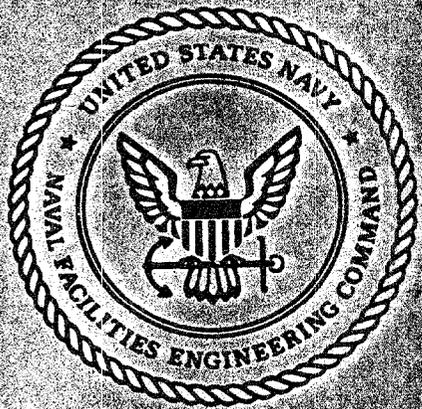


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NAS KEY WEST
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FINAL REMEDIAL INVESTIGATION REPORT PHASE 1 FOR SITE 1, SITE 3, SITE 4, SITE 5,
SITE 7, SITE 8, SITE 9 AND SITE 10 APPENDIX G VOLUME 5 OF 5 NAS KEY WEST FL
5/1/1991
IT CORPORATION

007

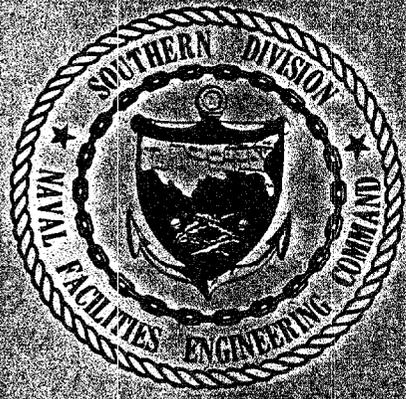
FINAL REPORT



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

IR 7	SED
IR 8	SED
IR 7	GW <i>max</i>
IR 7	SW
Sum 03	GW
IR 8	SW

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



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

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

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

APPENDIX G - CERTIFICATES OF ANALYSIS
VOLUME 5

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

SEP 25 1990

I.T. CORPORATION
TAMPA, FLORIDA

CERTIFICATE OF ANALYSIS

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

September 20, 1990

Job Number: ITCY 46179 (CLP Data)

P.O. Number: 595392.08

This is the Certificate of Analysis for the following samples:

Client Project ID: NAS-Key West
Date Received by Lab: 07/17/90
Number of Samples: Eight (8)
Sample Type: Soil

I. Introduction

On 07/17/90, eight (8) 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 were analyzed for Target Compound List (TCL) volatiles and semivolatiles by gas chromatography/mass spectroscopy (GC/MS) in accordance with the EPA CLP 2/88 Statement of Work.

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

Reviewed and Approved:

Alyce Moore
Alyce Moore
Laboratory Manager

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

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

II. Analytical Results/Methodology (continued)

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

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

III. Quality Control

The volatiles analyses were performed on 07/25 and 07/26/90 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 08/16, 08/17, 08/19, 08/21, and 08/22/90 by direct injection of sample extract on a Restek RTX-5 capillary column on a Finnigan 4500 GC/MS/DS. The volatiles runs went well. Sample 08-01-SED showed an evident matrix effect in that both an original and rerun showed some surrogate or internal standard variance. The deviations were not extreme, however; both run data were reported. Standardization for the analysis included initial and continuing calibrations for all TCL compounds. The semivolatiles runs went well. In the TIC analyses, several compounds, aldol or similar, related to the acetone soil extraction were seen: these were given "A" qualifiers to distinguish them from possibly sample intrinsic species. Bromohexane (tentative) may also be an aldol related carbonyl product; the NIST match was ambiguous. Other TICs appeared to be mostly indistinguishable saturated hydrocarbons. Due to their viscous appearance, most extracts were diluted twofold before analysis. There were no other problems seen in the final review of the data for either the volatiles or semivolatiles fraction. Associated QC samples were analyzed with ITAS project ITCY 46151, sample 05-SED-U.

The pesticide/PCB analyses were performed from 07/25 to 09/07/90 using a mixed phase (SP2250/2401) Varian 3740B and a (SPB-5) Varian 3700-F instruments. All samples and the associated method blank were treated for sulfur interferences. Clean-up was performed on 08/07/90. Associated QC samples were analyzed with ITAS project ITCY 46151, sample 05-SED-U. No problems were encountered.

The samples were digested on 08/01 and 08/03/90 for ICP and GFAA. The samples for mercury analysis were prepared just prior to analysis. The CVAA analysis for mercury was performed from 08/02 to 08/08/90; the GFAA analyses for arsenic, lead, selenium, and thallium were performed from 08/23 to 09/11/90; the remaining metals were analyzed by ICP on 08/13 and 08/14/90. All run QC was acceptable. Associated QC samples were analyzed with ITAS project ITCY 46151, sample 05-SED-U. No problems were encountered.

The samples were analyzed for cyanide on 07/27/90. All run QC was acceptable. Associated QC samples were analyzed with ITAS project ITCY 46151, sample 05-SED-U. No problems were encountered.

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: Method Blank 1
Lab Sample ID: VB0725

<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
1,2-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.

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

This method blank applies to the following samples: 04-02-SED, 07-01-SED, 07-02-SED.

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: 07-01-SED
Lab Sample ID: LL3486

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.

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 07-02-SED

Lab Sample ID: LL3487

Compound

chloromethane	14 U
bromomethane	14 U
vinyl chloride	14 U
chloroethane	14 U
methylene chloride	5 J
acetone	14 U
carbon disulfide	7 U
1,1-dichloroethene	7 U
1,1-dichloroethane	7 U
1,2-dichloroethene (total)	7 U
chloroform	7 U
1,2-dichloroethane	7 U
2-butanone	14 U
1,1,1-trichloroethane	7 U
carbon tetrachloride	7 U
vinyl acetate	14 U
bromodichloromethane	7 U

Compound

1,2-dichloropropane	7 U
cis-1,3-dichloropropene	7 U
trichloroethene	7 U
dibromochloromethane	7 U
1,1,2-trichloroethane	7 U
benzene	7 U
trans-1,3-dichloropropene	7 U
bromoform	7 U
4-methyl-2-pentanone	14 U
2-hexanone	14 U
tetrachloroethene	7 U
1,1,2,2-tetrachloroethane	7 U
toluene	7 U
chlorobenzene	7 U
ethylbenzene	7 U
styrene	7 U
total xylenes	7 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: 07/25/90

Dilution Factor: 1

% Moisture: 26

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: 07-02-SED
Lab Sample ID: LL3487

Tentative Identification (1)

Concentration (2)

No additional peaks detected

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

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: Method Blank 2

Lab Sample ID: VB0726

<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.

RE - Re-extracted

Date Analyzed: 07/26/90

Dilution Factor: 1

This method blank applies to the following samples: 07-03-SED, 07-04-SED, 08-01-SED, 08-01-SED RE, 08-02-SED, 08-03-SED.

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: Method Blank 2
Lab Sample ID: VB0726

Tentative Identification (1)

Concentration (2)

No additional peaks detected

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

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: 07-03-SED
Lab Sample ID: LL3488

<u>Compound</u>		<u>Compound</u>	
chloromethane	11 U	1,2-dichloropropane	6 U
bromomethane	11 U	cis-1,3-dichloropropene	6 U
vinyl chloride	11 U	trichloroethene	6 U
chloroethane	11 U	dibromochloromethane	6 U
methylene chloride	3 J	1,1,2-trichloroethane	6 U
acetone	11 U	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	11 U
1,2-dichloroethene (total)	6 U	2-hexanone	11 U
chloroform	6 U	tetrachloroethene	6 U
1,2-dichloroethane	6 U	1,1,2,2-tetrachloroethane	6 U
2-butanone	11 U	toluene	6 U
1,1,1-trichloroethane	6 U	chlorobenzene	6 U
carbon tetrachloride	6 U	ethylbenzene	6 U
vinyl acetate	11 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.

Date Analyzed: 07/26/90
Dilution Factor: 1
% Moisture: 11

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: 07-03-SED
Lab Sample ID: LL3488

Tentative Identification (1)

Concentration (2)

No additional peaks detected

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

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: 07-04-SED
Lab Sample ID: LL3489

<u>Compound</u>		<u>Compound</u>	
chloromethane	15 U	1,2-dichloropropane	7 U
bromomethane	15 U	cis-1,3-dichloropropene	7 U
vinyl chloride	15 U	trichloroethene	7 U
chloroethane	15 U	dibromochloromethane	7 U
methylene chloride	4 J	1,1,2-trichloroethane	7 U
acetone	15 U	benzene	7 U
carbon disulfide	7 U	trans-1,3-dichloropropene	7 U
1,1-dichloroethene	7 U	bromoform	7 U
1,1-dichloroethane	7 U	4-methyl-2-pentanone	15 U
1,2-dichloroethene (total)	7 U	2-hexanone	15 U
chloroform	7 U	tetrachloroethene	7 U
1,2-dichloroethane	7 U	1,1,2,2-tetrachloroethane	7 U
2-butanone	15 U	toluene	7 U
1,1,1-trichloroethane	7 U	chlorobenzene	7 U
carbon tetrachloride	7 U	ethylbenzene	7 U
vinyl acetate	15 U	styrene	7 U
bromodichloromethane	7 U	total xylenes	7 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: 07/26/90
Dilution Factor: 1
% Moisture: 33

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: 07-04-SED
Lab Sample ID: LL3489

Tentative Identification (1)

Concentration (2)

No additional peaks detected

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

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: 08-01-SED
Lab Sample ID: LL3490

<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	10	1,1,2-trichloroethane	6 U
acetone	4 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	6 U	tetrachloroethene	6 U
1,2-dichloroethane	6 U	1,1,2,2-tetrachloroethane	6 U
2-butanone	12 U	toluene	3 J
1,1,1-trichloroethane	6 U	chlorobenzene	6 U
carbon tetrachloride	6 U	ethylbenzene	6 U
vinyl acetate	12 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.

Date Analyzed: 07/26/90
Dilution Factor: 1
% Moisture: 14

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: 08-01-SED
Lab Sample ID: LL3490

Tentative Identification (1)

Concentration (2)

No additional peaks detected

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

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in ug/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 08-01-SED RE
Lab Sample ID: LL3490

<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	14	1,1,2-trichloroethane	6 U
acetone	5 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	6 U	tetrachloroethene	6 U
1,2-dichloroethane	6 U	1,1,2,2-tetrachloroethane	6 U
2-butanone	12 U	toluene	5 J
1,1,1-trichloroethane	6 U	chlorobenzene	6 U
carbon tetrachloride	6 U	ethylbenzene	6 U
vinyl acetate	12 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.

Date Analyzed: 07/26/90
Dilution Factor: 1
% Moisture: 14

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: 08-01-SED RE
Lab Sample ID: LL3490

Tentative Identification (1)

Concentration (2)

No additional peaks detected

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

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: 08-02-SED
Lab Sample ID: LL3491

<u>Compound</u>		<u>Compound</u>	
chloromethane	11 U	1,2-dichloropropane	6 U
bromomethane	11 U	cis-1,3-dichloropropene	6 U
vinyl chloride	11 U	trichloroethene	6 U
chloroethane	11 U	dibromochloromethane	6 U
methylene chloride	7	1,1,2-trichloroethane	6 U
acetone	11 U	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	11 U
1,2-dichloroethene (total)	6 U	2-hexanone	11 U
chloroform	6 U	tetrachloroethene	6 U
1,2-dichloroethane	6 U	1,1,2,2-tetrachloroethane	6 U
2-butanone	11 U	toluene	6 U
1,1,1-trichloroethane	6 U	chlorobenzene	6 U
carbon tetrachloride	6 U	ethylbenzene	6 U
vinyl acetate	11 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.

Date Analyzed: 07/26/90
Dilution Factor: 1
% Moisture: 10

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: 08-02-SED
Lab Sample ID: LL3491

Tentative Identification (1)

Concentration (2)

No additional peaks detected

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

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: 08-03-SED
Lab Sample ID: LL3492

<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	7	1,1,2-trichloroethane	6 U
acetone	12 U	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	6 U	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	6 U	total xylenes	6 U

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

Date Analyzed: 07/26/90
Dilution Factor: 1
% Moisture: 14

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: 08-03-SED
Lab Sample ID: LL3492

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 46179 (CLP Data)

SOIL SURROGATE PERCENT RECOVERY SUMMARY

<u>Sample No.</u>	<u>VOLATILE</u>		
	<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>
04-02-SED	106	91	77
07-01-SED	107	90	80
07-02-SED	111	84	77
07-03-SED	99	95	88
07-04-SED	110	83	83
08-01-SED	127 **	76	83
08-01-SED RE	123 **	67 **	76
08-02-SED	113	82	83
08-03-SED	107	88	82
Method Blank 1	99	98	86
Method Blank 2	94	92	86

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

RE - Re-extracted

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

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: BLA1379

Compound

phenol	330 U
bis(2-chloroethyl)ether	330 U
2-chlorophenol	330 U
1,3-dichlorobenzene	330 U
1,4-dichlorobenzene	330 U
benzyl alcohol	330 U
1,2-dichlorobenzene	330 U
2-methylphenol	330 U
bis(2-chloroisopropyl)ether	330 U
4-methylphenol	330 U
n-nitroso-di-n-propylamine	330 U
hexachloroethane	330 U
nitrobenzene	330 U
isophorone	330 U
2-nitrophenol	330 U
2,4-dimethylphenol	330 U
benzoic acid	1,600 U

Compound

bis(2-chloroethoxy)methane	330 U
2,4-dichlorophenol	330 U
1,2,4-trichlorobenzene	330 U
naphthalene	330 U
4-chloroaniline	330 U
hexachlorobutadiene	330 U
4-chloro-3-methylphenol	330 U
2-methylnaphthalene	330 U
hexachlorocyclopentadiene	330 U
2,4,6-trichlorophenol	330 U
2,4,5-trichlorophenol	1,600 U
2-chloronaphthalene	330 U
2-nitroaniline	1,600 U
dimethyl phthalate	330 U
acenaphthylene	330 U
2,6-dinitrotoluene	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.

Date Extracted: 07/24/90
Date Analyzed: 08/17/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in ug/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: Method Blank
Lab Sample ID: BLA1379

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	1,600 U	anthracene	330 U
acenaphthene	330 U	di-n-butylphthalate	330 U
2,4-dinitrophenol	1,600 U	fluoranthene	330 U
4-nitrophenol	1,600 U	pyrene	330 U
dibenzofuran	330 U	butylbenzylphthalate	330 U
2,4-dinitrotoluene	330 U	3,3'-dichlorobenzidine	660 U
diethylphthalate	330 U	benzo(a)anthracene	330 U
4-chlorophenyl-phenylether	330 U	chrysene	330 U
fluorene	330 U	bis(2-ethylhexyl)phthalate	330 U
4-nitroaniline	1,600 U	di-n-octylphthalate	330 U
4,6-dinitro-2-methylphenol	1,600 U	benzo(b)fluoranthene	330 U
n-nitrosodiphenylamine ¹	330 U	benzo(k)fluoranthene	330 U
4-bromophenyl-phenylether	330 U	benzo(a)pyrene	330 U
hexachlorobenzene	330 U	indeno(1,2,3-cd)pyrene	330 U
pentachlorophenol	1,600 U	dibenzo(a,h)anthracene	330 U
phenanthrene	330 U	benzo(g,h,i)perylene	330 U

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

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

1 - Detected as diphenylamine.

Date Extracted: 07/24/90
Date Analyzed: 08/17/90
Dilution Factor: 1

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 07-01-SED
Lab Sample ID: LL3494

<u>Compound</u>		<u>Compound</u>	
phenol	880 U	bis(2-chloroethoxy)methane	880 U
bis(2-chloroethyl)ether	880 U	2,4-dichlorophenol	880 U
2-chlorophenol	880 U	1,2,4-trichlorobenzene	880 U
1,3-dichlorobenzene	880 U	naphthalene	880 U
1,4-dichlorobenzene	880 U	4-chloroaniline	880 U
benzyl alcohol	880 U	hexachlorobutadiene	880 U
1,2-dichlorobenzene	880 U	4-chloro-3-methylphenol	880 U
2-methylphenol	880 U	2-methylnaphthalene	880 U
is(2-chloroisopropyl)ether	880 U	hexachlorocyclopentadiene	880 U
4-methylphenol	880 U	2,4,6-trichlorophenol	880 U
n-nitroso-di-n-propylamine	880 U	2,4,5-trichlorophenol	4,200 U
hexachloroethane	880 U	2-chloronaphthalene	880 U
nitrobenzene	880 U	2-nitroaniline	4,200 U
isophorone	880 U	dimethyl phthalate	880 U
2-nitrophenol	880 U	acenaphthylene	880 U
2,4-dimethylphenol	880 U	2,6-dinitrotoluene	880 U
benzoic acid	4,200 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: 07/24/90
Date Analyzed: 08/17/90
Dilution Factor: 2
% Moisture: 25

IT Corporation
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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 07-01-SED
Lab Sample ID: LL3494

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	4,200 U	anthracene	880 U
acenaphthene	880 U	di-n-butylphthalate	880 U
2,4-dinitrophenol	4,200 U	fluoranthene	880 U
4-nitrophenol	4,200 U	pyrene	880 U
dibenzofuran	880 U	butylbenzylphthalate	880 U
2,4-dinitrotoluene	880 U	3,3'-dichlorobenzidine	1,800 U
diethylphthalate	880 U	benzo(a)anthracene	880 U
4-chlorophenyl-phenylether	880 U	chrysene	880 U
luorene	880 U	bis(2-ethylhexyl)phthalate	310 J
4-nitroaniline	880 U	di-n-octylphthalate	880 U
4,6-dinitro-2-methylphenol	880 U	benzo(b)fluoranthene	880 U
n-nitrosodiphenylamine ¹	880 U	benzo(k)fluoranthene	880 U
4-bromophenyl-phenylether	880 U	benzo(a)pyrene	880 U
hexachlorobenzene	880 U	indeno(1,2,3-cd)pyrene	880 U
pentachlorophenol	880 U	dibenzo(a,h)anthracene	880 U
phenanthrene	880 U	benzo(g,h,i)perylene	880 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: 07/24/90
Date Analyzed: 08/17/90
Dilution Factor: 2
% Moisture: 25

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in ug/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 07-01-SED

Lab Sample ID: LL3494

Tentative Identification (1)

Concentration (2)

unknown (hydroxypentanone?)	2,600 AB
2-pentanone, 4-hydroxy-4-methyl-	36,000 AB
unknown (sat'd HC)	370 B
unknown	750 AB
hexane, 2-bromo-	360
5-hexen-2-one, 5-methyl-	3,800 A
3-heptanone, 2,4-dimethyl-	2,400 A
3-pentanone, 2,4-dimethyl-	690 A
unknown	2,400 A
hexadecanoic acid	1,000
unknown (sat'd HC)	390
unknown	1,600 A
unknown (sat'd HC)	1,500
unknown (sat'd HC)	460

A - Suspected aldol condensation product.

B - Compound was found in method blank.

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 46179 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 07-02-SED
Lab Sample ID: LL3495

<u>Compound</u>		<u>Compound</u>	
phenol	880 U	bis(2-chloroethoxy)methane	880 U
bis(2-chloroethyl)ether	880 U	2,4-dichlorophenol	880 U
2-chlorophenol	880 U	1,2,4-trichlorobenzene	880 U
1,3-dichlorobenzene	880 U	naphthalene	120 J
1,4-dichlorobenzene	880 U	4-chloroaniline	880 U
benzyl alcohol	880 U	hexachlorobutadiene	880 U
1,2-dichlorobenzene	880 U	4-chloro-3-methylphenol	880 U
2-methylphenol	880 U	2-methylnaphthalene	880 U
bis(2-chloroisopropyl)ether	880 U	hexachlorocyclopentadiene	880 U
4-methylphenol	880 U	2,4,6-trichlorophenol	880 U
n-nitroso-di-n-propylamine	880 U	2,4,5-trichlorophenol	4,300 U
hexachloroethane	880 U	2-chloronaphthalene	880 U
nitrobenzene	880 U	2-nitroaniline	4,300 U
isophorone	880 U	dimethyl phthalate	880 U
2-nitrophenol	880 U	acenaphthylene	880 U
2,4-dimethylphenol	880 U	2,6-dinitrotoluene	880 U
benzoic acid	4,300 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: 07/24/90
Date Analyzed: 08/20/90
Dilution Factor: 2
% Moisture: 26

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 07-02-SED
Lab Sample ID: LL3495

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	4,300 U	anthracene	140 J
acenaphthene	300 J	di-n-butylphthalate	880 U
2,4-dinitrophenol	4,300 U	fluoranthene	1,900
4-nitrophenol	4,300 U	pyrene	1,700
dibenzofuran	170 J	butylbenzylphthalate	880 U
2,4-dinitrotoluene	880 U	3,3'-dichlorobenzidine	1,800 U
diethylphthalate	880 U	benzo(a)anthracene	640 J
4-chlorophenyl-phenylether	880 U	chrysene	950
fluorene	180 J	bis(2-ethylhexyl)phthalate	350 J
3-nitroaniline	4,300 U	di-n-octylphthalate	880 U
4,6-dinitro-2-methylphenol	4,300 U	benzo(b)fluoranthene	630 J
n-nitrosodiphenylamine ¹	880 U	benzo(k)fluoranthene	610 J
4-bromophenyl-phenylether	880 U	benzo(a)pyrene	540 J
hexachlorobenzene	880 U	indeno(1,2,3-cd)pyrene	280 J
pentachlorophenol	4,300 U	dibenzo(a,h)anthracene	190 J
phenanthrene	2,100	benzo(g,h,i)perylene	310 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.

1 - Detected as diphenylamine.

Date Extracted: 07/24/90
Date Analyzed: 08/20/90
Dilution Factor: 2
% Moisture: 26

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: 07-02-SED
Lab Sample ID: LL3495

<u>Tentative Identification (1)</u>	<u>Concentration (2)</u>
unknown (hydroxypentanone?)	3,300 AB
2-pentanone, 4-hydroxy-4-methyl-	48,000 AB
unknown	450
unknown	620 AB
hexane, 2-bromo-	870
5-hexen-2-one, 5-methyl-	3,000 A
3-heptanone, 2,4-dimethyl-	4,600 A
unknown	540
unknown	630
unknown (cis ketone?)	720
hexadecanoic acid	920
unknown (unsaturated HC?)	660
unknown	450
unknown (sat'd HC)	510
unknown	1,800 A
unknown (sat'd HC)	2,700
benz[e]acephenanthrylene	530
unknown (sat's HC)	1,100
unknown	730
unknown	630

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 - Compound was found in method blank.

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 07-03-SED

Lab Sample ID: LL3496

Compound

Compound

phenol	730 U
bis(2-chloroethyl)ether	730 U
2-chlorophenol	730 U
1,3-dichlorobenzene	730 U
1,4-dichlorobenzene	730 U
benzyl alcohol	730 U
1,2-dichlorobenzene	730 U
2-methylphenol	730 U
bis(2-chloroisopropyl)ether	730 U
4-methylphenol	730 U
n-nitroso-di-n-propylamine	730 U
hexachloroethane	730 U
nitrobenzene	730 U
isophorone	730 U
2-nitrophenol	730 U
2,4-dimethylphenol	730 U
benzoic acid	3,600 U

bis(2-chloroethoxy)methane	730 U
2,4-dichlorophenol	730 U
1,2,4-trichlorobenzene	730 U
naphthalene	730 U
4-chloroaniline	730 U
hexachlorobutadiene	730 U
4-chloro-3-methylphenol	730 U
2-methylnaphthalene	730 U
hexachlorocyclopentadiene	730 U
2,4,6-trichlorophenol	730 U
2,4,5-trichlorophenol	3,600 U
2-chloronaphthalene	730 U
2-nitroaniline	3,600 U
dimethyl phthalate	730 U
acenaphthylene	730 U
2,6-dinitrotoluene	730 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: 07/24/90
Date Analyzed: 08/17/90
Dilution Factor: 2
% Moisture: 11

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Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 07-03-SED
Lab Sample ID: LL3496

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	3,600 U	anthracene	730 U
acenaphthene	730 U	di-n-butylphthalate	730 U
2,4-dinitrophenol	3,600 U	fluoranthene	730 U
4-nitrophenol	3,600 U	pyrene	730 U
dibenzofuran	730 U	butylbenzylphthalate	730 U
2,4-dinitrotoluene	730 U	3,3'-dichlorobenzidine	1,500 U
diethylphthalate	730 U	benzo(a)anthracene	730 U
4-chlorophenyl-phenylether	730 U	chrysene	730 U
fluorene	730 U	bis(2-ethylhexyl)phthalate	260 J
4-nitroaniline	3,600 U	di-n-octylphthalate	730 U
4,6-dinitro-2-methylphenol	3,600 U	benzo(b)fluoranthene	730 U
n-nitrosodiphenylamine ¹	730 U	benzo(k)fluoranthene	730 U
4-bromophenyl-phenylether	730 U	benzo(a)pyrene	730 U
hexachlorobenzene	730 U	indeno(1,2,3-cd)pyrene	730 U
pentachlorophenol	3,600 U	dibenzo(a,h)anthracene	730 U
phenanthrene	730 U	benzo(g,h,i)perylene	730 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: 07/24/90
Date Analyzed: 08/17/90
Dilution Factor: 2
% Moisture: 11

IT Corporation
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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: 07-03-SED
Lab Sample ID: LL3496

Tentative Identification (1)

Concentration (2)

unknown (hydroxypentanone?)	2,300 AB
2-pentanone, 4-hydroxy-4-methyl-	31,000 AB
unknown	1,000 B
hexane, 2-bromo-	330
5-hexen-2-one, 5-methyl-	2,800 A
3-heptanone, 2,4-dimethyl-	1,400 A
unknown (aldol related?)	470
unknown	3,000 A
unknown	1,200 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 - Compound was found in the method blank.

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 07-04-SED
Lab Sample ID: LL3497

<u>Compound</u>		<u>Compound</u>	
phenol	980 U	bis(2-chloroethoxy)methane	980 U
bis(2-chloroethyl)ether	980 U	2,4-dichlorophenol	980 U
2-chlorophenol	980 U	1,2,4-trichlorobenzene	980 U
1,3-dichlorobenzene	980 U	naphthalene	980 U
1,4-dichlorobenzene	980 U	4-chloroaniline	980 U
benzyl alcohol	980 U	hexachlorobutadiene	980 U
1,2-dichlorobenzene	980 U	4-chloro-3-methylphenol	980 U
2-methylphenol	980 U	2-methylnaphthalene	980 U
bis(2-chloroisopropyl)ether	980 U	hexachlorocyclopentadiene	980 U
4-methylphenol	980 U	2,4,6-trichlorophenol	980 U
n-nitroso-di-n-propylamine	980 U	2,4,5-trichlorophenol	4,800 U
hexachloroethane	980 U	2-chloronaphthalene	980 U
nitrobenzene	980 U	2-nitroaniline	4,800 U
isophorone	980 U	dimethyl phthalate	980 U
2-nitrophenol	980 U	acenaphthylene	980 U
2,4-dimethylphenol	980 U	2,6-dinitrotoluene	980 U
benzoic acid	4,800 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: 07/24/90
Date Analyzed: 08/21/90
Dilution Factor: 2
% Moisture: 33

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

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

Sample Matrix: Soil

Client Sample ID: 07-03-SED

Lab Sample ID: LL3497

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	4,800 U	anthracene	980 U
acenaphthene	980 U	di-n-butylphthalate	980 U
2,4-dinitrophenol	4,800 U	fluoranthene	980 U
4-nitrophenol	4,800 U	pyrene	980 U
dibenzofuran	980 U	butylbenzylphthalate	980 U
2,4-dinitrotoluene	980 U	3,3'-dichlorobenzidine	2,000 U
diethylphthalate	980 U	benzo(a)anthracene	980 U
4-chlorophenyl-phenylether	980 U	chrysene	980 U
fluorene	980 U	bis(2-ethylhexyl)phthalate	570 J
3-nitroaniline	4,800 U	di-n-octylphthalate	980 U
4,6-dinitro-2-methylphenol	4,800 U	benzo(b)fluoranthene	980 U
n-nitrosodiphenylamine ¹	980 U	benzo(k)fluoranthene	980 U
4-bromophenyl-phenylether	980 U	benzo(a)pyrene	980 U
hexachlorobenzene	980 U	indeno(1,2,3-cd)pyrene	980 U
pentachlorophenol	4,800 U	dibenzo(a,h)anthracene	980 U
phenanthrene	980 U	benzo(g,h,i)perylene	980 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: 07/24/90

Date Analyzed: 08/21/90

Dilution Factor: 2

% Moisture: 33

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: 07-04-SED
Lab Sample ID: LL3497

<u>Tentative Identification (1)</u>	<u>Concentration (2)</u>
unknown (hydroxypentanone?)	4,000 AB
2-pentanone, 4-hydroxy-4-methyl-	51,000 AB
5-hexen-2-one, 5-methyl-	5,700 A
3-heptanone, 2,4-dimethyl-	5,800 A
tetradecanoic acid	800
hexadecanal (acn)	1,500
unknown (cis ketone?)	800 A
hexadecanoic acid	3,200
unknown	940
octadecanoic acid, 2-methylpropyl ester	840
unknown (sat'd HC)	810
unknown (sat'd HC)	1,200
unknown (sat'd HC)	2,300
unknown (sat'd HC)	1,900
d-friedoolean-14-en-3-one	1,400

- 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 - Compound was found in the method blank.

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: 08-01-SED

Lab Sample ID: LL3498

Compound

Compound

phenol	760 U	bis(2-chloroethoxy)methane	760 U
bis(2-chloroethyl)ether	760 U	2,4-dichlorophenol	760 U
2-chlorophenol	760 U	1,2,4-trichlorobenzene	760 U
1,3-dichlorobenzene	760 U	naphthalene	760 U
1,4-dichlorobenzene	760 U	4-chloroaniline	760 U
benzyl alcohol	760 U	hexachlorobutadiene	760 U
1,2-dichlorobenzene	760 U	4-chloro-3-methylphenol	760 U
2-methylphenol	760 U	2-methylnaphthalene	760 U
bis(2-chloroisopropyl)ether	760 U	hexachlorocyclopentadiene	760 U
o-methylphenol	760 U	2,4,6-trichlorophenol	760 U
n-nitroso-di-n-propylamine	760 U	2,4,5-trichlorophenol	3,700 U
hexachloroethane	760 U	2-chloronaphthalene	760 U
nitrobenzene	760 U	2-nitroaniline	3,700 U
isophorone	760 U	dimethyl phthalate	760 U
2-nitrophenol	760 U	acenaphthylene	760 U
2,4-dimethylphenol	760 U	2,6-dinitrotoluene	760 U
benzoic acid	3,700 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: 07/24/90

Date Analyzed: 08/17/90

Dilution Factor: 2

% Moisture: 14

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

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

Sample Matrix: Soil

Client Sample ID: 08-01-SED

Lab Sample ID: LL3498

Compound

3-nitroaniline	3,700 U
acenaphthene	760 U
2,4-dinitrophenol	3,700 U
4-nitrophenol	3,700 U
dibenzofuran	760 U
2,4-dinitrotoluene	760 U
diethylphthalate	760 U
4-chlorophenyl-phenylether	760 U
fluorene	760 U
4-nitroaniline	3,700 U
4,6-dinitro-2-methylphenol	3,700 U
n-nitrosodiphenylamine ¹	760 U
4-bromophenyl-phenylether	760 U
hexachlorobenzene	760 U
pentachlorophenol	3,700 U
phenanthrene	760 U

Compound

anthracene	760 U
di-n-butylphthalate	760 U
fluoranthene	760 U
pyrene	760 U
butylbenzylphthalate	760 U
3,3'-dichlorobenzidine	1,500 U
benzo(a)anthracene	760 U
chrysene	760 U
bis(2-ethylhexyl)phthalate	1,100
di-n-octylphthalate	760 U
benzo(b)fluoranthene	760 U
benzo(k)fluoranthene	760 U
benzo(a)pyrene	760 U
indeno(1,2,3-cd)pyrene	760 U
dibenzo(a,h)anthracene	760 U
benzo(g,h,i)perylene	760 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: 07/24/90

Date Analyzed: 08/17/90

Dilution Factor: 2

% Moisture: 14

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: 08-01-SED
Lab Sample ID: LL3498

Tentative Identification (1)

Concentration (2)

3-penten-2-one, 4-methyl- unknown (hydroxypentanone?)	800 A 3,000 AB
2-pentanone, 4-hydroxy-4-methyl- unknown	37,000 AB 890 B
hexane, 2-bromo-	630
5-hexen-2-one, 5-methyl-	2,100 A
3-heptanone, 2,4-dimethyl-	3,500 A
3-heptanone, 2,4-dimethyl- unknown	550 A 900 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 - Compound was found in the method blank.

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September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 08-02-SED

Lab Sample ID: LL3499

Compound

phenol	730 U
bis(2-chloroethyl)ether	730 U
2-chlorophenol	730 U
1,3-dichlorobenzene	730 U
1,4-dichlorobenzene	730 U
benzyl alcohol	730 U
1,2-dichlorobenzene	730 U
2-methylphenol	730 U
bis(2-chloroisopropyl)ether	730 U
4-methylphenol	730 U
n-nitroso-di-n-propylamine	730 U
hexachloroethane	730 U
nitrobenzene	730 U
isophorone	730 U
2-nitrophenol	730 U
2,4-dimethylphenol	730 U
benzoic acid	3,500 U

Compound

bis(2-chloroethoxy)methane	730 U
2,4-dichlorophenol	730 U
1,2,4-trichlorobenzene	730 U
naphthalene	730 U
4-chloroaniline	730 U
hexachlorobutadiene	730 U
4-chloro-3-methylphenol	730 U
2-methylnaphthalene	730 U
hexachlorocyclopentadiene	730 U
2,4,6-trichlorophenol	730 U
2,4,5-trichlorophenol	3,500 U
2-chloronaphthalene	730 U
2-nitroaniline	3,500 U
dimethyl phthalate	730 U
acenaphthylene	730 U
2,6-dinitrotoluene	730 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: 07/24/90

Date Analyzed: 08/17/90

Dilution Factor: 2

% Moisture: 10

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 08-02-SED

Lab Sample ID: LL3499

Compound

3-nitroaniline	3,500 U
acenaphthene	730 U
2,4-dinitrophenol	3,500 U
4-nitrophenol	3,500 U
dibenzofuran	730 U
2,4-dinitrotoluene	730 U
diethylphthalate	730 U
4-chlorophenyl-phenylether	730 U
fluorene	730 U
3-nitroaniline	3,500 U
4,6-dinitro-2-methylphenol	3,500 U
n-nitrosodiphenylamine ¹	730 U
4-bromophenyl-phenylether	730 U
hexachlorobenzene	730 U
pentachlorophenol	3,500 U
phenanthrene	730 U

Compound

anthracene	730 U
di-n-butylphthalate	730 U
fluoranthene	730 U
pyrene	730 U
butylbenzylphthalate	730 U
3,3'-dichlorobenzidine	1,500 U
benzo(a)anthracene	730 U
chrysene	730 U
bis(2-ethylhexyl)phthalate	600 J
di-n-octylphthalate	730 U
benzo(b)fluoranthene	730 U
benzo(k)fluoranthene	730 U
benzo(a)pyrene	730 U
indeno(1,2,3-cd)pyrene	730 U
dibenzo(a,h)anthracene	730 U
benzo(g,h,i)perylene	730 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: 07/24/90

Date Analyzed: 08/17/90

Dilution Factor: 2

% Moisture: 10

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September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: 08-02-SED
Lab Sample ID: LL3499

Tentative Identification (1)

Concentration (2)

unknown (hydroxypentanone?)	1,900 AB
2-pentanone, 4-hydroxy-4-methyl-	27,000 AB
unknown	730 AB
hexane, 2-bromo-	420
5-hexen-2-one, 5-methyl-	2,400 A
3-heptanone, 2,4-dimethyl-	3,000 A
unknown	1,900
unknown	1,400 A
unknown (sat'd HC)	390
unknown (sat'd HC)	350

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 - Compound was found in the method blank.

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: 08-03-SED

Lab Sample ID: LL3500

Compound

phenol	760 U
bis(2-chloroethyl)ether	760 U
2-chlorophenol	760 U
1,3-dichlorobenzene	760 U
1,4-dichlorobenzene	760 U
benzyl alcohol	760 U
1,2-dichlorobenzene	760 U
2-methylphenol	760 U
(2-chloroisopropyl)ether	760 U
4-methylphenol	760 U
n-nitroso-di-n-propylamine	760 U
hexachloroethane	760 U
nitrobenzene	760 U
isophorone	760 U
2-nitrophenol	760 U
2,4-dimethylphenol	760 U
benzoic acid	3,700 U

Compound

bis(2-chloroethoxy)methane	760 U
2,4-dichlorophenol	760 U
1,2,4-trichlorobenzene	760 U
naphthalene	760 U
4-chloroaniline	760 U
hexachlorobutadiene	760 U
4-chloro-3-methylphenol	760 U
2-methylnaphthalene	760 U
hexachlorocyclopentadiene	760 U
2,4,6-trichlorophenol	760 U
2,4,5-trichlorophenol	3,700 U
2-chloronaphthalene	760 U
2-nitroaniline	3,700 U
dimethyl phthalate	760 U
acenaphthylene	760 U
2,6-dinitrotoluene	760 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: 07/24/90

Date Analyzed: 08/20/90

Dilution Factor: 2

% Moisture: 14

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 08-03-SED
Lab Sample ID: LL3500

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	3,700 U	anthracene	760 U
acenaphthene	760 U	di-n-butylphthalate	760 U
2,4-dinitrophenol	3,700 U	fluoranthene	760 U
4-nitrophenol	3,700 U	pyrene	760 U
dibenzofuran	760 U	butylbenzylphthalate	760 U
2,4-dinitrotoluene	760 U	3,3'-dichlorobenzidine	1,500 U
diethylphthalate	760 U	benzo(a)anthracene	760 U
4-chlorophenyl-phenylether	760 U	chrysene	760 U
fluorene	760 U	bis(2-ethylhexyl)phthalate	390 J
4-nitroaniline	3,700 U	di-n-octylphthalate	760 U
4,6-dinitro-2-methylphenol	3,700 U	benzo(b)fluoranthene	760 U
n-nitrosodiphenylamine ¹	760 U	benzo(k)fluoranthene	760 U
4-bromophenyl-phenylether	760 U	benzo(a)pyrene	760 U
hexachlorobenzene	760 U	indeno(1,2,3-cd)pyrene	760 U
pentachlorophenol	3,700 U	dibenzo(a,h)anthracene	760 U
phenanthrene	760 U	benzo(g,h,i)perylene	93 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.

1 - Detected as diphenylamine.

Date Extracted: 07/24/90
Date Analyzed: 08/20/90
Dilution Factor: 2
% Moisture: 14

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: 08-03-SED
Lab Sample ID: LL3500

Tentative Identification (1)

Concentration (2)

unknown (hydroxypentanone?)	2,700 AB
2-pentanone, 4-hydroxy-4-methyl-	38,000 AB
unknown	630 AB
5-hexen-2-one, 5-methyl-	2,300 A
5-hexen-2-one, 5-methyl-	480 A
3-heptanone, 2,4-dimethyl-	6,600 A
3-heptanone, 2,4-dimethyl-	860 A
phthalic anhydride	320
1-phenanthrenecarboxylic acid	640
unknown	510
unknown	360
unknown	1,300 A
unknown	600
unknown (sat'd HC)	500
unknown	640
unknown	710

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 - Compound was found in the method blank.

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

SOIL SURROGATE PERCENT RECOVERY SUMMARY

Sample No.	SEMI-VOLATILE					
	Nitro-Benzene-D5 (23-120%)*	2-Fluoro-Biphenyl (30-116%)*	Terphenyl-D14 (18-137%)*	Phenol-D5 (24-113%)*	2-Fluoro-Phenol (26-121%)*	2,4,6-Tribromo-Phenol (18-122%)*
04-02-SED	92	76	90	83	83	62
07-01-SED	90	74	90	81	82	68
07-02-SED	80	68	78	72	73	62
07-03-SED	81	69	86	70	71	59
07-04-SED	83	72	78	82	86	62
8-01-SED	85	69	87	67	56	37
08-02-SED	78	66	82	65	59	35
08-03-SED	86	74	82	81	77	52
Method Blank	88	70	90	71	68	57

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

Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: 07-01-SED

Lab Sample ID: LL3494

<u>Compound</u>		<u>Compound</u>	
α -BHC	11 U	endosulfan sulfate	21 U
β -BHC	11 U	4,4'-DDT	21 U
δ -BHC	11 U	methoxychlor	110 U
γ -BHC (lindane)	11 U	endrin ketone	21 U
heptachlor	11 U	α -chlordane	110 U
dieldrin	11 U	γ -chlordane	110 U
heptachlor epoxide	11 U	toxaphene	210 U
endosulfan I	11 U	Aroclor 1016	110 U
dieldrin	21 U	Aroclor 1221	110 U
4,4'-DDE	21 U	Aroclor 1232	110 U
endrin	21 U	Aroclor 1242	110 U
endosulfan II	21 U	Aroclor 1248	110 U
4,4'-DDD	21 U	Aroclor 1254	210 U
		Aroclor 1260	210 U

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

Date Extracted: 07/24/90
Date Analyzed: 08/11/90
Dilution Factor: 1
% Moisture: 25

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September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: 07-02-SED
Lab Sample ID: LL3495

<u>Compound</u>		<u>Compound</u>	
α -BHC	11 U	endosulfan sulfate	21 U
β -BHC	100 FZ	4,4'-DDT	21 U
δ -BHC	11 U	methoxychlor	110 U
γ -BHC (lindane)	11 U	endrin ketone	21 U
heptachlor	11 U	α -chlordane	110 U
aldrin	11 U	γ -chlordane	110 U
heptachlor epoxide	11 U	toxaphene	210 U
endosulfan I	11 U	Aroclor 1016	110 U
dieldrin	21 U	Aroclor 1221	110 U
4,4'-DDE	21 U	Aroclor 1232	110 U
endrin	21 U	Aroclor 1242	110 U
endosulfan II	21 U	Aroclor 1248	110 U
4,4'-DDD	21 U	Aroclor 1254	210 U
		Aroclor 1260	210 U

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
F - Peak offscale and therefore out of linear range.
Z - Elevated CRQL reported due to matrix interferences obscuring the compound of interest.

Date Extracted: 07/24/90
Date Analyzed: 08/14/90
Dilution Factor: 1
% Moisture: 26

Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: 07-02-SED DL
Lab Sample ID: LL3495 DL

<u>Compound</u>		<u>Compound</u>	
α -BHC	54 U	endosulfan sulfate	110 U
β -BHC	170 DZ	4,4'-DDT	110 U
δ -BHC	54 U	methoxychlor	540 U
γ -BHC (lindane)	54 U	endrin ketone	110 U
heptachlor	54 U	α -chlordane	540 U
dieldrin	54 U	γ -chlordane	540 U
heptachlor epoxide	54 U	toxaphene	1,100 U
endosulfan I	54 U	Aroclor 1016	540 U
dieldrin	110 U	Aroclor 1221	540 U
4,4'-DDE	110 U	Aroclor 1232	540 U
endrin	110 U	Aroclor 1242	540 U
endosulfan II	110 U	Aroclor 1248	540 U
4,4'-DDD	110 U	Aroclor 1254	1,100 U
		Aroclor 1260	1,100 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.

Z - Elevated CRQL reported due to matrix interferences obscuring the compound of interest.

DL - Dilution

Date Extracted: 07/24/90
Date Analyzed: 08/15/90
Dilution Factor: 5
% Moisture: 26

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: 07-03-SED
Lab Sample ID: LL3496

<u>Compound</u>		<u>Compound</u>	
α -BHC	8.9 U	endosulfan sulfate	18 U
β -BHC	8.9 U	4,4'-DDT	18 U
δ -BHC	8.9 U	methoxychlor	89 U
γ -BHC (lindane)	8.9 U	endrin ketone	18 U
heptachlor	8.9 U	α -chlordane	89 U
lindrin	8.9 U	γ -chlordane	89 U
heptachlor epoxide	8.9 U	toxaphene	180 U
endosulfan I	8.9 U	Aroclor 1016	89 U
dieldrin	18 U	Aroclor 1221	89 U
4,4'-DDE	18 U	Aroclor 1232	89 U
endrin	18 U	Aroclor 1242	89 U
endosulfan II	18 U	Aroclor 1248	89 U
4,4'-DDD	18 U	Aroclor 1254	180 U
		Aroclor 1260	180 U

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

Date Extracted: 07/24/90
Date Analyzed: 08/11/90
Dilution Factor: 1
% Moisture: 11

Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: 07-04-SED

Lab Sample ID: LL3497

<u>Compound</u>		<u>Compound</u>	
α -BHC	12 U	endosulfan sulfate	24 U
β -BHC	12 U	4,4'-DDT	24 U
δ -BHC	12 U	methoxychlor	120 U
γ -BHC (lindane)	12 U	endrin ketone	24 U
heptachlor	12 U	α -chlordane	120 U
aldrin	12 U	γ -chlordane	120 U
heptachlor epoxide	12 U	toxaphene	240 U
endosulfan I	12 U	Aroclor 1016	120 U
dieldrin	24 U	Aroclor 1221	120 U
4,4'-DDE	24 U	Aroclor 1232	120 U
endrin	24 U	Aroclor 1242	120 U
endosulfan II	24 U	Aroclor 1248	120 U
4,4'-DDD	24 U	Aroclor 1254	240 U
		Aroclor 1260	240 U

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

Date Extracted: 07/24/90
Date Analyzed: 08/14/90
Dilution Factor: 1
% Moisture: 33

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September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: 08-01-SED
Lab Sample ID: LL3498

<u>Compound</u>		<u>Compound</u>	
α -BHC	9.2 U	endosulfan sulfate	18 U
β -BHC	9.2 U	4,4'-DDT	18 U
δ -BHC	9.2 U	methoxychlor	92 U
γ -BHC (lindane)	9.2 U	endrin ketone	18 U
heptachlor	9.2 U	α -chlordane	92 U
aldrin	9.2 U	γ -chlordane	92 U
heptachlor epoxide	9.2 U	toxaphene	180 U
endosulfan I	9.2 U	Aroclor 1016	92 U
dieldrin	18 U	Aroclor 1221	92 U
4,4'-DDE	18 U	Aroclor 1232	92 U
endrin	18 U	Aroclor 1242	92 U
endosulfan II	18 U	Aroclor 1248	92 U
4,4'-DDD	18 U	Aroclor 1254	180 U
		Aroclor 1260	180 U

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

Date Extracted: 07/24/90
Date Analyzed: 08/11/90
Dilution Factor: 1
% Moisture: 14

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: 08-02-SED
Lab Sample ID: LL3499

<u>Compound</u>			<u>Compound</u>		
α -BHC	8.8	U	endosulfan sulfate	18	U
β -BHC	8.8	U	4,4'-DDT	38	F
δ -BHC	8.8	U	methoxychlor	88	U
γ -BHC (lindane)	8.8	U	endrin ketone	18	U
heptachlor	8.8	U	α -chlordane	88	U
dieldrin	8.8	U	γ -chlordane	88	U
heptachlor epoxide	8.8	U	toxaphene	180	U
endosulfan I	8.8	U	Aroclor 1016	88	U
dieldrin	18	U	Aroclor 1221	88	U
4,4'-DDE	130	F	Aroclor 1232	88	U
endrin	18	U	Aroclor 1242	88	U
endosulfan II	18	U	Aroclor 1248	88	U
4,4'-DDD	18	U	Aroclor 1254	180	U
			Aroclor 1260	180	U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
F - Peak offscale and therefore out of linear range.

Date Extracted: 07/24/90
Date Analyzed: 08/11/90
Dilution Factor: 1
% Moisture: 10

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

ent Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: 08-02-SED DL
Lab Sample ID: LL3499 DL

<u>Compound</u>		<u>Compound</u>	
α -BHC	88 U	endosulfan sulfate	180 U
β -BHC	88 U	4,4'-DDT	46 DJ
δ -BHC	88 U	methoxychlor	880 U
γ -BHC (lindane)	88 U	endrin ketone	180 U
heptachlor	88 U	α -chlordane	880 U
endrin	88 U	γ -chlordane	880 U
heptachlor epoxide	88 U	toxaphene	1,800 U
endosulfan I	88 U	Aroclor 1016	880 U
dieldrin	180 U	Aroclor 1221	880 U
4,4'-DDE	180 D	Aroclor 1232	880 U
endrin	180 U	Aroclor 1242	880 U
endosulfan II	180 U	Aroclor 1248	880 U
4,4'-DDD	180 U	Aroclor 1254	1,800 U
		Aroclor 1260	1,800 U

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

D - Compound analyzed at a secondary dilution factor.

J - Compound detected but below the contract required detection limit. The value given was an estimate.

DL - Dilution

Date Extracted: 07/24/90

Date Analyzed: 08/14/90

Dilution Factor: 10

% Moisture: 10

Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: 08-03-SED
Lab Sample ID: LL3500

<u>Compound</u>			<u>Compound</u>		
α -BHC	9.3	U	endosulfan sulfate	19	U
β -BHC	9.3	U	4,4'-DDT	27	
δ -BHC	9.3	U	methoxychlor	93	U
γ -BHC (lindane)	9.3	U	endrin ketone	19	U
heptachlor	9.3	U	α -chlordane	93	U
dieldrin	9.3	U	γ -chlordane	93	U
heptachlor epoxide	9.3	U	toxaphene	190	U
endosulfan I	9.3	U	Aroclor 1016	93	U
dieldrin	19	U	Aroclor 1221	93	U
4,4'-DDE	15	J	Aroclor 1232	93	U
endrin	19	U	Aroclor 1242	93	U
endosulfan II	19	U	Aroclor 1248	93	U
4,4'-DDD	19	U	Aroclor 1254	190	U
			Aroclor 1260	190	U

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
J - Compound detected but below the contract required detection limit. The value given was an estimate.

Date Extracted: 07/24/90
Date Analyzed: 08/14/90
Dilution Factor: 1
% Moisture: 14

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

ient Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

SOIL SURROGATE PERCENT RECOVERY SUMMARY

<u>Sample No.</u>	<u>PESTICIDE</u>
	<u>Dibutylchloroendate</u> <u>(20-150%)*</u>
Method Blank	82
04-02-SED	73
07-01-SED	77
07-02-SED	72
07-02-SED DL	100
07-03-SED	81
07-04-SED	85
08-01-SED	82
08-02-SED	88
08-02-SED DL	124
08-03-SED	63

* - Values in parenthesis represent USEPA advisory QC limits.

DL - Dilution

ent Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

TARGET ANALYTE LIST - INORGANICS

Results in mg/kg (ppm) dry weight

Sample Matrix: Soil

Client Sample ID: Lab Sample ID:	08-01-SED <u>LL3506</u>	08-02-SED <u>LL3507</u>	08-03-SED <u>LL3508</u>
aluminum	1,840	17,400	3,850
antimony	3.6 U	20.3	20.7
arsenic	6.7	43.6	15.8
barium	38.8	105	304
beryllium	0.12 U	0.11 U	0.11 U
cadmium	0.94	11.4	3.3
calcium	247,000	180,000	251,000
chromium	12.1	70.7	28.0
cobalt	2.4 U	10.1	5.1 B
copper	121	685	1,100
iron	4,060	1.1 U	27,100
lead	252	1,680	597
magnesium	4,220	2,320	4,120
manganese	54.0	524	210
mercury	0.02 U	1.6	0.09
nickel	17.0	65.4	18.6
potassium	716	609	370 B
selenium	1.2 UW	1.1 UW	2.3 U
silver	0.60 U	2.4	17.7
sodium	17,200	2,790	4,700
thallium	3.6 U	168	46.7
vanadium	20.1	15.2	12.1
zinc	420	1,620	1,370
% solids:	83.6	91.5	88.8

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

B - Value greater than 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: 08/01 and 08/03/90

Date Analyzed: 08/13 and 08/14/90 (ICP); 08/02-08/08/90 (CVAA); 08/23-09/11/90 (GFAA).

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

CYANIDE ANALYSIS

Results in mg/kg (ppm) dry weight

Sample Matrix: Soil

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Result</u>
Method Blank	P1366	0.50 U
04-02-SED	LL3501	0.50 U
07-01-SED	LL3502	0.50 U
07-02-SED	LL3503	0.50 U
07-03-SED	LL3504	0.50 U
07-04-SED	LL3506	0.50 U
08-01-SED	LL3507	0.50 U
08-02-SED	LL3508	0.50 U

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

Date Analyzed: 07/27/90



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I.T. CORPORATION
TAMPA, FLORIDA

CERTIFICATE OF ANALYSIS

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

September 20, 1990

Job Number: ITCY 46180

P.O. Number: 595392.08

This is the Certificate of Analysis for the following samples:

Client Project ID:	NAS-Key West
Date Received by Lab:	07/17/90
Number of Samples:	Eleven (11)
Sample Type:	Water - ten (10), Trip Blank - one (1)

I. Introduction

On 07/17/90, ten (10) 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.

Sample 05-03-GW was resampled for the semivolatile analysis and reported under separate cover.

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

Reviewed and Approved:


Alyce Moore
Laboratory Manager

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

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

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 07/26, 07/27, and 08/08/90 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 08/07, 08/09, and 08/10/90 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, but due to an oversight the MS/MSD runs for sample 04-08-GM-GW were delayed beyond normal CLP holding time (the sample itself was run within holding time). The results showed all parameters within advisory limits except for one marginal benzene recovery. In the semivolatiles runs it was seen that 2-fluorobiphenyl surrogate had slightly low recovery in three cases; however, the samples involved were compliant overall, and no significant effect on data was indicated. In the TIC analysis, all samples except for 04-02-SW and 04-08-GM-GW exhibited at least some sulfur presence, and the compound was listed when its peak height exceeded 10% of the nearest internal standard. However, the sulfur peak was broad and amorphous, and the actual concentration was probably higher than estimated. Another TIC, hydroxymethylpentanone, is likely lab background, generated by acetone condensation during the soil extraction. Semivolatiles MS/MSD analysis showed all results within QC 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 08/06 to 09/01/90 using a mixed phase (SP2250/2401) Varian 3740B and (SPB-5) Varian 3700-F instruments. All water samples and the associated method blank were treated for sulfur interferences. This cleanup was performed on 08/06/90. All run QC was acceptable. No problems were encountered.

Client Project ID: NAS-Key West

Job Number: ITCY 46180

III. Quality Control (continued)

The samples were digested on 08/04/90 for ICP and GFAA. The samples for mercury analysis were prepared just prior to analysis. The CVAA analysis for mercury was performed on 07/24/90; the GFAA analysis for selenium was performed on 08/23/90; the remaining metals were analyzed by ICP on 08/20/90. All run QC was acceptable. A duplicate/spike pair was prepared using sample number 04-08-GM-GW. Spike recoveries (accuracy) results were outside acceptable control limits for many of the TAL elements. A post-digestion spike was performed, confirming severe matrix interferences for these outliers. Selenium was not recovered from the spike due to the evident matrix interferences which elevated the detection limit for the element to a level higher than that specified by CLP as the spiking level. Thallium was also not recovered from the spike. The level of magnesium in the sample, as well as the other mineral elements, caused matrix interferences for the element. The levels of interferences were such that interelement correction factors were not applicable. Thallium was run initially by GFAA prior to the variance granted by the client. Similar interferences were seen, and spike recoveries, at best, were 10%. Due to the nature of the sample, the data presented are the best achievable. Duplicate RPD (precision) results were within acceptable control limits for all parameters. No other problems were encountered.

The samples were analyzed for total cyanide on 07/26/90. All run QC was acceptable.) problems were encountered.

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 1
Lab Sample ID: EB07262

<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	2 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.

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

This method blank applies to the following samples: 04-02-SW, 04-05-GM-GW, 04-07-GW, 05-02-GW, 05-03-GW, 07-02-SW.

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 07-02-SW
Lab Sample ID: LL3563

Tentative Identification (1)

Concentration (2)

No additional peaks detected

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

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

VOLATILE ORGANIC TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: Method Blank 2
Lab Sample ID: EB0727

<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	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	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.

Date Analyzed: 07/27/90

Dilution Factor: 1

This method blank applies to the following samples: 04-08-GM-GW, 07-KWM09-GW, 08-01-SW, 10-18-GM-GW, Trip Blank

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September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: Method Blank 2
Lab Sample ID: EB0727

Tentative Identification (1)

Concentration (2)

No additional peaks detected

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

IT Corporation
 September 20, 1990

Client Project ID: NAS-Key West

Job Number: ITCY 46180

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank 3
 Lab Sample ID: EB0808

<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	5 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	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: 08/08/90
 Dilution Factor: 1

This method blank applies to the following samples: 04-08-GM-GW MS, 04-08-GM-GW MSD.

Client Project ID: NAS-Key West

Job Number: ITCY 46180

VOLATILE ORGANIC TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 07-KWM09-GW

Lab Sample ID: LL3564

<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-dichloroethane	5 U	4-methyl-2-pentanone	10 U
,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: 07/27/90

Dilution Factor: 1

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 07-KWM09-GW
Lab Sample ID: LL3564

Tentative Identification (1)

Concentration (2)

No additional peaks detected

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

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-01-SW
Lab Sample ID: LL3565

<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	46 B	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,1,2-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: 07/27/90
Dilution Factor: 1

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 08-01-SW
Lab Sample ID: LL3565

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 46180

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in ug/liter (ppb)

Sample Matrix: Water

Client Sample ID: Trip Blank

Lab Sample ID: LL3567

<u>Compound</u>		<u>Compound</u>	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	3 BJ	1,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
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: 07/27/90

Dilution Factor: 1

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: Trip Blank
Lab Sample ID: LL3567

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 46180

WATER SURROGATE PERCENT RECOVERY SUMMARY

Sample No.	VOLATILE		
	<u>Toluene-D8</u> (88-110%)*	<u>BFB</u> (86-115%)*	<u>1,2 Dichloroethane-D4</u> (76-114%)*
04-02-SW	96	99	94
04-05-GM-GW	100	103	95
04-07-GW	96	100	88
04-08-GM-GW	97	103	88
05-02-GW	99	104	91
05-03-GW	97	100	86
07-02-SW	98	101	88
07-KWM09-GW	101	99	91
08-01-SW	103	101	93
10-18-GM-GW	94	97	82
Trip Blank	100	98	88
04-08-GM-GW MS	90	93	89
04-08-GM-GW MSD	103	102	97
Method Blank 1	98	98	94
Method Blank 2	100	98	92
Method Blank 3	102	102	99

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

Client Project ID: NAS-Key West

Job Number: ITCY 46180

SEMIVOLATILE TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: Method Blank
Lab Sample ID: BLA1364

<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: 07/20/90
Date Analyzed: 08/07/90
Dilution Factor: 1

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

SEMIVOLATILE TARGET COMPOUND LIST (continued)

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

Sample Matrix: Water

Client Sample ID: Method Blank
Lab Sample ID: BLA1364

<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
orene	10 U	bis(2-ethylhexyl)phthalate	4 J
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: 07/20/90
Date Analyzed: 08/07/90
Dilution Factor: 1

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: Method Blank
Lab Sample ID: BLA1364

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.

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 07-02-SW

Lab Sample ID: LL3602

<u>Compound</u>		<u>Compound</u>	
phenol	20 U	bis(2-chloroethoxy)methane	20 U
bis(2-chloroethyl)ether	20 U	2,4-dichlorophenol	20 U
2-chlorophenol	20 U	1,2,4-trichlorobenzene	20 U
1,3-dichlorobenzene	20 U	naphthalene	20 U
1,4-dichlorobenzene	20 U	4-chloroaniline	20 U
benzyl alcohol	20 U	hexachlorobutadiene	20 U
1,2-dichlorobenzene	20 U	4-chloro-3-methylphenol	20 U
2-methylphenol	20 U	2-methylnaphthalene	20 U
s(2-chloroisopropyl)ether	20 U	hexachlorocyclopentadiene	20 U
4-methylphenol	20 U	2,4,6-trichlorophenol	20 U
n-nitroso-di-n-propylamine	20 U	2,4,5-trichlorophenol	100 U
hexachloroethane	20 U	2-chloronaphthalene	20 U
nitrobenzene	20 U	2-nitroaniline	100 U
isophorone	20 U	dimethyl phthalate	20 U
2-nitrophenol	20 U	acenaphthylene	20 U
2,4-dimethylphenol	20 U	2,6-dinitrotoluene	20 U
benzoic acid	100 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: 07/20/90

Date Analyzed: 08/07/90

Dilution Factor: 2

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

SEMIVOLATILE TARGET COMPOUND LIST (continued)

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

Sample Matrix: Water

Client Sample ID: 07-02-SW
Lab Sample ID: LL3602

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	100 U	anthracene	20 U
acenaphthene	20 U	di-n-butylphthalate	20 U
2,4-dinitrophenol	100 U	fluoranthene	20 U
4-nitrophenol	100 U	pyrene	20 U
dibenzofuran	20 U	butylbenzylphthalate	20 U
2,4-dinitrotoluene	20 U	3,3'-dichlorobenzidine	41 U
diethylphthalate	20 U	benzo(a)anthracene	20 U
4-chlorophenyl-phenylether	20 U	chrysene	20 U
fluorene	20 U	bis(2-ethylhexyl)phthalate	20 U
4-nitroaniline	100 U	di-n-octylphthalate	20 U
4,6-dinitro-2-methylphenol	100 U	benzo(b)fluoranthene	20 U
n-nitrosodiphenylamine ¹	20 U	benzo(k)fluoranthene	20 U
4-bromophenyl-phenylether	20 U	benzo(a)pyrene	20 U
hexachlorobenzene	20 U	indeno(1,2,3-cd)pyrene	20 U
pentachlorophenol	100 U	dibenzo(a,h)anthracene	20 U
phenanthrene	20 U	benzo(g,h,i)perylene	20 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: 07/20/90
Date Analyzed: 08/07/90
Dilution Factor: 2

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 07-02-SW
Lab Sample ID: LL3602

Tentative Identification (1)

Concentration (2)

2-butenic acid, 2-methyl-	17
2-propenoic acid, 2-methyl-, propyl ester	20
unknown	40
3-heptanol, 2,6-dimethyl-	18
hexadecanoic acid	26

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

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 07-KWM09-GW
Lab Sample ID: LL3603

<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: 07/20/90
Date Analyzed: 08/10/90
Dilution Factor: 1

Client Project ID: NAS-Key West

Job Number: ITCY 46180

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 07-KWM09-GW
Lab Sample ID: LL3603

<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
orene	10 U	bis(2-ethylhexyl)phthalate	4 BJ
3-nitroaniline	50 U	di-n-octylphthalate	10 U
4,6-dinitro-2-methylphenol	50 U	benzo(b)fluoranthene	10 U
n-nitrosodiphenylamine ¹	10 U	benzo(k)fluoranthene	10 U
4-bromophenyl-phenylether	10 U	benzo(a)pyrene	10 U
hexachlorobenzene	10 U	indeno(1,2,3-cd)pyrene	10 U
pentachlorophenol	50 U	dibenzo(a,h)anthracene	10 U
phenanthrene	10 U	benzo(g,h,i)perylene	10 U

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

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

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

1 - Detected as diphenylamine.

Date Extracted: 07/20/90
Date Analyzed: 08/10/90
Dilution Factor: 1

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

Results in ug/liter (ppb)

Sample Matrix: Water

Client Sample ID: 07-KWM09-GW
Lab Sample ID: LL3603

Tentative Identification (1)

Concentration (2)

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

11 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.

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

SEMIVOLATILE TARGET COMPOUND LIST

Results in ug/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-01-SW

Lab Sample ID: LL3604

<u>Compound</u>		<u>Compound</u>	
phenol	20 U	bis(2-chloroethoxy)methane	20 U
bis(2-chloroethyl)ether	20 U	2,4-dichlorophenol	20 U
2-chlorophenol	20 U	1,2,4-trichlorobenzene	20 U
1,3-dichlorobenzene	20 U	naphthalene	20 U
1,4-dichlorobenzene	20 U	4-chloroaniline	20 U
benzyl alcohol	20 U	hexachlorobutadiene	20 U
1,2-dichlorobenzene	20 U	4-chloro-3-methylphenol	20 U
2-methylphenol	20 U	2-methylnaphthalene	20 U
(2-chloroisopropyl)ether	20 U	hexachlorocyclopentadiene	20 U
1-methylphenol	20 U	2,4,6-trichlorophenol	20 U
n-nitroso-di-n-propylamine	20 U	2,4,5-trichlorophenol	100 U
hexachloroethane	20 U	2-chloronaphthalene	20 U
nitrobenzene	20 U	2-nitroaniline	100 U
isophorone	20 U	dimethyl phthalate	20 U
2-nitrophenol	20 U	acenaphthylene	20 U
2,4-dimethylphenol	20 U	2,6-dinitrotoluene	20 U
benzoic acid	100 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: 07/20/90

Date Analyzed: 08/10/90

Dilution Factor: 2

Client Project ID: NAS-Key West

Job Number: ITCY 46180

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 08-01-SW
Lab Sample ID: LL3604

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	100 U	anthracene	20 U
acenaphthene	20 U	di-n-butylphthalate	20 U
2,4-dinitrophenol	100 U	fluoranthene	20 U
4-nitrophenol	100 U	pyrene	20 U
dibenzofuran	20 U	butylbenzylphthalate	20 U
2,4-dinitrotoluene	20 U	3,3'-dichlorobenzidine	41 U
diethylphthalate	20 U	benzo(a)anthracene	20 U
4-chlorophenyl-phenylether	20 U	chrysene	20 U
luorene	20 U	bis(2-ethylhexyl)phthalate	5 BJ
4-nitroaniline	100 U	di-n-octylphthalate	20 U
4,6-dinitro-2-methylphenol	100 U	benzo(b)fluoranthene	20 U
n-nitrosodiphenylamine ¹	20 U	benzo(k)fluoranthene	20 U
4-bromophenyl-phenylether	20 U	benzo(a)pyrene	20 U
hexachlorobenzene	20 U	indeno(1,2,3-cd)pyrene	20 U
pentachlorophenol	100 U	dibenzo(a,h)anthracene	20 U
phenanthrene	20 U	benzo(g,h,i)perylene	20 U

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

Date Extracted: 07/20/90
Date Analyzed: 08/10/90
Dilution Factor: 2

WATER SURROGATE PERCENT RECOVERY SUMMARY

Sample No.	SEMI-VOLATILE					
	Nitro-Benzene-D5 (35-114%)*	2-Fluoro-Biphenyl (43-116%)*	Terphenyl-D14 (33-141%)*	Phenol-D5 (10-94%)*	2-Fluoro-Phenol (21-100%)*	2,4,6 Tribromo-Phenol (10-123%)*
04-02-SW	50	41 **	78	43	56	57
04-05-GM-GW	57	49	71	41	58	57
04-07-GW	55	45	76	48	60	61
04-08-GM-GW	61	47	80	40	55	59
05-02-GW	50	40 **	65	32	46	52
05-03-GW	73	70	78	34	52	86
07-02-SW	63	52	83	52	67	64
07-KWM09-GW	50	49	77	44	61	62
08-01-SW	58	58	69	44	60	51
10-18-GM-GW	66	54	68	45	69	67
04-07-GW MSD	53	42 **	75	60	64	56
04-07-GW MS	52	43	78	62	67	60
Method Blank	82	66	83	28	37	52

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

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Method Blank
Lab Sample ID: BLA1365

<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: 07/20/90
Date Analyzed: 08/07/90
Dilution Factor: 1

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 07-02-SW
Lab Sample ID: LL3602

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

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

Date Extracted: 07/20/90
Date Analyzed: 08/07/90
Dilution Factor: 1

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 07-KWM09-GW
Lab Sample ID: LL3603

<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
lindrin	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: 07/20/90
Date Analyzed: 08/07/90
Dilution Factor: 1

Client Project ID: NAS-Key West

Job Number: ITCY 46180

MATRIX SPIKE RECOVERY

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-08-GM-GW
Lab Sample ID: LL3583

	<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>
aluminum	75-125	2,348.99	780.73	2,000	78.4
antimony	75-125	394.81	30.00 U	500	79.0
arsenic	75-125	1,561.87	30.00 U	2,000	78.1
barium	75-125	1,334.04	42.39 B	2,000	64.6 N
beryllium	75-125	35.71	1.00 U	50	71.4 N
cadmium	75-125	35.98	5.00 U	50	72.0 N
chromium	75-125	143.47	18.15	200	62.7 N
cobalt	75-125	312.65	20.00 U	500	62.5 N
copper	75-125	189.78	19.26 B	250	68.2 N
iron	75-125	1,881.19	1,114.62	1,000	76.7
lead	75-125	391.79	36.13	500	71.1 N
manganese	75-125	312.35	2.00 U	500	62.5 N
mercury	75-125	1.00	0.20 U	1	100.0
nickel	75-125	315.95	20.00 U	500	63.2 N
selenium	75-125	1,691.52	60.00 U	2,000	84.6
silver	75-125	70.08	25.00 U	50	140.2 N
thallium	75-125	30.00 U	30.00 U	2,000	0.0 N
vanadium	75-125	339.36	21.75 B	500	63.5 N
zinc	75-125	385.92	17.20	500	73.7 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: 08/04/90

Date Analyzed: 08/20/90 (ICP); 08/23/90 (GFAA); 07/24/90 (CVAA)

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

MATRIX SPIKE RECOVERY

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

Sample Matrix: Water

Client Sample ID: 04-08-GM-GW

Lab Sample ID: LL3583

	<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>
selenium	75-125	6.0000 U	10.0000 U	10.00	0.0 N

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

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

Date Digested: 08/04/90

Date Analyzed: 08/23/90 (GFAA)

ent Project ID: NAS-Key West

Job Number: ITCY 46180

POST-DIGEST MATRIX SPIKE RECOVERY

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

Sample Matrix: Water

Client Sample ID: 04-08-GM-GW
Lab Sample ID: LL3583

	<u>Spiked Sample Result</u>	<u>Sample Result</u>	<u>Spike Added</u>	<u>% Recovery</u>
aluminum	3,151.68	780.73	2,000.0	118.5
antimony	417.19	30.00 U	500.0	83.4
arsenic	1,720.71	30.00 U	2,000.0	86.0
barium	1,488.72	42.39 B	2,000.0	72.3
beryllium	36.18	1.00 U	50.0	72.4
cadmium	42.23	5.00 U	50.0	84.5
chromium	147.15	18.15	200.0	64.5
alt	334.93	20.00 U	500.0	67.0
copper	202.70	19.26	250.0	73.4
iron	1,943.44	1,114.62	1,000.0	82.9
lead	397.17	36.13	500.0	72.2
manganese	333.59	2.00 U	500.0	66.7
nickel	345.95	20.00 U	500.0	69.2
selenium	1,902.60	60.00 U	2,000.0	95.1
silver	35.50	25.00 U	50.0	71.0
thallium	30.00 U	30.00 U	2,000.0	0.0
vanadium	358.83	21.75 B	500.0	67.4
zinc	427.64	17.20 B	500.0	82.1

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: 08/04/90

Date Analyzed: 08/20/90 (ICP); 08/23/90 (GFAA); 07/24/90 (CVAA)

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITEK 46180

POST-DIGEST MATRIX SPIKE RECOVERY

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

Sample Matrix: Water

Client Sample ID: 04-08-GM-GW

Lab Sample ID: LL3583

	<u>Spiked Sample Result</u>	<u>Sample Result</u>	<u>Spike Added</u>	<u>% Recovery</u>
selenium	10.00 U	10.00 U	10.0	0.0

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

Date Digested: 08/04/90

Date Analyzed: 08/23/90 (GFAA)

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

MATRIX SPIKE ANALYSIS
Results in mg/liter (ppm)
Sample Matrix: Water

Client Sample ID: 04-08-GM-GW
Lab Sample ID: LL3571

<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	0.18	90

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

Date Analyzed: 07/26/90

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

DUPLICATE ANALYSIS

Results in mg/liter (ppm)

Sample Matrix: Water

Client Sample ID: 04-08-GM-GW
Lab Sample ID: LL3571

<u>Compound</u>	<u>Original Sample</u>	<u>Duplicate</u>	<u>RPD</u>
cyanide	0.01 U	0.01 U	0

RPD = Relative Percent Difference

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

Date Analyzed: 07/26/90



INTERNATIONAL
TECHNOLOGY
CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

Mark Hampton
IT Corporation
3018 US Highway 301 North
Suite 300
Tampa, FL 33619

September 28, 1990

PROJECT NUMBER: 482488.39
IT JOB NUMBER: 595392

CLIENT PO NUMBER: 486000.09

This is the Certificate of Analysis for the following samples:

Client Project ID:	ITCY 45898 (NAS Key West)
Date Received by Lab:	6/6 through 6/12/90
Number of Samples:	8 (eight)
Sample Type:	Soil

I. Introduction/Case Narrative

Eight (8) soil samples were received at ITAS-TDL Knoxville from the Tampa Engineering Group. All eight samples were analyzed for pH, moisture content, density, grain size distribution, cation exchange capacity, and permeability using water as the permeant. Please see the sample number Cross Reference List, Appendix A, and Chain-of-Custody and Request for Analysis forms, Appendix D.

Reviewed and Approved:

Thomas J. Geisler
Manager of Geotechnical Services

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

II. Analytical Results/Methodology

Procedure	Method
pH	Section 12-2.6.5, Methods of Soil Analysis, Part 2, Chemical and Microbiological properties.
Moisture Content	ASTM D 2216-80, "Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures.
Density	Weight per unit volume after sample consolidation from the permeability analysis.
Grain Size Distribution	ASTM D 422-63, Standard Method for Particle-Size Analysis of Soils
Cation Exchange Capacity	Method 9081, Test Methods for Evaluating Solid Waste, Volume 1C, Physical and Chemical Methods, USEPA SW-846 3rd Ed., 1986.
Permeability	Method 9100, Test Methods for Evaluating Solid Waste, Volume 1C, Physical and Chemical Methods, USEPA SW-846 3rd Ed., 1986.

III. Quality Control

Internal quality control checks, QC samples, are not applicable to geotechnical testing due to the inability of obtaining samples with known characteristics. Blanks and spikes are also not applicable to geotechnical testing.

QC measures to ensure accuracy and precision of geotechnical test results include the following:

- 100% verification on all numerical results - all raw data entries, transcriptions and calculations entered by lab technicians are checked, recalculated and verified.
- Data validation through test reasonableness - summaries of all test results for individual reports are reviewed to determine the overall reasonableness of data and to determine the presence of any data that may be considered outliers.
- Routine instrument calibration - all instruments, gauges and equipment used in testing is calibrated on a timely routine basis. All instrument calibration follows ASTM or manufacturer guidelines.

Mark Hampton

IT Corporation-Tampa

Date: September 28, 1990

Client Project ID: ITCY 45898 (NAS Key West)

IT ANALYTICAL SERVICES

304 DIRECTORS DRIVE

KNOXVILLE, TENNESSEE

TDL Project No.: 482488.39

- Maintenance of all past calibration records - records and certification documents of all instruments, gauges and equipment are updated routinely and maintained on file.
- Use of trained personnel for conducting tests - all technicians are trained in the application of standard laboratory procedures for geotechnical and/or chemical analyses as well as the quality assurance measures implemented for internal quality control checks.

A reagent blank and duplicate sample was not analyzed for the cation exchange capacity analysis. All other routine non-project specific QA/QC was followed for this analysis.

APPENDIX A

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Mark Hampton
IT Corporation-Tampa
Date: September 28, 1990
Client Project ID: ITCY 45898 (NAS Key West)

IT ANALYTICAL SERVICES
304 DIRECTORS DRIVE
KNOXVILLE, TENNESSEE

TDL Project No.: 482488.39

CROSS-REFERENCE LIST

SAMPLE NO.	MIDDLEBROOK LAB SAMPLE NUMBER	CLIENT SAMPLE NO.	MATRIX
GG3121	LL0090	MW2-Composite	Soil
GG3122	LL0091	MWSF-66	Soil
GG3147	LL0387	Site 4-1	Soil
GG3148	LL0542	MW2-A, Site 1	Soil
GG3149	LL0543	BFFTA-2b	Soil
GG3150	LL0544	Plot 4, NAS Site 3	Soil
GG3302	LL1953	Site 9, D3B13	Soil
GG3303	LL1954	Site 5, MW2	Soil

APPENDIX B

RESULTS SUMMARY

AMPLE NO.	pH	MOISTURE CONTENT AS RECEIVED DRY WT BASIS	DENSITY AFTER PERMEABILITY TEST g/cc
W2-Composite	7.85	19.6	1.765
WSF-66	8.50	37.3	1.906
ite 4-1	7.50	29.7	2.067
W2-A, Site 1	8.15	25.8	1.999
FFTA-2b	8.65	21.1	1.794
lot 4, NAS	8.35	17.4	2.125
Site 3			
ite 9, D3B13	8.35	39.2	1.945
ite 5, MW2	8.35	21.2	2.017

AMPLE NO.	PERMEABILITY	PERCENT FINER 75 um	PERCENT FINER 1 um	CAT. EXC. CAP. meq/g
W2-Composite	1.11 E-05	14.1	6.0	40.35
WSF-66	1.04 E-05	26.7	8.2	56.1
ite 4-1	2.29 E-06	19.9	8.0	35.74
W2-A, Site 1	2.46 E-06	11.7	3.5	186.98
FFTA-2b	9.55 E-06	20.2	7.3	44.22
lot 4, NAS				
Site 3	6.55 E-07	26.4	10.0	89.97
ite 9, D3B13	1.80 E-06	23.0	8.1	49.22
ite 5, MW2	9.05 E-06	17.8	5.4	39.37

APPENDIX C

Page 9 of 63
Mark Hampton
IT Corporation-Tampa
Date: September 28, 1990
Project ID: ITCY 45898 (NAS Key West)

IT ANALYTICAL SERVICES
304 DIRECTORS DRIVE
KNOXVILLE, TENNESSEE

TDL Project No.: 482488.39

CLIENT SAMPLE NUMBER	MW2-Composite
WELL SAMPLE NUMBER	GG3121
SPECIFIC GRAVITY (ASSUMED)	2.65
TESTED BY	Coy A. Lauer
CHECKED BY	Thomas J. Geisler
WELL DESCRIPTION	White Sand

SAMPLE PARAMETERS AFTER TEST

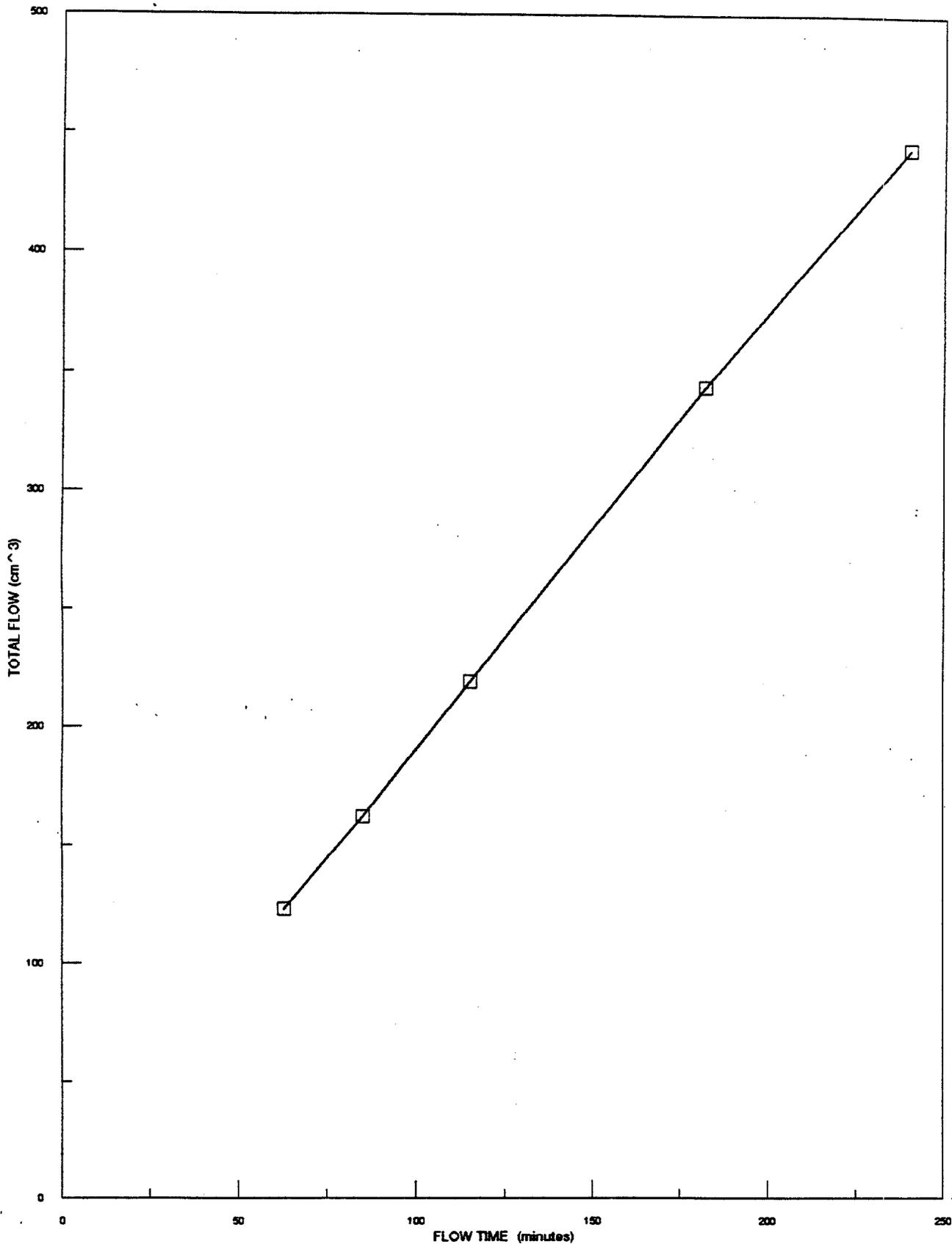
% Moisture (wet wt. basis)	13.10
Weight of wet sample (g)	654.01
Length (cm) 1	9.980
Length (cm) 2	9.809
Length (cm) 3	9.624
Length (cm) 4	9.304
Diameter (cm) Top	6.513
Diameter (cm) Middle	7.148
Diameter (cm) Bottom	7.285
Average length (cm)	9.679
Average diameter (cm)	6.982
Average area (cm ²)	38.287
Sample volume (cm ³)	370.58
Unit wet weight (g/cm ³)	1.765
Unit dry weight (g/cm ³)	1.560
Void ratio	0.806
Porosity	0.446
Degree of saturation (%)	65.63

PRESSURES

Top cap (psi)	25
Bottom cap (psi)	35
Cell (psi)	45
Total Head (cm H ₂ O)	703.06

PERMEABILITY (cm/sec) 1.11 X 10⁻⁵

PERMEABILITY TEST SAMPLE GG3121



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Mark Hampton
IT Corporation-Tampa
Date: September 28, 1990
Client Project ID: ITCY 45898 (NAS Key West)

IT ANALYTICAL SERVICES
304 DIRECTORS DRIVE
KNOXVILLE, TENNESSEE

TDL Project No.: 482488.39

CLIENT SAMPLE NUMBER	MWSF-66
OL SAMPLE NUMBER	GG3122
PECIFIC GRAVITY (ASSUMED)	2.65
ESTED BY	Coy A. Lauer
HECKED BY	Thomas J. Geisler
IL DESCRIPTION	White Sand

SAMPLE PARAMETERS AFTER TEST

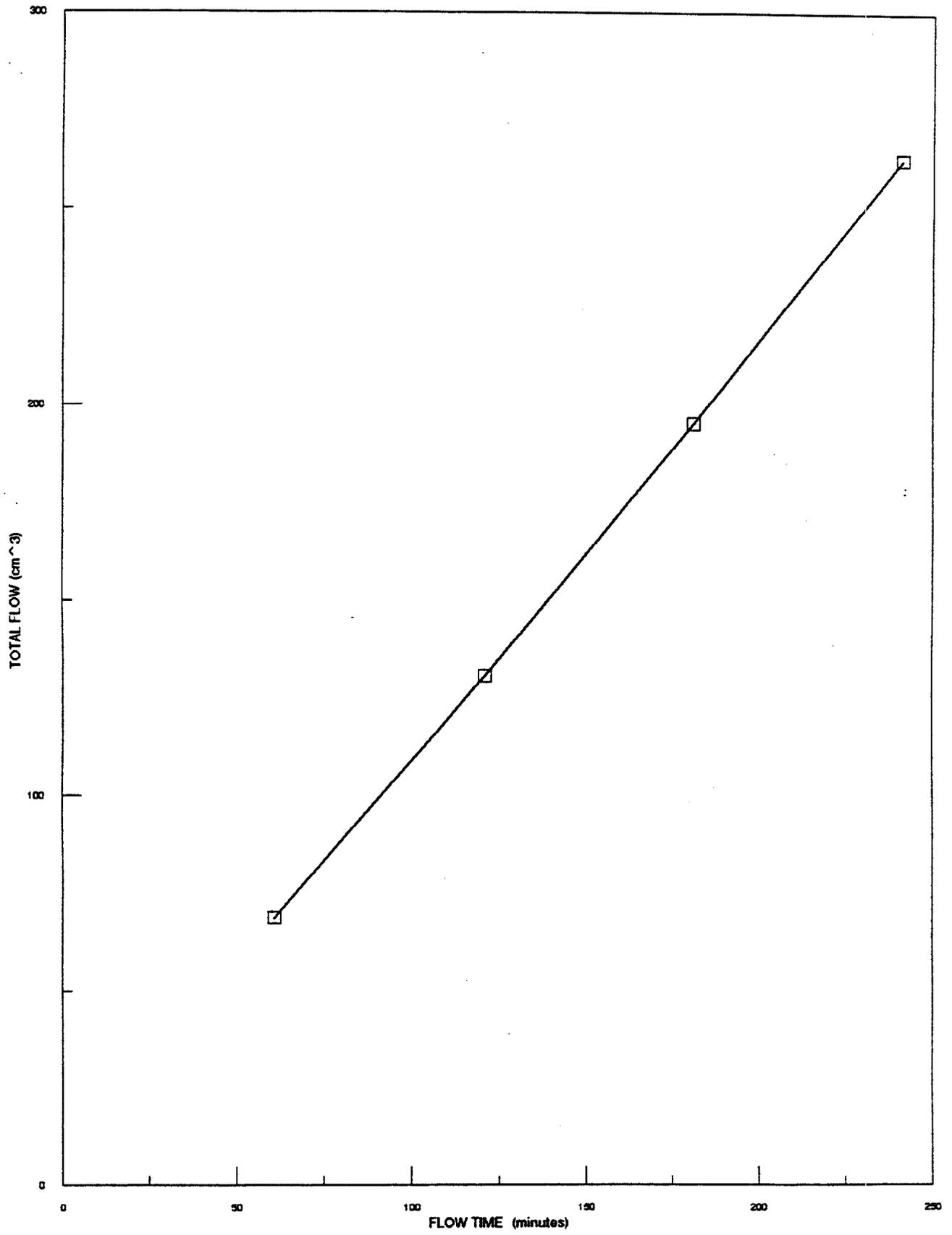
% Moisture (wet wt basis)	28.67
Weight of wet sample (g)	742.94
Length (cm) 1	12.555
Length (cm) 2	12.446
Length (cm) 3	12.499
Length (cm) 4	12.639
Diameter (cm) Top	6.325
Diameter (cm) Middle	6.302
Diameter (cm) Bottom	6.248
Average length (cm)	12.535
Average diameter (cm)	6.292
Average area (cm ²)	31.093
Sample volume (cm ³)	389.75
Unit wet weight (g/cm ³)	1.906
Unit dry weight (g/cm ³)	1.481
Void ratio	0.789
Porosity	0.441
Degree of saturation (%)	96.32

RESSURES

Top cap (psi)	25
Bottom cap (psi)	35
Cell (psi)	45
Total Head (cm of H ₂ O)	703.06

ERMEABILITY (cm/sec) 1.04 x 10⁻⁵

PERMEABILITY TEST SAMPLE GG3122



Page 13 of 63
Mark Hampton
IT Corporation-Tampa
Date: September 28, 1990
Client Project ID: ITCY 45898 (NAS Key West)

IT ANALYTICAL SERVICES
304 DIRECTORS DRIVE
KNOXVILLE, TENNESSEE

TDL Project No.: 482488.39

CLIENT SAMPLE NUMBER	Site 4-1
LABORATORY SAMPLE NUMBER	GG3147
SPECIFIC GRAVITY (ASSUMED)	2.65
TESTED BY	Coy A. Lauer
CHECKED BY	Thomas J. Geisler
SAMPLE DESCRIPTION	White Sand

SAMPLE PARAMETERS AFTER TEST

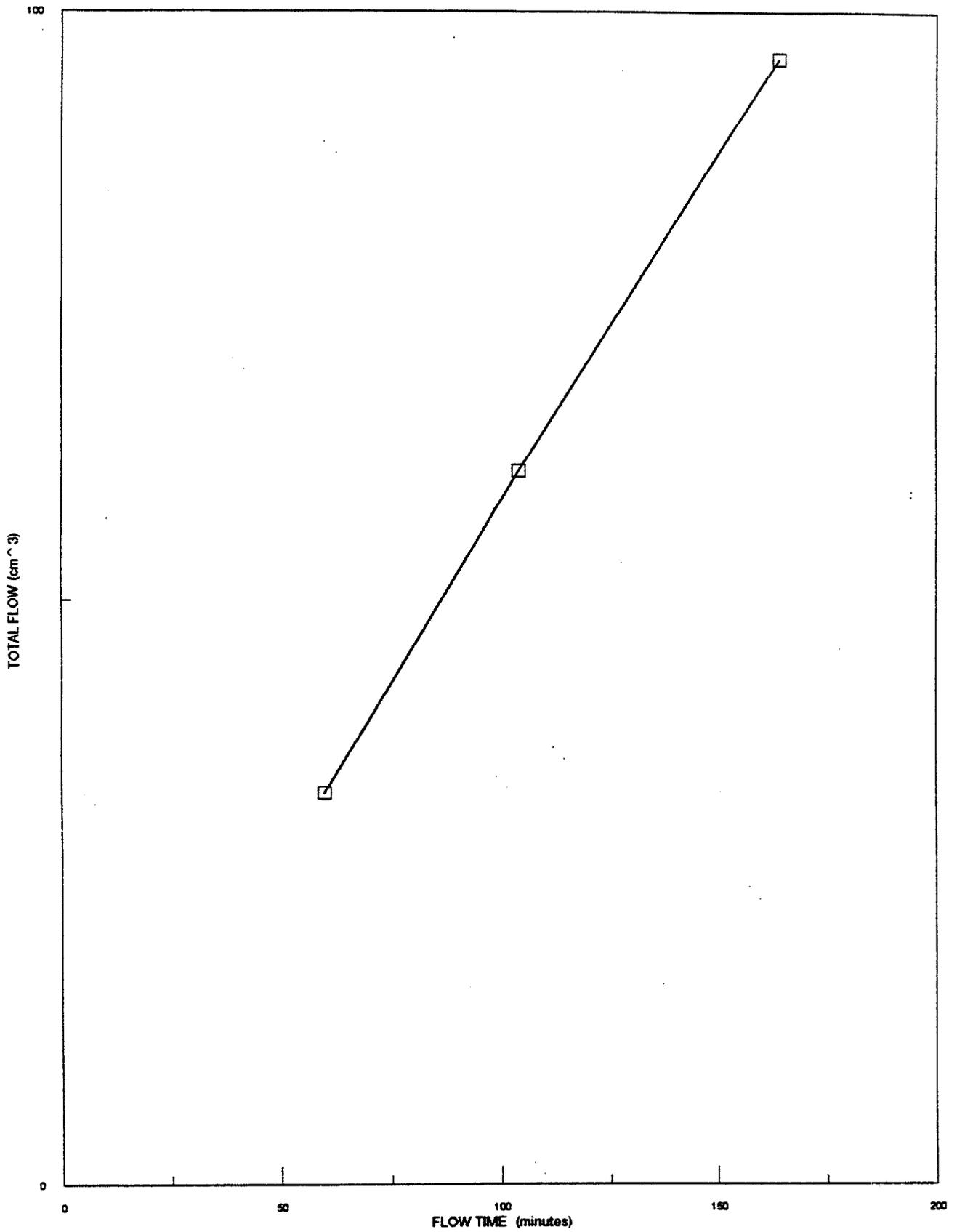
% Moisture (wet wt basis)	25.43
Weight of wet sample (g)	555.28
Length (cm) 1	7.069
Length (cm) 2	6.612
Length (cm) 3	6.447
Length (cm) 4	6.533
Diameter (cm) Top	7.008
Diameter (cm) Middle	7.275
Diameter (cm) Bottom	7.209
Average length (cm)	6.665
Average diameter (cm)	7.164
Average area (cm ²)	40.309
Sample volume (cm ³)	268.66
Unit wet weight (g/cm ³)	2.067
Unit dry weight (g/cm ³)	1.648
Void ratio	0.608
Porosity	0.378
Degree of saturation (%)	110.8

PRESSURES

Top cap (psi)	25
Bottom cap (psi)	35
Cell (psi)	45
Total Head (cm of H ₂ O)	703.06

PERMEABILITY (cm/sec) 2.29 x 10⁻⁶

PERMEABILITY TEST SAMPLE GG3147



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Mark Hampton
IT Corporation-Tampa
Date: September 28, 1990
Client Project ID: ITCY 45898 (NAS Key West)

IT ANALYTICAL SERVICES
304 DIRECTORS DRIVE
KNOXVILLE, TENNESSEE

TDL Project No.: 482488.39

CLIENT SAMPLE NUMBER	MW2-A, Site 1
WELL SAMPLE NUMBER	GG3148
SPECIFIC GRAVITY (ASSUMED)	2.65
TESTED BY	Coy A. Lauer
CHECKED BY	Thomas J. Geisler
SOIL DESCRIPTION	White Sand

SAMPLE PARAMETERS AFTER TEST

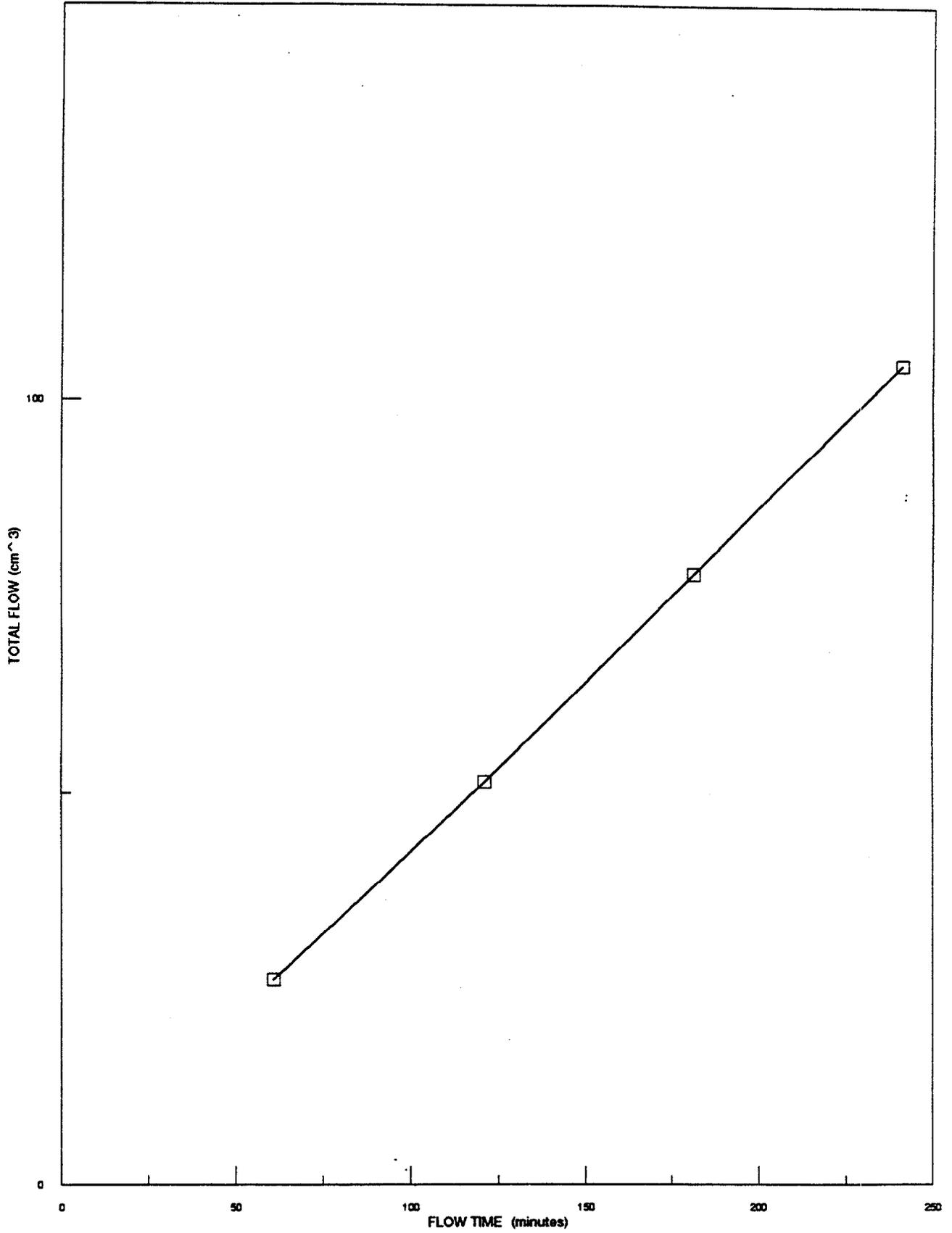
% Moisture (wet wt basis)	20.80
Weight of wet sample (g)	491.53
Length (cm) 1	7.699
Length (cm) 2	7.747
Length (cm) 3	7.653
Length (cm) 4	7.610
Diameter (cm) Top	6.383
Diameter (cm) Middle	6.388
Diameter (cm) Bottom	6.386
Average length (cm)	7.677
Average diameter (cm)	6.386
Average area (cm ²)	32.029
Sample volume (cm ³)	245.89
Unit wet weight (g/cm ³)	1.999
Unit dry weight (g/cm ³)	1.655
Void ratio	0.601
Porosity	0.376
Degree of saturation (%)	91.65

PRESSURES

Top cap (psi)	25
Bottom cap (psi)	35
Cell (psi)	45
Total Head (cm of H ₂ O)	703.06

PERMEABILITY (cm/sec) 2.46 x 10⁻⁶

PERMEABILITY TEST SAMPLE GG3148



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Mark Hampton
IT Corporation-Tampa
Date: September 28, 1990
Client Project ID: ITCY 45898 (NAS Key West)

IT ANALYTICAL SERVICES
304 DIRECTORS DRIVE
KNOXVILLE, TENNESSEE

TDL Project No.: 482488.39

CLIENT SAMPLE NUMBER	BFFTA-2b
DL SAMPLE NUMBER	GG3149
SPECIFIC GRAVITY (ASSUMED)	2.65
TESTED BY	Coy A. Lauer
CHECKED BY	Thomas J. Geisler
OIL DESCRIPTION	White Sand

SAMPLE PARAMETERS AFTER TEST

% Moisture (wet wt basis)	22.07
Weight of wet sample (g)	653.99
Length (cm) 1	9.055
Length (cm) 2	9.535
Length (cm) 3	9.535
Length (cm) 4	9.296
Diameter (cm) Top	6.731
Diameter (cm) Middle	7.198
Diameter (cm) Bottom	7.201
Average length (cm)	9.355
Average diameter (cm)	7.043
Average area (cm ²)	38.959
Sample volume (cm ³)	364.46
Unit wet weight (g/cm ³)	1.794
Unit dry weight (g/cm ³)	1.470
Void ratio	0.803
Porosity	0.445
Degree of saturation (%)	72.9

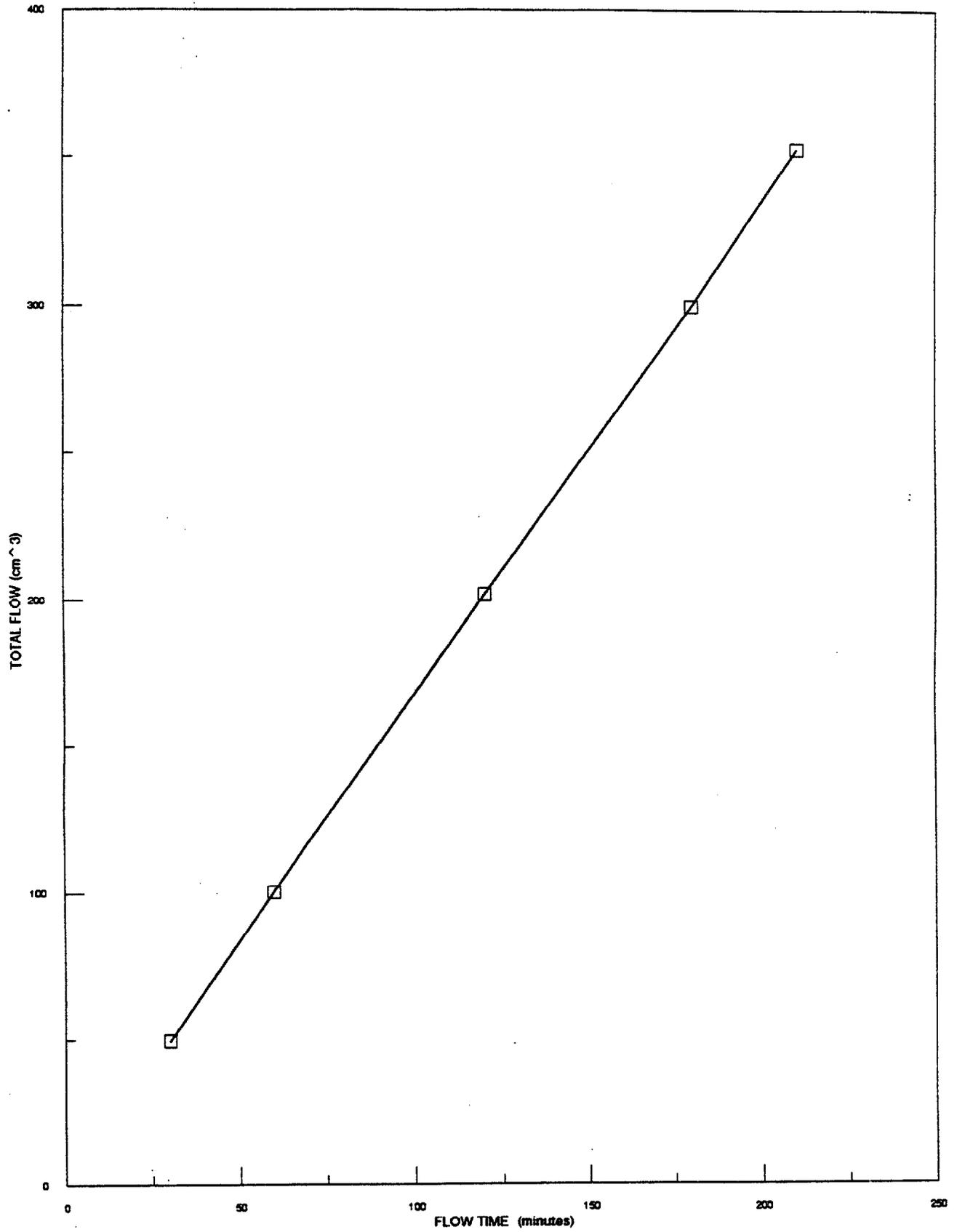
RESSURES

Top cap (psi)	25
Bottom cap (psi)	35
Cell (psi)	45
Total Head (cm of H ₂ O)	703.06

PERMEABILITY (cm/sec)

9.55 x 10⁻⁶

PERMEABILITY TEST SAMPLE GG3149



CLIENT SAMPLE NUMBER	Plot 4, NAS Site 3
WELL SAMPLE NUMBER	GG3150
SPECIFIC GRAVITY (ASSUMED)	2.65
TESTED BY	Coy A. Lauer
CHECKED BY	Thomas J. Geisler
WELL DESCRIPTION	White Sand

SAMPLE PARAMETERS AFTER TEST

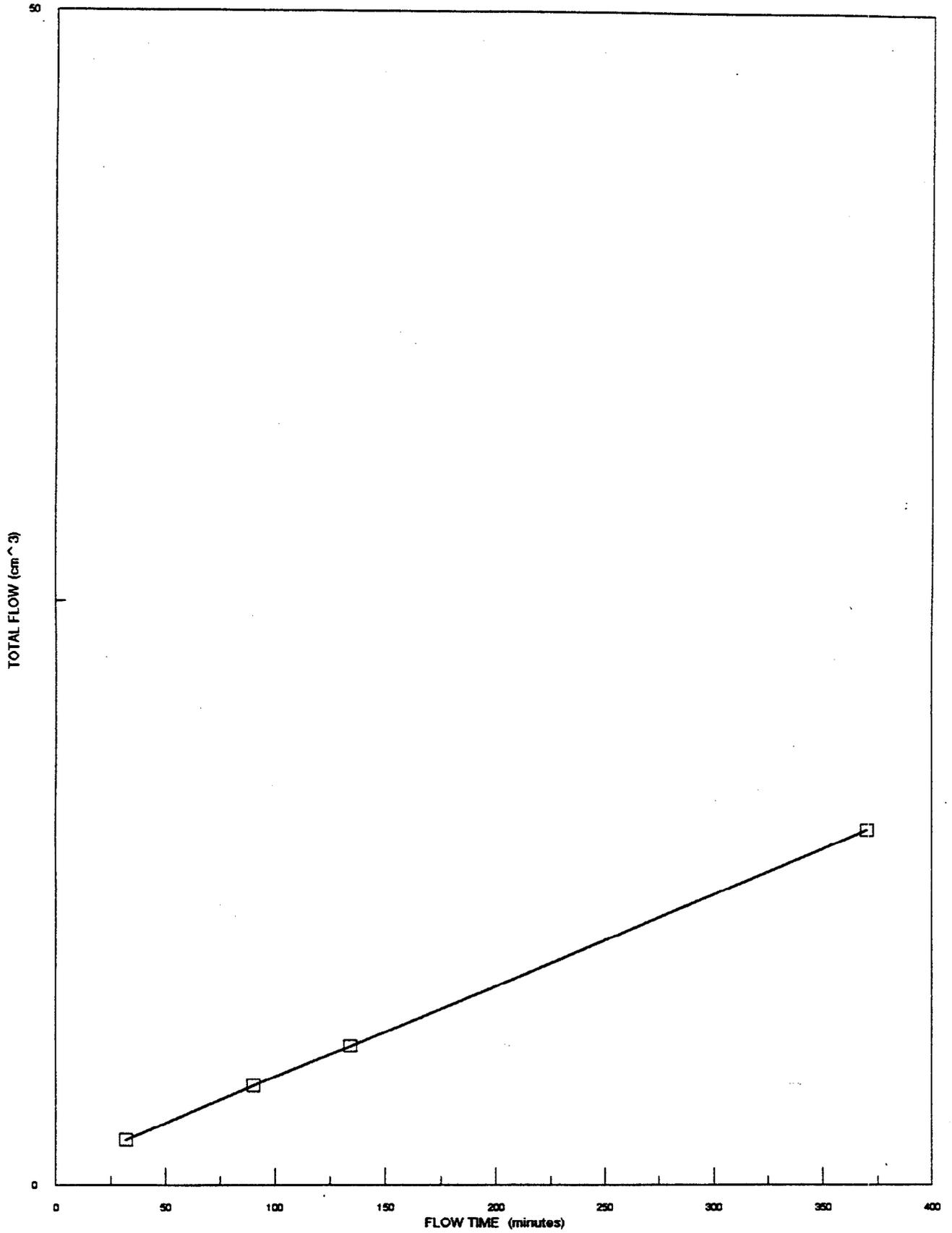
% Moisture (wet wt basis)	16.70
Weight of wet sample (g)	886.34
Length (cm) 1	12.944
Length (cm) 2	12.936
Length (cm) 3	12.901
Length (cm) 4	12.931
Diameter (cm) Top	6.530
Diameter (cm) Middle	6.365
Diameter (cm) Bottom	6.332
Average length (cm)	12.928
Average diameter (cm)	6.409
Average area (cm ²)	32.260
Sample volume (cm ³)	417.06
Unit wet weight (g/cm ³)	2.125
Unit dry weight (g/cm ³)	1.821
Void ratio	0.455
Porosity	0.313
Degree of saturation (%)	97.2

PRESSURES

Top cap (psi)	29
Bottom cap (psi)	35
Cell (psi)	45
Total Head (cm of H ₂ O)	421.836

PERMEABILITY (cm/sec)	6.55 x 10 ⁻⁷
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PERMEABILITY TEST SAMPLE GG3150



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Mark Hampton
IT Corporation-Tampa
Date: September 28, 1990
Client Project ID: ITCY 45898 (NAS Key West)

IT ANALYTICAL SERVICES
304 DIRECTORS DRIVE
KNOXVILLE, TENNESSEE

TDL Project No.: 482488.39

CLIENT SAMPLE NUMBER	Site 9, D3B13
WELL SAMPLE NUMBER	GG3302
SPECIFIC GRAVITY (ASSUMED)	2.65
TESTED BY	Coy A. Lauer
CHECKED BY	Thomas J. Geisler
SOIL DESCRIPTION	White Sand

SAMPLE PARAMETERS AFTER TEST

% Moisture (wet wt basis)	23.57
Weight of wet sample (g)	501.31
Length (cm) 1	8.179
Length (cm) 2	8.260
Length (cm) 3	8.237
Length (cm) 4	8.245
Diameter (cm) Top	6.292
Diameter (cm) Middle	6.330
Diameter (cm) Bottom	6.322
Average length (cm)	8.230
Average diameter (cm)	6.315
Average area (cm ²)	31.321
Sample volume (cm ³)	257.77
Unit wet weight (g/cm ³)	1.945
Unit dry weight (g/cm ³)	1.574
Void ratio	0.684
Porosity	0.406
Degree of saturation (%)	91.3

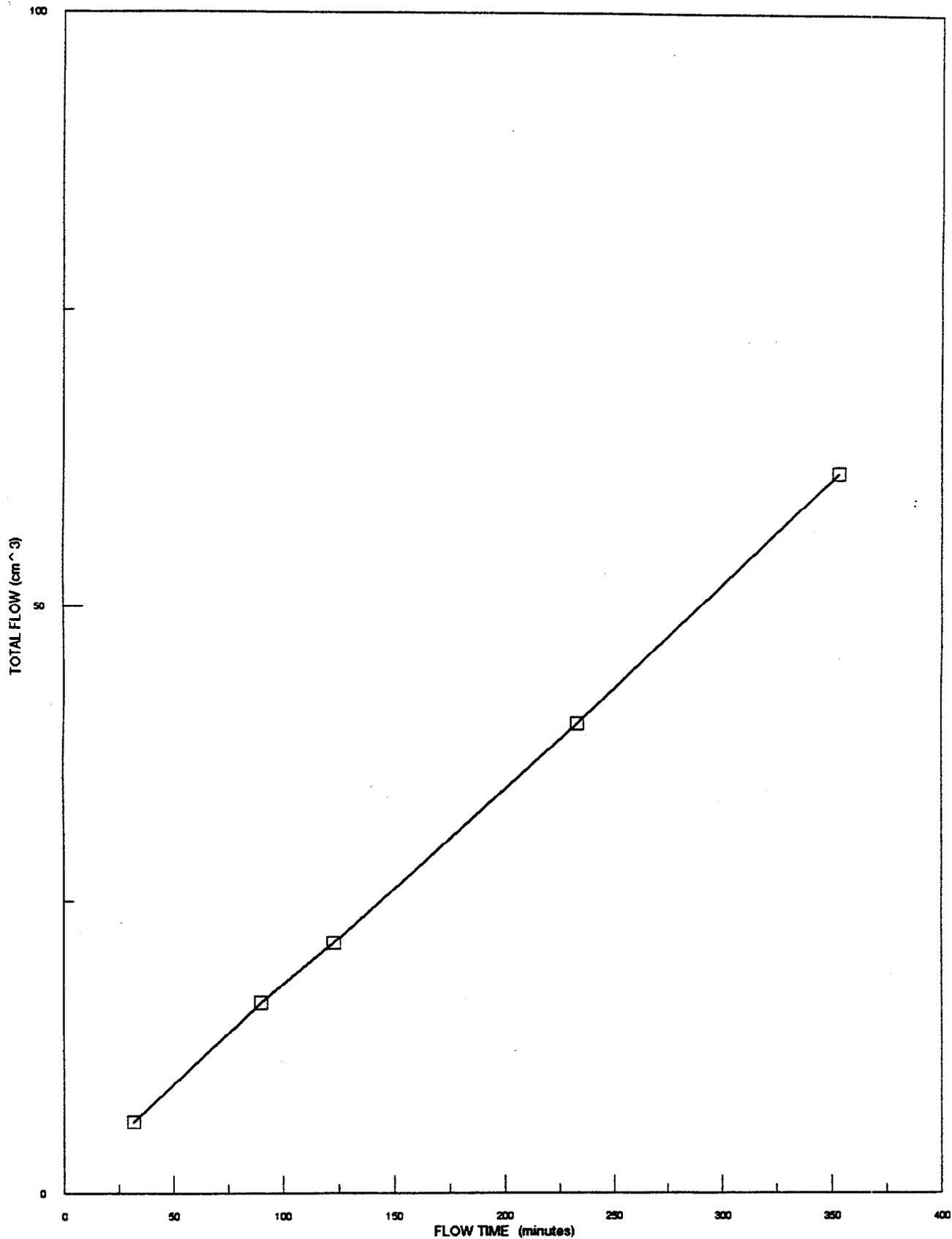
PRESSURES

Top cap (psi)	29
Bottom cap (psi)	35
Cell (psi)	45
Total Head (cm of H ₂ O)	421.836

PERMEABILITY (cm/sec)

1.80 x 10⁻⁶

PERMEABILITY TEST SAMPLE GG3302



CLIENT SAMPLE NUMBER	Site 5, MW2
DL SAMPLE NUMBER	GG3303
SPECIFIC GRAVITY (ASSUMED)	2.65
TESTED BY	Coy A. Lauer
CHECKED BY	Thomas J. Geisler
SOIL DESCRIPTION	White Sand

SAMPLE PARAMETERS AFTER TEST

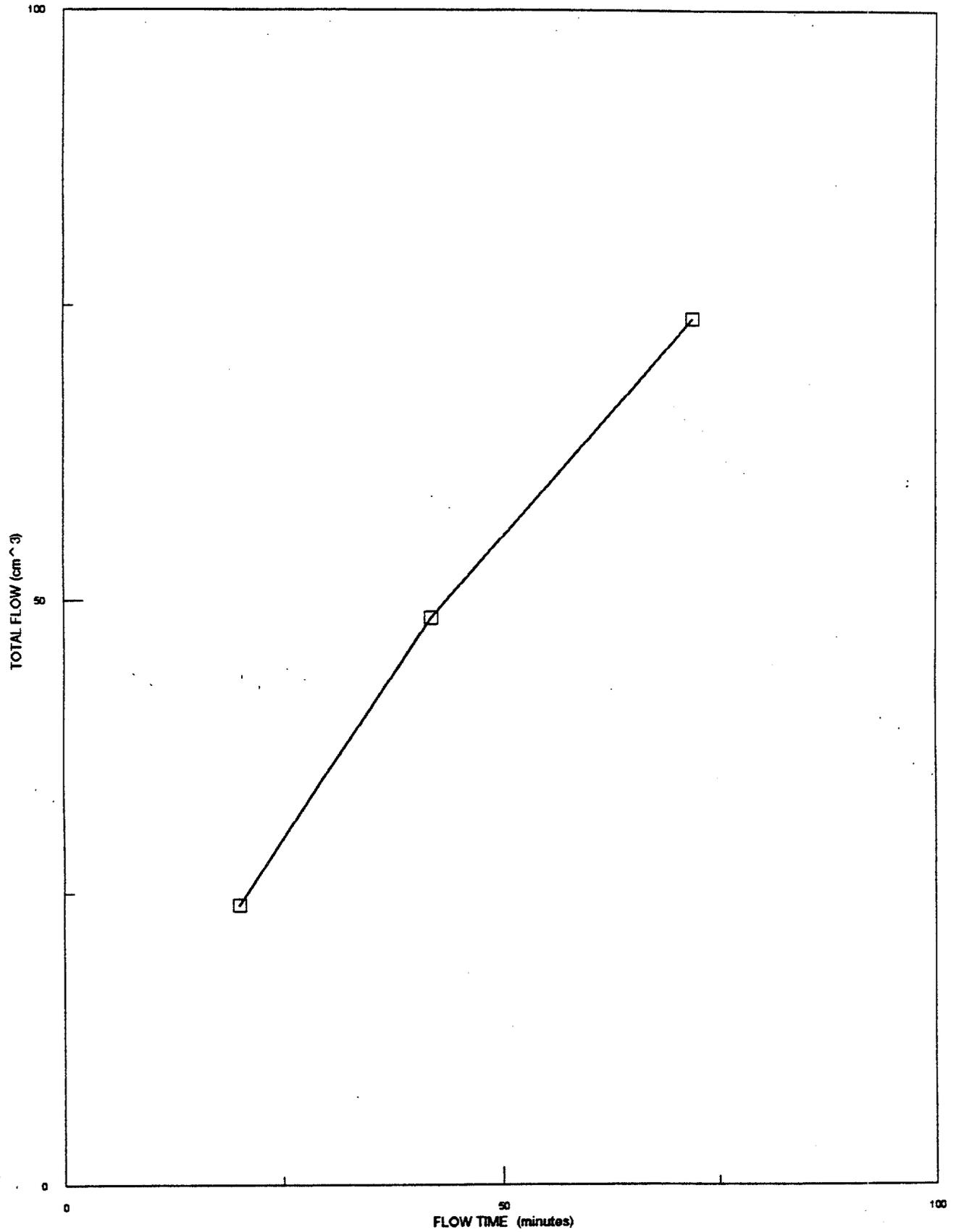
% Moisture (wet wt basis)	20.62
Weight of wet sample (g)	453.59
Length (cm) 1	7.015
Length (cm) 2	7.178
Length (cm) 3	7.099
Length (cm) 4	7.064
Diameter (cm) Top	6.373
Diameter (cm) Middle	6.330
Diameter (cm) Bottom	6.363
Average length (cm)	7.089
Average diameter (cm)	6.355
Average area (cm ²)	31.719
Sample volume (cm ³)	224.86
Unit wet weight (g/cm ³)	2.017
Unit dry weight (g/cm ³)	1.672
Void ratio	0.585
Porosity	0.369
Degree of saturation (%)	93.5

RESSURES

Top cap (psi)	29
Bottom cap (psi)	35
Cell (psi)	45
Total Head (cm of H ₂ O)	421.836

PERMEABILITY (cm/sec) 9.05 x 10⁻⁶

PERMEABILITY TEST SAMPLE GG3303



ANALYSIS: Particle Size

IDENT SAMPLE NUMBER: MW2-Composite

DC SAMPLE NUMBER: GG3121

RESULTS:

EVE SIZE/TIME	DIAMETER (mm)	PERCENT FINER
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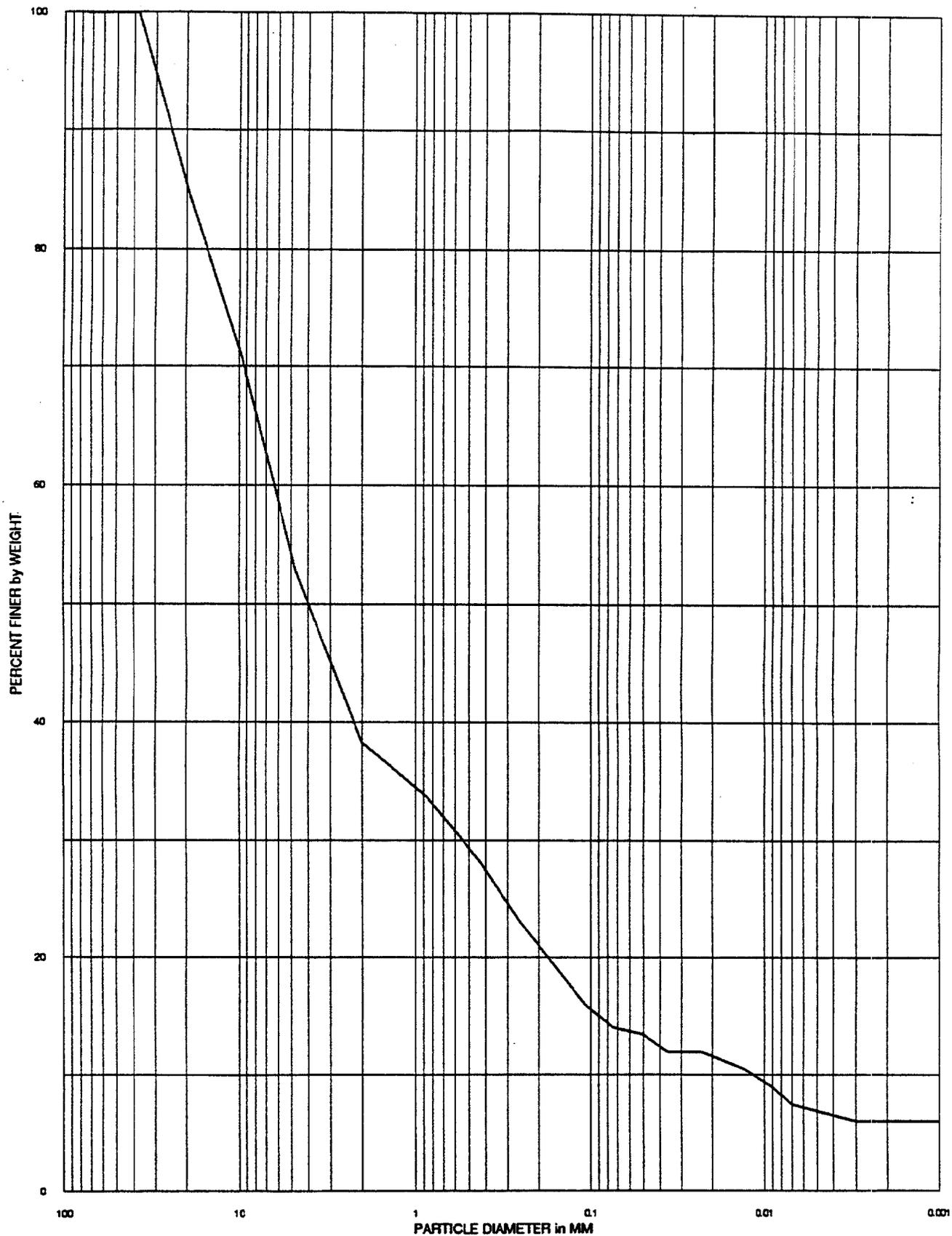
EVE ANALYSIS:

3.000 in.	75.0	100
1.500 in.	37.5	100
0.750 in.	19.0	84.4
0.375 in.	9.5	70.6
No. 4	4.75	53.0
No. 10	2.00	38.4
No. 20	0.850	33.6
No. 40	0.425	28.1
No. 60	0.250	22.9
No. 140	0.106	16.0
No. 200	0.075	14.1

HYDROMETER ANALYSIS

1 min	0.051	13.5
2 min	0.036	12.0
5 min	0.023	12.0
15 min	0.013	10.5
30 min	0.009	9.0
60 min	0.007	7.5
250 min	0.003	6.0
1440 min	0.001	6.0

PARTICLE SIZE DISTRIBUTION SAMPLE GG3121



Date: September 28, 1990

Client Project ID: ITCY 45898 (NAS Key West)

TDL Project No.: 482488.39

ANALYSIS: Particle Size

CLIENT SAMPLE NUMBER: MWSF-66

TDC SAMPLE NUMBER: GG3122

RESULTS:

sieve SIZE/TIME	DIAMETER (mm)	PERCENT FINER
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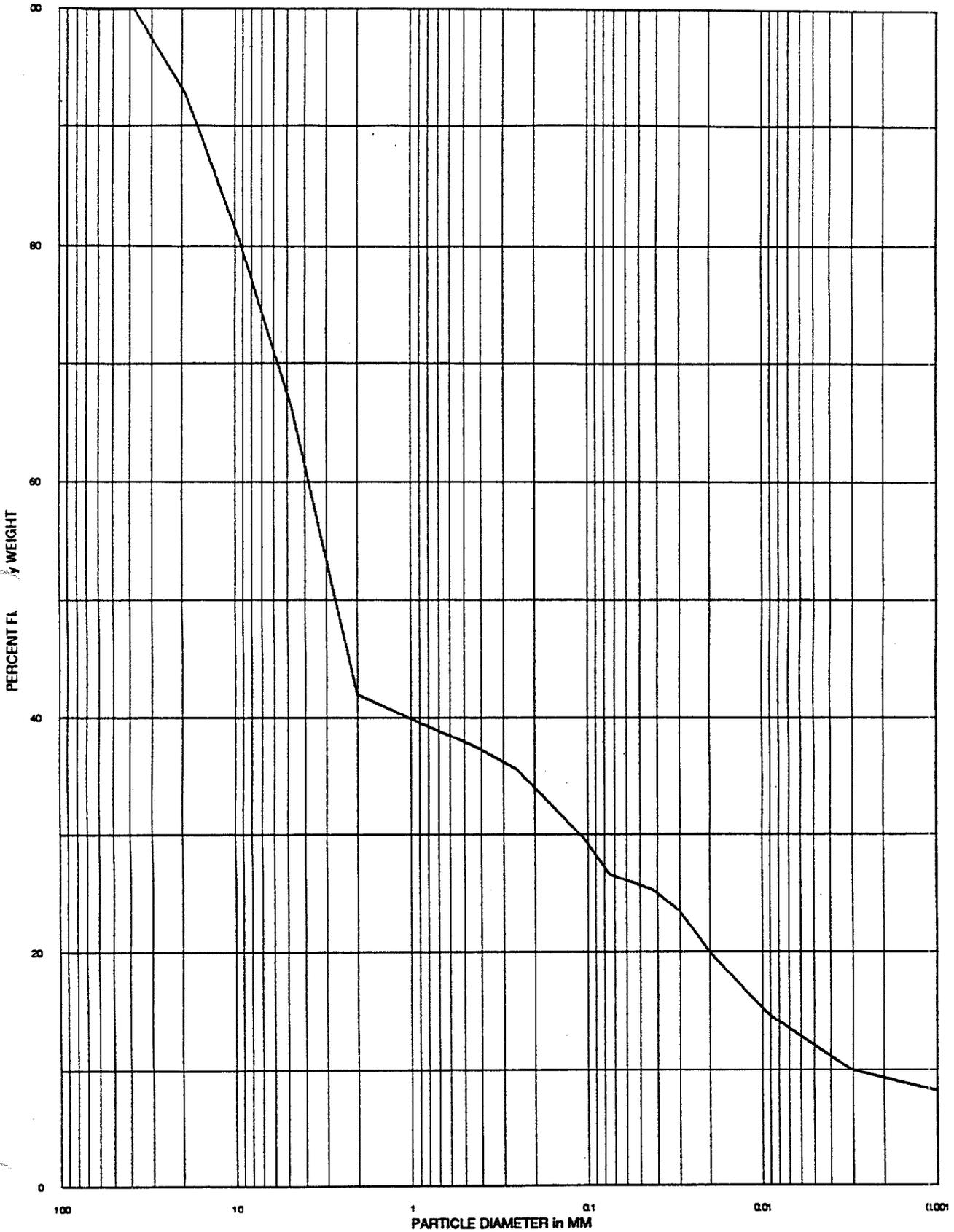
sieve ANALYSIS:

3.000 in.	75.0	100
1.500 in.	37.5	100
0.750 in.	19.0	92.8
0.375 in.	9.5	80.7
No. 4	4.75	66.5
No. 10	2.00	42.0
No. 20	0.850	39.5
No. 40	0.425	37.5
No. 60	0.250	35.6
No. 140	0.106	29.7
No. 200	0.075	26.7

HYDROMETER ANALYSIS

1 min	0.042	25.3
2 min	0.030	23.5
5 min	0.020	20.0
15 min	0.012	16.5
30 min	0.009	14.7
60 min	0.006	12.9
250 min	0.003	10.0
1440 min	0.001	8.2

PARTICLE SIZE DISTRIBUTION SAMPLE GG3122



ANALYSIS: Particle Size

IDENT SAMPLE NUMBER: Site 4-1

DC SAMPLE NUMBER: GG3147

RESULTS:

EVE SIZE/TIME	DIAMETER (mm)	PERCENT FINER
---------------	---------------	---------------

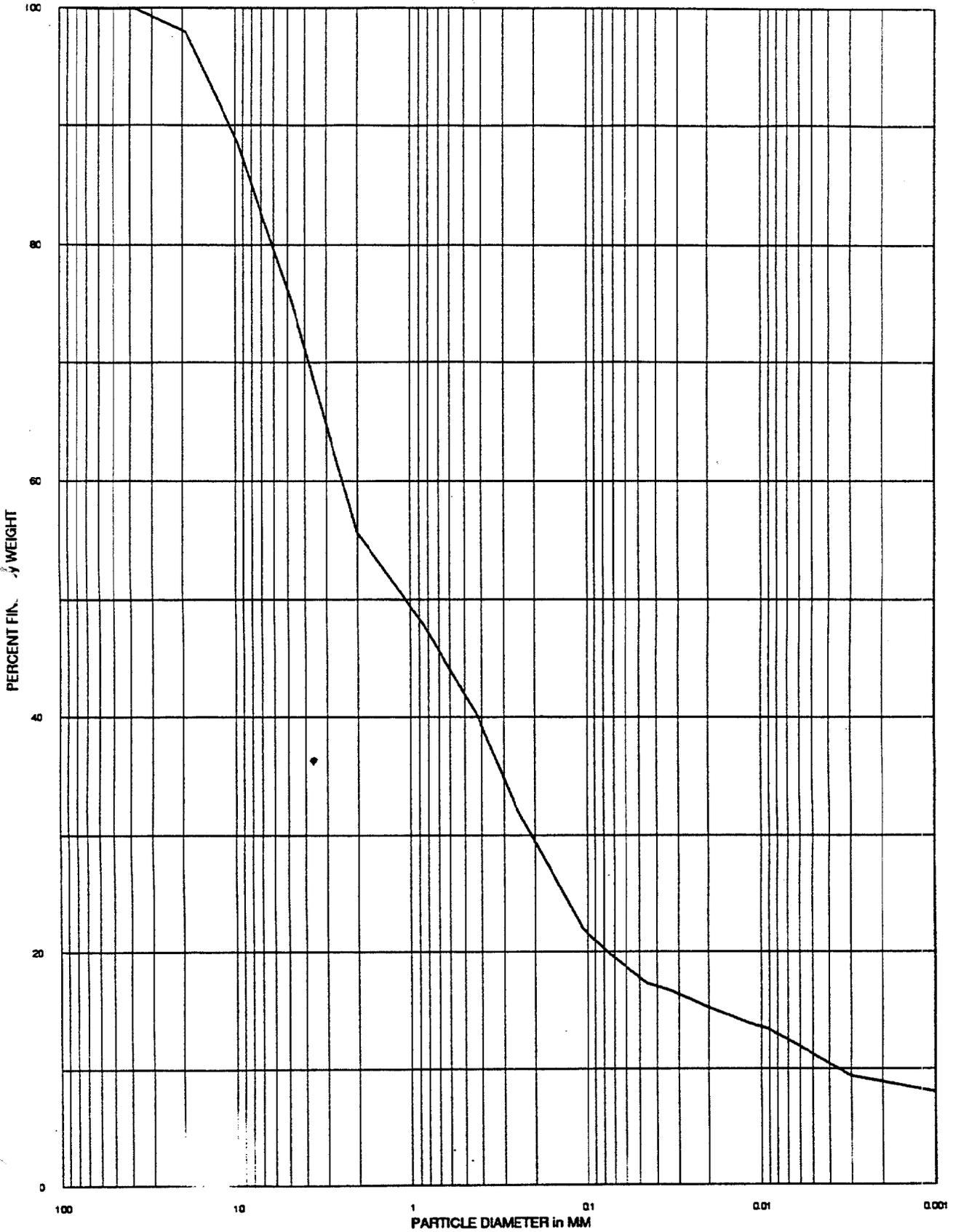
EVE ANALYSIS:

3.000 in.	75.0	100
1.500 in.	37.5	100
0.750 in.	19.0	98.0
0.375 in.	9.5	88.4
No. 4	4.75	75.4
No. 10	2.00	55.7
No. 20	0.850	47.9
No. 40	0.425	40.3
No. 60	0.250	32.2
No. 140	0.106	22.0
No. 200	0.075	19.9

HYDROMETER ANALYSIS

1 min	0.046	17.4
2 min	0.033	16.7
5 min	0.021	15.4
15 min	0.012	14.0
30 min	0.009	13.4
60 min	0.006	12.0
250 min	0.003	9.4
1440 min	0.001	8.0

PARTICLE SIZE DISTRIBUTION SAMPLE GG3147



Page 31 of 63
Mark Hampton
IT Corporation-Tampa
Date: September 28, 1990
Contract Project ID: ITCY 45898 (NAS Key West)

IT ANALYTICAL SERVICES
304 DIRECTORS DRIVE
KNOXVILLE, TENNESSEE

TDL Project No.: 482488.39

ANALYSIS: Particle Size

IDENT SAMPLE NUMBER: MW2-A, Site 1

DC SAMPLE NUMBER: GG3148

RESULTS:

EVE SIZE/TIME	DIAMETER (mm)	PERCENT FINER
---------------	---------------	---------------

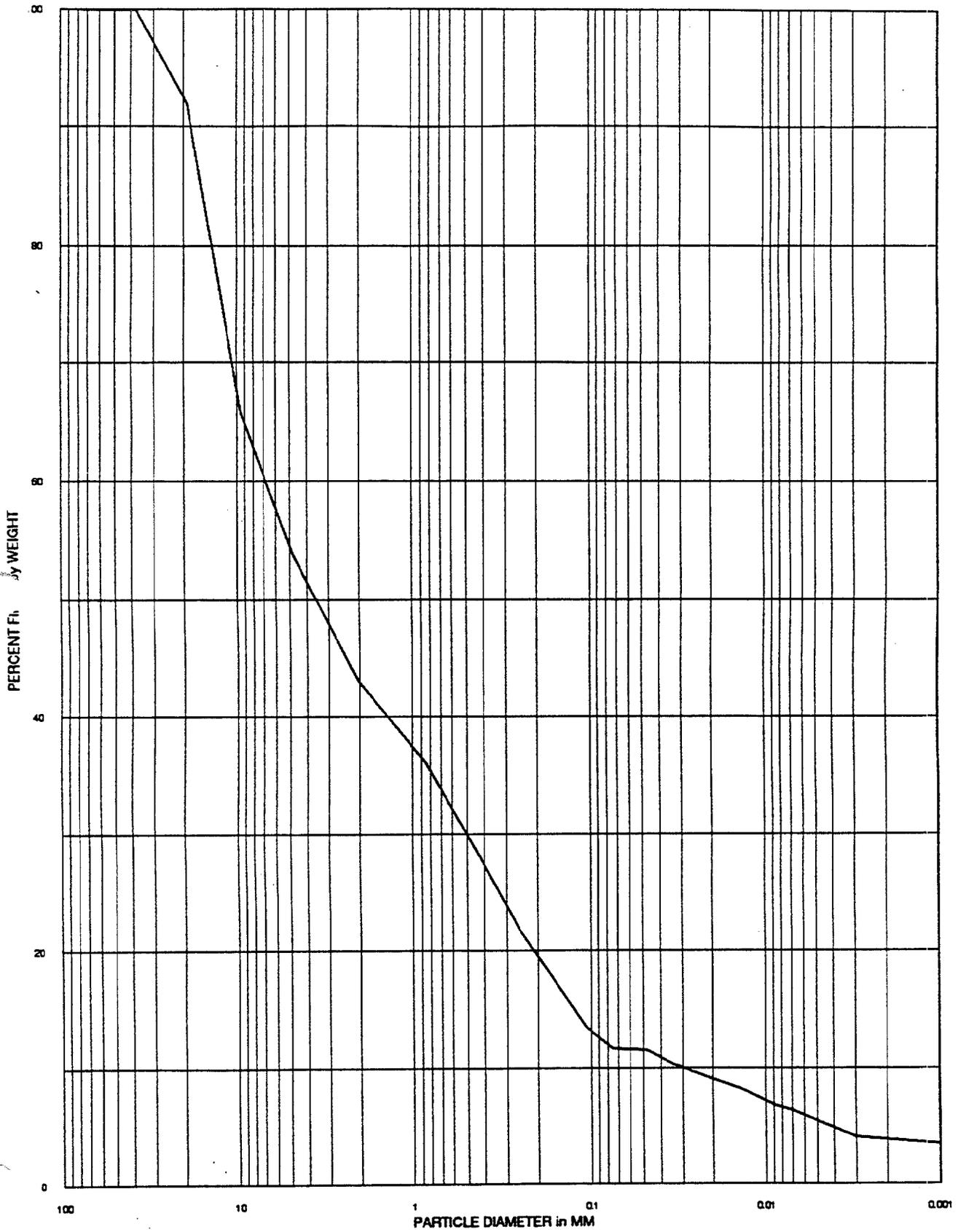
EVE ANALYSIS:

3.000 in.	75.0	100
1.500 in.	37.5	100
0.750 in.	19.0	92.0
0.375 in.	9.5	65.9
No. 4	4.75	53.7
No. 10	2.00	43.0
No. 20	0.850	36.2
No. 40	0.425	28.2
No. 60	0.250	21.8
No. 140	0.106	13.5
No. 200	0.075	11.7

PIPETTOMETER ANALYSIS

1 min	0.048	11.6
2 min	0.034	10.4
5 min	0.022	9.3
15 min	0.013	8.1
30 min	0.009	6.9
60 min	0.007	6.4
250 min	0.003	4.1
1440 min	0.001	3.5

PARTICLE SIZE DISTRIBUTION SAMPLE GG3148



Page 33 of 63
 Mark Hampton
 IT Corporation-Tampa
 Date: September 28, 1990
 Client Project ID: ITCY 45898 (NAS Key West)

IT ANALYTICAL SERVICES
 304 DIRECTORS DRIVE
 KNOXVILLE, TENNESSEE

TDL Project No.: 482488.39

ANALYSIS: Particle Size

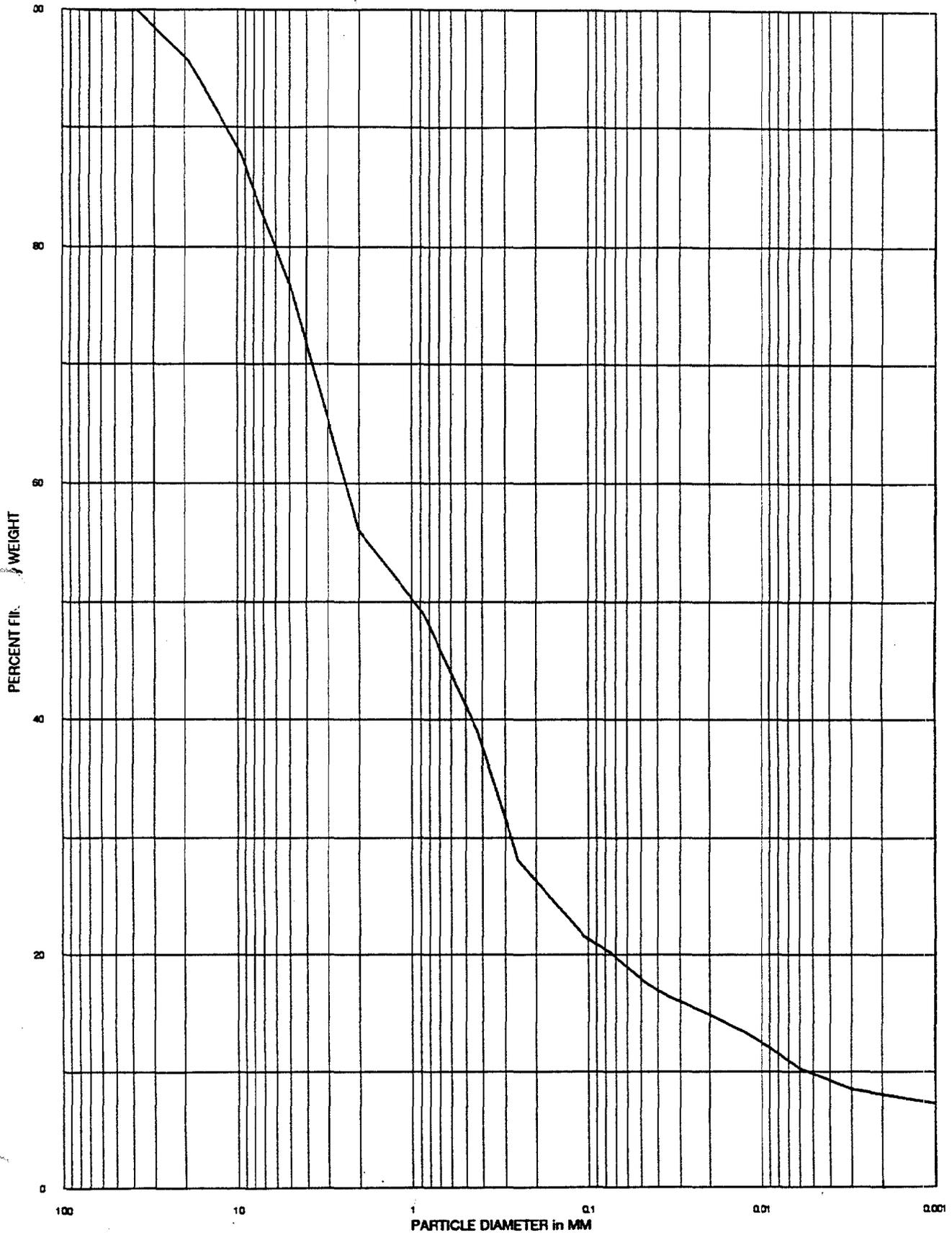
TEST SAMPLE NUMBER: BFFTA-2b

DOC SAMPLE NUMBER: GG3149

RESULTS:

sieve SIZE/TIME	DIAMETER (mm)	PERCENT FINER
 sieve ANALYSIS:		
3.000 in.	75.0	100
1.500 in.	37.5	100
0.750 in.	19.0	95.7
0.375 in.	9.5	87.8
No. 4	4.75	76.1
No. 10	2.00	56.1
No. 20	0.850	48.9
No. 40	0.425	39.1
No. 60	0.250	28.1
No. 140	0.106	21.6
No. 200	0.075	20.2
DRUMETER ANALYSIS		
1 min	0.046	17.5
2 min	0.033	16.3
5 min	0.021	15.1
15 min	0.012	13.3
30 min	0.009	12.1
60 min	0.006	10.3
250 min	0.003	8.5
1440 min	0.001	7.3

PARTICLE SIZE DISTRIBUTION SAMPLE GG3149



Page 35 of 63
Mark Hampton
IT Corporation-Tampa
Date: September 28, 1990
Client Project ID: ITCY 45898 (NAS Key West)

IT ANALYTICAL SERVICES
304 DIRECTORS DRIVE
KNOXVILLE, TENNESSEE

TDL Project No.: 482488.39

ANALYSIS: Particle Size

CLIENT SAMPLE NUMBER: Plot 4, NAS Site 3

DC SAMPLE NUMBER: GG3150

RESULTS:

SEVE SIZE/TIME	DIAMETER (mm)	PERCENT FINER
----------------	---------------	---------------

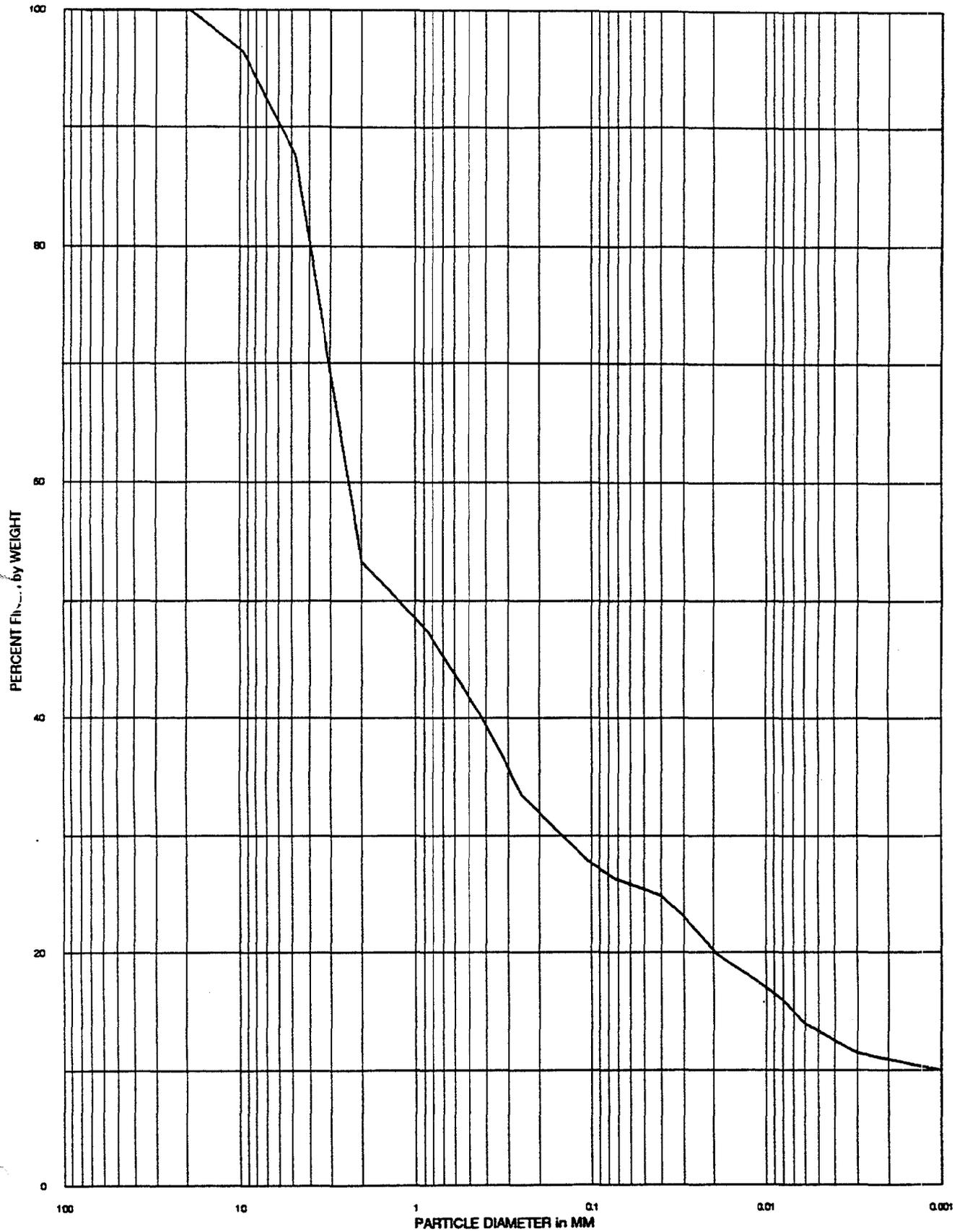
SEVE ANALYSIS:

3.000 in.	75.0	100
1.500 in.	37.5	100
0.750 in.	19.0	100
0.375 in.	9.5	96.4
No. 4	4.75	87.7
No. 10	2.00	53.3
No. 20	0.850	47.4
No. 40	0.425	40.3
No. 60	0.250	33.5
No. 140	0.106	27.9
No. 200	0.075	26.4

HYDROMETER ANALYSIS

1 min	0.040	24.9
2 min	0.029	22.9
5 min	0.019	19.9
15 min	0.011	17.5
30 min	0.008	16.0
60 min	0.006	14.0
250 min	0.003	11.5
1440 min	0.001	10.0

PARTICLE SIZE DISTRIBUTION SAMPLE GG3150



Page 37 of 63
Mark Hampton
IT Corporation-Tampa
Date: September 28, 1990
Client Project ID: ITCY 45898 (NAS Key West)

IT ANALYTICAL SERVICES
304 DIRECTORS DRIVE
KNOXVILLE, TENNESSEE

TDL Project No.: 482488.39

ANALYSIS: Particle Size

IDENT SAMPLE NUMBER: Site 9, D3B13

DC SAMPLE NUMBER: GG3302

RESULTS:

EVE SIZE/TIME	DIAMETER (mm)	PERCENT FINER
---------------	---------------	---------------

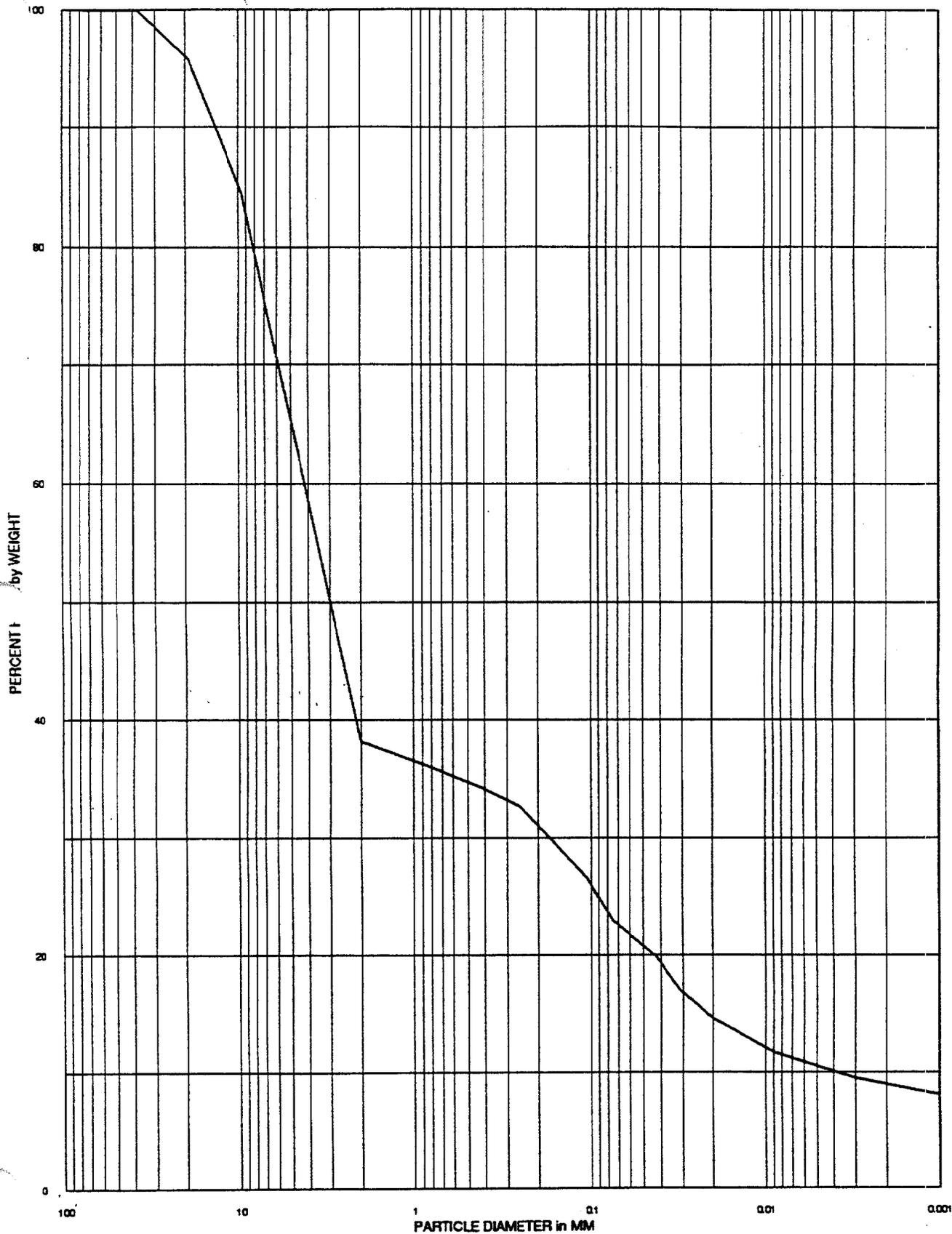
EVE ANALYSIS:

3.000 in.	75.0	100
1.500 in.	37.5	100
0.750 in.	19.0	95.8
0.375 in.	9.5	84.5
No. 4	4.75	64.0
No. 10	2.00	38.2
No. 20	0.850	36.2
No. 40	0.425	34.3
No. 60	0.250	32.7
No. 140	0.106	26.6
No. 200	0.075	23.0

HYDROMETER ANALYSIS

1 min	0.042	19.9
2 min	0.031	17.1
5 min	0.020	14.7
15 min	0.012	12.8
30 min	0.009	11.8
60 min	0.006	10.9
250 min	0.003	9.5
1440 min	0.001	8.1

PARTICLE SIZE DISTRIBUTION SAMPLE GG3302



ANALYSIS: Particle Size

IDENT SAMPLE NUMBER: Site 5, MW2

DC SAMPLE NUMBER: GG3303

RESULTS:

EVE SIZE/TIME	DIAMETER (mm)	PERCENT FINER
---------------	---------------	---------------

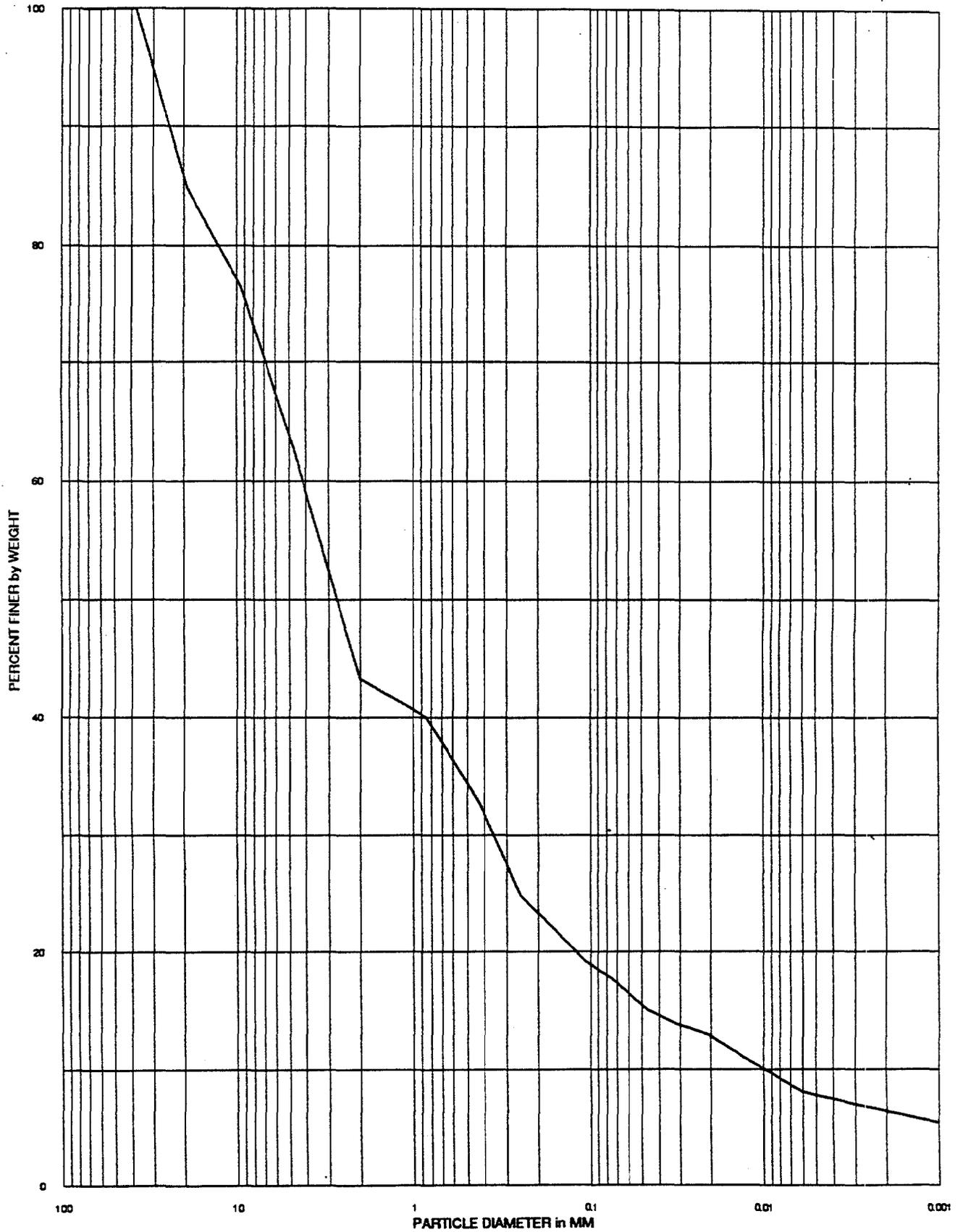
EVE ANALYSIS:

3.000 in.	75.0	100
1.500 in.	37.5	100
0.750 in.	19.0	84.8
0.375 in.	9.5	76.6
No. 4	4.75	63.0
No. 10	2.00	43.3
No. 20	0.850	40.1
No. 40	0.425	32.8
No. 60	0.250	24.9
No. 140	0.106	19.2
No. 200	0.075	17.8

DROMETER ANALYSIS

1 min	0.046	15.1
2 min	0.033	14.0
5 min	0.021	13.0
15 min	0.012	10.8
30 min	0.009	9.7
60 min	0.006	8.1
250 min	0.003	7.0
1440 min	0.001	5.4

PARTICLE SIZE DISTRIBUTION SAMPLE GG3303



APPENDIX D



CHAIN-OF-CUSTODY RECORD

R/A Control No. 9123
C/C Control No. 137057

PROJECT NAME/NUMBER Key West, NAS
ITEY 45858

LAB DESTINATION IT/TDL

SAMPLE TEAM MEMBERS _____

CARRIER/WAYBILL NO. _____

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
GG3121 LL0090	Soil Boring, MW2-Composite	5-31-90 6-1-90	Soil	950ml amber	Cool + Intact	
GG3122 LL0091	MWSF-66	6-1-90	"	"	70% 6-6-90	

Special Instructions: Report both LL #'s and client IDs.

Possible Sample Hazards: _____

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: S Harris ITAS 6-6-90 1030

3. Relinquished By: _____

Received By: TJ Conrad TDL 6-6-90 1400

Received by: _____

2. Relinquished By: _____

4. Relinquished By: _____

Received By: _____

Received By: _____

D82488.39

WHITE - To accompany samples
YF - Field copy



CHAIN-OF-CUSTODY RECORD

R/A Control No. 89177

C/C Control No. 137042

PROJECT NAME/NUMBER Key West / ITCY 45911

LAB DESTINATION IT TDL

SAMPLE TEAM MEMBERS

CARRIER/WAYBILL NO.

Table with 7 columns: Sample Number, Sample Location and Description, Date and Time Collected, Sample Type, Container Type, Condition on Receipt (Name and Date), Disposal Record No. Includes handwritten entries for samples LL0542, LL0543, and LL0544.

Special Instructions:

Possible Sample Hazards:

SIGNATURES: (Name, Company, Date and Time)

- 1. Relinquished By: SA Kennedy, ITAS, 6/12/90 1200
Received By: NG Conrad TDL 6-12-90 1400
2. Relinquished By:
Received By:
3. Relinquished By:
Received by:
4. Relinquished By:
Received By:

D82488.39



**INTERNATIONAL
TECHNOLOGY
CORPORATION**

CHAIN-OF-CUSTODY RECORD

R/A Control No. 481

C/C Control No. 137105

PROJECT NAME/NUMBER Key West/NAS
ITCY 46040

LAB DESTINATION IT/SAL

SAMPLE TEAM MEMBERS _____

CARRIER/WAYBILL NO. _____

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
GG3302 LL1953	Site 9, D3B13	6-21-90	soil	950ml amber	Cooler Temp 15°C	
GG3303 LL1954	Site 5, MW2	6-22-90	"	1qt. glass	OK & INTACT B.A.N. 06-28-90	

Special Instructions: Caution: high levels of pesticides

Possible Sample Hazards: _____

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: S Harris ITAS 6-28-90 1100

3. Relinquished By: _____

Received By: Bobby & Norman 13:00 6-28-90 TOL

Received by: _____

2. Relinquished By: _____

4. Relinquished By: _____

Received By: _____

Received By: _____

RF16 C7
Bottom

WHITE - To accompany samples
YELLOW - Field copy

D82488.39



CHAIN-OF-CUSTODY RECORD

R/A Control No. _____

C/C Control No. 174559

PROJECT NAME/NUMBER Key Weath NWS 595 292

LAB DESTINATION IT Lab

SAMPLE TEAM MEMBERS K. Dorsey

CARRIER/WAYBILL NO. Fed-X 76110923851

GG3122

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
MWSE-Fb	S. Fleming 16'-30' depth	6/01/90 1600	Composite Soil		OK @ 10°C 8/2/6-5-90	

Special Instructions: Test! Grain size, AEC pH Density, Moisture, Perm

Possible Sample Hazards: Metals

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Karin Dorsey LSG Env. 6/02/90 1130

3. Relinquished By: _____

Received By: Jan K. Budy 6/2/90

Received by: _____

2. Relinquished By: Jan K. Budy 6/2/90

4. Relinquished By: _____

Received By: ITAS 6-5-90 0900

Received By: _____



INTERNATIONAL
TECHNOLOGY
CORPORATION

CHAIN-OF-CUSTODY RECORD

R/A Control No. 71625
C/C Control No. 174554

PROJECT NAME/NUMBER Key 10th RT, 595392

LAB DESTINATION I.T

SAMPLE TEAM MEMBERS G. Stephens, E. Callagari

CARRIER/WAYBILL NO. _____

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No
D3B13	Trumbo Fuel Farm, site 9	6/21/90, 930	Soil	250 ml	OK @ 7°C 8/2/6-26-90	
D3B13	" "	6/21/90, 930	Soil	1 l		
Site 3 / Soil Sample	Truman Annex DDT, site 3	6/25/90, 400	Soil	250 ml	↓	
Site 8 / RW 1	5 th Flamingo, site 8	6/25/90, 400	Soil	250 ml		

Special Instructions: TOC on the 250 ml, Grain size, pH, AEC on the 1 l vial

Possible Sample Hazards: possible skin irritant, DDT

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Dreg Stephens, IT 6/22/90, 9:00

3. Relinquished By: _____

Received By: S. Kain 1745 6-26-90 0900

Received by: _____

2. Relinquished By: _____

4. Relinquished By: _____

Received By: _____

Received By: _____



CHAIN-OF-CUSTODY RECORD

R/A Control No. _____

C/C Control No. **174560**

PROJECT NAME/NUMBER NAS KEYWEST
595392

LAB DESTINATION IT

SAMPLE TEAM MEMBERS Kevin Dorsey

CARRIER/WAYBILL NO. FEX 7611023836

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No
MW-1	Site 1 comp. sal 16-20'	6-6-90 1145	EPTOX		OK, sal, 6/8/90 cooler temp 13°C ↓	
MW-2	" " " 8-15'	" "	"			
MW-2A	" " " 0-12'	" 1536	Gr. Size Ag			
MW-3	" " " 8-12'	" 1700	EPTOX			

Special Instructions: _____

Possible Sample Hazards: _____

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Kevin Dorsey 6/7/90

3. Relinquished By: _____

Received By: SA Kennedy, ITMS, 6/8/90 0900

Received by: _____

2. Relinquished By: _____

4. Relinquished By: _____

Received By: _____

Received By: _____



CHAIN-OF-CUSTODY RECORD

R/A Control No. _____

C/C Control No. 163594

PROJECT NAME/NUMBER NMS KEYWEST/595392

LAB DESTINATION IT

SAMPLE TEAM MEMBERS K. Dorsey

CARRIER/WAYBILL NO. FEO & 7611023836

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No
BPFTA-1	site 10 6'-8' depth	6-2-90 935	EP TOX Soil		OK, Sat, 6/8/90 Cooler temp 13°C ↓	
MVFPTA-2	" " 0-2' depth	6-2-90 1005	"			
BPFTA-2	" " 4-6' "	6-2-90 1250	"			
BPFTA-3	" " 2-4' "	6-2-90 1040	"			
BPFTA-4	" " 6-8' "	6-2-90 1160	"			
BPFTA-5	" " 0-2' "	6-2-90 1340	"			
BPFTA-6	" " 2-4' "	6-2-90 1630	"			
BPFTA-26	" " 2-8' "	6-2-90 1015	Grain Size AEC-M 0.5			

Special Instructions: _____

Possible Sample Hazards: _____

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Karin Dorsey, LRG 2-4-90 0700
 Received By: SA Kennedy, NMS, 6/8/90 0900

3. Relinquished By: _____
 Received by: _____

2. Relinquished By: _____
 Received By: _____

4. Relinquished By: _____
 Received By: _____

WHITE - To accompany samples
YELLOW - Field copy



INTERNATIONAL
TECHNOLOGY
CORPORATION

CHAIN-OF-CUSTODY RECORD

R/A Control No. 1618
C/C Control No. 174555

PROJECT NAME/NUMBER Key West RI 595 392

LAB DESTINATION I.T.

SAMPLE TEAM MEMBERS Kevin Dorsey - Gregg Stephens

CARRIER/WAYBILL NO. _____

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No
RW7	site 7 6" recording well	6-21-90 1830	Soil TOC	250 ml	OK @ 7°C 1991/6-26-90	
MW3	site 5 plot 6 TCL UOA	6-22-90 1215	Soil	" "	↓	
MW3	" " " BNA	" "	"	" "		
MW3	" " TAL Metals	" "	"	" "		
MW2	" plot 5 Grain Size	" 1345	"	1 l		
MW2	" " TAL Metals	" "	"	250 ml		
MW2	" " TCL BNA	" "	"	"		
MW2	" " TCL UOA's	" "	"	"		
MW2	" " TOC	" "	"	"		
Site 1/RW1	Site 1 6" recording well	6/25/90, 10:00	Soil TOC	250 ml		Not Rec'd 1991/6-27-90

Special Instructions: _____

Possible Sample Hazards: DDT

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Kevin Dorsey 6-23-90 1230
Received By: Sharon ITAS 6-26-90 0900

3. Relinquished By: _____
Received by: _____

2. Relinquished By: _____
Received By: _____

4. Relinquished By: _____
Received By: _____

WHITE To accompany samples
YELLOW Field copy

ITC 11-16042



INTERNATIONAL
TECHNOLOGY
CORPORATION

CHAIN-CUSTODY RECORD

R/A Control No. 71619
C/C Control No. 163597

PROJECT NAME/NUMBER 595 392 Key West, N.A.S
SAMPLE TEAM MEMBERS Gregg Stephens

LAB DESTINATION IT Lab
CARRIER/WAYBILL NO. Fed-X 7611023851

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No	
Sul Boring/Anal	N th Fleming Key, N.A.S, Site 7	5/31/90, 11:50	Grab/Soil	Glass	OK @ 10°C 89A/6-5-90		
"	"	5/30/90 1305	Grab/Soil	Glass			
"	"	5/31/90 1750	Grab/Soil	Glass			
"	"	5/30/90 15:25	Grab/Soil	Glass			
"	"	5/30/90 10:15	Grab/Soil	Glass			
"	"	5/31/90 8:30	Grab/Soil	Glass			
"	"	5/31/90 14:00	Composite Soil	Glass		↓	
GC3121							

Special Instructions: EP Tex, ^{on Grab} Grain size, AEC, PH, Density, Moisture, Short term permeability on

Possible Sample Hazards: _____

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Gregg Stephens 17:00, 5/1/90 IT Corp.
Received By: Jan K. Bandy 1700 6/1/90

2. Relinquished By: Jan K. Bandy 6/2/90
Received By: J. Harris ITAS 6-5-90 0900

3. Relinquished By: _____
Received by: _____

4. Relinquished By: _____
Received By: _____

ITBY 45858



CHAIN-OF-CUSTODY RECORD

R/A Control No. _____

C/C Control No. 163593PROJECT NAME/NUMBER 595392LAB DESTINATION ITSAMPLE TEAM MEMBERS Chris CollegariCARRIER/WAYBILL NO. FedEx 7611023836

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No
Plot 4	NAS Site 3 Plot 4 0-6'	6/2/90 9:30	TAL Metals Li	80 ml	OK, sat, 6/8/90 cooler temp 13°C	
"	" " " "	" "	Pesticides/PCB	"		
"	" " " "	" "	Grain size	1.5 pint		
"	" " " 0-2'	" "	TAL VOA	80 ml		
Plot 2	NAS Site 3 Plot 2 0-6'	" 11:00	TAL Metals Li	"		
"	" " " "	" "	Pesticides/PCB	"		
"	" " " "	" "	Grain size	1.5 pint		
"	" " " 0-2'	" "	TAL VOA	80 ml	↓	

Special Instructions: _____

Possible Sample Hazards: PCB

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Chris Collegari 6/4/90

3. Relinquished By: _____

Received By: SA Kennedy, ITHS 6/8/90 0900

Received by: _____

2. Relinquished By: _____

4. Relinquished By: _____

Received By: _____

Received By: _____



INTERNATIONAL
TECHNOLOGY
CORPORATION

Key West, NAS
ITCY 45858

REQUEST FOR ANALYSIS

R/A Control No. 89123
CIC Control No. 137057

PROJECT NAME _____
PROJECT NUMBER _____
PROFIT CENTER NUMBER 4620
PROJECT MANAGER _____
BILL TO ITAS - Middlebrook
PURCHASE ORDER NO. 486000, 09

DATE SAMPLES SHIPPED 6-6-90
LAB DESTINATION IT/TDL
LABORATORY CONTACT Nancy Conrad
SEND LAB REPORT TO ITAS - Middlebrook
DATE REPORT REQUIRED Normal
PROJECT CONTACT Kim Laisy
PROJECT CONTACT PHONE NO. 588-6401

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
663121 LL0090	soil	_____	NONE	Grain Size, AEC, pH, Density, Moisture, and Short Term Permeability	See C-O-C
663122 LL0091	"	_____	"		

TURNAROUND TIME REQUIRED: (Rush must be approved by the Laboratory Project Manager.)
 Normal Rush _____ (Subject to rush surcharge.)
 QC LEVEL: (Levels II and III subject to surcharge; project-specific requirements must be submitted to lab before beginning work.)
 I II _____ III _____ Project Specific _____

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)
 Non-hazard _____ Flammable _____ Skin Irritant _____ Highly Toxic _____ Other _____ (Please Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, archive and disposal.)
 Return to Client _____ Disposal by Lab Archive _____ (Indicate number of months.)

FOR LAB USE ONLY
 Received by Ng Conrad Date/Time 6-6-90 1400 D82488.39



REQUEST FOR ANALYSIS

R/A Control No. 3177
C/C Control No. 37042
6-12-90
IT TPL
Nancy Conrad
IT Corp
Middlebrook Pk
Normal
Kim Laisy
588-6401

PROJECT NAME Key West
PROJECT NUMBER ITCY 45911
PROFIT CENTER NUMBER 4620
PROJECT MANAGER
BILL TO ITAS
PURCHASE ORDER NO. 486000.09

DATE SAMPLES SHIPPED
LAB DESTINATION
LABORATORY CONTACT
SEND LAB REPORT TO
DATE REPORT REQUIRED
PROJECT CONTACT
PROJECT CONTACT PHONE NO.

Table with 6 columns: Sample No., Sample Type, Sample Volume, Preservative, Requested Testing Program, Special Instructions. Contains handwritten entries for samples LL0542, LL0543, and LL0544 with testing programs like Grain size, AEC, pH, etc.

TURNAROUND TIME REQUIRED: (Rush must be approved by the Laboratory Project Manager.)
Normal [checked] Rush (Subject to rush surcharge.)
QC LEVEL: (Levels II and III subject to surcharge; project-specific requirements must be submitted to lab before beginning work.)
I II III Project Specific

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)
Non-hazard Flammable Skin Irritant Highly Toxic Other (Please Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, archive and disposal.)
Return to Client Disposal by Lab [checked] Archive (Indicate number of months.)

FOR LAB USE ONLY
Received by [Signature] Date/Time 6-12-90 1400 D82488.39



**INTERNATIONAL
TECHNOLOGY
CORPORATION**

REQUEST FOR ANALYSIS

R/A Control No. 168481
C/C Control No. 137105

PROJECT NAME ITCY 46040
PROJECT NUMBER Key West / NAS
PROFIT CENTER NUMBER 4620
PROJECT MANAGER _____
BILL TO ITAS / Middlebrook
PURCHASE ORDER NO. 486000.09

DATE SAMPLES SHIPPED 6/28/90
LAB DESTINATION IT/TDL
LABORATORY CONTACT _____
SEND LAB REPORT TO ITAS / Middlebrook
DATE REPORT REQUIRED Normal
PROJECT CONTACT Kim Leisy
PROJECT CONTACT PHONE NO. 615/588-6401

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
G63302 LL1953	SOI	/	/	} Grain Size, AEC, pH, } Density, Moisture, } Short term permeability	
G63303 LL1954	"	/	/		

TURNAROUND TIME REQUIRED: (Rush must be approved by the Laboratory Project Manager.)
 Normal Rush _____ (Subject to rush surcharge.)
 QC LEVEL: (Levels II and III subject to surcharge; project-specific requirements must be submitted to lab before beginning work.)
 I II _____ III _____ Project Specific _____

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)
 Non-hazard _____ Flammable _____ Skin Irritant _____ Highly Toxic _____ Other _____ (Please Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, archive and disposal.)
 Return to Client _____ Disposal by Lab Archive _____ (Indicate number of months.)

FOR LAB USE ONLY
 Received by Bobby & Norman Date/Time 6-28-90 1300 D82488.3



Key West,
NAS

REQUIRE FOR ANALYSIS

R/A Control No. 171630
C/C Control No. _____

PROJECT NAME _____
PROJECT NUMBER 595 392
PROJECT MANAGER R. Stephens
BILL TO IT Tampa

PURCHASE ORDER NO. _____

DATE SAMPLES SHIPPED _____
LAB DESTINATION _____
LABORATORY CONTACT _____
SEND LAB REPORT TO R. Stephens

DATE REPORT REQUIRED _____
PROJECT CONTACT _____
PROJECT CONTACT PHONE NO. _____

GG3122

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
<u>MWSE-66</u>	<u>composit soil</u>		<u>none</u>	<u>Grain size, Asg pH, etc</u>	

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)
Normal Rush _____ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)
Nonhazardous _____ Flammable _____ Skin Irritant _____ Highly Toxic _____ Other PLB
(Please Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)
Return to Client _____ Disposal by Lab

FOR LAB USE ONLY
Received By J. Harris ITAS

Date/Time 6-5-90 0900

WHITE - Original, to accompany samples
YELLOW - Field copy

ITAS/ASCP



**INTERNATIONAL
TECHNOLOGY
CORPORATION**

REQUIREMENT FOR ANALYSIS

R/A Control No 171625
C/C Control No 74554

PROJECT NAME Key West RI
PROJECT NUMBER SP5392
PROJECT MANAGER R Stephens
BILL TO IT, Tampa

DATE SAMPLES SHIPPED 6/25/90
LAB DESTINATION IT
LABORATORY CONTACT _____
SEND LAB REPORT TO IT, Tampa

PURCHASE ORDER NO. _____

DATE REPORT REQUIRED _____
PROJECT CONTACT _____
PROJECT CONTACT PHONE NO. _____

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
D3B13	Soil Composite	250 ml	ICE	TOC	
D3B13	" " discrete	1 l	ICE	Grain Size, PH, AEC	
Site 3/Soil 1	Soil discrete	250 ml	ICE	TOC	
Site 8/RW1	Soil discrete	250 ml	ICE	TOC	

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)

Normal Rush _____ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)

Nonhazardous _____ Flammable _____ Skin Irritant Highly Toxic Other DDT
(Please Specify)

SAMPLE DISPOSAL (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)

Return to Client _____ Disposal by Lab

FOR LAB USE ONLY

Received By S. Harris ITAS

Date/Time 6-26-90 0900

WHITE - Original, to accompany samples
YELLOW - Field copy

ITCV 1040



**INTERNATIONAL
TECHNOLOGY
CORPORATION**

REQU FOR ANALYSIS

R/A Control No. **171633**
C/C Control No. _____

PROJECT NAME NAS KEY WEST
PROJECT NUMBER 595392
PROJECT MANAGER R. Stephens
BILL TO IT Tampa

DATE SAMPLES SHIPPED 6/7/90
LAB DESTINATION IT
LABORATORY CONTACT _____
SEND LAB REPORT TO R. Stephens

PURCHASE ORDER NO. _____
DATE REPORT REQUIRED _____
PROJECT CONTACT _____
PROJECT CONTACT PHONE NO. _____

Sample No	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
MW-1	comp soil	250 ml	none	EP TOX	
MW-2	" "	"	"	EP TOX	
MW-2A	" "	1 Liter	"	Grain Size Acc pH...	
MW-3	" "	250 mL	"	EP TOX	

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)
Normal Rush _____ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)
Nonhazardous _____ Flammable _____ Skin Irritant _____ Highly Toxic _____ Other _____ (Please Specify)

SAMPLE DISPOSAL (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal)
Return to Client _____ Disposal by Lab _____

FOR LAB USE ONLY
Received By SA Kennedy Date/Time 6/8/90 0900

WHITE - Original, to accompany samples
YELLOW - Field copy



**INTERNATIONAL
TECHNOLOGY
CORPORATION**

REQUEST FOR ANALYSIS

R/A Control No. **71533**

C/C Control No. _____

PROJECT NAME NAS KEY WEST
 PROJECT NUMBER 595392
 PROJECT MANAGER R. Stephens
 BILL TO IT Tampa

DATE SAMPLES SHIPPED 6/7/90
 LAB DESTINATION IT
 LABORATORY CONTACT _____
 SEND LAB REPORT TO R. Stephens

PURCHASE ORDER NO. _____

DATE REPORT REQUIRED _____
 PROJECT CONTACT _____
 PROJECT CONTACT PHONE NO. _____

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
BPPTA-1	Composite Soil		none	AP 700	
MWPPTA-2	"		"	"	
BPPTA-2	"		"	"	
BPPTA-3	"		"	"	
BPPTA-4	"		"	"	
BPPTA-5	"		"	"	
BPPTA-6	"		"	"	
BPPTA-2b	"		"	Grain Size AEC by etc	

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager)

Normal Y Rush _____ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)

Nonhazardous _____ Flammable _____ Skin Irritant _____ Highly Toxic _____ Other _____ (Please Specify)

SAMPLE DISPOSAL (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal)

Return to Client _____ Disposal by Lab _____

FOR LAB USE ONLY

Received By SU Kennedy

Date/Time 6/8/90 0900

WHYS - Original, to accompany samples
 YF - Field copy



**INTERNATIONAL
TECHNOLOGY
CORPORATION**

REQU FOR ANALYSIS

R/A Control No 71618
C/C Control No 24555

PROJECT NAME NAS Key West RI
PROJECT NUMBER 595 392
PROJECT MANAGER R. Stephens
BILL TO IT Tampa

DATE SAMPLES SHIPPED 6/25/90
LAB DESTINATION IT
LABORATORY CONTACT _____
SEND LAB REPORT TO IT, Tampa

PURCHASE ORDER NO. _____

DATE REPORT REQUIRED _____
PROJECT CONTACT _____
PROJECT CONTACT PHONE NO. _____

Sample No	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
<u>RW 7</u>	<u>Soil</u>	<u>250 ml</u>	<u>NOAB</u>	<u>TOC</u>	
<u>MW 3</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>TCL UOA</u>	
<u>MW 3</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>TCL BNA</u>	
<u>MW 3</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>TAL metal</u>	
<u>MW 2</u>	<u>"</u>	<u>1L</u>	<u>"</u>	<u>Grain size pH AEC</u>	
<u>MW 2</u>	<u>"</u>	<u>250 ml</u>	<u>"</u>	<u>TAL metals</u>	
<u>MW 2</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>TCL BNA</u>	
<u>MW 2</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>TCL UOA's</u>	
<u>MW 2</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>TOC</u>	
<u>S. 12/RW1</u>	<u>Soil</u>	<u>250 ml</u>	<u>"</u>	<u>TOC</u>	

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)
Normal Rush _____ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)
Nonhazardous _____ Flammable _____ Skin Irritant _____ Highly Toxic Other DDT (Please Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)
Return to Client _____ Disposal by Lab

FOR LAB USE ONLY
Received By [Signature] Date/Time 6-26-90 0900

WHITE - Original, to accompany samples
YELLOW - Field copy



**INTERNATIONAL
TECHNOLOGY
CORPORATION**

REQUEST FOR ANALYSIS

R/A Control No. 11619
C/C Control No. 03597

PROJECT NAME Key Wst. NAS
PROJECT NUMBER 595392
PROJECT MANAGER Robert Stephens
BILL TO IT Corporation

PURCHASE ORDER NO. _____

DATE SAMPLES SHIPPED 6/2/90
LAB DESTINATION IT
LABORATORY CONTACT Robert Stephens
SEND LAB REPORT TO _____

DATE REPORT REQUIRED _____
PROJECT CONTACT _____
PROJECT CONTACT PHONE NO. _____

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
Soil <u>Borg/MW1</u>	<u>Grab/Soil</u>	<u>Soil Borg Glass</u>	<u>None</u>	<u>EP Tox</u>	<u>NA</u>
" <u>MW2</u>	<u>Grab/Soil</u>	<u>"</u>	<u>None</u>	<u>EP Tox</u>	<u>NA</u>
" <u>MW3</u>	<u>Grab/Soil</u>	<u>"</u>	<u>None</u>	<u>EP Tox</u>	<u>NA</u>
" <u>MW4</u>	<u>Grab/Soil</u>	<u>"</u>	<u>None</u>	<u>EP Tox</u>	<u>NA</u>
" <u>MW5</u>	<u>Grab/Soil</u>	<u>"</u>	<u>None</u>	<u>EP Tox</u>	<u>NA</u>
" <u>MW6</u>	<u>Grab/Soil</u>	<u>"</u>	<u>None</u>	<u>EP Tox</u>	<u>NA</u>
" <u>MW2</u>	<u>Composite Soil</u>	<u>Composite Glass</u>	<u>None</u>	<u>See Label</u>	<u>NA</u>
GG812					

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)

Normal

Rush _____ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)

Nonhazard _____

Flammable _____

Skin Irritant

Highly Toxic _____

Other _____
(Please Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)

Return to Client _____

Disposal by Lab

FOR LAB USE ONLY

Received By S. Harris LTAS

Date/Time 6-5-90 0900

WHITE Original, to accompany samples
YELI Field copy

ITAS



**INTERNATIONAL
TECHNOLOGY
CORPORATION**

REQUIREMENTS FOR ANALYSIS

R/A Control No **171532**

C/C Control N

6/9/90 (6/7/90) JKB

PROJECT NAME NAS site 3
 PROJECT NUMBER 595 392
 PROJECT MANAGER Robert Stephens
 BILL TO IT Tampa

DATE SAMPLES SHIPPED _____
 LAB DESTINATION _____
 LABORATORY CONTACT _____
 SEND LAB REPORT TO _____

IT Labs
Robert Stephens

PURCHASE ORDER NO. _____

DATE REPORT REQUIRED _____

PROJECT CONTACT _____

PROJECT CONTACT PHONE NO. _____

AA
622-7174

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
Plot 4	Composite	80 ml	40°	TAL Metals Cu	
"	Composite	"	"	Pest/PCB	
"	Composite	1.5 pint	"	Grain size	
"	Grab	50 ml	"	TAL VOA	
Plot 2	Composite	"	"	TAL Metals Cu	
"	"	"	"	Pest/PCB	
"	"	"	"		
"	Grab	"	"	TAL VOA	

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)

Normal

Rush (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)

Nonhazard

Flammable

Skin Irritant

Highly Toxic

Other PCB's
(Please Specify)

SAMPLE DISPOSAL (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)

Return to Client

Disposal by Lab

FOR LAB USE ONLY

Received By Su Kennedy

Date/Time 6/8/90 0900

WHITE - Original, to accompany samples
 YELLOW - Field copy

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

ent Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: Method Blank 1
Lab Sample ID: VB0725

Tentative Identification (1)

Concentration (2)

No additional peaks detected

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

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 04-02-SED
Lab Sample ID: LL3485

<u>Compound</u>		<u>Compound</u>	
chloromethane	56 U	1,2-dichloropropane	28 U
bromomethane	56 U	cis-1,3-dichloropropene	28 U
vinyl chloride	56 U	trichloroethene	28 U
chloroethane	56 U	dibromochloromethane	28 U
methylene chloride	20 J	1,1,2-trichloroethane	28 U
acetone	49 J	benzene	28 U
carbon disulfide	28 U	trans-1,3-dichloropropene	28 U
1,1-dichloroethene	28 U	bromoform	28 U
1,1-dichloroethane	28 U	4-methyl-2-pentanone	56 U
1,2-dichloroethene (total)	28 U	2-hexanone	56 U
chloroform	28 U	tetrachloroethene	28 U
1,2-dichloroethane	28 U	1,1,2,2-tetrachloroethane	28 U
2-butanone	56 U	toluene	28 U
1,1,1-trichloroethane	28 U	chlorobenzene	28 U
carbon tetrachloride	28 U	ethylbenzene	28 U
vinyl acetate	56 U	styrene	28 U
bromodichloromethane	28 U	total xylenes	28 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: 07/25/90
Dilution Factor: 1
% Moisture: 82

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

ent Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: 04-02-SED
Lab Sample ID: LL3485

Tentative Identification (1)

Concentration (2)

methane, thiobis-

47

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

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

VOLATILE ORGANIC TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: 07-01-SED
Lab Sample ID: LL3486

<u>Compound</u>		<u>Compound</u>	
chloromethane	13 U	1,2-dichloropropane	7 U
bromomethane	13 U	cis-1,3-dichloropropene	7 U
vinyl chloride	13 U	trichloroethene	7 U
chloroethane	13 U	dibromochloromethane	7 U
methylene chloride	4 J	1,1,2-trichloroethane	7 U
acetone	13 U	benzene	7 U
carbon disulfide	7 U	trans-1,3-dichloropropene	7 U
1,1-dichloroethene	7 U	bromoform	7 U
1,1-dichloroethane	7 U	4-methyl-2-pentanone	13 U
1,2-dichloroethene (total)	7 U	2-hexanone	13 U
chloroform	7 U	tetrachloroethene	7 U
1,2-dichloroethane	7 U	1,1,2,2-tetrachloroethane	7 U
2-butanone	13 U	toluene	7 U
1,1,1-trichloroethane	7 U	chlorobenzene	7 U
carbon tetrachloride	7 U	ethylbenzene	7 U
vinyl acetate	13 U	styrene	7 U
bromodichloromethane	7 U	total xylenes	7 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: 07/25/90
Dilution Factor: 1
% Moisture: 25

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

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: BLA1379

Tentative Identification (1)

Concentration (2)

unknown (hydroxypentanone?)	790 A
unknown (hydroxypentanone?)	1,400 A
2-pentanone, 4-hydroxy-4-methyl-	19,000 A
unknown (C9 Sat'd HC)	220
unknown (C10 Sat'd HC)	220
unknown	950

A - Suspected aldol condensation product.

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

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

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/kg (ppb) dry weight

Sample Matrix: Soil

Client Sample ID: 04-02-SED
Lab Sample ID: LL3493

<u>Compound</u>		<u>Compound</u>	
phenol	3,600 U	bis(2-chloroethoxy)methane	3,600 U
bis(2-chloroethyl)ether	3,600 U	2,4-dichlorophenol	3,600 U
2-chlorophenol	3,600 U	1,2,4-trichlorobenzene	3,600 U
1,3-dichlorobenzene	3,600 U	naphthalene	3,600 U
1,4-dichlorobenzene	3,600 U	4-chloroaniline	3,600 U
benzyl alcohol	3,600 U	hexachlorobutadiene	3,600 U
1,2-dichlorobenzene	3,600 U	4-chloro-3-methylphenol	3,600 U
2-methylphenol	3,600 U	2-methylnaphthalene	3,600 U
bis(2-chloroisopropyl)ether	3,600 U	hexachlorocyclopentadiene	3,600 U
4-methylphenol	3,600 U	2,4,6-trichlorophenol	3,600 U
n-nitroso-di-n-propylamine	3,600 U	2,4,5-trichlorophenol	18,000 U
hexachloroethane	3,600 U	2-chloronaphthalene	3,600 U
nitrobenzene	3,600 U	2-nitroaniline	18,000 U
isophorone	3,600 U	dimethyl phthalate	3,600 U
2-nitrophenol	3,600 U	acenaphthylene	3,600 U
2,4-dimethylphenol	3,600 U	2,6-dinitrotoluene	3,600 U
benzoic acid	18,000 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: 07/24/90
Date Analyzed: 08/17/90
Dilution Factor: 2
% Moisture: 82

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

SEMIVOLATILE TARGET COMPOUND LIST (continued)

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

Sample Matrix: Soil

Client Sample ID: 04-02-SED
Lab Sample ID: LL3493

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	18,000 U	anthracene	3,600 U
acenaphthene	3,600 U	di-n-butylphthalate	3,600 U
2,4-dinitrophenol	18,000 U	fluoranthene	3,600 U
4-nitrophenol	18,000 U	pyrene	3,600 U
dibenzofuran	3,600 U	butylbenzylphthalate	3,600 U
2,4-dinitrotoluene	3,600 U	3,3'-dichlorobenzidine	7,300 U
diethylphthalate	3,600 U	benzo(a)anthracene	3,600 U
4-chlorophenyl-phenylether	3,600 U	chrysene	3,600 U
orene	3,600 U	bis(2-ethylhexyl)phthalate	2,000 J
4-nitroaniline	18,000 U	di-n-octylphthalate	3,600 U
4,6-dinitro-2-methylphenol	18,000 U	benzo(b)fluoranthene	3,600 U
n-nitrosodiphenylamine ¹	3,600 U	benzo(k)fluoranthene	3,600 U
4-bromophenyl-phenylether	3,600 U	benzo(a)pyrene	3,600 U
hexachlorobenzene	3,600 U	indeno(1,2,3-cd)pyrene	3,600 U
pentachlorophenol	18,000 U	dibenzo(a,h)anthracene	3,600 U
phenanthrene	3,600 U	benzo(g,h,i)perylene	3,600 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: 07/24/90
Date Analyzed: 08/17/90
Dilution Factor: 2
% Moisture: 82

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Soil

Client Sample ID: 04-02-SED
Lab Sample ID: LL3493

Tentative Identification (1)

Concentration (2)

unknown (hydroxypentanone?)	14,000 AB
2-pentanone, 4-hydroxy-4-methyl-	170,000 AB
unknown	5,400 AB
hexane, 2-bromo-	4,000
5-hexen-2-one, 5-methyl-	14,000 A
5-hexen-2-one, 5-methyl-	3,200 A
3-heptanone, 2,4-dimethyl-	16,000 A
3-heptanone, 2,4-dimethyl-	4,200 A
unknown	1,700
unknown	14,000 A
hexadecanoic acid	1,700
unknown (aromatic?)	1,700
unknown	7,900 A

A - Suspected aldol condensation product.
B - Compound was found in the method blank.

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 46179 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: Method Blank
Lab Sample ID: BLA1379

Compound

α -BHC	8.0 U
β -BHC	8.0 U
δ -BHC	8.0 U
γ -BHC (lindane)	8.0 U
heptachlor	8.0 U
aldrin	8.0 U
heptachlor epoxide	8.0 U
endosulfan I	8.0 U
dieldrin	16 U
4,4'-DDE	16 U
endrin	16 U
endosulfan II	16 U
4,4'-DDD	16 U

Compound

endosulfan sulfate	16 U
4,4'-DDT	16 U
methoxychlor	80 U
endrin ketone	16 U
α -chlordane	80 U
γ -chlordane	80 U
toxaphene	160 U
Aroclor 1016	80 U
Aroclor 1221	80 U
Aroclor 1232	80 U
Aroclor 1242	80 U
Aroclor 1248	80 U
Aroclor 1254	160 U
Aroclor 1260	160 U

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

Date Extracted: 07/24/90
Date Analyzed: 08/11/90
Dilution Factor: 1

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Soil

Client Sample ID: 04-02-SED
Lab Sample ID: LL3493

<u>Compound</u>		<u>Compound</u>	
α -BHC	44 U	endosulfan sulfate	88 U
β -BHC	44 U	4,4'-DDT	88 U
δ -BHC	44 U	methoxychlor	440 U
γ -BHC (lindane)	44 U	endrin ketone	88 U
heptachlor	44 U	α -chlordane	440 U
aldrin	44 U	γ -chlordane	440 U
heptachlor epoxide	44 U	toxaphene	880 U
endosulfan I	44 U	Aroclor 1016	440 U
dieldrin	88 U	Aroclor 1221	440 U
4,4'-DDE	88 U	Aroclor 1232	440 U
endrin	88 U	Aroclor 1242	440 U
endosulfan II	88 U	Aroclor 1248	440 U
4,4'-DDD	88 U	Aroclor 1254	880 U
		Aroclor 1260	880 U

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

Date Extracted: 07/24/90
Date Analyzed: 08/14/90
Dilution Factor: 1
% Moisture 82

ent Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

TARGET ANALYTE LIST - INORGANICS

Results in mg/kg (ppm) dry weight

Sample Matrix: Soil

Client Sample ID: Lab Sample ID:	Method Blank <u>PBSC2790/C2795/C4333</u>	04-02-SED <u>LL3501</u>	07-01-SED <u>LL3502</u>
aluminum	4.0 U	1,990	242
antimony	3.0 U	18.9 U	3.9 U
arsenic	3.0 U	18.9 U	3.9 U
barium	0.2 U	9.0 B	3.3 B
beryllium	0.1 U	0.63 U	0.13 U
cadmium	0.5 U	3.1 U	0.65 U
calcium	3.0 U	45,100	301,000
chromium	1.0 U	15.0	3.3
cobalt	2.0 U	12.6 U	2.6 U
copper	1.0 U	211	23.8
iron	1.0 U	794	949
lead	3.0 U	73.3	38.0
magnesium	3.0 U	11,200	2,700
manganese	0.2 U	4.6 B	8.2
mercury	0.02 U	0.40	0.06
nickel	2.0 U	12.6 U	2.6 U
potassium	132 B	2,080 B	130 U
selenium	0.2 U	6.3 U	1.3 UW
silver	0.9 B	3.1 U	7.0
sodium	20.0 U	75,700	3,960
thallium	3.0 U	18.9 U	3.9 U
vanadium	1.0 U	9.4 B	2.0 B
zinc	0.7 B	119	18.5
% solids:		15.9	76.9

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
- B - Value greater than 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: 08/01 and 08/03/90
Date Analyzed: 08/13 and 08/14/90 (ICP); 08/02-08/08/90 (CVAA); 08/23-09/11/90 (GFAA).

Client Project ID: NAS-Key West

Job Number: ITCY 46179 (CLP Data)

TARGET ANALYTE LIST - INORGANICS

Results in mg/kg (ppm) dry weight

Sample Matrix: Soil

Client Sample ID: Lab Sample ID:	07-02-SED LL3503	07-03-SED LL3504	07-04-SED LL3505
aluminum	415	452	531
antimony	3.5 U	3.3 U	4.4 U
arsenic	3.5 U	3.6	4.4 U
barium	7.1 B	5.3 B	4.2 B
beryllium	0.12 U	0.11 U	0.15 U
cadmium	1.1	0.56 U	0.73 U
calcium	247,000	380,000	241,000
chromium	3.6	4.5	4.1
cobalt	2.3 U	2.2 U	2.9 U
copper	21.1	7.5	15.9
iron	772	342	1,140
lead	27.2	3.3 U	15.8
magnesium	5,350	2,560	4,970
manganese	29.2	6.4	21.6
mercury	0.09	0.02 U	0.07
nickel	2.3 U	2.2 U	2.9 U
potassium	182 B	112 U	379 B
selenium	1.2 UW	1.1 UW	1.5 UW
silver	6.1	2.8 B	0.73 U
sodium	4,940	1,920	8,110
thallium	3.5 U	3.3 U	4.4 U
vanadium	2.9 B	2.4 B	3.1 B
zinc	46.6	13.0	43.1
% solids:	85.2	89.6	68.1

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
- B - Value greater than 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: 08/01 and 08/03/90
Date Analyzed: 08/13 and 08/14/90 (ICP); 08/02-08/08/90 (CVAA); 08/23-09/11/90 (GFAA).

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: Method Blank 1
Lab Sample ID: EB07262

Tentative Identification (1)

Concentration (2)

No additional peaks detected

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

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-02-SW
Lab Sample ID: LL3557

<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: 07/26/90
Dilution Factor: 1

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September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 04-02-SW
Lab Sample ID: LL3557

Tentative Identification (1)

Concentration (2)

No additional peaks detected

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

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-05-GM-GW
Lab Sample ID: LL3558

<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	1 J	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	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	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: 07/26/90
Dilution Factor: 1

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 04-05-GM-GW
Lab Sample ID: LL3558

Tentative Identification (1)

Concentration (2)

No additional peaks detected

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

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

VOLATILE ORGANIC TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 04-07-GW

Lab Sample ID: LL3559

<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)	6	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: 07/26/90

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 46180

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 04-07-GW
Lab Sample ID: LL3559

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 46180

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 05-02-GW
Lab Sample ID: LL3561

<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 B	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	57
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	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: 07/26/90
Dilution Factor: 1

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 05-02-GW

Lab Sample ID: LL3561

Tentative Identification (1)

Concentration (2)

No additional peaks detected

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

IT Corporation
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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

VOLATILE ORGANIC TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 05-03-GW
Lab Sample ID: LL3562

<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	2 J	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	10 U	toluene	5 U
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

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

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

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

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 05-03-GW
Lab Sample ID: LL3562

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 46180

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 07-02-SW
Lab Sample ID: LL3563

<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: 07/27/90
Dilution Factor: 1

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: Method Blank 3
Lab Sample ID: EB0808

Tentative Identification (1)

Concentration (2)

No additional peaks detected

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

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-08-GM-GW
Lab Sample ID: LL3560

<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: 07/27/90

Dilution Factor: 1

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 04-08-GM-GW
Lab Sample ID: LL3560

Tentative Identification (1)

Concentration (2)

No additional peaks detected

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

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

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

Client Sample ID: 04-08-GM-GW
Lab Sample ID: LL3560

	<u>Conc. Spike Added</u>	<u>Sample Conc.</u>	<u>MS Conc.</u>	<u>MS % Rec.</u>
1,1-dichloroethene	50.0	5 U	37.2	74
trichloroethene	50.0	5 U	41.2	82
benzene	50.0	5 U	35.9	72 *
toluene	50.0	5 U	39.4	79
chlorobenzene	50.0	5 U	45.8	92

	<u>Conc. Spike Added</u>	<u>MSD Conc.</u>	<u>MSD % Rec.</u>	<u>RPD</u>
1,1-dichloroethene	50.0	40.9	82	-10
trichloroethene	50.0	42.6	85	-4
benzene	50.0	38.9	78	-8
toluene	50.0	43.1	86	-8
chlorobenzene	50.0	48.8	98	-6

RPD = Relative Percent Difference

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

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

* - Asterisked values are outside USEPA advisory QC limits.

Date Analyzed: 08/08/90

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

VOLATILE ORGANIC TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 10-18-GM-GW
Lab Sample ID: LL3566

<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	1 J	dibromochloromethane	5 U
methylene chloride	5 U	1,1,2-trichloroethane	5 U
acetone	3 BJ	benzene	11
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,2-dichloroethene	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	1 J
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	15
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	17

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: 07/27/90
Dilution Factor: 1

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

ADDITIONAL VOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 10-18-GM-GW
Lab Sample ID: LL3566

Tentative Identification (1)

Concentration (2)

1-pentene, 2-methyl-	9.3
cyclohexane (DOT)	12
unknown	38
cyclohexane, methyl-	7.0
benzene (1-methylethyl)-	6.7
ethanol, 2-[(phenylmethyl) amino]-	11
benzene, 1-ethyl-2-methyl-	11
benzene, 1,3,5-trimethyl-	18
benzene, 1-ethyl-2-methyl-	9.4

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

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

SEMIVOLATILE TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 04-02-SW
Lab Sample ID: LL3592

<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
1-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: 07/20/90
Date Analyzed: 08/07/90
Dilution Factor: 1

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in ug/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-02-SW
Lab Sample ID: LL3592

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

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

Date Extracted: 07/20/90
Date Analyzed: 08/07/90
Dilution Factor: 1

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 04-02-SW
Lab Sample ID: LL3592

Tentative Identification (1)

Concentration (2)

No additional peaks detected

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

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

SEMIVOLATILE TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 04-05-GM-GW

Lab Sample ID: LL3593

<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	8 J
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: 07/20/90

Date Analyzed: 08/07/90

Dilution Factor: 1

Client Project ID: NAS-Key West

Job Number: ITCY 46180

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in ug/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-05-GM-GW

Lab Sample ID: LL3593

<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	3 J
4-nitrophenol	50 U	pyrene	5 J
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	2 BJ
nitroaniline	50 U	di-n-octylphthalate	10 U
4,6-dinitro-2-methylphenol	50 U	benzo(b)fluoranthene	10 U
n-nitrosodiphenylamine ¹	10 U	benzo(k)fluoranthene	10 U
4-bromophenyl-phenylether	10 U	benzo(a)pyrene	10 U
hexachlorobenzene	10 U	indeno(1,2,3-cd)pyrene	10 U
pentachlorophenol	50 U	dibenzo(a,h)anthracene	10 U
phenanthrene	10 U	benzo(g,h,i)perylene	10 U

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

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

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

1 - Detected as diphenylamine.

Date Extracted: 07/20/90

Date Analyzed: 08/07/90

Dilution Factor: 1

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September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 04-05-GM-GW
Lab Sample ID: LL3593

Tentative Identification (1)

Concentration (2)

naphthalene, 1,3-dimethyl-
naphthalene, 1,3-dimethyl-
naphthalene, 2-ethyl-

25
15
15

- 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 46180

SEMIVOLATILE TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 04-07-GW
Lab Sample ID: LL3594

<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	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: 07/20/90
Date Analyzed: 08/07/90
Dilution Factor: 1

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in ug/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-07-GW

Lab Sample ID: LL3594

<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	3 BJ
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.

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

1 - Detected as diphenylamine.

Date Extracted: 07/20/90

Date Analyzed: 08/07/90

Dilution Factor: 1

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 04-07-GW

Lab Sample ID: LL3594

Tentative Identification (1)

Concentration (2)

1,2,4-trithiolane
hexathiepane
sulfur, mol. (S8)

9.1
15
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.

IT Corporation
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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Results in µg/liter (ppb)

Client Sample ID: 04-07-GW
Lab Sample ID: LL3594

	<u>Conc. Spike Added</u>	<u>Sample Conc.</u>	<u>MS Conc.</u>	<u>MS % Rec.</u>
phenol	426	10 U	248	58
2-chlorophenol	426	10 U	282	66
1,4-dichlorobenzene	213	10 U	81.4	38
n-nitroso-di-n-propylamine	213	10 U	106	50
1,2,4-trichlorobenzene	213	10 U	88.2	41
4-chloro-3-methylphenol	426	10 U	310	73
acenaphthene	213	10 U	109	51
4-nitrophenol	426	52 U	241	57
2,4-dinitrotoluene	213	10 U	147	69
pentachlorophenol	426	52 U	254	60
pyrene	213	10 U	158	74

	<u>Conc. Spike Added</u>	<u>MSD Conc.</u>	<u>MSD % Rec.</u>	<u>RPD</u>
phenol	426	237	56	4
2-chlorophenol	426	274	64	3
1,4-dichlorobenzene	213	83.5	39	-3
n-nitroso-di-n-propylamine	213	104	49	2
1,2,4-trichlorobenzene	213	88.6	42	-2
4-chloro-3-methylphenol	426	281	66	10
acenaphthene	213	102	48	6
4-nitrophenol	426	262	62	-8
2,4-dinitrotoluene	213	130	61	12
pentachlorophenol	426	256	60	0
pyrene	213	145	68	8

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: 07/20/90
Date Analyzed: 08/07/90

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-08-GM-GW

Lab Sample ID: LL3597

<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: 07/20/90

Date Analyzed: 08/07/90

Dilution Factor: 1

Client Project ID: NAS-Key West

Job Number: ITCY 46180

SEMIVOLATILE TARGET COMPOUND LIST (continued)

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

Sample Matrix: Water

Client Sample ID: 04-08-GM-GW

Lab Sample ID: LL3597

Compound

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

Compound

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

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

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

1 - Detected as diphenylamine.

Date Extracted: 07/20/90

Date Analyzed: 08/07/90

Dilution Factor: 1

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 04-08-GM-GW
Lab Sample ID: LL3597

Tentative Identification (1)

Concentration (2)

No additional peaks detected

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

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

SEMIVOLATILE TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 05-02-GW
Lab Sample ID: LL3600

<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	2 J	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	2 J	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: 07/20/90
Date Analyzed: 08/07/90
Dilution Factor: 1

Client Project ID: NAS-Key West

Job Number: ITCY 46180

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in ug/liter (ppb)

Sample Matrix: Water

Client Sample ID: 05-02-GW
Lab Sample ID: LL3600

<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
3-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: 07/20/90
Date Analyzed: 08/07/90
Dilution Factor: 1

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 05-02-GW
Lab Sample ID: LL3600

Tentative Identification (1)

Concentration (2)

1-naphthalenecarboxylic acid
4,4'-dichlorobenzophenone
sulfur, mol. (S8)
mitotane (USAN)

14
17
18
8.4

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

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September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 08-01-SW
Lab Sample ID: LL3604

Tentative Identification (1)

Concentration (2)

lenthionine	20
1-decanol, 2-ethyl-	24
hexathiepane	49
sulfur, mol. (S8)	65
unknown	65

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

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September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

SEMIVOLATILE TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 10-18-GM-GW
Lab Sample ID: LL3605

<u>Compound</u>		<u>Compound</u>	
phenol	20 U	bis(2-chloroethoxy)methane	20 U
bis(2-chloroethyl)ether	20 U	2,4-dichlorophenol	20 U
2-chlorophenol	20 U	1,2,4-trichlorobenzene	20 U
1,3-dichlorobenzene	20 U	naphthalene	39
1,4-dichlorobenzene	20 U	4-chloroaniline	20 U
benzyl alcohol	20 U	hexachlorobutadiene	20 U
1,2-dichlorobenzene	20 U	4-chloro-3-methylphenol	20 U
2-methylphenol	20 U	2-methylnaphthalene	10 J
is(2-chloroisopropyl)ether	20 U	hexachlorocyclopentadiene	20 U
4-methylphenol	20 U	2,4,6-trichlorophenol	20 U
n-nitroso-di-n-propylamine	20 U	2,4,5-trichlorophenol	100 U
hexachloroethane	20 U	2-chloronaphthalene	20 U
nitrobenzene	20 U	2-nitroaniline	100 U
isophorone	20 U	dimethyl phthalate	20 U
2-nitrophenol	20 U	acenaphthylene	20 U
2,4-dimethylphenol	20 U	2,6-dinitrotoluene	20 U
benzoic acid	100 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: 07/20/90
Date Analyzed: 08/10/90
Dilution Factor: 2

ent Project ID: NAS-Key West

Job Number: ITCY 46180

SEMIVOLATILE TARGET COMPOUND LIST (continued)

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 10-18-GM-GW
Lab Sample ID: LL3605

<u>Compound</u>		<u>Compound</u>	
3-nitroaniline	100 U	anthracene	20 U
acenaphthene	20 U	di-n-butylphthalate	20 U
2,4-dinitrophenol	100 U	fluoranthene	20 U
4-nitrophenol	100 U	pyrene	20 U
dibenzofuran	20 U	butylbenzylphthalate	20 U
2,4-dinitrotoluene	20 U	3,3'-dichlorobenzidine	40 U
diethylphthalate	20 U	benzo(a)anthracene	20 U
1-chlorophenyl-phenylether	20 U	chrysene	20 U
orene	20 U	bis(2-ethylhexyl)phthalate	20 U
4-nitroaniline	100 U	di-n-octylphthalate	20 U
4,6-dinitro-2-methylphenol	100 U	benzo(b)fluoranthene	20 U
n-nitrosodiphenylamine ¹	20 U	benzo(k)fluoranthene	20 U
4-bromophenyl-phenylether	20 U	benzo(a)pyrene	20 U
hexachlorobenzene	20 U	indeno(1,2,3-cd)pyrene	20 U
pentachlorophenol	100 U	dibenzo(a,h)anthracene	20 U
phenanthrene	20 U	benzo(g,h,i)perylene	20 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: 07/20/90
Date Analyzed: 08/10/90
Dilution Factor: 2

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

ADDITIONAL SEMIVOLATILE ORGANIC COMPOUNDS

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

Sample Matrix: Water

Client Sample ID: 10-18-GM-GW
Lab Sample ID: LL3605

Tentative Identification (1)

Concentration (2)

benzene, 1,3,5-trimethyl-
unknown
unknown (carboxylic acid?)
unknown (benzoic acid deriv.?)
sulfur, mol. (S8)

20
50
290
23
20

- 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 46180

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-02-SW
Lab Sample ID: LL3592

<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
dieldrin	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: 07/20/90
Date Analyzed: 08/07/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-05-GM-GW
Lab Sample ID: LL3593

<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
dieldrin	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: 07/20/90
Date Analyzed: 08/07/90
Dilution Factor: 1

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 04-07-GW
Lab Sample ID: LL3594

<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
dieldrin	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: 07/20/90
Date Analyzed: 08/07/90
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 46180

PESTICIDE AND PCB TARGET COMPOUND LIST

Results in ug/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-08-GM-GW
Lab Sample ID: LL3597

<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
dieldrin	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: 07/20/90
Date Analyzed: 08/07/90
Dilution Factor: 1

Client Project ID: NAS-Key West

Job Number: ITCY 46180

WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

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

Client Sample ID: 04-08-GM-GW
Lab Sample ID: LL3597

	<u>Conc. Spike Added</u>	<u>Sample Conc.</u>	<u>MS Conc.</u>	<u>MS % Rec.</u>
γ -BHC (lindane)	0.200	0.050 U	0.151	76
heptachlor	0.200	0.050 U	0.126	63
aldrin	0.200	0.050 U	0.134	67
dieldrin	0.500	0.10 U	0.379	76
endrin	0.500	0.10 U	0.444	89
4,4'-DDT	0.500	0.10 U	0.351	70

	<u>Conc. Spike Added</u>	<u>MSD Conc.</u>	<u>MSD % Rec.</u>	<u>% RPD</u>
γ -BHC (lindane)	0.200	0.160	80	-5
heptachlor	0.200	0.136	68	-8
aldrin	0.200	0.147	74	-10
dieldrin	0.500	0.417	83	-9
endrin	0.500	0.474	95	-7
4,4'-DDT	0.500	0.409	82	-16

RPD = Relative Percent Difference

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

Date Extracted: 07/20/90
Date Analyzed: 08/07/90

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September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 05-02-GW
Lab Sample ID: LL3600

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.10 U	endosulfan sulfate	0.20 U
β -BHC	1.9 F	4,4'-DDT	0.72
δ -BHC	0.10	methoxychlor	1.0 U
γ -BHC (lindane)	0.10 U	endrin ketone	0.20 U
heptachlor	0.10 U	α -chlordane	1.0 U
aldrin	0.10 U	γ -chlordane	1.0 U
heptachlor epoxide	0.10 U	toxaphene	2.0 U
endosulfan I	0.10 U	Aroclor 1016	1.0 U
dieldrin	0.20 U	Aroclor 1221	1.0 U
4,4'-DDE	1.3 F	Aroclor 1232	1.0 U
endrin	0.20 U	Aroclor 1242	1.0 U
endosulfan II	0.20 U	Aroclor 1248	1.0 U
4,4'-DDD	7.7 F	Aroclor 1254	2.0 U
		Aroclor 1260	2.0 U

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

F - Peak offscale and therefore out of linear range.

Date Extracted: 07/20/90
Date Analyzed: 08/08/90
Dilution Factor: 2

Client Project ID: NAS-Key West

Job Number: ITCY 46180

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 05-02-GW DL
Lab Sample ID: LL3600 DL

<u>Compound</u>			<u>Compound</u>		
α -BHC	1.0	U	endosulfan sulfate	2.0	U
β -BHC	2.4	D	4,4'-DDT	0.78	DJ
δ -BHC	0.12	DJ	methoxychlor	10	U
γ -BHC (lindane)	1.0	U	endrin ketone	2.0	U
heptachlor	1.0	U	α -chlordane	10	U
aldrin	1.0	U	γ -chlordane	10	U
heptachlor epoxide	1.0	U	toxaphene	20	U
endosulfan I	1.0	U	Aroclor 1016	10	U
dieldrin	2.0	U	Aroclor 1221	10	U
4,4'-DDE	1.5	DJ	Aroclor 1232	10	U
endrin	2.0	U	Aroclor 1242	10	U
endosulfan II	2.0	U	Aroclor 1248	10	U
4,4'-DDD	9.3	D	Aroclor 1254	20	U
			Aroclor 1260	20	U

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

D - Compound analyzed at a secondary dilution factor.

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

Date Extracted: 07/20/90
Date Analyzed: 08/08/90
Dilution Factor: 20

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 05-03-GW
Lab Sample ID: LL3601

<u>Compound</u>		<u>Compound</u>	
α -BHC	0.050 U	endosulfan sulfate	0.10 U
β -BHC	0.054	4,4'-DDT	0.16
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	0.16	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	0.76	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: 07/20/90
Date Analyzed: 08/07/90
Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 08-01-SW

Lab Sample ID: LL3604

<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	1.1
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: 07/20/90

Date Analyzed: 08/07/90

Dilution Factor: 1

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

PESTICIDE AND PCB TARGET COMPOUND LIST

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

Sample Matrix: Water

Client Sample ID: 10-18-GM-GW
Lab Sample ID: LL3605

<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: 07/20/90
Date Analyzed: 08/07/90
Dilution Factor: 1

WATER SURROGATE PERCENT RECOVERY SUMMARY

<u>Sample No.</u>	<u>PESTICIDE</u> <u>Dibutylchlorodate</u> <u>(24-154%)*</u>
Method Blank	89
04-02-SW	87
04-05-GM-GW	86
04-07-GW	83
04-08-GM-GW	87
04-08-GM-GW MS	83
04-08-GM-GW MSD	90
05-02-GW	78
05-02-GW DL	82
05-03-GW	76
05-03-GW DL	75
07-02-SW	65
07-KWM09-GW	84
08-01-SW	75
10-18-GM-GW	73

* - Values in parenthesis represent USEPA advisory QC limits.

DL = Dilution

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IT ANALYTICAL SERVICES
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KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

TARGET ANALYTE LIST - INORGANICS

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Lab Sample ID:	Method Blank <u>PBWC2826/C2835</u>	04-02-SW <u>LL3580</u>
aluminum	40.0 U	158 B
antimony	30.0 U	30.0 U
arsenic	30.0 U	30.0 U
barium	2.0 U	2.3 B
beryllium	1.0 U	1.0 U
cadmium	5.0 U	13.7
calcium	30.0 U	546,000
chromium	10.0 U	10.0 U
cobalt	20.0 U	20.0 U
copper	10.0 U	10.3 B
iron	10.0 U	75.8 B
lead	30.0 U	30.0 U
magnesium	30.0 U	1,600,000
manganese	2.0 U	2.0 U
mercury	NR	0.20 U
nickel	20.0 U	20.0 U
potassium	1,000.0 U	454,000
selenium	2.0 U	10.0 UW
silver	5.0 U	5.0 U
sodium	200.0 U	13,100,000
thallium	30.0 U	30.0 U
vanadium	10.0 U	10.0 U
zinc	5.0 U	5.0 U

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

Date Digested: 08/04/90
Date Analyzed: 08/20/90 (ICP); 08/23/90 (GFAA); 07/24/90 (CVAA)

Client Project ID: NAS-Key West

Job Number: ITCY 46180

TARGET ANALYTE LIST - INORGANICS

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Lab Sample ID:	04-05-GM-GW <u>LL3581</u>	04-07-GW <u>LL3582</u>
aluminum	405	1,740
antimony	30.0 U	30.0 U
arsenic	30.0 U	30.0 U
barium	43.2 B	39.3 B
beryllium	1.0 U	1.0 U
cadmium	9.7	5.6
calcium	825,000	1,860,000
chromium	10.0 U	12.9
cobalt	20.0 U	20.0 U
copper	51.0	72.8
iron	3,850	5,890
lead	65.4	74.4
magnesium	693,000	1,290,000
manganese	28.3	33.7
mercury	0.20 U	0.20 U
nickel	20.0 U	20.0 U
potassium	210,000	383,000
selenium	10.0 UW	10.0 UW
silver	5.0 U	5.0 U
sodium	5,850,000	10,700,000
thallium	30.0 U	30.0 U
vanadium	10.0 U	16.8 B
zinc	59.3	83.4

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
- B - Value greater than 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: 08/04/90

Date Analyzed: 08/20/90 (ICP); 08/23/90 (GFAA); 07/24/90 (CVAA)

Client Project ID: NAS-Key West

Job Number: ITCY 46180

TARGET ANALYTE LIST - INORGANICS

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

Sample Matrix: Water

Client Sample ID:	04-08-GM-GW	
Lab Sample ID:	<u>LL3583</u>	
aluminum	781	
antimony	30.0	U
arsenic	30.0	U
barium	42.4	B
beryllium	1.0	U
cadmium	5.0	U
calcium	2,230,000	
chromium	18.2	
cobalt	20.0	U
copper	19.3	B
iron	1,110	
lead	36.1	
magnesium	897,000	
manganese	2.0	U
mercury	0.20	U
nickel	20.0	U
potassium	251,000	
selenium	10.0	UW
silver	25.0	U
sodium	7,400,000	
thallium	30.0	U
vanadium	21.8	B
zinc	17.2	B

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
- B - Value greater than 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: 08/04/90

Date Analyzed: 08/20/90 (ICP); 08/23/90 (GFAA); 07/24/90 (CVAA)

Client Project ID: NAS-Key West

Job Number: ITEK 46180

DUPLICATE ANALYSIS

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: 04-08-GM-GW

Lab Sample ID: LL3583

	<u>Control Limit</u>	<u>Original Sample</u>	<u>Duplicate</u>	<u>RPD</u>
aluminum	200.0	780.73	812.38	4.0
antimony		30.00 U	30.00 U	
arsenic		30.00 U	30.00 U	
barium		42.39 B	39.33 B	7.5
beryllium		1.00 U	1.37 B	200.0
cadmium		5.00 U	5.00 U	
calcium		2,232,200.00	2,121,700.00	5.1
chromium	10.0	18.15	14.59	21.7
chloride		20.00 U	20.00 U	
copper		19.26 B	15.50 B	21.6
iron		1,114.62	1,125.92	1.0
lead		36.13	40.74	12.0
magnesium		897,040.00	857,850.00	4.5
manganese		2.00 U	2.00 U	
mercury		0.20 U	0.20 U	
nickel		20.00 U	20.00 U	
potassium		251,360.33	229,534.45	9.1
selenium		60.00 U	60.00 U	
silver		25.00 U	25.00 U	
sodium		7,404,800.00	7,064,800.00	4.7
thallium		30.00 U	30.00 U	
vanadium		21.75 B	19.01 B	13.4
zinc		17.20 B	18.74 B	8.6

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: 08/04/90

Date Analyzed: 08/20/90 (ICP); 08/23/90 (GFAA); 07/24/90 (CVAA)

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITEK 46180

DUPLICATE ANALYSIS

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

Sample Matrix: Water

Client Sample ID: 04-08-GM-GW
Lab Sample ID: LL3583

	<u>Control Limit</u>	<u>Original Sample</u>	<u>Duplicate</u>	<u>RPD</u>
selenium		10.00 U	10.00 U	

RPD = Relative Percent Difference

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

Date Digested: 08/04/90
Date Analyzed: 08/23/90 (GFAA)

ent Project ID: NAS-Key West

Job Number: ITCY 46180

TARGET ANALYTE LIST - INORGANICS

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID: Lab Sample ID:	05-02-GW <u>LL3586</u>		05-03-GW <u>LL3587</u>	
aluminum	3,000		1,010	
antimony	30.0	U	30.0	U
arsenic	30.0	U	30.0	U
barium	52.3	B	44.3	B
beryllium	1.0	U	1.0	U
cadmium	5.0	U	5.0	U
calcium	1,460,000		1,410,000	
chromium	33.7		10.0	U
cobalt	20.0	U	20.0	U
copper	10.0	U	10.0	U
iron	1,700		524	
lead	30.0	U	30.0	U
magnesium	159,000		190,000	
manganese	18.8		13.9	B
mercury	0.20	U	0.20	U
nickel	20.0	U	20.0	U
potassium	51,500		63,900	
selenium	10.0	UW	10.0	UW
silver	5.0	U	5.0	U
sodium	1,460,000		1,620,000	
thallium	30.0	U	30.0	U
vanadium	10.0	U	10.0	U
zinc	49.0		5.0	U

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

B - Value greater than 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: 08/04/90

Date Analyzed: 08/20/90 (ICP); 08/23/90 (GFAA); 07/24/90 (CVAA)

TARGET ANALYTE LIST - INORGANICS

Results in µg/liter (ppb)

Sample Matrix: Water

Client Sample ID:	07-02- ^S AW	07-KWM09-GW
Lab Sample ID:	LL3588	LL3589
aluminum	447	6,470
antimony	30.0 U	30.0 U
arsenic	30.0 U	30.0 U
barium	42.9 B	155 B
beryllium	1.0 U	1.0 U
cadmium	5.0 U	5.0 U
calcium	420,000	8,710,000
chromium	10.0 U	22.9
cobalt	20.0 U	20.0 U
copper	42.5	315
iron	556	14,600
lead	72.2	125
magnesium	1,370,000	1,050,000
manganese	2.0 U	165
mercury	0.63	0.73
nickel	20.0 U	20.0 U
potassium	454,000	292,000
selenium	10.0 UW	10.0 UW
silver	5.0 U	5.0 U
sodium	11,400,000	8,510,000
thallium	30.0 U	30.0 U
vanadium	18.5 B	17.9 B
zinc	5.0 U	380

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
- B - Value greater than 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: 08/04/90
Date Analyzed: 08/20/90 (ICP); 08/23/90 (GFAA); 07/24/90 (CVAA)

Client Project ID: NAS-Key West

Job Number: ITCY 46180

TARGET ANALYTE LIST - INORGANICS

Results in ug/liter (ppb)

Sample Matrix: Water

Client Sample ID: Lab Sample ID:	08-01-SW LL3590		10-18-GM-GW LL3591	
aluminum	2,030		67.1	B
antimony	30.0	U	30.0	U
arsenic	57.3		30.0	U
barium	107	B	2.0	U
beryllium	1.0	U	1.0	U
cadmium	19.8		5.0	U
calcium	331,000		229,000	
chromium	37.2		10.0	U
cobalt	20.0	U	20.0	U
copper	172		10.4	B
iron	305,000		1,230	
lead	155		30.0	U
magnesium	1,100,000		152,000	
manganese	294		2.0	U
mercury	0.43		0.20	U
nickel	20.0	U	20.0	U
potassium	325,000		70,900	
selenium	10.0	UW	10.0	U
silver	10.2		5.0	U
sodium	9,390,000		1,330,000	
thallium	30.0	U	30.0	U
vanadium	42.5	B	10.0	U
zinc	6,230		45.5	

- U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
- B - Value greater than 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: 08/04/90

Date Analyzed: 08/20/90 (ICP); 08/23/90 (GFAA); 07/24/90 (CVAA)

IT Corporation
September 20, 1990

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

Client Project ID: NAS-Key West

Job Number: ITCY 46180

CYANIDE ANALYSIS

Results in mg/liter (ppm)

Sample Matrix: Water

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Result</u>
Method Blank	P1366, P1362	0.01 U
04-02-SW	LL3568	0.01 U
04-05-GM-GW	LL3569	0.01 U
04-07-GW	LL3570	0.01 U
04-08-GM-GW	LL3571	0.01 U
05-02-GW	LL3574	0.01 U
05-03-GW	LL3575	0.01 U
07-02-SW	LL3576	0.01 U
07-KWM09-GW	LL3577	0.01 U
08-01-SW	LL3578	0.01 U
10-18-GM-GW	LL3579	0.01 U

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

Date Analyzed: 07/26/90