U
selenium	0.34 UW
silver	0.85 U
sodium	7,310
thallium	5.1 U
vanadium	3.1 B
zinc	46.5 E

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
- B - Value greater than instrument detection limit, but less than contract required quantitation limit.
- W - Post-digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.
- E - The reported value is estimated because of the presence of interference.

Date Digested: 07/18, 07/19, and 07/31/90
Date Analyzed: 08/15/90 (ICP); 08/03 - 08/19/90 (GFAA); 07/17/90 (CVAA)

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

MATRIX SPIKE RECOVERY

Results in mg/kg (ppm) dry weight

Sample Matrix: Soil

Client Sample ID: 05-SED-U
Lab Sample ID: LL3065

	<u>Control Limit</u> <u>% Recovery</u>	<u>Spiked</u> <u>Sample Result</u>	<u>Sample Result</u>	<u>Spike</u> <u>Added</u>	<u>% Recovery</u>
antimony	75-125	84.46	5.10 U	85	99.3
arsenic	75-125	302.26	5.10 U	340	88.9
barium	75-125	335.24	7.27 B	340	96.4
beryllium	75-125	7.94	0.17 U	8	93.5
cadmium	75-125	7.75	1.76	17	35.2 N
chromium	75-125	34.71	5.59	34	85.6
cobalt	75-125	70.53	3.40 U	85	82.9
copper	75-125	50.61	18.61	42	75.3
iron	75-125	1,232.19	1,225.11	170	4.2
lead	75-125	91.75	23.29	85	80.5
manganese	75-125	80.04	10.04	85	82.3
mercury	75-125	0.19	0.03 U	0	112.1
nickel	75-125	75.93	3.40 U	85	89.3
selenium	75-125	322.14	10.20 U	340	94.7
silver	75-125	0.85 U	0.85 U	8	0.0 N
thallium	75-125	259.49	5.10 U	340	76.3
vanadium	75-125	77.08	3.10 B	85	87.0
zinc	75-125	104.06	46.45	85	67.7 N

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

B - Value greater than instrument detection limit, but less than contract required quantitation limit.

N - Out of USEPA advisory control limits (i.e., 75-125% recovery).

Date Digested: 07/18, 07/19, and 07/31/90

Date Analyzed: 08/15/90 (ICP); 08/03 - 08/19/90 (GFAA); 07/17/90 (CVAA)

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

MATRIX SPIKE RECOVERY

Results in mg/kg (ppm) dry weight

Sample Matrix: Soil

Client Sample ID: 05-SED-U-S
Lab Sample ID: LL3065

	<u>Control Limit</u> <u>% Recovery</u>	<u>Spiked</u> <u>Sample Result</u>	<u>Sample Result</u>	<u>Spike</u> <u>Added</u>	<u>% Recovery</u>
selenium	75-125	1.26 B	0.34 U	1.70	73.8 N

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
- B - Value greater than instrument detection limit, but less than contract required quantitation limit.
- N - Out of USEPA advisory control limits (i.e., 75-125% recovery).

Date Digested: 07/18, 07/19, and 07/31/90
Date Analyzed: 08/03 - 08/19/90 (GFAA)

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

POST DIGEST MATRIX SPIKE RECOVERY

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Soil

Client Sample ID: 05-SED-U-A
Lab Sample ID: LL3065

	<u>Spiked Sample Result</u>	<u>Sample Result</u>	<u>Spike Added</u>	<u>% Recovery</u>
aluminum	7,280.59	5,458.86	2,000	91.1
antimony	447.85	30.00 U	500	89.6
arsenic	1,796.33	30.00 U	2,000	89.8
barium	1,936.91	42.73 B	2,000	94.7
beryllium	43.13	1.00 U	50	86.3
cadmium	45.05	10.32	50	69.5
chromium	202.15	32.89	200	84.6
cobalt	401.47	20.00 U	500	80.3
copper	307.81	109.42	250	79.4
iron	7,978.46	7,203.62	1,000	77.5
lead	553.96	136.93	500	83.4
manganese	460.87	59.05	500	80.4
nickel	439.19	20.00 U	500	87.8
selenium	1,841.80	60.00 U	2,000	92.1
silver	5.00 U	5.00 U	50	0.0
thallium	1,590.75	30.00 U	2,000	79.5
vanadium	437.95	18.25 B	500	83.9
zinc	681.66	273.14	500	81.7

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

B - Value greater than instrument detection limit, but less than contract required quantitation limit.

Date Digested: 07/18, 07/19 and 07/31/90

Date Analyzed: 08/15/90 (ICP); 08/03 - 08/19/90 (GFAA); 07/17/90 (CVAA)

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

POST DIGEST MATRIX SPIKE RECOVERY

Results in $\mu\text{g/liter}$ (ppb)

Sample Matrix: Soil

Client Sample ID: 05-SED-U-A
Lab Sample ID: LL3065

	<u>Spiked Sample Result</u>	<u>Sample Result</u>	<u>Spike Added</u>	<u>% Recovery</u>
selenium	5.26 B	2.00 U	10.0	52.6

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

B - Value greater than instrument detection limit, but less than contract required quantitation limit.

Date Digested: 07/18, 07/19 and 07/31/90
Date Analyzed: 08/03 - 08/19/90 (GFAA)

IT Corporation
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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

DUPLICATE ANALYSIS

Results in mg/kg (ppm) dry weight

Sample Matrix: Soil

Client Sample ID: 05-SED-U-D

Lab Sample ID: LL3065

	<u>Control Limit</u>	<u>Original Sample</u>	<u>Duplicate</u>	<u>RPD</u>
aluminum		928.38	896.74	3.5
antimony		5.10 U	5.10 U	
arsenic		5.10 U	5.10 U	
barium		7.27 B	7.65 B	5.1
beryllium		0.17 U	0.17 U	
cadmium	0.9	1.76	1.48 U	17.1
calcium		317,074.83	315,051.02	0.6
chromium	1.7	5.59	6.82	19.8
cobalt		3.40 U	3.40 U	
copper	4.3	18.61	14.44	25.3
iron		1,225.10	1,085.29	12.1
lead		23.29	29.92	24.9 *
magnesium	850.3	3,103.73	3,118.45	0.5
manganese	2.6	10.04	9.06	10.3
mercury		0.03 U	0.03 U	
nickel		3.40 U	3.80 B	200.0
potassium		170.07 U	170.07 U	
selenium		10.20 U	10.20 U	
silver		0.85 U	0.85 U	
sodium		7,305.41	7,642.65	4.5
thallium		5.10 U	5.10 U	
vanadium		3.10 B	3.12 B	0.7
zinc		46.45	34.92	28.3 *

RPD = Relative Percent Difference

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

B - Value greater than instrument detection limit, but less than contract required quantitation limit.

* - Asterisked values are outside USEPA advisory QC limits.

Date Digested: 07/18 and 07/19/90

Date Analyzed: 08/15/90 (ICP); 08/03 to 08/19/90 (GFAA); 07/17/90 (CVAA)

IT Corporation
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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

DUPLICATE ANALYSIS

Results in mg/kg (ppm) dry weight

Sample Matrix: Soil

Client Sample ID: 05-SED-U-D
Lab Sample ID: LL3065

	<u>Control Limit</u>	<u>Original Sample</u>	<u>Duplicate</u>	<u>RPD</u>
selenium		0.34 U	0.34 U	

RPD = Relative Percent Difference

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Digested: 07/18, 07/19, and 07/31/90
Date Analyzed: 08/03 - 08/19/90 (GFAA)

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

METALS ANALYSIS

Results in mg/kg (ppm) dry weight

Sample Matrix: Soil

Client Sample ID:	05-SED-D
Lab Sample ID:	<u>LL3065</u>
aluminum	459
antimony	5.4 U
arsenic	5.4 U
barium	6.5 B
beryllium	0.18 U
cadmium	1.9
calcium	325,000
chromium	5.3
cobalt	3.6 U
copper	11.0
iron	1,140
lead	29.9
magnesium	1,970
manganese	7.3
mercury	0.04 U
nickel	3.6 U
potassium	180 U
selenium	0.72 U
silver	0.90 U
sodium	7,580
thallium	5.4 U
vanadium	3.1 B
zinc	58.6 E

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
B - Value greater than instrument detection limit, but less than contract required quantitation limit.
E - The reported value is estimated because of the presence of interference.

Date Digested: 07/18 and 07/19/90

Date Analyzed: 08/15/90 (ICP); 08/03 to 08/19/90 (GFAA); 07/17/90 (CVAA)

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

CYANIDE ANALYSIS

Results in mg/liter (ppm)

Sample Matrix: Water

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Result</u>
Method Blank	P1355, P1358	0.01 U
01-01-GM-GW	LL3025	0.01 U
01-03-GM-GW	LL3026	0.01 U
01-04-GW0	LL3029	0.01 U
01-04-GWD	LL3030	0.01 U
01-02-GW	LL3031	0.01 U
04-10-GW	LL3032	0.01 U
05-SW-D	LL3033	0.01 U
05-SW-U	LL3034	0.01 U
07-KWM11-GW	LL3035	0.01 U
07-KWM12-GW	LL3036	0.01 U
08-14-GW	LL3037	0.01 U
08-15-GW	LL3038	0.01 U
01-04-EB	LL3039	0.01 U
07-13-ER	LL3040	0.01 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Analyzed: 07/24 and 07/25/90

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

MATRIX SPIKE ANALYSIS

Results in mg/liter (ppm)

Sample Matrix: Water

Client Sample ID: 01-03-GM-GW
Lab Sample ID: LL3026

<u>Compound</u>	<u>Conc. Spike Added</u>	<u>Sample Result</u>	<u>Conc. MS</u>	<u>% Rec.</u>
cyanide	0.10	0.01 U	0.07	70

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Analyzed: 07/25/90

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

DUPLICATE ANALYSIS

Results in mg/liter (ppm)

Sample Matrix: Water

Client Sample ID: 01-03-GM-GW
Lab Sample ID: LL3026

	<u>Control Limit</u>	<u>Original Sample</u>	<u>Duplicate</u>	<u>RPD</u>
cyanide		0.01 U	0.01 U	NC

RPD = Relative Percent Difference

NC - Not calculable.

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Analyzed: 07/25/90

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

POST DISTILLATION SPIKE, BLANK ANALYSIS

Results in mg/liter (ppm)

Sample Matrix: Water

Client Sample ID: Post Distillation Spike
Lab Sample ID: P1379

<u>Compound</u>	<u>Conc. Spike Added</u>	<u>Sample Result</u>	<u>Conc. MS</u>	<u>% Rec.</u>
cyanide	0.10	0.01 U	0.10	100

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Analyzed: 07/25/90

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

CYANIDE ANALYSIS

Results in mg/kg (ppm) dry weight

Sample Matrix: Soil

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Result</u>
Method Blank	P1362	0.50 U
05-SED-U	LL3065	0.50 U
05-SED-D	LL3068	0.50 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Analyzed: 07/26/90

IT Corporation
September 11, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITEK 46151 (CLP Data)

POST DISTILLATION SPIKE BLANK ANALYSIS

Results in mg/liter (ppm)

Sample Matrix: Soil

Client Sample ID: Post Distillation Spike
Lab Sample ID: P1380

<u>Compound</u>	<u>Conc. Spike Added</u>	<u>Sample Result</u>	<u>Conc. MS</u>	<u>% Rec.</u>
cyanide	0.10	0.01 U	0.10	100

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

Date Analyzed: 07/26/90