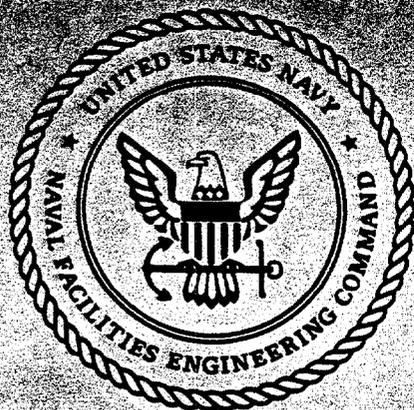


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NAS KEY WEST
5090.3a

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 2 OF 5 NAS KEY WEST FL
5/1/1991
IT CORPORATION

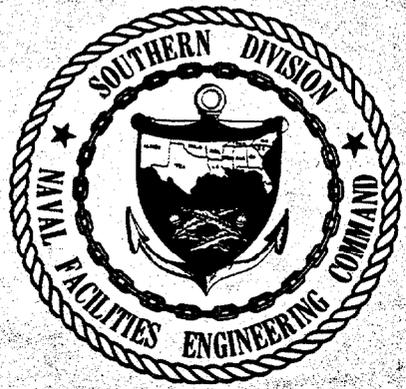
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FINAL REPORT



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

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

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 2

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

AUG 24 1990

CERTIFICATE OF ANALYSIS

IT CORPORATION
TAMPA, FLORIDA

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

August 17, 1990

Job Number: ITCY 46000

P.O. Number: 595392

This is the Certificate of Analysis for the following samples:

Client Project ID: NAS-Key West
Date Received by Lab: 06/21/90
Number of Samples: Three (3)
Sample Type: Soil

I. Introduction

On 06/21/90, three (3) soil 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 CLP data are not blank corrected and CLP soil results are reported on a dry weight basis. Samples Site 10, B10-5 and Site 4, MW4-5 were cancelled due to analytical holding times being exceeded in the laboratory because of instrument failure. Samples will be recollected and submitted at a later date.

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.

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
August 17, 1990

Client Project ID: NAS-Key West

Job Number: ITCY 46000

II. Analytical Results/Methodology (continued)

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

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 06/29/90 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 07/27/90 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. MS/MSD analysis on the sample showed all results within advisory limits. In the semivolatiles runs, the matrix spike showed three high surrogate recoveries, and the MS/MSD results showed six high spike recoveries. There appeared to be a matrix effect related to the high hydrocarbon levels in the samples. The deviations in general were not extreme, but there was enhancement seen: 4-nitrophenol and dinitrotoluene showed the most effect, while most other species displayed around 80-110% recovery. The actual sample components would be expected to show similar behavior. As the three sample runs, spiked and unspiked, showed consistent results for unspiked compounds, further extractions/reruns were unwarranted, and the results were reported as seen. The TICs (tentatively identified compounds) in the sample consisted in one part of saturated hydrocarbons in the range of C12 to C20, which were relatively indistinguishable due to their similar spectra and overlapping. There were no other problems seen in final review of the data for either the volatiles or semivolatiles fraction.

The pesticide/PCB analyses were performed on 06/27, 06/28, 06/29, 07/11, and 07/12 using a mixed phase (SP2250/2401), and 3% OV-1 columns on Varian 3740B/Varian 3740H instruments. The samples and the associated method blank required treatment for sulfur interferences. This cleanup was performed on 06/27/90. Due to the levels of DDE, DDD, and DDT present in the samples, dilutions were necessary. This prevented the quantitation of surrogate recoveries due to the surrogate spike being effectively diluted out. The dilution level also resulted in elevated detection limits being reported for other analytes. Matrix interferences were encountered which made the identification and quantitation difficult for some parameters, particularly DDE. A matrix spike/matrix spike duplicate was performed. Recoveries were impossible due to the amount of pesticides already present in the samples. Further dilutions would have diluted out the spike added. No other problems were encountered.

III. Quality Control (continued)

The samples were digested on 06/27 and 07/27/90 for ICP and 06/27/90 for GFAA. The samples for mercury analysis were prepared just prior to analysis. The CVAA analysis for mercury was performed on 06/27/90; the GFAA analyses for arsenic, lead, selenium, and thallium were performed from 07/03 to 07/17/90; the remaining metals were analyzed by ICP on 07/05 and 07/30/90. All run QC was acceptable. A duplicate/spike pair was prepared using sample number Site 5, Plot 1. Spike recovery (accuracy) results were outside control limits for lead, barium, beryllium, cadmium, cobalt, manganese, selenium, and thallium. A post digest spike was performed as required by CLP protocol with acceptable limits for everything except selenium and cadmium. Duplicate RPD (precision) results were outside control limits for cadmium, magnesium, manganese, and zinc. Sample 5, Plot 1 was sent back for redigestion and reanalysis due to poor precision and accuracy. However, the second digestion and analysis were very similar to the original analysis. This would indicate a possible matrix effect which did not carry over through the digestion. The high concentration of the calcium increased the viscosity of the sample as compared to the serial dilution, resulting in lower concentrations for the analysis without the dilution; therefore, the serial dilution, because of decreased viscosity, resulted in higher concentrations. No other problems were encountered.

The samples were analyzed for cyanide on 07/03/90. A duplicate/spike pair was prepared using sample Site 3, Plot 1. Precision results were good, but accuracy results showed a 26% recovery. It was decided that a distillation spike would be performed to show the point of control. The post distillation aliquot that was spiked showed good recovery results, indicating a definite matrix effect. Both spikes are reported. No other problems were encountered.

IT Corporation
August 17, 1990

Client Project ID: NAS-Key West

Job Number: ITCY 46000

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: Method Blank
Lab Sample ID: VB0629

<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 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: 06/29/90
Dilution Factor: 1.00

IT Corporation
August 19, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46000

SOIL SURROGATE PERCENT RECOVERY SUMMARY

Sample No.	VOLATILE		
	<u>Toluene-D8</u> (81-117%)*	<u>BFB</u> (74-121%)*	<u>1,2 Dichloroethane-D4</u> (70-121%)*
Site 5, Plot 1	99	97	91
Site 5, Plot 1 MS	105	93	91
Site 5, Plot 1 MSD	96	86	85
Method Blank	98	101	94

*Values in parenthesis represent USEPA contract required QC limits.

IT Corporation
August 17, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46000

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: Method Blank
Lab Sample ID: BLA1226

<u>Compound</u>		<u>Compound</u>	
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: 06/25/90
Date Analyzed: 07/27/90
Dilution Factor: 1.00

IT Corporation
August 17, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46000

SEMIVOLATILE TARGET COMPOUND LIST (continued)

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

Sample Matrix: Soil

Client Sample ID: Method Blank
Lab Sample ID: BLA1226

<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
luorene	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: 06/25/90
Date Analyzed: 07/27/90
Dilution Factor: 1.00

IT Corporation
August 17, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46000

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: Method Blank
Lab Sample ID: BLA1226

<u>Tentative Identification (1)</u>	<u>Concentration (2)</u>
3-penten-2-one	220 A
formamide, n,n-dimethyl-	390
3-penten-2-one, 4-methyl-	6,100 A
unknown (hydroxypentanone?)	280 A
2-pentanone, 4-hydroxy-4-methyl-	16,000 A
unknown (C9 saturated HC)	190
ethanone, 1-(3-ethyloxiranyl)-	140 A
5-hexen-2-one, 5-methyl-	160 A
unknown	150

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.

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%)*
Site 5, Plot 1	93	99	95	88	98	110
Site 5, Plot 1 MS	120	118 **	149 **	93	99	132 **
Site 5, Plot 1 MSD	105	98	134	82	90	112
Method Blank	90	78	100	75	79	78

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

IT Corporation
August 17, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46000

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: Method Blank
Lab Sample ID: BLA1226

<u>Compound</u>		<u>Compound</u>	
α -BHC	8.0 U	endosulfan sulfate	16 U
β -BHC	8.0 U	4,4'-DDT	16 U
δ -BHC	8.0 U	methoxychlor	80 U
γ -BHC (lindane)	8.0 U	endrin ketone	16 U
heptachlor	8.0 U	α -chlordane	80 U
aldrin	8.0 U	γ -chlordane	80 U
heptachlor epoxide	8.0 U	toxaphene	160 U
endosulfan I	8.0 U	Aroclor 1016	80 U
dieldrin	16 U	Aroclor 1221	80 U
4,4'-DDE	16 U	Aroclor 1232	80 U
endrin	16 U	Aroclor 1242	80 U
endosulfan II	16 U	Aroclor 1248	80 U
4,4'-DDD	16 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: 06/25/90
Date Analyzed: 06/29/90
Dilution Factor: 1.00

IT Corporation
August 17, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46000

SOIL SURROGATE PERCENT RECOVERY SUMMARY

<u>Sample No.</u>	<u>PESTICIDE Dibutylchlorodate (20-150%)*</u>
Method Blank	85
Site 5, Plot 1	0 D
Site 5, Plot 1 DL	0 D
Site 5, Plot 1 MS	0 D
Site 5, Plot 1 MSD	0 D
Site 5, Plot 1 MSD DL	0 D
Site 5, Plot 1 MS DL	0 D

D - Surrogates diluted out.
DL - Dilution

IT Corporation
August 17, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46000

TARGET ANALYTE LIST - INORGANICS

Results in mg/kg (ppm) dry weight

Sample Matrix: Soil

Client Sample ID: Method Blank
Lab Sample ID: PBSC2476/C2473/C4303

aluminum	4.0	U
antimony	3.0	U
arsenic	0.2	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	2.6	B
lead	0.2	U
magnesium	3.0	U
manganese	0.2	U
mercury	0.02	U
nickel	2.0	U
potassium	100	U
selenium	0.2	U
silver	0.5	U
sodium	20.0	U
thallium	0.2	U
vanadium	1.0	U
zinc	0.8	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: 06/27/90
Date Analyzed: 07/05/90 (ICP)
07/03/90 - 07/17/90 (GFAA)
06/27/90 (CVAA)

IT Corporation
August 17, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46000

MATRIX SPIKE RECOVERY

Results in mg/kg (ppm) dry weight

Sample Matrix: Soil

Client Sample ID: Site 5, Plot 1
Lab Sample ID: LL1294

	<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>
arsenic	75-125	7.4714	3.5222	5.08	77.7
lead		112.9606	57.0521	2.54	2,201.1
selenium	75-125	0.5362 B	0.2541 U	1.27	42.2 N
thallium	75-125	3.9771	0.2541 U	6.35	62.6 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: 06/27/90
Date Analyzed: 07/05/90 (ICP)
07/03 - 07/17/90 (GFAA)
06/27/90 (CVAA)

IT Corporation
 August 17, 1990

Client Project ID: NAS-Key West

Job Number: ITCY 46000

POST DIGEST SPIKE RECOVERY

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

Sample Matrix: Soil

Client Sample ID: Site 5, Plot 1
 Lab Sample ID: LL1294

	<u>Spiked Sample Result</u>	<u>Sample Result</u>	<u>Spike Added</u>	<u>% Recovery</u>
arsenic	66.48	27.72	40.0	96.9
barium	2,193.57	419.47	2,000.0	88.7
beryllium	41.68	1.00 U	50.0	83.4
cadmium	67.84	31.07	50.0	73.5
cobalt	405.42	20.00 U	500.0	81.1
iron	12,493.26	11,675.54	1,000.0	81.8
manganese	498.91	115.46	500.0	76.7
selenium	6.75	10.00 U	10.0	67.5
thallium	41.08 B	2.00 U	50.0	82.2

- 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.

Date Digested: 06/27/90
 Date Analyzed: 07/05/90 (ICP)
 07/03 - 07/17/90 (GFAA)
 06/27/90 (CVAA)

CERTIFICATE OF ANALYSIS

IT Analytical Services
5815 Middlebrook Pike
Knoxville, TN 37921
Kim Laisy

Date: 08/21/90

Work Order: TO-08-184

P.O. Number: 486000.03

This is the Certificate of Analysis for the following samples:

Client Work ID: ITCY 46421 Key West
Date Received: 08/17/90
Number of Samples: 3
Sample Type: aqueous

TABLE OF CONTENTS FOR ANALYTICAL RESULTS

<u>PAGES</u>	<u>LABORATORY #</u>	<u>SAMPLE IDENTIFICATION</u>
2	TO-08-184-01	LL5398/5415/16 9-6R
3	TO-08-184-02	LL5399 9-11
4	TO-08-184-03	LL5400 Trip Blank

Reviewed and Approved:


David A. Pichette
Project Manager

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

Company: IT Analytical Services
Date: 08/21/90
Client Work ID: ITCY 46421 Key West

Work Order: TO-08-184

Client Sample ID: LL5398/5415/16 9-6R

Sample Date: 8/15/90
Lab Sample ID: TO-08-184-01
Receipt Condition: Cool
Extraction Date: 8/17/90
Analysis Date: 8/20/90

Ethylene Dibromide - Modified E.P.A. Method 504

Results - Micrograms per Liter

Compound	Detection Limit	Detected
Ethylene Dibromide	0.1	None

Company: IT Analytical Services
Date: 08/21/90
Client Work ID: ITCY 46421 Key West

Work Order: T0-08-184

Client Sample ID: LL5399 9-11

Sample Date: 8/15/90
Lab Sample ID: T0-08-184-02
Receipt Condition: Cool
Extraction Date: 8/17/90
Analysis Date: 8/20/90

Ethylene Dibromide - Modified E.P.A. Method 504

Results - Micrograms per Liter

Compound	Detection Limit	Detected
Ethylene Dibromide	0.1	None

Company: IT Analytical Services
Date: 08/21/90
Client Work ID: ITCY 46421 Key West

Work Order: T0-08-184

Client Sample ID: LL5400 Trip Blank

Sample Date: 8/15/90
Lab Sample ID: T0-08-184-03
Receipt Condition: Cool
Extraction Date: 8/17/90
Analysis Date: 8/17/90

Ethylene Dibromide - Modified E.P.A. Method 504

Results - Micrograms per Liter

Compound	Detection Limit	Detected
Ethylene Dibromide	0.05	None

Company: IT Analytical Services

Date: 08/21/90

Client Work ID: ITCY 46421 Key West

Work Order: TO-08-184

TEST CODE 504 TEST NAME EPA 504

The method of analysis for extractable volatile organics is taken from E.P.A. Method 504. The samples are extracted with solvent and examined by gas chromatography using an electron capture detector.

Due to high levels of interferences present in samples LL5398/5415/16 and LL5399, dilution was required raising the detection limit of EDB to 0.1 ug/L.

CERTIFICATE OF ANALYSIS

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

August 28, 1990

Job Number: ITCY 46115

P.O. Number: 595392

This is the Certificate of Analysis for the following samples:

Client Project ID: NAS-Key West
Date Received by Lab: 07/10/90
Number of Samples: Twenty (20)
Sample Type: Water-nineteen (19), Trip Blank-one (1)

I. Introduction

On 07/10/90, nineteen (19) water samples and one (1) trip blank 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 PCB's 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 07/17 and 07/18/90 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 07/23, 07/24, 07/25 and 07/31/90 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. MS/MSD analyses showed all results within CLP advisory limits. Few TICs were seen: trichlorofluoromethane was picked up by our routine target search and quantitated against a daily standard but listed as a TIC. In the TCLs, carbon disulfide was seen at trace levels (once as high as 7 µg/l), but a caveat is offered here because this compound was seen as lab background in at least one other project reagent blank on the day of the runs, and thus the values seen should be considered upper limits for CS₂. The semivolatiles runs went well, but the field blank, unexpectedly, showed no phenol-D5 surrogate recovery. It was reextracted (beyond holding time) and rerun, and the results were similar. There may have been a matrix effect; the field blank showed some unusual TICs in both runs. The data from both runs were submitted. The MS/MSD analyses gave results that were all within advisory limits. There were no other problems seen in final review of the data for either the volatiles or semivolatiles fraction.

The pesticide/PCB analyses were performed from 07/16/90 to 08/01/90 using a mixed phase (SP-2250/SP-2401) and 5% SP-2401 columns on Varian 3740B/Varian 3740G instruments. Some samples and the associated method blanks were treated for sulfur interferences. This cleanup was performed on 07/11/90. MS/MSD results were all within CLP advisory limits. No problems were encountered.

The samples were digested on 07/16/90 for ICP and 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 analyses for arsenic, lead, selenium and thallium were performed from 07/19 to 08/06/90; the remaining metals were analyzed by ICP on 08/06/90. All run QC was acceptable. A duplicate/spike pair was prepared using sample number 08-03-GW. Spike recovery (accuracy) results were strongly affected by high levels of minerals and interferences caused by the presence of these elements.

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III. Quality Control (continued)

A post digestion spike was performed as required by CLP protocol. The results of this spike confirm the severe matrix interferences. Duplicate RPD (precision) results were within control limits for all parameters. The analysts experienced major problems analyzing these samples. Most samples contained extremely high levels of calcium, magnesium, potassium, and sodium. Elevated detection limits were routinely reported for selenium and thallium, and in some instances for arsenic, due to severe matrix problems. The best achievable data was reported. No other problems were encountered.

Client Project ID: NAS-Key West

Job Number: ITCY 46115

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 1
Lab Sample ID: EB07172

<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: 07/17/90
Dilution Factor: 1

This method blank applies to the following samples: 03-01-GW, 03-02-GW, 03-03-GW, 07-01-GW, 07-02-GW, 07-02-GWD, 07-03-GW, 07-04-GW, 07-05-GW, 07-06-GW, 08-01-GW.

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Job Number: ITCY 46115

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: Method Blank 1
Lab Sample ID: EB07172

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 46115

VOLATILE ORGANIC TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 03-01-GW
Lab Sample ID: LL2672

<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	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	2 J	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: 07/17/90
Dilution Factor: 1

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Job Number: ITCY 46115

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 03-01-GW
Lab Sample ID: LL2672

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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VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 03-02-GW
Lab Sample ID: LL2673

<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	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: 07/17/90
Dilution Factor: 1

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Client Project ID: NAS-Key West

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ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 03-02-GW
Lab Sample ID: LL2673

Tentative Identification (1)

Concentration (2)

hexane (DOT)

9.5

- 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.

ent Project ID: NAS-Key West

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VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 03-03-GW
Lab Sample ID: LL2674

<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-dichloroethane	1 J	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	4 J
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: 07/17/90
Dilution Factor: 1

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Job Number: ITCY 46115

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 03-03-GW
Lab Sample ID: LL2674

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 46115

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 07-01-GW

Lab Sample ID: LL2675

<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	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	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: 07/17/90

Dilution Factor: 1

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ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 07-01-GW
Lab Sample ID: LL2675

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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VOLATILE ORGANIC TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 07-02-GW

Lab Sample ID: LL2676

<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-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: 07/18/90

Dilution Factor: 1

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ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 07-02-GW
Lab Sample ID: LL2676

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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VOLATILE ORGANIC TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 07-02-GWD
Lab Sample ID: LL2677

<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: 07/18/90
Dilution Factor: 1

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ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 07-02-GWD
Lab Sample ID: LL2677

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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VOLATILE ORGANIC TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 07-03-GW
Lab Sample ID: LL2678

<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	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	3 J	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,2-dichloroethene	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: 07/18/90
Dilution Factor: 1

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Job Number: ITCY 46115

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 07-03-GW
Lab Sample ID: LL2678

<u>Tentative Identification (1)</u>	<u>Concentration (2)</u>
trichlorofluoromethane	1.3

- 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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VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 07-04-GW
Lab Sample ID: LL2679

<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: 07/18/90
Dilution Factor: 1

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Job Number: ITCY 46115

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 07-04-GW
Lab Sample ID: LL2679

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 46115

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 07-05-GW
Lab Sample ID: LL2680

<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	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	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: 07/18/90
Dilution Factor: 1

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Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 07-05-GW
Lab Sample ID: LL2680

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 46115

VOLATILE ORGANIC TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 07-06-GW

Lab Sample ID: LL2681

<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	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.

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

Date Analyzed: 07/18/90

Dilution Factor: 1

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 07-06-GW
Lab Sample ID: LL2681

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 46115

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in ug/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-01-GW
Lab Sample ID: LL2682

<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-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: 07/18/90
Dilution Factor: 1

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 08-01-GW
Lab Sample ID: LL2682

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 46115

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 2
Lab Sample ID: EBO718

<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: 07/18/90
Dilution Factor: 1

This method blank applies to the following samples: 03-ER, 08-03-GW, 08-04-GW, 08-05-GW, 08-06-GW, 08-06-GWD, 08-ER, Field Blank, 08-03-GW MS, 08-03-GW MSD, Trip Blank 7/9, Trip Blank 7/8.

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August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: Method Blank 2
Lab Sample ID: EB0718

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 46115

VOLATILE ORGANIC TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 08-03-GW
Lab Sample ID: LL2683

<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	2 J	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: 07/18/90
Dilution Factor: 1

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August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 08-03-GW
Lab Sample ID: LL2683

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 46115

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

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

Client Sample ID: 08-03-GW
Lab Sample ID: LL2683

	<u>Conc. Spike Added</u>	<u>Sample Conc.</u>	<u>MS Conc.</u>	<u>MS % Rec.</u>
1,1-dichloroethene	50.0	5 U	47.9	96
trichloroethene	50.0	5 U	50.7	101
benzene	50.0	5 U	43.3	87
toluene	50.0	5 U	47.5	95
chlorobenzene	50.0	5 U	52.9	106

	<u>Conc. Spike Added</u>	<u>MSD Conc.</u>	<u>MSD % Rec.</u>	<u>RPD</u>
1,1-dichloroethene	50.0	46.0	92	4
trichloroethene	50.0	50.3	101	0
benzene	50.0	42.6	85	2
toluene	50.0	47.7	95	0
chlorobenzene	50.0	53.2	106	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: 07/18/90

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August 28, 1990

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-04-GW
Lab Sample ID: LL2686

<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	2 J	benzene	5 U
carbon disulfide	7	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: 07/18/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
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KNOXVILLE, TN

ent Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 08-04-GW
Lab Sample ID: LL2686

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 28, 1990

Client Project ID: NAS-Key West

Job Number: ITCY 46115

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-05-GW
 Lab Sample ID: LL2687

<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 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.

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

Date Analyzed: 07/18/90
 Dilution Factor: 1

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 08-05-GW
Lab Sample ID: LL2687

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
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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

VOLATILE ORGANIC TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 08-06-GW
Lab Sample ID: LL2688

<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	4 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	63
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: 07/18/90
Dilution Factor: 1

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August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 08-06-GW
Lab Sample ID: LL2688

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 46115

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-06-GWD
Lab Sample ID: LL2689

<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	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	63
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: 07/18/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 08-06-GWD
Lab Sample ID: LL2689

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 46115

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-ER
Lab Sample ID: LL2690

<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	4 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	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: 07/18/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 08-ER
Lab Sample ID: LL2690

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
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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Field Blank
Lab Sample ID: LL2691

<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	100
methylene chloride	4 BJ	1,1,2-trichloroethane	5 U
acetone	2 J	benzene	5 U
carbon disulfide	3 J	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	140
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	19	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	42	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: 07/18/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: Field Blank
Lab Sample ID: LL2691

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 46115

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 03-ER
 Lab Sample ID: LL2692

<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	3 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.

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

Date Analyzed: 07/18/90
 Dilution Factor: 1

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 03-ER
Lab Sample ID: LL2692

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 28, 1990

Client Project ID: NAS-Key West

Job Number: ITCY 46115

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Trip Blank, 7/9
Lab Sample ID: LL2693

<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 JB	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: 07/18/90
Dilution Factor: 1

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: Trip Blank, 7/9
Lab Sample ID: LL2693

<u>Tentative Identification</u> (1)	<u>Concentration</u> (2)
trichlorofluoromethane	6.2 J

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.

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

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

VOLATILE ORGANIC TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: Trip Blank, 7/8
Lab Sample ID: LL2757

<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 JB	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: 07/18/90
Dilution Factor: 1

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: Trip Blank, 7/8
Lab Sample ID: LL2757

Tentative Identification (1)

Concentration (2)

trichlorofluoromethane

5.8 J

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.

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

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

WATER SURROGATE PERCENT RECOVERY SUMMARY

Sample No.	VOLATILE		
	Toluene-D8 (88-110%)*	BFB (86-115%)*	1,2 Dichloroethane-D4 (76-114%)*
03-01-GW	97	99	86
03-03-GW	97	104	82
03-ER	101	108	77
07-01-GW	93	101	83
07-02-GW	92	101	83
07-02-GWD	93	98	80
07-03-GW	94	97	81
07-04-GW	94	100	78
07-05-GW	89	95	77
07-06-GW	96	101	79
08-01-GW	95	99	77
08-03-GW	94	97	80
08-04-GW	103	111	82
08-05-GW	94	98	77
08-06-GW	105	107	79
08-06-GWD	99	106	76
08-ER	106	111	82
Field Blank	102	105	77
08-03-GW MS	104	109	85
08-03-GW MSD	103	108	87
Method Blank 1	93	95	90
Method Blank 2	106	104	96
03-02-GW	92	99	84
Trip Blank, 7/9	108	106	90
Trip Blank, 7/8	105	102	88

* - 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 46115

SEMIVOLATILE TARGET COMPOUND LIST

Results in ug/liter (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 1
Lab Sample ID: BLA1313

<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
is(2-chloroisopropyl)ether	10 U	hexachlorocyclopentadiene	10 U
o-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: 07/12/90
Date Analyzed: 07/23/90
Dilution Factor: 1

This method blank applies to the following samples: 03-01-GW, 03-02-GW, 03-03-GW, 07-01-GW, 07-02-GW, 07-02-GWD, 07-03-GW, 07-04-GW, 07-05-GW, 07-06-GW, 08-01-GW.

IT Corporation
August 28, 1990

Client Project ID: NAS-Key West

Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 1
Lab Sample ID: BLA1313

<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: 07/12/90
Date Analyzed: 07/23/90
Dilution Factor: 1

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: Method Blank 1
Lab Sample ID: BLA1313

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 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST

Results in ug/liter (ppb)

Sample Matrix: Water

Client Sample ID: 03-01-GW
Lab Sample ID: LL2736

<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: 07/12/90
Date Analyzed: 07/23/90
Dilution Factor: 1

Client Project ID: NAS-Key West

Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in ug/liter (ppb)

Sample Matrix: Water

Client Sample ID: 03-01-GW
Lab Sample ID: LL2736

<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	4 J
4-nitroaniline	52 U	di-n-octylphthalate	10 U
4-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: 07/12/90
Date Analyzed: 07/23/90
Dilution Factor: 1

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 03-01-GW
Lab Sample ID: LL2736

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 46115

SEMIVOLATILE TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 03-02-GW

Lab Sample ID: LL2737

<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
o-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: 07/12/90

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 46115

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 03-02-GW
Lab Sample ID: LL2737

<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: 07/12/90
Date Analyzed: 07/23/90
Dilution Factor: 1

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: .NAS-Key West

Job Number: ITCY 46115

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 03-02-GW

Lab Sample ID: LL2737

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 46115

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 03-03-GW
Lab Sample ID: LL2738

<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: 07/12/90
Date Analyzed: 07/23/90
Dilution Factor: 1

Client Project ID: NAS-Key West

Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST (continued)

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

Sample Matrix: Water

Client Sample ID: 03-03-GW

Lab Sample ID: LL2738

<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
uorene	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: 07/12/90

Date Analyzed: 07/23/90

Dilution Factor: 1

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 03-03-GW
Lab Sample ID: LL2738

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 46115

SEMIVOLATILE TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 07-01-GW
Lab Sample ID: LL2739

<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: 07/12/90
Date Analyzed: 07/24/90
Dilution Factor: 1

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in ug/liter (ppb)

Sample Matrix: Water

Client Sample ID: 07-01-GW
Lab Sample ID: LL2739

<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: 07/12/90
Date Analyzed: 07/24/90
Dilution Factor: 1

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 07-01-GW
Lab Sample ID: LL2739

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 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 07-02-GW
Lab Sample ID: LL2740

<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: 07/12/90
Date Analyzed: 07/24/90
Dilution Factor: 1

Client Project ID: NAS-Key West

Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 07-02-GW

Lab Sample ID: LL2740

<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
uorene	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: 07/12/90

Date Analyzed: 07/24/90

Dilution Factor: 1

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 07-02-GW
Lab Sample ID: LL2740

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 46115

SEMIVOLATILE TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 07-02-GWD
Lab Sample ID: LL2741

<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: 07/12/90
Date Analyzed: 07/24/90
Dilution Factor: 1

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August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 07-02-GWD
Lab Sample ID: LL2741

<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: 07/12/90
Date Analyzed: 07/24/90
Dilution Factor: 1

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 07-02-GWD

Lab Sample ID: LL2741

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 46115

SEMIVOLATILE TARGET COMPOUND LIST

Results in ug/liter (ppb)

Sample Matrix: Water

Client Sample ID: 07-03-GW
Lab Sample ID: LL2742

<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: 07/12/90
Date Analyzed: 07/24/90
Dilution Factor: 1

Client Project ID: NAS-Key West

Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in ug/liter (ppb)

Sample Matrix: Water

Client Sample ID: 07-03-GW
Lab Sample ID: LL2742

<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: 07/12/90
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 46115

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 07-03-GW
Lab Sample ID: LL2742

<u>Tentative Identification (1)</u>	<u>Concentration (2)</u>
sulfur, mol. (S8)	850
1,2,4-trithiolane	30
hexathiepane	21
lenthionine	17

- 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 46115

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 07-04-GW
Lab Sample ID: LL2743

<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
o-methylphenol	12 U	2,4,6-trichlorophenol	12 U
n-nitroso-di-n-propylamine	12 U	2,4,5-trichlorophenol	62 U
hexachloroethane	12 U	2-chloronaphthalene	12 U
nitrobenzene	12 U	2-nitroaniline	62 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	62 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: 07/12/90
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 46115

SEMIVOLATILE TARGET COMPOUND LIST (continued)

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

Sample Matrix: Water

Client Sample ID: 07-04-GW
Lab Sample ID: LL2743

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	62 U	anthracene	12 U
acenaphthene	12 U	di-n-butylphthalate	12 U
2,4-dinitrophenol	62 U	fluoranthene	12 U
4-nitrophenol	62 U	pyrene	12 U
dibenzofuran	12 U	butylbenzylphthalate	12 U
2,4-dinitrotoluene	12 U	3,3'-dichlorobenzidine	25 U
diethylphthalate	12 U	benzo(a)anthracene	12 U
4-chlorophenyl-phenylether	12 U	chrysene	12 U
fluorene	12 U	bis(2-ethylhexyl)phthalate	12 U
4-nitroaniline	62 U	di-n-octylphthalate	12 U
4,6-dinitro-2-methylphenol	62 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	62 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: 07/12/90
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 46115

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 07-04-GW
Lab Sample ID: LL2743

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 46115

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 07-05-GW
Lab Sample ID: LL2744

<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: 07/12/90
Date Analyzed: 07/24/90
Dilution Factor: 1

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 07-05-GW
Lab Sample ID: LL2744

<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: 07/12/90
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 46115

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 07-05-GW
Lab Sample ID: LL2744

<u>Tentative Identification</u> (1)	<u>Concentration</u> (2)
hexathiepane	33
1,2,4-trithiolane	31
lenthionine	8.2
sulfur, mol. (S8)	2,900

- 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 46115

SEMIVOLATILE TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 07-06-GW

Lab Sample ID: LL2745

<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
is(2-chloroisopropyl)ether	12 U	hexachlorocyclopentadiene	12 U
o-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: 07/12/90

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 46115

SEMIVOLATILE TARGET COMPOUND LIST (continued)

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

Sample Matrix: Water

Client Sample ID: 07-06-GW
Lab Sample ID: LL2745

<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
fluorene	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: 07/12/90
Date Analyzed: 07/24/90
Dilution Factor: 1

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 07-06-GW
Lab Sample ID: LL2745

<u>Tentative Identification</u> (1)	<u>Concentration</u> (2)
sulfur, mol. (S8)	200

- 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 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-01-GW
Lab Sample ID: LL2746

<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	2 J	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: 07/12/90
Date Analyzed: 07/24/90
Dilution Factor: 1

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-01-GW
Lab Sample ID: LL2746

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	54 U	anthracene	11 U
acenaphthene	11 U	di-n-butylphthalate	11 U
2,4-dinitrophenol	54 U	fluoranthene	11 U
4-nitrophenol	54 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
luorene	11 U	bis(2-ethylhexyl)phthalate	11 U
+nitroaniline	54 U	di-n-octylphthalate	11 U
4,6-dinitro-2-methylphenol	54 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	54 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: 07/12/90
Date Analyzed: 07/24/90
Dilution Factor: 1

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 08-01-GW
Lab Sample ID: LL2746

<u>Tentative Identification (1)</u>	<u>Concentration (2)</u>
benzamide, N,N-diethyl-3-methyl-	33
1,3-oxathiolane	17
sulfur, mol. (S8)	480

- 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 46115

SEMIVOLATILE TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: Method Blank 2
Lab Sample ID: BLA1317

<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
is(2-chloroisopropyl)ether	10 U	hexachlorocyclopentadiene	10 U
+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: 07/13/90
Date Analyzed: 07/23/90
Dilution Factor: 1

This method blank applies to the following samples: 03-ER, 08-03-GW, 08-04-GW, 08-05-GW, 08-06-GW, 08-06-GWD, 08-ER, Field Blank, 08-03-GW MS, 08-03-GW MSD.

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 2
Lab Sample ID: BLA1317

<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: 07/13/90
Date Analyzed: 07/23/90
Dilution Factor: 1

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: Method Blank 2
Lab Sample ID: BLA1317

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 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-03-GW
Lab Sample ID: LL2747

<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: 07/13/90
Date Analyzed: 07/23/90
Dilution Factor: 1

Client Project ID: NAS-Key West

Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-03-GW
Lab Sample ID: LL2747

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	54 U	anthracene	11 U
acenaphthene	11 U	di-n-butylphthalate	11 U
2,4-dinitrophenol	54 U	fluoranthene	11 U
4-nitrophenol	54 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
uorene	11 U	bis(2-ethylhexyl)phthalate	3 J
3-nitroaniline	54 U	di-n-octylphthalate	11 U
4,6-dinitro-2-methylphenol	54 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	54 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: 07/13/90
Date Analyzed: 07/23/90
Dilution Factor: 1

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 08-03-GW
Lab Sample ID: LL2747

Tentative Identification (1)

Concentration (2)

sulfur, mol. (S8)

72

- 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 46115

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Results in µg/liter (ppb)

Client Sample ID: 08-03-GW
Lab Sample ID: LL2747

	<u>Conc. Spike Added</u>	<u>Sample Conc.</u>	<u>MS Conc.</u>	<u>MS % Rec.</u>
phenol	435	11 U	249	57
2-chlorophenol	435	11 U	268	62
1,4-dichlorobenzene	218	11 U	137	63
n-nitroso-di-n-propylamine	218	11 U	136	62
1,2,4-trichlorobenzene	218	11 U	134	61
4-chloro-3-methylphenol	435	11 U	291	67
acenaphthene	218	11 U	152	70
4-nitrophenol	435	54 U	228	52
2,4-dinitrotoluene	218	11 U	146	67
pentachlorophenol	435	54 U	279	64
pyrene	218	11 U	184	84

	<u>Conc. Spike Added</u>	<u>MSD Conc.</u>	<u>MSD % Rec.</u>	<u>RPD</u>
phenol	435	248	57	0
2-chlorophenol	435	249	57	8
1,4-dichlorobenzene	218	140	64	-2
n-nitroso-di-n-propylamine	218	141	65	-5
1,2,4-trichlorobenzene	218	137	63	-3
4-chloro-3-methylphenol	435	301	69	-3
acenaphthene	218	156	72	-3
4-nitrophenol	435	268	62	-18
2,4-dinitrotoluene	218	147	67	0
pentachlorophenol	435	287	66	-3
pyrene	218	178	82	2

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: 07/13/90
Date Analyzed: 07/23/90

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-04-GW
Lab Sample ID: LL2750

<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: 07/13/90
Date Analyzed: 07/23/90
Dilution Factor: 1

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST (continued)

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

Sample Matrix: Water

Client Sample ID: 08-04-GW
Lab Sample ID: LL2750

<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 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: 07/13/90
Date Analyzed: 07/23/90
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 46115

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 08-04-GW
Lab Sample ID: LL2750

<u>Tentative Identification (1)</u>	<u>Concentration (2)</u>
benzamide, n,n-diethyl-3-methyl-	16
hexathiepane	14
sulfur, mol. (S8)	430

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 46115

SEMIVOLATILE TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 08-05-GW
Lab Sample ID: LL2751

<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: 07/13/90
Date Analyzed: 07/23/90
Dilution Factor: 1

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August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-05-GW
Lab Sample ID: LL2751

<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	9 J
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: 07/13/90
Date Analyzed: 07/23/90
Dilution Factor: 1

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August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 08-05-GW

Lab Sample ID: LL2751

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 46115

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-06-GW

Lab Sample ID: LL2752

<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	36	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: 07/13/90

Date Analyzed: 07/25/90

Dilution Factor: 1

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-06-GW
Lab Sample ID: LL2752

<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: 07/13/90
Date Analyzed: 07/25/90
Dilution Factor: 1

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 08-06-GW
Lab Sample ID: LL2752

<u>Tentative Identification (1)</u>	<u>Concentration (2)</u>
hexathiepane	230
1,2,4-trithiolane	100
lenthionine	70
lenthionine	12
benzamide, n,n-diethyl-3-methyl	10
hexathiepane	12
sulfur, mol. (S8)	1,900

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 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 08-06-GWD
Lab Sample ID: LL2753

<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	36	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: 07/13/90
Date Analyzed: 07/25/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-06-GWD
Lab Sample ID: LL2753

<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
luorene	10 U	bis(2-ethylhexyl)phthalate	28
.-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: 07/13/90
Date Analyzed: 07/25/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 08-06-GWD
Lab Sample ID: LL2753

<u>Tentative Identification (1)</u>	<u>Concentration (2)</u>
hexathiepane	450
lenthionine	99
1,2,4-trithiolane	89
unknown	19
lenthionine	13
benzamide, n,n-diethyl-3-methyl	11
hexathiepane	11
sulfur, mol. (S8)	2,700

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 46115

SEMIVOLATILE TARGET COMPOUND LIST

Results in ug/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-ER
Lab Sample ID: LL2754

<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
o-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: 07/13/90
Date Analyzed: 07/25/90
Dilution Factor: 1

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August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST (continued)

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

Sample Matrix: Water

Client Sample ID: 08-ER
Lab Sample ID: LL2754

<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 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: 07/13/90
Date Analyzed: 07/25/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 08-ER
Lab Sample ID: LL2754

Tentative Identification (1)

No additional peaks detected

Concentration (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.

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: Field Blank
Lab Sample ID: LL2755

<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: 07/13/90
Date Analyzed: 07/25/90
Dilution Factor: 1

Client Project ID: NAS-Key West

Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Field Blank
Lab Sample ID: LL2755

<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	18
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: 07/13/90
Date Analyzed: 07/25/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: Field Blank
Lab Sample ID: LL2755

<u>Tentative Identification (1)</u>	<u>Concentration (2)</u>
cyclohexanol, 2-chloro-, trans-	240
cyclohexane, 1,2-dichloro-, trans-	160
unknown	50
1,3-cyclopentanedione, 2-chloro-	46
cyclohexene, 3-chloro-	36
2-hexenal	32
unknown	26
cyclohexanol, 2-bromo-, trans-	12
unknown	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.

SEMIVOLATILE TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 03-ER
Lab Sample ID: LL2756

<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: 07/13/90
Date Analyzed: 07/25/90
Dilution Factor: 1

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August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 03-ER
Lab Sample ID: LL2756

<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: 07/13/90
Date Analyzed: 07/25/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 03-ER
Lab Sample ID: LL2756

<u>Tentative Identification (1)</u>	<u>Concentration (2)</u>
phenol, 2,6-bis(1,1-dimethylethyl)-4-methyl-,methyl carba	10

- 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 46115

SEMIVOLATILE TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: Method Blank 3
Lab Sample ID: BLA1439

<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: 07/30/90
Date Analyzed: 07/31/90
Dilution Factor: 1

This method blank applies to the following sample: Field Blank RE.

RE = Reextracted

Client Project ID: NAS-Key West

Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 3
Lab Sample ID: BLA1439

<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
uorene	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: 07/30/90
Date Analyzed: 07/31/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: Method Blank 3
Lab Sample ID: BLA1439

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 46115

SEMIVOLATILE TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: Field Blank RE
Lab Sample ID: LL2755

<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
s(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: 07/30/90
Date Analyzed: 07/31/90
Dilution Factor: 1

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KNOXVILLE, TN

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Job Number: ITCY 46115

SEMIVOLATILE TARGET COMPOUND LIST (continued)

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

Sample Matrix: Water

Client Sample ID: Field Blank RE
Lab Sample ID: LL2755

<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: 07/30/90
Date Analyzed: 07/31/90
Dilution Factor: 1

Client Project ID: NAS-Key West

Job Number: ITCY 46115

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: Field Blank RE
Lab Sample ID: LL2755

<u>Tentative Identification (1)</u>	<u>Concentration (2)</u>
cyclohexanol, 2-chloro-, trans-	230
1,3-cyclopentanedione, 2-chloro-	38
cyclohexene, 3-chloro-	32
unknown	14
2-hexenal	12
unknown	10
cyclohexane, 1,2-dichloro-, trans-	210

- 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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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

WATER SURROGATE PERCENT RECOVERY SUMMARY

SEMI-VOLATILE

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%)*
03-01-GW	59	61	86	36	54	63
03-02-GW	51	54	83	34	51	61
03-03-GW	62	64	73	34	50	64
03-ER	58	60	97	34	49	67
07-01-GW	65	65	87	45	58	63
07-02-GW	75	73	88	47	62	68
07-02-GWD	68	67	86	50	61	65
07-03-GW	64	63	87	46	55	64
07-04-GW	47	50	95	56	66	65
07-05-GW	47	49	92	55	63	69
07-06-GW	70	67	88	57	68	70
08-01-GW	80	76	95	46	56	70
08-03-GW	65	66	82	50	66	68
08-04-GW	76	76	92	46	57	64
08-05-GW	55	56	69	40	58	60
08-06-GW	66	65	89	43	62	64
08-06-GWD	67	65	92	47	62	72
08-ER	41	44	88	35	54	71
Field Blank	64	64	102	0**	24	55
Field Blank RE	83	80	85	0**	16**	32
08-03-GW MS	67	65	89	59	65	59
08-03-GW MSD	67	66	86	59	63	62
Method Blank 2	85	79	93	39	58	69
Method Blank 1	70	69	86	35	53	62
Method Blank 3	79	78	81	32	36	52

* - 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 46115

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: BLA1316

<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: 07/12/90
Date Analyzed: 07/17/90
Dilution Factor: 1

This method blank applies to the following samples: 03-01-GW, 03-01-GW DL, 03-02-GW, 03-02-GW DL, 03-03-GW, 03-03-GW DL, 07-01-GW, 07-02-GW, 07-02-GWD, 07-03-GW, 07-04-GW, 07-05-GW, 07-06-GW, 08-01-GW.

DL - Dilution

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Job Number: ITCY 46115

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 03-01-GW
Lab Sample ID: LL2736

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.056 U	endosulfan sulfate	0.11 U
β -BHC	1.0 D	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
aldrin	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	0.47	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	2.1 D	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.

D - Compound analyzed at a secondary dilution factor.

Date Extracted: 07/12/90
Date Analyzed: 07/17/90
Dilution Factor: 1

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Client Project ID: NAS-Key West

Job Number: ITCY 46115

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 03-02-GW
Lab Sample ID: LL2737

<u>Compound</u>			<u>Compound</u>		
α-BHC	0.11	U	endosulfan sulfate	0.22	U
β-BHC	7.0	D	4,4'-DDT	0.22	U
δ-BHC	0.11	U	methoxychlor	1.1	U
γ-BHC (lindane)	0.11	U	endrin ketone	0.22	U
heptachlor	0.11	U	α-chlordane	1.1	U
aldrin	0.11	U	γ-chlordane	1.1	U
heptachlor epoxide	0.14		toxaphene	2.2	U
endosulfan I	0.11	U	Aroclor 1016	1.1	U
dieldrin	1.7	DJ	Aroclor 1221	1.1	U
4,4'-DDE	0.22	U	Aroclor 1232	1.1	U
endrin	0.22	U	Aroclor 1242	1.1	U
endosulfan II	0.22	U	Aroclor 1248	1.1	U
4,4'-DDD	0.77		Aroclor 1254	2.2	U
			Aroclor 1260	2.2	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.

D - Compound analyzed at a secondary dilution factor.

Date Extracted: 07/12/90
Date Analyzed: 07/17/90
Dilution Factor: 2

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Client Project ID: NAS-Key West

Job Number: ITCY 46115

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 03-03-GW
Lab Sample ID: LL2738

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.11	endosulfan sulfate	0.11 U
β -BHC	0.91 D	4,4'-DDT	0.21
δ -BHC	1.4 D	methoxychlor	0.56 U
γ -BHC (lindane)	0.056 U	endrin ketone	0.11 U
heptachlor	0.56 U	α -chlordane	0.56 U
aldrin	0.056 U	γ -chlordane	0.56 U
heptachlor epoxide	0.56 U	toxaphene	1.1 U
endosulfan I	0.056 U	Aroclor 1016	0.56 U
dieldrin	1.8 D	Aroclor 1221	0.56 U
4,4'-DDE	0.19	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	0.95 DJ	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.

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

D - Compound analyzed at a secondary dilution factor.

Date Extracted: 07/12/90
Date Analyzed: 07/17/90
Dilution Factor: 1

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Job Number: ITCY 46115

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 07-01-GW
Lab Sample ID: LL2739

<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
aldrin	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: 07/12/90
Date Analyzed: 07/17/90
Dilution Factor: 1

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Job Number: ITCY 46115

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 07-02-GW
Lab Sample ID: LL2740

<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: 07/12/90
Date Analyzed: 07/17/90
Dilution Factor: 1

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 07-02-GWD
Lab Sample ID: LL2741

<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: 07/12/90
Date Analyzed: 07/17/90
Dilution Factor: 1

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PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 07-03-GW
Lab Sample ID: LL2742

<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: 07/12/90
Date Analyzed: 07/17/90
Dilution Factor: 1

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PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 07-04-GW
Lab Sample ID: LL2743

<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: 07/12/90
Date Analyzed: 07/17/90
Dilution Factor: 1

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 07-05-GW
Lab Sample ID: LL2744

<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: 07/12/90
Date Analyzed: 07/17/90
Dilution Factor: 1

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Client Project ID: NAS-Key West

Job Number: ITCY 46115

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 07-06-GW
Lab Sample ID: LL2745

<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: 07/12/90
Date Analyzed: 07/17/90
Dilution Factor: 1

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Client Project ID: NAS-Key West

Job Number: ITCY 46115

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 08-01-GW
Lab Sample ID: LL2746

<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: 07/12/90
Date Analyzed: 07/17/90
Dilution Factor: 1

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: Method Blank 2
Lab Sample ID: BLA1325

<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: 07/13/90
Date Analyzed: 07/17/90
Dilution Factor: 1

This method blank applies to the following samples: 03-ER, 08-03-GW, 08-03-GW MS, 08-03-GW MSD, 08-04-GW, 08-05-GW, 08-06-GW, 08-06-GWD, 08-ER, Field Blank.

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-03-GW
Lab Sample ID: LL2747

<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: 07/13/90
Date Analyzed: 07/18/90
Dilution Factor: 1

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5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

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

Client Sample ID: 08-03-GW
Lab Sample ID: LL2747

	<u>Conc. Spike Added</u>	<u>Sample Conc.</u>	<u>MS Conc.</u>	<u>MS % Rec.</u>
γ -BHC (lindane)	0.400	0.052 U	0.352	88
heptachlor	0.400	0.052 U	0.320	80
aldrin	0.400	0.052 U	0.318	80
dieldrin	1.00	0.10 U	0.816	82
endrin	1.00	0.10 U	0.946	95
4,4'-DDT	1.00	0.10 U	0.894	89

	<u>Conc. Spike Added</u>	<u>MSD Conc.</u>	<u>MSD % Rec.</u>	<u>% RPD</u>
γ -BHC (lindane)	0.400	0.338	84	5
heptachlor	0.400	0.316	79	1
aldrin	0.400	0.314	78	3
dieldrin	1.00	0.790	79	4
endrin	1.00	0.924	92	3
4,4'-DDT	1.00	0.876	88	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: 07/13/90
Date Analyzed: 07/18/90

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Client Project ID: NAS-Key West

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KNOXVILLE, TN

Job Number: ITCY 46115

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in ug/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-04-GW

Lab Sample ID: LL2750

<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: 07/13/90
Date Analyzed: 07/18/90
Dilution Factor: 1

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 08-05-GW

Lab Sample ID: LL2751

<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: 07/13/90

Date Analyzed: 07/18/90

Dilution Factor: 1

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 08-06-GW
Lab Sample ID: LL2752

<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: 07/13/90
Date Analyzed: 07/17/90
Dilution Factor: 1

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 08-06-GWD

Lab Sample ID: LL2753

<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: 07/13/90
Date Analyzed: 07/18/90
Dilution Factor: 1

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 08-ER
Lab Sample ID: LL2754

<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: 07/13/90
Date Analyzed: 07/18/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: Field Blank
Lab Sample ID: LL2755

<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: 07/13/90
Date Analyzed: 07/18/90
Dilution Factor: 1

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 03-ER
Lab Sample ID: LL2756

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.059 U	endosulfan sulfate	0.12 U
β -BHC	0.059 U	4,4'-DDT	0.12 U
δ -BHC	0.059 U	methoxychlor	0.59 U
γ -BHC (lindane)	0.059 U	endrin ketone	0.12 U
heptachlor	0.059 U	α -chlordane	0.59 U
aldrin	0.059 U	γ -chlordane	0.59 U
heptachlor epoxide	0.059 U	toxaphene	1.2 U
endosulfan I	0.059 U	Aroclor 1016	0.59 U
dieldrin	0.12 U	Aroclor 1221	0.59 U
4,4'-DDE	0.12 U	Aroclor 1232	0.59 U
endrin	0.12 U	Aroclor 1242	0.59 U
endosulfan II	0.12 U	Aroclor 1248	0.59 U
4,4'-DDD	0.12 U	Aroclor 1254	1.2 U
		Aroclor 1260	1.2 U

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

Date Extracted: 07/13/90
Date Analyzed: 07/18/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

WATER SURROGATE PERCENT RECOVERY SUMMARY

<u>Sample No.</u>	<u>PESTICIDE</u>
	<u>Dibutylchlorodate</u> <u>(24-154%)*</u>
Method Blank 1	103
Method Blank 2	71
03-01-GW	102
03-01-GW DL	89
03-02-GW	107
03-02-GW DL	80
03-03-GW	106
03-03-GW DL	86
03-ER	98
07-01-GW	90
07-02-GW	95
07-02-GWD	99
07-03-GW	100
07-04-GW	86
07-05-GW	124
07-06-GW	84
08-01-GW	103
08-03-GW	77
08-03-GW MS	95
08-03-GW MSD	89
08-04-GW	93
08-05-GW	90
08-06-GW	91
08-06-GWD	87
08-ER	98
Field Blank	100

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

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

METALS ANALYSIS

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

Sample Matrix: Water

Client Sample ID: Lab Sample ID:	Method Blank 1 PBWC2606/C2609	03-01-GW LL2694
aluminum	40.0 U	711
antimony	30.0 U	30.0 U
arsenic	2.0 U	5.6 B
barium	2.0 U	41.2 B
beryllium	1.0 U	1.0 U
cadmium	5.0 U	11.4
calcium	30.0 U	1,670,000
chromium	10.0 U	10.0 U
cobalt	20.0 U	20.0 U
copper	10.0 U	25.4
iron	10.0 U	425
lead	2.0 U	8.4
magnesium	30.0 U	74,200
manganese	2.0 U	5.6 BE
mercury	NR	0.20 U
nickel	20.0 U	20.0 U
potassium	1,000.0 U	21,900
selenium	2.0 U	8.0 UW
silver	5.0 U	5.0 U
sodium	200.0 U	534,000
thallium	2.0 U	2.0 UW
vanadium	10.0 U	10.0 U
zinc	7.2 B	336

- 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.
- NR - Not required.

Date Digested: 07/16/90
Date Analyzed: 08/06/90 (ICP)
07/19 - 08/06/90 (GFAA)
07/14/90 (CVAA)

Client Project ID: NAS-Key West

Job Number: ITCY 46115

METALS ANALYSIS

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Lab Sample ID:	03-02-GW <u>LL2695</u>	03-03-GW <u>LL2696</u>
aluminum	64.8 B	981
antimony	30.0 U	30.0 U
arsenic	20.4	18.1
barium	19.6 B	35.8 B
beryllium	1.0 U	1.0 U
cadmium	5.0 U	13.6
calcium	455,000	1,150,000
chromium	10.0 U	10.0 U
cobalt	20.0 U	20.0 U
copper	10.0 U	15.7 B
iron	895	540
lead	5.6	15.8
magnesium	143,000	63,600
manganese	5.8 BE	9.6 BE
mercury	0.20 U	0.22
nickel	20.0 U	20.0 U
potassium	49,700	22,700
selenium	8.0 U	10.0 UW
silver	7.6 B	5.0 U
sodium	1,140,000	567,000
thallium	2.0 UW	2.0 UW
vanadium	10.0 U	10.0 U
zinc	46.1	357

- 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: 07/16/90
 Date Analyzed: 08/06/90 (ICP)
 07/19 - 08/06/90 (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 46115

METALS ANALYSIS

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Lab Sample ID:	07-01-GW <u>LL2697</u>	07-02-GW <u>LL2698</u>
aluminum	35,000	424
antimony	141	30.0 U
arsenic	25.4	2.3 BW
barium	531	54.6 B
beryllium	1.3 B	1.0 U
cadmium	21.7	14.3
calcium	2,880,000	435,000
chromium	384	17.9
cobalt	21.1 B	20.0 U
copper	956	66.4
iron	121,000	1,840
lead	1,430	21.6
magnesium	877,000	1,120,000
manganese	656 E	2.0 UE
mercury	12.4	1.1
nickel	91.2	20.0 U
potassium	255,000	336,000
selenium	10.0 UE	8.0 UW
silver	25.0 U	11.0
sodium	7,090,000	9,360,000
thallium	20.0 UE	20.0 UE
vanadium	74.2	10.0 U
zinc	2,880	498

- 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: 07/16/90
Date Analyzed: 08/06/90 (ICP)
07/19 - 08/06/90 (GFAA)
07/14/90 (CVAA)

METALS ANALYSIS

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Lab Sample ID:	07-02-GWD <u>LL2699</u>		07-03-GW <u>LL2700</u>	
aluminum	118	B	21,000	
antimony	30.0	U	31.8	B
arsenic	2.0	UW	25.6	
barium	49.2	B	108	B
beryllium	1.0	U	1.5	B
cadmium	10.4		12.0	
calcium	354,000		3,570,000	
chromium	10.0	U	23.8	
cobalt	20.0	U	20.0	U
copper	43.0		55.3	
iron	549		10,600	
lead	20.0	UW	42.1	
magnesium	1,110,000		1,170,000	
manganese	2.0	UE	105	E
mercury	0.63		0.48	
nickel	20.0	U	20.0	U
potassium	330,000		335,000	
selenium	20.0	UW	2.0	UW
silver	12.6		25.0	U
sodium	9,310,000		9,530,000	
thallium	20.0	UW	20.0	UW
vanadium	10.0	U	21.1	B
zinc	368		388	

- 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: 07/16/90
 Date Analyzed: 08/06/90 (ICP)
 07/19 - 08/06/90 (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 46115

METALS ANALYSIS

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID:	07-04-GW	07-05-GW
Lab Sample ID:	<u>LL2701</u>	<u>LL2702</u>
aluminum	9,980	368
antimony	90.4	30.0 U
arsenic	27.3 W	19.4
barium	234	42.3 B
beryllium	1.0 U	1.0 U
cadmium	14.9	10.3
calcium	2,590,000	377,000
chromium	115	10.0 U
cobalt	20.0 U	20.0 U
copper	680	12.7 B
iron	44,800	3,620
lead	746	10.6
magnesium	765,000	1,250,000
manganese	380 E	109 E
mercury	13.6	0.44
nickel	51.2	20.0 U
potassium	221,000	409,000
selenium	10.0 UW	10.0 UW
silver	25.0 U	8.0 B
sodium	6,190,000	10,500,000
thallium	20.0 UW	20.0 UW
vanadium	43.1 B	10.0 U
zinc	1,630	290

- 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: 07/16/90
Date Analyzed: 08/06/90 (ICP)
07/19 - 08/06/90 (GFAA)
07/14/90 (CVAA)

Client Project ID: NAS-Key West

Job Number: ITCY 46115

METALS ANALYSIS

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Lab Sample ID:	07-06-GW <u>LL2703</u>		08-01-GW <u>LL2704</u>	
aluminum	630		14,500	
antimony	30.0	U	30.0	U
arsenic	8.0	U	20.8	
barium	75.8	B	204	
beryllium	1.0	U	1.4	B
cadmium	9.2		13.0	
calcium	634,000		4,100,000	
chromium	10.0	U	42.7	
cobalt	20.0	U	20.0	U
copper	10.0	U	156	
iron	1,560		14,600	
lead	29.4		90.9	
magnesium	863,000		852,000	
manganese	75.6	E	167	E
mercury	0.37		1.5	
nickel	20.0	U	22.4	B
potassium	259,000		274,000	
selenium	8.0	UW	20.0	UW
silver	7.9	B	25.0	U
sodium	14,300,000		7,430,000	
thallium	20.0	UW	20.0	UW
vanadium	10.0	U	30.9	B
zinc	267		585	

- 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: 07/16/90
 Date Analyzed: 08/06/90 (ICP)
 07/19 - 08/06/90 (GFAA)
 07/14/90 (CVAA)

METALS ANALYSIS

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID:	08-03-GW	
Lab Sample ID:	<u>LL2705</u>	
aluminum	11,200	
antimony	95.4	
arsenic	24.5	W
barium	295	
beryllium	1.0	U
cadmium	11.4	
calcium	3,090,000	
chromium	55.9	
cobalt	20.0	U
copper	345	
iron	23,400	
lead	1,870	
magnesium	1,270,000	
manganese	161	E
mercury	11.5	
nickel	20.0	U
potassium	361,000	
selenium	10.0	UW
silver	25.0	U
sodium	10,400,000	
thallium	20.0	UW
vanadium	42.5	B
zinc	1,990	

- 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: 07/16/90
Date Analyzed: 08/06/90 (ICP)
07/19 - 08/06/90 (GFAA)
07/14/90 (CVAA)

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

MATRIX SPIKE RECOVERY

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-03-GW
Lab Sample ID: LL2706

	<u>Control Limit % Recovery</u>	<u>Spiked Sample Result</u>	<u>Sample Result</u>	<u>Spike Added</u>	<u>% Recovery</u>
aluminum		11,187.24	11,173.11	2,000	0.7
antimony	75-125	482.56	95.43	500	77.4
arsenic	75-125	1,478.47	30.00 U	2,000	73.9 N
barium	75-125	1,633.63	295.14	2,000	66.9 N
beryllium	75-125	35.30	1.00 U	50	70.6 N
cadmium	75-125	53.39	11.4	50	84.0
chromium	75-125	175.65	55.94	200	59.9 N
cobalt	75-125	311.07	20.00 U	500	62.2 N
copper	75-125	506.58	344.81	250	64.7 N
iron		22,131.75	23,425.14	1,000	-129.3
lead	75-125	2,074.13	1,869.25	500	41.0 N
manganese	75-125	469.27	161.02	500	61.6 N
mercury		11.53	11.52	1	1.0
nickel	75-125	329.66	20.00 U	500	65.9 N
selenium	75-125	1,679.55	60.00 U	2,000	84.0
silver	75-125	49.58	25.00 U	50	99.2
thallium	75-125	30.00 U	30.00 U	2,000	0.0 N
vanadium	75-125	370.14	42.46 B	500	65.5 N
zinc	75-125	2,162.27	1,993.92	500	33.7 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: 07/16/90
Date Analyzed: 08/06/90 (ICP)
07/19 - 08/06/90 (GFAA)
07/14/90 (CVAA)

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

MATRIX SPIKE RECOVERY

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

Sample Matrix: Water

Client Sample ID: 08-03-GW
Lab Sample ID: LL2706

	<u>Control Limit % Recovery</u>	<u>Spiked Sample Result</u>	<u>Sample Result</u>	<u>Spike Added</u>	<u>% Recovery</u>
arsenic	75-125	261.70	24.50	40	593.0 N
selenium	75-125	6.00 U	10.00 U	10	0.0 N
thallium	75-125	19.30 B	20.00 U	50	38.6 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: 07/16/90
Date Analyzed: 07/19 - 08/06/90

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

POST DIGEST SPIKE RECOVERY

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

Sample Matrix: Water

Client Sample ID: 08-03-GW
Lab Sample ID: LL2706

	<u>Spiked Sample Result</u>	<u>Sample Result</u>	<u>Spike Added</u>	<u>% Recovery</u>
aluminum	12,982.37	11,173.11	2,000	90.5
antimony	525.78	95.43	500	86.1
arsenic	52.00	24.50	40	68.8
barium	1,809.12	S 294.14	2,000	75.7
beryllium	39.34	1.00 U	50	78.7
cadmium	56.38	11.40	50	90.0
chromium	194.95	55.94	200	69.5
cobalt	347.70	20.00 U	500	69.5
copper	559.11	344.81	250	85.7
iron	24,096.03	23,425.14	1,000	67.1
lead	2,269.40	1,869.25	500	80.0
manganese	513.88	161.02	500	70.6
nickel	363.09	20.00 U	500	72.6
selenium	10.00 U	10.00 U	10	0.0
silver	42.02	25.00 U	50	84.0
thallium	20.50 B	20.00 U	50	41.0
vanadium	411.64	42.46 B	500	73.8
zinc	2,398.11	1,993.92	500	80.8

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.

Date Digested: 07/16/90
Date Analyzed: 08/06/90 (ICP)
07/19 - 08/06/90 (GFAA)
07/14/90 (CVAA)

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

DUPLICATE ANALYSIS

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-03-GW
Lab Sample ID: LL2707

<u>Parameter</u>	<u>Control Limit</u>	<u>Original Sample</u>	<u>Duplicate</u>	<u>RPD</u>
aluminum		11,173.11	10,921.08	2.3
antimony	60.0	95.43	74.90	24.1
arsenic		30.00 U	30.00 U	
barium	200.0	295.14	292.06	1.0
beryllium		1.00 U	1.00 U	
cadmium	5.0	11.40	10.15	11.6
calcium		3,092,300.00	3,069,600.00	0.7
chromium		55.94	54.79	2.1
cobalt		20.00 U	20.00 U	
copper		344.81	347.82	0.9
iron		23,425.14	23,268.11	0.7
lead		1,869.25	1,873.85	0.2
magnesium		1,270,700.00	1,262,300.00	0.7
manganese		161.02	159.03	1.2
mercury		11.52	11.24	2.5
nickel		20.00 U	20.00 U	
potassium		360,689.63	357,617.55	0.9
selenium		60.00 U	60.00 U	
silver		25.00 U	25.00 U	
sodium		10,393,000.00	10,335,000.00	0.6
thallium		30.00 U	30.00 U	
vanadium		42.46 B	40.65 B	4.4
zinc		1,993.92	1,897.57	5.0

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: 07/16/90
Date Analyzed: 08/06/90 (ICP)
07/19 - 08/06/90 (GFAA)
07/14/90 (CVAA)

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

DUPLICATE ANALYSIS

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

Sample Matrix: Water

Client Sample ID: 08-03-GW
Lab Sample ID: LL2707

<u>Parameter</u>	<u>Control Limit</u>	<u>Original Sample</u>	<u>Duplicate</u>	<u>RPD</u>
arsenic	10.0	24.50	24.95	1.8
selenium		10.00 U	10.00 U	
thallium		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: 07/16/90
Date Analyzed: 07/19 - 08/06/90

Client Project ID: NAS-Key West

Job Number: ITCY 46115

METALS ANALYSIS

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID:	08-04-GW		08-05-GW	
Lab Sample ID:	LL2708		LL2709	
aluminum	8,050		3,380	
antimony	30.0	U	30.0	U
arsenic	14.7	W	8.0	UW
barium	106	B	90.4	B
beryllium	1.0	U	1.0	U
cadmium	12.0		15.6	
calcium	810,000		3,180,000	
chromium	10.0	U	14.8	
cobalt	20.0	U	20.0	U
copper	10.4	B	62.5	
iron	5,920		3,500	
lead	22.3		59.0	W
magnesium	1,210,000		869,000	
manganese	95.5	E	35.9	E
mercury	0.44		0.22	
nickel	20.0	U	20.0	U
potassium	360,000		265,000	
selenium	20.0	UW	20.0	UW
silver	7.9	B	25.0	U
sodium	10,100,000		7,090,000	
thallium	20.0	UW	20.0	UW
vanadium	14.7	B	27.6	B
zinc	323		464	

- 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: 07/16/90
Date Analyzed: 08/06/90 (ICP)
07/19 - 08/06/90 (GFAA)
07/14/90 (CVAA)

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

METALS ANALYSIS

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID:	08-06-GW	08-06-GWD
Lab Sample ID:	LL2710	LL2711
aluminum	38,000	24,600
antimony	58.5 B	54.2 B
arsenic	109	53.3
barium	364	264
beryllium	1.0 U	1.0 U
cadmium	31.0	21.8
calcium	7,220,000	4,570,000
chromium	115	77.0
cobalt	20.0 U	20.0 U
copper	466	274
iron	70,600	43,800
lead	598	395
magnesium	1,030,000	932,000
manganese	508 E	337 E
mercury	5.0	2.2
nickel	35.2 B	20.0 U
potassium	366,000	359,000
selenium	20.0 UW	20.0 UW
silver	25.0 U	25.0 U
sodium	8,520,000	7,940,000
thallium	20.0 UW	20.0 UW
vanadium	54.5	39.3 B
zinc	3,210	2,050

- 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: 07/16/90
Date Analyzed: 08/06/90 (ICP)
07/19 - 08/06/90 (GFAA)
07/14/90 (CVAA)

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

METALS ANALYSIS

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

Sample Matrix: Water

Client Sample ID: Lab Sample ID:	08-ER LL2712		Field Blank LL2713	
aluminum	70.1	B	40.0	U
antimony	30.0	U	30.0	U
arsenic	12.4		2.0	UW
barium	2.0	U	6.5	B
beryllium	1.0	U	1.0	U
cadmium	71.8		13.5	
calcium	328	B	32,900	
chromium	10.0	U	10.0	U
cobalt	20.0	U	20.0	U
copper	10.0	U	10.0	U
iron	218		109	
lead	7.8		6.7	
magnesium	30.0	U	3,460	B
manganese	6.7	BE	2.0	UE
mercury	0.20	U	0.20	U
nickel	20.0	U	20.0	U
potassium	1,000	U	10,400	
selenium	2.0	U	2.0	UW
silver	5.0	U	5.0	U
sodium	249	B	20,500	
thallium	20.0	U	20.0	U
vanadium	10.0	U	10.0	U
zinc	1,690		371	

- 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: 07/16/90
Date Analyzed: 08/06/90 (ICP)
07/19 - 08/06/90 (GFAA)
07/14/90 (CVAA)

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

ent Project ID: NAS-Key West

Job Number: ITCY 46115

METALS ANALYSIS

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Lab Sample ID:	Method Blank 2 <u>PBWC2612/C2614</u>	03-ER <u>LL2714</u>
aluminum	40.0 U	40.0 U
antimony	30.0 U	30.0 U
arsenic	2.0 U	2.0 U
barium	2.0 U	2.0 U
beryllium	1.0 U	1.0 U
cadmium	5.0 U	13.9
calcium	30.0 U	30.0 U
chromium	10.0 U	10.0 U
cobalt	20.0 U	20.0 U
copper	10.0 U	10.0 U
iron	10.0 U	50.9 B
lead	2.0 U	8.6
magnesium	30.0 U	30.0 U
manganese	2.0 U	2.0 UE
mercury	NR	0.22
nickel	20.0 U	20.0 U
potassium	1,000.0 U	1,000 U
selenium	2.0 U	2.0 U
silver	5.0 U	5.0 U
sodium	200.0 U	200 U
thallium	2.0 U	20.0 UW
vanadium	10.0 U	10.0 U
zinc	9.0 B	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.
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.
NR - Not required.

Date Digested: 07/16/90
Date Analyzed: 08/06/90 (ICP)
07/19 - 08/06/90 (GFAA)
07/14/90 (CVAA)

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

CYANIDE ANALYSIS

Results in mg/liter (ppm)

Sample Matrix: Water

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Result</u>
P1341, P1346	Method Blank	0.01 U
LL2715	03-01-GW	0.01 U
LL2716	03-02-GW	0.01 U
LL2717	03-03-GW	0.01 U
LL2718	07-01-GW	0.01 U
LL2719	07-02-GW	0.01 U
LL2720	07-02-GWD	0.01 U
LL2721	07-03-GW	0.01 U
LL2722	07-04-GW	0.01 U
LL2723	07-05-GW	0.01 U
LL2724	07-06-GW	0.01 U
LL2725	08-01-GW	0.03 U*
LL2726	08-03-GW	0.01 U
LL2729	08-04-GW	0.01 U
LL2730	08-05-GW	0.01 U
LL2731	08-06-GW	0.01 U
LL2732	08-06-GWD	0.01 U
LL2733	08-ER	0.01 U
LL2734	Field Blank	0.01 U
LL2735	03-ER	0.01 U

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

* - Detection limits higher than normal due to sample matrix interferences.

Date Analyzed: 07/18/90

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

MATRIX SPIKE ANALYSIS

Results in mg/liter (ppm)

Sample Matrix: Water

Client Sample ID: 08-03-GW
Lab Sample ID: LL2726

<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	0.02	10

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

Date Analyzed: 07/18/90

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

POST DISTILLATION SPIKE ANALYSIS

Results in mg/liter (ppm)

Sample Matrix: Water

Client Sample ID: 08-03-GW
Lab Sample ID: LL2726

<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	0.20	100

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

Date Analyzed: 07/18/90

IT Corporation
August 28, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46115

DUPLICATE ANALYSIS

Results in mg/liter (ppm)

Sample Matrix: Water

Client Sample ID: 08-03-GW
Lab Sample ID: LL2726

<u>Parameter</u>	<u>Original Sample</u>	<u>Duplicate</u>	<u>RPD</u>
cyanide	0.01 U	0.01 U	NC

RPD - Relative Percent Difference

NC - Non-calculable RPD

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

Date Analyzed: 07/18/90

CERTIFICATE OF ANALYSIS

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

August 30, 1990

Job Number: ITCY 46040

P.O. Number: 595392

This is the Certificate of Analysis for the following samples:

Client Project ID: NAS-Key West
Date Received by Lab: 06/26/90
Number of Samples: Seven (7)
Sample Type: Soil

I. Introduction

On 06/26/90, seven (7) soil 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.

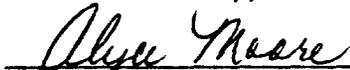
II. Analytical Results/Methodology

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 CLP data are not blank corrected and CLP soil results are reported on a dry weight basis. The samples submitted for TOC analysis were cancelled due to analytical holding time exceeded by the laboratory as a result of instrumentation problems. Samples were recollected and submitted at a later date. These samples will be reported under a separate ITAS project code.

The geotechnical parameters were performed at the IT-Technology Development laboratory, Knoxville, Tennessee. A separate laboratory report for these parameters will follow.

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.

Reviewed and Approved:


Alyce Moore
Laboratory Manager

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

Client Project ID: NAS-Key West

Job Number: ITCY 46040

II. Analytical Results/Methodology (continued)

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

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 07/05/90 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 07/23/90 by direct injection of sample extract on a Restek RTX-5 capillary column on a VG TRIO-1 GC/MS/DS. Both volatiles and semivolatiles runs went well, although fairly high levels of non-TCL peaks were seen. The semivolatiles samples were diluted fourfold before analysis. In the semivolatiles TICs, some aldol or similar extraction generated products were seen; these were flagged with "A" qualifiers. Other suspected extraction background were (tentative) octadecenamide and tetrahydropyrandiol. EPA NIST matches especially for unsubstituted hydrocarbons were often equivocal, and the class of the compound was listed if possible. In the volatiles TICs, trichlorofluoromethane was listed: it was detected and quantitated against a daily standard. In review of the data for volatiles sample Site 5, MW3, it was determined that two peaks originally thought to be TICs were actually broad carryover peaks from MW2, and these were eliminated. Associated QC samples were analyzed with ITAS project ITCY 46000, sample Site 5, Plot 1. There were no other problems seen in final review of the data for either the volatiles or semivolatiles fraction.

The pesticide/PCB analyses were performed from 07/31/90 to 08/14/90 using a mixed phase (SP2250/2401) Varian 3740B and (SPB-5) Varian 3700F instrument. All water samples and the associated method blanks were heated for sulfur interferences. This cleanup was performed on 07/30/90 and 08/13/90 for the original extraction and the reextraction, respectively. Due to a low surrogate recovery calculated for sample LL1945, a reextraction was requested and data from both the original extraction and the reextraction are submitted. Since the dilutions on the reextraction are much higher, there is a possibility that there was a problem with the original extraction procedure, or sample nonhomogeneity may have been a factor. Associated QC samples were analyzed with ITAS project ITCY 46000, sample Site 5, Plot 1. No other problems were encountered.

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KNOXVILLE, TN

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III. Quality Control (continued)

The samples were digested on 07/12/90 for ICP and 07/10/90 for GFAA. The samples for mercury analysis were prepared just prior to analysis. The CVAA analysis for mercury was performed on 07/05/90; the GFAA analyses for arsenic, lead, selenium and thallium were performed from 07/11 to 07/25/90; the remaining metals were analyzed by ICP on 07/25/90. All run QC was acceptable. Associated QC samples were analyzed with ITAS project ITCY 46000, sample Site 5, Plot 1. The high levels of calcium detected in the samples caused interferences which resulted in false positive signals for silver; therefore, the silver values were reported from dilution runs in order to minimize the possibility of reporting these false positives. No other problems were encountered.

The samples were analyzed for cyanide on 07/03/90. Associated QC samples were analyzed with ITAS project ITCY 46000, sample Site 5, Plot 1. No problems were encountered.

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46040

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: Method Blank
Lab Sample ID: EB0705

<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 J	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-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	1 J
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	2 J
2-butanone	3 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: 07/05/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46040

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: Method Blank
Lab Sample ID: EB0705

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 46040

SOIL SURROGATE PERCENT RECOVERY SUMMARY

Sample No.	VOLATILE		
	<u>Toluene-D8</u> <u>(81-117%)*</u>	<u>BFB</u> <u>(74-121%)*</u>	<u>1,2 Dichloroethane-D4</u> <u>(70-121%)*</u>
Site 5, MW2	91	87	85
Site 5, MW3	93	92	88
Method Blank	96	91	97

*Values in parenthesis represent USEPA contract required QC limits.

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IT ANALYTICAL SERVICES
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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46040

SEMIVOLATILE TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: Method Blank
Lab Sample ID: BLA1280

<u>Compound</u>		<u>Compound</u>	
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: 07/05/90
Date Analyzed: 07/23/90
Dilution Factor: 1

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in ug/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: Method Blank
Lab Sample ID: BLA1280

<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
m-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: 07/05/90
Date Analyzed: 07/23/90
Dilution Factor: 1

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KNOXVILLE, TN

Client Project ID: NAS-Key West

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ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: Method Blank
Lab Sample ID: BLA1280

<u>Tentative Identification (1)</u>	<u>Concentration (2)</u>
2-pentanone, 4-hydroxy-4-methyl-	59,000 A
3-penten-2-one, 4-methyl-	3,800 A
unknown (hydroxypentanone?)	1,000 A
unknown	220 A
unknown	220

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.

SOIL SURROGATE PERCENT RECOVERY SUMMARY

SEMI-VOLATILE

Sample No.	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%)*
Site 5, MW2	81	84	91	78	82	85
Site 5, MW3	87	90	98	89	90	96
Method Blank	70	71	88	72	74	78

*Values in parenthesis represent USEPA contract required QC limits.

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IT ANALYTICAL SERVICES
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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46040

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: Method Blank 1
Lab Sample ID: BLA1280

<u>Compound</u>		<u>Compound</u>	
α -BHC	8.0 U	endosulfan sulfate	16 U
β -BHC	8.0 U	4,4'-DDT	16 U
δ -BHC	8.0 U	methoxychlor	80 U
γ -BHC (lindane)	8.0 U	endrin ketone	16 U
heptachlor	8.0 U	α -chlordane	80 U
aldrin	8.0 U	γ -chlordane	80 U
heptachlor epoxide	8.0 U	toxaphene	160 U
endosulfan I	8.0 U	Aroclor 1016	80 U
dieldrin	16 U	Aroclor 1221	80 U
4,4'-DDE	16 U	Aroclor 1232	80 U
endrin	16 U	Aroclor 1242	80 U
endosulfan II	16 U	Aroclor 1248	80 U
4,4'-DDD	16 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: 07/05/90
Date Analyzed: 07/31/90
Dilution Factor: 1

This method blank applies to the following samples: Site 5, MW2; Site 5, MW2 DL; Site 5, MW3; Site 5, MW3 DL.

DL - Dilution

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KNOXVILLE, TN

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Job Number: ITCY 46000

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: Method Blank
Lab Sample ID: VB0629

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
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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46000

VOLATILE ORGANIC TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: Site 5, Plot 1
Lab Sample ID: LL1291

<u>Compound</u>		<u>Compound</u>	
chloromethane	12 U	1,2-dichloropropane	6 U
bromomethane	12 U	cis-1,3-dichloropropene	6 U
vinyl chloride	12 U	trichloroethene	6 U
chloroethane	12 U	dibromochloromethane	6 U
methylene chloride	17 B	1,1,2-trichloroethane	6 U
acetone	6 J	benzene	6 U
carbon disulfide	6 U	trans-1,3-dichloropropene	6 U
1,1-dichloroethene	6 U	bromoform	6 U
1,1-dichloroethane	6 U	4-methyl-2-pentanone	12 U
1,2-dichloroethene (total)	6 U	2-hexanone	12 U
chloroform	11	tetrachloroethene	6 U
1,2-dichloroethane	6 U	1,1,2,2-tetrachloroethane	6 U
2-butanone	12 U	toluene	6 U
1,1,1-trichloroethane	6 U	chlorobenzene	6 U
carbon tetrachloride	6 U	ethylbenzene	6 U
vinyl acetate	12 U	styrene	6 U
bromodichloromethane	2 J	total xylenes	2 J

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: 06/29/90
Dilution Factor: 1.00
% Moisture: 17

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46000

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: Site 5, Plot 1
Lab Sample ID: LL1291

<u>Tentative Identification (1)</u>	<u>Concentration (2)</u>
unknown (freon ?)	6.6
1,4-cyclohexadiene,1-methyl-	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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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46000

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

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

Client Sample ID: Site 5, Plot 1
Lab Sample ID: LL1291

	<u>Conc. Spike Added</u>	<u>Sample Conc.</u>	<u>MS Conc.</u>	<u>MS % Rec.</u>
1,1-dichloroethene	60.2	6 U	90.6	151
trichloroethene	60.2	6 U	62.3	104
benzene	60.2	6 U	61.2	102
toluene	60.2	6 U	65.5	109
chlorobenzene	60.2	6 U	67.1	112

	<u>Conc. Spike Added</u>	<u>MSD Conc.</u>	<u>MSD % Rec.</u>	<u>RPD</u>
1,1-dichloroethene	60.2	87.3	145	4
trichloroethene	60.2	63.4	105	-1
benzene	60.2	62.5	104	-2
toluene	60.2	64.8	108	1
chlorobenzene	60.2	67.8	113	-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 Analyzed: 06/29/90

Project ID: NAS-Key West

Job Number: ITCY 46000

SEMIVOLATILE TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: Site 5, Plot 1
Lab Sample ID: LL1297

<u>Compound</u>		<u>Compound</u>	
phenol	2,000 U	bis(2-chloroethoxy)methane	2,000 U
bis(2-chloroethyl)ether	2,000 U	2,4-dichlorophenol	2,000 U
2-chlorophenol	2,000 U	1,2,4-trichlorobenzene	3,500
1,3-dichlorobenzene	390 J	naphthalene	6,000
1,4-dichlorobenzene	430 J	4-chloroaniline	2,000 U
benzyl alcohol	2,000 U	hexachlorobutadiene	2,000 U
1,2-dichlorobenzene	2,000 U	4-chloro-3-methylphenol	2,000 U
2-methylphenol	2,000 U	2-methylnaphthalene	25,000
;(2-chloroisopropyl)ether	2,000 U	hexachlorocyclopentadiene	2,000 U
4-methylphenol	2,000 U	2,4,6-trichlorophenol	2,000 U
n-nitroso-di-n-propylamine	2,000 U	2,4,5-trichlorophenol	9,500 U
hexachloroethane	2,000 U	2-chloronaphthalene	2,000 U
nitrobenzene	2,000 U	2-nitroaniline	9,500 U
isophorone	2,000 U	dimethyl phthalate	2,000 U
2-nitrophenol	2,000 U	acenaphthylene	2,000 U
2,4-dimethylphenol	2,000 U	2,6-dinitrotoluene	2,000 U
benzoic acid	9,500 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.

Date Extracted: 06/25/90
Date Analyzed: 07/27/90
Dilution Factor: 5.0
% Moisture: 17

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46000

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: Site 5, Plot 1
Lab Sample ID: LL1297

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	9,500 U	anthracene	210 J
acenaphthene	2,000 U	di-n-butylphthalate	2,000 U
2,4-dinitrophenol	9,500 U	fluoranthene	2,000 U
4-nitrophenol	9,500 U	pyrene	2,000 U
dibenzofuran	2,000 U	butylbenzylphthalate	2,000 U
2,4-dinitrotoluene	2,000 U	3,3'-dichlorobenzidine	3,900 U
diethylphthalate	2,000 U	benzo(a)anthracene	2,000 U
4-chlorophenyl-phenylether	2,000 U	chrysene	2,000 U
fluorene	2,000 U	bis(2-ethylhexyl)phthalate	2,100
4-nitroaniline	9,500 U	di-n-octylphthalate	2,000 U
4,6-dinitro-2-methylphenol	9,500 U	benzo(b)fluoranthene	2,000 U
n-nitrosodiphenylamine ¹	2,000 U	benzo(k)fluoranthene	2,000 U
4-bromophenyl-phenylether	2,000 U	benzo(a)pyrene	2,000 U
hexachlorobenzene	2,000 U	indeno(1,2,3-cd)pyrene	2,000 U
pentachlorophenol	9,500 U	dibenzo(a,h)anthracene	2,000 U
phenanthrene	2,600	benzo(g,h,i)perylene	2,000 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.

1 - Detected as diphenylamine.

Date Extracted: 06/25/90
Date Analyzed: 07/27/90
Dilution Factor: 5.0
% Moisture: 17

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August 17, 1990

IT ANALYTICAL SERVICES
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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46000

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: Site 5, Plot 1
Lab Sample ID: LL1297

<u>Tentative Identification (1)</u>	<u>Concentration (2)</u>
2-pentanone, 4-hydroxy-4-methyl- unknown (C13 saturated HC)	63,000 AB
unknown (saturated HC)	76,000
unknown (saturated HC)	43,000
unknown (saturated HC)	93,000
unknown (saturated HC)	67,000
unknown (saturated HC)	140,000
unknown (saturated HC)	140,000
unknown (saturated HC)	170,000
unknown (saturated HC)	56,000
unknown (saturated HC)	70,000
unknown (saturated HC)	180,000
unknown (saturated HC)	64,000
unknown (C19 saturated HC)	110,000
unknown (saturated HC)	68,000
unknown (saturated HC)	66,000
unknown (saturated HC)	75,000
m,p'-DDD	120,000
m,p'-DDD	160,000
p,p'-DDT	150,000
chlorobenzilate	52,000

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.

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IT ANALYTICAL SERVICES
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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46000

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

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

Client Sample ID: Site 5, Plot 1
Lab Sample ID: LL1297

	<u>Conc.</u> <u>Spike Added</u>	<u>Sample</u> <u>Conc.</u>	<u>MS</u> <u>Conc.</u>	<u>MS %</u> <u>Rec.</u>
phenol	7,900	2,000 U	6,280	79
2-chlorophenol	7,900	2,000 U	7,790	99
1,4-dichlorobenzene	3,950	433 J	4,520	104
n-nitroso-di-n-propylamine	3,950	2,000 U	3,580	91
1,2,4-trichlorobenzene	3,950	3,480	8,020	115 *
4-chloro-3-methylphenol	7,900	2,000 U	8,020	102
acenaphthene	3,950	2,000 U	4,600	116
4-nitrophenol	7,900	9,500 U	16,200	205 *
2,4-dinitrotoluene	3,950	2,000 U	8,560	217 *
pentachlorophenol	7,900	9,500 U	8,670	110 *
pyrene	3,950	2,000 U	4,070	103

	<u>Conc.</u> <u>Spike Added</u>	<u>MSD</u> <u>Conc.</u>	<u>MSD %</u> <u>Rec.</u>	<u>RPD</u>
phenol	7,900	5,690	72	9
2-chlorophenol	7,900	7,070	89	11
1,4-dichlorobenzene	3,950	4,050	92	12
n-nitroso-di-n-propylamine	3,950	3,240	82	10
1,2,4-trichlorobenzene	3,950	7,030	90	24 *
4-chloro-3-methylphenol	7,900	7,150	91	11
acenaphthene	3,950	4,190	106	9
4-nitrophenol	7,900	10,800	137 *	40
2,4-dinitrotoluene	3,950	7,880	200 *	8
pentachlorophenol	7,900	8,200	104	6
pyrene	3,950	3,180	81	24

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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IT ANALYTICAL SERVICES
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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46000

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: Site 5, Plot 1
Lab Sample ID: LL1297

<u>Compound</u>		<u>Compound</u>	
α -BHC	3,600 J	endosulfan sulfate	95,000 U
β -BHC	48,000 U	4,4'-DDT	3,000,000 F
δ -BHC	4,800 J	methoxychlor	480,000 U
γ -BHC (lindane)	48,000 U	endrin ketone	95,000 U
heptachlor	48,000 U	α -chlordane	480,000 U
aldrin	48,000 U	γ -chlordane	480,000 U
heptachlor epoxide	48,000 U	toxaphene	950,000 U
endosulfan I	48,000 U	Aroclor 1016	480,000 U
dieldrin	95,000 U	Aroclor 1221	480,000 U
4,4'-DDE	100,000 Z	Aroclor 1232	480,000 U
endrin	95,000 U	Aroclor 1242	480,000 U
endosulfan II	95,000 U	Aroclor 1248	480,000 U
4,4'-DDD	1,700,000 F	Aroclor 1254	950,000 U
		Aroclor 1260	950,000 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.

Z - No estimated value reported, or an elevated CRQL reported because matrix effects interfered with or obscured the compound on one or both columns. In either situation, the compound does not confirm as a positive identification.

F - The peak is offscale and therefore out of linear range. The value reported is an estimated value.

Date Extracted: 06/25/90
Date Analyzed: 06/28/90
Dilution Factor: 5,000
% Moisture: 17

IT Corporation
August 17, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46000

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

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

Client Sample ID: Site 5, Plot 1
Lab Sample ID: LL1297

	<u>Conc. Spike Added</u>	<u>Sample Conc.</u>	<u>MS Conc.</u>	<u>MS % Rec.</u>
γ -BHC (lindane)	31.7	48,000 U	48,000 U	0 *
heptachlor	31.7	48,000 U	48,000 U	0 *
aldrin	31.7	48,000 U	48,000 U	0 *
dieldrin	79.3	95,000 U	95,000 U	0 *
endrin	79.3	95,000 U	95,000 U	0 *
4,4'-DDT	79.3	3,000,000	2,140,000	-999 *

	<u>Conc. Spike Added</u>	<u>MSD Conc.</u>	<u>MSD % Rec.</u>	<u>% RPD</u>
γ -BHC (lindane)	31.7	48,000 U	0 *	0
heptachlor	31.7	48,000 U	0 *	0
aldrin	31.7	48,000 U	0 *	0
dieldrin	79.3	95,000 U	0 *	0
endrin	79.3	95,000 U	0 *	0
4,4'-DDT	79.3	2,750,000	-999 *	0

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.

COMMENTS: High dilution for other pesticides present diluted out MS and MSD compounds. Recoveries could not be calculated.

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46000

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: Site 5, Plot 1DL
Lab Sample ID: LL1297DL

<u>Compound</u>		<u>Compound</u>	
α -BHC	480,000 U	endosulfan sulfate	950,000 U
β -BHC	480,000 U	4,4'-DDT	2,800,000 D
δ -BHC	480,000 U	methoxychlor	4,800,000 U
γ -BHC (lindane)	480,000 U	endrin ketone	950,000 U
heptachlor	480,000 U	α -chlordane	4,800,000 U
aldrin	480,000 U	γ -chlordane	4,800,000 U
heptachlor epoxide	480,000 U	toxaphene	9,500,000 U
endosulfan I	480,000 U	Aroclor 1016	4,800,000 U
dieldrin	950,000 U	Aroclor 1221	4,800,000 U
4,4'-DDE	950,000 U	Aroclor 1232	4,800,000 U
endrin	950,000 U	Aroclor 1242	4,800,000 U
endosulfan II	950,000 U	Aroclor 1248	4,800,000 U
4,4'-DDD	1,800,000 D	Aroclor 1254	9,500,000 U
		Aroclor 1260	9,500,000 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.

Date Extracted: 06/25/90
Date Analyzed: 06/29/90
Dilution Factor: 50,000
% Moisture: 17

IT Corporation
August 17, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46000

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

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

Client Sample ID: Site 5, Plot 1DL
Lab Sample ID: LL1297DL

	<u>Conc. Spike Added</u>	<u>Sample Conc.</u>	<u>MS Conc.</u>	<u>MS % Rec.</u>
γ -BHC (lindane)	31.7	480,000 U	480,000 U	0 *
heptachlor	31.7	480,000 U	480,000 U	0 *
aldrin	31.7	480,000 U	480,000 U	0 *
dieldrin	79.3	950,000 U	950,000 U	0 *
endrin	79.3	950,000 U	950,000 U	0 *
4,4'-DDT	79.3	2,820,000	2,140,000	-999 *

	<u>Conc. Spike Added</u>	<u>MSD Conc.</u>	<u>MSD % Rec.</u>	<u>% RPD</u>
γ -BHC (lindane)	31.7	480,000 U	0 *	0
heptachlor	31.7	480,000 U	0 *	0
aldrin	31.7	480,000 U	0 *	0
dieldrin	79.3	950,000 U	0 *	0
endrin	79.3	950,000 U	0 *	0
4,4'-DDT	79.3	2,750,000	-999 *	0

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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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46000

TARGET ANALYTE LIST - INORGANICS

Results in mg/kg (ppm) dry weight

Sample Matrix: Soil

Client Sample ID: Site 5, Plot 1
Lab Sample ID: LL1294

aluminum	882	
antimony	3.8	U
arsenic	3.5	
barium	53.3	E
beryllium	0.13	U
cadmium	3.9	
calcium	323,000	
chromium	4.3	
cobalt	2.5	U
copper	10.7	
iron	1,480	E
lead	57.1	
magnesium	8,900	E
manganese	14.7	E
mercury	0.03	U
nickel	2.5	U
potassium	127	U
selenium	1.3	UW
silver	6.4	U
sodium	735	
thallium	0.25	UW
vanadium	2.1	B
zinc	50.9	E
% Solids	78.7	

- 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.
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: 06/27/90
Date Analyzed: 07/05/90 (ICP)
07/03 - 07/17/90 (GFAA)
06/27/90 (CVAA)

IT Corporation
August 17, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46000

MATRIX SPIKE RECOVERY

Results in mg/kg (ppm) dry weight

Sample Matrix: Soil

Client Sample ID: Site 5, Plot 1
Lab Sample ID: LL1294

	<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	49.7548	3.8119 U	63.53	78.3
arsenic	75-125	182.5527	3.8119 U	254.13	71.8 N
barium	75-125	230.1423	53.2999	254.13	69.6 N
beryllium	75-125	4.7281	0.1271 U	6.35	74.5 N
cadmium	75-125	26.6074	3.9479	6.35	356.8 N
chromium	75-125	24.8450	4.2884	25.41	80.9
cobalt	75-125	47.0813	2.5413 U	63.53	74.1 N
copper	75-125	38.6201	10.7192	31.77	87.8
iron		1,710.3355	1,483.5502	127.06	178.5
lead	75-125	92.4117	30.3189	63.53	97.7
manganese	75-125	53.5705	14.6709	63.53	61.2 N
mercury	75-125	0.1410	0.0254 U	0.13	108.5
nickel	75-125	48.0851	2.5413 U	63.53	75.7
selenium	75-125	173.4930	7.6239 U	254.13	68.3 N
silver	75-125	8.7840	6.3532 U	6.35	138.3 N
thallium	75-125	161.4549	3.8119 U	254.13	63.5 N
vanadium	75-125	50.8882	2.0801 B	63.53	76.8
zinc	75-125	120.2910	50.8640	63.53	109.3

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: 06/27/90
Date Analyzed: 07/05/90 (ICP)
07/03 - 07/17/90 (GFAA)
06/27/90 (CVAA)

Client Project ID: NAS-Key West

Job Number: ITCY 46000

DUPLICATE ANALYSIS

Results in mg/kg (ppm) dry weight

Sample Matrix: Soil

Client Sample ID: Site 5, Plot 1

Lab Sample ID: LL1294

	<u>Control Limit</u>	<u>Original Sample Concentration</u>	<u>Duplicate Concentration</u>	<u>Difference</u>
aluminum		882.3888	759.8907	14.9
antimony		3.8119 U	3.8119 U	
arsenic		3.8119 U	3.8119 U	
barium	25.4	53.2999	50.1665	6.1
beryllium		0.1271 U	0.1271 U	
cadmium		3.9479	7.9771	67.6 *
calcium		323,443.4562	331,435.8323	2.4
chromium	1.3	4.2884	5.4740	24.3
cobalt		2.5413 U	2.5413 U	
copper	3.2	10.7192	13.1703	20.5
iron		1,483.5502	1,472.5286	0.7
lead		30.3189	36.4905	18.5
magnesium	635.3	8,897.1893	2,041.5489	125.3 *
manganese	1.9	14.6709	8.3164	55.3 *
mercury		0.0254 U	0.0254 U	
nickel		2.5413 U	2.5413 U	
potassium		127.0648 U	127.0648 U	
selenium		7.6239 U	7.6239 U	
silver		6.3532 U	6.3532 U	
sodium	635.3	735.0419	678.2999	8.0
thallium		3.8119 U	3.8119 U	
vanadium		2.0801 B	2.0114 B	3.4
zinc		50.8640	65.8907	25.7 *

* - Out of USEPA advisory control limits

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: 06/27/90

Date Analyzed: 07/05/90 (ICP)

07/03 - 07/17/90 (GFAA)

06/27/90 (CVAA)

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46000

DUPLICATE ANALYSIS

Results in mg/kg (ppm) dry weight

Sample Matrix: Soil

Client Sample ID: Site 5, Plot 1
Lab Sample ID: LL1294

	<u>Control Limit</u>	<u>Original Sample Concentration</u>	<u>Duplicate Concentration</u>	<u>Difference</u>
arsenic	1.3	3.5222	1.9759	56.3 *
lead		57.0521	46.8234	19.7
selenium		1.2706 U	1.2706 U	
thallium		0.2541 U	0.2541 U	

* - Out of USEPA advisory control limits

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

Date Digested: 06/27/90
Date Analyzed: 07/05/90 (ICP)
07/03 - 07/17/90 (GFAA)
06/27/90 (CVAA)

IT Corporation
August 17, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46000

CYANIDE ANALYSIS

Results in mg/kg (ppm) dry weight

Sample Matrix: Soil

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Result</u>
P1303	Method Blank	0.5 U
LL1294	Site 5, Plot 1	0.5 U

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

Date Analyzed: 07/03/90

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August 17, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46000

MATRIX SPIKE RECOVERY

Results in mg/kg (ppm) dry weight

Sample Matrix: Soil

Client Sample ID: Site 5, Plot 1
Lab Sample ID: LL1294

<u>Compound</u>	<u>Conc. Spike Added</u>	<u>Sample Result</u>	<u>Conc. MS</u>	<u>% Rec.</u>
cyanide	5.00	0.5 U	1.32	26.4

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

Date Analyzed: 07/03/90

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August 17, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

ent Project ID: NAS-Key West

Job Number: ITCY 46000

DUPLICATE ANALYSIS

Results in mg/kg (ppm) dry weight

Sample Matrix: Soil

Client Sample ID: Site 5, Plot 1
Lab Sample ID: LL1294

<u>Parameter</u>	<u>Original Sample</u>	<u>Duplicate</u>	<u>RPD</u>
cyanide	0.5 U	0.5 U	0

RPD - Relative Percent Difference

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

Date Analyzed: 07/03/90

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Client Project ID: NAS-Key West

Job Number: ITCY 46000

POST DISTILLATION SPIKE

Results in mg/liter (ppm)

Sample Matrix: Distillate

Client Sample ID: Distillate Spike
Lab Sample ID: P1333

<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	0.09	90

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

Date Analyzed: 07/03/90

Client Project ID: NAS-Key West

Job Number: ITCY 46040

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: Site 5, MW2
Lab Sample ID: LL1942

<u>Compound</u>		<u>Compound</u>	
chloromethane	13 U	1,2-dichloropropane	6 U
bromomethane	13 U	cis-1,3-dichloropropene	6 U
vinyl chloride	13 U	trichloroethene	6 U
chloroethane	13 U	dibromochloromethane	6 U
methylene chloride	6 BJ	1,1,2-trichloroethane	6 U
acetone	10 BJ	benzene	6 U
carbon disulfide	2 J	trans-1,3-dichloropropene	6 U
1-dichloroethene	6 U	bromoform	6 U
1-dichloroethane	6 U	4-methyl-2-pentanone	13 U
1,2-dichloroethene (total)	6 U	2-hexanone	13 U
chloroform	6 U	tetrachloroethene	6 U
1,2-dichloroethane	6 U	1,1,2,2-tetrachloroethane	6 U
2-butanone	13 U	toluene	6 U
1,1,1-trichloroethane	6 U	chlorobenzene	6 U
carbon tetrachloride	6 U	ethylbenzene	6 U
vinyl acetate	13 U	styrene	6 U
bromodichloromethane	6 U	total xylenes	6 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: 07/05/90
Dilution Factor: 1
% Moisture: 20

IT Corporation
August 30, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46040

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: Site 5, MW2
Lab Sample ID: LL1942

Tentative Identification (1)

Concentration (2)

trichlorofluoromethane	4.8
pentane, 3-methyl-	99
unknown (alkylcyclohexane?)	7.3
unknown (alkylcyclohexane?)	11
unknown (alkene?)	14
unknown (alkylcyclopentane?)	6.9

- 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.

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46040

VOLATILE ORGANIC TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: Site 5, MW3
Lab Sample ID: LL1943

<u>Compound</u>		<u>Compound</u>	
chloromethane	13 U	1,2-dichloropropane	6 U
bromomethane	13 U	cis-1,3-dichloropropene	6 U
vinyl chloride	13 U	trichloroethene	6 U
chloroethane	13 U	dibromochloromethane	6 U
methylene chloride	46 B	1,1,2-trichloroethane	6 U
acetone	11 BJ	benzene	6 U
carbon disulfide	6 U	trans-1,3-dichloropropene	6 U
1,1-dichloroethene	6 U	bromoform	6 U
1,1-dichloroethane	6 U	4-methyl-2-pentanone	13 U
1,2-dichloroethene (total)	6 U	2-hexanone	10 BJ
chloroform	6 U	tetrachloroethene	6 U
1,2-dichloroethane	6 U	1,1,2,2-tetrachloroethane	6 U
2-butanone	13 U	toluene	6 U
1,1,1-trichloroethane	6 U	chlorobenzene	6 U
carbon tetrachloride	6 U	ethylbenzene	6 U
vinyl acetate	13 U	styrene	6 U
bromodichloromethane	6 U	total xylenes	6 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: 07/05/90
Dilution Factor: 1
% Moisture: 20

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46040

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: Site 5, MW3
Lab Sample ID: LL1943

Tentative Identification (1)

Concentration (2)

trichlorofluoromethane
pentane, 3-methyl-
pentane, 1,3-epoxy-4-methyl-

4.3
110
6.5

- 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 46040

SEMIVOLATILE TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: Site 5, MW2
Lab Sample ID: LL1944

<u>Compound</u>		<u>Compound</u>	
phenol	1,600 U	bis(2-chloroethoxy)methane	1,600 U
bis(2-chloroethyl)ether	1,600 U	2,4-dichlorophenol	1,600 U
2-chlorophenol	1,600 U	1,2,4-trichlorobenzene	1,600 U
1,3-dichlorobenzene	1,600 U	naphthalene	1,600 U
1,4-dichlorobenzene	1,600 U	4-chloroaniline	1,600 U
benzyl alcohol	1,600 U	hexachlorobutadiene	1,600 U
1,2-dichlorobenzene	1,600 U	4-chloro-3-methylphenol	1,600 U
2-methylphenol	1,600 U	2-methylnaphthalene	1,600 U
bis(2-chloroisopropyl)ether	1,600 U	hexachlorocyclopentadiene	1,600 U
o-methylphenol	1,600 U	2,4,6-trichlorophenol	1,600 U
n-nitroso-di-n-propylamine	1,600 U	2,4,5-trichlorophenol	8,000 U
hexachloroethane	1,600 U	2-chloronaphthalene	1,600 U
nitrobenzene	1,600 U	2-nitroaniline	8,000 U
isophorone	1,600 U	dimethyl phthalate	1,600 U
2-nitrophenol	1,600 U	acenaphthylene	1,600 U
2,4-dimethylphenol	1,600 U	2,6-dinitrotoluene	1,600 U
benzoic acid	8,000 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: 07/05/90
Date Analyzed: 07/23/90
Dilution Factor: 4
% Moisture: 20

IT Corporation
August 30, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46040

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: Site 5, MW2
Lab Sample ID: LL1944

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	8,000 U	anthracene	1,600 U
acenaphthene	1,600 U	di-n-butylphthalate	1,600 U
2,4-dinitrophenol	8,000 U	fluoranthene	1,600 U
4-nitrophenol	8,000 U	pyrene	1,600 U
dibenzofuran	1,600 U	butylbenzylphthalate	1,600 U
2,4-dinitrotoluene	1,600 U	3,3'-dichlorobenzidine	3,300 U
diethylphthalate	1,600 U	benzo(a)anthracene	1,600 U
4-chlorophenyl-phenylether	1,600 U	chrysene	1,600 U
fluorene	1,600 U	bis(2-ethylhexyl)phthalate	690 J
4-nitroaniline	8,000 U	di-n-octylphthalate	1,600 U
4,6-dinitro-2-methylphenol	8,000 U	benzo(b)fluoranthene	1,600 U
n-nitrosodiphenylamine ¹	1,600 U	benzo(k)fluoranthene	1,600 U
4-bromophenyl-phenylether	1,600 U	benzo(a)pyrene	1,600 U
hexachlorobenzene	1,600 U	indeno(1,2,3-cd)pyrene	1,600 U
pentachlorophenol	8,000 U	dibenzo(a,h)anthracene	1,600 U
phenanthrene	1,600 U	benzo(g,h,i)perylene	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.

1 - Detected as diphenylamine.

Date Extracted: 07/05/90
Date Analyzed: 07/23/90
Dilution Factor: 4
% Moisture: 20

IT Corporation
August 30, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46040

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: Site 5, MW2

Lab Sample ID: LL1944

Tentative Identification (1)

Concentration (2)

2-pentanone, 4-hydroxy-4-methyl-	91,000 AB
1,1-dichloro-2,2-bis(p-chlorophenyl)ethane	30,000
1,1-dichloro-2,2-bis(p-chlorophenyl)ethane	21,000
p,p'-DDT	6,300
DDMU	4,500
9-octadecenamide, (Z)-	3,300
3-penten-2-one, 4-methyl-	5,200 B
unknown	2,100
unknown aromatic hydrocarbon	1,800
1H-indene, octahydro-2,2,4,4,7,7-hexamethyl-, trans	1,700
unknown	1,400
unknown sat'd hydrocarbon	1,300
1H-indene, octahydro-2,2,4,4,7,7-hexamethyl-, trans	1,200
unknown	2,300 A
1,1-dichloro-2,2-bis(p-chlorophenyl)ethane	1,100
unknown	940
1,1-dichloro-2,2-bis(p-chlorophenyl)ethane	970
2H-pyran-2,3-diol, tetrahydro-, diacetate, cis-	1,900
ethanone, 1-(3-methyloxiranyl)-	1,700 A
3-hexen-2-one, 5-methyl-	1,500 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.

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

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46040

SEMIVOLATILE TARGET COMPOUND LIST

Results in ug/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: Site 5, MW3
Lab Sample ID: LL1945

<u>Compound</u>		<u>Compound</u>	
phenol	1,600 U	bis(2-chloroethoxy)methane	1,600 U
bis(2-chloroethyl)ether	1,600 U	2,4-dichlorophenol	1,600 U
2-chlorophenol	1,600 U	1,2,4-trichlorobenzene	1,600 U
1,3-dichlorobenzene	1,600 U	naphthalene	1,600 U
1,4-dichlorobenzene	1,600 U	4-chloroaniline	1,600 U
benzyl alcohol	1,600 U	hexachlorobutadiene	1,600 U
1,2-dichlorobenzene	1,600 U	4-chloro-3-methylphenol	1,600 U
2-methylphenol	1,600 U	2-methylnaphthalene	1,600 U
bis(2-chloroisopropyl)ether	1,600 U	hexachlorocyclopentadiene	1,600 U
4-methylphenol	1,600 U	2,4,6-trichlorophenol	1,600 U
n-nitroso-di-n-propylamine	1,600 U	2,4,5-trichlorophenol	7,900 U
hexachloroethane	1,600 U	2-chloronaphthalene	1,600 U
nitrobenzene	1,600 U	2-nitroaniline	7,900 U
isophorone	1,600 U	dimethyl phthalate	1,600 U
2-nitrophenol	1,600 U	acenaphthylene	1,600 U
2,4-dimethylphenol	1,600 U	2,6-dinitrotoluene	1,600 U
benzoic acid	7,900 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: 07/05/90
Date Analyzed: 07/23/90
Dilution Factor: 4
% Moisture: 20

Client Project ID: NAS-Key West

Job Number: ITCY 46040

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: Site 5, MW3
Lab Sample ID: LL1945

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	7,900 U	anthracene	1,600 U
acenaphthene	1,600 U	di-n-butylphthalate	1,600 U
2,4-dinitrophenol	7,900 U	fluoranthene	1,600 U
4-nitrophenol	7,900 U	pyrene	1,600 U
dibenzofuran	1,600 U	butylbenzylphthalate	1,600 U
2,4-dinitrotoluene	1,600 U	3,3'-dichlorobenzidine	3,300 U
diethylphthalate	1,600 U	benzo(a)anthracene	1,600 U
4-chlorophenyl-phenylether	1,600 U	chrysene	1,600 U
uorene	1,600 U	bis(2-ethylhexyl)phthalate	520 J
.-nitroaniline	7,900 U	di-n-octylphthalate	1,600 U
4,6-dinitro-2-methylphenol	7,900 U	benzo(b)fluoranthene	1,600 U
n-nitrosodiphenylamine ¹	1,600 U	benzo(k)fluoranthene	1,600 U
4-bromophenyl-phenylether	1,600 U	benzo(a)pyrene	1,600 U
hexachlorobenzene	1,600 U	indeno(1,2,3-cd)pyrene	1,600 U
pentachlorophenol	7,900 U	dibenzo(a,h)anthracene	1,600 U
phenanthrene	1,600 U	benzo(g,h,i)perylene	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.

1 - Detected as diphenylamine.

Date Extracted: 07/05/90
Date Analyzed: 07/23/90
Dilution Factor: 4
% Moisture: 20

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IT ANALYTICAL SERVICES
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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46040

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: Site 5, MW3
Lab Sample ID: LL1945

Tentative Identification (1)

Concentration (2)

2-pentanone, 4-hydroxy-4-methyl	100,000 AB
p,p'-DDT	4,000
3-penten-2-one, 4-methyl-	6,000 AB
9-octadecenamide, (Z)-	2,200
1,1-dichloro-2,2-bis(p-chlorophenyl)ethane	1,200
unknown (hydroxypentanone?)	1,700 AB
unknown	1,500 A
ethanone, 1-(3-methyloxiranyl)-	1,300 A
3-hexen-2-one, 5-methyl-	850 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.
B - Analyte was found in the blank as well as the sample.

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46040

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: Site 5, MW2
Lab Sample ID: LL1944

<u>Compound</u>		<u>Compound</u>	
α -BHC	1,000 U	endosulfan sulfate	2,000 U
β -BHC	1,000 U	4,4'-DDT	8,000 F
δ -BHC	1,000 U	methoxychlor	10,000 U
γ -BHC (lindane)	1,000 U	endrin ketone	2,000 U
heptachlor	1,000 U	α -chlordane	10,000 U
aldrin	1,000 U	γ -chlordane	10,000 U
heptachlor epoxide	1,000 U	toxaphene	20,000 U
endosulfan I	1,000 U	Aroclor 1016	10,000 U
dieldrin	2,000 U	Aroclor 1221	10,000 U
4,4'-DDE	7,000 F	Aroclor 1232	10,000 U
endrin	2,000 U	Aroclor 1242	10,000 U
endosulfan II	2,000 U	Aroclor 1248	10,000 U
4,4'-DDD	29,000 F	Aroclor 1254	20,000 U
		Aroclor 1260	20,000 U

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

F - The peak is offscale and therefore out of linear range. The value reported is an estimated value.

Date Extracted: 07/05/90
Date Analyzed: 08/01/90
Dilution Factor: 100
% Moisture: 20

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46040

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in µg/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: Site 5, MW2 DL
Lab Sample ID: LL1944 DL

<u>Compound</u>		<u>Compound</u>	
α-BHC	10,000 U	endosulfan sulfate	20,000 U
β-BHC	10,000 U	4,4'-DDT	8,100 DJ
δ-BHC	10,000 U	methoxychlor	100,000 U
γ-BHC (lindane)	10,000 U	endrin ketone	20,000 U
heptachlor	10,000 U	α-chlordane	100,000 U
aldrin	10,000 U	γ-chlordane	100,000 U
heptachlor epoxide	10,000 U	toxaphene	200,000 U
endosulfan I	10,000 U	Aroclor 1016	100,000 U
dieldrin	20,000 U	Aroclor 1221	100,000 U
4,4'-DDE	8,400 DJ	Aroclor 1232	100,000 U
endrin	20,000 U	Aroclor 1242	100,000 U
endosulfan II	20,000 U	Aroclor 1248	100,000 U
4,4'-DDD	37,000 D	Aroclor 1254	200,000 U
		Aroclor 1260	200,000 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.

D - Compound analyzed at a secondary dilution factor.

Date Extracted: 07/05/90
Date Analyzed: 08/01/90
Dilution Factor: 1,000
% Moisture: 20

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IT ANALYTICAL SERVICES
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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46040

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: Site 5, MW3
Lab Sample ID: LL1945

<u>Compound</u>		<u>Compound</u>	
α -BHC	20 U	endosulfan sulfate	40 U
β -BHC	20 U	4,4'-DDT	1,000 F
δ -BHC	20 U	methoxychlor	200 U
γ -BHC (lindane)	20 U	endrin ketone	40 U
heptachlor	20 U	α -chlordane	200 U
aldrin	20 U	γ -chlordane	200 U
heptachlor epoxide	20 U	toxaphene	400 U
endosulfan I	20 U	Aroclor 1016	200 U
dieldrin	40 U	Aroclor 1221	200 U
4,4'-DDE	96 F	Aroclor 1232	200 U
endrin	40 U	Aroclor 1242	200 U
endosulfan II	40 U	Aroclor 1248	200 U
4,4'-DDD	40 U	Aroclor 1254	400 U
		Aroclor 1260	400 U

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

F - The peak is offscale and therefore out of linear range. The value reported is an estimated value.

Date Extracted: 07/05/90
Date Analyzed: 07/31/90
Dilution Factor: 2
% Moisture: 20

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46040

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: Site 5, MW3 DL
Lab Sample ID: LL1945 DL

<u>Compound</u>		<u>Compound</u>	
α -BHC	200 U	endosulfan sulfate	400 U
β -BHC	200 U	4,4'-DDT	1,000 D
δ -BHC	200 U	methoxychlor	2,000 U
γ -BHC (lindane)	200 U	endrin ketone	400 U
heptachlor	200 U	α -chlordane	2,000 U
aldrin	200 U	γ -chlordane	2,000 U
heptachlor epoxide	200 U	toxaphene	4,000 U
endosulfan I	200 U	Aroclor 1016	2,000 U
dieldrin	400 U	Aroclor 1221	2,000 U
4,4'-DDE	100 DJ	Aroclor 1232	2,000 U
endrin	400 U	Aroclor 1242	2,000 U
endosulfan II	400 U	Aroclor 1248	2,000 U
4,4'-DDD	400 U	Aroclor 1254	4,000 U
		Aroclor 1260	4,000 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.

D - Compound analyzed at a secondary dilution factor.

Date Extracted: 07/05/90
Date Analyzed: 07/31/90
Dilution Factor: 20
% Moisture: 20

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ent Project ID: NAS-Key West

Job Number: ITCY 46040

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: Method Blank 2
Lab Sample ID: BLA1532RE

<u>Compound</u>		<u>Compound</u>	
α -BHC	8.0 U	endosulfan sulfate	16 U
β -BHC	8.0 U	4,4'-DDT	16 U
δ -BHC	8.0 U	methoxychlor	80 U
γ -BHC (lindane)	8.0 U	endrin ketone	16 U
heptachlor	8.0 U	α -chlordane	80 U
aldrin	8.0 U	γ -chlordane	80 U
heptachlor epoxide	8.0 U	toxaphene	160 U
endosulfan I	8.0 U	Aroclor 1016	80 U
dieldrin	16 U	Aroclor 1221	80 U
4,4'-DDE	16 U	Aroclor 1232	80 U
endrin	16 U	Aroclor 1242	80 U
endosulfan II	16 U	Aroclor 1248	80 U
4,4'-DDD	16 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: 08/09/90
Date Analyzed: 08/14/90
Dilution Factor: 1

This method blank applies to the following samples: Site 5, MW3 RE;
Site 5, MW3 RE DL.

DL - Dilution

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KNOXVILLE, TN

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Job Number: ITCY 46040

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: Site 5, MW3 RE
Lab Sample ID: LL1945 RE

<u>Compound</u>		<u>Compound</u>	
α -BHC	100 U	endosulfan sulfate	200 U
β -BHC	100 U	4,4'-DDT	3,100 F
δ -BHC	100 U	methoxychlor	1,000 U
γ -BHC (lindane)	100 U	endrin ketone	200 U
heptachlor	100 U	α -chlordane	1,000 U
aldrin	100 U	γ -chlordane	1,000 U
heptachlor epoxide	100 U	toxaphene	2,000 U
endosulfan I	100 U	Aroclor 1016	1,000 U
dieldrin	200 U	Aroclor 1221	1,000 U
4,4'-DDE	400 F	Aroclor 1232	1,000 U
endrin	200 U	Aroclor 1242	1,000 U
endosulfan II	200 U	Aroclor 1248	1,000 U
4,4'-DDD	200 U	Aroclor 1254	2,000 U
		Aroclor 1260	2,000 U

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

F - The peak is offscale and therefore out of linear range. The value reported is an estimated value.

Date Extracted: 08/09/90
Date Analyzed: 08/14/90
Dilution Factor: 10
% Moisture: 20

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46040

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in µg/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: Site 5, MW3 RE DL
Lab Sample ID: LL1945 RE DL

<u>Compound</u>		<u>Compound</u>	
α-BHC	1,000 U	endosulfan sulfate	2,000 U
β-BHC	1,000 U	4,4'-DDT	3,300 D
δ-BHC	1,000 U	methoxychlor	10,000 U
γ-BHC (lindane)	1,000 U	endrin ketone	2,000 U
heptachlor	1,000 U	α-chlordane	10,000 U
aldrin	1,000 U	γ-chlordane	10,000 U
heptachlor epoxide	1,000 U	toxaphene	20,000 U
dosulfan I	1,000 U	Aroclor 1016	10,000 U
dieldrin	2,000 U	Aroclor 1221	10,000 U
4,4'-DDE	410 DJ	Aroclor 1232	10,000 U
endrin	2,000 U	Aroclor 1242	10,000 U
endosulfan II	2,000 U	Aroclor 1248	10,000 U
4,4'-DDD	2,000 U	Aroclor 1254	20,000 U
		Aroclor 1260	20,000 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.

D - Compound analyzed at a secondary dilution factor.

Date Extracted: 08/09/90
Date Analyzed: 08/14/90
Dilution Factor: 100
% Moisture: 20

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46040

SOIL SURROGATE PERCENT RECOVERY SUMMARY

Sample No.	PESTICIDE
	Dibutylchloroendate (20-150%)*
Method Blank 1	93
Method Blank 2	92
Site 5, MW2	0 D
Site 5, MW2 DL	0 D
Site 5, MW3	17 **
Site 5, MW3 DL	6 **
Site 5, MW3 RE	97
Site 5, MW3 RE DL	50

* - Values in parenthesis represent USEPA advisory QC limits.

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

D - Surrogates diluted out.

DL - Dilution

RE - Reanalyzed

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Job Number: ITCY 46040

METALS ANALYSIS

Results in mg/kg (ppm) dry weight

Sample Matrix: Soil

Client Sample ID: Lab Sample ID:	Method Blank <u>PBSC2580/C2553</u>	Site 5, MW2 <u>LL1946</u>
aluminum	4.0 U	2,070
antimony	3.0 U	3.6 U
arsenic	0.2 U	0.51 BW
barium	0.2 U	12.5 B
beryllium	0.1 U	0.12 U
cadmium	0.5 U	0.60 U
calcium	3.0 U	284,000
chromium	1.0 U	4.8
cobalt	2.0 U	2.4 U
copper	1.0 U	1.2 U
iron	1.0 U	1,160
lead	0.2 U	5.5
magnesium	3.0 U	7,530
manganese	0.2 U	10.0
mercury	0.02 U	0.02 U
nickel	2.0 U	2.4 U
potassium	100.0 U	120 U
selenium	0.2 U	0.48 UW
silver	0.5 U	3.0 U
sodium	20.0 U	1,660
thallium	0.2 U	0.24 UW
vanadium	1.0 U	2.9 B
zinc	1.6 B	11.9
% Solids:	-	83.5

- 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: 07/10 and 07/12/90
Date Analyzed: 07/25/90 (ICP)
07/19 - 07/25/90 (GFAA)
07/05/90 (CVAA)

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46040

METALS ANALYSIS

Results in mg/kg (ppm) dry weight

Sample Matrix: Soil

Client Sample ID:	Site 5, MW3
Lab Sample ID:	LL1947
aluminum	119
antimony	3.8 U
arsenic	0.26 BW
barium	6.9 B
beryllium	0.13 U
cadmium	0.64 U
calcium	405,000
chromium	2.2
cobalt	2.6 U
copper	1.3 U
iron	133
lead	0.40
magnesium	1,110
manganese	2.0
mercury	0.03 U
nickel	2.6 U
potassium	128 U
selenium	0.51 UW
silver	386
sodium	1,230
thallium	0.26 UW
vanadium	1.3 U
zinc	9.9
% Solids:	78.4

- 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 per. sample absorbance was less than 50% of spike absorbance.

Date Digested: 07/10 and 07/12/90
Date Analyzed: 07/25/90 (ICP)
07/19 - 07/25/90 (GFAA)
07/05/90 (CVAA)

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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46040

CYANIDE ANALYSIS

Results in mg/kg (ppm) dry weight

Sample Matrix: Soil

Client Sample ID: Lab Sample ID:	Method Blank P1303	Site 5, MW2 LL1946	Site 5, MW3 LL1947
	0.5 U	0.5 U	0.5 U

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

Date Analyzed: 07/03/90