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Department of Energy

Richland Operations Office
P.O. Box 550
Richland, Washington 99352

95-PCA-043

NOV 07 1994

Mr. David L. Lundstrom
Section Manager, 200 Areas
Nuclear Waste Program
State of Washington
Department of Ecology
1315 West 4th Avenue
Kennewick, Washington 99336

Mr. Douglas R. Sherwood
Hanford Project Manager
U. S. Environmental Protection Agency
712 Swift Boulevard, Suite 5
Richland, Washington 99352

Dear Messrs. Lundstrom and Sherwood:

SUBMITTAL OF VALIDATED DATA FOR THE 218 E-8 BORROW PIT DEMOLITION SITE SOIL SAMPLING (T-2-1) AND THE 200 WEST AREA ASH PIT DEMOLITION SITE SOIL SAMPLING (T-2-2)

Enclosed are the data validation packages for the 218 E-8 Borrow Pit Demolition Site (218 E-8) and the 200 West Area Ash Pit Demolition Site (Ash Pit). The 218 E-8 is an interim status treatment unit, which is located in the 200 East Area of the Hanford Site. The Ash Pit is an interim status treatment unit, which is located in the 200 West Area of the Hanford Site. Both the 218 E-8 and the Ash Pit are being closed under the Resource Conversation and Recovery Act. The data packages include inorganic and organic analyses on soil samples collected at both sites in July 1994. The analyses were performed by IT-Quanterra Laboratory.

The data packages have been validated by Golder Associates, Incorporated for Westinghouse Hanford Company (WHC). Data validation activities were performed in accordance with Level D as defined in Data Validation Procedures for Chemical Analysis (WHC-SD-EN-SPP-002). Level D validation includes evaluation and qualification of results based on analytical holding times, method blank results, matrix spikes and duplicates, surrogate recoveries, and analytical method blanks.

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Should you have any questions, please contact Ms. E. M. Mattlin of my staff on (509) 376-2385.

Sincerely,

Robert D. Holt /for
James D. Bauer, Program Manager
Office of Environmental Assurance,
Permits, and Policy

EAP:EMM

Enclosure:
Validation Package

cc w/encl:
Administrative Record
F. Ma, Ecology
D. Duncan, EPA

cc w/o encl:
B. Burke, CTUIR
R. Jim, YIN
D. Powaukee, NPT
S. Price, WHC
F. Ruck, WHC

9413299.1001

MEMORANDUM

TO: Borrow Pit Demo Project QA Record — October 3, 1994

FR: Sandra Schildt, Golder Associates Inc.

RE: NITROEXPLOSIVES DATA VALIDATION SUMMARY FOR DATA PACKAGE W0131-QES-139 (943-1610.005,W0131.GC)

INTRODUCTION

This memorandum presents the results of data validation on data package W0131-QES-139 prepared by International Technology Corporation. A list of the samples validated along with the analytes reported and the method of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B0C961	7/12/94	SOIL	SEE NOTE 1
B0C962	7/12/94	SOIL	
B0C963	7/12/94	SOIL	
B0C964	7/12/94	SOIL	
B0C965	7/12/94	SOIL	
B0C966	7/12/94	SOIL	
B0C967	7/12/94	SOIL	
B0C968	7/12/94	SOIL	
B0C969	7/12/94	SOIL	
B0CBN1	7/12/94	SOIL	

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Note 1: The samples were analyzed for nitroexplosives using SW-846 8330 methods.

Data validation was conducted in accordance with the WHC statement of work (WHC 1994) and validation procedures (WHC 1993). Attachments 1 through 5 to this memo provide the following information:

Attachment 1. Glossary of Data Reporting Qualifiers
Attachment 2. Summary of Data Qualifications
Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
Attachment 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

This section presents a summary of the data quality in terms of the referenced validation criteria.

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data.

Detection Limit. Detection limit goals were met for all sample results as specified in the reference analytical method.

Completeness. The data package was complete for all requested analyses. Ten samples (10) were validated in this data set with a total of 120 determinations reported, all of which were deemed valid. This results in a completeness of 100% which meets normal work plan objectives of 90%.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

The no minor deficiencies were identified during validation which required qualification of data.

FIELD QUALITY CONTROL

Sample B0C962 was identified as a field duplicate, and sample B0C964 was identified as an equipment blank.

- Relative percent difference (RPD) values were within control limits for the field duplicate.
- No compounds were detected in the field blank.

REFERENCES

WHC 1994, 218-E-8 Borrow Pit Demolition Site Closure Plan. Westinghouse Hanford Company, Richland, Washington.

WHC 1993b, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993, Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the constituent was analyzed for and detected in the associated laboratory blank. This qualifier is applied by the laboratory. During the process of data validation this qualifier may be replaced by other appropriate qualifiers as defined by the validation procedures. The associated data should be considered usable for decision making purposes.

U - Indicates the constituent was analyzed for and not detected. The concentration reported is the sample quantitation limit corrected for aliquot size, dilution and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.

UJ - Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during data validation the concentration reported may not accurately reflect the sample quantitation limit. The associated data should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. This qualifier may be applied by the laboratory to indicate a concentration which is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). During data validation this qualifier may be applied to indicate a minor quality control deficiency. However in either case, the associated data should be considered usable for decision making purposes.

NJ - Indicates presumptive evidence of a constituent at an estimated value. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

N - Indicates presumptive evidence of a constituent. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

JN - Indicates a tentatively identified compound (TIC) whose concentration and identification have been determined to be valid as a result of data validation. The associated data should be considered usable for decision making purposes.

UJN- Indicates a tentatively identified compound (TIC) that has been determined to be presumptive and valid (JN) in terms of identification and quantitation and has been qualified as undetected due to associated blank contamination.

UR - Indicates the constituent was analyzed for and not detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

WHC-SD-EN-SPP-002. Rev. 2

DATA QUALIFICATION SUMMARY - FORM B-7

PKG: W0131-QES-139	REVIEWER: S. Schildt	DATE: 10/3/94	PAGE 1 OF 1
COMMENTS: Nitroexplosives			
PARAMETER	QUALIFIER	SAMPLES AFFECTED	REASON
No qualification			

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: W0131-QES-139

	Samp#	B0C961		B0C962		B0C963		B0C964		B0C965		B0C966	
	Date	7-12-94		7-12-94		7-12-94		7-12-94		7-12-94		7-12-94	
	Location	218-3-8 PIT		218-3-8 PIT		218-3-8 PIT		218-3-8 PIT		218-3-8 PIT		218-3-8 PIT	
	Depth	---		---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments			DUPLICATE				EQUIP BLANK					
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
HMX	MG/KG	0.500	U	0.500	U	0.500	U	0.500	U	0.500	U	0.500	U
RDX	MG/KG	0.500	U	0.500	U	0.500	U	0.500	U	0.500	U	0.500	U
1,3,5-TRINITROBENZENE	MG/KG	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U
1,3-DINITROBENZENE	MG/KG	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U
TETRYL	MG/KG	0.650	U	0.650	U	0.650	U	0.650	U	0.650	U	0.650	U
NITROBENZENE	MG/KG	0.260	U	0.260	U	0.260	U	0.260	U	0.260	U	0.260	U
2,4,6-TRINITROTOLUENE	MG/KG	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U
4-AMINO-2,6-DINITROTOLUENE	MG/KG	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U
2,6-DINITROTOLUENE	MG/KG	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U
2,4-DINITROTOLUENE	MG/KG	0.260	U	0.260	U	0.260	U	0.260	U	0.260	U	0.260	U
2-NITROTOLUENE	MG/KG	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U
3-NITROTOLUENE	MG/KG	0.220	U	0.220	U	0.220	U	0.220	U	0.220	U	0.220	U

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Verified 10/31/94

008

Validated Data Summary, Data Package: W0131-QES-139

	Samp#	B0C967		B0C968		B0C969		B0CBN1	
	Date	7-12-94		7-12-94		7-12-94		7-12-94	
	Location	218-3-8 PIT		218-3-8 PIT		218-3-8 PIT		218-E-8 PIT	
	Depth	---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL	
	Comments								
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q
HMX	MG/KG	0.500	U	0.500	U	0.500	U	0.500	U
RDX	MG/KG	0.500	U	0.500	U	0.500	U	0.500	U
1,3,5-TRINITROBENZENE	MG/KG	0.250	U	0.250	U	0.250	U	0.250	U
1,3-DINITROBENZENE	MG/KG	0.250	U	0.250	U	0.250	U	0.250	U
TETRYL	MG/KG	0.650	U	0.650	U	0.650	U	0.650	U
NITROBENZENE	MG/KG	0.260	U	0.260	U	0.260	U	0.260	U
2,4,6-TRINITROTOLUENE	MG/KG	0.250	U	0.250	U	0.250	U	0.250	U
4-AMINO-2,6-DINITROTOLUENE	MG/KG	0.250	U	0.250	U	0.250	U	0.250	U
2,6-DINITROTOLUENE	MG/KG	0.250	U	0.250	U	0.250	U	0.250	U
2,4-DINITROTOLUENE	MG/KG	0.260	U	0.260	U	0.260	U	0.260	U
2-NITROTOLUENE	MG/KG	0.250	U	0.250	U	0.250	U	0.250	U
3-NITROTOLUENE	MG/KG	0.220	U	0.220	U	0.220	U	0.220	U

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NITROEXPLOSIVES ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0131
Contract Name:	Westinghouse Hanford	Job Number:	855
Client Sample ID:	BOC961	Extraction Date:	07/23/94
Lab Sample ID:	AB3190	Analysis Date:	08/13/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Concentration	Qualifiers
HMX	0.50	U
RDX	0.50	U
1,3,5-trinitrobenzene	0.25	U
1,3-dinitrobenzene	0.25	U
tetryl	0.65	U
nitrobenzene	0.26	U
2,4,6-trinitrotoluene	0.25	U
4-amino-2,6-dinitrotoluene	0.25	U
2,6-dinitrotoluene	0.25	U
2,4-dinitrotoluene	0.26	U
2-nitrotoluene	0.25	U
3-nitrotoluene	0.22	U

Surrogate Recovery	4-Nitrotoluene
Acceptance Limits: Soil	(53-140%)
Lab Sample ID: AB3190	88

AHS 10/13/94

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

NITROEXPLOSIVES ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0131
Contract Name:	Westinghouse Hanford	Job Number:	855
Client Sample ID:	BOC962 Duplicate	Extraction Date:	07/23/94
Lab Sample ID:	AB3197	Analysis Date:	08/13/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Concentration	Qualifiers
HMX	0.50	U
RDX	0.50	U
1,3,5-trinitrobenzene	0.25	U
1,3-dinitrobenzene	0.25	U
tetryl	0.65	U
nitrobenzene	0.26	U
2,4,6-trinitrotoluene	0.25	U
4-amino-2,6-dinitrotoluene	0.25	U
2,6-dinitrotoluene	0.25	U
2,4-dinitrotoluene	0.26	U
2-nitrotoluene	0.25	U
3-nitrotoluene	0.22	U

Surrogate Recovery	4-Nitrotoluene
Acceptance Limits: Soil	(53-140%)
Lab Sample ID: AB3197	88

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

10/5/94

NITROEXPLOSIVES ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0131
Contract Name:	Westinghouse Hanford	Job Number:	855
Client Sample ID:	BOC963	Extraction Date:	07/23/94
Lab Sample ID:	AB3205	Analysis Date:	08/13/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Concentration	Qualifiers
HMX	0.50	U
RDX	0.50	U
1,3,5-trinitrobenzene	0.25	U
1,3-dinitrobenzene	0.25	U
tetryl	0.65	U
nitrobenzene	0.26	U
2,4,6-trinitrotoluene	0.25	U
4-amino-2,6-dinitrotoluene	0.25	U
2,6-dinitrotoluene	0.25	U
2,4-dinitrotoluene	0.26	U
2-nitrotoluene	0.25	U
3-nitrotoluene	0.22	U

Surrogate Recovery	4-Nitrotoluene
Acceptance Limits: Soil	(53-140%)
Lab Sample ID: AB3205	88

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

10/3/94

NITROEXPLOSIVES ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0131
Contract Name:	Westinghouse Hanford	Job Number:	855
Client Sample ID:	BOC964 Equipment Blank	Extraction Date:	07/23/94
Lab Sample ID:	AB3212	Analysis Date:	08/13/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Concentration	Qualifiers
HMX	0.50	U
RDX	0.50	U
1,3,5-trinitrobenzene	0.25	U
1,3-dinitrobenzene	0.25	U
tetryl	0.65	U
nitrobenzene	0.26	U
2,4,6-trinitrotoluene	0.25	U
4-amino-2,6-dinitrotoluene	0.25	U
2,6-dinitrotoluene	0.25	U
2,4-dinitrotoluene	0.26	U
2-nitrotoluene	0.25	U
3-nitrotoluene	0.22	U

Surrogate Recovery	4-Nitrotoluene
Acceptance Limits: Soil	(53-140%)
Lab Sample ID: AB3212	96

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

10/3/94

NITROEXPLOSIVES ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0131
Contract Name:	Westinghouse Hanford	Job Number:	855
Client Sample ID:	BOC965	Extraction Date:	07/23/94
Lab Sample ID:	AB3218	Analysis Date:	08/13/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Concentration	Qualifiers
HMX	0.50	U
RDX	0.50	U
1,3,5-trinitrobenzene	0.25	U
1,3-dinitrobenzene	0.25	U
tetryl	0.65	U
nitrobenzene	0.26	U
2,4,6-trinitrotoluene	0.25	U
4-amino-2,6-dinitrotoluene	0.25	U
2,6-dinitrotoluene	0.25	U
2,4-dinitrotoluene	0.26	U
2-nitrotoluene	0.25	U
3-nitrotoluene	0.22	U

Surrogate Recovery	4-Nitrotoluene
Acceptance Limits: Soil	(53-140%)
Lab Sample ID: AB3218	91

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

10/13/94

NITROEXPLOSIVES ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0131
Contract Name:	Westinghouse Hanford	Job Number:	855
Client Sample ID:	BOC966	Extraction Date:	07/23/94
Lab Sample ID:	AB3223	Analysis Date:	08/13/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Concentration	Qualifiers
HMX	0.50	U
RDX	0.50	U
1,3,5-trinitrobenzene	0.25	U
1,3-dinitrobenzene	0.25	U
tetryl	0.65	U
nitrobenzene	0.26	U
2,4,6-trinitrotoluene	0.25	U
4-amino-2,6-dinitrotoluene	0.25	U
2,6-dinitrotoluene	0.25	U
2,4-dinitrotoluene	0.26	U
2-nitrotoluene	0.25	U
3-nitrotoluene	0.22	U

Surrogate Recovery	4-Nitrotoluene
Acceptance Limits: Soil	(53-140%)
Lab Sample ID: AB3223	95

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

10/13/94

NITROEXPLOSIVES ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0131
Contract Name:	Westinghouse Hanford	Job Number:	855
Client Sample ID:	BOC967	Extraction Date:	07/23/94
Lab Sample ID:	AB3228	Analysis Date:	08/13/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Concentration	Qualifiers
HMX	0.50	U
RDX	0.50	U
1,3,5-trinitrobenzene	0.25	U
1,3-dinitrobenzene	0.25	U
tetryl	0.65	U
nitrobenzene	0.26	U
2,4,6-trinitrotoluene	0.25	U
4-amino-2,6-dinitrotoluene	0.25	U
2,6-dinitrotoluene	0.25	U
2,4-dinitrotoluene	0.26	U
2-nitrotoluene	0.25	U
3-nitrotoluene	0.22	U

Surrogate Recovery	4-Nitrotoluene
Acceptance Limits: Soil	(53-140%)
Lab Sample ID: AB3228	90

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

10/5/94

NITROEXPLOSIVES ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0131
Contract Name:	Westinghouse Hanford	Job Number:	855
Client Sample ID:	BOC968	Extraction Date:	07/23/94
Lab Sample ID:	AB3233	Analysis Date:	08/13/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Concentration	Qualifiers
HMX	0.50	U
RDX	0.50	U
1,3,5-trinitrobenzene	0.25	U
1,3-dinitrobenzene	0.25	U
tetryl	0.65	U
nitrobenzene	0.26	U
2,4,6-trinitrotoluene	0.25	U
4-amino-2,6-dinitrotoluene	0.25	U
2,6-dinitrotoluene	0.25	U
2,4-dinitrotoluene	0.26	U
2-nitrotoluene	0.25	U
3-nitrotoluene	0.22	U

Surrogate Recovery	4-Nitrotoluene
Acceptance Limits: Soil	(53-140%)
Lab Sample ID: AB3233	98

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

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NITROEXPLOSIVES ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0131
Contract Name:	Westinghouse Hanford	Job Number:	855
Client Sample ID:	BOC969	Extraction Date:	07/23/94
Lab Sample ID:	AB3238	Analysis Date:	08/13/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Concentration	Qualifiers
HMX	0.50	U
RDX	0.50	U
1,3,5-trinitrobenzene	0.25	U
1,3-dinitrobenzene	0.25	U
tetryl	0.65	U
nitrobenzene	0.26	U
2,4,6-trinitrotoluene	0.25	U
4-amino-2,6-dinitrotoluene	0.25	U
2,6-dinitrotoluene	0.25	U
2,4-dinitrotoluene	0.26	U
2-nitrotoluene	0.25	U
3-nitrotoluene	0.22	U

Surrogate Recovery	4-Nitrotoluene
Acceptance Limits: Soil	(53-140%)
Lab Sample ID: AB3238	99

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

AHO 10/3/94

NITROEXPLOSIVES ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0131
Contract Name:	Westinghouse Hanford	Job Number:	855
Client Sample ID:	BOCBN1	Extraction Date:	07/23/94
Lab Sample ID:	AB3243	Analysis Date:	08/13/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Concentration	Qualifiers
HMX	0.50	U
RDX	0.50	U
1,3,5-trinitrobenzene	0.25	U
1,3-dinitrobenzene	0.25	U
tetryl	0.65	U
nitrobenzene	0.26	U
2,4,6-trinitrotoluene	0.25	U
4-amino-2,6-dinitrotoluene	0.25	U
2,6-dinitrotoluene	0.25	U
2,4-dinitrotoluene	0.26	U
2-nitrotoluene	0.25	U
3-nitrotoluene	0.22	U

Surrogate Recovery	4-Nitrotoluene
Acceptance Limits: Soil	(53-140%)
Lab Sample ID: AB3243	95

10/3/94

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

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

IT Corporation
2800 George Washington Way
Richland, WA 99352
Attn: Van Pettey

August 22, 1994

SEP 1994
RECEIVED
SDLA

Job Number: 855

This is the Certificate of Analysis for the following samples:

SDG:	W0131
Client Project ID:	WHC SAF 94-330 218-E-8 Borrow Pit Demolition Site Closure Plan
Received by Knoxville:	July 19, 1994
Number of Samples:	Eleven (11)
Sample Type:	Soil

I. Introduction

On July 15, 1994, eleven (11) soil samples arrived at ITAS-Richland, Washington and were transferred to ITAS-Knoxville for chemical analysis. 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.

The samples were analyzed for Appendix IX volatile and semivolatile organic compounds by gas chromatography/mass spectroscopy (GS/MS) based on EPA SW-846 methods 8240 and 8270.

RECORD COPY

Reviewed and Approved:

Sheree' A. Schneider
Project Manager

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

IT Corporation
August 22, 1994
Job Number: 855
Client Project ID: WHC SAF 94-330 218-E-8 Borrow Pit Demolition Site Closure Plan

II. Analytical Results/Methodology (Continued)

The samples were analyzed for nitrate-nitrite based on EPA method 353.2.

The samples were analyzed for anions by ion chromatography using EPA method 300.0.

The samples were analyzed for nitroexplosives by high performance liquid chromatography (HPLC) based on draft EPA method 8330.

III. Quality Control

The volatiles analyses were performed by purge and trap with a J & W DB-624 capillary column on a Finnigan INCOS 500 GC/MS/DS. A matrix spike and matrix spike duplicate were analyzed using sample BOC961. All QC results met method specified limits.

The semivolatiles analyses were performed by direct injection of sample extract on a Restek XTI-5 capillary column on a Finnigan 4500 GC/MS/DS. Daily calibrations were performed for the usual 8270 targets and for the additional Appendix IX compounds. The samples did not contain any Appendix IX compounds. A matrix spike and matrix spike duplicate were analyzed using sample BOC961. The matrix spike and matrix spike duplicate passed all QC criteria as did the laboratory control sample.

Data were reported with qualifiers as follows:

U - Compound analyzed for but not detected; value given is quantitation limit.
E - Compound exceeded calibration range.
D - Compound analyzed at a secondary dilution factor.
J - Compound detected but below quantitation limit; value estimated.
S - Spiked compound.
B - Compound found in method blank.
A - Suspected aldol condensation product.
Y - Indistinguishable isomer in tentatively identified compounds.
N - Presumptive evidence of compound presence.

The samples were analyzed for nitrate/nitrite on July 26, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC961. All QC results were acceptable.

10/3/94

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

IT Corporation
August 22, 1994
Job Number: 855
Client Project ID: WHC SAF 94-330 218-E-8 Borrow Pit Demolition Site Closure Plan

III. Quality Control (Continued)

The samples were analyzed for fluoride, chloride, phosphate, nitrate, nitrite and sulfate by EPA method 300.0 on August 2 and 3, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC961. All quality control results were acceptable; chloride for the matrix spike was slightly outside acceptance limits due to matrix interferences. The laboratory control sample (LCS) results were within acceptance limits.

The samples were analyzed for nitroexplosives on August 12 and 13, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC961. All QC results were acceptable.

AW 10/3/94

Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST WO#855	Page 1 of 3 007449

Collector SL Spencer | Company Contact ID Jacques/JW Ball | Telephone 376-3306/372-2653

SAF No. 94-330 | Project Designation 218-E-8 Borrow Pit Demolition Site Closure Plan | Sampling Locations 200 East / 200-PO-6

Ice Chest No. SML 443 | Bill of Lading/Airbill No. N/A | Offsite Property No.

Method of Shipment Government Vehicle | Field Logbook No.

Shipped to IT Analytical 2800 George Washington Way Richland WA, 99352

Possible Sample Hazards/Remarks None / Work Plan to RCRA Protocol

Special Handling and/or Storage

SPECIAL INSTRUCTIONS Standalone Deliverable

Appendix IX SDG W0131

407258

	Sample Number	*	Date Collected	Time	Number and Type of Containers	Analysis Required	Preservative
A	BOC961	SE	07-12-94	1222	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
B	BOC961	SE	07-12-94	1222	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
01 C	BOC961	SE	07-12-94	1222	120ml aGs	Detonation Residue (8330)	Cool to 4°
D	BOC961	SE	07-12-94	1222	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
E	BOC961	SE	07-12-94	1222	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
F	BOC961	SE	07-12-94	1222	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
A	BOC962	SE	07-12-94	1222	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
B	BOC962	SE	07-12-94	1222	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
02 C	BOC962	SE	07-12-94	1222	120ml aGs	Detonation Residue (8330)	Cool to 4°
D	BOC962	SE	07-12-94	1222	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
E	BOC962	SE	07-12-94	1222	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
F	BOC962	SE	07-12-94	1222	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
A	BOC963	SE	07-12-94	1046	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
B	BOC963	SE	07-12-94	1046	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
03 C	BOC963	SE	07-12-94	1046	120ml aGs	Detonation Residue (8330)	Cool to 4°
D	BOC963	SE	07-12-94	1046	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
E	BOC963	SE	07-12-94	1046	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
F	BOC963	SE	07-12-94	1046	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
A	BOC964	SE	07-12-94	0925	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
04 B	BOC964	SE	07-12-94	0925	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°

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Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST WO#855	Page 3 of 3 007449

04	C	BOC964	SE	07-12-94	0925	120ml aGs	Detonation Residue (8330)	Cool to 4°
	D	BOC964	SE	07-12-94	0925	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
	E	BOC964	SE	07-12-94	0925	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC964	SE	07-12-94	0925	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
05	A	BOC965	SE	07-12-94	1304	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC965	SE	07-12-94	1304	120ml aGs	Detonation Residue (8330)	Cool to 4°
	C	BOC965	SE	07-12-94	1304	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
	D	BOC965	SE	07-12-94	1304	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	E	BOC965	SE	07-12-94	1304	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
06	A	BOC966	SE	07-12-94	1115	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC966	SE	07-12-94	1115	120ml aGs	Detonation Residue (8330)	Cool to 4°
	C	BOC966	SE	07-12-94	1115	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
	D	BOC966	SE	07-12-94	1115	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	E	BOC966	SE	07-12-94	1115	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
07	A	BOC967	SE	07-12-94	1136	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC967	SE	07-12-94	1136	120ml aGs	Detonation Residue (8330)	Cool to 4°
	C	BOC967	SE	07-12-94	1136	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
	D	BOC967	SE	07-12-94	1136	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	E	BOC967	SE	07-12-94	1136	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
08	A	BOC968	SE	07-12-94	1101	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC968	SE	07-12-94	1101	120ml aGs	Detonation Residue (8330)	Cool to 4°
	C	BOC968	SE	07-12-94	1101	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
	D	BOC968	SE	07-12-94	1101	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	E	BOC968	SE	07-12-94	1101	40 ml aGs	Activity Scan (Lab Specific)	Cool to 4°
09	A	BOC969	SE	07-12-94	~~1035~~ 1101	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC969	SE	07-12-94	~~1035~~ 1101	120ml aGs	Detonation Residue (8330)	Cool to 4°
	C	BOC969	SE	07-12-94	~~1035~~ 1101	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
	D	BOC969	SE	07-12-94	~~1035~~ 1101	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	E	BOC969	SE	07-12-94	~~1035~~ 1101	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°

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Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST WO#955	Page 3 of 3
		007449

A	BOCBN1	SE	07-12-94	1025	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
B	BOCBN1	SE	07-12-94	1025	120ml aGs	Detonation Residue (8330)	Cool to 4°
10 C	BOCBN1	SE	07-12-94	1025	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
D	BOCBN1	SE	07-12-94	1025	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
E	BOCBN1	SE	07-12-94	1025	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
11 A	BOCBN2	SE	07-11-94	1600	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°

Chain of Possession (Sign and Print Names) Relinquished By	Date	Time	Received By
Shannon L. Spinger Shannon L. Spencer	7-14-94	1130	RM Arnold RM Arnold
RM Arnold RM Arnold	7-15-94	0930	R.B. Ard Quintana 2100 7/15/94 1130

*Matrix
A = Air, DL = Drum Liquids, DS = Drum Solids, L = Liquid, O = Oil, S = Soil, SE = Sediment, SL = Sludge, SO = Solid, T = Tissue, W = Water, WI = Wipe, X = Other

LABORATORY SECTION	Received By	Title	Date/Time
Final Sample Disposition	Disposal Method:	Disposed by:	Date/Time:

TRIP BLANK 2 x 40mL vial Tag 4°C 2 fill 100 100

2

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ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

GENERAL GC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 943-1610.005		DATA PACKAGE: W0131-QES-139	
VALIDATOR: L. Schuldt	LAB: IT		DATE: 9-30-94
CASE:		SDG: W0131	

ANALYSES PERFORMED

☐ 8010	☐ 8015	☐ 8020	☐ 8021	8140	8141
☐ 8150	☐ 8151	☐ WTPH-HCID	☐ WTPH-G	☐ WTPH-D	☑ 8330
☐	☐	☐	☐	☐	☐

SAMPLES/MATRIX: B0C961-9, B0CBN1 / soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? . . . . . (Yes) No N/A

Is a case narrative present? . . . . . (Yes) No N/A

Comments:

2. HOLDING TIMES

Are sample holding times acceptable? . . . . . (Yes) No N/A

Comments:

028

GENERAL GC DATA VALIDATION CHECKLIST

3. INSTRUMENT CALIBRATION

3.1 INITIAL CALIBRATION

Was an initial calibration performed? . . . . . Yes No N/A

Are %RSD values for calibration or response factors acceptable? . . . . . ~~Yes~~ No N/A 6/30/94

Comments:

3.2 CONTINUING CALIBRATION

Was a continuing calibration check performed? . . . . . Yes No N/A

Are %D values for calibration or response factors acceptable? Yes No N/A

Comments:

4. BLANKS

Were laboratory blanks analyzed? . . . . . Yes No N/A

Are laboratory blank results acceptable? . . . . . Yes No N/A

Were field/trip blanks analyzed? . . . . . Yes No N/A

Are field/trip blank results acceptable? . . . . . Yes No N/A

Comments:

5. ACCURACY

Were surrogates analyzed? . . . . . Yes No N/A

Are surrogate recoveries acceptable? . . . . . Yes No N/A

Were MS/MSD samples analyzed? . . . . . Yes No N/A

Are MS/MSD recoveries acceptable? . . . . . Yes No N/A

Were LCS samples analyzed? . . . . . Yes No N/A

Are LCS recoveries acceptable? . . . . . Yes No N/A

GENERAL GC DATA VALIDATION CHECKLIST

Comments: A LCS was not ~~as~~ reported, however an MS/MSD was reported with acceptable results. No action required

6. PRECISION

Are MS/MSD sample RPD values acceptable? . . . . . Yes No N/A

Are field duplicate RPD values acceptable? . . . . . Yes No N/A

Are field split RPD values acceptable? . . . . . Yes No N/A

Comments:

7. COMPOUND IDENTIFICATION AND QUANTITATION

Is compound identification acceptable? . . . . . Yes No N/A

Is compound quantitation acceptable? . . . . . Yes No N/A

Comments:

8. REPORTED RESULTS AND DETECTION LIMITS

Are results reported for all requested analyses? . . . . . Yes No N/A

Are all results supported in the raw data? . . . . . Yes No N/A

Do results meet the CRQLs? . . . . . Yes No N/A

Comments:

HOLDING TIME SUMMARY

SDG: W0131 | VALIDATOR: S. Schildt | DATE: 9/30/94 | PAGE 1 OF 1

COMMENTS: Nitroaromatics

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B0C961-9	8330	7/12/94	7/23/94	8/13/94	11	21	none
B0CBN1	8330	–	–	–	11	21	none

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9413299.1032

MEMORANDUM

TO: Borrow Pit Demo Project QA Record — October 3, 1994

FR: Sandra Schildt, Golder Associates Inc.

RE: GENERAL CHEMISTRY DATA VALIDATION SUMMARY FOR DATA PACKAGE W0131-QES-139 (943-1610.005,W0131.VOA)

INTRODUCTION

This memorandum presents the results of data validation on data package W0131-QES-139 prepared by International Technology Corporation. A list of the samples validated along with the analytes reported and the method of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B0C961	7/12/94	SOIL	SEE NOTE 1
B0C962	7/12/94	SOIL	
B0C963	7/12/94	SOIL	
B0C964	7/12/94	SOIL	
B0C965	7/12/94	SOIL	
B0C966	7/12/94	SOIL	
B0C967	7/12/94	SOIL	
B0C968	7/12/94	SOIL	
B0C969	7/12/94	SOIL	
B0CBN1	7/12/94	SOIL	

Note 1: The samples were analyzed for anions and nitrate/nitrite using SW-846 methods.

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Data validation was conducted in accordance with the WHC statement of work (WHC 1994) and validation procedures (WHC 1993). Attachments 1 through 5 to this memo provide the following information:

Attachment 1. Glossary of Data Reporting Qualifiers
Attachment 2. Summary of Data Qualifications
Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
Attachment 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

This section presents a summary of the data quality in terms of the referenced validation criteria.

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met with the exception of minor deficiencies described below.

Sample Result Verification. All sample results were supported in the raw data.

Detection Limits. Detection limit goals specified in the data validation procedures were exceeded for all anion sample results.

Completeness. The data package was complete for all requested analyses. Ten samples (10) were validated in this data set with a total of 70 determinations reported, of which 64 were deemed valid. This results in a completeness of 91% which meets normal work plan objectives of 90%.

MAJOR DEFICIENCIES

The following major deficiencies were identified during data validation which required qualification of data as unusable.

Holding Time

- All nondetected results for nitrite and phosphate were rejected due to exceedance of the holding time by more than twice the specified holding time.

MINOR DEFICIENCIES

The following minor deficiencies were identified during validation which required qualification of data.

Holding Time

- The holding time for nitrate, nitrite, and phosphate was exceeded by more than two times the holding time. Attachments 2 and 5 provide a summary of the samples and data qualification applied.

Spike Samples

- Sample spike recovery of chloride exceeded control limits. Attachments 2 and 5 provide a summary of the samples and data qualification applied.

FIELD QUALITY CONTROL

Sample B0C962 was identified as a field duplicate, and sample B0C964 was identified as an equipment blank.

- The relative percent difference (RPD) values for the duplicate were within the limits specified in the work plan.

- Chloride, nitrate, and sulfate were detected in the equipment blank.

WHC 1993b, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993, Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF INORGANIC DATA REPORTING QUALIFIERS

B - Indicates the constituent was analyzed for and detected. The concentration reported is less than the contract required detection limit (CRDL) but greater than the instrument detection limit (IDL). The associated data should be considered usable for decision making purposes.

U - Indicates the constituent was analyzed for and not detected. The concentration reported is the sample detection limit corrected for sample aliquot size, dilution factors and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.

UJ - Indicates the constituent was analyzed for and was not detected. Due to a minor quality control deficiency identified during data validation, the concentration reported may not accurately reflect the sample detection limit. The associated data have been qualified as estimated but should be considered usable for decision making purposes.

BJ - Indicates the constituent was analyzed for and detected at a concentration less than the CRDL but greater then the IDL. Due to a minor quality control deficiency identified during data validation, The associated data have been qualified as estimated, but should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. Due to a minor quality control deficiency identified during data validation the associated data have been qualified as estimated, but should be considered usable for decision making purposes.

UR - Indicates the constituent was analyzed for and not detected. Due to a major quality control deficiency identified during data validation, the associated data have been qualified as unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. Due to a major quality control deficiency identified during data validation, the associated data have been qualified as unusable for decision making purposes.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

WHC-SD-EN-SPP-002. Rev. 2

DATA QUALIFICATION SUMMARY - FORM B-7

PKG: W0131-QES-139	REVIEWER: S. Schildt	DATE: 9/30/94	PAGE 1 OF 1
COMMENTS: General Chemistry			
PARAMETER	QUALIFIER	SAMPLES AFFECTED	REASON
Nitrate Nitrite Phosphate	J,UR	All	Holding time exceeded by > 2X
Chloride	J	All	Sample spike recovery < 75%

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: W0131-QES-139

	Samp#	B0C961		B0C962		B0C963		B0C964		B0C965		B0C966	
	Date	7-12-94		7-12-94		7-12-94		7-12-94		7-12-94		7-12-94	
	Location	218-3-8 PIT		218-3-8 PIT		218-3-8 PIT		218-3-8 PIT		218-3-8 PIT		218-3-8 PIT	
	Depth	---		---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments			DUPLICATE				EQUIP BLANK					
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
FLUORIDE	MG/KG	0.700		0.800		0.800		0.400	U	0.600		0.400	U
CHLORIDE	MG/KG	0.900	J	0.900	J	2.000	J	2.200	J	1.400	J	0.800	J
NITRITE	MG/KG	0.400	UR	0.400	UR	5.300	J	0.400	UR	0.400	UR	0.400	UR
NITRATE	MG/KG	4.100	J	4.300	J	7.100	J	0.600	J	4.800	J	8.100	J
PHOSPHATE	MG/KG	1.600	J	1.400	J	2.500	J	1.000	UR	1.200	J	1.700	J
SULFATE	MG/KG	2.500		2.500		4.500		2.900		2.500		3.300	
NITRATE+NITRITE	MG/KG	0.810		0.720		4.600		0.880		0.550		1.300	

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Validated Data Summary, Data Package: W0131-QES-139

	Samp#	B0C967		B0C968		B0C969		B0CBN1	
	Date	7-12-94		7-12-94		7-12-94		7-12-94	
	Location	218-3-8 PIT		218-3-8 PIT		218-3-8 PIT		218-E-8 PIT	
	Depth	---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL	
	Comments								
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q
FLUORIDE	MG/KG	0.400		0.400		0.700		0.700	
CHLORIDE	MG/KG	0.900	J	1.000	J	12.000	J	5.300	J
NITRITE	MG/KG	0.500	J	0.600	J	1.300	J	3.700	J
NITRATE	MG/KG	6.900	J	12.000	J	32.000	J	7.600	J
PHOSPHATE	MG/KG	1.600	J	1.800	J	1.600	J	2.000	J
SULFATE	MG/KG	3.200		3.300		15.000		9.600	
NITRATE+NITRITE	MG/KG	1.400		2.600		5.900		4.500	

Verified
9/30/94

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ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0131
Contract Name:	Westinghouse Hanford	Job Number:	855
Client Sample ID:	BOC961	Preparation Date:	07/25/94
Lab Sample ID:	AB3191	Analysis Date:	08/02/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Result	Qualifier	Q	Detection Limit
fluoride	0.7	+		0.4
chloride	0.9	~~+~~	J	0.4
nitrite	0.4	~~U~~	UR	0.4
nitrate	4.1	~~+~~	J	1.2
phosphate	1.6	~~+~~	J	1.0
sulfate	2.5	+		1.5

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

9/30/94

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0131
Contract Name:	Westinghouse Hanford	Job Number:	855
Client Sample ID:	BOC962 Duplicate	Preparation Date:	07/25/94
Lab Sample ID:	AB3198	Analysis Date:	08/02/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Result	Qualifier	Q	Detection Limit
fluoride	0.8	+		0.4
chloride	0.9	~~+~~	J	0.4
nitrite	0.4	~~U~~	UR	0.4
nitrate	4.3	~~+~~	J	0.4
phosphate	1.4	~~+~~	J	1.0
sulfate	2.5	+		1.5

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

9/30/94

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0131
Contract Name:	Westinghouse Hanford	Job Number:	855
Client Sample ID:	BOC963	Preparation Date:	07/25/94
Lab Sample ID:	AB3206	Analysis Date:	08/02/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Result	Qualifier Q	Detection Limit
fluoride	0.8	+	0.4
chloride	2.0	~~+~~ J	0.4
nitrite	5.3	~~+~~ J	0.8
nitrate	7.1	~~+~~ J	0.8
phosphate	2.5	~~+~~ J	1.0
sulfate	4.5	+	1.5

+ - Positive result.

9/30/94

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0131
Contract Name:	Westinghouse Hanford	Job Number:	855
Client Sample ID:	BOC964 Equipment Blank	Preparation Date:	07/25/94
Lab Sample ID:	AB3213	Analysis Date:	08/03/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Result	Qualifier	Q	Detection Limit
fluoride	0.4	U		0.4
chloride	2.2	~~+~~	J	0.4
nitrite	0.4	~~U~~	UR	0.4
nitrate	0.6	~~+~~	J	0.4
phosphate	1.0	~~U~~	UR	1.0
sulfate	2.9	+		1.5

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

9/30/94

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0131
Contract Name:	Westinghouse Hanford	Job Number:	855
Client Sample ID:	BOC965	Preparation Date:	07/25/94
Lab Sample ID:	AB3219	Analysis Date:	08/03/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Result	Qualifier	Q	Detection Limit
fluoride	0.6	+		0.4
chloride	1.4	~~+~~	J	0.4
nitrite	0.4	~~U~~	UR	0.4
nitrate	4.8	~~+~~	J	0.4
phosphate	1.2	~~+~~	J	1.0
sulfate	2.5	+		1.5

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

[illegible] 11/30/94

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0131
Contract Name:	Westinghouse Hanford	Job Number:	855
Client Sample ID:	BOC966	Preparation Date:	07/25/94
Lab Sample ID:	AB3224	Analysis Date:	08/03/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Result	Qualifier	Q	Detection Limit
fluoride	0.4	U		0.4
chloride	0.8	~~+~~	J	0.4
nitrite	0.4	~~U~~	UR	0.4
nitrate	8.1	~~+~~	J	1.4
phosphate	1.7	~~+~~	J	1.0
sulfate	3.3	+		1.5

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

8/30/94

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0131
Contract Name:	Westinghouse Hanford	Job Number:	855
Client Sample ID:	BOC967	Preparation Date:	07/25/94
Lab Sample ID:	AB3229	Analysis Date:	08/03/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Result	Qualifier	Q	Detection Limit
fluoride	0.4	+		0.4
chloride	0.9	~~+~~	J	0.4
nitrite	0.5	~~+~~	J	0.4
nitrate	6.9	~~+~~	J	1.2
phosphate	1.6	~~+~~	J	1.0
sulfate	3.2	+		1.5

+ - Positive result.

9/30/94

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0131
Contract Name:	Westinghouse Hanford	Job Number:	855
Client Sample ID:	BOC968	Preparation Date:	07/25/94
Lab Sample ID:	AB3234	Analysis Date:	08/03/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Result	Qualifier	Q	Detection Limit
fluoride	0.4	+		0.4
chloride	1.0	+	J	0.4
nitrite	0.6	+	J	0.4
nitrate	12	+	J	2.0
phosphate	1.8	+	J	1.0
sulfate	3.3	+		1.5

+ - Positive result.

9/30/94

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0131
Contract Name:	Westinghouse Hanford	Job Number:	855
Client Sample ID:	BOC969	Preparation Date:	07/25/94
Lab Sample ID:	AB3239	Analysis Date:	08/03/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Result	Qualifier	Q	Detection Limit
fluoride	0.7	+		0.4
chloride	12	~~+~~	J	2.0
nitrite	1.3	~~+~~	J	0.4
nitrate	32	~~+~~	J	4.0
phosphate	1.6	~~+~~	J	1.0
sulfate	15	+		1.5

+ - Positive result.

9/30/94

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0131
Contract Name:	Westinghouse Hanford	Job Number:	855
Client Sample ID:	BOCBN1	Preparation Date:	07/25/94
Lab Sample ID:	AB3244	Analysis Date:	08/03/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Result	Qualifier	Q	Detection Limit
fluoride	0.7	+		0.4
chloride	5.3	~~+~~	J	0.4
nitrite	3.7	~~+~~	J	0.4
nitrate	7.6	~~+~~	J	1.2
phosphate	2.0	~~+~~	J	1.0
sulfate	9.6	+		1.5

+ - Positive result.

9/30/94

NITRATE/NITRITE ANALYSIS

Laboratory Name:	ITAS-KNOXVILLE	SDG Number:	W0131
Contract Name:	Westinghouse Hanford	Job Number:	855
Sample Matrix:	Soil	Extraction Date:	N/A
Concentration Units:	mg/kg	Analysis Date:	07/26/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	AB4339	0.50	U
Method Blank	AB4343	0.50	U
BOC961	AB3192	0.81	+
BOC962 Duplicate	AB3199	0.72	+
BOC963	AB3207	4.6	+
BOC964 Equipment blank	AB3214	0.88	+
BOC965	AB3220	0.55	+
BOC966	AB3225	1.3	+
BOC967	AB3230	1.4	+
BOC968	AB3235	2.6	+
BOC969	AB3240	5.9	+
BOCBN1	AB3245	4.5	+

Method blank AB4339 applies to samples: BOC961, BOC962, BOC963, BOC964, BOC965, BOC966 and BOC967.

Method blank AB4343 applies to samples: BOC968, BOC969 and BOCBN1.

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

9/30/94

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

IT Corporation
2800 George Washington Way
Richland, WA 99352
Attn: Van Pettey

August 22, 1994

SEP 1994
RECEIVED
SDLA

Job Number: 855

This is the Certificate of Analysis for the following samples:

SDG:	W0131
Client Project ID:	WHC SAF 94-330 218-E-8 Borrow Pit Demolition Site Closure Plan
Received by Knoxville:	July 19, 1994
Number of Samples:	Eleven (11)
Sample Type:	Soil

I. Introduction

On July 15, 1994, eleven (11) soil samples arrived at ITAS-Richland, Washington and were transferred to ITAS-Knoxville for chemical analysis. 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.

The samples were analyzed for Appendix IX volatile and semivolatile organic compounds by gas chromatography/mass spectroscopy (GS/MS) based on EPA SW-846 methods 8240 and 8270.

RECORD COPY

Reviewed and Approved:

Sheree' A. Schneider
Project Manager

IT Corporation
August 22, 1994
Job Number: 855
Client Project ID: WHC SAF 94-330 218-E-8 Borrow Pit Demolition Site Closure Plan

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

II. Analytical Results/Methodology (Continued)

The samples were analyzed for nitrate-nitrite based on EPA method 353.2.

The samples were analyzed for anions by ion chromatography using EPA method 300.0.

The samples were analyzed for nitroexplosives by high performance liquid chromatography (HPLC) based on draft EPA method 8330.

III. Quality Control

The volatiles analyses were performed by purge and trap with a J & W DB-624 capillary column on a Finnigan INCOS 500 GC/MS/DS. A matrix spike and matrix spike duplicate were analyzed using sample BOC961. All QC results met method specified limits.

The semivolatiles analyses were performed by direct injection of sample extract on a Restek XTI-5 capillary column on a Finnigan 4500 GC/MS/DS. Daily calibrations were performed for the usual 8270 targets and for the additional Appendix IX compounds. The samples did not contain any Appendix IX compounds. A matrix spike and matrix spike duplicate were analyzed using sample BOC961. The matrix spike and matrix spike duplicate passed all QC criteria as did the laboratory control sample.

Data were reported with qualifiers as follows:

U - Compound analyzed for but not detected; value given is quantitation limit.
E - Compound exceeded calibration range.
D - Compound analyzed at a secondary dilution factor.
J - Compound detected but below quantitation limit; value estimated.
S - Spiked compound.
B - Compound found in method blank.
A - Suspected aldol condensation product.
Y - Indistinguishable isomer in tentatively identified compounds.
N - Presumptive evidence of compound presence.

The samples were analyzed for nitrate/nitrite on July 26, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC961. All QC results were acceptable.

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

IT Corporation
August 22, 1994
Job Number: 855
Client Project ID: WHC SAF 94-330 218-E-8 Borrow Pit Demolition Site Closure Plan

III. Quality Control (Continued)

The samples were analyzed for fluoride, chloride, phosphate, nitrate, nitrite and sulfate by EPA method 300.0 on August 2 and 3, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC961. All quality control results were acceptable; chloride for the matrix spike was slightly outside acceptance limits due to matrix interferences. The laboratory control sample (LCS) results were within acceptance limits.

The samples were analyzed for nitroexplosives on August 12 and 13, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC961. All QC results were acceptable.

9/30/94
025

682-1-86

Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST WO#855	Page 1 of 3
		007449

Collector SL Spencer
Company Contact ID Jacques/JW Ball
Telephone 376-3306/372-2653
SAF No. 94-330
Project Designation 218-E-8 Borrow Pit Demolition Site Closure Plan
Sampling Locations 200 East / 200-PO-6
Ice Chest No. SML 443
Bill of Lading/Airbill No. N/A
Offsite Property No.
Method of Shipment Government Vehicle
Field Logbook No.
Shipped to 1T Analytical 2800 George Washington Way Richland WA, 99352
SPECIAL INSTRUCTIONS Standalone Deliverable
Possible Sample Hazards/Remarks None / Work Done to RCRA Protocol
Appendix IX SDG-W0131
Special Handling and/or Storage

407258

	Sample Number	*	Date Collected	Time	Number and Type of Containers	Analysis Required	Preservative
A	BOC961	SE	07-12-94	1222	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
B	BOC961	SE	07-12-94	1222	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
01 C	BOC961	SE	07-12-94	1222	120ml aGs	Detonation Residue (8330)	Cool to 4°
D	BOC961	SE	07-12-94	1222	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
E	BOC961	SE	07-12-94	1222	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
F	BOC961	SE	07-12-94	1222	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
A	BOC962	SE	07-12-94	1222	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
B	BOC962	SE	07-12-94	1222	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
02 C	BOC962	SE	07-12-94	1222	120ml aGs	Detonation Residue (8330)	Cool to 4°
D	BOC962	SE	07-12-94	1222	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
E	BOC962	SE	07-12-94	1222	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
F	BOC962	SE	07-12-94	1222	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
A	BOC963	SE	07-12-94	1046	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
B	BOC963	SE	07-12-94	1046	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
03 C	BOC963	SE	07-12-94	1046	120ml aGs	Detonation Residue (8330)	Cool to 4°
D	BOC963	SE	07-12-94	1046	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
E	BOC963	SE	07-12-94	1046	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
F	BOC963	SE	07-12-94	1046	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
A	BOC964	SE	07-12-94	0925	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
04 B	BOC964	SE	07-12-94	0925	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°

9/30/94
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Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST W0#855	Page 2 of 9 007449

04	C	BOC964	SE	07-12-94	0925	120ml aGs	Detonation Residue (8330)	Cool to 4°
	D	BOC964	SE	07-12-94	0925	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
	E	BOC964	SE	07-12-94	0925	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC964	SE	07-12-94	0925	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
05	A	BOC965	SE	07-12-94	1304	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC965	SE	07-12-94	1304	120ml aGs	Detonation Residue (8330)	Cool to 4°
	C	BOC965	SE	07-12-94	1304	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
	D	BOC965	SE	07-12-94	1304	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	E	BOC965	SE	07-12-94	1304	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
06	A	BOC966	SE	07-12-94	1115	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC966	SE	07-12-94	1115	120ml aGs	Detonation Residue (8330)	Cool to 4°
	C	BOC966	SE	07-12-94	1115	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
	D	BOC966	SE	07-12-94	1115	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	E	BOC966	SE	07-12-94	1115	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
07	A	BOC967	SE	07-12-94	1136	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC967	SE	07-12-94	1136	120ml aGs	Detonation Residue (8330)	Cool to 4°
	C	BOC967	SE	07-12-94	1136	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
	D	BOC967	SE	07-12-94	1136	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	E	BOC967	SE	07-12-94	1136	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
08	A	BOC968	SE	07-12-94	1101	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC968	SE	07-12-94	1101	120ml aGs	Detonation Residue (8330)	Cool to 4°
	C	BOC968	SE	07-12-94	1101	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
	D	BOC968	SE	07-12-94	1101	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	E	BOC968	SE	07-12-94	1101	40 ml aGs	Activity Scan (Lab Specific)	Cool to 4°
09	A	BOC969	SE	07-12-94	~~1035~~ 1101	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC969	SE	07-12-94	~~1035~~	120ml aGs	Detonation Residue (8330)	Cool to 4°
	C	BOC969	SE	07-12-94	~~1035~~	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
	D	BOC969	SE	07-12-94	~~1035~~	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	E	BOC969	SE	07-12-94	~~1035~~	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°

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Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST WO#855	Page 3 of 3 007449

A	BOCBN1	SE	07-12-94	1025	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
B	BOCBN1	SE	07-12-94	1025	120ml aGs	Detonation Residue (8330)	Cool to 4°
10 C	BOCBN1	SE	07-12-94	1025	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
D	BOCBN1	SE	07-12-94	1025	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
E	BOCBN1	SE	07-12-94	1025	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
11 A	BOCBN2	SE	07-11-94	1600	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°

2

Chain of Possession (Sign and Print Names) Relinquished By	Date	Time	Received By
Shannon L. Spencer Shannon L. Spencer	7-14-94	1130	RM Arnold RM Arnold
RM Arnold RM Arnold	7-15-94	0930	R.B. Ard Quintana 2100 7/15/94 1130

*Matrix
A = Air
DL = Drum Liquids
DS = Drum Solids
L = Liquid
O = Oil
S = Soil
SE = Sediment
SL = Sludge
SO = Solid
T = Tissue
W = Water
WI = Wipe
X = Other

LABORATORY SECTION	Received By	Title	Date/Time
Final Sample Disposition	Disposal Method:	Disposed by:	Date/Time:

TRIP BLANK 2 x 40mL vial Tag 4°C 2 fill 100 100

Sue 6/30/94 028

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0000024

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 943-1610.005		DATA PACKAGE: W0131-QES-139	
VALIDATOR: S. Schulobb	LAB: STT		DATE: 9/30/94
CASE:		SDG: W0131	

ANALYSES PERFORMED

☑ Anions/IC	☐ TOC	☐ TOX	☐ TPH-418.1	Oil and Grease	Alkalinity
☐ Ammonia	☐ BOD/COD	☐ Chloride	☐ Chromium-VI	☐ pH	☑ NO_2/NO_3
☐ Sulfate	☐ TDS	☐ TKN	☐ Phosphate	☐	☐
☐	☐	☐	☐	☐	☐

SAMPLES/MATRIX B0C961-9, B0CBN1 / soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? . . . . . (Yes) No N/A

Is a case narrative present? . . . . . (Yes) No N/A

Comments:

2. HOLDING TIMES

Are sample holding times acceptable? . . . . . (Yes) No N/A

Comments: NO_2, NO_3, PO_4 holding time exceeded, results qualified as estimated.

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

3. INSTRUMENT CALIBRATION

Was initial calibration performed for all applicable analyses? Yes No N/A

Are initial calibration results acceptable? . . . . . Yes No N/A

Was a calibration check performed for all applicable analyses? Yes No N/A

Are calibration check results acceptable? . . . . . Yes No N/A

Comments:

4. BLANKS

Were laboratory blanks analyzed? . . . . . Yes No N/A

Are laboratory blank results acceptable? . . . . . Yes No N/A

Were field/trip blanks analyzed? . . . . . Yes No N/A

Are field/trip blank results acceptable? . . . . . Yes No N/A

Comments: Cl, NO_3, SO_4, HCO_3/NO_2 detected in field blank.

5. ACCURACY

Were spike samples analyzed at the required frequency? . . . . Yes No N/A

Are spike recoveries acceptable? . . . . . Yes No N/A

Were LCS analyses performed at the required frequency? . . . Yes No N/A

Are LCS recoveries acceptable? . . . . . Yes No N/A

Comments: LCS run for anions only. Spike recovery of chloride low, results qualified estimated, J.

6. PRECISION

Were laboratory duplicate samples analyzed at the required frequency? . . . . . Yes No N/A

Are laboratory duplicate sample RPD values acceptable? . . . . Yes No N/A

Are field duplicate RPD values acceptable? . . . . . Yes No N/A

Are field split RPD values acceptable? . . . . . Yes No N/A

031

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

Comments:

7. ANALYTE QUANTITATION

Was analyte quantitation performed properly? . . . . . Yes No N/A

Comments:

8. REPORTED RESULTS AND DETECTION LIMITS

Are results reported for all requested analyses? . . . . . Yes No N/A

Are results supported in the raw data? . . . . . Yes No N/A

Are results calculated properly? . . . . . Yes No N/A

Do results meet the CRDLs? . . . . . Yes No N/A

Comments: All general chemistry detection limits exceed CRDL listed in the data validation procedures

HOLDING TIME SUMMARY

SDG: WC131-QES-139 | VALIDATOR: S Schlicht | DATE: 9/30/94 | PAGE 1 OF 1

COMMENTS: Mineral Chemistry

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
BOC961-9	NO_3/NO_2	7/12/94	NA	7/26/94	NA	14	none
BOCBN1	✓	✓	✓	✓	✓	✓	✓
BOC961-3	Cl, F	7/12/94	7/25/94	8/2/94	13	~~20~~ ~~78~~	none
BOCBN1	Cl, F	✓	✓	8/3/94	13	9/30/94 ~~21~~ ~~89~~	none
BOC964-9	✓	✓	✓	8/3/94	13	~~21~~ ~~89~~	none
BOC961-3	NO_2, NO_3, PO_4	✓	✓	8/2/94	13	~~78~~	J UR
BOC964-9	✓	✓	✓	8/3/94	13	~~89~~	J UR
BOCBN1	✓	✓	✓	✓	13	~~89~~ 10/3/94	J, ~~UR~~ 9/30/94

WHC-SD-EN-SPP-002, Rev. 2

GENERAL CHEMISTRY

MATRIX SPIKE/MATRIX SPIKE DUPLICATE ANALYSIS REPORT FORM

Laboratory Name:	ITAS-KNOXVILLE	Work Order Number(s):	855
Client Sample ID:	BOC961	Prep Date:	25-Jul-94
Lab Sample ID:	AB3191	Concentration Units:	MG/KG
Sample Matrix:	SOIL	LIMS Test Code: (IF APPLICABLE)	

Parameter	Analysis Date	Original Sample (A)	Spike Added (B)	MS (C)	%R	MSD (D)	%R	RPD
fluoride	02-Aug-94	0.7	2	2.9	110	2.9	110	0
chloride		0.9	3	3.1	73	3.4	83	13
nitrite		0.4 U	2.5	2.4	96	2.5	100	4
nitrate		4.1	8.3	13	107	13	107	0
phosphate		1.6	10	10	84	10	84	0
sulfate		2.5	15	16	90	16	90	0

$$\%R = \frac{C - A}{B} \times 100 \qquad \%RPD = [(D - C)/((D + C)\,0.5)] * 100$$

+ - Positive result.

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

Second Level Review by: iwK 8-10-94

Initials Date

MSANION.WK4

9/30/94

031

MEMORANDUM

TO: Borrow Pit Demo Project QA Record — October 3, 1994

FR: Sandra Schildt, Golder Associates Inc. SSS

RE: SEMIVOLATILES DATA VALIDATION SUMMARY FOR DATA PACKAGE W0131-QES-139 (943-1610.005,W0131.SV)

INTRODUCTION

This memorandum presents the results of data validation on data package W0131-QES-139 prepared by International Technology Corporation. A list of the samples validated along with the analytes reported and the method of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B0C961	7/12/94	SOIL	SEE NOTE 1
B0C962	7/12/94	SOIL	
B0C963	7/12/94	SOIL	
B0C964	7/12/94	SOIL	

Note 1: The samples were analyzed for semivolatile organics using SW-846 8240/8270 methods.

Data validation was conducted in accordance with the WHC statement of work (WHC 1994) and validation procedures (WHC 1993). Attachments 1 through 5 to this memo provide the following information:

Attachment 1. Glossary of Data Reporting Qualifiers
Attachment 2. Summary of Data Qualifications
Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
Attachment 5. Data Validation Supporting Documentation

OCT 1994
RECEIVED
TQO

DATA QUALITY OBJECTIVES

This section presents a summary of the data quality in terms of the referenced validation criteria.

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data.

Detection Limits. Detection limit goals were met for all sample results as specified in the reference analytical method.

Completeness. The data package was complete for all requested analyses. Four samples (4) were validated in this data set with a total of 460 determinations reported, all of which were deemed valid. This results in a completeness of 100% which meets normal work plan objectives of 90%.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

The following minor deficiencies were identified during validation which required qualification of data.

FIELD QUALITY CONTROL

Sample B0C962 was identified as a field duplicate and sample B0C964 was identified as an equipment blank.

- The field duplicate sample contained tentatively identified compounds (TICs) not found in the original sample. No other constituents were detected in the duplicate with the exception of di-n-butylphthalate which was reported at a concentration less than the quantitation limit. Detection limits for the remaining compounds were comparable between the original and duplicate sample.

- Bis(2-ethylhexyl)phthalate, di-N-butylphthalate, and TICs were detected in the equipment blank.

TENTATIVELY IDENTIFIED COMPOUND EVALUATION

- One unknown TIC was re-evaluated and identified as 2-methoxy-2-propoxy propane.

- One TIC was reported in the laboratory blanks and the samples at concentrations within 5x the blank concentration. The associated sample results have been qualified as undetected (U).

- Aldol reaction products have been rejected (R).

- Tentatively identified compounds were detected and deemed estimated and presumptive (JN).

REFERENCES

WHC 1994, 218-E-8 Borrow Pit Demolition Site Closure Plan. Westinghouse Hanford Company, Richland, Washington.

WHC 1993b, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993, Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the constituent was analyzed for and detected in the associated laboratory blank. This qualifier is applied by the laboratory. During the process of data validation this qualifier may be replaced by other appropriate qualifiers as defined by the validation procedures. The associated data should be considered usable for decision making purposes.

U - Indicates the constituent was analyzed for and not detected. The concentration reported is the sample quantitation limit corrected for aliquot size, dilution and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.

UJ - Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during data validation the concentration reported may not accurately reflect the sample quantitation limit. The associated data should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. This qualifier may be applied by the laboratory to indicate a concentration which is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). During data validation this qualifier may be applied to indicate a minor quality control deficiency. However in either case, the associated data should be considered usable for decision making purposes.

NJ - Indicates presumptive evidence of a constituent at an estimated value. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

N - Indicates presumptive evidence of a constituent. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

JN - Indicates a tentatively identified compound (TIC) whose concentration and identification have been determined to be valid as a result of data validation. The associated data should be considered usable for decision making purposes.

UJN- Indicates a tentatively identified compound (TIC) that has been determined to be presumptive and valid (JN) in terms of identification and quantitation and has been qualified as undetected due to associated blank contamination.

UR - Indicates the constituent was analyzed for and not detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

PKG: W0131-QES-139	REVIEWER: S. Schildt	DATE: 10/3/94	PAGE 1 OF 1
COMMENTS: Semivolatiles			
PARAMETER	QUALIFIER	SAMPLES AFFECTED	REASON
No qualification			

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: W0131-QES-139

	Samp#	B0C961		B0C962		B0C963		B0C964	
	Date	7-12-94		7-12-94		7-12-94		7-12-94	
	Location	218-3-8 PIT		218-3-8 PIT		218-3-8 PIT		218-3-8 PIT	
	Depth	---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL	
	Comments			DUPLICATE				EQUIP BLANK	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q
PHENOL	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
BIS(2-CHLOROETHYL)ETHER	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
2-CHLOROPHENOL	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
1,3-DICHLOROBENZENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
1,4-DICHLOROBENZENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
BENZYL ALCOHOL	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
1,2-DICHLOROBENZENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
2-METHYLPHENOL	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
2,2'-OXYBIS(1-CHLOROPROPANE)	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
4-METHYLPHENOL	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
N-NITROSO-DI-N-PROPYLAMINE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
HEXACHLOROETHANE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
NITROBENZENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
ISOPHORONE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
2-NITROPHENOL	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
2,4-DIMETHYLPHENOL	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
BENZOIC ACID	UG/KG	1600.000	U	1600.000	U	1600.000	U	1600.000	U
BIS(2-CHLOROETHOXY)METHANE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
2,4-DICHLOROPHENOL	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
1,2,4-TRICHLOROBENZENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
NAPHTHALENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
4-CHLOROANILINE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
HEXACHLOROBUTADIENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
4-CHLORO-3-METHYLPHENOL	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
2-METHYLNAPHTHALENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
HEXACHLOROCYCLOPENTADIENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
2,4,6-TRICHLOROPHENOL	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
2,4,5-TRICHLOROPHENOL	UG/KG	1600.000	U	1600.000	U	1600.000	U	1600.000	U
2-CHLORONAPHTHALENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
2-NITROANILINE	UG/KG	1600.000	U	1600.000	U	1600.000	U	1600.000	U
DIMETHYLPHTHALATE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
ACENAPHTHYLENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
2,6-DINITROTOLUENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
N-NITROSODIMETHYLAMINE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
ETHYL METHACRYLATE	UG/KG	680.000	U	680.000	U	670.000	U	670.000	U
2-PICOLINE	UG/KG	2400.000	U	2400.000	U	2300.000	U	2400.000	U
N-NITROSOMETHYLETHYLAMINE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U

9413296.1074

009

Validated Data Summary, Data Package: W0131-QES-139

	Samp#	B0C961		B0C962		B0C963		B0C964	
	Date	7-12-94		7-12-94		7-12-94		7-12-94	
	Location	218-3-8 PIT		218-3-8 PIT		218-3-8 PIT		218-3-8 PIT	
	Depth	---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL	
	Comments			DUPLICATE				EQUIP BLANK	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q
METHYL METHANESULFONATE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
N-NITROSODIETHYLAMINE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
ETHYL METHANESULFONATE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
ANILINE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
PYRIDINE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
PENTACHLOROETHANE	UG/KG	680.000	U	680.000	U	670.000	U	670.000	U
N-NITROSOPYRROLIDINE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
3-METHYLPHENOL	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
ACETOPHENONE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
N-NITROSOMORPHOLINE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
O-TOLUIDINE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
N-NITROSOPIPERIDINE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
O,O,O-TRIETHYLPHOSPHOROTHIOAT	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
2,6-DICHLOROPHENOL	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
HEXACHLOROPROPENE	UG/KG	680.000	U	680.000	U	670.000	U	670.000	U
A,A-DIMETHYLPHENETHYLAMINE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
N-NITROSODI-N-BUTYLAMINE	UG/KG	680.000	U	680.000	U	670.000	U	670.000	U
P-PHENYLENEDIAMINE	UG/KG	1700.000	U	1700.000	U	1700.000	U	1700.000	U
SAFROLE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
1,2,4,5-TETRACHLOROBENZENE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
ISOSAFROLE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
1,4-NAPHTHOQUINONE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
M-DINITROBENZENE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
PENTACHLOROBENZENE	UG/KG	680.000	U	680.000	U	670.000	U	670.000	U
3-NITROANILINE	UG/KG	1600.000	U	1600.000	U	1600.000	U	1600.000	U
ACENAPHTHENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
2,4-DINITROPHENOL	UG/KG	1600.000	U	1600.000	U	1600.000	U	1600.000	U
4-NITROPHENOL	UG/KG	1600.000	U	1600.000	U	1600.000	U	1600.000	U
DIBENZOFURAN	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
2,4-DINITROTOLUENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
DIETHYLPHTHALATE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
4-CHLOROPHENYL-PHENYLETHER	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
FLUORENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
4-NITROANILINE	UG/KG	1600.000	U	1600.000	U	1600.000	U	1600.000	U
4,6-DINITRO-2-METHYLPHENOL	UG/KG	1600.000	U	1600.000	U	1600.000	U	1600.000	U
N-NITROSODIPHENYLAMINE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
4-BROMOPHENYL-PHENYLETHER	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
HEXACHLOROBENZENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
PENTACHLOROPHENOL	UG/KG	1600.000	U	1600.000	U	1600.000	U	1600.000	U

9413299.1075

010

Validated Data Summary, Data Package: W0131-QES-139

	Samp#	B0C961		B0C962		B0C963		B0C964	
	Date	7-12-94		7-12-94		7-12-94		7-12-94	
	Location	218-3-8 PIT		218-3-8 PIT		218-3-8 PIT		218-3-8 PIT	
	Depth	---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL	
	Comments			DUPLICATE				EQUIP BLANK	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q
PHENANTHRENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
ANTHRACENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
DI-N-BUTYLPHTHALATE	UG/KG	340.000	U	100.000	J	330.000	U	78.000	J
FLUORANTHENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
PYRENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
BUTYLBENZYLPHTHALATE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
3,3'-DICHLOROBENZIDINE	UG/KG	670.000	U	680.000	U	660.000	U	670.000	U
BENZO(A)ANTHRACENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
CHRYSENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG	340.000	U	340.000	U	330.000	U	61.000	BJ
DI-N-OCTYLPHTHALATE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
BENZO(B)FLUORANTHENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
BENZO(K)FLUORANTHENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
BENZO(A)PYRENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
INDENO(1,2,3-CD)PYRENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
DIBENZ(A,H)ANTHRACENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
BENZO(G,H,I)PERYLENE	UG/KG	340.000	U	340.000	U	330.000	U	330.000	U
2-NAPHTHYLAMINE	UG/KG	5800.000	U	5800.000	U	5700.000	U	5700.000	U
1-NAPHTHYLAMINE	UG/KG	4100.000	U	4100.000	U	4000.000	U	4000.000	U
2,3,4,6-TETRACHLOROPHENOL	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
5-NITRO-O-TOLUIDINE	UG/KG	680.000	U	680.000	U	670.000	U	670.000	U
DIPHENYLAMINE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
TETRAETHYL DITHIOPYROPHOSPHAT	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
SYM-TRINITROBENZENE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
PHENACETIN	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
DIALLATE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
4-AMINOBIPHENYL	UG/KG	1700.000	U	1700.000	U	1700.000	U	1700.000	U
PRONAMIDE	UG/KG	1000.000	U	1000.000	U	1000.000	U	1000.000	U
PENTACHLORONITROBENZENE	UG/KG	680.000	U	680.000	U	670.000	U	670.000	U
DINOSEB	UG/KG	680.000	U	680.000	U	670.000	U	670.000	U
4-NITROQUINOLINE-1-OXIDE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
METHAPYRILENE	UG/KG	1400.000	U	1400.000	U	1300.000	U	1300.000	U
ARAMITE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
P-(DIMETHYLAMINO)AZOBENZENE	UG/KG	1000.000	U	1000.000	U	1000.000	U	1000.000	U
3,3'-DIMETHYLBENZIDINE	UG/KG	2700.000	U	2700.000	U	2700.000	U	2700.000	U
2-ACETYLAMINOFLUORENE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U
7,12-DIMETHYLBENZ(A)ANTHRACEN	UG/KG	680.000	U	680.000	U	670.000	U	670.000	U
HEXACHLOROPHENE	UG/KG	1700.000	U	1700.000	U	1700.000	U	1700.000	U
3-METHYLCHOLANTHRENE	UG/KG	1000.000	U	1000.000	U	1000.000	U	1000.000	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC961

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3189

Sample wt/vol: 30.3 (g/mL) G Lab File ID: AB3189

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	340	U
111-44-4	bis(2-Chloroethyl)Ether	340	U
95-57-8	2-Chlorophenol	340	U
541-73-1	1,3-Dichlorobenzene	340	U
106-46-7	1,4-Dichlorobenzene	340	U
100-51-6	Benzyl Alcohol	340	U
95-50-1	1,2-Dichlorobenzene	340	U
95-48-7	2-Methylphenol	340	U
108-60-1	2,2'-oxybis(1-Chloropropane)	340	U
106-44-5	4-Methylphenol	340	U
621-64-7	N-Nitroso-Di-n-Propylamine	340	U
67-72-1	Hexachloroethane	340	U
98-95-3	Nitrobenzene	340	U
78-59-1	Isophorone	340	U
88-75-5	2-Nitrophenol	340	U
105-67-9	2,4-Dimethylphenol	340	U
65-85-0	Benzoic Acid	1600	U
111-91-1	bis(2-Chloroethoxy)Methane	340	U
120-83-2	2,4-Dichlorophenol	340	U
120-82-1	1,2,4-Trichlorobenzene	340	U
91-20-3	Naphthalene	340	U
106-47-8	4-Chloroaniline	340	U
87-68-3	Hexachlorobutadiene	340	U
59-50-7	4-Chloro-3-Methylphenol	340	U
91-57-6	2-Methylnaphthalene	340	U
77-47-4	Hexachlorocyclopentadiene	340	U
88-06-2	2,4,6-Trichlorophenol	340	U
95-95-4	2,4,5-Trichlorophenol	1600	U
91-58-7	2-Chloronaphthalene	340	U
88-74-4	2-Nitroaniline	1600	U
131-11-3	Dimethylpthalate	340	U
208-96-8	Acenaphthylene	340	U
606-20-2	2,6-Dinitrotoluene	340	U

01/2

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC961

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3189

Sample wt/vol: 30.3 (g/mL) G Lab File ID: AB3189

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1600	U
83-32-9	Acenaphthene	-340	U
51-28-5	2,4-Dinitrophenol	1600	U
100-02-7	4-Nitrophenol	1600	U
132-64-9	Dibenzofuran	340	U
121-14-2	2,4-Dinitrotoluene	340	U
84-66-2	Diethylphthalate	340	U
7005-72-3	4-Chlorophenyl-phenylether	340	U
86-73-7	Fluorene	340	U
100-01-6	4-Nitroaniline	1600	U
534-52-1	4,6-Dinitro-2-Methylphenol	1600	U
86-30-6	N-Nitrosodiphenylamine (1)	340	U
101-55-3	4-Bromophenyl-phenylether	340	U
118-74-1	Hexachlorobenzene	340	U
87-86-5	Pentachlorophenol	1600	U
85-01-8	Phenanthrene	340	U
120-12-7	Anthracene	340	U
84-74-2	Di-n-Butylphthalate	340	U
206-44-0	Fluoranthene	340	U
129-00-0	Pyrene	340	U
85-68-7	Butylbenzylphthalate	340	U
91-94-1	3,3'-Dichlorobenzidine	670	U
56-55-3	Benzo(a)Anthracene	340	U
218-01-9	Chrysene	340	U
117-81-7	bis(2-Ethylhexyl)Phthalate	340	U
117-84-0	Di-n-Octyl Phthalate	340	U
205-99-2	Benzo(b)Fluoranthene	340	U
207-08-9	Benzo(k)Fluoranthene	340	U
50-32-8	Benzo(a)Pyrene	340	U
193-39-5	Indeno(1,2,3-cd)Pyrene	340	U
53-70-3	Dibenz(a,h)Anthracene	340	U
191-24-2	Benzo(g,h,i)Perylene	340	U

(1) - Cannot be separated from Diphenylamine

1X
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC961

Lab Name: ITAS-KNOXVILLE Contract: Hanford

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: A83189

Sample wt/vol: 30.3 (g/mL) G Lab File ID: A83189

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 3 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/03/93

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/Kg	Q
62-75-9	N-Nitrosodimethylamine	340	U
97-63-2	Ethyl methacrylate	680	U
109-06-8	2-Picoline	2400	U
10595-95-6	N-Nitrosomethylethylamine	340	U
66-27-3	Methyl methanesulfonate	340	U
55-18-5	N-Nitrosodiethylamine	340	U
62-50-0	Ethyl methanesulfonate	340	U
62-53-3	Aniline	340	U
110-86-1	Pyridine	340	U
76-01-7	Pentachloroethane	680	U
930-55-2	N-Nitrosopyrrolidine	340	U
108-39-4	3-Methylphenol	340	U
98-86-2	Acetophenone	340	U
59-89-2	N-Nitrosomorpholine	340	U
95-53-4	o-Toluidine	340	U
100-75-4	N-Nitrosopiperidine	340	U
126-68-1	o,o,o-Triethylphosphorothioat	340	U
87-65-0	2,6-Dichlorophenol	340	U
1888-71-7	Hexachloropropene	~~340~~ 680	U
122-09-8	a,a-dimethylphenethylamine	340	U
924-16-3	N-Nitrosodi-N-butylamine	680	U
106-50-3	p-Phenylenediamine	1700	U
94-59-7	Safrole	340	U
95-94-3	1,2,4,5-Tetrachlorobenzene	340	U
120-58-1	Isosafrole	340	U
130-15-4	1,4-Naphthoquinone	340	U
99-65-0	m-Dinitrobenzene	340	U
608-93-5	Pentachlorobenzene	680	U

Pre-Shipping

FORM I SV-1

10/5/94

1X
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0C961

Lab Name: ITAS-KNOXVILLE Contract: HanFoed

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) Soil Lab Sample ID: AB3189

Sample wt/vol: 30.3 (g/mL) G Lab File ID: AB3189

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 3 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/03/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/Kg	Q
91-59-8	2-Naphthylamine	5800	U
134-32-7	1-Naphthylamine	4100	U
58-90-2	2,3,4,6-Tetrachlorophenol	340	U
99-55-8	5-Nitro-o-toluidine	680	U
122-39-4	Diphenylamine	340	U
3689-24-5	Tetraethyl dithiopyrophosphat	340	U
99-35-4	sym-Trinitrobenzene	340	U
62-44-2	Phenacetin	340	U
2303-16-4	Diallate	340	U
92-67-1	4-Aminobiphenyl	1700	U
23950-58-5	Pronamide	1000	U
82-68-8	Pentachloronitrobenzene	680	U
88-85-7	Dinoseb	680	U
56-57-5	4-Nitroquinoline-1-oxide	340	U
91-80-5	Methapyrilene	1400	U
140-57-8	Aramite	340	U
60-11-7	p-(Dimethylamino)azobenzene	1000	U
119-93-7	3,3'-Dimethylbenzidine	2700	U
53-96-3	2-Acetylaminofluorene	340	U
57-97-6	7,12-Dimethylbenz(a)anthracen	680	U
70-30-4	Hexachlorophene	1700	U
56-49-5	3-Methylcholanthrene	1000	U

FORM I SV-2

10/3/94

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC961

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3189

Sample wt/vol: 30.3 (g/mL) G Lab File ID: AB3189

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.	~~UNKNOWN~~ Propane, 2-methoxy-2-propoxy	2.83	150	~~J~~	U
2. 2207-04-7	CYCLOHEXANE, 1,4-DIMETHYL-,	2.95	78	~~JN~~	R
3. 141-79-7	3-PENTEN-2-ONE, 4-METHYL-	3.30	310	~~ABJN~~	R
4. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.23	11000	~~ABJN~~	R
5. 54105-67-8	HEPTADECANE, 2,6-DIMETHYL-	24.74	140	JN	

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC962 Duplicate

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3196

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3196

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	340	U
111-44-4	bis(2-Chloroethyl)Ether	340	U
95-57-8	2-Chlorophenol	340	U
541-73-1	1,3-Dichlorobenzene	340	U
106-46-7	1,4-Dichlorobenzene	340	U
100-51-6	Benzyl Alcohol	340	U
95-50-1	1,2-Dichlorobenzene	340	U
95-48-7	2-Methylphenol	340	U
108-60-1	2,2'-oxybis(1-Chloropropane)	340	U
106-44-5	4-Methylphenol	340	U
621-64-7	N-Nitroso-Di-n-Propylamine	340	U
67-72-1	Hexachloroethane	340	U
98-95-3	Nitrobenzene	340	U
78-59-1	Isophorone	340	U
88-75-5	2-Nitrophenol	340	U
105-67-9	2,4-Dimethylphenol	340	U
65-85-0	Benzoic Acid	1600	U
111-91-1	bis(2-Chloroethoxy)Methane	340	U
120-83-2	2,4-Dichlorophenol	340	U
120-82-1	1,2,4-Trichlorobenzene	340	U
91-20-3	Naphthalene	340	U
106-47-8	4-Chloroaniline	340	U
87-68-3	Hexachlorobutadiene	340	U
59-50-7	4-Chloro-3-Methylphenol	340	U
91-57-6	2-Methylnaphthalene	340	U
77-47-4	Hexachlorocyclopentadiene	340	U
88-06-2	2,4,6-Trichlorophenol	340	U
95-95-4	2,4,5-Trichlorophenol	1600	U
91-58-7	2-Chloronaphthalene	340	U
88-74-4	2-Nitroaniline	1600	U
131-11-3	Dimethylpthalate	340	U
208-96-8	Acenaphthylene	340	U
606-20-2	2,6-Dinitrotoluene	340	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC962
Duplicate

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3196

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3196

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1600	U
83-32-9	Acenaphthene	340	U
51-28-5	2,4-Dinitrophenol	1600	U
100-02-7	4-Nitrophenol	1600	U
132-64-9	Dibenzofuran	340	U
121-14-2	2,4-Dinitrotoluene	340	U
84-66-2	Diethylphthalate	340	U
7005-72-3	4-Chlorophenyl-phenylether	340	U
86-73-7	Fluorene	340	U
100-01-6	4-Nitroaniline	1600	U
534-52-1	4,6-Dinitro-2-Methylphenol	1600	U
86-30-6	N-Nitrosodiphenylamine (1)	340	U
101-55-3	4-Bromophenyl-phenylether	340	U
118-74-1	Hexachlorobenzene	340	U
87-86-5	Pentachlorophenol	1600	U
85-01-8	Phenanthrene	340	U
120-12-7	Anthracene	340	U
84-74-2	Di-n-Butylphthalate	100	J
206-44-0	Fluoranthene	340	U
129-00-0	Pyrene	340	U
85-68-7	Butylbenzylphthalate	340	U
91-94-1	3,3'-Dichlorobenzidine	680	U
56-55-3	Benzo(a)Anthracene	340	U
218-01-9	Chrysene	340	U
117-81-7	bis(2-Ethylhexyl)Phthalate	340	U
117-84-0	Di-n-Octyl Phthalate	340	U
205-99-2	Benzo(b)Fluoranthene	340	U
207-08-9	Benzo(k)Fluoranthene	340	U
50-32-8	Benzo(a)Pyrene	340	U
193-39-5	Indeno(1,2,3-cd)Pyrene	340	U
53-70-3	Dibenz(a,h)Anthracene	340	U
191-24-2	Benzo(g,h,i)Perylene	340	U

(1) - Cannot be separated from Diphenylamine

1X
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCC962 Duplicate

Lab Name: ITAS-KNOXVILLE Contract: Hanford

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: A83196

Sample wt/vol: 30.2 (g/mL) G Lab File ID: A83196

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 3 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/03/93

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/Kg	Q
62-75-9	N-Nitrosodimethylamine	340	U
97-63-2	Ethyl methacrylate	680	U
109-06-8	2-Picoline	2400	U
10595-95-6	N-Nitrosomethylethylamine	340	U
66-27-3	Methyl methanesulfonate	340	U
55-18-5	N-Nitrosodiethylamine	340	U
62-50-0	Ethyl methanesulfonate	340	U
62-53-3	Aniline	340	U
110-86-1	Pyridine	340	U
76-01-7	Pentachloroethane	680	U
930-55-2	N-Nitrosopyrrolidine	340	U
108-39-4	3-Methylphenol	340	U
98-86-2	Acetophenone	340	U
59-89-2	N-Nitrosomorpholine	340	U
95-53-4	o-Toluidine	340	U
100-75-4	N-Nitrosopiperidine	340	U
126-68-1	o,o,o-Triethylphosphorothioat	340	U
87-65-0	2,6-Dichlorophenol	340	U
1888-71-7	Hexachloropropene	680	U
122-09-8	a,a-dimethylphenethylamine	340	U
924-16-3	N-Nitrosodi-N-butylamine	680	U
106-50-3	p-Phenylenediamine	1700	U
94-59-7	Safrole	340	U
95-94-3	1,2,4,5-Tetrachlorobenzene	340	U
120-58-1	Isosafrole	340	U
130-15-4	1,4-Naphthoquinone	340	U
99-65-0	m-Dinitrobenzene	340	U
608-93-5	Pentachlorobenzene	680	U

FORM I SV-1

1X
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0C962 Duplicate

Lab Name: ITAS-KNOXVILLE Contract: Hanford

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) Soil Lab Sample ID: A83196

Sample wt/vol: 30.2 (g/mL) G Lab File ID: A83196

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 3 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/03/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/Kg	Q
91-59-8	2-Naphthylamine	5900	U
134-32-7	1-Naphthylamine	4100	U
58-90-2	2,3,4,6-Tetrachlorophenol	340	U
99-55-8	5-Nitro-o-toluidine	680	U
122-39-4	Diphenylamine	340	U
3689-24-5	Tetraethyl dithiopyrophosphat	340	U
99-35-4	sym-Trinitrobenzene	340	U
62-44-2	Phenacetin	340	U
2303-16-4	Diallate	340	U
92-67-1	4-Aminobiphenyl	1700	U
23950-58-5	Pronamide	1000	U
82-68-8	Pentachloronitrobenzene	680	U
88-85-7	Dinoseb	680	U
56-57-5	4-Nitroquinoline-1-oxide	340	U
91-80-5	Methapyrilene	1400	U
140-57-8	Aramite	340	U
60-11-7	p-(Dimethylamino)azobenzene	1000	U
119-93-7	3,3'-Dimethylbenzidine	2700	U
53-96-3	2-Acetylaminofluorene	340	U
57-97-6	7,12-Dimethylbenz(a)anthracen	680	U
70-30-4	Hexachlorophene	1700	U
56-49-5	3-Methylcholanthrene	1000	U

FORM I SV-2

10/3/94

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC962
Duplicate

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3196

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3196

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

Number TICs found: 10

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.	UNKNOWN	2.92	68	J	
2. 2207-04-7	CYCLOHEXANE, 1,4-DIMETHYL-,	3.03	75	~~JN~~	R
3. 56336-06-2	2-CYCLOHEXEN-1-ONE, 3,5-DIME	3.38	390	~~AJN~~	R
4. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.30	9800	~~ABJN~~	R
5. 54105-67-8	HEPTADECANE, 2,6-DIMETHYL-	15.55	92	JN	
6. 57-10-3	HEXADECANOIC ACID	17.95	130	JN	
7. 17301-32-5	UNDECANE, 4,7-DIMETHYL-	18.29	78	JN	
8. 629-62-9	PENTADECANE	19.12	75	JN	
9. 630-02-4	OCTACOSANE	24.82	220	JN	
10. 630-02-4	OCTACOSANE	26.37	130	JN	

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC963

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3204

Sample wt/vol: 30.3 (g/mL) G Lab File ID: AB3204

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	330	U
111-44-4	bis(2-Chloroethyl)Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
100-51-6	Benzyl Alcohol	330	U
95-50-1	1,2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-Di-n-Propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
65-85-0	Benzoic Acid	1600	U
111-91-1	bis(2-Chloroethoxy)Methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-Methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	1600	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	1600	U
131-11-3	Dimethylpthalate	330	U
208-96-8	Acenaphthylene	330	U
606-20-2	2,6-Dinitrotoluene	330	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC963

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3204

Sample wt/vol: 30.3 (g/mL) G Lab File ID: AB3204

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1600	U
83-32-9	Acenaphthene	330	U
51-28-5	2,4-Dinitrophenol	1600	U
100-02-7	4-Nitrophenol	1600	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-01-6	4-Nitroaniline	1600	U
534-52-1	4,6-Dinitro-2-Methylphenol	1600	U
86-30-6	N-Nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	1600	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
84-74-2	Di-n-Butylphthalate	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	660	U
56-55-3	Benzo(a)Anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)Phthalate	330	U
117-84-0	Di-n-Octyl Phthalate	330	U
205-99-2	Benzo(b)Fluoranthene	330	U
207-08-9	Benzo(k)Fluoranthene	330	U
50-32-8	Benzo(a)Pyrene	330	U
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U
53-70-3	Dibenz(a,h)Anthracene	330	U
191-24-2	Benzo(g,h,i)Perylene	330	U

(1) - Cannot be separated from Diphenylamine

10/13/94

1X
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0C963

Lab Name: ITAS-KNOXVILLE Contract: Hanford

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3204

Sample wt/vol: 30.3 (g/mL) G Lab File ID: AB3204

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 1 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/03/93

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/Kg	Q
62-75-9	N-Nitrosodimethylamine	330	U
97-63-2	Ethyl methacrylate	670	U
109-06-8	2-Picoline	2300	U
10595-95-6	N-Nitrosomethylethylamine	330	U
66-27-3	Methyl methanesulfonate	330	U
55-18-5	N-Nitrosodiethylamine	330	U
62-50-0	Ethyl methanesulfonate	330	U
62-53-3	Aniline	330	U
110-86-1	Pyridine	330	U
76-01-7	Pentachloroethane	670	U
930-55-2	N-Nitrosopyrrolidine	330	U
108-39-4	3-Methylphenol	330	U
98-86-2	Acetophenone	330	U
59-89-2	N-Nitrosomorpholine	330	U
95-53-4	o-Toluidine	330	U
100-75-4	N-Nitrosopiperidine	330	U
126-68-1	o,o,o-Triethylphosphorothioat	330	U
87-65-0	2,6-Dichlorophenol	330	U
1888-71-7	Hexachloropropene	670	U
122-09-8	a,a-dimethylphenethylamine	330	U
924-16-3	N-Nitrosodi-N-butylamine	670	U
106-50-3	p-Phenylenediamine	1760	U
94-59-7	Safrole	330	U
95-94-3	1,2,4,5-Tetrachlorobenzene	330	U
120-58-1	Isosafrole	330	U
130-15-4	1,4-Naphthoquinone	330	U
99-65-0	m-Dinitrobenzene	330	U
608-93-5	Pentachlorobenzene	670	U

FORM I SV-1

10/3/94

1X
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC963

Lab Name: ITAS-KNOXVILLE Contract: HanFoed

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) Soil Lab Sample ID: AB3204

Sample wt/vol: 30.3 (g/mL) G Lab File ID: AB3204

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 1 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/03/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/Kg	Q
91-59-8	2-Naphthylamine	5700	U
134-32-7	1-Naphthylamine	4000	U
58-90-2	2,3,4,6-Tetrachlorophenol	330	U
99-55-8	5-Nitro-o-toluidine	670	U
122-39-4	Diphenylamine	330	U
3689-24-5	Tetraethyl dithiopyrophosphat	330	U
99-35-4	sym-Trinitrobenzene	330	U
62-44-2	Phenacetin	330	U
2303-16-4	Diallate	330	U
92-67-1	4-Aminobiphenyl	1700	U
23950-58-5	Pronamide	1000	U
82-68-8	Pentachloronitrobenzene	670	U
88-85-7	Dinoseb	670	U
56-57-5	4-Nitroquinoline-1-oxide	330	U
91-80-5	Methapyrilene	1300	U
140-57-8	Aramite	330	U
60-11-7	p-(Dimethylamino)azobenzene	1000	U
119-93-7	3,3'-Dimethylbenzidine	2700	U
53-96-3	2-Acetylaminofluorene	330	U
57-97-6	7,12-Dimethylbenz(a)anthracen	670	U
70-30-4	Hexachlorophene	1700	U
56-49-5	3-Methylcholanthrene	1000	U

FORM I SV-2

Ad 10/3/94

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC963

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3204

Sample wt/vol: 30.3 (g/mL) G Lab File ID: AB3204

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

Number TICs found: 6

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	~~UNKNOWN~~ Propane, 2-methoxy-2-propoxy-	2.80	80	~~J~~ U
2. 141-79-7	3-PENTEN-2-ONE, 4-METHYL-	3.25	240	~~ABJN~~ R
3. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.17	8800	~~ABJN~~ R
4. 54105-67-8	HEPTADECANE, 2,6-DIMETHYL-	23.39	87	JN
5. 629-99-2	PENTACOSANE	24.70	260	JN
6. 629-99-2	PENTACOSANE	26.26	250	JN

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC964
Equipment Blank

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3211

Sample wt/vol: 30.0 (g/mL) G Lab File ID: AB3211

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	330	U
111-44-4	bis(2-Chloroethyl)Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
100-51-6	Benzyl Alcohol	330	U
95-50-1	1,2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-Di-n-Propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
65-85-0	Benzoic Acid	1600	U
111-91-1	bis(2-Chloroethoxy)Methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-Methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	1600	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	1600	U
131-11-3	Dimethylpthalate	330	U
208-96-8	Acenaphthylene	330	U
606-20-2	2,6-Dinitrotoluene	330	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC964
Equipment Blank

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3211

Sample wt/vol: 30.0 (g/mL) G Lab File ID: AB3211

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1600	U
83-32-9	Acenaphthene	330	U
51-28-5	2,4-Dinitrophenol	1600	U
100-02-7	4-Nitrophenol	1600	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-01-6	4-Nitroaniline	1600	U
534-52-1	4,6-Dinitro-2-Methylphenol	1600	U
86-30-6	N-Nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	1600	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
84-74-2	Di-n-Butylphthalate	78	J
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	670	U
56-55-3	Benzo(a)Anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)Phthalate	61	BJ
117-84-0	Di-n-Octyl Phthalate	330	U
205-99-2	Benzo(b)Fluoranthene	330	U
207-08-9	Benzo(k)Fluoranthene	330	U
50-32-8	Benzo(a)Pyrene	330	U
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U
53-70-3	Dibenz(a,h)Anthracene	330	U
191-24-2	Benzo(g,h,i)Perylene	330	U

(1) - Cannot be separated from Diphenylamine

1X
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0C964 Equipment Blank

Lab Name: ITAS-KNOXVILLE Contract: Hanford

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3211

Sample wt/vol: 30.0 (g/mL) G Lab File ID: AB3211

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 1 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/03/93

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/Kg	Q
62-75-9	N-Nitrosodimethylamine	340	U
97-63-2	Ethyl methacrylate	670	U
109-06-8	2-Picoline	2400	U
10595-95-6	N-Nitrosomethylethylamine	340	U
66-27-3	Methyl methanesulfonate	340	U
55-18-5	N-Nitrosodiethylamine	340	U
62-50-0	Ethyl methanesulfonate	340	U
62-53-3	Aniline	340	U
110-86-1	Pyridine	340	U
76-01-7	Pentachloroethane	670	U
930-55-2	N-Nitrosopyrrolidine	340	U
108-39-4	3-Methylphenol	340	U
98-86-2	Acetophenone	340	U
59-89-2	N-Nitrosomorpholine	340	U
95-53-4	o-Toluidine	340	U
100-75-4	N-Nitrosopiperidine	340	U
126-68-1	o,o,o-Triethylphosphorothioat	340	U
87-65-0	2,6-Dichlorophenol	340	U
1888-71-7	Hexachloropropene	670	U
122-09-8	a,a-dimethylphenethylamine	340	U
924-16-3	N-Nitrosodi-N-butylamine	670	U
106-50-3	p-Phenylenediamine	1700	U
94-59-7	Safrole	340	U
95-94-3	1,2,4,5-Tetrachlorobenzene	340	U
120-58-1	Isosafrole	340	U
130-15-4	1,4-Naphthoquinone	340	U
99-65-0	m-Dinitrobenzene	340	U
608-93-5	Pentachlorobenzene	170	U

FORM I SV-1

10/13/94

1X
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC964 Equipment Blank

Lab Name: ITAS-KNOXVILLE Contract: HanFoed

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) Soil Lab Sample ID: AB3211

Sample wt/vol: 30.0 (g/mL) G Lab File ID: AB3211

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 1 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/03/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/Kg	Q
91-59-8	2-Naphthylamine	5700	U
134-32-7	1-Naphthylamine	4200	U
58-90-2	2,3,4,6-Tetrachlorophenol	340	U
99-55-8	5-Nitro-o-toluidine	670	U
122-39-4	Diphenylamine	340	U
3689-24-5	Tetraethyl dithiopyrophosphat	340	U
99-35-4	sym-Trinitrobenzene	340	U
62-44-2	Phenacetin	340	U
2303-16-4	Diallate	340	U
92-67-1	4-Aminobiphenyl	1700	U
23950-58-5	Pronamide	1000	U
82-68-8	Pentachloronitrobenzene	670	U
88-85-7	Dinoseb	670	U
56-57-5	4-Nitroquinoline-1-oxide	340	U
91-80-5	Methapyrilene	1300	U
140-57-8	Aramite	340	U
60-11-7	p-(Dimethylamino)azobenzene	1000	U
119-93-7	3,3'-Dimethylbenzidine	2700	U
53-96-3	2-Acetylaminofluorene	340	U
57-97-6	7,12-Dimethylbenz(a)anthracen	670	U
70-30-4	Hexachlorophene	1700	U
56-49-5	3-Methylcholanthrene	1000	U

FORM I SV-2

10/3/94

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC964
Equipment Blank

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3211

Sample wt/vol: 30.0 (g/mL) G Lab File ID: AB3211

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

Number TICs found: 8

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	~~UNKNOWN~~ Propane, 2-methoxy-2-propoxy	2.80	2100	J
2. 56336-06-2	2-CYCLOHEXEN-1-ONE, 3,5-DIME	3.27	310	~~AJN~~ R
3. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.20	9100	~~ABJN~~ R
4. 142-62-1	HEXANOIC ACID	6.23	77	JN
5. 57-10-3	HEXADECANOIC ACID	17.85	180	JN
6.	UNKNOWN	19.45	2000	J
7.	UNKNOWN	19.59	190	J
8.	UNKNOWN	20.09	300	J

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

IT Corporation
2800 George Washington Way
Richland, WA 99352
Attn: Van Pettey

August 22, 1994

SEP 1994 RECEIVED SDLA

Job Number: 855

This is the Certificate of Analysis for the following samples:

SDG:	W0131
Client Project ID:	WHC SAF 94-330 218-E-8 Borrow Pit Demolition Site Closure Plan
Received by Knoxville:	July 19, 1994
Number of Samples:	Eleven (11)
Sample Type:	Soil

I. Introduction

On July 15, 1994, eleven (11) soil samples arrived at ITAS-Richland, Washington and were transferred to ITAS-Knoxville for chemical analysis. 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.

The samples were analyzed for Appendix IX volatile and semivolatile organic compounds by gas chromatography/mass spectroscopy (GS/MS) based on EPA SW-846 methods 8240 and 8270.

RECORD COPY

Reviewed and Approved:

Sheree' A. Schneider
Project Manager

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

IT Corporation
August 22, 1994
Job Number: 855
Client Project ID: WHC SAF 94-330 218-E-8 Borrow Pit Demolition Site Closure Plan

II. Analytical Results/Methodology (Continued)

The samples were analyzed for nitrate-nitrite based on EPA method 353.2.

The samples were analyzed for anions by ion chromatography using EPA method 300.0.

The samples were analyzed for nitroexplosives by high performance liquid chromatography (HPLC) based on draft EPA method 8330.

III. Quality Control

The volatiles analyses were performed by purge and trap with a J & W DB-624 capillary column on a Finnigan INCOS 500 GC/MS/DS. A matrix spike and matrix spike duplicate were analyzed using sample BOC961. All QC results met method specified limits.

The semivolatiles analyses were performed by direct injection of sample extract on a Restek XTI-5 capillary column on a Finnigan 4500 GC/MS/DS. Daily calibrations were performed for the usual 8270 targets and for the additional Appendix IX compounds. The samples did not contain any Appendix IX compounds. A matrix spike and matrix spike duplicate were analyzed using sample BOC961. The matrix spike and matrix spike duplicate passed all QC criteria as did the laboratory control sample.

Data were reported with qualifiers as follows:

U - Compound analyzed for but not detected; value given is quantitation limit.
E - Compound exceeded calibration range.
D - Compound analyzed at a secondary dilution factor.
J - Compound detected but below quantitation limit; value estimated.
S - Spiked compound.
B - Compound found in method blank.
A - Suspected aldol condensation product.
Y - Indistinguishable isomer in tentatively identified compounds.
N - Presumptive evidence of compound presence.

The samples were analyzed for nitrate/nitrite on July 26, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC961. All QC results were acceptable.

10/3/94

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

IT Corporation
August 22, 1994
Job Number: 855
Client Project ID: WHC SAF 94-330 218-E-8 Borrow Pit Demolition Site Closure Plan

III. Quality Control (Continued)

The samples were analyzed for fluoride, chloride, phosphate, nitrate, nitrite and sulfate by EPA method 300.0 on August 2 and 3, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC961. All quality control results were acceptable; chloride for the matrix spike was slightly outside acceptance limits due to matrix interferences. The laboratory control sample (LCS) results were within acceptance limits.

The samples were analyzed for nitroexplosives on August 12 and 13, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC961. All QC results were acceptable.

10/13/94

Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST WO#855	Page 1 of 3 007449

Collector SL Spencer
Company Contact ID Jacques/JW Ball
Telephone 376-3306/372-2653
SAF No. 94-330
Project Designation 218-E-8 Borrow Pit Demolition Site Closure Plan
Sampling Locations 200 East / 200-PO-6
Ice Chest No. SML 443
Bill of Lading/Airbill No. N/A
Offsite Property No.
Method of Shipment Government Vehicle
Field Logbook No.
Shipped to IT Analytical 2800 George Washington Way Richland WA, 99352
SPECIAL INSTRUCTIONS Standalone Deliverable
Possible Sample Hazards/Remarks None / Work Plan to RCRA Protocol
Appendix IX SDG-W0131
Special Handling and/or Storage

407258

	Sample Number	*	Date Collected	Time	Number and Type of Containers	Analysis Required	Preservative
A	BOC961	SE	07-12-94	1222	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
B	BOC961	SE	07-12-94	1222	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
01 C	BOC961	SE	07-12-94	1222	120ml aGs	Detonation Residue (8330)	Cool to 4°
D	BOC961	SE	07-12-94	1222	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
E	BOC961	SE	07-12-94	1222	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
F	BOC961	SE	07-12-94	1222	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
A	BOC962	SE	07-12-94	1222	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
B	BOC962	SE	07-12-94	1222	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
02 C	BOC962	SE	07-12-94	1222	120ml aGs	Detonation Residue (8330)	Cool to 4°
D	BOC962	SE	07-12-94	1222	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
E	BOC962	SE	07-12-94	1222	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
F	BOC962	SE	07-12-94	1222	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
A	BOC963	SE	07-12-94	1046	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
B	BOC963	SE	07-12-94	1046	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
03 C	BOC963	SE	07-12-94	1046	120ml aGs	Detonation Residue (8330)	Cool to 4°
D	BOC963	SE	07-12-94	1046	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
E	BOC963	SE	07-12-94	1046	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
F	BOC963	SE	07-12-94	1046	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
A	BOC964	SE	07-12-94	0925	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
04 B	BOC964	SE	07-12-94	0925	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°

0000022

036

Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST W0#855	Page 3 of 9 007449

04	C	BOC964	SE	07-12-94	0925	120ml aGs	Detonation Residue (8330)	Cool to 4°
	D	BOC964	SE	07-12-94	0925	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
	E	BOC964	SE	07-12-94	0925	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC964	SE	07-12-94	0925	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
05	A	BOC965	SE	07-12-94	1304	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC965	SE	07-12-94	1304	120ml aGs	Detonation Residue (8330)	Cool to 4°
	C	BOC965	SE	07-12-94	1304	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
	D	BOC965	SE	07-12-94	1304	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	E	BOC965	SE	07-12-94	1304	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
06	A	BOC966	SE	07-12-94	1115	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC966	SE	07-12-94	1115	120ml aGs	Detonation Residue (8330)	Cool to 4°
	C	BOC966	SE	07-12-94	1115	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
	D	BOC966	SE	07-12-94	1115	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	E	BOC966	SE	07-12-94	1115	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
07	A	BOC967	SE	07-12-94	1136	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC967	SE	07-12-94	1136	120ml aGs	Detonation Residue (8330)	Cool to 4°
	C	BOC967	SE	07-12-94	1136	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
	D	BOC967	SE	07-12-94	1136	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	E	BOC967	SE	07-12-94	1136	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
08	A	BOC968	SE	07-12-94	1101	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC968	SE	07-12-94	1101	120ml aGs	Detonation Residue (8330)	Cool to 4°
	C	BOC968	SE	07-12-94	1101	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
	D	BOC968	SE	07-12-94	1101	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	E	BOC968	SE	07-12-94	1101	40 ml aGs	Activity Scan (Lab Specific)	Cool to 4°
09	A	BOC969	SE	07-12-94	~~1035~~ 1101	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC969	SE	07-12-94	~~1035~~ 1101	120ml aGs	Detonation Residue (8330)	Cool to 4°
	C	BOC969	SE	07-12-94	~~1035~~ 1101	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
	D	BOC969	SE	07-12-94	~~1035~~ 1101	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	E	BOC969	SE	07-12-94	~~1035~~ 1101	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°

037

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Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST WO#855	Page 3 of 3
		007449

	A	BOCBN1	SE	07-12-94	1025	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOCBN1	SE	07-12-94	1025	120ml aGs	Detonation Residue (8330)	Cool to 4°
10	C	BOCBN1	SE	07-12-94	1025	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
	D	BOCBN1	SE	07-12-94	1025	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	E	BOCBN1	SE	07-12-94	1025	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
11	A	BOCBN2	SE	07-11-94	1600	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°

2

Chain of Possession (Sign and Print Names) Relinquished By	Date	Time	Received By
Shannon L. Spencer Shannon L. Spencer	7-14-94	1130	RM Arnold RM Arnold
RM Arnold RM Arnold	7-15-94	0930	R.B. Ayd Aunteria 7/15/94 1100 1120

*Matrix

A = Air
DL = Drum Liquids
DS = Drum Solids
L = Liquid
O = Oil
S = Soil
SE = Sediment
SL = Sludge
SO = Solid
T = Tissue
W = Water
WI = Wipe
X = Other

LABORATORY SECTION	Received By	Title	Date/Time
Final Sample Disposition	Disposal Method:	Disposed by:	Date/Time:

TRIP BLANK 2 x 40mL vial Temp 4°C 2 fill 100 100

0000024

038

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 943-1610.005		DATA PACKAGE: W0131-QES-139
VALIDATOR: L. Schildt	LAB: IT	DATE: 9/27/94
CASE:		SDG: W0131

ANALYSES PERFORMED

☐ CLP Volatiles	☒ SW-846 8240 (cap column)	☐ SW-846 8260 (packed column)	☐ CLP Semivolatiles	☒ SW-846 8270 (cap column)	☐ SW-846 (packed column)
☐	☐	☐	☐	☐	☐

SAMPLES/MATRIX B0C961-4 / soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? . . . . . (Yes) No N/A

Is a case narrative present? . . . . . (Yes) No N/A

Comments:

2. HOLDING TIMES

Are sample holding times acceptable? . . . . . (Yes) No N/A

Comments:

GC/MS ORGANIC DATA VALIDATION CHECKLIST

3. INSTRUMENT TUNING AND CALIBRATION

Is the GC/MS tuning/performance check acceptable? . . . . . (Yes) No N/A

Are initial calibrations acceptable? . . . . . (Yes) No N/A

Are continuing calibrations acceptable? . . . . . (Yes) No N/A

Comments: ~~No initial calibration data provided for app. 9 compounds~~ 10/3/94

4. BLANKS

Were laboratory blanks analyzed? . . . . . (Yes) No N/A

Are laboratory blank results acceptable? . . . . . ~~Yes~~ (No) 10/3/94 N/A

Were field/trip blanks analyzed? . . . . . (Yes) No N/A

Are field/trip blank results acceptable? . . . . . (Yes) No N/A

Comments: BEHP and TICs detected in laboratory blanks ~~but~~ Sample concentrations are <5 or 10x blank concentrations and qualified u BEHP, di-N-butylphthalate, and TICs detected in equipment blank. BEHP was not affected.

5. ACCURACY

Were surrogates/System Monitoring Compounds analyzed? . . . . . (Yes) No N/A

Are surrogate/System Monitoring Compound recoveries acceptable? (Yes) No N/A

Were MS/MSD samples analyzed? . . . . . (Yes) No N/A

Are MS/MSD results acceptable? . . . . . (Yes) No N/A

Comments:

GC/MS ORGANIC DATA VALIDATION CHECKLIST

6. PRECISION

Are MS/MSD RPD values acceptable? . . . . . Yes No N/A

Are field duplicate RPD values acceptable? . . . . . Yes No N/A

Are field split RPD values acceptable? . . . . . Yes No N/A

Comments: Dissimilarities exist in field duplicate TICs.

7. SYSTEM PERFORMANCE

Were internal standards analyzed? . . . . . Yes No N/A

Are internal standard areas acceptable? . . . . . Yes No N/A

Are internal standard retention times acceptable? . . . . . Yes No N/A

Comments:

8. COMPOUND IDENTIFICATION AND QUANTITATION

Is compound identification acceptable? . . . . . Yes No N/A

Is compound quantitation acceptable? . . . . . Yes No N/A

Comments:

9. REPORTED RESULTS AND QUANTITATION LIMITS

Are results reported for all requested analyses? . . . . . Yes No N/A

Are all results supported in the raw data? . . . . . Yes No N/A

Do results meet the CRQLs? . . . . . Yes No N/A

Has the laboratory properly identified and coded all TIC? . . . Yes No N/A

Comments: Unknown TIC @ 2.80 RT changed to propane, 2-methoxy-2-propoxy after comparison of RIC.

HOLDING TIME SUMMARY

SDG: W0131	VALIDATOR: L. Schildt	DATE: 7/27/94	PAGE 1 OF 1
COMMENTS: Semivolatile			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B0C961-4		7/12/94	~~8/3/94~~ 7/19/94	8/3/94	7	~~14~~ 15 10/3/94	none

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKAB3481B

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3481

Sample wt/vol: 30.0 (g/mL) G Lab File ID: AB3481

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
108-95-2	Phenol	330	U
111-44-4	bis(2-Chloroethyl)Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
100-51-6	Benzyl Alcohol	330	U
95-50-1	1,2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-Di-n-Propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
65-85-0	Benzoic Acid	1600	U
111-91-1	bis(2-Chloroethoxy)Methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-Methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	1600	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	1600	U
131-11-3	Dimethylpthalate	330	U
208-96-8	Acenaphthylene	330	U
606-20-2	2,6-Dinitrotoluene	330	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKAB3481B

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3481

Sample wt/vol: 30.0 (g/mL) G Lab File ID: AB3481

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
99-09-2	3-Nitroaniline	1600	U
83-32-9	Acenaphthene	330	U
51-28-5	2,4-Dinitrophenol	1600	U
100-02-7	4-Nitrophenol	1600	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-01-6	4-Nitroaniline	1600	U
534-52-1	4,6-Dinitro-2-Methylphenol	1600	U
86-30-6	N-Nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	1600	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
84-74-2	Di-n-Butylphthalate	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	660	U
56-55-3	Benzo(a)Anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)Phthalate	2	J
117-84-0	Di-n-Octyl Phthalate	330	U
205-99-2	Benzo(b)Fluoranthene	330	U
207-08-9	Benzo(k)Fluoranthene	330	U
50-32-8	Benzo(a)Pyrene	330	U
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U
53-70-3	Dibenz(a,h)Anthracene	330	U
191-24-2	Benzo(g,h,i)Perylene	330	U

(1) - Cannot be separated from Diphenylamine

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1X
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKAB 34818

Lab Name: ITAS-KNOXVILLE Contract: Hanford

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3481

Sample wt/vol: 30.0 (g/mL) G Lab File ID: AB3481

Level: (low/med) LOW Date Received: ~~07/19/94~~

% Moisture: _____ decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/02/93

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/Kg

Pag 8/17/94

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/Kg	Q
62-75-9	N-Nitrosodimethylamine	~~5~~ 330	U
97-63-2	Ethyl methacrylate	670	U
109-06-8	2-Picoline	2300	U
10595-95-6	N-Nitrosomethylethylamine	330	U
66-27-3	Methyl methanesulfonate	330	U
55-18-5	N-Nitrosodiethylamine	330	U
62-50-0	Ethyl methanesulfonate	330	U
62-53-3	Aniline	330	U
110-86-1	Pyridine	330	U
76-01-7	Pentachloroethane	670	U
930-55-2	N-Nitrosopyrrolidine	330	U
108-39-4	3-Methylphenol	330	U
98-86-2	Acetophenone	330	U
59-89-2	N-Nitrosomorpholine	330	U
95-53-4	o-Toluidine	330	U
100-75-4	N-Nitrosopiperidine	330	U
126-68-1	o,o,o-Triethylphosphorothioat	330	U
87-65-0	2,6-Dichlorophenol	330	U
1888-71-7	Hexachloropropene	670	U
122-09-8	a,a-dimethylphenethylamine	330	U
924-16-3	N-Nitrosodi-N-butylamine	670	U
106-50-3	p-Phenylenediamine	1700	U
94-59-7	Safrole	330	U
95-94-3	1,2,4,5-Tetrachlorobenzene	330	U
120-58-1	Isosafrole	330	U
130-15-4	1,4-Naphthoquinone	330	U
99-65-0	m-Dinitrobenzene	330	U
608-93-5	Pentachlorobenzene	670	U

FORM I SV-1

10/3/94

1X
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKAB3481 B

Lab Name: ITAS-KNOXVILLE Contract: Hanford

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) Soil Lab Sample ID: AB3481

Sample wt/vol: 30.0 (g/mL) G Lab File ID: AB3481

Level: (low/med) LOW Date Received: ~~07/19/94~~

% Moisture: _____ decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/02/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

Pg 8/17/94

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/Kg	Q
91-59-8	2-Naphthylamine	5700	U
134-32-7	1-Naphthylamine	4000	U
58-90-2	2,3,4,6-Tetrachlorophenol	330	U
99-55-8	5-Nitro-o-toluidine	670	U
122-39-4	Diphenylamine	330	U
3689-24-5	Tetraethyl dithiopyrophosphat	330	U
99-35-4	sym-Trinitrobenzene	330	U
62-44-2	Phenacetin	330	U
2303-16-4	Diallate	330	U
92-67-1	4-Aminobiphenyl	1700	U
23950-58-5	Pronamide	1000	U
82-68-8	Pentachloronitrobenzene	670	U
88-85-7	Dinoseb	670	U
56-57-5	4-Nitroquinoline-1-oxide	330	U
91-80-5	Methapyrilene	1300	U
140-57-8	Aramite	330	U
60-11-7	p-(Dimethylamino)azobenzene	1000	U
119-93-7	3,3'-Dimethylbenzidine	2700	U
53-96-3	2-Acetylaminofluorene	330	U
57-97-6	7,12-Dimethylbenz(a)anthracen	670	U
70-30-4	Hexachlorophene	1700	U
56-49-5	3-Methylcholanthrene	1000	U

FORM I SV-2

10/3/94

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SBLKAB3481B

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3481

Sample wt/vol: 30.0 (g/mL) G Lab File ID: AB3481

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94 7/29/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

Number TICs found: 6

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1. 53951-40-9	PROPANE, 2-METHOXY-2-PROPOXY	2.82	48	JN	
2. 638-04-0	CYCLOHEXANE, 1,3-DIMETHYL-,	2.93	4.0	JN	
3. 141-79-7	3-PENTEN-2-ONE, 4-METHYL-	3.28	8.7	~~AJN~~	R
4. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.20	300	~~AJN~~	R
5.	UNKNOWN	17.85	2.2	J	
6.	UNKNOWN	24.40	8.0	J	

9413299.1114

MEMORANDUM

TO: Borrow Pit Demo Project QA Record — October 3, 1994

FR: Sandra Schildt, Golder Associates Inc.

RE: VOLATILES DATA VALIDATION SUMMARY FOR DATA PACKAGE W0131-QES-139 (943-1610.005,W0131.VOA)

INTRODUCTION

This memorandum presents the results of data validation on data package W0131-QES-139 prepared by International Technology Corporation. A list of the samples validated along with the analytes reported and the method of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B0C961	7/12/94	SOIL	SEE NOTE 1
B0C962	7/12/94	SOIL	
B0C963	7/12/94	SOIL	
B0C964	7/12/94	SOIL	
B0C965	7/12/94	SOIL	
B0C966	7/12/94	SOIL	
B0C967	7/12/94	SOIL	
B0C968	7/12/94	SOIL	
B0C969	7/12/94	SOIL	
B0CBN1	7/12/94	SOIL	
B0CBN2	7/11/94	SOIL	

OCT 1994
RECEIVED
TQO

Note 1: The samples were analyzed for volatile organics using SW-846 methods.

Data validation was conducted in accordance with the WHC statement of work (WHC 1994) and validation procedures (WHC 1993). Attachments 1 through 5 to this memo provide the following information:

Attachment 1. Glossary of Data Reporting Qualifiers
Attachment 2. Summary of Data Qualifications
Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
Attachment 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

This section presents a summary of the data quality in terms of the referenced validation criteria.

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data.

Detection Limits. Detection limit goals were met for all sample results as specified in the reference analytical method.

Completeness. The data package was complete for all requested analyses. Eleven samples (11) were validated in this data set with a total of 638 determinations reported, all of which were deemed valid. This results in a completeness of 100% which meets normal work plan objectives of 90%.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

The following minor deficiencies were identified during validation which required qualification of data.

Blanks

- Methylene chloride and acetone were detected in the laboratory blank. Attachments 2 and 5 provide a summary of the samples and data qualification applied.

FIELD QUALITY CONTROL

Sample B0C962 was identified as a field duplicate, sample B0C964 an equipment blank, and B0CBN2 a trip blank.

- The relative percent difference (RPD) for the field duplicate was within data quality objectives outlined in the work plan.
- Tentatively identified compounds (TICs) were identified in the equipment blank and the trip blank.

TENTATIVELY IDENTIFIED COMPOUND EVALUATION

Tentatively identified compounds (TICs) were reported in the samples and deemed estimated and presumptive (JN).

REFERENCES

WHC 1994, 218-E-8 Borrow Pit Demolition Site Closure Plan. Westinghouse Hanford Company, Richland, Washington.

WHC 1993b, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993, Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the constituent was analyzed for and detected in the associated laboratory blank. This qualifier is applied by the laboratory. During the process of data validation this qualifier may be replaced by other appropriate qualifiers as defined by the validation procedures. The associated data should be considered usable for decision making purposes.

U - Indicates the constituent was analyzed for and not detected. The concentration reported is the sample quantitation limit corrected for aliquot size, dilution and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.

UJ - Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during data validation the concentration reported may not accurately reflect the sample quantitation limit. The associated data should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. This qualifier may be applied by the laboratory to indicate a concentration which is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). During data validation this qualifier may be applied to indicate a minor quality control deficiency. However in either case, the associated data should be considered usable for decision making purposes.

NJ - Indicates presumptive evidence of a constituent at an estimated value. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

N - Indicates presumptive evidence of a constituent. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

JN - Indicates a tentatively identified compound (TIC) whose concentration and identification have been determined to be valid as a result of data validation. The associated data should be considered usable for decision making purposes.

UJN- Indicates a tentatively identified compound (TIC) that has been determined to be presumptive and valid (JN) in terms of identification and quantitation and has been qualified as undetected due to associated blank contamination.

UR - Indicates the constituent was analyzed for and not detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

PKG: W0131-QES-139	REVIEWER: S. Schildt	DATE: 9/30/94	PAGE 1 OF 1
COMMENTS: Volatiles			
PARAMETER	QUALIFIER	SAMPLES AFFECTED	REASON
Methylene chloride	U	B0C961 B0C962 B0C963 B0C964 B0C965 B0C966 B0C967 B0C968 B0C969 B0CBN1	Compound present in the method blank

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: W0131-QES-139

	Samp#	B0C961		B0C962		B0C963		B0C964		B0C965		B0C966	
	Date	7-12-94		7-12-94		7-12-94		7-12-94		7-12-94		7-12-94	
	Location	218-3-8 PIT		218-3-8 PIT		218-3-8 PIT		218-3-8 PIT		218-3-8 PIT		218-3-8 PIT	
	Depth	---		---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments			DUPLICATE				EQUIP BLANK					
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
CHLOROMETHANE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	11.000	U	10.000	U
BROMOMETHANE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	11.000	U	10.000	U
VINYL CHLORIDE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	11.000	U	10.000	U
CHLOROETHANE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	11.000	U	10.000	U
METHYLENE CHLORIDE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
ACETONE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	11.000	U	10.000	U
CARBON DISULFIDE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
1,1-DICHLOROETHENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
1,1-DICHLOROETHANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
1,2-DICHLOROETHENE (TOTAL)	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
CHLOROFORM	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
1,2-DICHLOROETHANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
2-BUTANONE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	11.000	U	10.000	U
1,1,1-TRICHLOROETHANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
CARBON TETRACHLORIDE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
VINYL ACETATE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	11.000	U	10.000	U
BROMODICHLOROMETHANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
1,2-DICHLOROPROPANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
CIS-1,3-DICHLOROPROPENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
TRICHLOROETHENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
DIBROMOCHLOROMETHANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
1,1,2-TRICHLOROETHANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
BENZENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
TRANS-1,3-DICHLOROPROPENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
BROMOFORM	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
4-METHYL-2-PENTANONE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	11.000	U	10.000	U
2-HEXANONE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	11.000	U	10.000	U
TETRACHLOROETHENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
1,1,2,2-TETRACHLOROETHANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
TOLUENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
CHLOROBENZENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
ETHYLBENZENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
STYRENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
XYLENES (TOTAL)	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
ACETONITRILE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
ACROLEIN	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
ACRYLONITRILE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
3-CHLORO-1-PROPENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U

Validated Data Summary, Data Package: W0131-QES-139

	Samp#	B0C961		B0C962		B0C963		B0C964		B0C965		B0C966	
	Date	7-12-94		7-12-94		7-12-94		7-12-94		7-12-94		7-12-94	
	Location	218-3-8 PIT		218-3-8 PIT		218-3-8 PIT		218-3-8 PIT		218-3-8 PIT		218-3-8 PIT	
	Depth	---		---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments			DUPLICATE				EQUIP BLANK					
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,2-DIBROMO-3-CHLOROPROPANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
1,2-DIBROMOETHANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
DIBROMOMETHANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
TRANS-1,4-DICHLORO-2-BUTENE	UG/KG	21.000	U	21.000	U	20.000	U	20.000	U	21.000	U	21.000	U
DICHLRODIFLUOROMETHANE	UG/KG	21.000	U	21.000	U	20.000	U	20.000	U	21.000	U	21.000	U
TRANS-1,2-DICHLOROETHENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
ETHYL CYANIDE	UG/KG	100.000	U	100.000	U	100.000	U	100.000	U	100.000	U	100.000	U
IODOMETHANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
METHACRYLONITRILE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
1,1,1,2-TETRACHLOROETHANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
TRICHLOROFLUOROMETHANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
1,2,3-TRICHLOROPROPANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
1,4-DIOXANE	UG/KG	1000.000	U	1000.000	U	1000.000	U	1000.000	U	1000.000	U	1000.000	U
ISOBUTYL ALCOHOL	UG/KG	100.000	U	100.000	U	100.000	U	100.000	U	100.000	U	100.000	U
METHYL METHACRYLATE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
ETHYL METHACRYLATE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
1,3-DICHLOROBENZENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
1,4-DICHLOROBENZENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
1,2-DICHLOROBENZENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
CHLOROPRENE	UG/KG	50.000	U	50.000	U	50.000	U	50.000	U	53.000	U	50.000	U

Validated Data Summary, Data Package: W0131-QES-139

	Samp#	B0C967		B0C968		B0C969		B0CBN1		B0CBN2	
	Date	7-12-94		7-12-94		7-12-94		7-12-94		7-11-94	
	Location	218-3-8 PIT		218-3-8 PIT		218-3-8 PIT		218-E-8 PIT		218-E-8 PIT	
	Depth	---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments									TRIP BLANK	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
CHLOROMETHANE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
BROMOMETHANE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
VINYL CHLORIDE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
CHLOROETHANE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
METHYLENE CHLORIDE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
ACETONE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
CARBON DISULFIDE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
1,1-DICHLOROETHENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
1,1-DICHLOROETHANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
1,2-DICHLOROETHENE (TOTAL)	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
CHLOROFORM	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
1,2-DICHLOROETHANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
2-BUTANONE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
1,1,1-TRICHLOROETHANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
CARBON TETRACHLORIDE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
VINYL ACETATE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
BROMODICHLOROMETHANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
1,2-DICHLOROPROPANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
CIS-1,3-DICHLOROPROPENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
TRICHLOROETHENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
DIBROMOCHLOROMETHANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
1,1,2-TRICHLOROETHANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
BENZENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
TRANS-1,3-DICHLOROPROPENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
BROMOFORM	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
4-METHYL-2-PENTANONE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
2-HEXANONE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
TETRACHLOROETHENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
1,1,2,2-TETRACHLOROETHANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
TOLUENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
CHLOROBENZENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
ETHYLBENZENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
STYRENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
XYLENES (TOTAL)	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
ACETONITRILE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
ACROLEIN	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
ACRYLONITRILE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
3-CHLORO-1-PROPENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U

9413299.1124

Validated Data Summary, Data Package: W0131-QES-139

	Samp#	B0C967		B0C968		B0C969		B0CBN1		B0CBN2	
	Date	7-12-94		7-12-94		7-12-94		7-12-94		7-11-94	
	Location	218-3-8 PIT		218-3-8 PIT		218-3-8 PIT		218-E-8 PIT		218-E-8 PIT	
	Depth	---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments									TRIP BLANK	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,2-DIBROMO-3-CHLOROPROPANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
1,2-DIBROMOETHANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
DIBROMOMETHANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
TRANS-1,4-DICHLORO-2-BUTENE	UG/KG	21.000	U	21.000	U	21.000	U	20.000	U	20.000	U
DICHLRODIFLUOROMETHANE	UG/KG	21.000	U	21.000	U	21.000	U	20.000	U	20.000	U
TRANS-1,2-DICHLOROETHENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
ETHYL CYANIDE	UG/KG	100.000	U	100.000	U	100.000	U	100.000	U	100.000	U
IODOMETHANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
METHACRYLONITRILE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
1,1,1,2-TETRACHLOROETHANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
TRICHLOROFLUOROMETHANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
1,2,3-TRICHLOROPROPANE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
1,4-DIOXANE	UG/KG	1000.000	U	1000.000	U	1000.000	U	1000.000	U	1000.000	U
ISOBUTYL ALCOHOL	UG/KG	100.000	U	100.000	U	100.000	U	100.000	U	100.000	U
METHYL METHACRYLATE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
ETHYL METHACRYLATE	UG/KG	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
1,3-DICHLOROBENZENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
1,4-DICHLOROBENZENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
1,2-DICHLOROBENZENE	UG/KG	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U
CHLOROPRENE	UG/KG	50.000	U	52.000	U	50.000	U	51.000	U	50.000	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC961

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3188

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3188

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 Date Analyzed: 07/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5.18 ~~3~~	~~BJ~~ u
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

9/27/94

1

APPENDIX IX VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC961

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3188

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3188

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 Date Analyzed: 07/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		CEA 8/17/94	
75-05-8	Acetonitrile	~~10~~ 5	U
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
107-05-1	3-Chloro-1-propene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
106-93-4	1,2-Dibromoethane	5	U
74-95-3	Dibromomethane	5	U
110-57-6	Trans-1,4-Dichloro-2-butene	2.01 CEA 8/17/94	U
75-71-8	Dichlorodifluoromethane	2.01	U
156-60-5	Trans-1,2-Dichloroethene	5	U
107-12-0	Ethyl cyanide	100	U
74-88-4	Iodomethane	5	U
126-98-7	Methacrylonitrile	10	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
123-91-1	1,4-Dioxane	1000	U
78-83-1	Isobutyl alcohol	100	U
96-33-3	Methyl Methacrylate	10	U
80-62-6	Ethyl Methacrylate	10	U
541-73-1	1,3-Dichlorobenzene	~~5~~ 5	~~U~~ 3U CEA 8/17/94
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
126-99-8	Chloroprene	50	U

AHD 9/23/94

AHD 9/27/94

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC961

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3188

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3188

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 Date Analyzed: 07/26/94

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	2.23	7.3	J

JN

9/27/94

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC962
Duplicate

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3195

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3195

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 Date Analyzed: 07/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5 ~~10~~ ~~5~~	~~BJ~~ U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

9/27/94

1

APPENDIX IX VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC962 Duplicate

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3195

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3195

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 Date Analyzed: 07/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-05-8	Acetonitrile	10 CEM 8/17/94	U
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
107-05-1	3-Chloro-1-propene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
106-93-4	1,2-Dibromoethane	5	U
74-95-3	Dibromomethane	5	U
110-57-6	Trans-1,4-Dichloro-2-butene	20	U
75-71-8	Dichlorodifluoromethane	20 CEM 8/17/94	U
156-60-5	Trans-1,2-Dichloroethene	5	U
107-12-0	Ethyl cyanide	100	U
74-88-4	Iodomethane	5	U
126-98-7	Methacrylonitrile	10	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
123-91-1	1,4-Dioxane	1000	U
78-83-1	Isobutyl alcohol	100	U
96-33-3	Methyl Methacrylate	10	U
80-62-6	Ethyl Methacrylate	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
126-99-8	Chloroprene	50	U

CEM 8/17/94

AES 9/27/94

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC962
Duplicate

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3195

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3195

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 Date Analyzed: 07/26/94

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	2.23	8.5	J

JN

9/27/94

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC963

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3203

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3203

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 Date Analyzed: 07/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5 ~~10~~ ~~B~~	~~B~~ U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

9/27/94

1

APPENDIX IX VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC963

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3203

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3203

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 Date Analyzed: 07/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-05-8	Acetonitrile	10 ~~5~~ CEM 8/17/94	U
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
107-05-1	3-Chloro-1-propene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
106-93-4	1,2-Dibromoethane	5	U
74-95-3	Dibromomethane	5	U
110-57-6	Trans-1,4-Dichloro-2-butene	20	U
75-71-8	Dichlorodifluoromethane	20	U
156-60-5	Trans-1,2-Dichloroethene	5	U
107-12-0	Ethyl cyanide	100	U
74-88-4	Iodomethane	5	U
126-98-7	Methacrylonitrile	10	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
123-91-1	1,4-Dioxane	1000	U
78-83-1	Isobutyl alcohol	100	U
96-33-3	Methyl Methacrylate	10	U
80-62-6	Ethyl Methacrylate	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
126-99-8	Chloroprene	50	U

CEM 8/17/94

9/27/94

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC963

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3203

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3203

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 Date Analyzed: 07/26/94

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	2.23	8.1	~~J~~ JN

9/27/94

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC964
Equipment Blank

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3210

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3210

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 Date Analyzed: 07/25/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5 ~~10.2~~	~~BJ~~ U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

AKS 9/27/94

1

APPENDIX IX VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0C964 Equipment Blank

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3210

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3210

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 Date Analyzed: 07/25/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-05-8	Acetonitrile	10 5 CEM 8/17/94	U
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
107-05-1	3-Chloro-1-propene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
106-93-4	1,2-Dibromoethane	5	U
74-95-3	Dibromomethane	5	U
110-57-6	Trans-1,4-Dichloro-2-butene	20	U
75-71-8	Dichlorodifluoromethane	20	U
156-60-5	Trans-1,2-Dichloroethene	5	U
107-12-0	Ethyl cyanide	100	U
74-88-4	Iodomethane	5	U
126-98-7	Methacrylonitrile	10	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
123-91-1	1,4-Dioxane	1000	U
78-83-1	Isobutyl alcohol	100	U
96-33-3	Methyl Methacrylate	10	U
80-62-6	Ethyl Methacrylate	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
126-99-8	Chloroprene	50	U

CEM 8/17/94

9/27/94

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC964
Equipment Blank

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3210

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3210

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 Date Analyzed: 07/25/94

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.	UNKNOWN	2.20	6.5	~~J~~	JN
2.	UNKNOWN	17.37	17	~~J~~	JN

AHS 9/27/94

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC965

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3216

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3216

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 5 Date Analyzed: 07/25/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	5 ~~10~~ ~~B~~	U
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

AHS 9/27/94

1

APPENDIX IX VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC 965

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3216

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3216

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 5 Date Analyzed: 07/25/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-05-8	Acetonitrile	10 ~~5~~ CEM 8/17/94	U
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
107-05-1	3-Chloro-1-propene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
106-93-4	1,2-Dibromoethane	5	U
74-95-3	Dibromomethane	5	U
110-57-6	Trans-1,4-Dichloro-2-butene	2~~0~~1 CEM 8/17/94	U
75-71-8	Dichlorodifluoromethane	2~~0~~1	U
156-60-5	Trans-1,2-Dichloroethene	5	U
107-12-0	Ethyl cyanide	100	U
74-88-4	Iodomethane	5	U
126-98-7	Methacrylonitrile	10	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
123-91-1	1,4-Dioxane	1000	U
78-83-1	Isobutyl alcohol	100	U
96-33-3	Methyl Methacrylate	10	U
80-62-6	Ethyl Methacrylate	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
126-99-8	Chloroprene	5~~0~~3 CEM 8/17/94	U

CEM
8/17/94

AHS
9/27/94

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC965

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3216

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3216

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 5 Date Analyzed: 07/25/94

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

9/27/94

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC966

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3222

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3222R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 Date Analyzed: 07/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5 ~~10.2~~	~~BJ~~ U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

ASS 9/27/94

1

APPENDIX IX VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC966

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB 3222

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3222R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 Date Analyzed: 07/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
75-05-8	Acetonitrile	10 CEM 8/17/94	U
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
107-05-1	3-Chloro-1-propene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
106-93-4	1,2-Dibromoethane	5	U
74-95-3	Dibromomethane	5	U
110-57-6	Trans-1,4-Dichloro-2-butene	20 } CEM 8/17/94	U
75-71-8	Dichlorodifluoromethane	20 }	U
156-60-5	Trans-1,2-Dichloroethene	5	U
107-12-0	Ethyl cyanide	100	U
74-88-4	Iodomethane	5	U
126-98-7	Methacrylonitrile	10	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
123-91-1	1,4-Dioxane	1000	U
78-83-1	Isobutyl alcohol	100	U
96-33-3	Methyl Methacrylate	10	U
80-62-6	Ethyl Methacrylate	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
126-99-8	Chloroprene	50	U

CEM 8/17/94

HHS 9/27/94

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC966

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3222

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3222R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 Date Analyzed: 07/26/94

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

9/27/94

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC967

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3227

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3227

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 Date Analyzed: 07/25/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5 ~~10~~ ~~4~~	~~B~~ U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

AHS 9/27/94

1

APPENDIX IX VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC967

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3227

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3227

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 Date Analyzed: 07/25/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-05-8	Acetonitrile	10	U
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
107-05-1	3-Chloro-1-propene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
106-93-4	1,2-Dibromoethane	5	U
74-95-3	Dibromomethane	5	U
110-57-6	Trans-1,4-Dichloro-2-butene	2b1 } CEM sinkt	U
75-71-8	Dichlorodifluoromethane	2b1 }	U
156-60-5	Trans-1,2-Dichloroethene	5	U
107-12-0	Ethyl cyanide	100	U
74-88-4	Iodomethane	5	U
126-98-7	Methacrylonitrile	10	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
123-91-1	1,4-Dioxane	1000	U
78-83-1	Isobutyl alcohol	100	U
96-33-3	Methyl Methacrylate	10	U
80-62-6	Ethyl Methacrylate	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
126-99-8	Chloroprene	50	U

CEM 8/17/94

AB 9/27/94

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC967

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3227

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3227

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 Date Analyzed: 07/25/94

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	2.23	7.3	J

JN

FORM I VOA-TIC

1/87 Rev.

9/27/94

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC968

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3232

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3232

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 4 Date Analyzed: 07/25/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5 ~~10.3~~	~~B~~ u
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

AAS 9/27/94

1

APPENDIX IX VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0C968

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3232

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3232

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 4 Date Analyzed: 07/25/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-05-8	Acetonitrile	10	U
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
107-05-1	3-Chloro-1-propene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
106-93-4	1,2-Dibromoethane	5	U
74-95-3	Dibromomethane	5	U
110-57-6	Trans-1,4-Dichloro-2-butene	20 1 CEM 8/17/94	U
75-71-8	Dichlorodifluoromethane	20 1	U
156-60-5	Trans-1,2-Dichloroethene	5	U
107-12-0	Ethyl cyanide	100	U
74-88-4	Iodomethane	5	U
126-98-7	Methacrylonitrile	10	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
123-91-1	1,4-Dioxane	1000	U
78-83-1	Isobutyl alcohol	100	U
96-33-3	Methyl Methacrylate	10	U
80-62-6	Ethyl Methacrylate	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
126-99-8	Chloroprene	5 2 CEM 8/17/94	U

CEM 8/17/94

9/27/94

FORM I VOA 1/87 Rev.

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC968

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3232

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3232

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 4 Date Analyzed: 07/25/94

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	2.23	7.0	J

JN

AXD 9/27/94

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC969

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3237

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3237

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 Date Analyzed: 07/25/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5 ~~10~~ ~~4~~	~~B~~ U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

9/27/94

1

APPENDIX IX VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC969

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3237

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3237

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. ____ Date Analyzed: 07/25/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-05-8	Acetonitrile	10	U
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
107-05-1	3-Chloro-1-propene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
106-93-4	1,2-Dibromoethane	5	U
74-95-3	Dibromomethane	5	U
110-57-6	Trans-1,4-Dichloro-2-butene	201 } CEN 8/17/94	U
75-71-8	Dichlorodifluoromethane	201 }	U
156-60-5	Trans-1,2-Dichloroethene	5	U
107-12-0	Ethyl cyanide	100	U
74-88-4	Iodomethane	5	U
126-98-7	Methacrylonitrile	10	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
123-91-1	1,4-Dioxane	1000	U
78-83-1	Isobutyl alcohol	100	U
96-33-3	Methyl Methacrylate	10	U
80-62-6	Ethyl Methacrylate	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
126-99-8	Chloroprene	50	U

9/27/94

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC969

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3237

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3237

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 Date Analyzed: 07/25/94

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	2.23	6.8	J

JN

9/27/94

FORM I VOA-TIC

1/87 Rev.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOCBN1

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3242

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3242

Level: (low/med) LOW Date Received: 07/19/94 CEM 8/17/94

% Moisture: not dec. 2 Date Analyzed: 07/25/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5 ~~10.3~~	~~B~~ U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

9/27/94

1

APPENDIX IX VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOCBN1

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3242

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3242

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 Date Analyzed: 07/25/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND	UG/KG	Q
75-05-8	Acetonitrile	10	U
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
107-05-1	3-Chloro-1-propene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
106-93-4	1,2-Dibromoethane	5	U
74-95-3	Dibromomethane	5	U
110-57-6	Trans-1,4-Dichloro-2-butene	20	U
75-71-8	Dichlorodifluoromethane	20	U
156-60-5	Trans-1,2-Dichloroethene	5	U
107-12-0	Ethyl cyanide	100	U
74-88-4	Iodomethane	5	U
126-98-7	Methacrylonitrile	10	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
123-91-1	1,4-Dioxane	1000	U
78-83-1	Isobutyl alcohol	100	U
96-33-3	Methyl Methacrylate	10	U
80-62-6	Ethyl Methacrylate	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
126-99-8	Chloroprene	5 ~~1~~ CGM 8/17/94	U

CGM 8/17/94

HKS 9/27/94

FORM I VOA 1/87 Rev.

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOCBN1

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3242

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3242

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 Date Analyzed: 07/25/94 CEA 8/17/94

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	2.23	7.4	J

JN

9/27/94

FORM I VOA-TIC 1/87 Rev.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOCBN2
Trip Blank

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3247

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3247

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 Date Analyzed: 07/25/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	.5	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

AAS 9/27/94

1

APPENDIX IX VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOCBN2 Trip Blank

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3247

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3247

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 Date Analyzed: 07/25/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-05-8	Acetonitrile	10	U
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
107-05-1	3-Chloro-1-propene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
106-93-4	1,2-Dibromoethane	5	U
74-95-3	Dibromomethane	5	U
110-57-6	Trans-1,4-Dichloro-2-butene	20	U
75-71-8	Dichlorodifluoromethane	20	U
156-60-5	Trans-1,2-Dichloroethene	5	U
107-12-0	Ethyl cyanide	100	U
74-88-4	Iodomethane	5	U
126-98-7	Methacrylonitrile	10	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
123-91-1	1,4-Dioxane	1000	U
78-83-1	Isobutyl alcohol	100	U
96-33-3	Methyl Methacrylate	10	U
80-62-6	Ethyl Methacrylate	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
126-99-8	Chloroprene	50	U

CFA 8/17/94

9/27/94

FORM I VOA 1/87 Rev.

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOCBN2
Trip Blank

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB3247

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3247

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 Date Analyzed: 07/25/94

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.	UNKNOWN	2.23	6.3	~~J~~	JN
2.	UNKNOWN	17.40	9.0	~~J~~	JN

9/27/94

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

IT Corporation
2800 George Washington Way
Richland, WA 99352
Attn: Van Pettey

August 22, 1994

SEP 1994
RECEIVED
SDLA

Job Number: 855

This is the Certificate of Analysis for the following samples:

SDG:	W0131
Client Project ID:	WHC SAF 94-330 218-E-8 Borrow Pit Demolition Site Closure Plan
Received by Knoxville:	July 19, 1994
Number of Samples:	Eleven (11)
Sample Type:	Soil

I. Introduction

On July 15, 1994, eleven (11) soil samples arrived at ITAS-Richland, Washington and were transferred to ITAS-Knoxville for chemical analysis. 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.

The samples were analyzed for Appendix IX volatile and semivolatile organic compounds by gas chromatography/mass spectroscopy (GS/MS) based on EPA SW-846 methods 8240 and 8270.

RECORD COPY

Reviewed and Approved:

Sheree' A. Schneider
Project Manager

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

IT Corporation
August 22, 1994
Job Number: 855
Client Project ID: WHC SAF 94-330 218-E-8 Borrow Pit Demolition Site Closure Plan

II. Analytical Results/Methodology (Continued)

The samples were analyzed for nitrate-nitrite based on EPA method 353.2.

The samples were analyzed for anions by ion chromatography using EPA method 300.0.

The samples were analyzed for nitroexplosives by high performance liquid chromatography (HPLC) based on draft EPA method 8330.

III. Quality Control

The volatiles analyses were performed by purge and trap with a J & W DB-624 capillary column on a Finnigan INCOS 500 GC/MS/DS. A matrix spike and matrix spike duplicate were analyzed using sample BOC961. All QC results met method specified limits.

The semivolatiles analyses were performed by direct injection of sample extract on a Restek XTI-5 capillary column on a Finnigan 4500 GC/MS/DS. Daily calibrations were performed for the usual 8270 targets and for the additional Appendix IX compounds. The samples did not contain any Appendix IX compounds. A matrix spike and matrix spike duplicate were analyzed using sample BOC961. The matrix spike and matrix spike duplicate passed all QC criteria as did the laboratory control sample.

Data were reported with qualifiers as follows:

U - Compound analyzed for but not detected; value given is quantitation limit.
E - Compound exceeded calibration range.
D - Compound analyzed at a secondary dilution factor.
J - Compound detected but below quantitation limit; value estimated.
S - Spiked compound.
B - Compound found in method blank.
A - Suspected aldol condensation product.
Y - Indistinguishable isomer in tentatively identified compounds.
N - Presumptive evidence of compound presence.

The samples were analyzed for nitrate/nitrite on July 26, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC961. All QC results were acceptable.

9/20/94
048

582-1-89

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

IT Corporation
August 22, 1994
Job Number: 855
Client Project ID: WHC SAF 94-330 218-E-8 Borrow Pit Demolition Site Closure Plan

III. Quality Control (Continued)

The samples were analyzed for fluoride, chloride, phosphate, nitrate, nitrite and sulfate by EPA method 300.0 on August 2 and 3, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC961. All quality control results were acceptable; chloride for the matrix spike was slightly outside acceptance limits due to matrix interferences. The laboratory control sample (LCS) results were within acceptance limits.

The samples were analyzed for nitroexplosives on August 12 and 13, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC961. All QC results were acceptable.

Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST WO#855	Page 1 of 3 007449

Collector SL Spencer
Company Contact ID Jacques/JW Ball
Telephone 376-3306/372-2653
SAF No. 94-330
Project Designation 218-E-8 Borrow Pit Demolition Site Closure Plan
Sampling Locations 200 East / 200-PO-6
Ice Chest No. SML 443
Bill of Lading/Airbill No. N/A
Offsite Property No.
Method of Shipment Government Vehicle
Field Logbook No.
Shipped to IT Analytical 2800 George Washington Way Richland WA, 99352
Possible Sample Hazards/Remarks None / Work Done to RCRA Protocol
Special Handling and/or Storage
SPECIAL INSTRUCTIONS Standalone Deliverable
Appendix IX SDG W0131

407258

	Sample Number	*	Date Collected	Time	Number and Type of Containers	Analysis Required	Preservative
A	BOC961	SE	07-12-94	1222	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
B	BOC961	SE	07-12-94	1222	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
01 C	BOC961	SE	07-12-94	1222	120ml aGs	Detonation Residue (8330)	Cool to 4°
D	BOC961	SE	07-12-94	1222	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
E	BOC961	SE	07-12-94	1222	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
F	BOC961	SE	07-12-94	1222	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
A	BOC962	SE	07-12-94	1222	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
B	BOC962	SE	07-12-94	1222	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
02 C	BOC962	SE	07-12-94	1222	120ml aGs	Detonation Residue (8330)	Cool to 4°
D	BOC962	SE	07-12-94	1222	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
E	BOC962	SE	07-12-94	1222	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
F	BOC962	SE	07-12-94	1222	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
A	BOC963	SE	07-12-94	1046	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
B	BOC963	SE	07-12-94	1046	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
03 C	BOC963	SE	07-12-94	1046	120ml aGs	Detonation Residue (8330)	Cool to 4°
D	BOC963	SE	07-12-94	1046	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
E	BOC963	SE	07-12-94	1046	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
F	BOC963	SE	07-12-94	1046	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
A	BOC964	SE	07-12-94	0925	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
04 B	BOC964	SE	07-12-94	0925	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°

9/30/94

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Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST WO#855	Page 2 of 9 007449

	C	BOC964	SE	07-12-94	0925	120ml aGs	Detonation Residue (8330)	Cool to 4°
04	D	BOC964	SE	07-12-94	0925	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
	E	BOC964	SE	07-12-94	0925	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC964	SE	07-12-94	0925	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC965	SE	07-12-94	1304	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC965	SE	07-12-94	1304	120ml aGs	Detonation Residue (8330)	Cool to 4°
05	C	BOC965	SE	07-12-94	1304	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
	D	BOC965	SE	07-12-94	1304	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	E	BOC965	SE	07-12-94	1304	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC966	SE	07-12-94	1115	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC966	SE	07-12-94	1115	120ml aGs	Detonation Residue (8330)	Cool to 4°
06	C	BOC966	SE	07-12-94	1115	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
	D	BOC966	SE	07-12-94	1115	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	E	BOC966	SE	07-12-94	1115	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC967	SE	07-12-94	1136	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC967	SE	07-12-94	1136	120ml aGs	Detonation Residue (8330)	Cool to 4°
07	C	BOC967	SE	07-12-94	1136	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
	D	BOC967	SE	07-12-94	1136	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	E	BOC967	SE	07-12-94	1136	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC968	SE	07-12-94	1101	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC968	SE	07-12-94	1101	120ml aGs	Detonation Residue (8330)	Cool to 4°
08	C	BOC968	SE	07-12-94	1101	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
	D	BOC968	SE	07-12-94	1101	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	E	BOC968	SE	07-12-94	1101	40 ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC969	SE	07-12-94	~~1035~~	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC969	SE	07-12-94	~~1035~~	120ml aGs	Detonation Residue (8330)	Cool to 4°
09	C	BOC969	SE	07-12-94	~~1035~~	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
	D	BOC969	SE	07-12-94	~~1035~~	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	E	BOC969	SE	07-12-94	~~1035~~	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°

1101

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Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST WO#855	Page 3 of 3 007449

A	BOCBN1	SE	07-12-94	1025	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
B	BOCBN1	SE	07-12-94	1025	120ml aGs	Detonation Residue (8330)	Cool to 4°
10 C	BOCBN1	SE	07-12-94	1025	120ml aGs	Anions -F, Cl, SO4 -PO4, NO2, NO3 (EPA 300.0)	Cool to 4°
D	BOCBN1	SE	07-12-94	1025	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
E	BOCBN1	SE	07-12-94	1025	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
11 A	BOCBN2	SE	07-11-94	1600	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°

Chain of Possession (Sign and Print Names) Relinquished By	Date	Time	Received By
Shannon L. Spencer Shannon L. Spencer	7-14-94	1130	RM Arnold RM Arnold
RM Arnold RM Arnold	7-15-94	0930	R.B and Arnold 2100 7/15/94 1120

*Matrix
A = Air
DL = Drum Liquids
DS = Drum Solids
L = Liquid
O = Oil
S = Soil
SE = Sediment
SL = Sludge
SO = Solid
T = Tissue
W = Water
WI = Wipe
X = Other

LABORATORY SECTION	Received By	Title	Date/Time
Final Sample Disposition	Disposal Method:	Disposed by:	Date/Time:

TRIP BLANK 2 x 40mL vial Tag 4°C 2 fill 100 100

2

052

0000024

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

WHC-SD-EN-SPP-002, Rev. 2

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 943-1610.005		DATA PACKAGE: W0131-QES-139
VALIDATOR: L. Schilolt	LAB: IT	DATE: 9/27/94
CASE:		SDG: W0131

ANALYSES PERFORMED

~~☐ CLP Volatiles~~	☒ SW-846 8240 (cap column)	☐ SW-846 8260 (packed column)	☐ CLP Semivolatiles	☐ SW-846 8270 (cap column)	☐ SW-846 (packed column)
☐	☐	☐	☐	☐	☐

SAMPLES/MATRIX B0C961-9, B0CBN1-2 / soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? . . . . . (Yes) No N/A

Is a case narrative present? . . . . . (Yes) No N/A

Comments:

2. HOLDING TIMES

Are sample holding times acceptable? . . . . . (Yes) No N/A

Comments:

GC/MS ORGANIC DATA VALIDATION CHECKLIST

3. INSTRUMENT TUNING AND CALIBRATION

Is the GC/MS tuning/performance check acceptable? . . . . . Yes No N/A

Are initial calibrations acceptable? . . . . . Yes No N/A

Are continuing calibrations acceptable? . . . . . Yes No N/A

Comments:

4. BLANKS

Were laboratory blanks analyzed? . . . . . Yes No N/A

Are laboratory blank results acceptable? . . . . . ~~Yes~~ No N/A

Were field/trip blanks analyzed? . . . . . Yes No N/A

Are field/trip blank results acceptable? . . . . . ~~Yes~~ No N/A

Comments: Blanks (trip and equip) contain unknown TICs. Laboratory blanks contain methylene chloride and acetone. Samples detected methylene chloride at concentrations <5x blank and have been qualified U. No qualification necessary for acetone.

5. ACCURACY

Were surrogates/System Monitoring Compounds analyzed? . . . . . Yes No N/A

Are surrogate/System Monitoring Compound recoveries acceptable? Yes No N/A

Were MS/MSD samples analyzed? . . . . . Yes No N/A

Are MS/MSD results acceptable? . . . . . Yes No N/A

Comments:

GC/MS ORGANIC DATA VALIDATION CHECKLIST

6. PRECISION

Are MS/MSD RPD values acceptable? . . . . . Yes No N/A

Are field duplicate RPD values acceptable? . . . . . Yes No N/A

Are field split RPD values acceptable? . . . . . Yes No N/A

Comments:

7. SYSTEM PERFORMANCE

Were internal standards analyzed? . . . . . Yes No N/A

Are internal standard areas acceptable? . . . . . Yes No N/A

Are internal standard retention times acceptable? . . . . . Yes No N/A

Comments:

8. COMPOUND IDENTIFICATION AND QUANTITATION

Is compound identification acceptable? . . . . . Yes No N/A

Is compound quantitation acceptable? . . . . . Yes No N/A

Comments:

9. REPORTED RESULTS AND QUANTITATION LIMITS

Are results reported for all requested analyses? . . . . . Yes No N/A

Are all results supported in the raw data? . . . . . Yes No N/A

Do results meet the CRQLs? . . . . . Yes No N/A

Has the laboratory properly identified and coded all TIC? . . . Yes No N/A

Comments:

056

HOLDING TIME SUMMARY

SDG: WO131 | VALIDATOR: A. Schilaldt | DATE: 9/27/94 | PAGE 1 OF 1

COMMENTS: Organics, volatile

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
BOCBN2	VOA	7/11/94	7/25/94	7/25/94	14	14	none
BOCBN1		7/12/94		7/25/94	13	13	
BOC961-3				7/26/94		14	
BOC964-5				7/25/94		13	
BOC966				7/26/94		14	
BOC967-9				7/25/94		13	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKAB5436

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB5436

Sample wt/vol: 5.0 (g/mL) G Lab File ID: WB0725D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 07/25/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	3	J
67-64-1	Acetone	4	J
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKAB5438

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 855 SAS No.: _____ SDG No.: W0131

Matrix: (soil/water) SOIL Lab Sample ID: AB5438

Sample wt/vol: 5.0 (g/mL) G Lab File ID: WB0726B

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 07/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	6	J
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

9413299.1175

MEMORANDUM

TO: 200 West Ash Pit Project QA Record — September 30, 1994

FR: Thomas Stapp, Golder Associates Inc.

RE: INORGANIC DATA VALIDATION SUMMARY FOR DATA PACKAGE W0130-QES-143 (943-1610.004 143MET.004)

INTRODUCTION

This memo presents the results of data validation on data package W0130-QES-143 prepared by International Technology laboratory. A list of samples validated along with the analyses reported and the methods of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSES
B0C950	7/12/94	SEDIMENT	SEE NOTE 1
B0C951	7/12/94	SEDIMENT	
B0C952	7/12/94	SEDIMENT	
B0C953	7/12/94	SEDIMENT	
B0C954	7/12/94	SEDIMENT	
B0C955	7/12/94	SEDIMENT	
B0C956	7/12/94	SEDIMENT	
B0C957	7/12/94	SEDIMENT	
B0C958	7/12/94	SEDIMENT	
B0C959	7/12/94	SEDIMENT	
B0C960	7/12/94	SEDIMENT	
B0CBM9	7/12/94	SEDIMENT	

Notes:

1. Indicates the samples were analyzed for target analyte list (TAL) metals, mercury and titanium.

1994 RECEIVED TQO

Data validation was conducted in accordance with the WHC statement of work (WHC 1994) and validation procedures (WHC 1993). Attachments 1 through 5 provide the following information as indicated below:

Attachment 1. Glossary of Data Reporting Qualifiers
Attachment 2. Summary of Data Qualifications
Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
Attachment 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

This section presents a summary of the data quality in terms of the referenced validation criteria.

Precision. Goals for precision were met with the exception of deficiencies as indicated below.

Accuracy. Goals for accuracy were met with the exception of deficiencies as indicated below.

Sample Result Verification. All sample results were supported in the raw data.

Detection Limits. Detection limit goals have been met.

Completeness. The data package was complete for all requested analyses. A total of twelve (12) samples were validated in this data package with a total of 276 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent which meets the work plan completeness objective of 90 percent.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

The following minor deficiencies were identified during data validation which required qualification of data.

Laboratory Blanks

- Copper and arsenic were detected in the laboratory blanks at negative concentrations. Attachments 2 and 5 provide a summary of samples affected, qualification applied and supporting documentation.

- Aluminum, calcium and zinc were detected in the preparation blank. Attachments 2 and 5 provide a summary of samples affected, qualification applied and supporting documentation.

Matrix Spike

- Spike recoveries for antimony, arsenic, copper, manganese and zinc were unacceptabled. Attachments 2 and 5 provide a summary of samples affected, qualification applied and supporting documentation.

ICP Serial Dilution

- The serial dilution result for copper was unacceptable. Attachments 2 and 5 provide a summary of samples affected, qualification applied and supporting documentation.

Analytical Spikes

- The analytical spike recovery for selenium for sample B0C960 was unacceptable. Attachments 2 and 5 provide a summary of qualification applied and supporting documentation.

- Method of standard additions (MSA) was required for arsenic analysis of samples B0C952 and B0C953 but was not performed, therefore associated results have been qualified as estimated (J).

- The correlation coefficient of lead MSA analysis for samples B0C954 and B0C957 was below 0.995, therefore associated results were qualified as estimated (J).

FIELD QC

Equipment Blanks

- Sample B0CBM9 is identified as the equipment blank with positive results reported for iron, titanium, and sodium. See blank summary form B-3. No qualification is required based upon field QC results.

Field Duplicate

- Sample B0C953 is identified as the field duplicate of sample B0C952. The relative percent difference (RPD) was exceeded for aluminum, iron, magnesium, manganese, zinc and titanium. See precision summary form B-5. No qualification is required based upon field QC results.

REFERENCES

WHC 1993, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993. Westinghouse Hanford Company, Richland, Washington.

WHC 1994, Validation of 200 West Ash Pit Data, Statement of Work, Environmental and Waste Characterization Analytical Data Validation, Task Order MSH-SWV-315905, August 10, 1994, Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF INORGANIC DATA REPORTING QUALIFIERS

B - Indicates the constituent was analyzed for and detected. The concentration reported is less than the contract required detection limit (CRDL) but greater than the instrument detection limit (IDL). The associated data should be considered usable for decision making purposes.

U - Indicates the constituent was analyzed for and not detected. The concentration reported is the sample detection limit corrected for aliquot size, dilution and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.

UJ - Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during data validation the concentration may not accurately reflect the sample detection limit. The associated data have been qualified as estimated but should be considered usable for decision making purposes.

BJ - Indicates the constituent was analyzed for and detected at a concentration less than the contract required detection limit (CRDL) but greater than the instrument detection limit (IDL). Due to a minor quality control deficiency identified during data validation the associated data have been qualified as estimated, but should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. Due to a minor quality control deficiency identified during data validation the associated data have been qualified as estimated, but should be considered usable for decision making purposes.

UR - Indicates the constituent was analyzed for and not detected. Due to a major quality control deficiency identified during data validation, the associated data have been qualified as unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. Due to a major quality control deficiency identified during data validation, the associated data have been qualified as unusable for decision making purposes.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

WHC-SD-EN-SPP-002, REV.2

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: W0130-QES-143	REVIEWER: T. STAPP	DATE: 9-27-94	PAGE 1 OF 1
COMMENTS: METALS			
COMPOUND/ ANALYTE	QUALIFIER	SAMPLES AFFECTED	REASON
COPPER	J/UJ	ALL	NEGATIVE RESULT DETECTED IN PREPARATION BLANK
ARSENIC	UJ	B0CBM9	NEGATIVE RESULT DETECTED IN PREPARATION BLANK
ALUMINUM, CALCIUM, ZINC	U	B0CBM9	CONTAMINANT DETECTED IN PREPARATION BLANK
ANTIMONY, ARSENIC, COPPER, MANGANESE, ZINC	BJ/J/UJ	ALL	MS RECOVERY WAS BELOW 75% BUT ABOVE 30%
COPPER	J	ALL	ICP SERIAL DILUTION EXCEEDS 10%
SELENIUM	UJ	B0C960	ANALYTICAL SPIKE RECOVERY IS <85%
ARSENIC	J	B0C952, B0C953	MSA NOT PERFORMED WHEN REQUIRED
LEAD	J	B0C954,B0C957	CORRELATION COEFFICIENT OF MSA ANALYSIS <0.995

ATTACHMENT 3

QUALIFIED DATA SUMMARY and ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: W0130-QES-143

	Samp#	B0C950		B0C951		B0C952		B0C953		B0C954		B0C955	
	Date												
	Location	200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT	
	Depth	---		---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments							FIELD DUP					
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
ALUMINUM	MG/KG	6890.000		7170.000		6940.000		4450.000		5530.000		6670.000	
ANTIMONY	MG/KG	10.100	UJ	9.800	UJ	10.300	UJ	10.200	UJ	10.300	UJ	10.100	UJ
ARSENIC	MG/KG	2.100	J	2.200	J	2.100	J	2.400	J	1.800	BJ	2.600	J
BARIUM	MG/KG	81.800		94.900		58.200		37.600	B	66.200		70.900	
BERYLLIUM	MG/KG	0.240	B	0.340	B	0.230	B	0.200	U	0.230	B	0.250	B
CADMIUM	MG/KG	1.400		0.980	U	1.000	U	1.000	U	1.000	U	1.000	U
CALCIUM	MG/KG	9440.000		8470.000		10800.000		7900.000		10200.000		8110.000	
CHROMIUM	MG/KG	13.000		8.600		10.200		6.400		8.000		9.400	
COBALT	MG/KG	3.600	B	6.100	B	3.100	B	2.000	U	3.700	B	4.100	B
COPPER	MG/KG	35.800	J	24.200	J	12.900	J	6.700	J	9.700	J	15.500	J
IRON	MG/KG	19100.000		22600.000		19100.000		12400.000		15900.000		18300.000	
LEAD	MG/KG	18.300		17.500		5.300		4.600		5.100	J	5.100	
MAGNESIUM	MG/KG	5080.000		5080.000		5480.000		3720.000		4270.000		4990.000	
MANGANESE	MG/KG	315.000	J	361.000	J	314.000	J	207.000	J	277.000	J	274.000	J
MERCURY	MG/KG	0.180		0.090	U	0.090	U	0.100	U	0.090	U	0.110	
NICKEL	MG/KG	13.800		9.700		12.100		5.600	B	6.500	B	10.800	
POTASSIUM	MG/KG	1080.000		2530.000		921.000	B	671.000	B	1020.000	B	1130.000	
SELENIUM	MG/KG	0.400	U	0.390	U	0.410	U	0.410	U	0.410	U	0.410	U
SILVER	MG/KG	1.000	U	0.980	U	1.000	U	1.000	U	1.000	U	1.000	U
SODIUM	MG/KG	270.000	B	252.000	B	232.000	B	141.000	B	163.000	B	239.000	B
VANADIUM	MG/KG	30.300		39.800		33.000		19.700		25.400		28.000	
ZINC	MG/KG	121.000	J	119.000	J	48.700	J	31.000	J	36.300	J	48.800	J
TITANIUM	MG/KG	919.000		1470.000		965.000		678.000		800.000		925.000	

Verified 10/11/94

Revised 10-11-94

Validated Data Summary, Data Package: W0130-QES-143

	Samp#	B0C956		B0C957		B0C958		B0C959		B0C960		B0CBM9	
	Date												
	Location	200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT	
	Depth	---		---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments											EQUIP BLANK	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
ALUMINUM	MG/KG	7060.000		6750.000		6240.000		5290.000		7030.000		59.000	U
ANTIMONY	MG/KG	9.900	UJ	10.000	UJ	10.100	UJ	10.000	UJ	10.200	UJ	10.000	UJ
ARSENIC	MG/KG	2.300	J	2.400	J	2.200	J	3.300	J	2.600	J	0.390	UJ
BARIUM	MG/KG	84.100		89.100		84.400		51.700		99.500		0.400	U
BERYLLIUM	MG/KG	0.240	B	0.200	U	0.200	U	0.200	U	0.260	B	0.200	U
CADMIUM	MG/KG	0.990	U	1.000	U	1.000	U	1.000	U	1.000	U	1.000	U
CALCIUM	MG/KG	9950.000		9080.000		8500.000		8760.000		8410.000		21.400	U
CHROMIUM	MG/KG	15.000		6.900		8.000		8.000		24.000		2.000	U
COBALT	MG/KG	3.900	B	6.700	B	3.100	B	3.200	B	4.700	B	2.000	U
COPPER	MG/KG	18.800	J	17.500	J	16.900	J	5.600	J	27.800	J	2.000	UJ
IRON	MG/KG	18500.000		26400.000		18100.000		16100.000		19700.000		104.000	
LEAD	MG/KG	21.200		6.700	J	11.600		4.200		36.400		0.400	U
MAGNESIUM	MG/KG	4810.000		5320.000		4650.000		4580.000		4910.000		10.000	U
MANGANESE	MG/KG	305.000	J	374.000	J	329.000	J	227.000	J	286.000	J	0.400	UJ
MERCURY	MG/KG	0.760		0.100	U	0.100	U	0.080	U	0.620		0.090	U
NICKEL	MG/KG	12.100		10.800		9.700		7.300	B	18.300		4.000	U
POTASSIUM	MG/KG	1210.000		1470.000		1520.000		940.000	B	1340.000		201.000	U
SELENIUM	MG/KG	0.400	U	0.400	U	0.390	U	0.400	U	0.410	UJ	0.390	U
SILVER	MG/KG	2.200		1.000	U	1.000	U	1.000	U	1.700	B	1.000	U
SODIUM	MG/KG	282.000	B	223.000	B	190.000	B	157.000	B	370.000	B	24.400	B
VANADIUM	MG/KG	30.000		51.100		27.900		25.200		33.000		2.000	U
ZINC	MG/KG	112.000	J	49.500	J	60.800	J	31.400	J	155.000	J	1.400	UJ
TITANIUM	MG/KG	1010.000		1910.000		1020.000		801.000		1100.000		1.400	

Verified 9-28-94

9413259.1182

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9413299.1183

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOC950

Lab Name: ITAS_KNOXVILLE Contract: HANFORD/WE

Lab Code: ITSTU Case No.: WO854 SAS No.: _____ SDG No.: WO130_

Matrix (soil/water): SOIL_ Lab Sample ID: AB3099

Level (low/med): LOW_ Date Received: 07/19/94

% Solids: 97.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	6890			P	Q
7440-36-0	Antimony	10.1	B	N	P	UJ
7440-38-2	Arsenic	2.1		N	F	J
7440-39-3	Barium	81.8			P	
7440-41-7	Beryllium	0.24	B		P	
7440-43-9	Cadmium	1.4			P	
7440-70-2	Calcium	9440			P	
7440-47-3	Chromium	13.0		*	P	
7440-48-4	Cobalt	3.6	B		P	
7440-50-8	Copper	35.8		N	P	J
7439-89-6	Iron	19100			P	
7439-92-1	Lead	18.3		S	F	
7439-95-4	Magnesium	5080			P	
7439-96-5	Manganese	315		N	P	J
7439-97-6	Mercury	0.18			CV	
7440-02-0	Nickel	13.8			P	
7440-09-7	Potassium	1080			P	
7782-49-2	Selenium	0.40	U		F	
7440-22-4	Silver	1.0	U		P	
7440-23-5	Sodium	270	B		P	
7440-62-2	Vanadium	30.3			P	
7440-66-6	Zinc	121		N*	P	J
7440-32-6	Titanium	919		*	P	

Color Before: GRAY Clarity Before: N/A Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts: YES

Comments:

ARTIFACTS_INCLUDE_ROCKS.

FORM I - IN

9-28-94

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8/11/94

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOC951

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE
Lab Code: ITSTU_ Case No.: WO854 SAS No.: _____ SDG No.: WO130_
Matrix (soil/water): SOIL_ Lab Sample ID: AB3115
Level (low/med): LOW_ Date Received: 07/19/94
% Solids: _98.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	7170			P	
7440-36-0	Antimony	9.8	U	N	P	UJ
7440-38-2	Arsenic	2.2		SN	F	J
7440-39-3	Barium	94.9			P	
7440-41-7	Beryllium	0.34	B		P	
7440-43-9	Cadmium	0.98	U		P	
7440-70-2	Calcium	8470			P	
7440-47-3	Chromium	8.6		*	P	
7440-48-4	Cobalt	6.1	B		P	
7440-50-8	Copper	24.2		N	P	J
7439-89-6	Iron	22600			P	
7439-92-1	Lead	17.5		S	F	
7439-95-4	Magnesium	5080			P	
7439-96-5	Manganese	361		N	P	J
7439-97-6	Mercury	0.09	U		CV	
7440-02-0	Nickel	9.7			P	
7440-09-7	Potassium	2530			P	
7782-49-2	Selenium	0.39	U		F	
7440-22-4	Silver	0.98	U		P	
7440-23-5	Sodium	252	B		P	
7440-62-2	Vanadium	39.8			P	
7440-66-6	Zinc	119		N*	P	J
7440-32-6	Titanium	1470		*	P	

Color Before: GRAY_____ Clarity Before: N/A___ Texture: MEDIUM
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: YES___

Comments:
ARTIFACTS_INCLUDE_ROCKS._____

FORM I - IN

9-28-94

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8/11/94

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1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOC952

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: WO854 SAS No.: _____ SDG No.: WO130
Matrix (soil/water): SOIL Lab Sample ID: AB3122
Level (low/med): LOW Date Received: 07/19/94
% Solids: 97.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	6940			P	
7440-36-0	Antimony	10.3	U	N	P	UJ
7440-38-2	Arsenic	2.1		N	F	J
7440-39-3	Barium	58.2			P	
7440-41-7	Beryllium	0.23	B		P	
7440-43-9	Cadmium	1.0	U		P	
7440-70-2	Calcium	10800			P	
7440-47-3	Chromium	10.2		*	P	
7440-48-4	Cobalt	3.1	B		P	
7440-50-8	Copper	12.9		N	P	J
7439-89-6	Iron	19100			P	
7439-92-1	Lead	5.3		S	F	
7439-95-4	Magnesium	5480			P	
7439-96-5	Manganese	314		N	P	J
7439-97-6	Mercury	0.09	U		CV	
7440-02-0	Nickel	12.1			P	
7440-09-7	Potassium	921	B		P	
7782-49-2	Selenium	0.41	U		F	
7440-22-4	Silver	1.0	U		P	
7440-23-5	Sodium	232	B		P	
7440-62-2	Vanadium	33.0			P	
7440-66-6	Zinc	48.7		N*	P	J
	Titanium	965		*	P	

Color Before: GRAY Clarity Before: N/A Texture: MEDIUM
Color After: COLORLESS Clarity After: CLEAR Artifacts: YES

Comments:
ARTIFACTS INCLUDE ROCKS.

FORM I - IN RS 9-28-94

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8/11/94

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1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOC953

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: WO854 SAS No.: SDG No.: WO130
Matrix (soil/water): SOIL Lab Sample ID: AB3129
Level (low/med): LOW Date Received: 07/19/94
% Solids: 98.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	4450			P	
7440-36-0	Antimony	10.2	U	N	P	UJ
7440-38-2	Arsenic	2.4		N	F	J
7440-39-3	Barium	37.6	B		P	
7440-41-7	Beryllium	0.20	U		P	
7440-43-9	Cadmium	1.0	U		P	
7440-70-2	Calcium	7900			P	
7440-47-3	Chromium	6.4		*	P	
7440-48-4	Cobalt	2.0	U		P	
7440-50-8	Copper	6.7		N	P	J
7439-89-6	Iron	12400			P	
7439-92-1	Lead	4.6		S	F	
7439-95-4	Magnesium	3720			P	
7439-96-5	Manganese	207		N	P	J
7439-97-6	Mercury	0.10	U		CV	
7440-02-0	Nickel	5.6	B		P	
7440-09-7	Potassium	671	B		P	
7782-49-2	Selenium	0.41	U		F	
7440-22-4	Silver	1.0	U		P	
7440-23-5	Sodium	141	B		P	
7440-62-2	Vanadium	19.7			P	
7440-66-6	Zinc	31.0		N*	P	J
	Titanium	678		*	P	

Color Before: GRAY Clarity Before: N/A Texture: MEDIUM
Color After: COLORLESS Clarity After: CLEAR Artifacts: YES

Comments:
ARTIFACTS INCLUDE ROCKS.

FORM I - IN 9-28-94

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U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOC954

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE
Lab Code: ITSTU_ Case No.: WO854 SAS No.: _____ SDG No.: WO130_
Matrix (soil/water): SOIL_ Lab Sample ID: AB3136
Level (low/med): LOW_ Date Received: 07/19/94
% Solids: _97.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	5530			P	
7440-36-0	Antimony	10.3	~~U~~	N	P	UJ
7440-38-2	Arsenic	1.8	~~B~~	N	F	BJ
7440-39-3	Barium	66.2			P	
7440-41-7	Beryllium	0.23	B		P	
7440-43-9	Cadmium	1.0	U		P	
7440-70-2	Calcium	10200			P	
7440-47-3	Chromium	8.0		*	P	
7440-48-4	Cobalt	3.7	B		P	
7440-50-8	Copper	9.7		N	P	J
7439-89-6	Iron	15900			P	
7439-92-1	Lead	5.1		+	F	J
7439-95-4	Magnesium	4270			P	
7439-96-5	Manganese	277		N	P	J
7439-97-6	Mercury	0.09	U		CV	
7440-02-0	Nickel	6.5	B		P	
7440-09-7	Potassium	1020	B		P	
7782-49-2	Selenium	0.41	U		F	
7440-22-4	Silver	1.0	U		P	
7440-23-5	Sodium	163	B		P	
7440-62-2	Vanadium	25.4			P	
7440-66-6	Zinc	36.3		N*	P	J
	Titanium	800		*	P	

Color Before: GRAY Clarity Before: N/A Texture: MEDIUM
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: YES___

Comments:
ARTIFACTS_INCLUDE_ROCKS.

FORM I - IN

9-28-94

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOC955

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE
Lab Code: ITSTU_ Case No.: WO854 SAS No.: _____ SDG No.: WO130_
Matrix (soil/water): SOIL_ Lab Sample ID: AB3143
Level (low/med): LOW__ Date Received: 07/19/94
% Solids: _98.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	6670			P	
7440-36-0	Antimony	10.1	U	N	P	UJ
7440-38-2	Arsenic	2.6		N	F	J
7440-39-3	Barium	70.9			P	
7440-41-7	Beryllium	0.25	B		P	
7440-43-9	Cadmium	1.0	U		P	
7440-70-2	Calcium	8110			P	
7440-47-3	Chromium	9.4		*	P	
7440-48-4	Cobalt	4.1	B		P	
7440-50-8	Copper	15.5		N	P	J
7439-89-6	Iron	18300			P	
7439-92-1	Lead	5.1		S	F	
7439-95-4	Magnesium	4990			P	
7439-96-5	Manganese	274		N	P	J
7439-97-6	Mercury	0.11			CV	
7440-02-0	Nickel	10.8			P	
7440-09-7	Potassium	1130			P	
7782-49-2	Selenium	0.41	U		F	
7440-22-4	Silver	1.0	U		P	
7440-23-5	Sodium	239	B		P	
7440-62-2	Vanadium	28.0			P	
7440-66-6	Zinc	48.8		N*	P	J
	Titanium	925		*	P	

Color Before: GRAY Clarity Before: N/A Texture: MEDIUM
Color After: COLORLESS Clarity After: CLEAR Artifacts: YES

Comments:
ARTIFACTS_INCLUDE_ROCKS.

FORM I - IN

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOC956

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE
Lab Code: ITSTU_ Case No.: WO854 SAS No.: _____ SDG No.: WO130_
Matrix (soil/water): SOIL_ Lab Sample ID: AB3150
Level (low/med): LOW__ Date Received: 07/19/94
% Solids: _97.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum_	7060			P_	Q
7440-36-0	Antimony_	9.9	U	N	P_	UJ
7440-38-2	Arsenic__	2.3		N	F_	J
7440-39-3	Barium___	84.1			P_	
7440-41-7	Beryllium	0.24	B		P_	
7440-43-9	Cadmium__	0.99	U		P_	
7440-70-2	Calcium__	9950			P_	
7440-47-3	Chromium_	15.0		*	P_	
7440-48-4	Cobalt___	3.9	B		P_	
7440-50-8	Copper___	18.8		N	P_	J
7439-89-6	Iron____	18500			P_	
7439-92-1	Lead____	21.2		S	F_	
7439-95-4	Magnesium	4810			P_	
7439-96-5	Manganese	305		N	P_	J
7439-97-6	Mercury__	0.76			CV	
7440-02-0	Nickel___	12.1			P_	
7440-09-7	Potassium	1210			P_	
7782-49-2	Selenium_	0.40	U		F_	
7440-22-4	Silver___	2.2			P_	
7440-23-5	Sodium___	282	B		P_	
7440-62-2	Vanadium_	30.0			P_	
7440-66-6	Zinc____	112		N*	P_	J
	Titanium_	1010		*	P_	

Color Before: GRAY_____ Clarity Before: N/A___ Texture: MEDIUM
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: YES___

Comments:
ARTIFACTS_INCLUDE_ROCKS.

FORM I - IN

9-28-94

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8/11/94

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOC957

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: WO854 SAS No.: SDG No.: WO130
Matrix (soil/water): SOIL Lab Sample ID: AB3157
Level (low/med): LOW Date Received: 07/19/94
% Solids: 99.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	6750			P	
7440-36-0	Antimony	10	U	N	P	UJ
7440-38-2	Arsenic	2.4		N	F	J
7440-39-3	Barium	89.1			P	
7440-41-7	Beryllium	0.20	U		P	
7440-43-9	Cadmium	1.00	U		P	
7440-70-2	Calcium	9080			P	
7440-47-3	Chromium	6.9		*	P	
7440-48-4	Cobalt	6.7	B		P	
7440-50-8	Copper	17.5		N	P	J
7439-89-6	Iron	26400			P	
7439-92-1	Lead	6.7		+	F	J
7439-95-4	Magnesium	5320			P	
7439-96-5	Manganese	374		N	P	J
7439-97-6	Mercury	0.10	U		CV	
7440-02-0	Nickel	10.8			P	
7440-09-7	Potassium	1470			P	
7782-49-2	Selenium	0.40	U		F	
7440-22-4	Silver	1.00	U		P	
7440-23-5	Sodium	223	B		P	
7440-62-2	Vanadium	51.1			P	
7440-66-6	Zinc	49.5		N*	P	J
	Titanium	1910		*	P	

Color Before: GRAY Clarity Before: N/A Texture: MEDIUM
Color After: COLORLESS Clarity After: CLEAR Artifacts: YES

Comments:
ARTIFACTS INCLUDE ROCKS.

FORM I - IN

9-28-94

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8/11/94

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOC958

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE
Lab Code: ITSTU_ Case No.: WO854 SAS No.: _____ SDG No.: WO130_
Matrix (soil/water): SOIL_ Lab Sample ID: AB3164
Level (low/med): LOW__ Date Received: 07/19/94
% Solids: _98.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum_	6240			P	
7440-36-0	Antimony_	10.1	B	N	P	UJ
7440-38-2	Arsenic__	2.2		N	F	J
7440-39-3	Barium__	84.4			P	
7440-41-7	Beryllium	0.20	U		P	
7440-43-9	Cadmium__	1.0	U		P	
7440-70-2	Calcium__	8500			P	
7440-47-3	Chromium_	8.0		*	P	
7440-48-4	Cobalt___	3.1	B		P	
7440-50-8	Copper___	16.9		N	P	J
7439-89-6	Iron____	18100			P	
7439-92-1	Lead____	11.6		S	F	
7439-95-4	Magnesium	4650			P	
7439-96-5	Manganese	329		N	P	J
7439-97-6	Mercury__	0.10	U		CV	
7440-02-0	Nickel___	9.7			P	
7440-09-7	Potassium	1520			P	
7782-49-2	Selenium_	0.39	U		F	
7440-22-4	Silver___	1.0	U		P	
7440-23-5	Sodium___	190	B		P	
7440-62-2	Vanadium_	27.9			P	
7440-66-6	Zinc____	60.8		N*	P	J
	Titanium_	1020		*	P	

Color Before: GRAY_____ Clarity Before: N/A___ Texture: MEDIUM
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: YES___

Comments:
ARTIFACTS_INCLUDE_ROCKS.

FORM I - IN

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOC959

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE

Lab Code: ITSTU Case No.: WO854 SAS No.: SDG No.: WO130

Matrix (soil/water): SOIL Lab Sample ID: AB3171

Level (low/med): LOW Date Received: 07/19/94

% Solids: 99.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	5290			P	
7440-36-0	Antimony	10	U	N	P	UJ
7440-38-2	Arsenic	3.3		N	F	J
7440-39-3	Barium	51.7			P	
7440-41-7	Beryllium	0.20	U		P	
7440-43-9	Cadmium	1.00	U		P	
7440-70-2	Calcium	8760			P	
7440-47-3	Chromium	8.0		*	P	
7440-48-4	Cobalt	3.2	B		P	
7440-50-8	Copper	5.6		N	P	J
7439-89-6	Iron	16100			P	
7439-92-1	Lead	4.2		S	F	
7439-95-4	Magnesium	4580			P	
7439-96-5	Manganese	227		N	P	J
7439-97-6	Mercury	0.08	U		CV	
7440-02-0	Nickel	7.3	B		P	
7440-09-7	Potassium	940	B		P	
7782-49-2	Selenium	0.40	U		F	
7440-22-4	Silver	1.00	U		P	
7440-23-5	Sodium	157	B		P	
7440-62-2	Vanadium	25.2			P	
7440-66-6	Zinc	31.4		N*	P	J
	Titanium	801		*	P	

Color Before: GRAY Clarity Before: N/A Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts: YES

Comments:

ARTIFACTS INCLUDE ROCKS.

FORM I - IN

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOC960

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE

Lab Code: ITSTU Case No.: WO854 SAS No.: SDG No.: WO130

Matrix (soil/water): SOIL Lab Sample ID: AB3178

Level (low/med): LOW Date Received: 07/19/94

% Solids: 97.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	7030			P	
7440-36-0	Antimony	10.2	U	N	P	UJ
7440-38-2	Arsenic	2.6		N	F	J
7440-39-3	Barium	99.5			P	
7440-41-7	Beryllium	0.26	B		P	
7440-43-9	Cadmium	1.0	U		P	
7440-70-2	Calcium	8410			P	
7440-47-3	Chromium	24.0		*	P	
7440-48-4	Cobalt	4.7	B		P	
7440-50-8	Copper	27.8		N	P	J
7439-89-6	Iron	19700			P	
7439-92-1	Lead	36.4		S	F	
7439-95-4	Magnesium	4910			P	
7439-96-5	Manganese	286		N	P	J
7439-97-6	Mercury	0.62			CV	
7440-02-0	Nickel	18.3			P	
7440-09-7	Potassium	1340			P	
7782-49-2	Selenium	0.41	U	W	F	UJ
7440-22-4	Silver	1.7	B		P	
7440-23-5	Sodium	370	B		P	
7440-62-2	Vanadium	33.0			P	
7440-66-6	Zinc	155		N*	P	J
	Titanium	1100		*	P	

Color Before: GRAY Clarity Before: N/A Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts: YES

Comments:

ARTIFACTS INCLUDE ROCKS.

FORM I - IN

9-28-94

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOCBM9

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE

Lab Code: ITSTU Case No.: WO854 SAS No.: SDG No.: WO130

Matrix (soil/water): SOIL Lab Sample ID: AB3185

Level (low/med): LOW Date Received: 07/19/94

% Solids: 99.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	59.0			P	U
7440-36-0	Antimony	10.0	U	N	P	UJ
7440-38-2	Arsenic	0.39	U	N	F	UJ
7440-39-3	Barium	0.40	U		P	
7440-41-7	Beryllium	0.20	U		P	
7440-43-9	Cadmium	1.0	U		P	
7440-70-2	Calcium	21.4	B		P	U
7440-47-3	Chromium	2.0	U	*	P	
7440-48-4	Cobalt	2.0	U		P	
7440-50-8	Copper	2.0	U	N	P	UJ
7439-89-6	Iron	104			P	
7439-92-1	Lead	0.40	U		F	
7439-95-4	Magnesium	10.0	U		P	
7439-96-5	Manganese	0.40	U	N	P	UJ
7439-97-6	Mercury	0.09	U		CV	
7440-02-0	Nickel	4.0	U		P	
7440-09-7	Potassium	201	U		P	
7782-49-2	Selenium	0.39	U		F	
7440-22-4	Silver	1.0	U		P	
7440-23-5	Sodium	24.4	B		P	
7440-62-2	Vanadium	2.0	U		P	
7440-66-6	Zinc	1.4	B	N*	P	UJ
	Titanium	1.4		*	P	

Color Before: WHITE Clarity Before: N/A Texture: FINE

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN 9-28-94

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ATTACHMENT 4

LABORATORY NARRATIVE and CHAIN-OF-CUSTODY DOCUMENTATION

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

IT Corporation
2800 George Washington Way
Richland, WA 99352
Attn: Van Pettey

August 22, 1994

Job Number: 854

This is the Certificate of Analysis for the following samples:

SDG:	W0130
Client Project ID:	WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan
Received by Knoxville:	July 19, 1994
Number of Samples:	Thirteen (13)
Sample Type:	Soil

I. Introduction

On July 15, 1994, thirteen (13) soil samples arrived at ITAS-Richland, Washington and were transferred to ITAS-Knoxville for chemical analysis. 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.

The samples were analyzed for Appendix IX volatile and semivolatile organic compounds by gas chromatography/mass spectroscopy (GS/MS) based on EPA SW-846 methods 8240 and 8270.

Reviewed and Approved:

Sheree A. Schneider

Sheree' A. Schneider
Project Manager

IT Corporation
August 22, 1994
Job Number: 854
Client Project ID: WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

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 ILM03.0 Statement of Work.

The samples were analyzed for nitrate-nitrite based on EPA method 353.2.

The samples were analyzed for anions by ion chromatography using EPA method 300.0.

The samples were analyzed for nitroexplosives by high performance liquid chromatography (HPLC) based on draft EPA method 8330.

III. Quality Control

The volatiles analyses were performed by purge and trap with a J & W DB-624 capillary column on a Finnigan INCOS 500 GC/MS/DS. A matrix spike and matrix spike duplicate were analyzed using sample BOC950. All QC results met method specified limits.

The semivolatiles analyses were performed by direct injection of sample extract on a Restek XTI-5 capillary column on a Finnigan 4500 XL GC/MS/DS. Sample BOC954 was initially analyzed at a five-fold dilution due to the appearance of the extract. BOC954 required an additional fifty-fold dilution due to target compound concentrations that were greater than the calibration range in the five-fold dilution run. Four surrogate standards were diluted out in the fifty-fold dilution run. Daily calibrations were performed for the usual 8270 targets and for the additional Appendix IX compounds, with the excetpion of the fifty-fold dilution of BOC954. No Appendix IX calibration was performed on the fifty-fold dilution of BOC954 due to no Appendix IX compounds being identified in the five-fold dilution. The samples did not contain any Appendix IX compounds. A matrix spike and matrix spike duplicate were analyzed using sample BOC950. The matrix spike and matrix spike duplicate passed all QC criteria with the exception of 2,4-dinitrotoluene in the matrix spike duplicate, which was one percentage point above the criteria. However, the laboratory control sample did meet all QC criteria.

Data were reported with qualifiers as follows:

U - Compound analyzed for but not detected; value given is quantitation limit.
E - Compound exceeded calibration range.
D - Compound analyzed at a secondary dilution factor.
J - Compound detected but below quantitation limit; value estimated.
S - Spiked compound.

IT Corporation
August 22, 1994
Job Number: 854
Client Project ID: WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan

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KNOXVILLE, TN

III. Quality Control (Continued)

B - Compound found in method blank.
A - Suspected aldol condensation product.
Y - Indistinguishable isomer in tentatively identified compounds.
N - Presumptive evidence of compound presence.

The samples were digested on July 22, 1994 for ICP and July 22 and August 2, 1994 for GFAA. The CVAA analysis for mercury was performed on July 25, 1994; the GFAA analyses for arsenic, lead, selenium and thallium were performed July 22 thru August 5, 1994; the remaining metals were analyzed by ICP on July 25, 1994. All run QC was acceptable. A duplicate/spike pair was prepared using sample number BOC950. Spike recovery (accuracy) results were within acceptance limits for all parameters except for antimony, arsenic, copper, manganese and zinc. Poor spike recovery for these analytes appears to be attributable to sample nonhomogeneity and matrix interference. Duplicate RPD (precision) results were within acceptance limits for all parameters except for chromium, zinc and titanium, which exhibited slight variations due to sample nonhomogeneity.

Data were reported with qualifiers as follows:

"C" Qualifiers

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.

"Q" Qualifiers

* - Duplicate analysis outside control limits.
N - Spiked sample recovery outside control limits.
W - Post-digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.
S - The reported value was determined by method of standard additions.

"M" Qualifiers

P - Analysis performed by ICP.
V - Analysis performed by CVAA.
F - Analysis performed by GFAA.
C - Cyanide analysis by manual distillation/colorimetric determination.

IT Corporation
August 22, 1994
Job Number: 854
Client Project ID: WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

III. Quality Control (Continued)

Miscellaneous

D - Duplicate.
S - Spike.
NR - Not required.
G - Native analyte > 4 times spike added, therefore, acceptance criteria do not apply.
X - Detection limits higher than normal due to sample matrix interferences.

The samples were analyzed for nitrate/nitrite on July 26, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC950. All QC results were acceptable.

The samples were analyzed for fluoride, chloride, phosphate, nitrate, nitrite and sulfate by EPA method 300.0 on August 1 and 2, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC950. All QC results were acceptable.

The samples were analyzed for nitroexplosives on August 12, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC950. All QC results were acceptable.

Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST W#654	Page 1 of 4 007448

Collector SL Spencer
Company Contact ID Jacques/JW Ball
Telephone 376-3306/372-2653
SAF No. 94-329
Project Designation 200 West Ash Pit Demolition Site Closure Plan
Sampling Locations 200 West / 200-SS-2
Ice Chest No. SML-445
Bill of Lading/Airbill No. N/A
Offsite Property No.
Method of Shipment Government Vehicle
Field Logbook No.
Shipped to IT Analytical 2800 George Washington Way Richland WA, 99352
Possible Sample Hazards/Remarks None / Work Done to RCRA Protocol
Special Handling and/or Storage
SPECIAL INSTRUCTIONS Standalone Deliverable
Appendix IX SDG W0130

LS2407

	Sample Number	*	Date Collected	Time	Number and Type of Containers	Analysis Required	Preservative
01 A	BOC950	SE	07-12-94	1540	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
B	BOC950	SE	07-12-94	1540	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
C	BOC950	SE	07-12-94	1540	120ml aGs	Detonation Residue (8330)	Cool to 4°
D	BOC950	SE	07-12-94	1540	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
E	BOC950	SE	07-12-94	1540	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
F	BOC950	SE	07-12-94	1540	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
G	BOC950	SE	07-12-94	1540	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
02 A	BOC951	SE	07-12-94	1445	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
B	BOC951	SE	07-12-94	1445	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
C	BOC951	SE	07-12-94	1445	120ml aGs	Detonation Residue (8330)	Cool to 4°
D	BOC951	SE	07-12-94	1445	120ml aGs	Anions(EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
E	BOC951	SE	07-12-94	1445	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
F	BOC951	SE	07-12-94	1445	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
G	BOC951	SE	07-12-94	1445	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
03 A	BOC952	SE	07-12-94	1620	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
B	BOC952	SE	07-12-94	1620	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
C	BOC952	SE	07-12-94	1620	120ml aGs	Detonation Residue (8330)	Cool to 4°
D	BOC952	SE	07-12-94	1620	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
E	BOC952	SE	07-12-94	1620	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
F	BOC952	SE	07-12-94	1620	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
G	BOC952	SE	07-12-94	1620	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°

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Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	WO#854	Page 2 of 4
			007448

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	A	BOC953	SE	07-12-94	1620	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC953	SE	07-12-94	1620	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC953	SE	07-12-94	1620	120ml aGs	Detonation Residue (8330)	Cool to 4°
04	D	BOC953	SE	07-12-94	1620	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC953	SE	07-12-94	1620	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC953	SE	07-12-94	1620	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC953	SE	07-12-94	1620	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC954	SE	07-12-94	1645	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC954	SE	07-12-94	1645	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC954	SE	07-12-94	1645	120ml aGs	Detonation Residue (8330)	Cool to 4°
05	D	BOC954	SE	07-12-94	1645	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC954	SE	07-12-94	1645	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC954	SE	07-12-94	1645	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC954	SE	07-12-94	1645	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC955	SE	07-12-94	1530	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC955	SE	07-12-94	1530	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC955	SE	07-12-94	1530	120ml aGs	Detonation Residue (8330)	Cool to 4°
06	D	BOC955	SE	07-12-94	1530	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC955	SE	07-12-94	1530	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC955	SE	07-12-94	1530	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC955	SE	07-12-94	1530	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC956	SE	07-12-94	1440	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC956	SE	07-12-94	1440	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC956	SE	07-12-94	1440	120ml aGs	Detonation Residue (8330)	Cool to 4°
07	D	BOC956	SE	07-12-94	1440	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC956	SE	07-12-94	1440	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC956	SE	07-12-94	1440	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC956	SE	07-12-94	1440	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC957	SE	07-12-94	1430	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
08	B	BOC957	SE	07-12-94	1430	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°

Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	WO#854	Page 3 of 4
			007448

	C	BOC957	SE	07-12-94	1430	120ml aGs	Detonation Residue (8330)	Cool to 4°
	D	BOC957	SE	07-12-94	1430	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
08	E	BOC957	SE	07-12-94	1430	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC957	SE	07-12-94	1430	120 aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC957	SE	07-12-94	1430	40 ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC958	SE	07-12-94	1515	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC958	SE	07-12-94	1515	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC958	SE	07-12-94	1515	120ml aGs	Detonation Residue (8330)	Cool to 4°
09	D	BOC958	SE	07-12-94	1515	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3.	Cool to 4°
	E	BOC958	SE	07-12-94	1515	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC958	SE	07-12-94	1515	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC958	SE	07-12-94	1515	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC959	SE	07-12-94	1558	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC959	SE	07-12-94	1558	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC959	SE	07-12-94	1558	120ml aGs	Detonation Residue (8330)	Cool to 4°
10	D	BOC959	SE	07-12-94	1558	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC959	SE	07-12-94	1558	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC959	SE	07-12-94	1558	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC959	SE	07-12-94	1558	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC960	SE	07-12-94	1500	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC960	SE	07-12-94	1500	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC960	SE	07-12-94	1500	120ml aGs	Detonation Residue (8330)	Cool to 4°
11	D	BOC960	SE	07-12-94	1500	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC960	SE	07-12-94	1500	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC960	SE	07-12-94	1500	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC960	SE	07-12-94	1500	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOCBM9	SE	07-12-94	1415	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOCBM9	SE	07-12-94	1415	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
12	C	BOCBM9	SE	07-12-94	1415	120ml aGs	Detonation Residue (8330)	Cool to 4°
	D	BOCBM9	SE	07-12-94	1415	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°

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Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	Page 4 of 4
		007448

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12 E	BOCBM9	SE	07-12-94	1415	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
F	BOCBM9	SE	07-12-94	1415	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
G	BOCBM9	SE	07-12-94	1415	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
13 A	BOCBN0	SE	07-11-94	1600	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°

Chain of Possession Relinquished By (Sign and Print Names)	Date	Time	Received By
Shannon L. Spencus Shannon L. Spencus	7-14-94	1130	RM Arnold RM Arnold
RM Arnold RM Arnold	7-15-94	0930	R. Boyd Rosentena 2100 7/15/94 1130

*Matrix
A = Air
DL = Drum Liquids
DS = Drum Solids
L = Liquid
O = Oil
S = Soil
SE = Sediment
SL = Sludge
SO = Solid
T = Tissue
W = Water
WI = Wipe
X = Other

LABORATORY SECTION	Received By	Title	Date/Time
Final Sample Disposition	Disposal Method:	Disposed by:	Date/Time:

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 200 WEST ASH PIT			DATA PACKAGE:		
VALIDATOR: T. Stapp		LAB: IT Laboratory		DATE: 9-28-94	
CASE:			SDG: W0130-QES-143		
ANALYSES PERFORMED					
☐ CLP/ICP	☐ CLP/GFAA	☐ CLP/Hg	☐ CLP/Cyanide	☐	☐
☒ SW-846/ICP	☒ SW-846/GFAA	☒ SW-846/Hg	☐ SW-846 Cyanide	☐	☐
SAMPLES/MATRIX	BOC950 through BOC960 / Sediment				
	BOCBM9 / Sediment				

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? . . . . . (Yes) No N/A

Is a case narrative present? . . . . . (Yes) No N/A

Comments:

2. HOLDING TIMES

Are sample holding times acceptable? . . . . . (Yes) No N/A

Comments:

	Collected	Prep.	Analysis: ICP	GFAA	Hg
All Samples	7-12-94	7-22-94	7-25-94		
		(GFAA 8-2-94)	(As 7-22-94)		7-25-94
		(Hg 7-25-94)	(Pb 7-29-94)		
			(Se 7-30-94)		

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

Were initial calibrations performed on all instruments? . . . . Yes No N/A

Are initial calibrations acceptable? . . . Note ① . . . . . Yes No N/A

Are ICP interference checks acceptable? . . . . . Yes No N/A

Were ICV and CCV checks performed on all instruments? . . . . . Yes No N/A

Are ICV and CCV checks acceptable? . . . Note ① . . . . . Yes No N/A

Comments: ① ~~See form B-2~~. Results reported out of limits have been found not related to samples in this SDG.

4. BLANKS

Were ICB and CCB checks performed for all applicable analyses? Yes No N/A

Are ICB and CCB results acceptable? . . . Note ① . . . . . Yes No N/A

Were preparation blanks analyzed? . . . . . Yes No N/A

Are preparation blank results acceptable? . Note ① . . . . . Yes No N/A

Were field/trip blanks analyzed? . . . . . Yes No N/A

Are field/trip blank results acceptable? . . Note ① . . . . . Yes No N/A

Comments: ① See blank summary form B-3. No qualification is required based upon field QC.

5. ACCURACY

Were spike samples analyzed? . . . . . Yes No N/A

Are spike sample recoveries acceptable? . . Note ① . . . . . Yes No N/A

Were laboratory control samples (LCS) analyzed? . . . . . Yes No N/A

Are LCS recoveries acceptable? . . . . . Yes No N/A

Comments: ① See Spike Sample Summary page.

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

6. PRECISION

Were laboratory duplicates analyzed? . . . . . Yes No N/A

Are laboratory duplicate samples RPD values acceptable? ~~Note ①~~ . . . Yes ~~No~~ N/A 9-28

Were ICP serial dilution samples analyzed? . . . . . Yes No N/A

Are ICP serial dilution %D values acceptable? . Note ① . . . Yes No N/A

Are field duplicate RPD values acceptable? . . Note ② . . . Yes No N/A

Are field split RPD values acceptable? . . . . . Yes No N/A

Comments: ① See ICP Serial dilution summary page.
② See Precision summary form B-5. No qualification is required based upon field QC results.

7. FURNACE AA QUALITY CONTROL

Were duplicate injections performed as required? . . . . . Yes No N/A

Are duplicate injection %RSD values acceptable? . . . . . Yes No N/A

Were analytical spikes performed as required? . . . . . Yes No N/A

Are analytical spike recoveries acceptable? . . Note ① . . . Yes No N/A

Was MSA performed as required? . . . . . ② . . . Yes No N/A

Are MSA results acceptable? . . . . . ③ . . . Yes No N/A

Comments: ① See applicable notes on comments page A-22.

8. REPORTED RESULTS AND DETECTION LIMITS

Are results reported for all requested analyses? Note ① . Yes No N/A

Are all results supported in the raw data? . . . . . Yes No N/A

Are results calculated properly? . . . . . Yes No N/A

Do results meet the CRDLs? . . . . . Yes No N/A

Comments: ① Lab narrative indicates thallium was analyzed, however it was not reported and was not requested on chain of custody.

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

Comments (attach additional sheets as necessary):

~~① %RSD of 20% exceeded for duplic. injections of As for BOCBM9; (UJ) qualified.~~

9-28-94

② MSA required for As analysis of BOC952 and BOC953, but was not done; Qualif: (J).

③ Pb analysis by MSA for BOC954, and BOC957 failed to generate correlation coefficient > than 0.995. Qualif. applied: (J).

① Se analysis spike recovery is <85% but above 40% for sample BOC960; Qualif. (UJ).

9-28-94

BLANK AND SAMPLE DATA SUMMARY

SDG: W0130-QES-143 | VALIDATOR: T. Stapp | DATE: 9-28-94 | PAGE 1 OF 1

COMMENTS:

	SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
TS 9/28	ICB	Cu	-16.8			ug/L	ABS Value 16.8	2x Result 33.6	—	—
TS 9/28	CCB1	↓	-19.4			↓	19.4	38.8	All	J/UJ
	PB	↓	-17			↓	17.	34	—	—
	PB	Al	79.5			ug/L	(398)	—	BOCBM9	U
	PB	Ca	87.3			↓	(437)	—	"	U
TS 9/28	~~CCB 2~~	~~K~~	~~-1067~~				~~2134~~	~~2134~~	—	~~NONE~~
	PB	Zn	7.3			↓	(36.6)	—	BOCBM9	U
TS 9/28	~~CCB 1~~	~~Ti~~	~~-4~~				~~4~~	~~8~~	"	~~J~~
	CCB4	As	-2.4			↓	2.4	4.8	BOCBM9	UJ
	BOCBM9	(Equipment Blank)								
	↓	Fe	104			mg/kg			NONE	NONE
		Ti	1.4			↓			↓	↓
		Na	24.4							

B-3 TS 9/28

WHC-SD-EN-SPP-002, Rev. 2

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U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY
SUMMARY

EPA SAMPLE NO.

BOC950S

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: W0854 SAS No.: _____ SDG No.: W0130_
Matrix: SOIL_____ Level (low/med): LOW____
% Solids for Sample: 97.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	75-125	48.6170		10.1134	U	101.13	48.1	N	P
Arsenic	75-125	7.9693		2.0793		8.09	72.8	N	F
Barium	75-125	450.4536		81.7585		404.53	91.1		P
Beryllium	75-125	9.9354		0.2407	B	10.11	95.9		P
Cadmium	75-125	8.9604		1.3673		10.11	75.1		P
Calcium									NR
Chromium	75-125	49.2804		13.0260		40.45	89.6		P
Cobalt	75-125	100.8667		3.5741	B	101.13	96.2		P
Copper	75-125	65.6338		35.7973		50.57	59.0	N	P
Iron									NR
Lead		17.6200		18.3272		3.93	-18.0		F
Magnesium									NR
Manganese	75-125	385.2001		315.0841		101.13	69.3	N	P
Mercury	75-125	0.6990		0.1766		0.49	106.6		CV
Nickel	75-125	107.3029		13.7643		101.13	92.5		P
Potassium									NR
Selenium	75-125	1.8548		0.4045	U	2.02	91.8		F
Silver	75-125	9.1304		1.0113	U	10.11	90.3		P
Sodium									NR
Vanadium	75-125	123.9596		30.2835		101.13	92.6		P
Zinc	75-125	175.1272		121.1602		101.13	53.4	N	P
Titanium		1126.2776		918.5570		101.13	205.4		P

Comments:
ARTIFACTS_INCLUDE_ROCKS. Associated results for the above indicated analytes are qualified as estimated (J/UJ).

FORM V (Part 1) - IN ILM02.1

9-28-94 8/11/94

U.S. EPA - CLP

9

ICP SERIAL DILUTION

SUMMARY

EPA SAMPLE NO.

BOC950L

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: W0854 SAS No.: _____ SDG No.: W0130_

Matrix (soil/water): SOIL_ Level (low/med): LOW__

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	34077.05		33829.75		0.7		P
Antimony	50.00	U	250.00	U			P
Arsenic							NR
Barium	404.21		400.75	B	0.9		P
Beryllium	1.19	B	5.00	U	100.0		P
Cadmium	6.76		25.00	U	100.0		P
Calcium	46665.08		47933.75		2.7		P
Chromium	64.40		62.45		3.0		P
Cobalt	17.67	B	50.00	U	100.0		P
Copper	176.98		110.65	B	37.5		P ★
Iron	94391.00		86326.90		8.5		P
Lead							NR
Magnesium	25136.97		25264.70		0.5		P
Manganese	1557.76		1583.55		1.7		P
Mercury							NR
Nickel	68.05		100.00	U	100.0		P
Potassium	5355.74		5000.00	U	100.0		P
Selenium							NR
Silver	5.00	U	25.00	U			P
Sodium	1336.14	B	1391.70	B	4.2		P
Vanadium	149.72		147.80	B	1.3		P
Zinc	599.01		623.55		4.1		P
Titanium	4541.30		4501.25		0.9		P

★ — 10 % Difference limit is exceeded for the indicated analyte which qualifies associated results as estimated (J).

FORM IX - IN

ILM02.1

8/4/94

9413299.1212

MEMORANDUM

TO: 200 West Ash Pit Project QA Record — October 3, 1994

FR: Thomas Stapp, Golder Associates Inc.

RE: GENERAL CHEMISTRY DATA VALIDATION SUMMARY FOR DATA PACKAGE W0130-QES-143 (943-1610.004 143GEN.004)

INTRODUCTION

This memo presents the results of data validation on data package W0130-QES-143 prepared by International Technology laboratory. A list of samples validated along with the analyses reported and the methods of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSES
B0C950	7/12/94	SEDIMENT	SEE NOTE 1
B0C951	7/12/94	SEDIMENT	
B0C952	7/12/94	SEDIMENT	
B0C953	7/12/94	SEDIMENT	
B0C954	7/12/94	SEDIMENT	
B0C955	7/12/94	SEDIMENT	
B0C956	7/12/94	SEDIMENT	
B0C957	7/12/94	SEDIMENT	
B0C958	7/12/94	SEDIMENT	
B0C959	7/12/94	SEDIMENT	
B0C960	7/12/94	SEDIMENT	
B0CBM9	7/12/94	SEDIMENT	

Notes:

1. Indicates the samples were analyzed for Nitrate/Nitrite as N (by colorimetry), and fluoride, chloride, phosphate, and sulfate anions (by ion chromatography).

OCT 1994
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Data validation was conducted in accordance with the WHC statement of work (WHC 1994) and validation procedures (WHC 1993). Attachments 1 through 5 provide the following information as indicated below:

Attachment 1. Glossary of Data Reporting Qualifiers
Attachment 2. Summary of Data Qualifications
Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
Attachment 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

This section presents a summary of the data quality in terms of the referenced validation criteria.

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met with the exception of matrix spike (MS) recoveries for nitate/nitrite as N, as indicated below.

Sample Result Verification. All sample results were supported in the raw data.

Detection Limits. Detection limit goals for fluoride, chloride, sulfate, phosphate, nitrate and nitrite were not met however, no qualification is required.

Completeness. The data package was complete for all requested analyses. A total of twelve (12) samples were validated in this data package with a total of eighty-four determinations reported, 71 of which were deemed valid. This results in a completeness of 85 percent which does not meet the work plan completeness objective of 90 percent.

MAJOR DEFICIENCIES

The following major deficiencies were identified during data validation which required qualification of data as unusable.

Holding Times

- All nitrate, nitrite and phosphate samples, with the exception of sample B0C950, were analyzed at greater than two times the acceptable holding time limit. Non-detect results for phosphate and nitrite have been qualified as unusable (UR). Attachments 2 and 5 provide a summary of the samples affected, qualifications and supporting documentation.

- Analyses for nitrate, nitrite and phosphate were requested by WHC for information purposes only and have been acknowledged to not meet the 48 hour holding time in the case narrative.

MINOR DEFICIENCIES

The following minor deficiencies were identified during data validation which required qualification of data.

Holding Times

- All nitrate, nitrite and phosphate samples, with the exception of sample B0C950, were analyzed at greater than two times the acceptable holding time. Detected results for nitrate and phosphate have been qualified as estimated (J). Attachments 2 and 5 provide a summary of the samples affected, qualifications and supporting documentation.

Spike Recovery

- The matrix spike (MS) recovery for nitrate/nitrite analysis was unacceptable. Attachments 2 and 5 provide a summary of samples affected, qualification applied and supporting documentation.

FIELD QC

Equipment Blanks

- Sample B0CBM9 is identified as an equipment blank. Chloride, nitrate, sulfate, and nitrate/nitrite as N were detected. No qualification is required based upon field blank results.

Field Duplicate

- Sample B0C953 is identified as the field duplicate of sample B0C952 and the RPD of all components are within acceptable limits.

REFERENCES

WHC 1993, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993. Westinghouse Hanford Company, Richland, Washington.

WHC 1994, Validation of 200 West Ash Pit Data, Statement of Work, Environmental and Waste Characterization Analytical Data Validation, Task Order MSH-SWV-315905, August 10, 1994, Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the constituent was analyzed for and detected in the associated laboratory blank. This qualifier is applied by the laboratory. During the process of data validation this qualifier may be replaced by other appropriate qualifiers as defined by the validation procedures. The associated data should be considered usable for decision making purposes.

U - Indicates the constituent was analyzed for and not detected. The concentration reported is the sample quantitation limit corrected for aliquot size, dilution and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.

UJ - Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during data validation the concentration reported may not accurately reflect the sample quantitation limit. The associated data should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. This qualifier may be applied by the laboratory to indicate a concentration which is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). During data validation this qualifier may be applied to indicate a minor quality control deficiency. However in either case, the associated data should be considered usable for decision making purposes.

NJ - Indicates presumptive evidence of a constituent at an estimated value. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

N - Indicates presumptive evidence of a constituent. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

JN - Indicates a tentatively identified compound (TIC) whose concentration and identification have been determined to be valid as a result of data validation. The associated data should be considered usable for decision making purposes.

UJN - Indicates a tentatively identified compound (TIC) that has been determined to be presumptive and valid (JN) in terms of identification and quantitation and has been qualified as undetected (U) due to associated blank contamination.

UR - Indicates the constituent was analyzed for and not detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

WHC-SD-EN-SPP-002, REV.2

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: W0130-QES-143	REVIEWER: T. STAPP	DATE: 9-29-94	PAGE 1 OF 1
COMMENTS: WET CHEMISTRY			
COMPOUND/ ANALYTE	QUALIFIER	SAMPLES AFFECTED	REASON
NITRATE/NITRITE	J	ALL	MS RECOVERY BELOW 75% BUT ABOVE 10%
PHOSPHATE	UR	BOCBM9	HOLDING TIME EXCEEDED
NITRITE	UR	ALL EXCEPT B0C950	HOLDING TIME EXCEEDED
NITRATE	J	ALL EXCEPT B0C950	HOLDING TIME EXCEEDED
PHOSPHATE	J	ALL EXCEPT B0C950 AND B0CBM9	HOLDING TIME EXCEEDED

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ATTACHMENT 3

QUALIFIED DATA SUMMARY and ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: W0130-QES-143

	Samp#	B0C950		B0C951		B0C952		B0C953		B0C954		B0C955	
	Date	7-12-94		7-12-94		7-12-94		7-12-94		7-12-94		7-12-94	
	Location	200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT	
	Depth	---		---		---				---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments							FIELD DUP					
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
FLUORIDE	MG/KG	1.200		0.800		0.800		0.600		0.800		0.500	
CHLORIDE	MG/KG	0.700		4.900		0.400	U	0.600		0.800		0.700	
NITRITE	MG/KG	0.400	U	0.400	UR	0.400	UR	0.400	UR	0.400	UR	0.400	UR
NITRATE	MG/KG	3.600		20.000	J	1.400	J	1.300	J	7.000	J	6.500	J
PHOSPHATE	MG/KG	3.600		7.900	J	2.000	J	1.900	J	3.100	J	3.900	J
SULFATE	MG/KG	4.000		21.000		2.200		2.100		4.500		3.000	
NITRATE+NITRITE	MG/KG	0.890	J	5.200	J	0.650	J	0.840	J	1.300	J	1.000	J

Verified 9-29-94

Validated Data Summary, Data Package: W0130-QES-143

	Samp#	B0C956		B0C957		B0C958		B0C959		B0C960		B0CBM9	
	Date	7-12-94		7-12-94		7-12-94		7-12-94		7-12-94		7-12-94	
	Location	200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT	
	Depth	---		---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments											EQUIP BLANK	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
FLUORIDE	MG/KG	0.800		0.500		0.500		0.800		1.700		0.400	U
CHLORIDE	MG/KG	1.000		3.200		0.900		0.400	U	1.900		2.400	
NITRITE	MG/KG	0.400	UR	0.400	UR	0.400	UR	0.400	UR	0.400	UR	0.400	UR
NITRATE	MG/KG	3.100	J	14.000	J	12.000	J	1.600	J	4.500	J	0.700	J
PHOSPHATE	MG/KG	2.900	J	2.300	J	3.100	J	1.300	J	4.500	J	1.000	UR
SULFATE	MG/KG	4.200		8.600		5.600		2.000		20.000		3.300	
NITRATE+NITRITE	MG/KG	1.100	J	2.000	J	2.000	J	0.840	J	2.000	J	1.000	J

Verified By 9-29-94

NITRATE/NITRITE ANALYSIS

Laboratory Name:	ITAS-KNOXVILLE	SDG Number:	W0130
Contract Name:	Westinghouse Hanford	Job Number:	854
Sample Matrix:	Soil	Extraction Date:	N/A
Concentration Units:	mg/kg	Analysis Date:	07/26/94

Client Sample ID	Lab Sample ID	Result	Qualifiers	Q
Method Blank	AB4339	0.50	U	
BOC950	AB3098	0.89	+	J
BOC951	AB3114	5.2	+	J
BOC952	AB3121	0.65	+	J
BOC953	AB3128	0.84	+	J
BOC954	AB3135	1.3	+	J
BOC955	AB3142	1.0	+	J
BOC956	AB3149	1.1	+	J
BOC957	AB3156	2.0	+	J
BOC958	AB3163	2.0	+	J
BOC959	AB3170	0.84	+	J
BOC960	AB3177	2.0	+	J
BOCBM9	AB3184	1.0	+	J

Verified 9-27-94

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

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0130
Contract Name:	Westinghouse Hanford	Job Number:	854
Client Sample ID:	BOC950	Preparation Date:	08/01/94
Lab Sample ID:	AB3097	Analysis Date:	08/02/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Result	Qualifier	Detection Limit	Q
fluoride	1.2	+	0.4	
chloride	0.7	+	0.4	9-29-94
nitrite	0.4	~~U~~	0.4	U ~~UR~~
nitrate	3.6	+	0.4	~~J~~
phosphate	3.6	+	1.0	~~J~~
sulfate	4.0	+	1.5	

9-27-94

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

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0130
Contract Name:	Westinghouse Hanford	Job Number:	854
Client Sample ID:	BOC951	Preparation Date:	07/25/94
Lab Sample ID:	AB3113	Analysis Date:	08/01/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Result	Qualifier	Detection Limit	Q
fluoride	0.8	+	0.4	
chloride	4.9	+	0.4	
nitrite	0.4	~~U~~	0.4	UR
nitrate	20	~~+~~	2.0	J
phosphate	7.9	~~+~~	1.0	J
sulfate	21	+	7.5	

9-27-94

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

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0130
Contract Name:	Westinghouse Hanford	Job Number:	854
Client Sample ID:	BOC952	Preparation Date:	07/25/94
Lab Sample ID:	AB3120	Analysis Date:	08/01/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Result	Qualifier	Detection Limit	Q
fluoride	0.8	+	0.4	
chloride	0.4	U	0.4	
nitrite	0.4	~~U~~	0.4	UR
nitrate	1.4	~~+~~	0.4	J
phosphate	2.0	~~+~~	1.0	J
sulfate	2.2	+	1.5	

9-27-94

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

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0130
Contract Name:	Westinghouse Hanford	Job Number:	854
Client Sample ID:	BOC953	Preparation Date:	07/25/94
Lab Sample ID:	AB3127	Analysis Date:	08/01/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Result	Qualifier	Detection Limit	Q
fluoride	0.6	+	0.4	
chloride	0.6	+	0.4	
nitrite	0.4	~~U~~	0.4	UR
nitrate	1.3	~~+~~	0.4	J
phosphate	1.9	~~+~~	1.0	J
sulfate	2.1	+	1.5	

9-27-94

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

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ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0130
Contract Name:	Westinghouse Hanford	Job Number:	854
Client Sample ID:	BOC954	Preparation Date:	07/25/94
Lab Sample ID:	AB3134	Analysis Date:	08/01/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Result	Qualifier	Detection Limit	Q
fluoride	0.8	+	0.4	
chloride	0.8	+	0.4	
nitrite	0.4	~~U~~	0.4	UR
nitrate	7.0	~~+~~	1.2	J
phosphate	3.1	~~+~~	1.0	J
sulfate	4.5	+	1.5	

~~B~~ 9-27-94

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

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0130
Contract Name:	Westinghouse Hanford	Job Number:	854
Client Sample ID:	BOC955	Preparation Date:	07/25/94
Lab Sample ID:	AB3141	Analysis Date:	08/01/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Result	Qualifier	Detection Limit	Q
fluoride	0.5	+	0.4	
chloride	0.7	+	0.4	
nitrite	0.4	~~U~~	0.4	UR
nitrate	6.5	~~+~~	0.8	J
phosphate	3.9	~~+~~	1.0	J
sulfate	3.0	+	1.5	

9-27-94

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

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0130
Contract Name:	Westinghouse Hanford	Job Number:	854
Client Sample ID:	BOC956	Preparation Date:	07/25/94
Lab Sample ID:	AB3148	Analysis Date:	08/01/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Result	Qualifier	Detection Limit	Q
fluoride	0.8	+	0.4	
chloride	1.0	+	0.4	
nitrite	0.4	~~U~~	0.4	UR
nitrate	3.1	~~+~~	0.4	J
phosphate	2.9	~~+~~	1.0	J
sulfate	4.2	+	1.5	

9-27-94

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

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0130
Contract Name:	Westinghouse Hanford	Job Number:	854
Client Sample ID:	BOC957	Preparation Date:	07/25/94
Lab Sample ID:	AB3155	Analysis Date:	08/01/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Result	Qualifier	Detection Limit	
fluoride	0.5	+	0.4	
chloride	3.2	+	0.4	
nitrite	0.4	~~U~~	0.4	UR
nitrate	14	~~+~~	2.0	J
phosphate	2.3	~~+~~	1.0	J
sulfate	8.6	+	1.5	

9-27-94

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

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0130
Contract Name:	Westinghouse Hanford	Job Number:	854
Client Sample ID:	BOC958	Preparation Date:	07/25/94
Lab Sample ID:	AB3162	Analysis Date:	08/01/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Result	Qualifier	Detection Limit	Q
fluoride	0.5	+	0.4	
chloride	0.9	+	0.4	
nitrite	0.4	~~U~~	0.4	UR
nitrate	12	~~+~~	2.0	J
phosphate	3.1	~~+~~	1.0	J
sulfate	5.6	+	1.5	

9-27-94

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

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0130
Contract Name:	Westinghouse Hanford	Job Number:	854
Client Sample ID:	BOC959	Preparation Date:	07/25/94
Lab Sample ID:	AB3169	Analysis Date:	08/01/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Result	Qualifier	Detection Limit	Q
fluoride	0.8	+	0.4	
chloride	0.4	U	0.4	
nitrite	0.4	~~U~~	0.4	UR
nitrate	1.6	~~+~~	0.4	J
phosphate	1.3	~~+~~	1.0	J
sulfate	2.0	+	1.5	

9-27-94

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

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0130
Contract Name:	Westinghouse Hanford	Job Number:	854
Client Sample ID:	BOC960	Preparation Date:	07/25/94
Lab Sample ID:	AB3176	Analysis Date:	08/01/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Result	Qualifier	Detection Limit	Q
fluoride	1.7	+	0.4	
chloride	1.9	+	0.4	
nitrite	0.4	~~U~~	0.4	UR
nitrate	4.5	~~+~~	0.4	J
phosphate	4.5	~~+~~	1.0	J
sulfate	20	+	1.5	

9-27-94

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

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0130
Contract Name:	Westinghouse Hanford	Job Number:	854
Client Sample ID:	BOCBM9	Preparation Date:	07/25/94
Lab Sample ID:	AB3183	Analysis Date:	08/01/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Result	Qualifier	Detection Limit	Q
fluoride	0.4	U	0.4	
chloride	2.4	+	0.4	
nitrite	0.4	~~U~~	0.4	UR
nitrate	0.7	~~+~~	0.4	J
phosphate	1.0	~~U~~	1.0	UR
sulfate	3.3	+	1.5	

9-27-94

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

ATTACHMENT 4

LABORATORY NARRATIVE and CHAIN-OF-CUSTODY DOCUMENTATION

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

IT Corporation
2800 George Washington Way
Richland, WA 99352
Attn: Van Pettey

August 22, 1994

Job Number: 854

This is the Certificate of Analysis for the following samples:

SDG:	W0130
Client Project ID:	WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan
Received by Knoxville:	July 19, 1994
Number of Samples:	Thirteen (13)
Sample Type:	Soil

I. Introduction

On July 15, 1994, thirteen (13) soil samples arrived at ITAS-Richland, Washington and were transferred to ITAS-Knoxville for chemical analysis. 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.

The samples were analyzed for Appendix IX volatile and semivolatile organic compounds by gas chromatography/mass spectroscopy (GS/MS) based on EPA SW-846 methods 8240 and 8270.

Reviewed and Approved:

Sheree A. Schneider

Sheree' A. Schneider
Project Manager

IT Corporation
August 22, 1994
Job Number: 854
Client Project ID: WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

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 ILM03.0 Statement of Work.

The samples were analyzed for nitrate-nitrite based on EPA method 353.2.

The samples were analyzed for anions by ion chromatography using EPA method 300.0.

The samples were analyzed for nitroexplosives by high performance liquid chromatography (HPLC) based on draft EPA method 8330.

III. Quality Control

The volatiles analyses were performed by purge and trap with a J & W DB-624 capillary column on a Finnigan INCOS 500 GC/MS/DS. A matrix spike and matrix spike duplicate were analyzed using sample BOC950. All QC results met method specified limits.

The semivolatiles analyses were performed by direct injection of sample extract on a Restek XTI-5 capillary column on a Finnigan 4500 XL GC/MS/DS. Sample BOC954 was initially analyzed at a five-fold dilution due to the appearance of the extract. BOC954 required an additional fifty-fold dilution due to target compound concentrations that were greater than the calibration range in the five-fold dilution run. Four surrogate standards were diluted out in the fifty-fold dilution run. Daily calibrations were performed for the usual 8270 targets and for the additional Appendix IX compounds, with the excetpion of the fifty-fold dilution of BOC954. No Appendix IX calibration was performed on the fifty-fold dilution of BOC954 due to no Appendix IX compounds being identified in the five-fold dilution. The samples did not contain any Appendix IX compounds. A matrix spike and matrix spike duplicate were analyzed using sample BOC950. The matrix spike and matrix spike duplicate passed all QC criteria with the exception of 2,4-dinitrotoluene in the matrix spike duplicate, which was one percentage point above the criteria. However, the laboratory control sample did meet all QC criteria.

Data were reported with qualifiers as follows:

U - Compound analyzed for but not detected; value given is quantitation limit.
E - Compound exceeded calibration range.
D - Compound analyzed at a secondary dilution factor.
J - Compound detected but below quantitation limit; value estimated.
S - Spiked compound.

IT Corporation
August 22, 1994
Job Number: 854
Client Project ID: WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

III. Quality Control (Continued)

B - Compound found in method blank.
A - Suspected aldol condensation product.
Y - Indistinguishable isomer in tentatively identified compounds.
N - Presumptive evidence of compound presence.

The samples were digested on July 22, 1994 for ICP and July 22 and August 2, 1994 for GFAA. The CVAA analysis for mercury was performed on July 25, 1994; the GFAA analyses for arsenic, lead, selenium and thallium were performed July 22 thru August 5, 1994; the remaining metals were analyzed by ICP on July 25, 1994. All run QC was acceptable. A duplicate/spike pair was prepared using sample number BOC950. Spike recovery (accuracy) results were within acceptance limits for all parameters except for antimony, arsenic, copper, manganese and zinc. Poor spike recovery for these analytes appears to be attributable to sample nonhomogeneity and matrix interference. Duplicate RPD (precision) results were within acceptance limits for all parameters except for chromium, zinc and titanium, which exhibited slight variations due to sample nonhomogeneity.

Data were reported with qualifiers as follows:

"C" Qualifiers

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.

"O" Qualifiers

* - Duplicate analysis outside control limits.
N - Spiked sample recovery outside control limits.
W - Post-digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.
S - The reported value was determined by method of standard additions.

"M" Qualifiers

P - Analysis performed by ICP.
V - Analysis performed by CVAA.
F - Analysis performed by GFAA.
C - Cyanide analysis by manual distillation/colorimetric determination.

IT Corporation
August 22, 1994
Job Number: 854
Client Project ID: WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

III. Quality Control (Continued)

Miscellaneous

D - Duplicate.
S - Spike.
NR - Not required.
G - Native analyte > 4 times spike added, therefore, acceptance criteria do not apply.
X - Detection limits higher than normal due to sample matrix interferences.

The samples were analyzed for nitrate/nitrite on July 26, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC950. All QC results were acceptable.

The samples were analyzed for fluoride, chloride, phosphate, nitrate, nitrite and sulfate by EPA method 300.0 on August 1 and 2, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC950. All QC results were acceptable.

The samples were analyzed for nitroexplosives on August 12, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC950. All QC results were acceptable.

IT Corporation
August 22, 1994
Job Number: 854
Client Project ID: WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

III. Quality Control (Continued)

Table I is a cross reference between client sample IDs and laboratory sample IDs.

TABLE I

Knoxville ID	Richland ID	WHC ID	Test
AB3094	407257-01A	BOC950	VOC
AB3095	407257-01B	"	SVOC
AB3096	407257-01C	"	EXP
AB3097	407257-01D	"	ANIONS
AB3098	407257-01E	"	NO3NO2
AB3099	407257-01F	"	METALS-T
AB3110	407257-02A	BOC951	VOC
AB3111	407257-02B	"	SVOC
AB3112	407257-02C	"	EXP
AB3113	407257-02D	"	ANIONS
AB3114	407257-02E	"	NO3NO2
AB3115	407257-02F	"	METALS-T
AB3117	407257-03A	BOC952	VOC
AB3118	407257-03B	"	SVOC
AB3119	407257-03C	"	EXP
AB3120	407257-03D	"	ANIONS
AB3121	407257-03E	"	NO3NO2
AB3122	407257-03F	"	METALS-T

IT Corporation
August 22, 1994
Job Number: 854
Client Project ID: WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

III. Quality Control (Continued)

Table I is a cross reference between client sample IDs and laboratory sample IDs.

TABLE I

Knoxville ID	Richland ID	WHC ID	Test
AB3124	407257-04A	BOC953	VOC
AB3125	407257-04B	"	SVOC
AB3126	407257-04C	"	EXP
AB3127	407257-04D	"	ANIONS
AB3128	407257-04E	"	NO3NO2
AB3129	407257-04F	"	METALS-T
AB3131	407257-05A	BOC954	VOC
AB3132	407257-05B	"	SVOC
AB3133	407257-05C	"	EXP
AB3134	407257-05D	"	ANIONS
AB3135	407257-05E	"	NO3NO2
AB3136	407257-05F	"	METALS-T
AB3138	407257-06A	BOC955	VOC
AB3139	407257-06B	"	SVOC
AB3140	407257-06C	"	EXP
AB3141	407257-06D	"	ANIONS
AB3142	407257-06E	"	NO3NO2
AB3143	407257-06F	"	METALS-T

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IT ANALYTICAL SERVICES
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III. Quality Control (Continued)

Table I is a cross reference between client sample IDs and laboratory sample IDs.

TABLE I

Knoxville ID	Richland ID	WHC ID	Test
AB3145	407257-07A	BOC956	VOC
AB3146	407257-07B	"	SVOC
AB3147	407257-07C	"	EXP
AB3148	407257-07D	"	ANIONS
AB3149	407257-07E	"	NO3NO2
AB3150	407257-07F	"	METALS-T
AB3152	407257-08A	BOC957	VOC
AB3153	407257-08B	"	SVOC
AB3154	407257-08C	"	EXP
AB3155	407257-08D	"	ANIONS
AB3156	407257-08E	"	NO3NO2
AB3157	407257-08F	"	METALS-T
AB3159	407257-09A	BOC958	VOC
AB3160	407257-09B	"	SVOC
AB3161	407257-09C	"	EXP
AB3162	407257-09D	"	ANIONS
AB3163	407257-09E	"	NO3NO2
AB3164	407257-09F	"	METALS-T

IT Corporation
August 22, 1994
Job Number: 854
Client Project ID: WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan

IT ANALYTICAL SERVICES
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III. Quality Control (Continued)

Table I is a cross reference between client sample IDs and laboratory sample IDs.

TABLE I

Knoxville ID	Richland ID	WHC ID	Test
AB3166	407257-10A	BOC959	VOC
AB3167	407257-10B	"	SVOC
AB3168	407257-10C	"	EXP
AB3169	407257-10D	"	ANIONS
AB3170	407257-10E	"	NO3NO2
AB3171	407257-10F	"	METALS-T
AB3173	407257-11A	BOC960	VOC
AB3174	407257-11B	"	SVOC
AB3175	407257-11C	"	EXP
AB3176	407257-11D	"	ANIONS
AB3177	407257-11E	"	NO3NO2
AB3178	407257-11F	"	METALS-T
AB3180	407257-12A	BOCBM9	VOC
AB3181	407257-12B	"	SVOC
AB3182	407257-12C	"	EXP
AB3183	407257-12D	"	ANIONS
AB3184	407257-12E	"	NO3NO2
AB3185	407257-12F	"	METALS-T
AB3187	407257-13A	BOCBNO	VOC

IT Corporation
August 22, 1994
Job Number: 854
Client Project ID: WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

IV. Certification

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory manager or his designee, as verified by the following signature:

Reviewed and Approved:

Sheree A. Schneider

Sheree' A. Schneider
Project Manager

Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST W#684	Page 1 of 4 007448

Collector SL Spencer
Company Contact ID Jacques/JW Ball
Telephone 376-3306/372-2653
SAF No. 94-329
Project Designation 200 West Ash Pit Demolition Site Closure Plan
Sampling Locations 200 West / 200-SS-2
Ice Chest No. SMZ-445
Bill of Lading/Airbill No. N/A
Offsite Property No.
Method of Shipment Government Vehicle
Field Logbook No.
Shipped to IT Analytical 2800 George Washington Way Richland WA, 99352
Possible Sample Hazards/Remarks None / Work Done to RCRA Protocol
Special Handling and/or Storage
SPECIAL INSTRUCTIONS Standalone Deliverable
Appendix IX SDG W0130

L32704

	Sample Number	*	Date Collected	Time	Number and Type of Containers	Analysis Required	Preservative
01 A	BOC950	SE	07-12-94	1540	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
B	BOC950	SE	07-12-94	1540	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
C	BOC950	SE	07-12-94	1540	120ml aGs	Detonation Residue (8330)	Cool to 4°
D	BOC950	SE	07-12-94	1540	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
E	BOC950	SE	07-12-94	1540	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
F	BOC950	SE	07-12-94	1540	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
G	BOC950	SE	07-12-94	1540	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
02 A	BOC951	SE	07-12-94	1445	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
B	BOC951	SE	07-12-94	1445	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
C	BOC951	SE	07-12-94	1445	120ml aGs	Detonation Residue (8330)	Cool to 4°
D	BOC951	SE	07-12-94	1445	120ml aGs	Anions(EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
E	BOC951	SE	07-12-94	1445	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
F	BOC951	SE	07-12-94	1445	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
G	BOC951	SE	07-12-94	1445	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
03 A	BOC952	SE	07-12-94	1620	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
B	BOC952	SE	07-12-94	1620	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
C	BOC952	SE	07-12-94	1620	120ml aGs	Detonation Residue (8330)	Cool to 4°
D	BOC952	SE	07-12-94	1620	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
E	BOC952	SE	07-12-94	1620	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
F	BOC952	SE	07-12-94	1620	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
G	BOC952	SE	07-12-94	1620	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°

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Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	Page 2 of 4
	WO#854	007448

	A	BOC953	SE	07-12-94	1620	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC953	SE	07-12-94	1620	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC953	SE	07-12-94	1620	120ml aGs	Detonation Residue (8330)	Cool to 4°
04	D	BOC953	SE	07-12-94	1620	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC953	SE	07-12-94	1620	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC953	SE	07-12-94	1620	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC953	SE	07-12-94	1620	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC954	SE	07-12-94	1645	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC954	SE	07-12-94	1645	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC954	SE	07-12-94	1645	120ml aGs	Detonation Residue (8330)	Cool to 4°
05	D	BOC954	SE	07-12-94	1645	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC954	SE	07-12-94	1645	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC954	SE	07-12-94	1645	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC954	SE	07-12-94	1645	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC955	SE	07-12-94	1530	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC955	SE	07-12-94	1530	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC955	SE	07-12-94	1530	120ml aGs	Detonation Residue (8330)	Cool to 4°
06	D	BOC955	SE	07-12-94	1530	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC955	SE	07-12-94	1530	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC955	SE	07-12-94	1530	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC955	SE	07-12-94	1530	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC956	SE	07-12-94	1440	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC956	SE	07-12-94	1440	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC956	SE	07-12-94	1440	120ml aGs	Detonation Residue (8330)	Cool to 4°
07	D	BOC956	SE	07-12-94	1440	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC956	SE	07-12-94	1440	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC956	SE	07-12-94	1440	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC956	SE	07-12-94	1440	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC957	SE	07-12-94	1430	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
08	B	BOC957	SE	07-12-94	1430	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°

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Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	Page 3 of 6
	WO#851	007448

	C	BOC957	SE	07-12-94	1430	120ml aGs	Detonation Residue (8330)	Cool to 4°
	D	BOC957	SE	07-12-94	1430	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
08	E	BOC957	SE	07-12-94	1430	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC957	SE	07-12-94	1430	120 aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC957	SE	07-12-94	1430	40 ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC958	SE	07-12-94	1515	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC958	SE	07-12-94	1515	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC958	SE	07-12-94	1515	120ml aGs	Detonation Residue (8330)	Cool to 4°
09	D	BOC958	SE	07-12-94	1515	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC958	SE	07-12-94	1515	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC958	SE	07-12-94	1515	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC958	SE	07-12-94	1515	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC959	SE	07-12-94	1558	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC959	SE	07-12-94	1558	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC959	SE	07-12-94	1558	120ml aGs	Detonation Residue (8330)	Cool to 4°
10	D	BOC959	SE	07-12-94	1558	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC959	SE	07-12-94	1558	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC959	SE	07-12-94	1558	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC959	SE	07-12-94	1558	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC960	SE	07-12-94	1500	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC960	SE	07-12-94	1500	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC960	SE	07-12-94	1500	120ml aGs	Detonation Residue (8330)	Cool to 4°
11	D	BOC960	SE	07-12-94	1500	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC960	SE	07-12-94	1500	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC960	SE	07-12-94	1500	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC960	SE	07-12-94	1500	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOCBM9	SE	07-12-94	1415	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOCBM9	SE	07-12-94	1415	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
12	C	BOCBM9	SE	07-12-94	1415	120ml aGs	Detonation Residue (8330)	Cool to 4°
	D	BOCBM9	SE	07-12-94	1415	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°

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Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	WO#854	Page 4 of 4
			007448

2511
1 of

12 E	BOCBM9	SE	07-12-94	1415	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
F	BOCBM9	SE	07-12-94	1415	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
G	BOCBM9	SE	07-12-94	1415	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
13 A	BOCBN0	SE	07-11-94	1600	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°

Chain of Possession Relinquished By (Sign and Print Names)	Date	Time	Received By
Shannon L. Spencer Shannon L. Spencer	7-14-94	1170	RM Arnold RM Arnold
RM Arnold RM Arnold	7-15-94	0930	R. Boyd Quantera 2400 7/15/94 1430

*Matrix
A = Air
DL = Drum Liquids
DS = Drum Solids
L = Liquid
O = Oil
S = Soil
SE = Sediment
SL = Sludge
SO = Solid
T = Tissue
W = Water
Wi = Wipe
X = Other

LABORATORY SECTION	Received By	Title	Date/Time
Final Sample Disposition	Disposal Method:	Disposed by:	Date/Time:

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ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 200 WEST ASH PIT	DATA PACKAGE:	
VALIDATOR: T. Stapp	LAB: IT Analytical	DATE: 9-26-94
CASE:	SDG: W0130-QES-143	

ANALYSES PERFORMED

☒ Anions/IC	☐ TOC	☐ TOX	☐ TPH-418.1	Oil and Grease	Alkalinity
☐ Ammonia	☐ BOD/COD	☐ Chloride	☐ Chromium-VI	☐ pH	☒ NO_3/NO_2
☐ Sulfate	☐ TDS	☐ TKN	☐ Phosphate	☐	☐
☐	☐	☐	☐	☐	☐

SAMPLES/MATRIX: BOC950 through BOC960 / Sediment
BOCBM9 / Sediment

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? . . . . . (Yes) No N/A

Is a case narrative present? . . . . . (Yes) No N/A

Comments:

2. HOLDING TIMES

Are sample holding times acceptable? . . . . . Yes No N/A

Comments:

	Collected	NO_2/NO_3 ANALYZED	DAYS	Fl	Cl	SO_4	PO_4	NO_2	NO_3
All Samples	7-12-94	7-26-94	≤28						
		ANIONS ANLYS:							
All Samples	7-12-94	8-01, ~~8-02-94~~		≤28	≤28	≤28	>2*	>2*	>2*
BOC950	"	8-02-94		≤28	≤28	≤28	~~>2*~~ <2	~~>2*~~ <2	~~>2*~~ <2

TD 9-29

*Holding times exceeded for these analytes qualify associated samples as (J/UR).

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

3. INSTRUMENT CALIBRATION

Was initial calibration performed for all applicable analyses? (Yes) No N/A

Are initial calibration results acceptable? . . . . . (Yes) No N/A

Was a calibration check performed for all applicable analyses? (Yes) No N/A NOTE①

Are calibration check results acceptable? . . . . . (Yes) No N/A

Comments: ① Continuing Calibration confirmed by check of % Difference of Standards analysis.

4. BLANKS

Were laboratory blanks analyzed? . . . . . (Yes) No N/A

Are laboratory blank results acceptable? . . . . . (Yes) No N/A

Were field/trip blanks analyzed? Note① . . . . . (Yes) No ~~N/A~~ TS 9-27

Are field/trip blank results acceptable? Note① . . . . . Yes (No) ~~N/A~~ TS 9-27

Comments: ~~① Field/trip blanks were not identified in this SDC but have been requested and will be evaluated in the final data summary.~~ ① Equipment Blank BOCBM9 has positive results for Chloride, Nitrate, Sulfate and NO_2/NO_3 as N. See attached Lab report sheets (FORM 1's).

TS 9-27-94

5. ACCURACY

Were spike samples analyzed at the required frequency? . . . (Yes) No N/A

Are spike recoveries acceptable? . . Note① . . . . . Yes (No) N/A

Were LCS analyses performed at the required frequency? Note② . . . Yes (No) N/A

Are LCS recoveries acceptable? . . . . . (Yes) No N/A

Comments: ① NO_2/NO_3 MS result (64.3%) below required limits. Associated results are qualified (J/UJ). ② NO_2/NO_3 LCS analysis not performed, however Blank Spikes are acceptable.

6. PRECISION

Were laboratory duplicate samples analyzed at the required frequency? . . . . . (Yes) No N/A

Are laboratory duplicate sample RPD values acceptable? . . . (Yes) No N/A

Are field duplicate RPD values acceptable? Note① . . . . . (Yes) No ~~N/A~~ TS 9-27

Are field split RPD values acceptable? . . . . . Yes No ~~N/A~~ ~~TS 9-27~~

Stet TS 9-27

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

Comments: ① Field Duplicate RPD values are within limits for all components.

7. ANALYTE QUANTITATION

Was analyte quantitation performed properly? . . . . . Yes No N/A

Comments:

8. REPORTED RESULTS AND DETECTION LIMITS

Are results reported for all requested analyses? . . . . . Yes No N/A

Are results supported in the raw data? . . . . . Yes No N/A

Are results calculated properly? . . . . . Yes No N/A

Do results meet the CRDLs? . . . . Note ① . . . . . Yes No N/A

Comments:

① CRDL of 0.1 ug/ml for Fluoride, Chloride, Phosphate, Sulfate, Nitrite and Nitrate has not been met. However no qualification will be applied. 9-29-94

MEMORANDUM

TO: 200 West Ash Pit Project QA Record September 30, 1994

FR: Thomas Stapp, Golder Associates Inc.

RE: EXPLOSIVES DATA VALIDATION SUMMARY FOR DATA PACKAGE W0130-QES-143 (943-1610.004 143EXP.004)

INTRODUCTION

This memo presents the results of data validation on data package W0130-QES-143 prepared by International Technology laboratory. A list of samples validated along with the analyses reported and the methods of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSES
B0C950	7/12/94	SEDIMENT	SEE NOTE 1
B0C951	7/12/94	SEDIMENT	
B0C952	7/12/94	SEDIMENT	
B0C953	7/12/94	SEDIMENT	
B0C954	7/12/94	SEDIMENT	
B0C955	7/12/94	SEDIMENT	
B0C956	7/12/94	SEDIMENT	
B0C957	7/12/94	SEDIMENT	
B0C958	7/12/94	SEDIMENT	
B0C959	7/12/94	SEDIMENT	
B0C960	7/12/94	SEDIMENT	
B0CBM9	7/12/94	SEDIMENT	

Notes:

1. Indicates the samples were analyzed for Nitroaromatics and Nitramines (by HPLC).

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Data validation was conducted in accordance with the WHC statement of work (WHC 1994) and validation procedures (WHC 1993). Attachments 1 through 5 provide the following information as indicated below:

Attachment 1. Glossary of Data Reporting Qualifiers
Attachment 2. Summary of Data Qualifications
Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
Attachment 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

This section presents a summary of the data quality in terms of the referenced validation criteria.

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data.

Detection Limits. Detection limit goals have been met as specified in SW-846 method 8330.

Completeness. The data package was complete for all requested analyses. A total of twelve (12) samples were validated in this data package with a total of 144 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent which meets the work plan completeness objective of 90 percent.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

No minor deficiencies were identified during data validation which required qualification of data.

FIELD QC

Equipment Blanks

- Sample B0CBM9 is identified as the equipment blank with no detected compounds reported.

Field Duplicate

- Sample B0C953 is identified as the field duplicate of sample B0C952. The RPD of all components are within acceptable limits.

REFERENCES

WHC 1993, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993. Westinghouse Hanford Company, Richland, Washington.

WHC 1994, Validation of 200 West Ash Pit Data, Statement of Work, Environmental and Waste Characterization Analytical Data Validation, Task Order MSH-SWV-315905, August 10, 1994, Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the constituent was analyzed for and detected in the associated laboratory blank. This qualifier is applied by the laboratory. During the process of data validation this qualifier may be replaced by other appropriate qualifiers as defined by the validation procedures. The associated data should be considered usable for decision making purposes.

U - Indicates the constituent was analyzed for and not detected. The concentration reported is the sample quantitation limit corrected for aliquot size, dilution and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.

UJ - Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during data validation the concentration reported may not accurately reflect the sample quantitation limit. The associated data should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. This qualifier may be applied by the laboratory to indicate a concentration which is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). During data validation this qualifier may be applied to indicate a minor quality control deficiency. However in either case, the associated data should be considered usable for decision making purposes.

NJ - Indicates presumptive evidence of a constituent at an estimated value. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

N - Indicates presumptive evidence of a constituent. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

JN - Indicates a tentatively identified compound (TIC) whose concentration and identification have been determined to be valid as a result of data validation. The associated data should be considered usable for decision making purposes.

UJN - Indicates a tentatively identified compound (TIC) that has been determined to be presumptive and valid (JN) in terms of identification and quantitation and has been qualified as undetected (U) due to associated blank contamination.

UR - Indicates the constituent was analyzed for and not detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

WHC-SD-EN-SPP-002, REV.2

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: W0130-QES-143	REVIEWER: T. STAPP	DATE: 9-27-94	PAGE 1 OF 1
COMMENTS: EXPLOSIVES			
COMPOUND/ ANALYTE	QUALIFIER	SAMPLES AFFECTED	REASON
NO QUALIFICATIONS REQUIRED			

ATTACHMENT 3

QUALIFIED DATA SUMMARY and ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: W0130-QES-143

	Samp#	B0C950		B0C951		B0C952		B0C953		B0C954	
	Date	7-12-94		7-12-94		7-12-94		7-12-94		7-12-94	
	Location	200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT	
	Depth	---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments							FIELD DUP			
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
HMX	MG/KG	0.500	U	0.500	U	0.500	U	0.500	U	0.500	U
RDX	MG/KG	0.500	U	0.500	U	0.500	U	0.500	U	0.500	U
1,3,5-TRINITROBENZENE	MG/KG	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U
1,3-DINITROBENZENE	MG/KG	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U
TETRYL	MG/KG	0.650	U	0.650	U	0.650	U	0.650	U	0.650	U
NITROBENZENE	MG/KG	0.260	U	0.260	U	0.260	U	0.260	U	0.260	U
2,4,6-TRINITROTOLUENE	MG/KG	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U
4-AMINO-2,6-DINITROTOLUENE	MG/KG	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U
2,6-DINITROTOLUENE	MG/KG	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U
2,4-DINITROTOLUENE	MG/KG	0.260	U	0.260	U	0.260	U	0.260	U	0.260	U
2-NITROTOLUENE	MG/KG	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U
3-NITROTOLUENE	MG/KG	0.220	U	0.220	U	0.220	U	0.220	U	0.220	U

Verified 9-29-94

Validated Data Summary, Data Package: W0130-QES-143

	Samp#	B0C955		B0C956		B0C957		B0C958		B0C959		B0C960	
	Date	7-12-94		7-12-94		7-12-94		7-12-94		7-12-94		7-12-94	
	Location	200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT	
	Depth	---		---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments												
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
HMX	MG/KG	0.500	U	0.500	U	0.500	U	0.500	U	0.500	U	0.500	U
RDX	MG/KG	0.500	U	0.500	U	0.500	U	0.500	U	0.500	U	0.500	U
1,3,5-TRINITROBENZENE	MG/KG	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U
1,3-DINITROBENZENE	MG/KG	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U
TETRYL	MG/KG	0.650	U	0.650	U	0.650	U	0.650	U	0.650	U	0.650	U
NITROBENZENE	MG/KG	0.260	U	0.260	U	0.260	U	0.260	U	0.260	U	0.260	U
2,4,6-TRINITROTOLUENE	MG/KG	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U
4-AMINO-2,6-DINITROTOLUENE	MG/KG	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U
2,6-DINITROTOLUENE	MG/KG	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U
2,4-DINITROTOLUENE	MG/KG	0.260	U	0.260	U	0.260	U	0.260	U	0.260	U	0.260	U
2-NITROTOLUENE	MG/KG	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U	0.250	U
3-NITROTOLUENE	MG/KG	0.220	U	0.220	U	0.220	U	0.220	U	0.220	U	0.220	U

Verified 9-29-94

Validated Data Summary, Data Package: W0130-QES-143

	Samp#	B0CBM9	
	Date	7-12-94	
	Location	200 W ASH PIT	
	Depth	---	
	Type	SOIL	
	Comments	EQUIP BLANK	
Parameter	Units	Result	Q
HMX	MG/KG	0.500	U
RDX	MG/KG	0.500	U
1,3,5-TRINITROBENZENE	MG/KG	0.250	U
1,3-DINITROBENZENE	MG/KG	0.250	U
TETRYL	MG/KG	0.650	U
NITROBENZENE	MG/KG	0.260	U
2,4,6-TRINITROTOLUENE	MG/KG	0.250	U
4-AMINO-2,6-DINITROTOLUENE	MG/KG	0.250	U
2,6-DINITROTOLUENE	MG/KG	0.250	U
2,4-DINITROTOLUENE	MG/KG	0.260	U
2-NITROTOLUENE	MG/KG	0.250	U
3-NITROTOLUENE	MG/KG	0.220	U

Verified
TS 9-29-94

NITROEXPLOSIVES ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0130
Contract Name:	Westinghouse Hanford	Job Number:	854
Client Sample ID:	BOC950	Extraction Date:	07/23/94
Lab Sample ID:	AB3096	Analysis Date:	08/12/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Concentration	Qualifiers
HMX	0.50	U
RDX	0.50	U
1,3,5-trinitrobenzene	0.25	U
1,3-dinitrobenzene	0.25	U
tetryl	0.65	U
nitrobenzene	0.26	U
2,4,6-trinitrotoluene	0.25	U
4-amino-2,6-dinitrotoluene	0.25	U
2,6-dinitrotoluene	0.25	U
2,4-dinitrotoluene	0.26	U
2-nitrotoluene	0.25	U
3-nitrotoluene	0.22	U

Surrogate Recovery	4-Nitrotoluene
Acceptance Limits: Soil	(53-140%)
Lab Sample ID: AB3096	104

JS 9-27-94

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

NITROEXPLOSIVES ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0130
Contract Name:	Westinghouse Hanford	Job Number:	854
Client Sample ID:	BOC951	Extraction Date:	07/23/94
Lab Sample ID:	AB3112	Analysis Date:	08/12/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Concentration	Qualifiers
HMX	0.50	U
RDX	0.50	U
1,3,5-trinitrobenzene	0.25	U
1,3-dinitrobenzene	0.25	U
tetryl	0.65	U
nitrobenzene	0.26	U
2,4,6-trinitrotoluene	0.25	U
4-amino-2,6-dinitrotoluene	0.25	U
2,6-dinitrotoluene	0.25	U
2,4-dinitrotoluene	0.26	U
2-nitrotoluene	0.25	U
3-nitrotoluene	0.22	U

Surrogate Recovery	4-Nitrotoluene
Acceptance Limits: Soil	(53-140%)
Lab Sample ID: AB3112	101

9-27-94

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

NITROEXPLOSIVES ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0130
Contract Name:	Westinghouse Hanford	Job Number:	854
Client Sample ID:	BOC952	Extraction Date:	07/23/94
Lab Sample ID:	AB3119	Analysis Date:	08/12/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Concentration	Qualifiers
HMX	0.50	U
RDX	0.50	U
1,3,5-trinitrobenzene	0.25	U
1,3-dinitrobenzene	0.25	U
tetryl	0.65	U
nitrobenzene	0.26	U
2,4,6-trinitrotoluene	0.25	U
4-amino-2,6-dinitrotoluene	0.25	U
2,6-dinitrotoluene	0.25	U
2,4-dinitrotoluene	0.26	U
2-nitrotoluene	0.25	U
3-nitrotoluene	0.22	U

Surrogate Recovery	4-Nitrotoluene
Acceptance Limits: Soil	(53-140%)
Lab Sample ID: AB3119	110

9-27-94

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

NITROEXPLOSIVES ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0130
Contract Name:	Westinghouse Hanford	Job Number:	854
Client Sample ID:	BOC953	Extraction Date:	07/23/94
Lab Sample ID:	AB3126	Analysis Date:	08/12/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Concentration	Qualifiers
HMX	0.50	U
RDX	0.50	U
1,3,5-trinitrobenzene	0.25	U
1,3-dinitrobenzene	0.25	U
tetryl	0.65	U
nitrobenzene	0.26	U
2,4,6-trinitrotoluene	0.25	U
4-amino-2,6-dinitrotoluene	0.25	U
2,6-dinitrotoluene	0.25	U
2,4-dinitrotoluene	0.26	U
2-nitrotoluene	0.25	U
3-nitrotoluene	0.22	U

Surrogate Recovery	4-Nitrotoluene
Acceptance Limits: Soil	(53-140%)
Lab Sample ID: AB3126	105

9-27-94

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

NITROEXPLOSIVES ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0130
Contract Name:	Westinghouse Hanford	Job Number:	854
Client Sample ID:	BOC954	Extraction Date:	07/23/94
Lab Sample ID:	AB3133	Analysis Date:	08/12/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Concentration	Qualifiers
HMX	0.50	U
RDX	0.50	U
1,3,5-trinitrobenzene	0.25	U
1,3-dinitrobenzene	0.25	U
tetryl	0.65	U
nitrobenzene	0.26	U
2,4,6-trinitrotoluene	0.25	U
4-amino-2,6-dinitrotoluene	0.25	U
2,6-dinitrotoluene	0.25	U
2,4-dinitrotoluene	0.26	U
2-nitrotoluene	0.25	U
3-nitrotoluene	0.22	U

Surrogate Recovery	4-Nitrotoluene
Acceptance Limits: Soil	(53-140%)
Lab Sample ID: AB3133	102

9-27-94

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

NITROEXPLOSIVES ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0130
Contract Name:	Westinghouse Hanford	Job Number:	854
Client Sample ID:	BOC955	Extraction Date:	07/23/94
Lab Sample ID:	AB3140	Analysis Date:	08/12/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Concentration	Qualifiers
HMX	0.50	U
RDX	0.50	U
1,3,5-trinitrobenzene	0.25	U
1,3-dinitrobenzene	0.25	U
tetryl	0.65	U
nitrobenzene	0.26	U
2,4,6-trinitrotoluene	0.25	U
4-amino-2,6-dinitrotoluene	0.25	U
2,6-dinitrotoluene	0.25	U
2,4-dinitrotoluene	0.26	U
2-nitrotoluene	0.25	U
3-nitrotoluene	0.22	U

Surrogate Recovery	4-Nitrotoluene
Acceptance Limits: Soil	(53-140%)
Lab Sample ID: AB3140	103

fs 9-27-94

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

NITROEXPLOSIVES ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0130
Contract Name:	Westinghouse Hanford	Job Number:	854
Client Sample ID:	BOC956	Extraction Date:	07/23/94
Lab Sample ID:	AB3147	Analysis Date:	08/12/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Concentration	Qualifiers
HMX	0.50	U
RDX	0.50	U
1,3,5-trinitrobenzene	0.25	U
1,3-dinitrobenzene	0.25	U
tetryl	0.65	U
nitrobenzene	0.26	U
2,4,6-trinitrotoluene	0.25	U
4-amino-2,6-dinitrotoluene	0.25	U
2,6-dinitrotoluene	0.25	U
2,4-dinitrotoluene	0.26	U
2-nitrotoluene	0.25	U
3-nitrotoluene	0.22	U

Surrogate Recovery	4-Nitrotoluene
Acceptance Limits: Soil	(53-140%)
Lab Sample ID: AB3147	97

9-27-94

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

NITROEXPLOSIVES ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0130
Contract Name:	Westinghouse Hanford	Job Number:	854
Client Sample ID:	BOC957	Extraction Date:	07/23/94
Lab Sample ID:	AB3154	Analysis Date:	08/12/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Concentration	Qualifiers
HMX	0.50	U
RDX	0.50	U
1,3,5-trinitrobenzene	0.25	U
1,3-dinitrobenzene	0.25	U
tetryl	0.65	U
nitrobenzene	0.26	U
2,4,6-trinitrotoluene	0.25	U
4-amino-2,6-dinitrotoluene	0.25	U
2,6-dinitrotoluene	0.25	U
2,4-dinitrotoluene	0.26	U
2-nitrotoluene	0.25	U
3-nitrotoluene	0.22	U

Surrogate Recovery	4-Nitrotoluene
Acceptance Limits: Soil	(53-140%)
Lab Sample ID: AB3154	106

TD 9-27-94

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

NITROEXPLOSIVES ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0130
Contract Name:	Westinghouse Hanford	Job Number:	854
Client Sample ID:	BOC958	Extraction Date:	07/23/94
Lab Sample ID:	AB3161	Analysis Date:	08/12/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Concentration	Qualifiers
HMX	0.50	U
RDX	0.50	U
1,3,5-trinitrobenzene	0.25	U
1,3-dinitrobenzene	0.25	U
tetryl	0.65	U
nitrobenzene	0.26	U
2,4,6-trinitrotoluene	0.25	U
4-amino-2,6-dinitrotoluene	0.25	U
2,6-dinitrotoluene	0.25	U
2,4-dinitrotoluene	0.26	U
2-nitrotoluene	0.25	U
3-nitrotoluene	0.22	U

Surrogate Recovery	4-Nitrotoluene
Acceptance Limits: Soil	(53-140%)
Lab Sample ID: AB3161	101

9-27-94

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

NITROEXPLOSIVES ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0130
Contract Name:	Westinghouse Hanford	Job Number:	854
Client Sample ID:	BOC959	Extraction Date:	07/23/94
Lab Sample ID:	AB3168	Analysis Date:	08/12/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Concentration	Qualifiers
HMX	0.50	U
RDX	0.50	U
1,3,5-trinitrobenzene	0.25	U
1,3-dinitrobenzene	0.25	U
tetryl	0.65	U
nitrobenzene	0.26	U
2,4,6-trinitrotoluene	0.25	U
4-amino-2,6-dinitrotoluene	0.25	U
2,6-dinitrotoluene	0.25	U
2,4-dinitrotoluene	0.26	U
2-nitrotoluene	0.25	U
3-nitrotoluene	0.22	U

Surrogate Recovery	4-Nitrotoluene
Acceptance Limits: Soil	(53-140%)
Lab Sample ID: AB3168	105

9-27-94

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

NITROEXPLOSIVES ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0130
Contract Name:	Westinghouse Hanford	Job Number:	854
Client Sample ID:	BOC960	Extraction Date:	07/23/94
Lab Sample ID:	AB3175	Analysis Date:	08/12/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Concentration	Qualifiers
HMX	0.50	U
RDX	0.50	U
1,3,5-trinitrobenzene	0.25	U
1,3-dinitrobenzene	0.25	U
tetryl	0.65	U
nitrobenzene	0.26	U
2,4,6-trinitrotoluene	0.25	U
4-amino-2,6-dinitrotoluene	0.25	U
2,6-dinitrotoluene	0.25	U
2,4-dinitrotoluene	0.26	U
2-nitrotoluene	0.25	U
3-nitrotoluene	0.22	U

Surrogate Recovery	4-Nitrotoluene
Acceptance Limits: Soil	(53-140%)
Lab Sample ID: AB3175	94

9-27-94

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

NITROEXPLOSIVES ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0130
Contract Name:	Westinghouse Hanford	Job Number:	854
Client Sample ID:	BOCBM9	Extraction Date:	07/23/94
Lab Sample ID:	AB3182	Analysis Date:	08/12/94
Sample Matrix:	Soil	Concentration Units:	mg/kg

Compound	Concentration	Qualifiers
HMX	0.50	U
RDX	0.50	U
1,3,5-trinitrobenzene	0.25	U
1,3-dinitrobenzene	0.25	U
tetryl	0.65	U
nitrobenzene	0.26	U
2,4,6-trinitrotoluene	0.25	U
4-amino-2,6-dinitrotoluene	0.25	U
2,6-dinitrotoluene	0.25	U
2,4-dinitrotoluene	0.26	U
2-nitrotoluene	0.25	U
3-nitrotoluene	0.22	U

Surrogate Recovery	4-Nitrotoluene
Acceptance Limits: Soil	(53-140%)
Lab Sample ID: AB3182	96

9-27-94

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

ATTACHMENT 4

LABORATORY NARRATIVE and CHAIN-OF-CUSTODY DOCUMENTATION

9413299.1276

0000001

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

IT Corporation
2800 George Washington Way
Richland, WA 99352
Attn: Van Pettey

RECORD COPY

August 22, 1994

Job Number: 854

This is the Certificate of Analysis for the following samples:

SDG:	W0130
Client Project ID:	WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan
Received by Knoxville:	July 19, 1994
Number of Samples:	Thirteen (13)
Sample Type:	Soil

I. Introduction

On July 15, 1994, thirteen (13) soil samples arrived at ITAS-Richland, Washington and were transferred o ITAS-Knoxville for chemical analysis. 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.

The samples were analyzed for Appendix IX volatile and semivolatile organic compounds by gas chromatography/mass spectroscopy (GS/MS) based on EPA SW-846 methods 8240 and 8270.

Reviewed and Approved:

Sheree Schneider

Sheree' A. Schneider
Project Manager

SEP 1994
RECEIVED
SDLA

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

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

IT Corporation
August 22, 1994
ob Number: 854
Client Project ID: WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan

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 ILM03.0 Statement of Work.

The samples were analyzed for nitrate-nitrite based on EPA method 353.2.

The samples were analyzed for anions by ion chromatography using EPA method 300.0.

The samples were analyzed for nitroexplosives by high performance liquid chromatography (HPLC) based on draft EPA method 8330.

III. Quality Control

The volatiles analyses were performed by purge and trap with a J & W DB-624 capillary column on a Finnigan INCOS 500 GC/MS/DS. A matrix spike and matrix spike duplicate were analyzed using sample BOC950. All QC results met method specified limits.

The semivolatiles analyses were performed by direct injection of sample extract on a Restek XTI-5 capillary column on a Finnigan 4500 XL GC/MS/DS. Sample BOC954 was initially analyzed at a five-fold dilution due to the appearance of the extract. BOC954 required an additional fifty-fold dilution due to target compound concentrations that were greater than the calibration range in the five-fold dilution run. Four surrogate standards were diluted out in the fifty-fold dilution run. Daily calibrations were performed for the usual 8270 targets and for the additional Appendix IX compounds, with the excetpion of the fifty-fold dilution of BOC954. No Appendix IX calibration was performed on the fifty-fold dilution of BOC954 due to no Appendix IX compounds being identified in the five-fold dilution. The samples did not contain any Appendix IX compounds. A matrix spike and matrix spike duplicate were analyzed using sample BOC950. The matrix spike and matrix spike duplicate passed all QC criteria with the exception of 2,4-dinitrotoluene in the matrix spike duplicate, which was one percentage point above the criteria. However, the laboratory control sample did meet all QC criteria.

Data were reported with qualifiers as follows:

U - Compound analyzed for but not detected; value given is quantitation limit.
E - Compound exceeded calibration range.
D - Compound analyzed at a secondary dilution factor.
J - Compound detected but below quantitation limit; value estimated.
S - Spiked compound.

IT Corporation
August 22, 1994
ob Number: 854
Client Project ID: WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

III. Quality Control (Continued)

B - Compound found in method blank.
A - Suspected aldol condensation product.
Y - Indistinguishable isomer in tentatively identified compounds.
N - Presumptive evidence of compound presence.

The samples were digested on July 22, 1994 for ICP and July 22 and August 2, 1994 for GFAA. The CVAA analysis for mercury was performed on July 25, 1994; the GFAA analyses for arsenic, lead, selenium and thallium were performed July 22 thru August 5, 1994; the remaining metals were analyzed by ICP on July 25, 1994. All run QC was acceptable. A duplicate/spike pair was prepared using sample number BOC950. Spike recovery (accuracy) results were within acceptance limits for all parameters except for antimony, arsenic, copper, manganese and zinc. Poor spike recovery for these analytes appears to be attributable to sample nonhomogeneity and matrix interference. Duplicate RPD (precision) results were within acceptance limits for all parameters except for chromium, zinc and titanium, which exhibited slight variations due to sample nonhomogeneity.

Data were reported with qualifiers as follows:

"C" Qualifiers

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.

"Q" Qualifiers

* - Duplicate analysis outside control limits.
N - Spiked sample recovery outside control limits.
W - Post-digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.
S - The reported value was determined by method of standard additions.

"M" Qualifiers

P - Analysis performed by ICP.
V - Analysis performed by CVAA.
F - Analysis performed by GFAA.
C - Cyanide analysis by manual distillation/colorimetric determination.

IT Corporation
August 22, 1994
Job Number: 854
Client Project ID: WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan

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III. Quality Control (Continued)

Miscellaneous

D - Duplicate.
S - Spike.
NR - Not required.
G - Native analyte > 4 times spike added, therefore, acceptance criteria do not apply.
X - Detection limits higher than normal due to sample matrix interferences.

The samples were analyzed for nitrate/nitrite on July 26, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC950. All QC results were acceptable.

The samples were analyzed for fluoride, chloride, phosphate, nitrate, nitrite and sulfate by EPA method 300.0 on August 1 and 2, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC950. All QC results were acceptable.

The samples were analyzed for nitroexplosives on August 12, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC950. All QC results were acceptable.

Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST W0#654	Page 1 of 4
		007448

Collector SL Spencer
SAF No. 94-329
Ice Chest No. SMZ-445
Method of Shipment Government Vehicle
Shipped to IT Analytical 2800 George Washington Way Richland WA, 99352
Possible Sample Hazards/Remarks None / Work Done to RCRA Protocol
Special Handling and/or Storage

Company Contact ID Jacques/JW Ball
Project Designation 200 West Ash Pit Demolition Site Closure Plan
Bill of Lading/Airbill No. N/A

Telephone 376-3306/372-2653
Sampling Locations 200 West / 200-SS-2
Offsite Property No.
Field Logbook No.

SPECIAL INSTRUCTIONS Standalone Deliverable
Appendix IX SDW W0130

	Sample Number	*	Date Collected	Time	Number and Type of Containers	Analysis Required	Preservative
01 A	BOC950	SE	07-12-94	1540	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
B	BOC950	SE	07-12-94	1540	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
C	BOC950	SE	07-12-94	1540	120ml aGs	Detonation Residue (8330)	Cool to 4°
D	BOC950	SE	07-12-94	1540	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
E	BOC950	SE	07-12-94	1540	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
F	BOC950	SE	07-12-94	1540	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
G	BOC950	SE	07-12-94	1540	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
02 A	BOC951	SE	07-12-94	1445	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
B	BOC951	SE	07-12-94	1445	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
C	BOC951	SE	07-12-94	1445	120ml aGs	Detonation Residue (8330)	Cool to 4°
D	BOC951	SE	07-12-94	1445	120ml aGs	Anions(EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
E	BOC951	SE	07-12-94	1445	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
F	BOC951	SE	07-12-94	1445	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
G	BOC951	SE	07-12-94	1445	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
03 A	BOC952	SE	07-12-94	1620	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
B	BOC952	SE	07-12-94	1620	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
C	BOC952	SE	07-12-94	1620	120ml aGs	Detonation Residue (8330)	Cool to 4°
D	BOC952	SE	07-12-94	1620	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
E	BOC952	SE	07-12-94	1620	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
F	BOC952	SE	07-12-94	1620	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
G	BOC952	SE	07-12-94	1620	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°

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Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	Page 2 of 4
	WO#854	007448

	A	BOC953	SE	07-12-94	1620	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC953	SE	07-12-94	1620	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC953	SE	07-12-94	1620	120ml aGs	Detonation Residue (8330)	Cool to 4°
04	D	BOC953	SE	07-12-94	1620	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC953	SE	07-12-94	1620	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC953	SE	07-12-94	1620	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC953	SE	07-12-94	1620	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC954	SE	07-12-94	1645	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC954	SE	07-12-94	1645	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC954	SE	07-12-94	1645	120ml aGs	Detonation Residue (8330)	Cool to 4°
05	D	BOC954	SE	07-12-94	1645	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC954	SE	07-12-94	1645	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC954	SE	07-12-94	1645	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC954	SE	07-12-94	1645	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC955	SE	07-12-94	1530	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC955	SE	07-12-94	1530	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC955	SE	07-12-94	1530	120ml aGs	Detonation Residue (8330)	Cool to 4°
06	D	BOC955	SE	07-12-94	1530	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC955	SE	07-12-94	1530	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC955	SE	07-12-94	1530	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC955	SE	07-12-94	1530	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC956	SE	07-12-94	1440	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC956	SE	07-12-94	1440	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC956	SE	07-12-94	1440	120ml aGs	Detonation Residue (8330)	Cool to 4°
07	D	BOC956	SE	07-12-94	1440	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC956	SE	07-12-94	1440	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC956	SE	07-12-94	1440	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC956	SE	07-12-94	1440	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC957	SE	07-12-94	1430	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
08	B	BOC957	SE	07-12-94	1430	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°

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Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	Page 3 of 4
	WO#854	007448

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	C	BOC957	SE	07-12-94	1430	120ml aGs	Detonation Residue (8330)	Cool to 4°
	D	BOC957	SE	07-12-94	1430	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
08	E	BOC957	SE	07-12-94	1430	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC957	SE	07-12-94	1430	120 aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC957	SE	07-12-94	1430	40 ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC958	SE	07-12-94	1515	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC958	SE	07-12-94	1515	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC958	SE	07-12-94	1515	120ml aGs	Detonation Residue (8330)	Cool to 4°
09	D	BOC958	SE	07-12-94	1515	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC958	SE	07-12-94	1515	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC958	SE	07-12-94	1515	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC958	SE	07-12-94	1515	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC959	SE	07-12-94	1558	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC959	SE	07-12-94	1558	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC959	SE	07-12-94	1558	120ml aGs	Detonation Residue (8330)	Cool to 4°
10	D	BOC959	SE	07-12-94	1558	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC959	SE	07-12-94	1558	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC959	SE	07-12-94	1558	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC959	SE	07-12-94	1558	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC960	SE	07-12-94	1500	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC960	SE	07-12-94	1500	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC960	SE	07-12-94	1500	120ml aGs	Detonation Residue (8330)	Cool to 4°
11	D	BOC960	SE	07-12-94	1500	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC960	SE	07-12-94	1500	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC960	SE	07-12-94	1500	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC960	SE	07-12-94	1500	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOCBM9	SE	07-12-94	1415	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOCBM9	SE	07-12-94	1415	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
12	C	BOCBM9	SE	07-12-94	1415	120ml aGs	Detonation Residue (8330)	Cool to 4°
	D	BOCBM9	SE	07-12-94	1415	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°

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Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	Page 4 of 4
		007448

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12	E	BOCBM9	SE	07-12-94	1415	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOCBM9	SE	07-12-94	1415	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOCBM9	SE	07-12-94	1415	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
13	A	BOCBN0	SE	07-11-94	1600	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°

Chain of Possession (Sign and Print Names) Relinquished By		Date	Time	Received By	
Shannon L. Spencer	Shannon L. Spencer	7-14-94	1170	RM Arnold	RM Arnold
RM Arnold	RM Arnold	7-15-94	0930	R. Boyd Quantera 2100	7/15/94 1130

*Matrix

A = Air
DL = Drum Liquids
DS = Drum Solids
L = Liquid
O = Oil
S = Soil
SE = Sediment
SL = Sludge
SO = Solid
T = Tissue
W = Water
WI = Wipe
X = Other

LABORATORY SECTION	Received By	Title	Date/Time
Final Sample Disposition	Disposal Method:	Disposed by:	Date/Time:

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ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

GENERAL GC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 200 WEST ASH PIT	DATA PACKAGE:	
VALIDATOR: T. Stapp	LAB: IT Analytical	DATE: 9-27-94
CASE:	SDG: W0130-QES-143	

ANALYSES PERFORMED

☐ 8010	☐ 8015	☐ 8020	☐ 8021	8140	8141
☐ 8150	☐ 8151	☐ WTPH-HCID	☐ WTPH-G	☐ WTPH-D	☐
☒ 8330*	☐	☐	☐	☐	☐

SAMPLES/MATRIX: B0C950 through B0C960 / Sediment
B0CBM9 / Sediment

* SW-846 method

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? . . . . . Yes No N/A

Is a case narrative present? . . . . . Yes No N/A

Comments:

2. HOLDING TIMES

Are sample holding times acceptable? . . . . . Yes No ~~N/A~~ 9-27-94

Comments:

	Collected	Extracted	Analyzed
All Samples	7-12-94	7-23-94	8-12-94
		(≤ 14 DAYS)	(≤ 40 DAYS)

GENERAL GC DATA VALIDATION CHECKLIST

3. INSTRUMENT CALIBRATION

3.1 INITIAL CALIBRATION

Was an initial calibration performed? . . . . . Yes No N/A

Are %RSD values for calibration or response factors acceptable? . . . . . Note ① . . . . . Yes No N/A

Comments: ① A six level calibration performed with correlation coefficients >0.995.

3.2 CONTINUING CALIBRATION

Was a continuing calibration check performed? . . . . . Yes No N/A

Are %D values for calibration or response factors acceptable? . Yes No N/A

Comments: % Difference values for the recovery percentages of components are calculated from a mid-range Standard concentration.

4. BLANKS

Were laboratory blanks analyzed? . . . . . Yes No N/A

Are laboratory blank results acceptable? . . . . . Yes No N/A

Were field/trip blanks analyzed? . . . Note ① . . . . . Yes No N/A

Are field/trip blank results acceptable? . . . . . Yes No N/A

Comments: ① Equipment blank BOCBM9. is non-detect for all components.

5. ACCURACY

Were surrogates analyzed? . . . . . Yes No N/A

Are surrogate recoveries acceptable? . . . . . Yes No N/A

Were MS/MSD samples analyzed? . . . . . Yes No N/A

Are MS/MSD recoveries acceptable? . . . . . Yes No N/A

Were LCS samples analyzed? . . . . Note ① . . . . . Yes No N/A

Are LCS recoveries acceptable? . . . . . Yes No N/A

GENERAL GC DATA VALIDATION CHECKLIST

Comments: ① LCS analysis not required since MS/MSD data is provided.

6. PRECISION

Are MS/MSD sample RPD values acceptable? . . . . . Yes No N/A

Are field duplicate RPD values acceptable? . Note ① . . . . Yes No N/A

Are field split RPD values acceptable? . . . . . Yes No N/A

Comments: ① Field duplicate sample BCC953 to sample BCC952 both are non-detect for all components.

7. COMPOUND IDENTIFICATION AND QUANTITATION

Is compound identification acceptable? . . . . . Yes No N/A

Is compound quantitation acceptable? . . . . . Yes No N/A

Comments:

8. REPORTED RESULTS AND DETECTION LIMITS

Are results reported for all requested analyses? . . . . . Yes No N/A

Are all results supported in the raw data? . . . . . Yes No N/A

Do results meet the CRQLs? . Note ① . . . . . Yes No N/A

Comments: ① CRQL's have not been specified for explosives related analytes, however estimated MDL's as given in SW-846 have ~~met~~ been met. 9-27-94

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MEMORANDUM

TO: 200 WEST ASH PIT Project QA Record October 11, 1994

FR: Thomas Stapp, Golder Associates Inc.

RE: VOLATILES DATA VALIDATION SUMMARY FOR DATA PACKAGE W0130-QES-143 (943-1610.004 143VOA.004)

INTRODUCTION

This memo presents the results of data validation on data package W0130-QES-143 prepared by International Technology laboratory. A list of samples validated along with the analyses reported and the methods of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSES
B0C950	7/12/94	SEDIMENT	SEE NOTE 1
B0C951	7/12/94	SEDIMENT	
B0C952	7/12/94	SEDIMENT	
B0C953	7/12/94	SEDIMENT	
B0C954	7/12/94	SEDIMENT	
B0C955	7/12/94	SEDIMENT	
B0C956	7/12/94	SEDIMENT	
B0C957	7/12/94	SEDIMENT	
B0C958	7/12/94	SEDIMENT	
B0C959	7/12/94	SEDIMENT	
B0C960	7/12/94	SEDIMENT	
B0CBM9	7/12/94	SEDIMENT	
B0CBN0	7/11/94	SEDIMENT	

Notes:

1. Indicates the samples were analyzed for Appendix IX volatile organics.

Data validation was conducted in accordance with the WHC statement of work (WHC 1994) and validation procedures (WHC 1993). Attachments 1 through 5 provide the following information as indicated below:

Attachment 1. Glossary of Data Reporting Qualifiers
Attachment 2. Summary of Data Qualifications
Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
Attachment 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

This section presents a summary of the data quality in terms of the referenced validation criteria.

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data.

10-11-94
Revised

Detection Limits. Detection limit goals were met.

Completeness. The data package was complete for all requested analyses. A total of thirteen (13) samples were validated in this data package with a total of 754 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent which meets the work plan completeness objective of 90 percent.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

The following minor deficiencies were identified during data validation which required qualification of data.

Holding Times

- The holding times for samples B0C950, B0C951, B0C954, B0C957, and B0C958 were exeeded. Attachments 2 and 5 provide a summary of qualification applied and supporting documentation.

Laboratory Blanks

- Methylene chloride, acetone and toluene were detected in the laboratory method blank. Attachments 2 and 5 provide a summary of samples affected, qualification applied and supporting documentation.

Field QC

Equipment Blanks

- Sample B0CBM9 was identified as the equipment blank and was non-detect for all components except trichloroethene. An unknown TIC was reported at a retention time of 2.23 minutes.

Trip Blanks

- Sample B0CBN0 was identified as the trip blank and was non-detect for all components except an unknown hydrocarbon TIC at a retention time of 17.27 minutes.

Tentatively Identified Compounds

Tentatively identified compounds (TICs) reported by the laboratory were evaluated during validation and qualified as follows:

- TICs were detected in the samples and determined to be valid, resulting in qualification of the results as presumptive and valid (JN).
- TICs were detected in the sample and associated laboratory blank and have been qualified due to associated blank contamination and determined to be presumptive and valid (UJN). Attachments 3 and 5 provide a summary of the sample affected, data qualification applied and supporting documentation.

REFERENCES

WHC 1993, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993. Westinghouse Hanford Company, Richland, Washington.

WHC 1994, Validation of 200 West Ash Pit Data, Statement of Work, Environmental and Waste Characterization Analytical Data Validation, Task Order MSH-SWV-315905, August 10, 1994, Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the constituent was analyzed for and detected in the associated laboratory blank. This qualifier is applied by the laboratory. During the process of data validation this qualifier may be replaced by other appropriate qualifiers as defined by the validation procedures. The associated data should be considered usable for decision making purposes.

U - Indicates the constituent was analyzed for and not detected. The concentration reported is the sample quantitation limit corrected for aliquot size, dilution and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.

UJ - Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during data validation the concentration reported may not accurately reflect the sample quantitation limit. The associated data should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. This qualifier may be applied by the laboratory to indicate a concentration which is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). During data validation this qualifier may be applied to indicate a minor quality control deficiency. However in either case, the associated data should be considered usable for decision making purposes.

NJ - Indicates presumptive evidence of a constituent at an estimated value. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

N - Indicates presumptive evidence of a constituent. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

JN - Indicates a tentatively identified compound (TIC) whose concentration and identification have been determined to be valid as a result of data validation. The associated data should be considered usable for decision making purposes.

UJN - Indicates a tentatively identified compound (TIC) that has been determined to be presumptive and valid (JN) in terms of identification and quantitation and has been qualified as undetected (U) due to associated blank contamination.

UR - Indicates the constituent was analyzed for and not detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

WHC-SD-EN-SPP-002, REV.2

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: W0130-QES-143	REVIEWER: T. STAPP	DATE: 9-27-94	PAGE 1 OF 1
COMMENTS: VOLATILE ORGANICS			
COMPOUND/ ANALYTE	QUALIFIER	SAMPLES AFFECTED	REASON
ALL COMPOUNDS	J/UJ	B0C950, B0C951, B0C954, B0C957, and B0C958	HOLDING TIME EXCEEDED
METHYLENE CHLORIDE	U	ALL	CONTAMINANT DETECTED IN LABORATORY BLANK
ACETONE	U	ALL EXCEPT B0CBN0	CONTAMINANT DETECTED IN LABORATORY BLANK

ATTACHMENT 3

QUALIFIED DATA SUMMARY and ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: W0130-QES-143

	Samp#	B0C950		B0C951		B0C952		B0C953		B0C954		B0C955	
	Date	7-12-94		7-12-94		7-12-94		7-12-94		7-12-94		7-12-94	
	Location	200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT	
	Depth	---		---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments							FIELD DUP					
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
CHLOROMETHANE	UG/KG	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	UJ	10.000	U
BROMOMETHANE	UG/KG	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	UJ	10.000	U
VINYL CHLORIDE	UG/KG	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	UJ	10.000	U
CHLOROETHANE	UG/KG	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	UJ	10.000	U
METHYLENE CHLORIDE	UG/KG	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	UJ	10.000	U
ACETONE	UG/KG	10.000	UJ	22.000	UJ	10.000	U	10.000	U	10.000	UJ	10.000	U
CARBON DISULFIDE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
1,1-DICHLOROETHENE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
1,1-DICHLOROETHANE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
1,2-DICHLOROETHENE (TOTAL)	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
CHLOROFORM	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
1,2-DICHLOROETHANE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
2-BUTANONE	UG/KG	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	UJ	10.000	U
1,1,1-TRICHLOROETHANE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
CARBON TETRACHLORIDE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
VINYL ACETATE	UG/KG	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	UJ	10.000	U
BROMODICHLOROMETHANE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
1,2-DICHLOROPROPANE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
CIS-1,3-DICHLOROPROPENE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
TRICHLOROETHENE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
DIBROMOCHLOROMETHANE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
1,1,2-TRICHLOROETHANE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
BENZENE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
TRANS-1,3-DICHLOROPROPENE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
BROMOFORM	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
4-METHYL-2-PENTANONE	UG/KG	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	UJ	10.000	U
2-HEXANONE	UG/KG	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	UJ	10.000	U
TETRACHLOROETHENE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
1,1,2,2-TETRACHLOROETHANE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
TOLUENE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
CHLOROBENZENE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
ETHYLBENZENE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
STYRENE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
XYLENES (TOTAL)	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
ACETONITRILE	UG/KG	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	UJ	10.000	U
ACROLEIN	UG/KG	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	UJ	10.000	U
ACRYLONITRILE	UG/KG	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	UJ	10.000	U
3-CHLORO-1-PROPENE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U

Verified 9-28-94

Validated Data Summary, Data Package: W0130-QES-143

	Samp#	B0C950		B0C951		B0C952		B0C953		B0C954		B0C955	
	Date	7-12-94		7-12-94		7-12-94		7-12-94		7-12-94		7-12-94	
	Location	200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT	
	Depth	---		---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments							FIELD DUP					
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,2-DIBROMO-3-CHLOROPROPANE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
1,2-DIBROMOETHANE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
DIBROMOMETHANE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
TRANS-1,4-DICHLORO-2-BUTENE	UG/KG	20.000	UJ	20.000	UJ	21.000	U	20.000	U	21.000	UJ	20.000	U
DICHLRODIFLUOROMETHANE	UG/KG	20.000	UJ	20.000	UJ	21.000	U	20.000	U	21.000	UJ	20.000	U
TRANS-1,2-DICHLOROETHENE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
ETHYL CYANIDE	UG/KG	100.000	UJ	100.000	UJ	100.000	U	100.000	U	100.000	UJ	100.000	U
IODOMETHANE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
METHACRYLONITRILE	UG/KG	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	UJ	10.000	U
1,1,1,2-TETRACHLOROETHANE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
TRICHLOROFLUOROMETHANE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
1,2,3-TRICHLOROPROPANE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
1,4-DIOXANE	UG/KG	1000.000	UJ	1000.000	UJ	1000.000	U	1000.000	U	1000.000	UJ	1000.000	U
ISOBUTYL ALCOHOL	UG/KG	100.000	UJ	100.000	UJ	100.000	U	100.000	U	100.000	UJ	100.000	U
METHYL METHACRYLATE	UG/KG	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	UJ	10.000	U
ETHYL METHACRYLATE	UG/KG	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	UJ	10.000	U
1,3-DICHLOROBENZENE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
1,4-DICHLOROBENZENE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
1,2-DICHLOROBENZENE	UG/KG	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	UJ	5.000	U
CHLOROPRENE	UG/KG	51.000	UJ	51.000	UJ	52.000	U	51.000	U	52.000	UJ	51.000	U

Verified 9-28-94

9413279.1297

010

Validated Data Summary, Data Package: W0130-QES-143

	Samp#	B0C956		B0C957		B0C958		B0C959		B0C960		B0CBM9	
	Date	7-12-94		7-12-94		7-12-94		7-12-94		7-12-94			
	Location	200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT	
	Depth	---		---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments											EQUIP BLANK	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
CHLOROMETHANE	UG/KG	10.000	U	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	U
BROMOMETHANE	UG/KG	10.000	U	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	U
VINYL CHLORIDE	UG/KG	10.000	U	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	U
CHLOROETHANE	UG/KG	10.000	U	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	U
METHYLENE CHLORIDE	UG/KG	10.000	U	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	U
ACETONE	UG/KG	10.000	U	13.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	U
CARBON DISULFIDE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
1,1-DICHLOROETHENE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
1,1-DICHLOROETHANE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
1,2-DICHLOROETHENE (TOTAL)	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
CHLOROFORM	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
1,2-DICHLOROETHANE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
2-BUTANONE	UG/KG	10.000	U	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	U
1,1,1-TRICHLOROETHANE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
CARBON TETRACHLORIDE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
VINYL ACETATE	UG/KG	10.000	U	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	U
BROMODICHLOROMETHANE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
1,2-DICHLOROPROPANE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
CIS-1,3-DICHLOROPROPENE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
TRICHLOROETHENE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	2.000	J
DIBROMOCHLOROMETHANE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
1,1,2-TRICHLOROETHANE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
BENZENE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
TRANS-1,3-DICHLOROPROPENE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
BROMOFORM	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
4-METHYL-2-PENTANONE	UG/KG	10.000	U	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	U
2-HEXANONE	UG/KG	10.000	U	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	U
TETRACHLOROETHENE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
1,1,2,2-TETRACHLOROETHANE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
TOLUENE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
CHLOROBENZENE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
ETHYLBENZENE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
STYRENE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
XYLENES (TOTAL)	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
ACETONITRILE	UG/KG	10.000	U	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	U
ACROLEIN	UG/KG	10.000	U	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	U
ACRYLONITRILE	UG/KG	10.000	U	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	U
3-CHLORO-1-PROPENE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U

Verified 9-29-94

Validated Data Summary, Data Package: W0130-QES-143

	Samp#	B0C956		B0C957		B0C958		B0C959		B0C960		B0CBM9	
	Date	7-12-94		7-12-94		7-12-94		7-12-94		7-12-94			
	Location	200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT	
	Depth	---		---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments											EQUIP BLANK	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,2-DIBROMO-3-CHLOROPROPANE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
1,2-DIBROMOETHANE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
DIBROMOMETHANE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
TRANS-1,4-DICHLORO-2-BUTENE	UG/KG	20.000	U	20.000	UJ	20.000	UJ	20.000	U	21.000	U	20.000	U
DICHLRODIFLUOROMETHANE	UG/KG	20.000	U	20.000	UJ	20.000	UJ	20.000	U	21.000	U	20.000	U
TRANS-1,2-DICHLOROETHENE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
ETHYL CYANIDE	UG/KG	100.000	U	100.000	UJ	100.000	UJ	100.000	U	100.000	U	100.000	U
IODOMETHANE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
METHACRYLONITRILE	UG/KG	10.000	U	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	U
1,1,1,2-TETRACHLOROETHANE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
TRICHLOROFLUOROMETHANE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
1,2,3-TRICHLOROPROPANE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
1,4-DIOXANE	UG/KG	1000.000	U	1000.000	UJ	1000.000	UJ	1000.000	U	1000.000	U	1000.000	U
ISOBUTYL ALCOHOL	UG/KG	100.000	U	100.000	UJ	100.000	UJ	100.000	U	100.000	U	100.000	U
METHYL METHACRYLATE	UG/KG	10.000	U	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	U
ETHYL METHACRYLATE	UG/KG	10.000	U	10.000	UJ	10.000	UJ	10.000	U	10.000	U	10.000	U
1,3-DICHLOROBENZENE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
1,4-DICHLOROBENZENE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
1,2-DICHLOROBENZENE	UG/KG	5.000	U	5.000	UJ	5.000	UJ	5.000	U	5.000	U	5.000	U
CHLOROPRENE	UG/KG	51.000	U	50.000	UJ	51.000	UJ	50.000	U	52.000	U	50.000	U

Verified [illegible] 9-28-94

IT Corporation
August 22, 1994
Job Number: 854
Client Project ID: WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

IV. Certification

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory manager or his designee, as verified by the following signature:

Reviewed and Approved:

Sheree' A. Schneider
Project Manager

Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST WO #651	Page 1 of 4 007448

Collector SL Spencer
SAF No. 94-329
Ice Chest No. SML-445
Method of Shipment Government Vehicle
Shipped to IT Analytical 2800 George Washington Way Richland WA, 99352
Possible Sample Hazards/Remarks None / Work Done to RCRA Protocol
Special Handling and/or Storage

Company Contact ID Jacques/JW Ball
Project Designation 200 West Ash Pit Demolition Site Closure Plan
Bill of Lading/Airbill No. N/A

Telephone 376-3306/372-2653
Sampling Locations 200 West / 200-SS-2
Offsite Property No.
Field Logbook No.

SPECIAL INSTRUCTIONS Standalone Deliverable
Appendix IX SDL W0130

	Sample Number	*	Date Collected	Time	Number and Type of Containers	Analysis Required	Preservative	% f
01 A	BOC950	SE	07-12-94	1540	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°	10
B	BOC950	SE	07-12-94	1540	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°	
C	BOC950	SE	07-12-94	1540	120ml aGs	Detonation Residue (8330)	Cool to 4°	
D	BOC950	SE	07-12-94	1540	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°	
E	BOC950	SE	07-12-94	1540	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°	
F	BOC950	SE	07-12-94	1540	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°	
G	BOC950	SE	07-12-94	1540	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°	
02 A	BOC951	SE	07-12-94	1445	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°	
B	BOC951	SE	07-12-94	1445	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°	
C	BOC951	SE	07-12-94	1445	120ml aGs	Detonation Residue (8330)	Cool to 4°	
D	BOC951	SE	07-12-94	1445	120ml aGs	Anions(EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°	
E	BOC951	SE	07-12-94	1445	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°	
F	BOC951	SE	07-12-94	1445	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°	
G	BOC951	SE	07-12-94	1445	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°	
03 A	BOC952	SE	07-12-94	1620	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°	
B	BOC952	SE	07-12-94	1620	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°	
C	BOC952	SE	07-12-94	1620	120ml aGs	Detonation Residue (8330)	Cool to 4°	
D	BOC952	SE	07-12-94	1620	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°	
E	BOC952	SE	07-12-94	1620	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°	
F	BOC952	SE	07-12-94	1620	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°	
G	BOC952	SE	07-12-94	1620	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°	

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Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	WO#854	Page 2 of 4
			007448

35
100

	A	BOC953	SE	07-12-94	1620	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC953	SE	07-12-94	1620	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC953	SE	07-12-94	1620	120ml aGs	Detonation Residue (8330)	Cool to 4°
04	D	BOC953	SE	07-12-94	1620	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC953	SE	07-12-94	1620	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC953	SE	07-12-94	1620	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC953	SE	07-12-94	1620	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC954	SE	07-12-94	1645	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC954	SE	07-12-94	1645	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC954	SE	07-12-94	1645	120ml aGs	Detonation Residue (8330)	Cool to 4°
05	D	BOC954	SE	07-12-94	1645	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC954	SE	07-12-94	1645	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC954	SE	07-12-94	1645	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC954	SE	07-12-94	1645	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC955	SE	07-12-94	1530	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC955	SE	07-12-94	1530	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC955	SE	07-12-94	1530	120ml aGs	Detonation Residue (8330)	Cool to 4°
06	D	BOC955	SE	07-12-94	1530	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC955	SE	07-12-94	1530	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC955	SE	07-12-94	1530	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC955	SE	07-12-94	1530	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC956	SE	07-12-94	1440	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC956	SE	07-12-94	1440	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC956	SE	07-12-94	1440	120ml aGs	Detonation Residue (8330)	Cool to 4°
07	D	BOC956	SE	07-12-94	1440	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC956	SE	07-12-94	1440	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC956	SE	07-12-94	1440	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC956	SE	07-12-94	1440	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC957	SE	07-12-94	1430	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
08	B	BOC957	SE	07-12-94	1430	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°

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Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	WO#854	Page 3 of 11
			007448

	C	BOC957	SE	07-12-94	1430	120ml aGs	Detonation Residue (8330)	Cool to 4°
	D	BOC957	SE	07-12-94	1430	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
08	E	BOC957	SE	07-12-94	1430	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC957	SE	07-12-94	1430	120 aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC957	SE	07-12-94	1430	40 ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC958	SE	07-12-94	1515	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC958	SE	07-12-94	1515	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC958	SE	07-12-94	1515	120ml aGs	Detonation Residue (8330)	Cool to 4°
09	D	BOC958	SE	07-12-94	1515	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC958	SE	07-12-94	1515	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC958	SE	07-12-94	1515	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC958	SE	07-12-94	1515	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC959	SE	07-12-94	1558	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC959	SE	07-12-94	1558	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC959	SE	07-12-94	1558	120ml aGs	Detonation Residue (8330)	Cool to 4°
10	D	BOC959	SE	07-12-94	1558	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC959	SE	07-12-94	1558	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC959	SE	07-12-94	1558	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC959	SE	07-12-94	1558	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC960	SE	07-12-94	1500	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC960	SE	07-12-94	1500	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC960	SE	07-12-94	1500	120ml aGs	Detonation Residue (8330)	Cool to 4°
11	D	BOC960	SE	07-12-94	1500	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC960	SE	07-12-94	1500	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC960	SE	07-12-94	1500	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC960	SE	07-12-94	1500	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOCBM9	SE	07-12-94	1415	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOCBM9	SE	07-12-94	1415	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
12	C	BOCBM9	SE	07-12-94	1415	120ml aGs	Detonation Residue (8330)	Cool to 4°
	D	BOCBM9	SE	07-12-94	1415	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°

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Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	Page 4 of 4
		007448

WO#951

2fil
1 qt

12 E	BOCBM9	SE	07-12-94	1415	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
F	BOCBM9	SE	07-12-94	1415	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
G	BOCBM9	SE	07-12-94	1415	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
13 A	BOCBN0	SE	07-11-94	1600	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°

Chain of Possession Relinquished By (Sign and Print Names)	Date	Time	Received By
Shannon L. Spencer Shannon L. Spencer	7-14-94	1170	RM Arnold RM Arnold
RM Arnold RM Arnold	7-15-94	0930	R. Boyd Quantera 2100 7/15/94 1130

*Matrix

A = Air
DL = Drum Liquids
DS = Drum Solids
L = Liquid
O = Oil
S = Soil
SE = Sediment
SL = Sludge
SO = Solid
T = Tissue
W = Water
WI = Wipe
X = Other

LABORATORY SECTION	Received By	Title	Date/Time
Final Sample Disposition	Disposal Method:	Disposed by:	Date/Time:

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ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 200 WEST ASH PIT	DATA PACKAGE:	
VALIDATOR: T. Stapp	LAB: IT Corp.	DATE: 9-20-94
CASE:	SDG: W0130 ~~WE~~ QES-143	9/20

ANALYSES PERFORMED

☐ CLP Volatiles	☒ SW-846 8240 (cap column)	☐ SW-846 8260 (packed column)	☐ CLP Semivolatiles	☐ SW-846 8270 (cap column)	☐ SW-846 (packed column)
☐	☐	☐	☐	☐	☐

SAMPLES/MATRIX BOC950 through BOC960 / Sediments
BOCBM9, BOCBN0 / Sediments

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? . . . . . (Yes) No N/A

Is a case narrative present? . . . . . (Yes) No N/A

Comments:

2. HOLDING TIMES

Are sample holding times acceptable? . . . . . Yes (No) N/A

Comments:

	Collected	Analyzed	DAYS
All Samples(*)	7-12-94	7-26 and 7-28	14 and 16
* BOCBN0	7-11-94	7-25-94	14
BOC950	7-12-94	7-28-94	16
BOC951			16
BOC954			16
BOC957			16
BOC958			16

(*) - Results qualified as J/UJ. See form B-7. 9-29

GC/MS ORGANIC DATA VALIDATION CHECKLIST

3. INSTRUMENT TUNING AND CALIBRATION

Is the GC/MS tuning/performance check acceptable? . . . . . Yes No N/A

Are initial calibrations acceptable? . . . . . Yes No N/A

Are continuing calibrations acceptable? . . . . . Yes No N/A

Comments:

4. BLANKS

Were laboratory blanks analyzed? . . . . . Yes No N/A

Are laboratory blank results acceptable? . . Note ① . . . . . Yes No N/A

Were field/trip blanks analyzed? . . . . . Note ② . . . . . Yes No ~~N/A~~ 9-27

Are field/trip blank results acceptable? . . Note ② . . . . . Yes No ~~N/A~~

Comments: ① See attached Method Blank Summaries. ~~② Field QC was not identified in this SDG but it has been requested. Results will be evaluated in the final Validation Summary.~~ ② Equipment Blank BCCBM9 and trip blank BCCBN0 are non-detect for all components except 2 ug/Kgm Trichloroethene in BCCBM9. (★ See Below)

9-27-94

5. ACCURACY

Were surrogates/System Monitoring Compounds analyzed? . . . . . Yes No N/A

Are surrogate/System Monitoring Compound recoveries acceptable? Yes No N/A

Were MS/MSD samples analyzed? . . . . . Yes No N/A

Are MS/MSD results acceptable? . . . . . Yes No N/A

Comments:

★ No qualification is required based upon field QC results.

GC/MS ORGANIC DATA VALIDATION CHECKLIST

6. PRECISION

Are MS/MSD RPD values acceptable? . . . . . Yes No N/A

Are field duplicate RPD values acceptable? . Note ① . . . . Yes No ~~N/A~~ 9-27

Are field split RPD values acceptable? . . . . . Yes No N/A

Comments: ~~① Field Duplicate precision can not be generated since Field QC Samples were not identified in this SDG. However, identification has been requested and Field QC will be evaluated in the final validation Summary.~~

① Field duplicate BOC953 of Sample BOC952 is within acceptable RPD limits. No qualifications applied.

9-27-94

7. SYSTEM PERFORMANCE

Were internal standards analyzed? . . . . . Yes No N/A

Are internal standard areas acceptable? . . . . . Yes No N/A

Are internal standard retention times acceptable? . . . . . Yes No N/A

Comments:

8. COMPOUND IDENTIFICATION AND QUANTITATION

Is compound identification acceptable? . . . . . Yes No N/A

Is compound quantitation acceptable? . . . . . Yes No N/A

Comments:

9. REPORTED RESULTS AND QUANTITATION LIMITS

Are results reported for all requested analyses? . . . . . Yes No N/A

Are all results supported in the raw data? . . . . . Yes No N/A

Do results meet the CRQLs? . . . . . Yes No N/A

Has the laboratory properly identified and coded all TIC? . . Yes No N/A

Comments:

METHOD BLANK SUMMARY

Associated Sample: BOCBN0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKAB5436

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB5436

Sample wt/vol: 5.0 (g/mL) G Lab File ID: WB0725D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 07/25/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND			Q
74-87-3	Chloromethane		10	U
74-83-9	Bromomethane		10	U
75-01-4	Vinyl Chloride		10	U
75-00-3	Chloroethane		10	U
75-09-2	Methylene Chloride	*	3	J
67-64-1	Acetone		4	J
75-15-0	Carbon Disulfide		5	U
75-35-4	1,1-Dichloroethene		5	U
75-34-3	1,1-Dichloroethane		5	U
540-59-0	1,2-Dichloroethene (total)		5	U
67-66-3	Chloroform		5	U
107-06-2	1,2-Dichloroethane		5	U
78-93-3	2-Butanone		10	U
71-55-6	1,1,1-Trichloroethane		5	U
56-23-5	Carbon Tetrachloride		5	U
108-05-4	Vinyl Acetate		10	U
75-27-4	Bromodichloromethane		5	U
78-87-5	1,2-Dichloropropane		5	U
10061-01-5	cis-1,3-Dichloropropene		5	U
79-01-6	Trichloroethene		5	U
124-48-1	Dibromochloromethane		5	U
79-00-5	1,1,2-Trichloroethane		5	U
71-43-2	Benzene		5	U
10061-02-6	trans-1,3-Dichloropropene		5	U
75-25-2	Bromoform		5	U
108-10-1	4-Methyl-2-Pentanone		10	U
591-78-6	2-Hexanone		10	U
127-18-4	Tetrachloroethene		5	U
79-34-5	1,1,2,2-Tetrachloroethane		5	U
108-88-3	Toluene		5	U
108-90-7	Chlorobenzene		5	U
100-41-4	Ethylbenzene		5	U
100-42-5	Styrene		5	U
1330-20-7	Xylene (total)		5	U

* Qualifies associated result less than CRQL as 10 U.

FORM I VOA 1/87 Rev.

9/20/94

072

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METHOD BLANK SUMMARY

Associated Samples: BOCBM9, BOC952, BOC953, BOC955, BOC956, BOC959, and BOC960.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKAB5438

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB5438

Sample wt/vol: 5.0 (g/mL) G Lab File ID: WB0726B

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 07/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND			Q
74-87-3	Chloromethane		10	U
74-83-9	Bromomethane		10	U
75-01-4	Vinyl Chloride		10	U
75-00-3	Chloroethane		10	U
75-09-2	Methylene Chloride	*	2	J
67-64-1	Acetone	⊗	6	J
75-15-0	Carbon Disulfide		5	U
75-35-4	1,1-Dichloroethene		5	U
75-34-3	1,1-Dichloroethane		5	U
540-59-0	1,2-Dichloroethene (total)		5	U
67-66-3	Chloroform		5	U
107-06-2	1,2-Dichloroethane		5	U
78-93-3	2-Butanone		10	U
71-55-6	1,1,1-Trichloroethane		5	U
56-23-5	Carbon Tetrachloride		5	U
108-05-4	Vinyl Acetate		10	U
75-27-4	Bromodichloromethane		5	U
78-87-5	1,2-Dichloropropane		5	U
10061-01-5	cis-1,3-Dichloropropene		5	U
79-01-6	Trichloroethene		5	U
124-48-1	Dibromochloromethane		5	U
79-00-5	1,1,2-Trichloroethane		5	U
71-43-2	Benzene		5	U
10061-02-6	trans-1,3-Dichloropropene		5	U
75-25-2	Bromoform		5	U
108-10-1	4-Methyl-2-Pentanone		10	U
591-78-6	2-Hexanone		10	U
127-18-4	Tetrachloroethene		5	U
79-34-5	1,1,2,2-Tetrachloroethane		5	U
108-88-3	Toluene	+	5	U
108-90-7	Chlorobenzene		5	U
100-41-4	Ethylbenzene		5	U
100-42-5	Styrene		5	U
1330-20-7	Xylene (total)		5	U

⊗ and * Qualifies associated results ~~> CRQ~~ < CRQL and less than 10 times the blank result as 10U.

+ Raw data indicates this contaminant present at a level high enough to affect data. See samples BOC960 + BOCBM9.

9/20/94

9/29

FORM I VOA 1/87 Rev.

073

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VBLK AB5438

W0130-QES-143

No	Name
48	C032 ACETONITRILE
49	C111 ETHYL CYANIDE
50	C112 METHACRYLONITRILE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	185	6:10	1	1.000	A BB	24253.	50.000 UG/L	16.07
2	114	229	7:38	2	1.000	A BB	75551.	50.000 UG/L	16.07
3	117	355	11:50	3	1.000	A BB	90114.	50.000 UG/L	16.07
4	65	210	7:00	1	1.135	A BB	26377.	49.191 UG/L	15.81
5	98	292	9:44	3	0.823	A BB	68234.	49.934 UG/L	16.04
6	95	409	13:38	3	1.152	A BV	67911.	49.269 UG/L	15.83
7	NOT FOUND								
8	NOT FOUND								
9	NOT FOUND								
10	NOT FOUND								
11	84	115	3:50	1	0.622	A BB	910.	1.537 UG/L	0.49
12	43	99	3:18	1	0.535	A BV	593.	5.827 UG/L	1.87
13	NOT FOUND								
14	NOT FOUND								
15	76	101	3:22	1	0.546	A BB	426.	0.360 UG/L	0.12
16	96	94	3:08	1	0.508	A BB	83.	0.166 UG/L	0.05
17	NOT FOUND								
18	NOT FOUND								
19	NOT FOUND								
20	NOT FOUND								
21	43	178	5:56	1	0.962	A BB	139.	0.825 UG/L	0.26
22	NOT FOUND								
23	NOT FOUND								
24	43	153	5:06	2	0.668	A BB	32.	0.048 UG/L	0.02
25	NOT FOUND								
26	NOT FOUND								
27	NOT FOUND								
28	130	239	7:58	2	1.044	A BB	125.	0.137 UG/L	0.04
29	NOT FOUND								
30	NOT FOUND								
31	78	211	7:02	2	0.921	A BB	254.	0.218 UG/L	0.07
32	NOT FOUND								
33	NOT FOUND								
34	NOT FOUND								
35	43	292	9:44	3	0.823	A BB	345.	0.771 UG/L	0.25
36	NOT FOUND								
37	NOT FOUND								
38	83	417	13:54	3	1.175	A BB	128.	0.106 UG/L	0.03
Toluene 39	91	294	9:48	3	0.828	A BB	1210.	0.790 UG/L	0.25
40	112	356	11:52	3	1.003	A BB	403.	0.255 UG/L	0.08
41	NOT FOUND								
42	104	386	12:52	3	1.087	A BB	84.	0.061 UG/L	0.02
43	106	367	12:14	3	1.034	A BB	152.	0.154 UG/L	0.05
44	NOT FOUND								
45	101	75	2:30	1	0.405	A BB	119.	0.120 UG/L	0.04
46	NOT FOUND								
47	NOT FOUND								
48	41	111	3:42	1	0.600	A BB	496.	0.627 UG/L	0.20
49	NOT FOUND								
50	NOT FOUND								

★ Associated with Samples BCC952, -953, -955, -956, -959, -960, and BCCBM9.

9/29

071

9413299.1312

METHOD BLANK SUMMARY

~~0000544~~

Associated Samples: BOC950, BOC951, BOC954, BOC957, and BOC958.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKAB5440

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB5440

Sample wt/vol: 5.0 (g/mL) G Lab File ID: WB0728B

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 07/28/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	★ 5	
67-64-1	Acetone	⊗ 7	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

075

★ Qualifies associated results < CRQL and < 10 times the blank result as 10u.

⊗ Qualifies associated results < CRQL and > CRQL and < 10 times the blank result as 10u ~~and~~ or the reported result and u as required.

FORM I VOA 1/87 Rev.

9413299.1313

MEMORANDUM

TO: 200 West Ash Pit Project QA Record September 30, 1994

FR: Thomas Stapp, Golder Associates Inc.

RE: SEMIVOLATILE DATA VALIDATION SUMMARY FOR DATA PACKAGE W0130-QES-143 (943-1610.004 143SEMI.004)

INTRODUCTION

This memo presents the results of data validation on data package W0130-QES-143 prepared by International Technology laboratory. A list of samples validated along with the analyses reported and the methods of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSES
B0C950	7/12/94	SEDIMENT	SEE NOTE 1
B0C951	7/12/94	SEDIMENT	
B0C952	7/12/94	SEDIMENT	
B0C953	7/12/94	SEDIMENT	
B0C954	7/12/94	SEDIMENT	
B0C955	7/12/94	SEDIMENT	
B0C956	7/12/94	SEDIMENT	
B0C957	7/12/94	SEDIMENT	
B0C958	7/12/94	SEDIMENT	
B0C959	7/12/94	SEDIMENT	
B0C960	7/12/94	SEDIMENT	
B0CBM9	7/12/94	SEDIMENT	

Notes:

1. Indicates the samples were analyzed for Appendix IX semivolatile organics.

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Data validation was conducted in accordance with the WHC statement of work (WHC 1994) and validation procedures (WHC 1993). Attachments 1 through 5 provide the following information as indicated below:

Attachment 1. Glossary of Data Reporting Qualifiers
Attachment 2. Summary of Data Qualifications
Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
Attachment 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

This section presents a summary of the data quality in terms of the referenced validation criteria.

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data. One sample was analyzed at dilution and has been reported.

Detection Limits. Detection limit goals were met.

Completeness. The data package was complete for all requested analyses. A total of twelve (12) samples were validated in this data package with a total of 1,380 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent which meets normal work plan objectives of 90 percent.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

The following minor deficiencies were identified during data validation which required qualification of data.

Laboratory Matrix Spikes

- The matrix spike duplicate recovery of 2,4-dinitrotoluene was unacceptable. Attachments 2 and 5 provide a summary of samples affected, qualification applied and supporting documentation.

TENTATIVELY IDENTIFIED COMPOUNDS

Tentatively identified compounds (TICs) reported by the laboratory were evaluated during validation and qualified as follows:

- TICs were detected in the samples and determined to be valid, resulting in qualification of the results as presumptive and valid (JN).

- TICs were detected in the sample and associated laboratory blank and have been qualified due to associated blank contamination and determined to be presumptive and valid (UJN). Attachments 3 and 5 provide a summary of the sample affected, data qualification applied and supporting documentation.

- TICs reported by the laboratory as unknowns have been corrected to 2-methoxy-2-propoxy propane following review of the spectra and qualified as estimated and presumptive (JN).

- TICs were detected in the samples and identified as common laboratory contaminants, resulting in qualification of the results as unusable (R) as shown in Attachment 3.

Field QC

Field Blank

- Sample B0CBM9 was identified as an equipment blank

Field Duplicate

- Sample B0C953 was identified as the field duplicate of sample B0C952.

REFERENCES

WHC 1993, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993. Westinghouse Hanford Company, Richland, Washington.

WHC 1994, Validation of 200 West Ash Pit Data, Statement of Work, Environmental and Waste Characterization Analytical Data Validation, Task Order MSH-SWV-315905, August 10, 1994, Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the constituent was analyzed for and detected in the associated laboratory blank. This qualifier is applied by the laboratory. During the process of data validation this qualifier may be replaced by other appropriate qualifiers as defined by the validation procedures. The associated data should be considered usable for decision making purposes.

U - Indicates the constituent was analyzed for and not detected. The concentration reported is the sample quantitation limit corrected for aliquot size, dilution and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.

UJ - Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during data validation the concentration reported may not accurately reflect the sample quantitation limit. The associated data should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. This qualifier may be applied by the laboratory to indicate a concentration which is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). During data validation this qualifier may be applied to indicate a minor quality control deficiency. However in either case, the associated data should be considered usable for decision making purposes.

NJ - Indicates presumptive evidence of a constituent at an estimated value. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

N - Indicates presumptive evidence of a constituent. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

JN - Indicates a tentatively identified compound (TIC) whose concentration and identification have been determined to be valid as a result of data validation. The associated data should be considered usable for decision making purposes.

UJN - Indicates a tentatively identified compound (TIC) that has been determined to be presumptive and valid (JN) in terms of identification and quantitation and has been qualified as undetected (U) due to associated blank contamination.

UR - Indicates the constituent was analyzed for and not detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

WHC-SD-EN-SPP-002, REV.2

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: W0130-QES-143	REVIEWER: T. STAPP	DATE: 9-29-94	PAGE 1 OF 1
COMMENTS: SEMIVOLATILE ORGANICS			
COMPOUND/ ANALYTE	QUALIFIER	SAMPLES AFFECTED	REASON
N-NITROSO-DI-N-PROPYLAMINE, NITROBENZENE, 2-NITROANILINE, 2,6-DINITROTOLUENE, 3-NITROANILINE, 2,4-DINITROTOLUENE, 4-NITROANILINE, N-NITROSODIPHENYLAMINE	J/UJ	ALL	2,4-DINITROTOLUENE MSD RECOVERY >89% LIMIT

ATTACHMENT 3

QUALIFIED DATA SUMMARY and ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: W0130-QES-143

	Samp#	B0C950		B0C951		B0C952		B0C953		B0C954		B0C954DL	
	Date	7-12-94		7-12-94		7-12-94		7-12-94		7-12-94		7-12-94	
	Location	200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT	
	Depth	---		---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments							FIELD DUP					
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
PHENOL	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
BIS(2-CHLOROETHYL)ETHER	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
2-CHLOROPHENOL	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
1,3-DICHLOROBENZENE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
1,4-DICHLOROBENZENE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
BENZYL ALCOHOL	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
1,2-DICHLOROBENZENE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
2-METHYLPHENOL	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
2,2'-OXYBIS(1-CHLOROPROPANE)	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
4-METHYLPHENOL	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
N-NITROSO-DI-N-PROPYLAMINE	UG/KG	330.000	UJ	330.000	UJ	340.000	UJ	340.000	UJ	1700.000	UJ	17000.000	UJ
HEXACHLOROETHANE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
NITROBENZENE	UG/KG	330.000	UJ	330.000	UJ	340.000	UJ	340.000	UJ	1700.000	UJ	17000.000	UJ
ISOPHORONE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
2-NITROPHENOL	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
2,4-DIMETHYLPHENOL	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
BENZOIC ACID	UG/KG	1600.000	U	1600.000	U	1600.000	U	1600.000	U	8200.000	U	82000.000	U
BIS(2-CHLOROETHOXY)METHANE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
2,4-DICHLOROPHENOL	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
1,2,4-TRICHLOROBENZENE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
NAPHTHALENE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	4100.000		4300.000	DJ
4-CHLOROANILINE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
HEXACHLOROBUTADIENE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
4-CHLORO-3-METHYLPHENOL	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
2-METHYLNAPHTHALENE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1000.000	J	17000.000	U
HEXACHLOROCYCLOPENTADIENE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
2,4,6-TRICHLOROPHENOL	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
2,4,5-TRICHLOROPHENOL	UG/KG	1600.000	U	1600.000	U	1600.000	U	1600.000	U	8200.000	U	82000.000	U
2-CHLORONAPHTHALENE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
2-NITROANILINE	UG/KG	1600.000	UJ	1600.000	UJ	1600.000	UJ	1600.000	UJ	8200.000	UJ	82000.000	UJ
DIMETHYLPHTHALATE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
ACENAPHTHYLENE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	250.000	J	17000.000	U
2,6-DINITROTOLUENE	UG/KG	330.000	UJ	330.000	UJ	340.000	UJ	340.000	UJ	1700.000	UJ	17000.000	UJ
N-NITROSODIMETHYLAMINE	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
ETHYL METHACRYLATE	UG/KG	670.000	U	680.000	U	680.000	U	680.000	U	3400.000	U	NR	
2-PICOLINE	UG/KG	2400.000	U	2400.000	U	2400.000	U	2400.000	U	12000.000	U	NR	
N-NITROSOMETHYLETHYLAMINE	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	

Verified 9-29-94

Validated Data Summary, Data Package: W0130-QES-143

	Samp#	B0C950		B0C951		B0C952		B0C953		B0C954		B0C954DL	
	Date	7-12-94		7-12-94		7-12-94		7-12-94		7-12-94		7-12-94	
	Location	200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT	
	Depth	---		---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments							FIELD DUP					
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
METHYL METHANESULFONATE	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
N-NITROSODIETHYLAMINE	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
ETHYL METHANESULFONATE	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
ANILINE	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
PYRIDINE	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
PENTACHLOROETHANE	UG/KG	670.000	U	680.000	U	680.000	U	680.000	U	3400.000	U	NR	
N-NITROSOPYRROLIDINE	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
3-METHYLPHENOL	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
ACETOPHENONE	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
N-NITROSOMORPHOLINE	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
O-TOLUIDINE	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
N-NITROSOPIPERIDINE	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
O,O,O-TRIETHYLPHOSPHOROTHIOAT	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
2,6-DICHLOROPHENOL	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
HEXACHLOROPROPENE	UG/KG	670.000	U	680.000	U	680.000	U	680.000	U	3400.000	U	NR	
A,A-DIMETHYLPHENETHYLAMINE	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
N-NITROSODI-N-BUTYLAMINE	UG/KG	670.000	U	680.000	U	680.000	U	680.000	U	3400.000	U	NR	
P-PHENYLENEDIAMINE	UG/KG	1700.000	U	1700.000	U	1700.000	U	1700.000	U	8500.000	U	NR	
SAFROLE	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
1,2,4,5-TETRACHLOROBENZENE	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
ISOSAFROLE	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
1,4-NAPHTHOQUINONE	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
M-DINITROBENZENE	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
PENTACHLOROBENZENE	UG/KG	670.000	U	680.000	U	680.000	U	680.000	U	3400.000	U	NR	
3-NITROANILINE	UG/KG	1600.000	UJ	1600.000	UJ	1600.000	UJ	1600.000	UJ	8200.000	UJ	82000.000	UJ
ACENAPHTHENE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	7100.000		6900.000	DJ
2,4-DINITROPHENOL	UG/KG	1600.000	U	1600.000	U	1600.000	U	1600.000	U	8200.000	U	82000.000	U
4-NITROPHENOL	UG/KG	1600.000	U	1600.000	U	1600.000	U	1600.000	U	8200.000	U	82000.000	U
DIBENZOFURAN	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	4600.000		4300.000	DJ
2,4-DINITROTOLUENE	UG/KG	330.000	UJ	330.000	UJ	340.000	UJ	340.000	UJ	1700.000	UJ	17000.000	UJ
DIETHYLPHTHALATE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
4-CHLOROPHENYL-PHENYLETHER	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
FLUORENE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	8000.000		7500.000	DJ
4-NITROANILINE	UG/KG	1600.000	UJ	43.000	J	1600.000	UJ	1600.000	J	8200.000	UJ	82000.000	J
4,6-DINITRO-2-METHYLPHENOL	UG/KG	1600.000	U	1600.000	U	1600.000	U	1600.000	U	8200.000	U	82000.000	U
N-NITROSODIPHENYLAMINE	UG/KG	330.000	UJ	330.000	UJ	340.000	UJ	340.000	UJ	340.000	J	17000.000	UJ
4-BROMOPHENYL-PHENYLETHER	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	J
HEXACHLOROBENZENE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
PENTACHLOROPHENOL	UG/KG	1600.000	U	1600.000	U	1600.000	U	1600.000	U	8200.000	U	82000.000	U

Verified 9-29-94

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9413269.1322

Validated Data Summary, Data Package: W0130-QES-143

	Samp#	B0C950		B0C951		B0C952		B0C953		B0C954		B0C954DL	
	Date	7-12-94		7-12-94		7-12-94		7-12-94		7-12-94		7-12-94	
	Location	200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT	
	Depth	---		---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments							FIELD DUP					
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
PHENANTHRENE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	54000.000	E	81000.000	D
ANTHRACENE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	11000.000		12000.000	DJ
DI-N-BUTYLPHTHALATE	UG/KG	130.000	J	57.000	J	53.000	J	120.000	J	1700.000	U	17000.000	U
FLUORANTHENE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	59000.000	E	87000.000	D
PYRENE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	44000.000	E	66000.000	D
BUTYLBENZYLPHTHALATE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
3,3'-DICHLOROBENZIDINE	UG/KG	670.000	U	670.000	U	680.000	U	670.000	U	3400.000	U	34000.000	U
BENZO(A)ANTHRACENE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	27000.000		28000.000	D
CHRYSENE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	29000.000	E	34000.000	D
BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG	330.000	U	51.000	BJ	40.000	BJ	340.000	U	1700.000	U	17000.000	U
DI-N-OCTYLPHTHALATE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	1700.000	U	17000.000	U
BENZO(B)FLUORANTHENE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	27000.000		22000.000	D
BENZO(K)FLUORANTHENE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	21000.000		24000.000	D
BENZO(A)PYRENE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	24000.000		25000.000	D
INDENO(1,2,3-CD)PYRENE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	13000.000		16000.000	DJ
DIBENZ(A,H)ANTHRACENE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	6100.000		17000.000	U
BENZO(G,H,I)PERYLENE	UG/KG	330.000	U	330.000	U	340.000	U	340.000	U	14000.000		18000.000	D
2-NAPHTHYLAMINE	UG/KG	5700.000	U	5700.000	U	5800.000	U	5800.000	U	29000.000	U	NR	
1-NAPHTHYLAMINE	UG/KG	4000.000	U	4000.000	U	4100.000	U	4100.000	U	20000.000	U	NR	
2,3,4,6-TETRACHLOROPHENOL	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
5-NITRO-O-TOLUIDINE	UG/KG	670.000	U	680.000	U	680.000	U	680.000	U	3400.000	U	NR	
DIPHENYLAMINE	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
TETRAETHYL DITHIOPYROPHOSPHAT	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
SYM-TRINITROBENZENE	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
PHENACETIN	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
DIALLATE	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
4-AMINOBIPHENYL	UG/KG	1700.000	U	1700.000	U	1700.000	U	1700.000	U	8500.000	U	NR	
PRONAMIDE	UG/KG	1000.000	U	1000.000	U	1000.000	U	1000.000	U	5100.000	U	NR	
PENTACHLORONITROBENZENE	UG/KG	670.000	U	680.000	U	680.000	U	680.000	U	3400.000	U	NR	
DINOSEB	UG/KG	670.000	U	680.000	U	680.000	U	680.000	U	3400.000	U	NR	
4-NITROQUINOLINE-1-OXIDE	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
METHAPYRILENE	UG/KG	1300.000	U	1300.000	U	1400.000	U	1400.000	U	6800.000	U	NR	
ARAMITE	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
P-(DIMETHYLAMINO)AZOBENZENE	UG/KG	1000.000	U	1000.000	U	1000.000	U	1000.000	U	5100.000	U	NR	
3,3'-DIMETHYLBENZIDINE	UG/KG	2700.000	U	2700.000	U	2700.000	U	2700.000	U	14000.000	U	NR	
2-ACETYLAMINOFLUORENE	UG/KG	340.000	U	340.000	U	340.000	U	340.000	U	1700.000	U	NR	
7,12-DIMETHYLBENZ(A)ANTHRACEN	UG/KG	670.000	U	680.000	U	680.000	U	680.000	U	3400.000	U	NR	
HEXACHLOROPHENE	UG/KG	1700.000	U	1700.000	U	1700.000	U	1700.000	U	8500.000	U	NR	
3-METHYLCHOLANTHRENE	UG/KG	1000.000	U	1000.000	U	1000.000	U	1000.000	U	5100.000	U	NR	

Verified RS 9-29-94

Validated Data Summary, Data Package: W0130-QES-143

	Samp#	B0C955		B0C956		B0C957		B0C958		B0C959		B0C960	
	Date	7-12-94		7-12-94		7-12-94		7-12-94		7-12-94		7-12-94	
	Location	200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT	
	Depth	---		---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments												
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
PHENOL	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
BIS(2-CHLOROETHYL)ETHER	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
2-CHLOROPHENOL	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
1,3-DICHLOROBENZENE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
1,4-DICHLOROBENZENE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
BENZYL ALCOHOL	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
1,2-DICHLOROBENZENE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
2-METHYLPHENOL	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
2,2'-OXYBIS(1-CHLOROPROPANE)	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
4-METHYLPHENOL	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
N-NITROSO-DI-N-PROPYLAMINE	UG/KG	330.000	UJ	340.000	UJ	330.000	UJ	330.000	UJ	330.000	UJ	340.000	UJ
HEXACHLOROETHANE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
NITROBENZENE	UG/KG	330.000	UJ	340.000	UJ	330.000	UJ	330.000	UJ	330.000	UJ	340.000	UJ
ISOPHORONE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
2-NITROPHENOL	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
2,4-DIMETHYLPHENOL	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
BENZOIC ACID	UG/KG	1600.000	U	1600.000	U	1600.000	U	1600.000	U	1600.000	U	1600.000	U
BIS(2-CHLOROETHOXY)METHANE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
2,4-DICHLOROPHENOL	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
1,2,4-TRICHLOROBENZENE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
NAPHTHALENE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
4-CHLOROANILINE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
HEXACHLOROBUTADIENE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
4-CHLORO-3-METHYLPHENOL	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
2-METHYLNAPHTHALENE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
HEXACHLOROCYCLOPENTADIENE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
2,4,6-TRICHLOROPHENOL	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
2,4,5-TRICHLOROPHENOL	UG/KG	1600.000	U	1600.000	U	1600.000	U	1600.000	U	1600.000	U	1600.000	U
2-CHLORONAPHTHALENE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
2-NITROANILINE	UG/KG	1600.000	UJ	1600.000	UJ	1600.000	UJ	1600.000	UJ	1600.000	UJ	1600.000	UJ
DIMETHYLPHTHALATE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
ACENAPHTHYLENE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
2,6-DINITROTOLUENE	UG/KG	330.000	UJ	340.000	UJ	330.000	UJ	330.000	UJ	330.000	UJ	340.000	UJ
N-NITROSODIMETHYLAMINE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
ETHYL METHACRYLATE	UG/KG	670.000	U	680.000	U	670.000	U	680.000	U	670.000	U	680.000	U
2-PICOLINE	UG/KG	2400.000	U	2400.000	U	2300.000	U	2400.000	U	2300.000	U	2400.000	U
N-NITROSOMETHYLETHYLAMINE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U

Verified 9-29-94

Validated Data Summary, Data Package: W0130-QES-143

	Samp#	B0C955		B0C956		B0C957		B0C958		B0C959		B0C960	
	Date	7-12-94		7-12-94		7-12-94		7-12-94		7-12-94		7-12-94	
	Location	200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT		200 W ASH PIT	
	Depth	---		---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments												
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
METHYL METHANESULFONATE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
N-NITROSODIETHYLAMINE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
ETHYL METHANESULFONATE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
ANILINE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
PYRIDINE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
PENTACHLOROETHANE	UG/KG	670.000	U	680.000	U	670.000	U	680.000	U	670.000	U	680.000	U
N-NITROSOPYRROLIDINE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
3-METHYLPHENOL	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
ACETOPHENONE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
N-NITROSOMORPHOLINE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
O-TOLUIDINE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
N-NITROSOPIPERIDINE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
O,O,O-TRIETHYLPHOSPHOROTHIOAT	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
2,6-DICHLOROPHENOL	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
HEXACHLOROPROPENE	UG/KG	670.000	U	680.000	U	670.000	U	680.000	U	670.000	U	680.000	U
A,A-DIMETHYLPHENETHYLAMINE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
N-NITROSODI-N-BUTYLAMINE	UG/KG	670.000	U	680.000	U	670.000	U	680.000	U	670.000	U	680.000	U
P-PHENYLENEDIAMINE	UG/KG	1700.000	U	1700.000	U	1700.000	U	1700.000	U	1700.000	U	1700.000	U
SAFROLE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
1,2,4,5-TETRACHLOROBENZENE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
ISOSAFROLE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
1,4-NAPHTHOQUINONE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
M-DINITROBENZENE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
PENTACHLOROBENZENE	UG/KG	670.000	U	680.000	U	670.000	U	680.000	U	670.000	U	680.000	U
3-NITROANILINE	UG/KG	1600.000	UJ	1600.000	UJ	1600.000	UJ	1600.000	UJ	1600.000	UJ	1600.000	UJ
ACENAPHTHENE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
2,4-DINITROPHENOL	UG/KG	1600.000	U	1600.000	U	1600.000	U	1600.000	U	1600.000	U	1600.000	U
4-NITROPHENOL	UG/KG	1600.000	U	1600.000	U	1600.000	U	1600.000	U	1600.000	U	1600.000	U
DIBENZOFURAN	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
2,4-DINITROTOLUENE	UG/KG	330.000	UJ	340.000	UJ	330.000	UJ	330.000	UJ	330.000	UJ	340.000	UJ
DIETHYLPHTHALATE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
4-CHLOROPHENYL-PHENYLETHER	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
FLUORENE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
4-NITROANILINE	UG/KG	1600.000	UJ	1600.000	UJ	1600.000	UJ	1600.000	UJ	1600.000	UJ	1600.000	UJ
4,6-DINITRO-2-METHYLPHENOL	UG/KG	1600.000	U	1600.000	U	1600.000	U	1600.000	U	1600.000	U	1600.000	U
N-NITROSODIPHENYLAMINE	UG/KG	330.000	UJ	340.000	UJ	330.000	UJ	330.000	UJ	330.000	UJ	340.000	UJ
4-BROMOPHENYL-PHENYLETHER	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
HEXACHLOROBENZENE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
PENTACHLOROPHENOL	UG/KG	1600.000	U	1600.000	U	1600.000	U	1600.000	U	1600.000	U	1600.000	U

Verified 9-29-94

Validated Data Summary, Data Package: W0130-QES-143

Parameter	Samp# / Date / Location / Depth / Type / Comments	B0C955 7-12-94 200 W ASH PIT --- SOIL		B0C956 7-12-94 200 W ASH PIT --- SOIL		B0C957 7-12-94 200 W ASH PIT --- SOIL		B0C958 7-12-94 200 W ASH PIT --- SOIL		B0C959 7-12-94 200 W ASH PIT --- SOIL		B0C960 7-12-94 200 W ASH PIT --- SOIL	
	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
PHENANTHRENE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	46.000	J
ANTHRACENE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
DI-N-BUTYLPHTHALATE	UG/KG	65.000	J	90.000	J	34.000	J	67.000	J	140.000	J	180.000	J
FLUORANTHENE	UG/KG	330.000	U	42.000	J	330.000	U	330.000	U	330.000	U	120.000	J
PYRENE	UG/KG	330.000	U	36.000	J	330.000	U	330.000	U	330.000	U	100.000	J
BUTYLBENZYLPHTHALATE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
3,3'-DICHLOROBENZIDINE	UG/KG	670.000	U	670.000	U	660.000	U	670.000	U	660.000	U	670.000	U
BENZO(A)ANTHRACENE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	52.000	J
CHRYSENE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	66.000	J
BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG	330.000	U	340.000	U	330.000	U	39.000	BJ	330.000	U	340.000	U
DI-N-OCTYLPHTHALATE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
BENZO(B)FLUORANTHENE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	67.000	J
BENZO(K)FLUORANTHENE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	48.000	J
BENZO(A)PYRENE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	53.000	J
INDENO(1,2,3-CD)PYRENE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
DIBENZ(A,H)ANTHRACENE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	340.000	U
BENZO(G,H,I)PERYLENE	UG/KG	330.000	U	340.000	U	330.000	U	330.000	U	330.000	U	40.000	J
2-NAPHTHYLAMINE	UG/KG	5700.000	U	5800.000	U	5700.000	U	5700.000	U	5700.000	U	5800.000	U
1-NAPHTHYLAMINE	UG/KG	4000.000	U	4100.000	U	4000.000	U	4000.000	U	4000.000	U	4100.000	U
2,3,4,6-TETRACHLOROPHENOL	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
5-NITRO-O-TOLUIDINE	UG/KG	670.000	U	680.000	U	670.000	U	680.000	U	670.000	U	680.000	U
DIPHENYLAMINE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
TETRAETHYL DITHIOPYROPHOSPHAT	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
SYM-TRINITROBENZENE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
PHENACETIN	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
DIALLATE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
4-AMINOBIPHENYL	UG/KG	1700.000	U	1700.000	U	1700.000	U	1700.000	U	1700.000	U	1700.000	U
PRONAMIDE	UG/KG	1000.000	U	1000.000	U	1000.000	U	1000.000	U	1000.000	U	1000.000	U
PENTACHLORONITROBENZENE	UG/KG	670.000	U	680.000	U	670.000	U	680.000	U	670.000	U	680.000	U
DINOSEB	UG/KG	670.000	U	680.000	U	670.000	U	680.000	U	670.000	U	680.000	U
4-NITROQUINOLINE-1-OXIDE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
METHAPYRILENE	UG/KG	1300.000	U	1400.000	U	1300.000	U	1300.000	U	1300.000	U	1400.000	U
ARAMITE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
P-(DIMETHYLAMINO)AZOBENZENE	UG/KG	1000.000	U	1000.000	U	1000.000	U	1000.000	U	1000.000	U	1000.000	U
3,3'-DIMETHYLBENZIDINE	UG/KG	2700.000	U	2700.000	U	2700.000	U	2700.000	U	2700.000	U	2700.000	U
2-ACETYLAMINOFLUORENE	UG/KG	340.000	U	340.000	U	330.000	U	340.000	U	340.000	U	340.000	U
7,12-DIMETHYLBENZ(A)ANTHRACEN	UG/KG	670.000	U	680.000	U	670.000	U	680.000	U	670.000	U	680.000	U
HEXACHLOROPHENE	UG/KG	1700.000	U	1700.000	U	1700.000	U	1700.000	U	1700.000	U	1700.000	U
3-METHYLCHOLANTHRENE	UG/KG	1000.000	U	1000.000	U	1000.000	U	1000.000	U	1000.000	U	1000.000	U

Verified 9-29-94

9413079.1026

Validated Data Summary, Data Package: W0130-QES-143

	Samp#	B0CBM9	
	Date	7-12-94	
	Location	200 W ASH PIT	
	Depth	---	
	Type	SOIL	
	Comments	EQUIP BLANK	
Parameter	Units	Result	Q
PHENOL	UG/KG	330.000	U
BIS(2-CHLOROETHYL)ETHER	UG/KG	330.000	U
2-CHLOROPHENOL	UG/KG	330.000	U
1,3-DICHLOROBENZENE	UG/KG	330.000	U
1,4-DICHLOROBENZENE	UG/KG	330.000	U
BENZYL ALCOHOL	UG/KG	330.000	U
1,2-DICHLOROBENZENE	UG/KG	330.000	U
2-METHYLPHENOL	UG/KG	330.000	U
2,2'-OXYBIS(1-CHLOROPROPANE)	UG/KG	330.000	U
4-METHYLPHENOL	UG/KG	330.000	U
N-NITROSO-DI-N-PROPYLAMINE	UG/KG	330.000	UJ
HEXACHLOROETHANE	UG/KG	330.000	U
NITROBENZENE	UG/KG	330.000	UJ
ISOPHORONE	UG/KG	330.000	U
2-NITROPHENOL	UG/KG	330.000	U
2,4-DIMETHYLPHENOL	UG/KG	330.000	U
BENZOIC ACID	UG/KG	1600.000	U
BIS(2-CHLOROETHOXY)METHANE	UG/KG	330.000	U
2,4-DICHLOROPHENOL	UG/KG	330.000	U
1,2,4-TRICHLOROBENZENE	UG/KG	330.000	U
NAPHTHALENE	UG/KG	330.000	U
4-CHLOROANILINE	UG/KG	330.000	U
HEXACHLOROBUTADIENE	UG/KG	330.000	U
4-CHLORO-3-METHYLPHENOL	UG/KG	330.000	U
2-METHYLNAPHTHALENE	UG/KG	330.000	U
HEXACHLOROCYCLOPENTADIENE	UG/KG	330.000	U
2,4,6-TRICHLOROPHENOL	UG/KG	330.000	U
2,4,5-TRICHLOROPHENOL	UG/KG	1600.000	U
2-CHLORONAPHTHALENE	UG/KG	330.000	U
2-NITROANILINE	UG/KG	1600.000	UJ
DIMETHYLPHTHALATE	UG/KG	330.000	U
ACENAPHTHYLENE	UG/KG	330.000	U
2,6-DINITROTOLUENE	UG/KG	330.000	UJ
N-NITROSODIMETHYLAMINE	UG/KG	330.000	U
ETHYL METHACRYLATE	UG/KG	660.000	U
2-PICOLINE	UG/KG	2300.000	U
N-NITROSOMETHYLETHYLAMINE	UG/KG	330.000	U

Verified RB 9-29-94

Validated Data Summary, Data Package: W0130-QES-143

	Samp#	BOCBM9	
	Date	7-12-94	
	Location	200 W ASH PIT	
	Depth	---	
	Type	SOIL	
	Comments	EQUIP BLANK	
Parameter	Units	Result	Q
METHYL METHANESULFONATE	UG/KG	330.000	U
N-NITROSODIETHYLAMINE	UG/KG	330.000	U
ETHYL METHANESULFONATE	UG/KG	330.000	U
ANILINE	UG/KG	330.000	U
PYRIDINE	UG/KG	330.000	U
PENTACHLOROETHANE	UG/KG	660.000	U
N-NITROSOPYRROLIDINE	UG/KG	330.000	U
3-METHYLPHENOL	UG/KG	330.000	U
ACETOPHENONE	UG/KG	330.000	U
N-NITROSOMORPHOLINE	UG/KG	330.000	U
O-TOLUIDINE	UG/KG	330.000	U
N-NITROSOPIPERIDINE	UG/KG	330.000	U
O,O,O-TRIETHYLPHOSPHOROTHIOAT	UG/KG	330.000	U
2,6-DICHLOROPHENOL	UG/KG	330.000	U
HEXACHLOROPROPENE	UG/KG	660.000	U
A,A-DIMETHYLPHENETHYLAMINE	UG/KG	330.000	U
N-NITROSODI-N-BUTYLAMINE	UG/KG	660.000	U
P-PHENYLENEDIAMINE	UG/KG	1700.000	U
SAFROLE	UG/KG	330.000	U
1,2,4,5-TETRACHLOROBENZENE	UG/KG	330.000	U
ISOSAFROLE	UG/KG	330.000	U
1,4-NAPHTHOQUINONE	UG/KG	330.000	U
M-DINITROBENZENE	UG/KG	330.000	U
PENTACHLOROBENZENE	UG/KG	660.000	U
3-NITROANILINE	UG/KG	1600.000	UJ
ACENAPHTHENE	UG/KG	330.000	U
2,4-DINITROPHENOL	UG/KG	1600.000	U
4-NITROPHENOL	UG/KG	1600.000	U
DIBENZOFURAN	UG/KG	330.000	U
2,4-DINITROTOLUENE	UG/KG	330.000	UJ
DIETHYLPHTHALATE	UG/KG	330.000	U
4-CHLOROPHENYL-PHENYLETHER	UG/KG	330.000	U
FLUORENE	UG/KG	330.000	U
4-NITROANILINE	UG/KG	1600.000	UJ
4,6-DINITRO-2-METHYLPHENOL	UG/KG	1600.000	U
N-NITROSODIPHENYLAMINE	UG/KG	330.000	UJ
4-BROMOPHENYL-PHENYLETHER	UG/KG	330.000	U
HEXACHLOROBENZENE	UG/KG	330.000	U
PENTACHLOROPHENOL	UG/KG	1600.000	U

Verified 9-29-94

Validated Data Summary, Data Package: W0130-QES-143

	Samp#	B0CBM9	
	Date	7-12-94	
	Location	200 W ASH PIT	
	Depth	---	
	Type	SOIL	
	Comments	EQUIP BLANK	
Parameter	Units	Result	Q
PHENANTHRENE	UG/KG	330.000	U
ANTHRACENE	UG/KG	330.000	U
DI-N-BUTYLPHTHALATE	UG/KG	330.000	U
FLUORANTHENE	UG/KG	330.000	U
PYRENE	UG/KG	330.000	U
BUTYLBENZYLPHTHALATE	UG/KG	330.000	U
3,3'-DICHLOROBENZIDINE	UG/KG	660.000	U
BENZO(A)ANTHRACENE	UG/KG	330.000	U
CHRYSENE	UG/KG	330.000	U
BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG	330.000	U
DI-N-OCTYLPHTHALATE	UG/KG	330.000	U
BENZO(B)FLUORANTHENE	UG/KG	330.000	U
BENZO(K)FLUORANTHENE	UG/KG	330.000	U
BENZO(A)PYRENE	UG/KG	330.000	U
INDENO(1,2,3-CD)PYRENE	UG/KG	330.000	U
DIBENZ(A,H)ANTHRACENE	UG/KG	330.000	U
BENZO(G,H,I)PERYLENE	UG/KG	330.000	U
2-NAPHTHYLAMINE	UG/KG	5600.000	U
1-NAPHTHYLAMINE	UG/KG	4000.000	U
2,3,4,6-TETRACHLOROPHENOL	UG/KG	330.000	U
5-NITRO-O-TOLUIDINE	UG/KG	660.000	U
DIPHENYLAMINE	UG/KG	330.000	U
TETRAETHYL DITHIOPYROPHOSPHAT	UG/KG	330.000	U
SYM-TRINITROBENZENE	UG/KG	330.000	U
PHENACETIN	UG/KG	330.000	U
DIALLATE	UG/KG	330.000	U
4-AMINOBIPHENYL	UG/KG	1700.000	U
PRONAMIDE	UG/KG	1000.000	U
PENTACHLORONITROBENZENE	UG/KG	660.000	U
DINOSEB	UG/KG	660.000	U
4-NITROQUINOLINE-1-OXIDE	UG/KG	330.000	U
METHAPYRILENE	UG/KG	1300.000	U
ARAMITE	UG/KG	330.000	U
P-(DIMETHYLAMINO)AZOBENZENE	UG/KG	1000.000	U
3,3'-DIMETHYLBENZIDINE	UG/KG	2700.000	U
2-ACETYLAMINOFLUORENE	UG/KG	330.000	U
7,12-DIMETHYLBENZ(A)ANTHRACEN	UG/KG	660.000	U
HEXACHLOROPHENE	UG/KG	1700.000	U
3-METHYLCHOLANTHRENE	UG/KG	1000.000	U

Verified 9-29-94

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC950

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3095

Sample wt/vol: 30.3 (g/mL) G Lab File ID: AB3095

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
108-95-2	Phenol	330	U	
111-44-4	bis(2-Chloroethyl)Ether	330	U	
95-57-8	2-Chlorophenol	330	U	
541-73-1	1,3-Dichlorobenzene	330	U	
106-46-7	1,4-Dichlorobenzene	330	U	
100-51-6	Benzyl Alcohol	330	U	
95-50-1	1,2-Dichlorobenzene	330	U	
95-48-7	2-Methylphenol	330	U	
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U	
106-44-5	4-Methylphenol	330	U	
621-64-7	N-Nitroso-Di-n-Propylamine	330	~~U~~	UJ
67-72-1	Hexachloroethane	330	U	
98-95-3	Nitrobenzene	330	~~U~~	UJ
78-59-1	Isophorone	330	U	
88-75-5	2-Nitrophenol	330	U	
105-67-9	2,4-Dimethylphenol	330	U	
65-85-0	Benzoic Acid	1600	U	
111-91-1	bis(2-Chloroethoxy)Methane	330	U	
120-83-2	2,4-Dichlorophenol	330	U	
120-82-1	1,2,4-Trichlorobenzene	330	U	
91-20-3	Naphthalene	330	U	
106-47-8	4-Chloroaniline	330	U	
87-68-3	Hexachlorobutadiene	330	U	
59-50-7	4-Chloro-3-Methylphenol	330	U	
91-57-6	2-Methylnaphthalene	330	U	
77-47-4	Hexachlorocyclopentadiene	330	U	
88-06-2	2,4,6-Trichlorophenol	330	U	
95-95-4	2,4,5-Trichlorophenol	1600	U	
91-58-7	2-Chloronaphthalene	330	U	
88-74-4	2-Nitroaniline	1600	~~U~~	UJ
131-11-3	Dimethylpthalate	330	U	
208-96-8	Acenaphthylene	330	U	
606-20-2	2,6-Dinitrotoluene	330	~~U~~	UJ

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC950

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3095

Sample wt/vol: 30.3 (g/mL) G Lab File ID: AB3095

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
99-09-2	3-Nitroaniline	1600	~~U~~	UJ
83-32-9	Acenaphthene	330	U	
51-28-5	2,4-Dinitrophenol	1600	U	
100-02-7	4-Nitrophenol	1600	U	
132-64-9	Dibenzofuran	330	U	
121-14-2	2,4-Dinitrotoluene	330	~~U~~	UJ
84-66-2	Diethylphthalate	330	U	
7005-72-3	4-Chlorophenyl-phenylether	330	U	
86-73-7	Fluorene	330	U	
100-01-6	4-Nitroaniline	1600	~~U~~	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	1600	U	
86-30-6	N-Nitrosodiphenylamine (1)	330	~~U~~	UJ
101-55-3	4-Bromophenyl-phenylether	330	U	
118-74-1	Hexachlorobenzene	330	U	
87-86-5	Pentachlorophenol	1600	U	
85-01-8	Phenanthrene	330	U	
120-12-7	Anthracene	330	U	
84-74-2	Di-n-Butylphthalate	130	J	
206-44-0	Fluoranthene	330	U	
129-00-0	Pyrene	330	U	
85-68-7	Butylbenzylphthalate	330	U	
91-94-1	3,3'-Dichlorobenzidine	670	U	
56-55-3	Benzo(a)Anthracene	330	U	
218-01-9	Chrysene	330	U	
117-81-7	bis(2-Ethylhexyl)Phthalate	330	U	
117-84-0	Di-n-Octyl Phthalate	330	U	
205-99-2	Benzo(b)Fluoranthene	330	U	
207-08-9	Benzo(k)Fluoranthene	330	U	
50-32-8	Benzo(a)Pyrene	330	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U	
53-70-3	Dibenz(a,h)Anthracene	330	U	
191-24-2	Benzo(g,h,i)Perylene	330	U	

(1) - Cannot be separated from Diphenylamine

9-26-94

1X

APPENDIX IX SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC950

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3095

Sample wt/vol: 30.3 (g/mL) G Lab File ID: AB3095

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 2 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/02/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
62-75-9	N-Nitrosodimethylamine	340	U
97-63-2	Ethyl methacrylate	670	U
109-06-8	2-Picoline	~~2360~~ 2400	U
10595-95-6	N-Nitrosomethylethylamine	340	U
66-27-3	Methyl methanesulfonate	340	U
55-18-5	N-Nitrosodiethylamine	340	U
62-50-0	Ethyl methanesulfonate	340	U
62-53-3	Aniline	340	U
110-86-1	Pyridine	340	U
76-01-7	Pentachloroethane	670	U
930-55-2	N-Nitrosopyrrolidine	340	U
108-39-4	3-Methylphenol	340	U
98-86-2	Acetophenone	340	U
59-89-2	N-Nitrosomorpholine	340	U
95-53-4	o-Toluidine	340	U
100-75-4	N-Nitrosopiperidine	340	U
126-68-1	o,o,o-Triethylphosphorothioat	340	U
87-65-0	2,6-Dichlorophenol	340	U
1888-71-7	Hexachloropropene	670	U
122-09-8	a,a-dimethylphenethylamine	340	U
924-16-3	N-Nitrosodi-N-butylamine	670	U
106-50-3	p-Phenylenediamine	1700	U
94-59-7	Safrole	340	U
95-94-3	1,2,4,5-Tetrachlorobenzene	340	U
120-58-1	Isosafrole	340	U
130-15-4	1,4-Naphthoquinone	340	U
99-65-0	m-Dinitrobenzene	340	U
608-93-5	Pentachlorobenzene	670	U

LFM 8/18/94

FORM I SV-1

9-26-94

1X

APPENDIX IX SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC950

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3095

Sample wt/vol: 30.3 (g/mL) G Lab File ID: AB3095

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 2 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/02/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-59-8	2-Naphthylamine	5700	U
134-32-7	1-Naphthylamine	4000	U
58-90-2	2,3,4,6-Tetrachlorophenol	340	U
99-55-8	5-Nitro-o-toluidine	670	U
122-39-4	Diphenylamine	340	U
3689-24-5	Tetraethyl dithiopyrophosphat	340	U
99-35-4	sym-Trinitrobenzene	340	U
62-44-2	Phenacetin	340	U
2303-16-4	Diallate	340	U
92-67-1	4-Aminobiphenyl	1700	U
23950-58-5	Pronamide	1000	U
82-68-8	Pentachloronitrobenzene	670	U
88-85-7	Dinoseb	670	U
56-57-5	4-Nitroquinoline-1-oxide	340	U
91-80-5	Methapyrilene	1300	U
140-57-8	Aramite	340	U
60-11-7	p-(Dimethylamino)azobenzene	1000	U
119-93-7	3,3'-Dimethylbenzidine	2700	U
53-96-3	2-Acetylaminofluorene	340	U
57-97-6	7,12-Dimethylbenz(a)anthracen	670	U
70-30-4	Hexachlorophene	1700	U
56-49-5	3-Methylcholanthrene	1000	U

FORM I SV-2

9-26-94

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC950

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3095

Sample wt/vol: 30.3 (g/mL) G Lab File ID: AB3095

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 4

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Q
1. 53951-40-9	~~UNKNOWN~~ Propane, 2-Methoxy-2-propoxy	2.83	1100	~~J~~	JN
2. 141-79-7	3-PENTEN-2-ONE, 4-METHYL-	3.77	280	~~ABJN~~	~~JN~~ R
3. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.22	12000	~~ABJN~~	~~JN~~ R
4. 57-10-3	HEXADECANOIC ACID	17.87	140	~~JN~~	JN

Verified
9/26

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC951

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3111

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3111

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
108-95-2	Phenol	330	U	
111-44-4	bis(2-Chloroethyl)Ether	330	U	
95-57-8	2-Chlorophenol	330	U	
541-73-1	1,3-Dichlorobenzene	330	U	
106-46-7	1,4-Dichlorobenzene	330	U	
100-51-6	Benzyl Alcohol	330	U	
95-50-1	1,2-Dichlorobenzene	330	U	
95-48-7	2-Methylphenol	330	U	
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U	
106-44-5	4-Methylphenol	330	U	
621-64-7	N-Nitroso-Di-n-Propylamine	330	~~U~~	UJ
67-72-1	Hexachloroethane	330	U	
98-95-3	Nitrobenzene	330	~~U~~	UJ
78-59-1	Isophorone	330	U	
88-75-5	2-Nitrophenol	330	U	
105-67-9	2,4-Dimethylphenol	330	U	
65-85-0	Benzoic Acid	1600	U	
111-91-1	bis(2-Chloroethoxy)Methane	330	U	
120-83-2	2,4-Dichlorophenol	330	U	
120-82-1	1,2,4-Trichlorobenzene	330	U	
91-20-3	Naphthalene	330	U	
106-47-8	4-Chloroaniline	330	U	
87-68-3	Hexachlorobutadiene	330	U	
59-50-7	4-Chloro-3-Methylphenol	330	U	
91-57-6	2-Methylnaphthalene	330	U	
77-47-4	Hexachlorocyclopentadiene	330	U	
88-06-2	2,4,6-Trichlorophenol	330	U	
95-95-4	2,4,5-Trichlorophenol	1600	U	
91-58-7	2-Chloronaphthalene	330	U	
88-74-4	2-Nitroaniline	1600	~~U~~	UJ
131-11-3	Dimethylpthalate	330	U	
208-96-8	Acenaphthylene	330	U	
606-20-2	2,6-Dinitrotoluene	330	~~U~~	UJ

9-26-94

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC951

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3111

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3111

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
99-09-2	3-Nitroaniline	1600	~~U~~	UJ
83-32-9	Acenaphthene	330	U	
51-28-5	2,4-Dinitrophenol	1600	U	
100-02-7	4-Nitrophenol	1600	U	
132-64-9	Dibenzofuran	330	U	
121-14-2	2,4-Dinitrotoluene	330	~~U~~	UJ
84-66-2	Diethylphthalate	330	U	
7005-72-3	4-Chlorophenyl-phenylether	330	U	
86-73-7	Fluorene	330	U	
100-01-6	4-Nitroaniline	43	J	
534-52-1	4,6-Dinitro-2-Methylphenol	1600	U	
86-30-6	N-Nitrosodiphenylamine (1)	330	~~U~~	UJ
101-55-3	4-Bromophenyl-phenylether	330	U	
118-74-1	Hexachlorobenzene	330	U	
87-86-5	Pentachlorophenol	1600	U	
85-01-8	Phenanthrene	330	U	
120-12-7	Anthracene	330	U	
84-74-2	Di-n-Butylphthalate	57	J	
206-44-0	Fluoranthene	330	U	
129-00-0	Pyrene	330	U	
85-68-7	Butylbenzylphthalate	330	U	
91-94-1	3,3'-Dichlorobenzidine	670	U	
56-55-3	Benzo(a)Anthracene	330	U	
218-01-9	Chrysene	330	U	
117-81-7	bis(2-Ethylhexyl)Phthalate	51 ~~330~~	~~51~~ ~~BJ~~	~~U~~ BJ
117-84-0	Di-n-Octyl Phthalate	330	U	
205-99-2	Benzo(b)Fluoranthene	330	U	
207-08-9	Benzo(k)Fluoranthene	330	U	
50-32-8	Benzo(a)Pyrene	330	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U	
53-70-3	Dibenz(a,h)Anthracene	330	U	
191-24-2	Benzo(g,h,i)Perylene	330	U	

(1) - Cannot be separated from Diphenylamine

9-26-94 9-27

1X

APPENDIX IX SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC951

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3111

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3111

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 2 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/02/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
62-75-9	N-Nitrosodimethylamine	340	U
97-63-2	Ethyl methacrylate	680	U
109-06-8	2-Picoline	2400	U
10595-95-6	N-Nitrosomethylethylamine	340	U
66-27-3	Methyl methanesulfonate	340	U
55-18-5	N-Nitrosodiethylamine	340	U
62-50-0	Ethyl methanesulfonate	340	U
62-53-3	Aniline	340	U
110-86-1	Pyridine	340	U
76-01-7	Pentachloroethane	680	U
930-55-2	N-Nitrosopyrrolidine	340	U
108-39-4	3-Methylphenol	340	U
98-86-2	Acetophenone	340	U
59-89-2	N-Nitrosomorpholine	340	U
95-53-4	o-Toluidine	340	U
100-75-4	N-Nitrosopiperidine	340	U
126-68-1	o,o,o-Triethylphosphorothioat	340	U
87-65-0	2,6-Dichlorophenol	340	U
1888-71-7	Hexachloropropene	680	U
122-09-8	a,a-dimethylphenethylamine	340	U
924-16-3	N-Nitrosodi-N-butylamine	680	U
106-50-3	p-Phenylenediamine	1700	U
94-59-7	Safrole	340	U
95-94-3	1,2,4,5-Tetrachlorobenzene	340	U
120-58-1	Isosafrole	340	U
130-15-4	1,4-Naphthoquinone	340	U
99-65-0	m-Dinitrobenzene	340	U
608-93-5	Pentachlorobenzene	680	U

FORM I SV-1

9-26-94

1X

APPENDIX IX SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC951

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3111

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3111

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 2 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/02/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
91-59-8	2-Naphthylamine	5700	U
134-32-7	1-Naphthylamine	4000	U
58-90-2	2,3,4,6-Tetrachlorophenol	340	U
99-55-8	5-Nitro-o-toluidine	680	U
122-39-4	Diphenylamine	340	U
3689-24-5	Tetraethyl dithiopyrophosphat	340	U
99-35-4	sym-Trinitrobenzene	340	U
62-44-2	Phenacetin	340	U
2303-16-4	Diallate	340	U
92-67-1	4-Aminobiphenyl	1700	U
23950-58-5	Pronamide	1000	U
82-68-8	Pentachloronitrobenzene	680	U
88-85-7	Dinoseb	680	U
56-57-5	4-Nitroquinoline-1-oxide	340	U
91-80-5	Methapyrilene	1300	U
140-57-8	Aramite	340	U
60-11-7	p-(Dimethylamino)azobenzene	1000	U
119-93-7	3,3'-Dimethylbenzidine	2700	U
53-96-3	2-Acetylaminofluorene	340	U
57-97-6	7,12-Dimethylbenz(a)anthracen	680	U
70-30-4	Hexachlorophene	1700	U
56-49-5	3-Methylcholanthrene	1000	U

FORM I SV-2

9-26-94

9413299.1539

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1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC951

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3111

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3111

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

Number TICs found: 9

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Q
1.	UNKNOWN	1.73	84	~~J~~	JN
2. 53951-40-9	~~UNKNOWN~~ Propane, 2methoxy-2propoxy	2.82	230	~~J~~	~~U~~ UJN
3. 2207-04-7	CYCLOHEXANE, 1,4-DIMETHYL-,	2.93	71	JN	
4. 141-79-7	3-PENTEN-2-ONE, 4-METHYL-	3.27	250	~~ABJN~~	~~JN~~ R
5. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.20	9800	~~ABJN~~	~~JN~~ R
6. 57-10-3	HEXADECANOIC ACID	17.85	370	JN	
7.	UNKNOWN	24.40	220	~~J~~	JN
8. 54105-67-8	HEPTADECANE, 2,6-DIMETHYL-	24.72	130	JN	
9. 630-02-4	OCTACOSANE	26.27	91	JN	

fs 9/26
Verified

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC952

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3118

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3118

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
108-95-2	Phenol	340	U	
111-44-4	bis(2-Chloroethyl)Ether	340	U	
95-57-8	2-Chlorophenol	340	U	
541-73-1	1,3-Dichlorobenzene	340	U	
106-46-7	1,4-Dichlorobenzene	340	U	
100-51-6	Benzyl Alcohol	340	U	
95-50-1	1,2-Dichlorobenzene	340	U	
95-48-7	2-Methylphenol	340	U	
108-60-1	2,2'-oxybis(1-Chloropropane)	340	U	
106-44-5	4-Methylphenol	340	U	
621-64-7	N-Nitroso-Di-n-Propylamine	340	~~U~~	UJ
67-72-1	Hexachloroethane	340	U	
98-95-3	Nitrobenzene	340	~~U~~	UJ
78-59-1	Isophorone	340	U	
88-75-5	2-Nitrophenol	340	U	
105-67-9	2,4-Dimethylphenol	340	U	
65-85-0	Benzoic Acid	1600	U	
111-91-1	bis(2-Chloroethoxy)Methane	340	U	
120-83-2	2,4-Dichlorophenol	340	U	
120-82-1	1,2,4-Trichlorobenzene	340	U	
91-20-3	Naphthalene	340	U	
106-47-8	4-Chloroaniline	340	U	
87-68-3	Hexachlorobutadiene	340	U	
59-50-7	4-Chloro-3-Methylphenol	340	U	
91-57-6	2-Methylnaphthalene	340	U	
77-47-4	Hexachlorocyclopentadiene	340	U	
88-06-2	2,4,6-Trichlorophenol	340	U	
95-95-4	2,4,5-Trichlorophenol	1600	U	
91-58-7	2-Chloronaphthalene	340	U	
88-74-4	2-Nitroaniline	1600	~~U~~	UJ
131-11-3	Dimethylpthalate	340	U	
208-96-8	Acenaphthylene	340	U	
606-20-2	2,6-Dinitrotoluene	340	~~U~~	UJ

FORM I SV-1 9-26-94 1/87 Rev.

9413299.1341

~~0000101~~

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC952

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3118

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3118

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
99-09-2	3-Nitroaniline	1600	~~U~~	UJ
83-32-9	Acenaphthene	340	U	
51-28-5	2,4-Dinitrophenol	1600	U	
100-02-7	4-Nitrophenol	1600	U	
132-64-9	Dibenzofuran	340	U	
121-14-2	2,4-Dinitrotoluene	340	~~U~~	UJ
84-66-2	Diethylphthalate	340	U	
7005-72-3	4-Chlorophenyl-phenylether	340	U	
86-73-7	Fluorene	340	U	
100-01-6	4-Nitroaniline	1600	~~U~~	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	1600	U	
86-30-6	N-Nitrosodiphenylamine (1)	340	~~U~~	UJ
101-55-3	4-Bromophenyl-phenylether	340	U	
118-74-1	Hexachlorobenzene	340	U	
87-86-5	Pentachlorophenol	1600	U	
85-01-8	Phenanthrene	340	U	
120-12-7	Anthracene	340	U	
84-74-2	Di-n-Butylphthalate	53	J	
206-44-0	Fluoranthene	340	U	
129-00-0	Pyrene	340	U	
85-68-7	Butylbenzylphthalate	340	U	
91-94-1	3,3'-Dichlorobenzidine	680	U	
56-55-3	Benzo(a)Anthracene	340	U	
218-01-9	Chrysene	340	U	
117-81-7	bis(2-Ethylhexyl)Phthalate	40 ~~340~~ ~~40~~	~~BJ~~	~~U~~ BJ
117-84-0	Di-n-Octyl Phthalate	340	U	
205-99-2	Benzo(b)Fluoranthene	340	U	
207-08-9	Benzo(k)Fluoranthene	340	U	
50-32-8	Benzo(a)Pyrene	340	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	340	U	
53-70-3	Dibenz(a,h)Anthracene	340	U	
191-24-2	Benzo(g,h,i)Perylene	340	U	

(1) - Cannot be separated from Diphenylamine

9-26-94

9-27

FORM I SV-2 1/87 Rev.

1X

APPENDIX IX SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC952

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3118

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3118

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 3 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/02/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
62-75-9	N-Nitrosodimethylamine	340	U
97-63-2	Ethyl methacrylate	680	U
109-06-8	2-Picoline	2400	U
10595-95-6	N-Nitrosomethylethylamine	340	U
66-27-3	Methyl methanesulfonate	340	U
55-18-5	N-Nitrosodiethylamine	340	U
62-50-0	Ethyl methanesulfonate	340	U
62-53-3	Aniline	340	U
110-86-1	Pyridine	340	U
76-01-7	Pentachloroethane	680	U
930-55-2	N-Nitrosopyrrolidine	340	U
108-39-4	3-Methylphenol	340	U
98-86-2	Acetophenone	340	U
59-89-2	N-Nitrosomorpholine	340	U
95-53-4	o-Toluidine	340	U
100-75-4	N-Nitrosopiperidine	340	U
126-68-1	o,o,o-Triethylphosphorothioat	340	U
87-65-0	2,6-Dichlorophenol	340	U
1888-71-7	Hexachloropropene	680	U
122-09-8	a,a-dimethylphenethylamine	340	U
924-16-3	N-Nitrosodi-N-butylamine	680	U
106-50-3	p-Phenylenediamine	1700	U
94-59-7	Safrole	340	U
95-94-3	1,2,4,5-Tetrachlorobenzene	340	U
120-58-1	Isosafrole	340	U
130-15-4	1,4-Naphthoquinone	340	U
99-65-0	m-Dinitrobenzene	340	U
608-93-5	Pentachlorobenzene	680	U

FORM I SV-1

9-26-94

1X

APPENDIX IX SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC952

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3118

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3118

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 3 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/02/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-59-8	2-Naphthylamine	5800	U
134-32-7	1-Naphthylamine	4100	U
58-90-2	2,3,4,6-Tetrachlorophenol	340	U
99-55-8	5-Nitro-o-toluidine	680	U
122-39-4	Diphenylamine	340	U
3689-24-5	Tetraethyl dithiopyrophosphat	340	U
99-35-4	sym-Trinitrobenzene	340	U
62-44-2	Phenacetin	340	U
2303-16-4	Diallate	340	U
92-67-1	4-Aminobiphenyl	1700	U
23950-58-5	Pronamide	1000	U
82-68-8	Pentachloronitrobenzene	680	U
88-85-7	Dinoseb	680	U
56-57-5	4-Nitroquinoline-1-oxide	340	U
91-80-5	Methapyrilene	1400	U
140-57-8	Aramite	340	U
60-11-7	p-(Dimethylamino)azobenzene	1000	U
119-93-7	3,3'-Dimethylbenzidine	2700	U
53-96-3	2-Acetylaminofluorene	340	U
57-97-6	7,12-Dimethylbenz(a)anthracen	680	U
70-30-4	Hexachlorophene	1700	U
56-49-5	3-Methylcholanthrene	1000	U

FORM I SV-2

9-26-94

9413299.1344

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1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC952

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3118

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3118

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1. 53951-40-9	PROPANE, 2-METHOXY-2-PROPOXY	2.83	1200	~~BJN~~	BJN
2. 624-29-3	CYCLOHEXANE, 1,4-DIMETHYL-,	2.95	120	JN	
3. 141-79-7	3-PENTEN-2-ONE, 4-METHYL-	3.30	370	~~ABJN~~	~~JN~~ R
4. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.23	11000	~~ABJN~~	~~JN~~ R
5. 630-02-4	OCTACOSANE	24.75	68	JN	

Verified ~~RS~~ 9/26

FORM I SV-TIC 1/87 Rev.

Revised 10-11-94 ~~R~~

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
FIELD DUPLICATE
BOC953

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3125

Sample wt/vol: 30.1 (g/mL) G Lab File ID: AB3125

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
108-95-2	Phenol	340	U	
111-44-4	bis(2-Chloroethyl)Ether	340	U	
95-57-8	2-Chlorophenol	340	U	
541-73-1	1,3-Dichlorobenzene	340	U	
106-46-7	1,4-Dichlorobenzene	340	U	
100-51-6	Benzyl Alcohol	340	U	
95-50-1	1,2-Dichlorobenzene	340	U	
95-48-7	2-Methylphenol	340	U	
108-60-1	2,2'-oxybis(1-Chloropropane)	340	U	
106-44-5	4-Methylphenol	340	U	
621-64-7	N-Nitroso-Di-n-Propylamine	340	~~U~~	UJ
67-72-1	Hexachloroethane	340	U	
98-95-3	Nitrobenzene	340	~~U~~	UJ
78-59-1	Isophorone	340	U	
88-75-5	2-Nitrophenol	340	U	
105-67-9	2,4-Dimethylphenol	340	U	
65-85-0	Benzoic Acid	1600	U	
111-91-1	bis(2-Chloroethoxy)Methane	340	U	
120-83-2	2,4-Dichlorophenol	340	U	
120-82-1	1,2,4-Trichlorobenzene	340	U	
91-20-3	Naphthalene	340	U	
106-47-8	4-Chloroaniline	340	U	
87-68-3	Hexachlorobutadiene	340	U	
59-50-7	4-Chloro-3-Methylphenol	340	U	
91-57-6	2-Methylnaphthalene	340	U	
77-47-4	Hexachlorocyclopentadiene	340	U	
88-06-2	2,4,6-Trichlorophenol	340	U	
95-95-4	2,4,5-Trichlorophenol	1600	U	
91-58-7	2-Chloronaphthalene	340	U	
88-74-4	2-Nitroaniline	1600	~~U~~	UJ
131-11-3	Dimethylpthalate	340	U	
208-96-8	Acenaphthylene	340	U	
606-20-2	2,6-Dinitrotoluene	340	~~U~~	UJ

FORM I SV-1 TS 9-26-94 1/87 Rev.

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
FIELD DUPLICATE
BOC953

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: ____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3125

Sample wt/vol: 30.1 (g/mL) G Lab File ID: AB3125

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
99-09-2	3-Nitroaniline	1600	~~U~~	UJ
83-32-9	Acenaphthene	340	U	
51-28-5	2,4-Dinitrophenol	1600	U	
100-02-7	4-Nitrophenol	1600	U	
132-64-9	Dibenzofuran	340	U	
121-14-2	2,4-Dinitrotoluene	340	~~U~~	UJ
84-66-2	Diethylphthalate	340	U	
7005-72-3	4-Chlorophenyl-phenylether	340	U	
86-73-7	Fluorene	340	U	
100-01-6	4-Nitroaniline	1600	~~U~~	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	1600	U	
86-30-6	N-Nitrosodiphenylamine (1)	340	~~U~~	UJ
101-55-3	4-Bromophenyl-phenylether	340	U	
118-74-1	Hexachlorobenzene	340	U	
87-86-5	Pentachlorophenol	1600	U	
85-01-8	Phenanthrene	340	U	
120-12-7	Anthracene	340	U	
84-74-2	Di-n-Butylphthalate	120	J	
206-44-0	Fluoranthene	340	U	
129-00-0	Pyrene	340	U	
85-68-7	Butylbenzylphthalate	340	U	
91-94-1	3,3'-Dichlorobenzidine	670	U	
56-55-3	Benzo(a)Anthracene	340	U	
218-01-9	Chrysene	340	U	
117-81-7	bis(2-Ethylhexyl)Phthalate	340	U	
117-84-0	Di-n-Octyl Phthalate	340	U	
205-99-2	Benzo(b)Fluoranthene	340	U	
207-08-9	Benzo(k)Fluoranthene	340	U	
50-32-8	Benzo(a)Pyrene	340	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	340	U	
53-70-3	Dibenz(a,h)Anthracene	340	U	
191-24-2	Benzo(g,h,i)Perylene	340	U	

(1) - Cannot be separated from Diphenylamine

9-26-94

1X
APPENDIX IX SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
FIELD DUPLICATE
BOC953

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3125

Sample wt/vol: 30.1 (g/mL) G Lab File ID: AB3125

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 2 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/02/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
62-75-9	N-Nitrosodimethylamine	340	U
97-63-2	Ethyl methacrylate	680	U
109-06-8	2-Picoline	2400	U
10595-95-6	N-Nitrosomethylethylamine	340	U
66-27-3	Methyl methanesulfonate	340	U
55-18-5	N-Nitrosodiethylamine	340	U
62-50-0	Ethyl methanesulfonate	340	U
62-53-3	Aniline	340	U
110-86-1	Pyridine	340	U
76-01-7	Pentachloroethane	680	U
930-55-2	N-Nitrosopyrrolidine	340	U
108-39-4	3-Methylphenol	340	U
98-86-2	Acetophenone	340	U
59-89-2	N-Nitrosomorpholine	340	U
95-53-4	o-Toluidine	340	U
100-75-4	N-Nitrosopiperidine	340	U
126-68-1	o,o,o-Triethylphosphorothioat	340	U
87-65-0	2,6-Dichlorophenol	340	U
1888-71-7	Hexachloropropene	680	U
122-09-8	a,a-dimethylphenethylamine	340	U
924-16-3	N-Nitrosodi-N-butylamine	680	U
106-50-3	p-Phenylenediamine	1700	U
94-59-7	Safrole	340	U
95-94-3	1,2,4,5-Tetrachlorobenzene	340	U
120-58-1	Isosafrole	340	U
130-15-4	1,4-Naphthoquinone	340	U
99-65-0	m-Dinitrobenzene	340	U
608-93-5	Pentachlorobenzene	680	U

FORM I SV-1

9-26-94

1X

APPENDIX IX SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FIELD DUPLICATE

BOC953

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3125

Sample wt/vol: 30.1 (g/mL) G Lab File ID: AB3125

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 2 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/02/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-59-8	2-Naphthylamine	5800	U
134-32-7	1-Naphthylamine	4100	U
58-90-2	2,3,4,6-Tetrachlorophenol	340	U
99-55-8	5-Nitro-o-toluidine	680	U
122-39-4	Diphenylamine	340	U
3689-24-5	Tetraethyl dithiopyrophosphat	340	U
99-35-4	sym-Trinitrobenzene	340	U
62-44-2	Phenacetin	340	U
2303-16-4	Diallate	340	U
92-67-1	4-Aminobiphenyl	1700	U
23950-58-5	Pronamide	1000	U
82-68-8	Pentachloronitrobenzene	680	U
88-85-7	Dinoseb	680	U
56-57-5	4-Nitroquinoline-1-oxide	340	U
91-80-5	Methapyrilene	1400	U
140-57-8	Aramite	340	U
60-11-7	p-(Dimethylamino)azobenzene	1000	U
119-93-7	3,3'-Dimethylbenzidine	2700	U
53-96-3	2-Acetylaminofluorene	340	U
57-97-6	7,12-Dimethylbenz(a)anthracen	680	U
70-30-4	Hexachlorophene	1700	U
56-49-5	3-Methylcholanthrene	1000	U

FORM I SV-2

9-26-94

9413299.1349

~~0000109~~

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
FIELD DUPLICATE
BOC953

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3125

Sample wt/vol: 30.1 (g/mL) G Lab File ID: AB3125

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.0

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Q
1. 53951-40-9	PROPANE, 2-METHOXY-2-PROPOXY	2.83	1800	~~BJN~~	BJN
2. 2207-04-7	CYCLOHEXANE, 1,4-DIMETHYL-,	2.95	120	JN	
3. 141-79-7	3-PENTEN-2-ONE, 4-METHYL-	3.30	370	~~ABJN~~	~~JN~~ R
4. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.23	11000	~~ABJN~~	~~JN~~ R
5. 57-10-3	HEXADECANOIC ACID	17.87	110	JN	

9/26 Verified

Revised 10-11-94
037

Validated Data Summary, Data Package: W0130-QES-143

	Samp#	BOCBN0	
	Date	7-12-94	
	Location	200 W ASH PIT	
	Depth	---	
	Type	SOIL	
	Comments	TRIP BLANK	
Parameter	Units	Result	Q
CHLOROMETHANE	UG/KG	10.000	U
BROMOMETHANE	UG/KG	10.000	U
VINYL CHLORIDE	UG/KG	10.000	U
CHLOROETHANE	UG/KG	10.000	U
METHYLENE CHLORIDE	UG/KG	10.000	U
ACETONE	UG/KG	10.000	U
CARBON DISULFIDE	UG/KG	5.000	U
1,1-DICHLOROETHENE	UG/KG	5.000	U
1,1-DICHLOROETHANE	UG/KG	5.000	U
1,2-DICHLOROETHENE (TOTAL)	UG/KG	5.000	U
CHLOROFORM	UG/KG	5.000	U
1,2-DICHLOROETHANE	UG/KG	5.000	U
2-BUTANONE	UG/KG	10.000	U
1,1,1-TRICHLOROETHANE	UG/KG	5.000	U
CARBON TETRACHLORIDE	UG/KG	5.000	U
VINYL ACETATE	UG/KG	10.000	U
BROMODICHLOROMETHANE	UG/KG	5.000	U
1,2-DICHLOROPROPANE	UG/KG	5.000	U
CIS-1,3-DICHLOROPROPENE	UG/KG	5.000	U
TRICHLOROETHENE	UG/KG	5.000	U
DIBROMOCHLOROMETHANE	UG/KG	5.000	U
1,1,2-TRICHLOROETHANE	UG/KG	5.000	U
BENZENE	UG/KG	5.000	U
TRANS-1,3-DICHLOROPROPENE	UG/KG	5.000	U
BROMOFORM	UG/KG	5.000	U
4-METHYL-2-PENTANONE	UG/KG	10.000	U
2-HEXANONE	UG/KG	10.000	U
TETRACHLOROETHENE	UG/KG	5.000	U
1,1,2,2-TETRACHLOROETHANE	UG/KG	5.000	U
TOLUENE	UG/KG	5.000	U
CHLOROBENZENE	UG/KG	5.000	U
ETHYLBENZENE	UG/KG	5.000	U
STYRENE	UG/KG	5.000	U
XYLENES (TOTAL)	UG/KG	5.000	U
ACETONITRILE	UG/KG	10.000	U
ACROLEIN	UG/KG	10.000	U
ACRYLONITRILE	UG/KG	10.000	U
3-CHLORO-1-PROPENE	UG/KG	5.000	U

Verified
9-28-94

Validated Data Summary, Data Package: W0130-QES-143

	Samp#	BOCBN0	
	Date	7-12-94	
	Location	200 W ASH PIT	
	Depth	---	
	Type	SOIL	
	Comments	TRIP BLANK	
Parameter	Units	Result	Q
1,2-DIBROMO-3-CHLOROPROPANE	UG/KG	5.000	U
1,2-DIBROMOETHANE	UG/KG	5.000	U
DIBROMOMETHANE	UG/KG	5.000	U
TRANS-1,4-DICHLORO-2-BUTENE	UG/KG	20.000	U
DICHLRODIFLUOROMETHANE	UG/KG	20.000	U
TRANS-1,2-DICHLOROETHENE	UG/KG	5.000	U
ETHYL CYANIDE	UG/KG	100.000	U
IODOMETHANE	UG/KG	5.000	U
METHACRYLONITRILE	UG/KG	10.000	U
1,1,1,2-TETRACHLOROETHANE	UG/KG	5.000	U
TRICHLOROFLUOROMETHANE	UG/KG	5.000	U
1,2,3-TRICHLOROPROPANE	UG/KG	5.000	U
1,4-DIOXANE	UG/KG	1000.000	U
ISOBUTYL ALCOHOL	UG/KG	100.000	U
METHYL METHACRYLATE	UG/KG	10.000	U
ETHYL METHACRYLATE	UG/KG	10.000	U
1,3-DICHLOROBENZENE	UG/KG	5.000	U
1,4-DICHLOROBENZENE	UG/KG	5.000	U
1,2-DICHLOROBENZENE	UG/KG	5.000	U
CHLOROPRENE	UG/KG	50.000	U

Verified RS 9-28-94

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOCBM9

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3180

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3180R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 0 Date Analyzed: 07/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10 ~~2~~	~~B~~ U	U
67-64-1	Acetone	10	U	
75-15-0	Carbon Disulfide	5	U	
75-35-4	1,1-Dichloroethene	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	5	U	
67-66-3	Chloroform	5	U	
107-06-2	1,2-Dichloroethane	5	U	
78-93-3	2-Butanone	10	U	
71-55-6	1,1,1-Trichloroethane	5	U	
56-23-5	Carbon Tetrachloride	5	U	
108-05-4	Vinyl Acetate	10	U	
75-27-4	Bromodichloromethane	5	U	
78-87-5	1,2-Dichloropropane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
79-01-6	Trichloroethene	2	J	
124-48-1	Dibromochloromethane	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
71-43-2	Benzene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
75-25-2	Bromoform	5	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	U	
127-18-4	Tetrachloroethene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
108-88-3	Toluene	5 ~~2~~	~~J~~	U FS 9/29
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
100-42-5	Styrene	5	U	
1330-20-7	Xylene (total)	5	U	

Verified FS 9-20-94

FORM I VOA 1/87 Rev.

1

APPENDIX IX VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOCBM9

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3180

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3180R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 0 Date Analyzed: 07/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-05-8	Acetonitrile	10 B	U
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
107-05-1	3-Chloro-1-propene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
106-93-4	1,2-Dibromoethane	5	U
74-95-3	Dibromomethane	5	U
110-57-6	Trans-1,4-Dichloro-2-butene	20	U
75-71-8	Dichlorodifluoromethane	20	U
156-60-5	Trans-1,2-Dichloroethene	5	U
107-12-0	Ethyl cyanide	100	U
74-88-4	Iodomethane	5	U
126-98-7	Methacrylonitrile	10	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
123-91-1	1,4-Dioxane	1000	U
78-83-1	Isobutyl alcohol	100	U
96-33-3	Methyl Methacrylate	10	U
80-62-6	Ethyl Methacrylate	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
126-99-8	Chloroprene	50	U

CEA 8/16/94

Verified 9-20-94

1L

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOCBM9

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3180

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3180R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 0 Date Analyzed: 07/26/94

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	2.23	6.4	~~J~~ JN

Q

Verified 9-20-94

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOCBN0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3187

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3187R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 Date Analyzed: 07/25/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10 ~~4~~	~~B~~	U
67-64-1	Acetone	10	U	
75-15-0	Carbon Disulfide	5	U	
75-35-4	1,1-Dichloroethene	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	5	U	
67-66-3	Chloroform	5	U	
107-06-2	1,2-Dichloroethane	5	U	
78-93-3	2-Butanone	10	U	
71-55-6	1,1,1-Trichloroethane	5	U	
56-23-5	Carbon Tetrachloride	5	U	
108-05-4	Vinyl Acetate	10	U	
75-27-4	Bromodichloromethane	5	U	
78-87-5	1,2-Dichloropropane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
79-01-6	Trichloroethene	5	U	
124-48-1	Dibromochloromethane	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
71-43-2	Benzene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
75-25-2	Bromoform	5	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	U	
127-18-4	Tetrachloroethene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
108-88-3	Toluene	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
100-42-5	Styrene	5	U	
1330-20-7	Xylene (total)	5	U	

Verified fs 9-20-94

FORM I VOA 1/87 Rev.

1

APPENDIX IX VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOCBN0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB 3187

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB 3187 R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 Date Analyzed: 07/25/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-05-8	Acetonitrile	10	U
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
107-05-1	3-Chloro-1-propene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
106-93-4	1,2-Dibromoethane	5	U
74-95-3	Dibromomethane	5	U
110-57-6	Trans-1,4-Dichloro-2-butene	20	U
75-71-8	Dichlorodifluoromethane	20	U
156-60-5	Trans-1,2-Dichloroethene	5	U
107-12-0	Ethyl cyanide	100	U
74-88-4	Iodomethane	5	U
126-98-7	Methacrylonitrile	10	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
123-91-1	1,4-Dioxane	1000	U
78-83-1	Isobutyl alcohol	100	U
96-33-3	Methyl Methacrylate	10	U
80-62-6	Ethyl Methacrylate	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
126-99-8	Chloroprene	50	U

Verified 9-20-94

CEM 8/16/94

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOCBN0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3187

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3187R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 Date Analyzed: 07/25/94

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	17.37	16	~~J~~

Q
JN

Verified 9-20-94

FORM I VOA-TIC 1/87 Rev.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC950

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3094

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3094RR

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 Date Analyzed: 07/28/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Q
74-87-3	Chloromethane	10	U	UJ
74-83-9	Bromomethane	10	U	↓
75-01-4	Vinyl Chloride	10	U	↓
75-00-3	Chloroethane	10	U	↓
75-09-2	Methylene Chloride	10 ~~5~~	~~BJ~~	UJ
67-64-1	Acetone	10	U	↓
75-15-0	Carbon Disulfide	5	U	↓
75-35-4	1,1-Dichloroethene	5	U	↓
75-34-3	1,1-Dichloroethane	5	U	↓
540-59-0	1,2-Dichloroethene (total)	5	U	↓
67-66-3	Chloroform	5	U	↓
107-06-2	1,2-Dichloroethane	5	U	↓
78-93-3	2-Butanone	10	U	↓
71-55-6	1,1,1-Trichloroethane	5	U	↓
56-23-5	Carbon Tetrachloride	5	U	↓
108-05-4	Vinyl Acetate	10	U	↓
75-27-4	Bromodichloromethane	5	U	↓
78-87-5	1,2-Dichloropropane	5	U	↓
10061-01-5	cis-1,3-Dichloropropene	5	U	↓
79-01-6	Trichloroethene	5	U	↓
124-48-1	Dibromochloromethane	5	U	↓
79-00-5	1,1,2-Trichloroethane	5	U	↓
71-43-2	Benzene	5	U	↓
10061-02-6	trans-1,3-Dichloropropene	5	U	↓
75-25-2	Bromoform	5	U	↓
108-10-1	4-Methyl-2-Pentanone	10	U	↓
591-78-6	2-Hexanone	10	U	↓
127-18-4	Tetrachloroethene	5	U	↓
79-34-5	1,1,2,2-Tetrachloroethane	5	U	↓
108-88-3	Toluene	5	U	↓
108-90-7	Chlorobenzene	5	U	↓
100-41-4	Ethylbenzene	5	U	↓
100-42-5	Styrene	5	U	↓
1330-20-7	Xylene (total)	5	U	↓

FORM I VOA

Verified
FS 9-20-94

1/87 Rev.

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APPENDIX IX VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC950

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3094

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3094 RR

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 Date Analyzed: 07/28/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Q
75-05-8	Acetonitrile	10 ~~8~~	~~U~~	UJ
107-02-8	Acrolein	10	~~U~~	
107-13-1	Acrylonitrile	10	~~U~~	
107-05-1	3-Chloro-1-propene	5	~~U~~	
96-12-8	1,2-Dibromo-3-chloropropane	5	~~U~~	
106-93-4	1,2-Dibromoethane	5	~~U~~	
74-95-3	Dibromomethane	5	~~U~~	
110-57-6	Trans-1,4-Dichloro-2-butene	20	~~U~~	
75-71-8	Dichlorodifluoromethane	20	~~U~~	
156-60-5	Trans-1,2-Dichloroethene	5	~~U~~	
107-12-0	Ethyl cyanide	100	~~U~~	
74-88-4	Iodomethane	5	~~U~~	
126-98-7	Methacrylonitrile	10	~~U~~	
630-20-6	1,1,1,2-Tetrachloroethane	5	~~U~~	
75-69-4	Trichlorofluoromethane	5	~~U~~	
96-18-4	1,2,3-Trichloropropane	5	~~U~~	
123-91-1	1,4-Dioxane	1000	~~U~~	
78-83-1	Isobutyl alcohol	100	~~U~~	
96-33-3	Methyl Methacrylate	10	~~U~~	
80-62-6	Ethyl Methacrylate	10	~~U~~	
541-73-1	1,3-Dichlorobenzene	5	~~U~~	
106-46-7	1,4-Dichlorobenzene	5	~~U~~	
95-50-1	1,2-Dichlorobenzene	5	~~U~~	
126-99-8	Chloroprene	50 51	~~U~~	

Verified 9-20-94

CEM 8/11/94

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC950

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3094

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3094RR

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 Date Analyzed: 07/28/94

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC951

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3110

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3110RR

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 Date Analyzed: 07/28/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
74-87-3	Chloromethane	10	U	UJ
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10 ~~7~~	~~B~~	UJ
67-64-1	Acetone	22	~~B~~	UJ
75-15-0	Carbon Disulfide	5	U	
75-35-4	1,1-Dichloroethene	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	5	U	
67-66-3	Chloroform	5	U	
107-06-2	1,2-Dichloroethane	5	U	
78-93-3	2-Butanone	10	U	
71-55-6	1,1,1-Trichloroethane	5	U	
56-23-5	Carbon Tetrachloride	5	U	
108-05-4	Vinyl Acetate	10	U	
75-27-4	Bromodichloromethane	5	U	
78-87-5	1,2-Dichloropropane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
79-01-6	Trichloroethene	5	U	
124-48-1	Dibromochloromethane	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
71-43-2	Benzene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
75-25-2	Bromoform	5	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	U	
127-18-4	Tetrachloroethene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
108-88-3	Toluene	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
100-42-5	Styrene	5	U	
1330-20-7	Xylene (total)	5	U	

Verified fs 9-20-94

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)LATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0C951

VILLE Contract: HANFORD

Case No.: 854 SAS No.: _____ SDG No.: W0130

) SOIL Lab Sample ID: AB3110

5.0 (g/mL) G Lab File ID: AB3110RR

LOW Date Received: 07/19/94

2 Date Analyzed: 07/28/94

CAP Dilution Factor: 1.0

COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Q
----Acetonitrile	10 ~~5~~	U	UJ
----Acrolein	10	U	
----Acrylonitrile	10	U	
----3-Chloro-1-propene	5	U	
----1,2-Dibromo-3-chloropropane	5	U	
----1,2-Dibromoethane	5	U	
----Dibromomethane	5	U	
----Trans-1,4-Dichloro-2-butene	20	U	
----Dichlorodifluoromethane	20	U	
----Trans-1,2-Dichloroethene	5	U	
----Ethyl cyanide	100	U	
----Iodomethane	5	U	
----Methacrylonitrile	10	U	
----1,1,1,2-Tetrachloroethane	5	U	
----Trichlorofluoromethane	5	U	
----1,2,3-Trichloropropane	5	U	
----1,4-Dioxane	1000	U	
----Isobutyl alcohol	100	U	
----Methyl Methacrylate	10	U	
----Ethyl Methacrylate	10	U	
----1,3-Dichlorobenzene	5	U	
----1,4-Dichlorobenzene	5	U	
----1,2-Dichlorobenzene	5	U	
----Chloroprene	~~28~~ 51	U	

Verified FB 9-20-94

CEA 8/16/94

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC951

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3110

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3110RR

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 Date Analyzed: 07/28/94

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Q
1.	UNKNOWN	2.23	6.5	~~J~~	UJN

~~RS~~ 9-20-94

9413299.1369

0000023

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC952

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3117

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3117R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 Date Analyzed: 07/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10 ~~3~~	~~BJ~~	U
67-64-1	Acetone	10	U	
75-15-0	Carbon Disulfide	5	U	
75-35-4	1,1-Dichloroethene	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	5	U	
67-66-3	Chloroform	5	U	
107-06-2	1,2-Dichloroethane	5	U	
78-93-3	2-Butanone	10	U	
71-55-6	1,1,1-Trichloroethane	5	U	
56-23-5	Carbon Tetrachloride	5	U	
108-05-4	Vinyl Acetate	10	U	
75-27-4	Bromodichloromethane	5	U	
78-87-5	1,2-Dichloropropane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
79-01-6	Trichloroethene	5	U	
124-48-1	Dibromochloromethane	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
71-43-2	Benzene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
75-25-2	Bromoform	5	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	U	
127-18-4	Tetrachloroethene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
108-88-3	Toluene	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
100-42-5	Styrene	5	U	
1330-20-7	Xylene (total)	5	U	

Verified RC 9-20-94

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EPA SAMPLE NO.

B0C952

APPENDIX IX VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3117

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3117R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 Date Analyzed: 07/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
75-05-8	Acetonitrile	10 ~~5~~	U
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
107-05-1	3-Chloro-1-propene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
106-93-4	1,2-Dibromoethane	5	U
74-95-3	Dibromomethane	5	U
110-57-6	Trans-1,4-Dichloro-2-butene	~~20~~ 21	U
75-71-8	Dichlorodifluoromethane	~~20~~ 21	U
156-60-5	Trans-1,2-Dichloroethene	5	U
107-12-0	Ethyl cyanide	100	U
74-88-4	Iodomethane	5	U
126-98-7	Methacrylonitrile	10	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
123-91-1	1,4-Dioxane	1000	U
78-83-1	Isobutyl alcohol	100	U
96-33-3	Methyl Methacrylate	10	U
80-62-6	Ethyl Methacrylate	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
126-99-8	Chloroprene	~~50~~ 52	U

Zm 8/17/94

Verified FC 9-20-94

CEM 8/16/94

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC952

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3117

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3117R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 Date Analyzed: 07/26/94

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

9413299.1367

~~0000026~~

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC953

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3124

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3124R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 Date Analyzed: 07/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10 ~~2~~	~~BJ~~	U
67-64-1	Acetone	10	U	
75-15-0	Carbon Disulfide	5	U	
75-35-4	1,1-Dichloroethene	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	5	U	
67-66-3	Chloroform	5	U	
107-06-2	1,2-Dichloroethane	5	U	
78-93-3	2-Butanone	10	U	
71-55-6	1,1,1-Trichloroethane	5	U	
56-23-5	Carbon Tetrachloride	5	U	
108-05-4	Vinyl Acetate	10	U	
75-27-4	Bromodichloromethane	5	U	
78-87-5	1,2-Dichloropropane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
79-01-6	Trichloroethene	5	U	
124-48-1	Dibromochloromethane	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
71-43-2	Benzene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
75-25-2	Bromoform	5	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	U	
127-18-4	Tetrachloroethene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
108-88-3	Toluene	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
100-42-5	Styrene	5	U	
1330-20-7	Xylene (total)	5	U	

Verified 9-20-94

FORM I VOA 1/87 Rev.

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APPENDIX IX VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0C953

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3124

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3124R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 Date Analyzed: 07/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-05-8	Acetonitrile	108	U
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
107-05-1	3-Chloro-1-propene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
106-93-4	1,2-Dibromoethane	5	U
74-95-3	Dibromomethane	5	U
110-57-6	Trans-1,4-Dichloro-2-butene	20	U
75-71-8	Dichlorodifluoromethane	20	U
156-60-5	Trans-1,2-Dichloroethene	5	U
107-12-0	Ethyl cyanide	100	U
74-88-4	Iodomethane	5	U
126-98-7	Methacrylonitrile	10	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
123-91-1	1,4-Dioxane	1000	U
78-83-1	Isobutyl alcohol	100	U
96-33-3	Methyl Methacrylate	10	U
80-62-6	Ethyl Methacrylate	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
126-99-8	Chloroprene	~~5051~~	U

Pas Solution

Verified 9-28-94

CEM 8/16/94

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC953

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3124

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3124R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 Date Analyzed: 07/26/94

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

9413299.1370 ~~0000029~~

VC S LYSIS DATA SHEET

EPA SAMPLE NO.

BOC954

Lab Name: ITA Contract: HANFORD

Lab Code: ITST SAS No.: _____ SDG No.: W0130

Matrix: (soil/ Lab Sample ID: AB3131

Sample wt/vol) G Lab File ID: AB3131RR

Level: (lo Date Received: 07/19/94

% Moisture: not Date Analyzed: 07/28/94

Column: (pack Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.			Q	Q
74-87-3--	ane	10	U	UJ
74-83-9--	ane	10	U	↓
75-01-4--	oride	10	U	↓
75-00-3-	ane	10	U	↓
75-09-2---	Chloride	10 ~~4~~	~~BJ~~	UJ
67-64-1--		10	U	↓
75-15-0--	sulfide	5	U	↓
75-35-4---	oroethene	5	U	↓
75-34-3---	oroethane	5	U	↓
540-59-0--	oroethene (total)	5	U	↓
67-66-3--	n	5	U	↓
107-06-2-	oroethane	5	U	↓
78-93-3--	e	10	U	↓
71-55-6--	chloroethane	5	U	↓
56-23-5-	trachloride	5	U	↓
108-05-	tate	10	U	↓
75-27-4-	loromethane	5	U	↓
78-87-5-	oropropane	5	U	↓
10061-0	ichloropropene	5	U	↓
79-01-6-	ethene	5	U	↓
124-48-	loromethane	5	U	↓
79-00-5-	chloroethane	5	U	↓
71-43-2--		5	U	↓
10061-0	-Dichloropropene	5	U	↓
75-25-		5	U	↓
108-10-	2-Pentanone	10	U	↓
591-78-	e	10	U	↓
127-18-	roethene	5	U	↓
79-34-	etrachloroethane	5	U	↓
108-8		5	U	↓
108-	ene	5	U	↓
100-	ene	5	U	↓
100-		5	U	↓
1330-	tal)	5	U	↓

Verified 9-20-94

FORM I VOA 1/87 Rev.

1

APPENDIX IX VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0C954

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3131

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3131RR

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 Date Analyzed: 07/28/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
75-05-8	Acetonitrile	10 ~~5~~	U	UJ
107-02-8	Acrolein	10	U	
107-13-1	Acrylonitrile	10	U	
107-05-1	3-Chloro-1-propene	5	U	
96-12-8	1,2-Dibromo-3-chloropropane	5	U	
106-93-4	1,2-Dibromoethane	5	U	
74-95-3	Dibromomethane	5	U	
110-57-6	Trans-1,4-Dichloro-2-butene	~~20~~ 21	U	
75-71-8	Dichlorodifluoromethane	~~20~~ 21	U	
156-60-5	Trans-1,2-Dichloroethene	5	U	
107-12-0	Ethyl cyanide	100	U	
74-88-4	Iodomethane	5	U	
126-98-7	Methacrylonitrile	10	U	
630-20-6	1,1,1,2-Tetrachloroethane	5	U	
75-69-4	Trichlorofluoromethane	5	U	
96-18-4	1,2,3-Trichloropropane	5	U	
123-91-1	1,4-Dioxane	1000	U	
78-83-1	Isobutyl alcohol	100	U	
96-33-3	Methyl Methacrylate	10	U	
80-62-6	Ethyl Methacrylate	10	U	
541-73-1	1,3-Dichlorobenzene	5	U	
106-46-7	1,4-Dichlorobenzene	5	U	
95-50-1	1,2-Dichlorobenzene	5	U	
126-99-8	Chloroprene	~~50~~ 52	U	

Pms 8/16/94

Verified 9-20-94

CEM 8/16/94

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC954

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3131

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3131RR

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 Date Analyzed: 07/28/94

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC955

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3138

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3138R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 Date Analyzed: 07/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10 ~~3~~	~~BJ~~	U
67-64-1	Acetone	10	U	
75-15-0	Carbon Disulfide	5	U	
75-35-4	1,1-Dichloroethene	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	5	U	
67-66-3	Chloroform	5	U	
107-06-2	1,2-Dichloroethane	5	U	
78-93-3	2-Butanone	10	U	
71-55-6	1,1,1-Trichloroethane	5	U	
56-23-5	Carbon Tetrachloride	5	U	
108-05-4	Vinyl Acetate	10	U	
75-27-4	Bromodichloromethane	5	U	
78-87-5	1,2-Dichloropropane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
79-01-6	Trichloroethene	5	U	
124-48-1	Dibromochloromethane	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
71-43-2	Benzene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
75-25-2	Bromoform	5	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	U	
127-18-4	Tetrachloroethene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
108-88-3	Toluene	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
100-42-5	Styrene	5	U	
1330-20-7	Xylene (total)	5	U	

Verified 9-20-94

FORM I VOA 1/87 Rev.

1

APPENDIX IX VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0C955

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3138

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3138R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 Date Analyzed: 07/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-05-8	Acetonitrile	10 ~~8~~	U
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
107-05-1	3-Chloro-1-propene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
106-93-4	1,2-Dibromoethane	5	U
74-95-3	Dibromomethane	5	U
110-57-6	Trans-1,4-Dichloro-2-butene	20	U
75-71-8	Dichlorodifluoromethane	20	U
156-60-5	Trans-1,2-Dichloroethene	5	U
107-12-0	Ethyl cyanide	100	U
74-88-4	Iodomethane	5	U
126-98-7	Methacrylonitrile	10	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
123-91-1	1,4-Dioxane	1000	U
78-83-1	Isobutyl alcohol	100	U
96-33-3	Methyl Methacrylate	10	U
80-62-6	Ethyl Methacrylate	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
126-99-8	Chloroprene	~~50~~ 51	U

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Verified 9-20-94

CEM 8/16/94

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC955

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3138

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3138R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 Date Analyzed: 07/26/94

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC956

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3145

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3145R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 Date Analyzed: 07/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10 ~~3~~	~~BJ~~	U
67-64-1	Acetone	10 ~~7~~	~~BJ~~	U
75-15-0	Carbon Disulfide	5	U	
75-35-4	1,1-Dichloroethene	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	5	U	
67-66-3	Chloroform	5	U	
107-06-2	1,2-Dichloroethane	5	U	
78-93-3	2-Butanone	10	U	
71-55-6	1,1,1-Trichloroethane	5	U	
56-23-5	Carbon Tetrachloride	5	U	
108-05-4	Vinyl Acetate	10	U	
75-27-4	Bromodichloromethane	5	U	
78-87-5	1,2-Dichloropropane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
79-01-6	Trichloroethene	5	U	
124-48-1	Dibromochloromethane	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
71-43-2	Benzene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
75-25-2	Bromoform	5	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	U	
127-18-4	Tetrachloroethene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
108-88-3	Toluene	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
100-42-5	Styrene	5	U	
1330-20-7	Xylene (total)	5	U	

Verified 9-20-94

FORM I VOA 1/87 Rev.

9413299.1377

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APPENDIX IX VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0C956

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3145

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3145R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 Date Analyzed: 07/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-05-8	Acetonitrile	10	U
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
107-05-1	3-Chloro-1-propene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
106-93-4	1,2-Dibromoethane	5	U
74-95-3	Dibromomethane	5	U
110-57-6	Trans-1,4-Dichloro-2-butene	20	U
75-71-8	Dichlorodifluoromethane	20	U
156-60-5	Trans-1,2-Dichloroethene	5	U
107-12-0	Ethyl cyanide	100	U
74-88-4	Iodomethane	5	U
126-98-7	Methacrylonitrile	10	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
123-91-1	1,4-Dioxane	1000	U
78-83-1	Isobutyl alcohol	100	U
96-33-3	Methyl Methacrylate	10	U
80-62-6	Ethyl Methacrylate	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
126-99-8	Chloroprene	~~50~~ 51	U

Verified 9-20-94

CEA 8/16/94

FORM I VOA 1/87 Rev.

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC956

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3145

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3145R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 Date Analyzed: 07/26/94

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

9413299.1379

~~0000038~~

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC957

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3152

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3152RR

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 Date Analyzed: 07/28/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
74-87-3	Chloromethane	10	U	UJ
74-83-9	Bromomethane	10	U	↓
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10 ~~6~~	~~B~~	UJ
67-64-1	Acetone	13	~~B~~	UJ
75-15-0	Carbon Disulfide	5	U	
75-35-4	1,1-Dichloroethene	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	5	U	
67-66-3	Chloroform	5	U	
107-06-2	1,2-Dichloroethane	5	U	
78-93-3	2-Butanone	10	U	
71-55-6	1,1,1-Trichloroethane	5	U	
56-23-5	Carbon Tetrachloride	5	U	
108-05-4	Vinyl Acetate	10	U	
75-27-4	Bromodichloromethane	5	U	
78-87-5	1,2-Dichloropropane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
79-01-6	Trichloroethene	5	U	
124-48-1	Dibromochloromethane	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
71-43-2	Benzene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
75-25-2	Bromoform	5	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	U	
127-18-4	Tetrachloroethene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
108-88-3	Toluene	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
100-42-5	Styrene	5	U	
1330-20-7	Xylene (total)	5	U	↓

Verified 9-20-94

FORM I VOA 1/87 Rev.

1

APPENDIX IX VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC957

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3152

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3152RR

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 Date Analyzed: 07/28/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
75-05-8	Acetonitrile	10	U	UJ
107-02-8	Acrolein	10	U	
107-13-1	Acrylonitrile	10	U	
107-05-1	3-Chloro-1-propene	5	U	
96-12-8	1,2-Dibromo-3-chloropropane	5	U	
106-93-4	1,2-Dibromoethane	5	U	
74-95-3	Dibromomethane	5	U	
110-57-6	Trans-1,4-Dichloro-2-butene	20	U	
75-71-8	Dichlorodifluoromethane	20	U	
156-60-5	Trans-1,2-Dichloroethene	5	U	
107-12-0	Ethyl cyanide	100	U	
74-88-4	Iodomethane	5	U	
126-98-7	Methacrylonitrile	10	U	
630-20-6	1,1,1,2-Tetrachloroethane	5	U	
75-69-4	Trichlorofluoromethane	5	U	
96-18-4	1,2,3-Trichloropropane	5	U	
123-91-1	1,4-Dioxane	1000	U	
78-83-1	Isobutyl alcohol	100	U	
96-33-3	Methyl Methacrylate	10	U	
80-62-6	Ethyl Methacrylate	10	U	
541-73-1	1,3-Dichlorobenzene	5	U	
106-46-7	1,4-Dichlorobenzene	5	U	
95-50-1	1,2-Dichlorobenzene	5	U	
126-99-8	Chloroprene	50	U	

Verified 9-20-94

CEM 8/14/94

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC957

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3152

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3152RR

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 Date Analyzed: 07/28/94

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC958

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3159

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3159RR

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 Date Analyzed: 07/28/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Q
74-87-3	Chloromethane	10	U	UJ
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10 ~~4~~	~~BJ~~	UJ
67-64-1	Acetone	10	U	
75-15-0	Carbon Disulfide	5	U	
75-35-4	1,1-Dichloroethene	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	5	U	
67-66-3	Chloroform	5	U	
107-06-2	1,2-Dichloroethane	5	U	
78-93-3	2-Butanone	10	U	
71-55-6	1,1,1-Trichloroethane	5	U	
56-23-5	Carbon Tetrachloride	5	U	
108-05-4	Vinyl Acetate	10	U	
75-27-4	Bromodichloromethane	5	U	
78-87-5	1,2-Dichloropropane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
79-01-6	Trichloroethene	5	U	
124-48-1	Dibromochloromethane	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
71-43-2	Benzene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
75-25-2	Bromoform	5	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	U	
127-18-4	Tetrachloroethene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
108-88-3	Toluene	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
100-42-5	Styrene	5	U	
1330-20-7	Xylene (total)	5	U	

Verified FS 9-20-94

FORM I VOA 1/87 Rev.

EPA SAMPLE NO.

BOC 958

APPENDIX IX VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3159

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3159RR

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 Date Analyzed: 07/28/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-05-8	Acetonitrile	10 ~~5~~	~~U~~
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
107-05-1	3-Chloro-1-propene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
106-93-4	1,2-Dibromoethane	5	U
74-95-3	Dibromomethane	5	U
110-57-6	Trans-1,4-Dichloro-2-butene	20	U
75-71-8	Dichlorodifluoromethane	20	U
156-60-5	Trans-1,2-Dichloroethene	5	U
107-12-0	Ethyl cyanide	100	U
74-88-4	Iodomethane	5	U
126-98-7	Methacrylonitrile	10	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
123-91-1	1,4-Dioxane	1000	U
78-83-1	Isobutyl alcohol	100	U
96-33-3	Methyl Methacrylate	10	U
80-62-6	Ethyl Methacrylate	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
126-99-8	Chloroprene	~~50~~ 51	U

Q
UJ

Verified 9-20-94

CEA 8/14/94

FORM I VOA 1/87 Rev.

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC958

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3159

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3159RR

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 Date Analyzed: 07/28/94

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	2.20	6.1 ~~J~~	UJN

Q

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC959

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3166

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3166R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 Date Analyzed: 07/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10 ~~2~~	~~BJ~~	U
67-64-1	Acetone	10	U	
75-15-0	Carbon Disulfide	5	U	
75-35-4	1,1-Dichloroethene	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	5	U	
67-66-3	Chloroform	5	U	
107-06-2	1,2-Dichloroethane	5	U	
78-93-3	2-Butanone	10	U	
71-55-6	1,1,1-Trichloroethane	5	U	
56-23-5	Carbon Tetrachloride	5	U	
108-05-4	Vinyl Acetate	10	U	
75-27-4	Bromodichloromethane	5	U	
78-87-5	1,2-Dichloropropane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
79-01-6	Trichloroethene	5	U	
124-48-1	Dibromochloromethane	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
71-43-2	Benzene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
75-25-2	Bromoform	5	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	U	
127-18-4	Tetrachloroethene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
108-88-3	Toluene	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
100-42-5	Styrene	5	U	
1330-20-7	Xylene (total)	5	U	

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FORM I VOA 1/87 Rev.

1

APPENDIX IX VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC959

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB 3166

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3166R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 Date Analyzed: 07/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		Reduction	
75-05-8	Acetonitrile	10 ~~5~~	U
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
107-05-1	3-Chloro-1-propene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
106-93-4	1,2-Dibromoethane	5	U
74-95-3	Dibromomethane	5	U
110-57-6	Trans-1,4-Dichloro-2-butene	20	U
75-71-8	Dichlorodifluoromethane	20	U
156-60-5	Trans-1,2-Dichloroethene	5	U
107-12-0	Ethyl cyanide	100	U
74-88-4	Iodomethane	5	U
126-98-7	Methacrylonitrile	10	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
123-91-1	1,4-Dioxane	1000	U
78-83-1	Isobutyl alcohol	100	U
96-33-3	Methyl Methacrylate	10	U
80-62-6	Ethyl Methacrylate	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
126-99-8	Chloroprene	50	U

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CEM 8/16/94

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC959

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3166

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3166R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 Date Analyzed: 07/26/94

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC960

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3173

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3173R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 Date Analyzed: 07/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10 ~~3~~	~~BJ~~	U
67-64-1	Acetone	10	U	
75-15-0	Carbon Disulfide	5	U	
75-35-4	1,1-Dichloroethene	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	5	U	
67-66-3	Chloroform	5	U	
107-06-2	1,2-Dichloroethane	5	U	
78-93-3	2-Butanone	10	U	
71-55-6	1,1,1-Trichloroethane	5	U	
56-23-5	Carbon Tetrachloride	5	U	
108-05-4	Vinyl Acetate	10	U	
75-27-4	Bromodichloromethane	5	U	
78-87-5	1,2-Dichloropropane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
79-01-6	Trichloroethene	5	U	
124-48-1	Dibromochloromethane	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
71-43-2	Benzene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
75-25-2	Bromoform	5	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	U	
127-18-4	Tetrachloroethene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
108-88-3	Toluene	5 ~~1~~	~~J~~	U 9/29
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
100-42-5	Styrene	5	U	
1330-20-7	Xylene (total)	5	U	

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FORM I VOA 1/87 Rev.

1

APPENDIX IX VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0c960

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3173

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3173R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 Date Analyzed: 07/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-05-8	Acetonitrile	10	U
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
107-05-1	3-Chloro-1-propene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
106-93-4	1,2-Dibromoethane	5	U
74-95-3	Dibromomethane	5	U
110-57-6	Trans-1,4-Dichloro-2-butene	~~20~~ 21	U
75-71-8	Dichlorodifluoromethane	~~20~~ 21	U
156-60-5	Trans-1,2-Dichloroethene	5	U
107-12-0	Ethyl cyanide	100	U
74-88-4	Iodomethane	5	U
126-98-7	Methacrylonitrile	10	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
123-91-1	1,4-Dioxane	1000	U
78-83-1	Isobutyl alcohol	100	U
96-33-3	Methyl Methacrylate	10	U
80-62-6	Ethyl Methacrylate	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
126-99-8	Chloroprene	~~50~~ 52	U

Presidirlan Verified 9-20-94

CEM 8/16/94

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC960

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3173

Sample wt/vol: 5.0 (g/mL) G Lab File ID: AB3173R

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 Date Analyzed: 07/26/94

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Q
1.	UNKNOWN	2.23	6.4	~~J~~	JN

Verified 9-20-94

ATTACHMENT 4

LABORATORY NARRATIVE and CHAIN-OF-CUSTODY DOCUMENTATION

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

August 22, 1994

IT Corporation
2800 George Washington Way
Richland, WA 99352
Attn: Van Pettey

Job Number: 854

This is the Certificate of Analysis for the following samples:

SDG:	W0130
Client Project ID:	WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan
Received by Knoxville:	July 19, 1994
Number of Samples:	Thirteen (13)
Sample Type:	Soil

I. Introduction

On July 15, 1994, thirteen (13) soil samples arrived at ITAS-Richland, Washington and were transferred to ITAS-Knoxville for chemical analysis. 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.

The samples were analyzed for Appendix IX volatile and semivolatile organic compounds by gas chromatography/mass spectroscopy (GS/MS) based on EPA SW-846 methods 8240 and 8270.

Reviewed and Approved:

Sheree A. Schneider

Sheree' A. Schneider
Project Manager

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

IT Corporation
August 22, 1994
Job Number: 854
Client Project ID: WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan

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 ILM03.0 Statement of Work.

The samples were analyzed for nitrate-nitrite based on EPA method 353.2.

The samples were analyzed for anions by ion chromatography using EPA method 300.0.

The samples were analyzed for nitroexplosives by high performance liquid chromatography (HPLC) based on draft EPA method 8330.

III. Quality Control

The volatiles analyses were performed by purge and trap with a J & W DB-624 capillary column on a Finnigan INCOS 500 GC/MS/DS. A matrix spike and matrix spike duplicate were analyzed using sample BOC950. All QC results met method specified limits.

The semivolatiles analyses were performed by direct injection of sample extract on a Restek XTI-5 capillary column on a Finnigan 4500 XL GC/MS/DS. Sample BOC954 was initially analyzed at a five-fold dilution due to the appearance of the extract. BOC954 required an additional fifty-fold dilution due to target compound concentrations that were greater than the calibration range in the five-fold dilution run. Four surrogate standards were diluted out in the fifty-fold dilution run. Daily calibrations were performed for the usual 8270 targets and for the additional Appendix IX compounds, with the excetpion of the fifty-fold dilution of BOC954. No Appendix IX calibration was performed on the fifty-fold dilution of BOC954 due to no Appendix IX compounds being identified in the five-fold dilution. The samples did not contain any Appendix IX compounds. A matrix spike and matrix spike duplicate were analyzed using sample BOC950. The matrix spike and matrix spike duplicate passed all QC criteria with the exception of 2,4-dinitrotoluene in the matrix spike duplicate, which was one percentage point above the criteria. However, the laboratory control sample did meet all QC criteria.

Data were reported with qualifiers as follows:

U - Compound analyzed for but not detected; value given is quantitation limit.
E - Compound exceeded calibration range.
D - Compound analyzed at a secondary dilution factor.
J - Compound detected but below quantitation limit; value estimated.
S - Spiked compound.

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

IT Corporation
August 22, 1994
Job Number: 854
Client Project ID: WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan

III. Quality Control (Continued)

B - Compound found in method blank.
A - Suspected aldol condensation product.
Y - Indistinguishable isomer in tentatively identified compounds.
N - Presumptive evidence of compound presence.

The samples were digested on July 22, 1994 for ICP and July 22 and August 2, 1994 for GFAA. The CVAA analysis for mercury was performed on July 25, 1994; the GFAA analyses for arsenic, lead, selenium and thallium were performed July 22 thru August 5, 1994; the remaining metals were analyzed by ICP on July 25, 1994. All run QC was acceptable. A duplicate/spike pair was prepared using sample number BOC950. Spike recovery (accuracy) results were within acceptance limits for all parameters except for antimony, arsenic, copper, manganese and zinc. Poor spike recovery for these analytes appears to be attributable to sample nonhomogeneity and matrix interference. Duplicate RPD (precision) results were within acceptance limits for all parameters except for chromium, zinc and titanium, which exhibited slight variations due to sample nonhomogeneity.

Data were reported with qualifiers as follows:

"C" Qualifiers

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.

"O" Qualifiers

* - Duplicate analysis outside control limits.
N - Spiked sample recovery outside control limits.
W - Post-digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.
S - The reported value was determined by method of standard additions.

"M" Qualifiers

P - Analysis performed by ICP.
V - Analysis performed by CVAA.
F - Analysis performed by GFAA.
C - Cyanide analysis by manual distillation/colorimetric determination.

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

IT Corporation
August 22, 1994
Job Number: 854
Client Project ID: WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan

III. Quality Control (Continued)

Miscellaneous

D - Duplicate.
S - Spike.
NR - Not required.
G - Native analyte > 4 times spike added, therefore, acceptance criteria do not apply.
X - Detection limits higher than normal due to sample matrix interferences.

The samples were analyzed for nitrate/nitrite on July 26, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC950. All QC results were acceptable.

The samples were analyzed for fluoride, chloride, phosphate, nitrate, nitrite and sulfate by EPA method 300.0 on August 1 and 2, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC950. All QC results were acceptable.

The samples were analyzed for nitroexplosives on August 12, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC950. All QC results were acceptable.

IT Corporation
August 22, 1994
Job Number: 854
Client Project ID: WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

III. Quality Control (Continued)

Table I is a cross reference between client sample IDs and laboratory sample IDs.

TABLE I

Knoxville ID	Richland ID	WHC ID	Test
AB3094	407257-01A	BOC950	VOC
AB3095	407257-01B	"	SVOC
AB3096	407257-01C	"	EXP
AB3097	407257-01D	"	ANIONS
AB3098	407257-01E	"	NO3NO2
AB3099	407257-01F	"	METALS-T
AB3110	407257-02A	BOC951	VOC
AB3111	407257-02B	"	SVOC
AB3112	407257-02C	"	EXP
AB3113	407257-02D	"	ANIONS
AB3114	407257-02E	"	NO3NO2
AB3115	407257-02F	"	METALS-T
AB3117	407257-03A	BOC952	VOC
AB3118	407257-03B	"	SVOC
AB3119	407257-03C	"	EXP
AB3120	407257-03D	"	ANIONS
AB3121	407257-03E	"	NO3NO2
AB3122	407257-03F	"	METALS-T

IT Corporation
August 22, 1994
Job Number: 854
Client Project ID: WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

III. Quality Control (Continued)

Table I is a cross reference between client sample IDs and laboratory sample IDs.

TABLE I

Knoxville ID	Richland ID	WHC ID	Test
AB3124	407257-04A	BOC953	VOC
AB3125	407257-04B	"	SVOC
AB3126	407257-04C	"	EXP
AB3127	407257-04D	"	ANIONS
AB3128	407257-04E	"	NO3NO2
AB3129	407257-04F	"	METALS-T
AB3131	407257-05A	BOC954	VOC
AB3132	407257-05B	"	SVOC
AB3133	407257-05C	"	EXP
AB3134	407257-05D	"	ANIONS
AB3135	407257-05E	"	NO3NO2
AB3136	407257-05F	"	METALS-T
AB3138	407257-06A	BOC955	VOC
AB3139	407257-06B	"	SVOC
AB3140	407257-06C	"	EXP
AB3141	407257-06D	"	ANIONS
AB3142	407257-06E	"	NO3NO2
AB3143	407257-06F	"	METALS-T

IT Corporation
August 22, 1994
Job Number: 854
Client Project ID: WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

III. Quality Control (Continued)

Table I is a cross reference between client sample IDs and laboratory sample IDs.

TABLE I

Knoxville ID	Richland ID	WHC ID	Test
AB3145	407257-07A	BOC956	VOC
AB3146	407257-07B	"	SVOC
AB3147	407257-07C	"	EXP
AB3148	407257-07D	"	ANIONS
AB3149	407257-07E	"	NO3NO2
AB3150	407257-07F	"	METALS-T
AB3152	407257-08A	BOC957	VOC
AB3153	407257-08B	"	SVOC
AB3154	407257-08C	"	EXP
AB3155	407257-08D	"	ANIONS
AB3156	407257-08E	"	NO3NO2
AB3157	407257-08F	"	METALS-T
AB3159	407257-09A	BOC958	VOC
AB3160	407257-09B	"	SVOC
AB3161	407257-09C	"	EXP
AB3162	407257-09D	"	ANIONS
AB3163	407257-09E	"	NO3NO2
AB3164	407257-09F	"	METALS-T

IT Corporation
August 22, 1994
Job Number: 854
Client Project ID: WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

III. Quality Control (Continued)

Table I is a cross reference between client sample IDs and laboratory sample IDs.

TABLE I

Knoxville ID	Richland ID	WHC ID	Test
AB3166	407257-10A	BOC959	VOC
AB3167	407257-10B	"	SVOC
AB3168	407257-10C	"	EXP
AB3169	407257-10D	"	ANIONS
AB3170	407257-10E	"	NO3NO2
AB3171	407257-10F	"	METALS-T
AB3173	407257-11A	BOC960	VOC
AB3174	407257-11B	"	SVOC
AB3175	407257-11C	"	EXP
AB3176	407257-11D	"	ANIONS
AB3177	407257-11E	"	NO3NO2
AB3178	407257-11F	"	METALS-T
AB3180	407257-12A	BOCBM9	VOC
AB3181	407257-12B	"	SVOC
AB3182	407257-12C	"	EXP
AB3183	407257-12D	"	ANIONS
AB3184	407257-12E	"	NO3NO2
AB3185	407257-12F	"	METALS-T
AB3187	407257-13A	BOCBNO	VOC

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC954

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3132

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3132

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 5.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
108-95-2	Phenol	1700	U	
111-44-4	bis(2-Chloroethyl)Ether	1700	U	
95-57-8	2-Chlorophenol	1700	U	
541-73-1	1,3-Dichlorobenzene	1700	U	
106-46-7	1,4-Dichlorobenzene	1700	U	
100-51-6	Benzyl Alcohol	1700	U	
95-50-1	1,2-Dichlorobenzene	1700	U	
95-48-7	2-Methylphenol	1700	U	
108-60-1	2,2'-oxybis(1-Chloropropane)	1700	U	
106-44-5	4-Methylphenol	1700	U	
621-64-7	N-Nitroso-Di-n-Propylamine	1700	~~U~~	UJ
67-72-1	Hexachloroethane	1700	U	
98-95-3	Nitrobenzene	1700	~~U~~	UJ
78-59-1	Isophorone	1700	U	
88-75-5	2-Nitrophenol	1700	U	
105-67-9	2,4-Dimethylphenol	1700	U	
65-85-0	Benzoic Acid	8200	U	
111-91-1	bis(2-Chloroethoxy)Methane	1700	U	
120-83-2	2,4-Dichlorophenol	1700	U	
120-82-1	1,2,4-Trichlorobenzene	1700	U	
91-20-3	Naphthalene	4100		
106-47-8	4-Chloroaniline	1700	U	
87-68-3	Hexachlorobutadiene	1700	U	
59-50-7	4-Chloro-3-Methylphenol	1700	U	
91-57-6	2-Methylnaphthalene	1000	J	
77-47-4	Hexachlorocyclopentadiene	1700	U	
88-06-2	2,4,6-Trichlorophenol	1700	U	
95-95-4	2,4,5-Trichlorophenol	8200	U	
91-58-7	2-Chloronaphthalene	1700	U	
88-74-4	2-Nitroaniline	8200	~~U~~	UJ
131-11-3	Dimethylpthalate	1700	U	
208-96-8	Acenaphthylene	250	J	
606-20-2	2,6-Dinitrotoluene	1700	~~U~~	UJ

FORM I SV-1 1/87 Rev.

9-26-94

9413299.1401

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1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC954

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3132

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3132

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 5.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
99-09-2	3-Nitroaniline	8200	~~U~~	UJ
83-32-9	Acenaphthene	7100		
51-28-5	2,4-Dinitrophenol	8200	U	
100-02-7	4-Nitrophenol	8200	U	
132-64-9	Dibenzofuran	4600		
121-14-2	2,4-Dinitrotoluene	1700	~~U~~	UJ
84-66-2	Diethylphthalate	1700	U	
7005-72-3	4-Chlorophenyl-phenylether	1700	U	
86-73-7	Fluorene	8000		
100-01-6	4-Nitroaniline	8200	~~U~~	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	8200	U	
86-30-6	N-Nitrosodiphenylamine (1)	340	J	
101-55-3	4-Bromophenyl-phenylether	1700	U	
118-74-1	Hexachlorobenzene	1700	U	
87-86-5	Pentachlorophenol	8200	U	
85-01-8	Phenanthrene	54000	E	
120-12-7	Anthracene	11000		
84-74-2	Di-n-Butylphthalate	1700	U	
206-44-0	Fluoranthene	59000	E	
129-00-0	Pyrene	44000	E	
85-68-7	Butylbenzylphthalate	1700	U	
91-94-1	3,3'-Dichlorobenzidine	3400	U	
56-55-3	Benzo(a)Anthracene	27000		
218-01-9	Chrysene	29000	E	
117-81-7	bis(2-Ethylhexyl)Phthalate	1700	U	
117-84-0	Di-n-Octyl Phthalate	1700	U	
205-99-2	Benzo(b)Fluoranthene	27000		
207-08-9	Benzo(k)Fluoranthene	21000		
50-32-8	Benzo(a)Pyrene	24000		
193-39-5	Indeno(1,2,3-cd)Pyrene	13000		
53-70-3	Dibenz(a,h)Anthracene	6100		
191-24-2	Benzo(g,h,i)Perylene	14000		

(1) - Cannot be separated from Diphenylamine

9-26-94

FORM I SV-2 1/87 Rev.

1X
APPENDIX IX SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC954

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3132

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3132

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 3 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/02/94

Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ____

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
62-75-9	N-Nitrosodimethylamine	1700	U
97-63-2	Ethyl methacrylate	3400	U
109-06-8	2-Picoline	12000	U
10595-95-6	N-Nitrosomethylethylamine	1700	U
66-27-3	Methyl methanesulfonate	1700	U
55-18-5	N-Nitrosodiethylamine	1700	U
62-50-0	Ethyl methanesulfonate	1700	U
62-53-3	Aniline	1700	U
110-86-1	Pyridine	1700	U
76-01-7	Pentachloroethane	3400	U
930-55-2	N-Nitrosopyrrolidine	1700	U
108-39-4	3-Methylphenol	1700	U
98-86-2	Acetophenone	1700	U
59-89-2	N-Nitrosomorpholine	1700	U
95-53-4	o-Toluidine	1700	U
100-75-4	N-Nitrosopiperidine	1700	U
126-68-1	o,o,o-Triethylphosphorothioat	1700	U
87-65-0	2,6-Dichlorophenol	1700	U
1888-71-7	Hexachloropropene	3400	U
122-09-8	a,a-dimethylphenethylamine	1700	U
924-16-3	N-Nitrosodi-N-butylamine	3400	U
106-50-3	p-Phenylenediamine	8500	U
94-59-7	Safrole	1700	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1700	U
120-58-1	Isosafrole	1700	U
130-15-4	1,4-Naphthoquinone	1700	U
99-65-0	m-Dinitrobenzene	1700	U
608-93-5	Pentachlorobenzene	3400	U

9-26-94

FORM I SV-1

1X

APPENDIX IX SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC954

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3132

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3132

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 3 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/02/94

Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-59-8	2-Naphthylamine	29000	U
134-32-7	1-Naphthylamine	20000	U
58-90-2	2,3,4,6-Tetrachlorophenol	1700	U
99-55-8	5-Nitro-o-toluidine	3400	U
122-39-4	Diphenylamine	1700	U
3689-24-5	Tetraethyl dithiopyrophosphat	1700	U
99-35-4	sym-Trinitrobenzene	1700	U
62-44-2	Phenacetin	1700	U
2303-16-4	Diallate	1700	U
92-67-1	4-Aminobiphenyl	8500	U
23950-58-5	Pronamide	5100	U
82-68-8	Pentachloronitrobenzene	3400	U
88-85-7	Dinoseb	3400	U
56-57-5	4-Nitroquinoline-1-oxide	1700	U
91-80-5	Methapyrilene	6800	U
140-57-8	Aramite	1700	U
60-11-7	p-(Dimethylamino)azobenzene	5100	U
119-93-7	3,3'-Dimethylbenzidine	14000	U
53-96-3	2-Acetylaminofluorene	1700	U
57-97-6	7,12-Dimethylbenz(a)anthracen	3400	U
70-30-4	Hexachlorophene	8500	U
56-49-5	3-Methylcholanthrene	5100	U

9-26-94

FORM I SV-2

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1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC954

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3132

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3132

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 5.0

Number TICs found: 28

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Q
1. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.15	33000	~~ABJN~~	~~JN~~ R
2. 132-65-0	DIBENZOTHIOPHENE	16.67	3200	JN	
3.	ANTHRACENE, -METHYL-	18.00	3900	~~JY~~	JN
4.	ANTHRACENE, -METHYL-	18.07	5000	~~JY~~	JN
5.	UNKNOWN (PAH)	18.30	8700	~~J~~	JN
6.	NAPHTHALENE, -PHENYL-	18.64	3300	~~JY~~	JN
7. 84-65-1	9,10-ANTHRACENEDIONE	18.75	5300	JN	
8.	UNKNOWN (PAH)	20.37	3800	~~J~~	JN
9. 206-56-4	INDENO(1,2,3-IJ)ISOQUINOLINE	20.49	2600	JN	
10.	UNKNOWN (PAH)	20.60	2800	~~J~~	JN
11. 238-84-6	11H-BENZO[A]FLUORENE	20.87	8700	JN	
12. 238-84-6	11H-BENZO[A]FLUORENE	21.00	4300	JN	
13.	UNKNOWN (PAH)	21.10	3400	~~J~~	JN
14.	UNKNOWN (PAH)	21.32	2100	~~J~~	JN
15. 82-05-3	7H-BENZ[DE]ANTHRACEN-7-ONE	22.02	3000	JN	
16. 239-35-0	BENZO[B]NAPHTHO[2,1-D]THIOPH	22.25	4600	JN	
17.	UNKNOWN (PAH)	22.39	6300	~~J~~	JN
18. 82-05-3	7H-BENZ[DE]ANTHRACEN-7-ONE	22.49	3500	JN	
19. 195-19-7	BENZO[C]PHENANTHRENE	23.10	6300	JN	
20.	UNKNOWN (PAH)	23.20	3100	~~J~~	JN
21.	UNKNOWN (PAH)	23.32	4100	~~J~~	JN
22. 1705-84-6	TRIPHENYLENE, 2-METHYL-	23.67	3300	JN	
23.	UNKNOWN (PAH)	23.75	2200	~~J~~	JN
24.	UNKNOWN (PAH)	23.92	2100	~~J~~	JN
25.	UNKNOWN (PAH)	23.99	3000	~~J~~	JN
26. 205-82-3	BENZO[J]FLUORANTHENE	25.44	3500	JN	
27. 205-82-3	BENZO[J]FLUORANTHENE	25.91	12000	JN	
28. 192-97-2	BENZO[E]PYRENE	26.24	7000	JN	

FORM I SV-TIC

9/26/94

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1/87 Rev.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BQC954DL

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3132

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3132D

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/04/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 50

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
108-95-2	Phenol	17000	U	
111-44-4	bis(2-Chloroethyl)Ether	17000	U	
95-57-8	2-Chlorophenol	17000	U	
541-73-1	1,3-Dichlorobenzene	17000	U	
106-46-7	1,4-Dichlorobenzene	17000	U	
100-51-6	Benzyl Alcohol	17000	U	
95-50-1	1,2-Dichlorobenzene	17000	U	
95-48-7	2-Methylphenol	17000	U	
108-60-1	2,2'-oxybis(1-Chloropropane)	17000	U	
106-44-5	4-Methylphenol	17000	U	
621-64-7	N-Nitroso-Di-n-Propylamine	17000	~~U~~	UJ
67-72-1	Hexachloroethane	17000	U	
98-95-3	Nitrobenzene	17000	~~U~~	UJ
78-59-1	Isophorone	17000	U	
88-75-5	2-Nitrophenol	17000	U	
105-67-9	2,4-Dimethylphenol	17000	U	
65-85-0	Benzoic Acid	82000	U	
111-91-1	bis(2-Chloroethoxy)Methane	17000	U	
120-83-2	2,4-Dichlorophenol	17000	U	
120-82-1	1,2,4-Trichlorobenzene	17000	U	
91-20-3	Naphthalene	4300	DJ	
106-47-8	4-Chloroaniline	17000	U	
87-68-3	Hexachlorobutadiene	17000	U	
59-50-7	4-Chloro-3-Methylphenol	17000	U	
91-57-6	2-Methylnaphthalene	17000	U	
77-47-4	Hexachlorocyclopentadiene	17000	U	
88-06-2	2,4,6-Trichlorophenol	17000	U	
95-95-4	2,4,5-Trichlorophenol	82000	U	
91-58-7	2-Chloronaphthalene	17000	U	
88-74-4	2-Nitroaniline	82000	~~U~~	UJ
131-11-3	Dimethylpthalate	17000	U	
208-96-8	Acenaphthylene	17000	U	
606-20-2	2,6-Dinitrotoluene	17000	~~U~~	UJ

FORM I SV-1 1/87 Rev.

9-26-94

9413299.1406

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1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC954DL

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3132

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3132D

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/04/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 50

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
99-09-2	3-Nitroaniline	82000	~~U~~	UJ
83-32-9	Acenaphthene	6900	DJ	
51-28-5	2,4-Dinitrophenol	82000	U	
100-02-7	4-Nitrophenol	82000	U	
132-64-9	Dibenzofuran	4300	DJ	
121-14-2	2,4-Dinitrotoluene	17000	~~U~~	UJ
84-66-2	Diethylphthalate	17000	U	
7005-72-3	4-Chlorophenyl-phenylether	17000	U	
86-73-7	Fluorene	7500	DJ	
100-01-6	4-Nitroaniline	82000	~~U~~	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	82000	U	
86-30-6	N-Nitrosodiphenylamine (1)	17000	~~U~~	UJ
101-55-3	4-Bromophenyl-phenylether	17000	U	
118-74-1	Hexachlorobenzene	17000	U	
87-86-5	Pentachlorophenol	82000	U	
85-01-8	Phenanthrene	81000	D	
120-12-7	Anthracene	12000	DJ	
84-74-2	Di-n-Butylphthalate	17000	U	
206-44-0	Fluoranthene	87000	D	
129-00-0	Pyrene	66000	D	
85-68-7	Butylbenzylphthalate	17000	U	
91-94-1	3,3'-Dichlorobenzidine	34000	U	
56-55-3	Benzo(a)Anthracene	28000	D	
218-01-9	Chrysene	34000	D	
117-81-7	bis(2-Ethylhexyl)Phthalate	17000	U	
117-84-0	Di-n-Octyl Phthalate	17000	U	
205-99-2	Benzo(b)Fluoranthene	22000	D	
207-08-9	Benzo(k)Fluoranthene	24000	D	
50-32-8	Benzo(a)Pyrene	25000	D	
193-39-5	Indeno(1,2,3-cd)Pyrene	16000	DJ	
53-70-3	Dibenz(a,h)Anthracene	17000	U	
191-24-2	Benzo(g,h,i)Perylene	18000	D	

(1) - Cannot be separated from Diphenylamine

9-26-94

FORM I SV-2 1/87 Rev.

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC954DL

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3132

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3132D

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/04/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 50

Number TICs found: 9

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Q
1. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.10	52000	~~BJN~~	~~JN~~ R
2.	- 6H-CYCLOBUTA[JK]PHENANT	18.29	7000	~~J~~	JN
3. 84-65-1	9,10-ANTHRACENEDIONE	18.72	5000	JN	
4. 238-84-6	11H-BENZO[A]FLUORENE	20.84	6000	JN	
5. 239-35-0	BENZO[B]NAPHTHO[2,1-D]THIOPH	22.24	3900	JN	
6.	UNKNOWN (PAH)	22.37	4400	~~J~~	JN
7. 195-19-7	BENZO[C]PHENANTHRENE	23.05	4800	JN	
8. 205-82-3	BENZO[J]FLUORANTHENE	25.39	3400	JN	
9. 205-82-3	BENZO[J]FLUORANTHENE	25.82	16000	JN	

Verified 9-26-94

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC955

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3139

Sample wt/vol: 30.3 (g/mL) G Lab File ID: AB3139

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Q
108-95-2	Phenol	330	U	
111-44-4	bis(2-Chloroethyl)Ether	330	U	
95-57-8	2-Chlorophenol	330	U	
541-73-1	1,3-Dichlorobenzene	330	U	
106-46-7	1,4-Dichlorobenzene	330	U	
100-51-6	Benzyl Alcohol	330	U	
95-50-1	1,2-Dichlorobenzene	330	U	
95-48-7	2-Methylphenol	330	U	
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U	
106-44-5	4-Methylphenol	330	U	
621-64-7	N-Nitroso-Di-n-Propylamine	330	~~U~~	UJ
67-72-1	Hexachloroethane	330	U	
98-95-3	Nitrobenzene	330	~~U~~	UJ
78-59-1	Isophorone	330	U	
88-75-5	2-Nitrophenol	330	U	
105-67-9	2,4-Dimethylphenol	330	U	
65-85-0	Benzoic Acid	1600	U	
111-91-1	bis(2-Chloroethoxy)Methane	330	U	
120-83-2	2,4-Dichlorophenol	330	U	
120-82-1	1,2,4-Trichlorobenzene	330	U	
91-20-3	Naphthalene	330	U	
106-47-8	4-Chloroaniline	330	U	
87-68-3	Hexachlorobutadiene	330	U	
59-50-7	4-Chloro-3-Methylphenol	330	U	
91-57-6	2-Methylnaphthalene	330	U	
77-47-4	Hexachlorocyclopentadiene	330	U	
88-06-2	2,4,6-Trichlorophenol	330	U	
95-95-4	2,4,5-Trichlorophenol	1600	U	
91-58-7	2-Chloronaphthalene	330	U	
88-74-4	2-Nitroaniline	1600	~~U~~	UJ
131-11-3	Dimethylpthalate	330	U	
208-96-8	Acenaphthylene	330	U	
606-20-2	2,6-Dinitrotoluene	330	~~U~~	UJ

FORM I SV-1 TS 9-26-94 1/87 Rev.

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC955

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3139

Sample wt/vol: 30.3 (g/mL) G Lab File ID: AB3139

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
99-09-2	3-Nitroaniline	1600	~~U~~	UJ
83-32-9	Acenaphthene	330	U	
51-28-5	2,4-Dinitrophenol	1600	U	
100-02-7	4-Nitrophenol	1600	U	
132-64-9	Dibenzofuran	330	U	
121-14-2	2,4-Dinitrotoluene	330	~~U~~	UJ
84-66-2	Diethylphthalate	330	~~U~~	U 9-29
7005-72-3	4-Chlorophenyl-phenylether	330	U	
86-73-7	Fluorene	330	U	
100-01-6	4-Nitroaniline	1600	~~U~~	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	1600	U	
86-30-6	N-Nitrosodiphenylamine (1)	330	~~U~~	UJ
101-55-3	4-Bromophenyl-phenylether	330	U	
118-74-1	Hexachlorobenzene	330	U	
87-86-5	Pentachlorophenol	1600	U	
85-01-8	Phenanthrene	330	U	
120-12-7	Anthracene	330	U	
84-74-2	Di-n-Butylphthalate	65	J	
206-44-0	Fluoranthene	330	U	
129-00-0	Pyrene	330	U	
85-68-7	Butylbenzylphthalate	330	U	
91-94-1	3,3'-Dichlorobenzidine	670	U	
56-55-3	Benzo(a)Anthracene	330	U	
218-01-9	Chrysene	330	U	
117-81-7	bis(2-Ethylhexyl)Phthalate	330	U	
117-84-0	Di-n-Octyl Phthalate	330	U	
205-99-2	Benzo(b)Fluoranthene	330	U	
207-08-9	Benzo(k)Fluoranthene	330	U	
50-32-8	Benzo(a)Pyrene	330	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U	
53-70-3	Dibenz(a,h)Anthracene	330	U	
191-24-2	Benzo(g,h,i)Perylene	330	U	

(1) - Cannot be separated from Diphenylamine

9-26-94

9413299.1410

0000120

1X

APPENDIX IX SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC955

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3139

Sample wt/vol: 30.3 (g/mL) G Lab File ID: AB3139

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 2 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/02/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
62-75-9	N-Nitrosodimethylamine	340	U
97-63-2	Ethyl methacrylate	670	U
109-06-8	2-Picoline	2400	U
10595-95-6	N-Nitrosomethylethylamine	340	U
66-27-3	Methyl methanesulfonate	340	U
55-18-5	N-Nitrosodiethylamine	340	U
62-50-0	Ethyl methanesulfonate	340	U
62-53-3	Aniline	340	U
110-86-1	Pyridine	340	U
76-01-7	Pentachloroethane	670	U
930-55-2	N-Nitrosopyrrolidine	340	U
108-39-4	3-Methylphenol	340	U
98-86-2	Acetophenone	340	U
59-89-2	N-Nitrosomorpholine	340	U
95-53-4	o-Toluidine	340	U
100-75-4	N-Nitrosopiperidine	340	U
126-68-1	o,o,o-Triethylphosphorothioat	340	U
87-65-0	2,6-Dichlorophenol	340	U
1888-71-7	Hexachloropropene	670	U
122-09-8	a,a-dimethylphenethylamine	340	U
924-16-3	N-Nitrosodi-N-butylamine	670	U
106-50-3	p-Phenylenediamine	1700	U
94-59-7	Safrole	340	U
95-94-3	1,2,4,5-Tetrachlorobenzene	340	U
120-58-1	Isosafrole	340	U
130-15-4	1,4-Naphthoquinone	340	U
99-65-0	m-Dinitrobenzene	340	U
608-93-5	Pentachlorobenzene	670	U

9-26-94

FORM I SV-1

9413299.1411

0000121

1X
APPENDIX IX SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC955

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3139

Sample wt/vol: 30.3 (g/mL) G Lab File ID: AB3139

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 2 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/02/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-59-8	2-Naphthylamine	5700	U
134-32-7	1-Naphthylamine	4000	U
58-90-2	2,3,4,6-Tetrachlorophenol	340	U
99-55-8	5-Nitro-o-toluidine	670	U
122-39-4	Diphenylamine	340	U
3689-24-5	Tetraethyl dithiopyrophosphat	340	U
99-35-4	sym-Trinitrobenzene	340	U
62-44-2	Phenacetin	340	U
2303-16-4	Diallate	340	U
92-67-1	4-Aminobiphenyl	1700	U
23950-58-5	Pronamide	1000	U
82-68-8	Pentachloronitrobenzene	670	U
88-85-7	Dinoseb	670	U
56-57-5	4-Nitroquinoline-1-oxide	340	U
91-80-5	Methapyrilene	1300	U
140-57-8	Aramite	340	U
60-11-7	p-(Dimethylamino)azobenzene	1000	U
119-93-7	3,3'-Dimethylbenzidine	2700	U
53-96-3	2-Acetylaminofluorene	340	U
57-97-6	7,12-Dimethylbenz(a)anthracen	670	U
70-30-4	Hexachlorophene	1700	U
56-49-5	3-Methylcholanthrene	1000	U

9-26-94

FORM I SV-2

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC955

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3139

Sample wt/vol: 30.3 (g/mL) G Lab File ID: AB3139

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.00

Number TICs found: 10

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Q
1. 53951-40-9	~~UNKNOWN~~ Propane, 2-Methoxy-2Propoxy	2.85	630	~~J~~	JN
2. 2207-04-7	CYCLOHEXANE, 1,4-DIMETHYL-,	2.97	94	JN	
3. 56336-06-2	2-CYCLOHEXEN-1-ONE, 3,5-DIME	3.32	280	~~AJN~~	~~JN~~ R
4. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.23	9700	~~ABJN~~	~~JN~~ R
5. 192-65-4	NAPHTHO[1,2,3,4-DEF]CHRYSENE	24.87	430	JN	
6. 192-65-4	NAPHTHO[1,2,3,4-DEF]CHRYSENE	25.27	230	JN	
7. 192-65-4	NAPHTHO[1,2,3,4-DEF]CHRYSENE	25.54	160	JN	
8.	UNKNOWN	27.42	100	~~J~~	JN
9. 192-65-4	NAPHTHO[1,2,3,4-DEF]CHRYSENE	27.66	300	JN	
10. 192-65-4	NAPHTHO[1,2,3,4-DEF]CHRYSENE	27.97	91	JN	

Verified [illegible] 9/26

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC956

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3146

Sample wt/vol: 30.1 (g/mL) G Lab File ID: AB3146

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Q
108-95-2	Phenol	340	U	
111-44-4	bis(2-Chloroethyl)Ether	340	U	
95-57-8	2-Chlorophenol	340	U	
541-73-1	1,3-Dichlorobenzene	340	U	
106-46-7	1,4-Dichlorobenzene	340	U	
100-51-6	Benzyl Alcohol	340	U	
95-50-1	1,2-Dichlorobenzene	340	U	
95-48-7	2-Methylphenol	340	U	
108-60-1	2,2'-oxybis(1-Chloropropane)	340	U	
106-44-5	4-Methylphenol	340	U	
621-64-7	N-Nitroso-Di-n-Propylamine	340	~~U~~	UJ
67-72-1	Hexachloroethane	340	U	
98-95-3	Nitrobenzene	340	~~U~~	UJ
78-59-1	Isophorone	340	U	
88-75-5	2-Nitrophenol	340	U	
105-67-9	2,4-Dimethylphenol	340	U	
65-85-0	Benzoic Acid	1600	U	
111-91-1	bis(2-Chloroethoxy)Methane	340	U	
120-83-2	2,4-Dichlorophenol	340	U	
120-82-1	1,2,4-Trichlorobenzene	340	U	
91-20-3	Naphthalene	340	U	
106-47-8	4-Chloroaniline	340	U	
87-68-3	Hexachlorobutadiene	340	U	
59-50-7	4-Chloro-3-Methylphenol	340	U	
91-57-6	2-Methylnaphthalene	340	U	
77-47-4	Hexachlorocyclopentadiene	340	U	
88-06-2	2,4,6-Trichlorophenol	340	U	
95-95-4	2,4,5-Trichlorophenol	1600	U	
91-58-7	2-Chloronaphthalene	340	U	
88-74-4	2-Nitroaniline	1600	~~U~~	UJ
131-11-3	Dimethylpthalate	340	U	
208-96-8	Acenaphthylene	340	U	
606-20-2	2,6-Dinitrotoluene	340	~~U~~	UJ

FORM I SV-1 9-26-94 1/87 Rev.

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC956

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3146

Sample wt/vol: 30.1 (g/mL) G Lab File ID: AB3146

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
99-09-2	3-Nitroaniline	1600	~~U~~	UJ
83-32-9	Acenaphthene	340	U	
51-28-5	2,4-Dinitrophenol	1600	U	
100-02-7	4-Nitrophenol	1600	U	
132-64-9	Dibenzofuran	340	U	
121-14-2	2,4-Dinitrotoluene	340	~~U~~	UJ
84-66-2	Diethylphthalate	340	U	
7005-72-3	4-Chlorophenyl-phenylether	340	U	
86-73-7	Fluorene	340	U	
100-01-6	4-Nitroaniline	1600	~~U~~	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	1600	U	
86-30-6	N-Nitrosodiphenylamine (1)	340	~~U~~	UJ
101-55-3	4-Bromophenyl-phenylether	340	U	
118-74-1	Hexachlorobenzene	340	U	
87-86-5	Pentachlorophenol	1600	U	
85-01-8	Phenanthrene	340	U	
120-12-7	Anthracene	340	U	
84-74-2	Di-n-Butylphthalate	90	J	
206-44-0	Fluoranthene	42	J	
129-00-0	Pyrene	36	J	
85-68-7	Butylbenzylphthalate	340	U	
91-94-1	3,3'-Dichlorobenzidine	670	U	
56-55-3	Benzo(a)Anthracene	340	U	
218-01-9	Chrysene	340	U	
117-81-7	bis(2-Ethylhexyl)Phthalate	340	U	
117-84-0	Di-n-Octyl Phthalate	340	U	
205-99-2	Benzo(b)Fluoranthene	340	U	
207-08-9	Benzo(k)Fluoranthene	340	U	
50-32-8	Benzo(a)Pyrene	340	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	340	U	
53-70-3	Dibenz(a,h)Anthracene	340	U	
191-24-2	Benzo(g,h,i)Perylene	340	U	

(1) - Cannot be separated from Diphenylamine

9-26-94

1X
APPENDIX IX SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC956

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3146

Sample wt/vol: 30.1 (g/mL) G Lab File ID: AB3146

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 2 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/02/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
62-75-9	N-Nitrosodimethylamine	340	U
97-63-2	Ethyl methacrylate	680	U
109-06-8	2-Picoline	2400	U
10595-95-6	N-Nitrosomethylethylamine	340	U
66-27-3	Methyl methanesulfonate	340	U
55-18-5	N-Nitrosodiethylamine	340	U
62-50-0	Ethyl methanesulfonate	340	U
62-53-3	Aniline	340	U
110-86-1	Pyridine	340	U
76-01-7	Pentachloroethane	680	U
930-55-2	N-Nitrosopyrrolidine	340	U
108-39-4	3-Methylphenol	340	U
98-86-2	Acetophenone	340	U
59-89-2	N-Nitrosomorpholine	340	U
95-53-4	o-Toluidine	340	U
100-75-4	N-Nitrosopiperidine	340	U
126-68-1	o,o,o-Triethylphosphorothioat	340	U
87-65-0	2,6-Dichlorophenol	340	U
1888-71-7	Hexachloropropene	680	U
122-09-8	a,a-dimethylphenethylamine	340	U
924-16-3	N-Nitrosodi-N-butylamine	680	U
106-50-3	p-Phenylenediamine	1700	U
94-59-7	Safrole	340	U
95-94-3	1,2,4,5-Tetrachlorobenzene	340	U
120-58-1	Isosafrole	340	U
130-15-4	1,4-Naphthoquinone	340	U
99-65-0	m-Dinitrobenzene	340	U
608-93-5	Pentachlorobenzene	680	U

FS 9-26-94

FORM I SV-1

9413299.1416

0000126

1X
APPENDIX IX SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC956

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3146

Sample wt/vol: 30.1 (g/mL) G Lab File ID: AB3146

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 2 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/02/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-59-8	2-Naphthylamine	5800	U
134-32-7	1-Naphthylamine	4100	U
58-90-2	2,3,4,6-Tetrachlorophenol	340	U
99-55-8	5-Nitro-o-toluidine	680	U
122-39-4	Diphenylamine	340	U
3689-24-5	Tetraethyl dithiopyrophosphat	340	U
99-35-4	sym-Trinitrobenzene	340	U
62-44-2	Phenacetin	340	U
2303-16-4	Diallate	340	U
92-67-1	4-Aminobiphenyl	1700	U
23950-58-5	Pronamide	1000	U
82-68-8	Pentachloronitrobenzene	680	U
88-85-7	Dinoseb	680	U
56-57-5	4-Nitroquinoline-1-oxide	340	U
91-80-5	Methapyrilene	1400	U
140-57-8	Aramite	340	U
60-11-7	p-(Dimethylamino)azobenzene	1000	U
119-93-7	3,3'-Dimethylbenzidine	2700	U
53-96-3	2-Acetylaminofluorene	340	U
57-97-6	7,12-Dimethylbenz(a)anthracen	680	U
70-30-4	Hexachlorophene	1700	U
56-49-5	3-Methylcholanthrene	1000	U

9-26-94

FORM I SV-2

9413299.1417

~~0000127~~

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC956

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3146

Sample wt/vol: 30.1 (g/mL) G Lab File ID: AB3146

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.0

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Q
1. 53151-40-4	~~UNKNOWN~~ Propane, 2methoxy-2propoxy	2.83	140	~~J~~	~~U~~ UJN
2. 2207-04-7	CYCLOHEXANE, 1,4-DIMETHYL-,	2.95	81	JN	
3. 56336-06-2	2-CYCLOHEXEN-1-ONE, 3,5-DIME	3.30	280	~~AJN~~	~~JN~~ R
4. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.22	9800	~~ABJN~~	~~JN~~ R
5. 57-10-3	HEXADECANOIC ACID	17.87	71	JN	

Verified
9/26/94

9413299.1418

~~9000128~~

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC957

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3153

Sample wt/vol: 30.3 (g/mL) G Lab File ID: AB3153

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Q
108-95-2	Phenol	330	U	
111-44-4	bis(2-Chloroethyl)Ether	330	U	
95-57-8	2-Chlorophenol	330	U	
541-73-1	1,3-Dichlorobenzene	330	U	
106-46-7	1,4-Dichlorobenzene	330	U	
100-51-6	Benzyl Alcohol	330	U	
95-50-1	1,2-Dichlorobenzene	330	U	
95-48-7	2-Methylphenol	330	U	
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U	
106-44-5	4-Methylphenol	330	U	
621-64-7	N-Nitroso-Di-n-Propylamine	330	~~U~~	UJ
67-72-1	Hexachloroethane	330	U	
98-95-3	Nitrobenzene	330	~~U~~	UJ
78-59-1	Isophorone	330	U	
88-75-5	2-Nitrophenol	330	U	
105-67-9	2,4-Dimethylphenol	330	U	
65-85-0	Benzoic Acid	1600	U	
111-91-1	bis(2-Chloroethoxy)Methane	330	U	
120-83-2	2,4-Dichlorophenol	330	U	
120-82-1	1,2,4-Trichlorobenzene	330	U	
91-20-3	Naphthalene	330	U	
106-47-8	4-Chloroaniline	330	U	
87-68-3	Hexachlorobutadiene	330	U	
59-50-7	4-Chloro-3-Methylphenol	330	U	
91-57-6	2-Methylnaphthalene	330	U	
77-47-4	Hexachlorocyclopentadiene	330	U	
88-06-2	2,4,6-Trichlorophenol	330	U	
95-95-4	2,4,5-Trichlorophenol	1600	U	
91-58-7	2-Chloronaphthalene	330	U	
88-74-4	2-Nitroaniline	1600	~~U~~	UJ
131-11-3	Dimethylpthalate	330	U	
208-96-8	Acenaphthylene	330	U	
606-20-2	2,6-Dinitrotoluene	330	~~U~~	UJ

FORM I SV-1 RS 9-26-94 1/87 Rev.

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC957

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3153

Sample wt/vol: 30.3 (g/mL) G Lab File ID: AB3153

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
99-09-2	3-Nitroaniline	1600	~~U~~	UJ
83-32-9	Acenaphthene	330	U	
51-28-5	2,4-Dinitrophenol	1600	U	
100-02-7	4-Nitrophenol	1600	U	
132-64-9	Dibenzofuran	330	U	
121-14-2	2,4-Dinitrotoluene	330	~~U~~	UJ
84-66-2	Diethylphthalate	330	U	
7005-72-3	4-Chlorophenyl-phenylether	330	U	
86-73-7	Fluorene	330	U	
100-01-6	4-Nitroaniline	1600	~~U~~	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	1600	U	
86-30-6	N-Nitrosodiphenylamine (1)	330	~~U~~	UJ
101-55-3	4-Bromophenyl-phenylether	330	U	
118-74-1	Hexachlorobenzene	330	U	
87-86-5	Pentachlorophenol	1600	U	
85-01-8	Phenanthrene	330	U	
120-12-7	Anthracene	330	U	
84-74-2	Di-n-Butylphthalate	34	J	
206-44-0	Fluoranthene	330	U	
129-00-0	Pyrene	330	U	
85-68-7	Butylbenzylphthalate	330	U	
91-94-1	3,3'-Dichlorobenzidine	660	U	
56-55-3	Benzo(a)Anthracene	330	U	
218-01-9	Chrysene	330	U	
117-81-7	bis(2-Ethylhexyl)Phthalate	330	U	
117-84-0	Di-n-Octyl Phthalate	330	U	
205-99-2	Benzo(b)Fluoranthene	330	U	
207-08-9	Benzo(k)Fluoranthene	330	U	
50-32-8	Benzo(a)Pyrene	330	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U	
53-70-3	Dibenz(a,h)Anthracene	330	U	
191-24-2	Benzo(g,h,i)Perylene	330	U	

(1) - Cannot be separated from Diphenylamine

9-26-94

FORM I SV-2 1/87 Rev.

1X
APPENDIX IX SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC957

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3153

Sample wt/vol: 30.3 (g/mL) G Lab File ID: AB3153

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 1 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/03/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
62-75-9	N-Nitrosodimethylamine	330	U
97-63-2	Ethyl methacrylate	670	U
109-06-8	2-Picoline	2300	U
10595-95-6	N-Nitrosomethylethylamine	330	U
66-27-3	Methyl methanesulfonate	330	U
55-18-5	N-Nitrosodiethylamine	330	U
62-50-0	Ethyl methanesulfonate	330	U
62-53-3	Aniline	330	U
110-86-1	Pyridine	330	U
76-01-7	Pentachloroethane	670	U
930-55-2	N-Nitrosopyrrolidine	330	U
108-39-4	3-Methylphenol	330	U
98-86-2	Acetophenone	330	U
59-89-2	N-Nitrosomorpholine	330	U
95-53-4	o-Toluidine	330	U
100-75-4	N-Nitrosopiperidine	330	U
126-68-1	o,o,o-Triethylphosphorothioat	330	U
87-65-0	2,6-Dichlorophenol	330	U
1888-71-7	Hexachloropropene	670	U
122-09-8	a,a-dimethylphenethylamine	330	U
924-16-3	N-Nitrosodi-N-butylamine	670	U
106-50-3	p-Phenylenediamine	1700	U
94-59-7	Safrole	330	U
95-94-3	1,2,4,5-Tetrachlorobenzene	330	U
120-58-1	Isosafrole	330	U
130-15-4	1,4-Naphthoquinone	330	U
99-65-0	m-Dinitrobenzene	330	U
608-93-5	Pentachlorobenzene	670	U

9-26-94

FORM I SV-1

1X

APPENDIX IX SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC957

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3153

Sample wt/vol: 30.3 (g/mL) G Lab File ID: AB3153

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 1 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/03/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-59-8	2-Naphthylamine	5700	U
134-32-7	1-Naphthylamine	4000	U
58-90-2	2,3,4,6-Tetrachlorophenol	330	U
99-55-8	5-Nitro-o-toluidine	670	U
122-39-4	Diphenylamine	330	U
3689-24-5	Tetraethyl dithiopyrophosphat	330	U
99-35-4	sym-Trinitrobenzene	330	U
62-44-2	Phenacetin	330	U
2303-16-4	Diallate	330	U
92-67-1	4-Aminobiphenyl	1700	U
23950-58-5	Pronamide	1000	U
82-68-8	Pentachloronitrobenzene	670	U
88-85-7	Dinoseb	670	U
56-57-5	4-Nitroquinoline-1-oxide	330	U
91-80-5	Methapyrilene	1300	U
140-57-8	Aramite	330	U
60-11-7	p-(Dimethylamino)azobenzene	1000	U
119-93-7	3,3'-Dimethylbenzidine	2700	U
53-96-3	2-Acetylaminofluorene	330	U
57-97-6	7,12-Dimethylbenz(a)anthracen	670	U
70-30-4	Hexachlorophene	1700	U
56-49-5	3-Methylcholanthrene	1000	U

9-26-94

FORM I SV-2

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC957

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3153

Sample wt/vol: 30.3 (g/mL) G Lab File ID: AB3153

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/94

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 4

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Q
1.	UNKNOWN	2.80	510	~~J~~	JN
2. 624-29-3	CYCLOHEXANE, 1,4-DIMETHYL-,	2.92	93	JN	
3. 56336-06-2	2-CYCLOHEXEN-1-ONE, 3,5-DIME	3.27	310	~~AJN~~	~~JN~~ R
4. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.20	9400	~~ABJN~~	~~JN~~ R

RS 9-26-94
Verified

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC958

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3160

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3160

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
108-95-2	Phenol	330	U	
111-44-4	bis(2-Chloroethyl)Ether	330	U	
95-57-8	2-Chlorophenol	330	U	
541-73-1	1,3-Dichlorobenzene	330	U	
106-46-7	1,4-Dichlorobenzene	330	U	
100-51-6	Benzyl Alcohol	330	U	
95-50-1	1,2-Dichlorobenzene	330	U	
95-48-7	2-Methylphenol	330	U	
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U	
106-44-5	4-Methylphenol	330	U	
621-64-7	N-Nitroso-Di-n-Propylamine	330	~~U~~	UJ
67-72-1	Hexachloroethane	330	U	
98-95-3	Nitrobenzene	330	~~U~~	UJ
78-59-1	Isophorone	330	U	
88-75-5	2-Nitrophenol	330	U	
105-67-9	2,4-Dimethylphenol	330	U	
65-85-0	Benzoic Acid	1600	U	
111-91-1	bis(2-Chloroethoxy)Methane	330	U	
120-83-2	2,4-Dichlorophenol	330	U	
120-82-1	1,2,4-Trichlorobenzene	330	U	
91-20-3	Naphthalene	330	U	
106-47-8	4-Chloroaniline	330	U	
87-68-3	Hexachlorobutadiene	330	U	
59-50-7	4-Chloro-3-Methylphenol	330	U	
91-57-6	2-Methylnaphthalene	330	U	
77-47-4	Hexachlorocyclopentadiene	330	U	
88-06-2	2,4,6-Trichlorophenol	330	U	
95-95-4	2,4,5-Trichlorophenol	1600	U	
91-58-7	2-Chloronaphthalene	330	U	
88-74-4	2-Nitroaniline	1600	~~U~~	UJ
131-11-3	Dimethylpthalate	330	U	
208-96-8	Acenaphthylene	330	U	
606-20-2	2,6-Dinitrotoluene	330	~~U~~	UJ

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC958

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3160

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3160

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
99-09-2	3-Nitroaniline	1600	~~U~~	UJ
83-32-9	Acenaphthene	330	U	
51-28-5	2,4-Dinitrophenol	1600	U	
100-02-7	4-Nitrophenol	1600	U	
132-64-9	Dibenzofuran	330	U	
121-14-2	2,4-Dinitrotoluene	330	~~U~~	UJ
84-66-2	Diethylphthalate	330	U	
7005-72-3	4-Chlorophenyl-phenylether	330	U	
86-73-7	Fluorene	330	U	
100-01-6	4-Nitroaniline	1600	~~U~~	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	1600	U	
86-30-6	N-Nitrosodiphenylamine (1)	330	~~U~~	UJ
101-55-3	4-Bromophenyl-phenylether	330	U	
118-74-1	Hexachlorobenzene	330	U	
87-86-5	Pentachlorophenol	1600	U	
85-01-8	Phenanthrene	330	U	
120-12-7	Anthracene	330	U	
84-74-2	Di-n-Butylphthalate	67	J	
206-44-0	Fluoranthene	330	U	
129-00-0	Pyrene	330	U	
85-68-7	Butylbenzylphthalate	330	U	
91-94-1	3,3'-Dichlorobenzidine	670	U	
56-55-3	Benzo(a)Anthracene	330	U	
218-01-9	Chrysene	330	U	
117-81-7	bis(2-Ethylhexyl)Phthalate	39 ~~330~~ ~~39~~	~~BJ~~	~~U~~ BJ
117-84-0	Di-n-Octyl Phthalate	330	U	
205-99-2	Benzo(b)Fluoranthene	330	U	
207-08-9	Benzo(k)Fluoranthene	330	U	
50-32-8	Benzo(a)Pyrene	330	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U	
53-70-3	Dibenz(a,h)Anthracene	330	U	
191-24-2	Benzo(g,h,i)Perylene	330	U	

(1) - Cannot be separated from Diphenylamine

9-27

9-26-94

FORM I SV-2 1/87 Rev.

1X

APPENDIX IX SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC958

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3160

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3160

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 2 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/03/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
62-75-9	N-Nitrosodimethylamine	340	U
97-63-2	Ethyl methacrylate	680	U
109-06-8	2-Picoline	2400	U
10595-95-6	N-Nitrosomethylethylamine	340	U
66-27-3	Methyl methanesulfonate	340	U
55-18-5	N-Nitrosodiethylamine	340	U
62-50-0	Ethyl methanesulfonate	340	U
62-53-3	Aniline	340	U
110-86-1	Pyridine	340	U
76-01-7	Pentachloroethane	680	U
930-55-2	N-Nitrosopyrrolidine	340	U
108-39-4	3-Methylphenol	340	U
98-86-2	Acetophenone	340	U
59-89-2	N-Nitrosomorpholine	340	U
95-53-4	o-Toluidine	340	U
100-75-4	N-Nitrosopiperidine	340	U
126-68-1	o,o,o-Triethylphosphorothioat	340	U
87-65-0	2,6-Dichlorophenol	340	U
1888-71-7	Hexachloropropene	680	U
122-09-8	a,a-dimethylphenethylamine	340	U
924-16-3	N-Nitrosodi-N-butylamine	680	U
106-50-3	p-Phenylenediamine	1700	U
94-59-7	Safrole	340	U
95-94-3	1,2,4,5-Tetrachlorobenzene	340	U
120-58-1	Isosafrole	340	U
130-15-4	1,4-Naphthoquinone	340	U
99-65-0	m-Dinitrobenzene	340	U
608-93-5	Pentachlorobenzene	680	U

9-26-94

FORM I SV-1

1X

APPENDIX IX SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC958

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3160

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3160

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 2 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/03/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-59-8	2-Naphthylamine	5700	U
134-32-7	1-Naphthylamine	4000	U
58-90-2	2,3,4,6-Tetrachlorophenol	340	U
99-55-8	5-Nitro-o-toluidine	680	U
122-39-4	Diphenylamine	340	U
3689-24-5	Tetraethyl dithiopyrophosphat	340	U
99-35-4	sym-Trinitrobenzene	340	U
62-44-2	Phenacetin	340	U
2303-16-4	Diallate	340	U
92-67-1	4-Aminobiphenyl	1700	U
23950-58-5	Pronamide	1000	U
82-68-8	Pentachloronitrobenzene	680	U
88-85-7	Dinoseb	680	U
56-57-5	4-Nitroquinoline-1-oxide	340	U
91-80-5	Methapyrilene	1300	U
140-57-8	Aramite	340	U
60-11-7	p-(Dimethylamino)azobenzene	1000	U
119-93-7	3,3'-Dimethylbenzidine	2700	U
53-96-3	2-Acetylaminofluorene	340	U
57-97-6	7,12-Dimethylbenz(a)anthracen	680	U
70-30-4	Hexachlorophene	1700	U
56-49-5	3-Methylcholanthrene	1000	U

9-26-94

FORM I SV-2

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC958

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3160

Sample wt/vol: 30.2 (g/mL) G Lab File ID: AB3160

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 2 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/94

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.00

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Q
1.	UNKNOWN	2.80	150	~~J~~	~~U~~ JN
2. 2207-04-7	CYCLOHEXANE, 1,4-DIMETHYL-,	2.92	74	JN	
3. 56336-06-2	2-CYCLOHEXEN-1-ONE, 3,5-DIME	3.75	330	~~AJN~~	~~JN~~ R
4. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.20	9200	~~ABJN~~	~~JN~~ R
5. 57-10-3	HEXADECANOIC ACID	17.84	88	JN	

Verified 9-26-94

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC959

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3167

Sample wt/vol: 30.1 (g/mL) G Lab File ID: AB3167

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/94

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
108-95-2	Phenol	330	U	
111-44-4	bis(2-Chloroethyl)Ether	330	U	
95-57-8	2-Chlorophenol	330	U	
541-73-1	1,3-Dichlorobenzene	330	U	
106-46-7	1,4-Dichlorobenzene	330	U	
100-51-6	Benzyl Alcohol	330	U	
95-50-1	1,2-Dichlorobenzene	330	U	
95-48-7	2-Methylphenol	330	U	
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U	
106-44-5	4-Methylphenol	330	U	
621-64-7	N-Nitroso-Di-n-Propylamine	330	~~U~~	UJ
67-72-1	Hexachloroethane	330	U	
98-95-3	Nitrobenzene	330	~~U~~	UJ
78-59-1	Isophorone	330	U	
88-75-5	2-Nitrophenol	330	U	
105-67-9	2,4-Dimethylphenol	330	U	
65-85-0	Benzoic Acid	1600	U	
111-91-1	bis(2-Chloroethoxy)Methane	330	U	
120-83-2	2,4-Dichlorophenol	330	U	
120-82-1	1,2,4-Trichlorobenzene	330	U	
91-20-3	Naphthalene	330	U	
106-47-8	4-Chloroaniline	330	U	
87-68-3	Hexachlorobutadiene	330	U	
59-50-7	4-Chloro-3-Methylphenol	330	U	
91-57-6	2-Methylnaphthalene	330	U	
77-47-4	Hexachlorocyclopentadiene	330	U	
88-06-2	2,4,6-Trichlorophenol	330	U	
95-95-4	2,4,5-Trichlorophenol	1600	U	
91-58-7	2-Chloronaphthalene	330	U	
88-74-4	2-Nitroaniline	1600	~~U~~	UJ
131-11-3	Dimethylpthalate	330	U	
208-96-8	Acenaphthylene	330	U	
606-20-2	2,6-Dinitrotoluene	330	~~U~~	UJ

FORM I SV-1 9-26-94 1/87 Rev.

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1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC959

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3167

Sample wt/vol: 30.1 (g/mL) G Lab File ID: AB3167

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/94

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
99-09-2	3-Nitroaniline	1600	~~U~~	UJ
83-32-9	Acenaphthene	330	U	
51-28-5	2,4-Dinitrophenol	1600	U	
100-02-7	4-Nitrophenol	1600	U	
132-64-9	Dibenzofuran	330	U	
121-14-2	2,4-Dinitrotoluene	330	~~U~~	UJ
84-66-2	Diethylphthalate	330	U	
7005-72-3	4-Chlorophenyl-phenylether	330	U	
86-73-7	Fluorene	330	U	
100-01-6	4-Nitroaniline	1600	~~U~~	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	1600	U	
86-30-6	N-Nitrosodiphenylamine (1)	330	~~U~~	UJ
101-55-3	4-Bromophenyl-phenylether	330	U	
118-74-1	Hexachlorobenzene	330	U	
87-86-5	Pentachlorophenol	1600	U	
85-01-8	Phenanthrene	330	U	
120-12-7	Anthracene	330	U	
84-74-2	Di-n-Butylphthalate	140	J	
206-44-0	Fluoranthene	330	U	
129-00-0	Pyrene	330	U	
85-68-7	Butylbenzylphthalate	330	U	
91-94-1	3,3'-Dichlorobenzidine	660	U	
56-55-3	Benzo(a)Anthracene	330	U	
218-01-9	Chrysene	330	U	
117-81-7	bis(2-Ethylhexyl)Phthalate	330	U	
117-84-0	Di-n-Octyl Phthalate	330	U	
205-99-2	Benzo(b)Fluoranthene	330	U	
207-08-9	Benzo(k)Fluoranthene	330	U	
50-32-8	Benzo(a)Pyrene	330	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U	
53-70-3	Dibenz(a,h)Anthracene	330	U	
191-24-2	Benzo(g,h,i)Perylene	330	U	

(1) - Cannot be separated from Diphenylamine

9-26-94

FORM I SV-2 1/87 Rev.

1X

APPENDIX IX SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC959

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3167

Sample wt/vol: 30.1 (g/mL) G Lab File ID: AB3167

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 1 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/03/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
62-75-9	N-Nitrosodimethylamine	340	U
97-63-2	Ethyl methacrylate	670	U
109-06-8	2-Picoline	2300	U
10595-95-6	N-Nitrosomethylethylamine	340	U
66-27-3	Methyl methanesulfonate	340	U
55-18-5	N-Nitrosodiethylamine	340	U
62-50-0	Ethyl methanesulfonate	340	U
62-53-3	Aniline	340	U
110-86-1	Pyridine	340	U
76-01-7	Pentachloroethane	670	U
930-55-2	N-Nitrosopyrrolidine	340	U
108-39-4	3-Methylphenol	340	U
98-86-2	Acetophenone	340	U
59-89-2	N-Nitrosomorpholine	340	U
95-53-4	o-Toluidine	340	U
100-75-4	N-Nitrosopiperidine	340	U
126-68-1	o,o,o-Triethylphosphorothioat	340	U
87-65-0	2,6-Dichlorophenol	340	U
1888-71-7	Hexachloropropene	670	U
122-09-8	a,a-dimethylphenethylamine	340	U
924-16-3	N-Nitrosodi-N-butylamine	670	U
106-50-3	p-Phenylenediamine	1700	U
94-59-7	Safrole	340	U
95-94-3	1,2,4,5-Tetrachlorobenzene	340	U
120-58-1	Isosafrole	340	U
130-15-4	1,4-Naphthoquinone	340	U
99-65-0	m-Dinitrobenzene	340	U
608-93-5	Pentachlorobenzene	670	U

9-26-94

FORM I SV-1

1X
APPENDIX IX SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC959

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3167

Sample wt/vol: 30.1 (g/mL) G Lab File ID: AB3167

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 1 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/03/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-59-8	2-Naphthylamine	5700	U
134-32-7	1-Naphthylamine	4000	U
58-90-2	2,3,4,6-Tetrachlorophenol	340	U
99-55-8	5-Nitro-o-toluidine	670	U
122-39-4	Diphenylamine	340	U
3689-24-5	Tetraethyl dithiopyrophosphat	340	U
99-35-4	sym-Trinitrobenzene	340	U
62-44-2	Phenacetin	340	U
2303-16-4	Diallate	340	U
92-67-1	4-Aminobiphenyl	1700	U
23950-58-5	Pronamide	1000	U
82-68-8	Pentachloronitrobenzene	670	U
88-85-7	Dinoseb	670	U
56-57-5	4-Nitroquinoline-1-oxide	340	U
91-80-5	Methapyrilene	1300	U
140-57-8	Aramite	340	U
60-11-7	p-(Dimethylamino)azobenzene	1000	U
119-93-7	3,3'-Dimethylbenzidine	2700	U
53-96-3	2-Acetylaminofluorene	340	U
57-97-6	7,12-Dimethylbenz(a)anthracen	670	U
70-30-4	Hexachlorophene	1700	U
56-49-5	3-Methylcholanthrene	1000	U

9-26-94

FORM I SV-2

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC959

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3167

Sample wt/vol: 30.1 (g/mL) G Lab File ID: AB3167

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 1 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.0

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Q
1.	UNKNOWN	2.78	370	~~J~~	JN
2. 2207-04-7	CYCLOHEXANE, 1,4-DIMETHYL-,	2.90	140	JN	
3. 141-79-7	3-PENTEN-2-ONE, 4-METHYL-	3.25	500	~~ABJN~~	R ~~JN~~
4. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.22	11000	~~ABJN~~	R ~~JN~~
5. 57-10-3	HEXADECANOIC ACID	17.84	140	JN	

9-26-94 Verified

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC960

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3174

Sample wt/vol: 30.4 (g/mL) G Lab File ID: AB3174

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
108-95-2	Phenol	340	U	
111-44-4	bis(2-Chloroethyl)Ether	340	U	
95-57-8	2-Chlorophenol	340	U	
541-73-1	1,3-Dichlorobenzene	340	U	
106-46-7	1,4-Dichlorobenzene	340	U	
100-51-6	Benzyl Alcohol	340	U	
95-50-1	1,2-Dichlorobenzene	340	U	
95-48-7	2-Methylphenol	340	U	
108-60-1	2,2'-oxybis(1-Chloropropane)	340	U	
106-44-5	4-Methylphenol	340	U	
621-64-7	N-Nitroso-Di-n-Propylamine	340	~~U~~	UJ
67-72-1	Hexachloroethane	340	U	
98-95-3	Nitrobenzene	340	~~U~~	UJ
78-59-1	Isophorone	340	U	
88-75-5	2-Nitrophenol	340	U	
105-67-9	2,4-Dimethylphenol	340	U	
65-85-0	Benzoic Acid	1600	U	
111-91-1	bis(2-Chloroethoxy)Methane	340	U	
120-83-2	2,4-Dichlorophenol	340	U	
120-82-1	1,2,4-Trichlorobenzene	340	U	
91-20-3	Naphthalene	340	U	
106-47-8	4-Chloroaniline	340	U	
87-68-3	Hexachlorobutadiene	340	U	
59-50-7	4-Chloro-3-Methylphenol	340	U	
91-57-6	2-Methylnaphthalene	340	U	
77-47-4	Hexachlorocyclopentadiene	340	U	
88-06-2	2,4,6-Trichlorophenol	1600	U	
95-95-4	2,4,5-Trichlorophenol	340	U	
91-58-7	2-Chloronaphthalene	1600	~~U~~	UJ
88-74-4	2-Nitroaniline	340	U	
131-11-3	Dimethylpthalate	340	U	
208-96-8	Acenaphthylene	340	~~U~~	UJ
606-20-2	2,6-Dinitrotoluene			

FORM I SV-1 9-26-94 1/87 Rev.

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC960

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3174

Sample wt/vol: 30.4 (g/mL) G Lab File ID: AB3174

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
99-09-2	3-Nitroaniline	1600	~~U~~	UJ
83-32-9	Acenaphthene	340	U	
51-28-5	2,4-Dinitrophenol	1600	U	
100-02-7	4-Nitrophenol	1600	U	
132-64-9	Dibenzofuran	340	U	
121-14-2	2,4-Dinitrotoluene	340	~~U~~	UJ
84-66-2	Diethylphthalate	340	U	
7005-72-3	4-Chlorophenyl-phenylether	340	U	
86-73-7	Fluorene	340	U	
100-01-6	4-Nitroaniline	1600	~~U~~	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	1600	U	
86-30-6	N-Nitrosodiphenylamine (1)	340	~~U~~	UJ
101-55-3	4-Bromophenyl-phenylether	340	U	
118-74-1	Hexachlorobenzene	340	U	
87-86-5	Pentachlorophenol	1600	U	
85-01-8	Phenanthrene	46	J	
120-12-7	Anthracene	340	U	
84-74-2	Di-n-Butylphthalate	180	J	
206-44-0	Fluoranthene	120	J	
129-00-0	Pyrene	100	J	
85-68-7	Butylbenzylphthalate	340	U	
91-94-1	3,3'-Dichlorobenzidine	670	U	
56-55-3	Benzo(a)Anthracene	52	J	
218-01-9	Chrysene	66	J	
117-81-7	bis(2-Ethylhexyl)Phthalate	340	U	
117-84-0	Di-n-Octyl Phthalate	340	U	
205-99-2	Benzo(b)Fluoranthene	67	J	
207-08-9	Benzo(k)Fluoranthene	48	J	
50-32-8	Benzo(a)Pyrene	53	J	
193-39-5	Indeno(1,2,3-cd)Pyrene	340	U	
53-70-3	Dibenz(a,h)Anthracene	340	U	
191-24-2	Benzo(g,h,i)Perylene	40	J	

(1) - Cannot be separated from Diphenylamine

RS 9-26-94

1X
APPENDIX IX SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC960

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3174

Sample wt/vol: 30.4 (g/mL) G Lab File ID: AB3174

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 3 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/03/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
62-75-9	N-Nitrosodimethylamine	340	U
97-63-2	Ethyl methacrylate	680	U
109-06-8	2-Picoline	2400	U
10595-95-6	N-Nitrosomethylethylamine	340	U
66-27-3	Methyl methanesulfonate	340	U
55-18-5	N-Nitrosodiethylamine	340	U
62-50-0	Ethyl methanesulfonate	340	U
62-53-3	Aniline	340	U
110-86-1	Pyridine	340	U
76-01-7	Pentachloroethane	680	U
930-55-2	N-Nitrosopyrrolidine	340	U
108-39-4	3-Methylphenol	340	U
98-86-2	Acetophenone	340	U
59-89-2	N-Nitrosomorpholine	340	U
95-53-4	o-Toluidine	340	U
100-75-4	N-Nitrosopiperidine	340	U
126-68-1	o,o,o-Triethylphosphorothioat	340	U
87-65-0	2,6-Dichlorophenol	340	U
1888-71-7	Hexachloropropene	680	U
122-09-8	a,a-dimethylphenethylamine	340	U
924-16-3	N-Nitrosodi-N-butylamine	680	U
106-50-3	p-Phenylenediamine	1700	U
94-59-7	Safrole	340	U
95-94-3	1,2,4,5-Tetrachlorobenzene	340	U
120-58-1	Isosafrole	340	U
130-15-4	1,4-Naphthoquinone	340	U
99-65-0	m-Dinitrobenzene	340	U
608-93-5	Pentachlorobenzene	680	U

9-26-94

FORM I SV-1

1X
APPENDIX IX SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC960

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3174

Sample wt/vol: 30.4 (g/mL) G Lab File ID: AB3174

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 3 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/03/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-59-8	2-Naphthylamine	5800	U
134-32-7	1-Naphthylamine	4100	U
58-90-2	2,3,4,6-Tetrachlorophenol	340	U
99-55-8	5-Nitro-o-toluidine	680	U
122-39-4	Diphenylamine	340	U
3689-24-5	Tetraethyl dithiopyrophosphat	340	U
99-35-4	sym-Trinitrobenzene	340	U
62-44-2	Phenacetin	340	U
2303-16-4	Diallate	340	U
92-67-1	4-Aminobiphenyl	1700	U
23950-58-5	Pronamide	1000	U
82-68-8	Pentachloronitrobenzene	680	U
88-85-7	Dinoseb	680	U
56-57-5	4-Nitroquinoline-1-oxide	340	U
91-80-5	Methapyrilene	1400	U
140-57-8	Aramite	340	U
60-11-7	p-(Dimethylamino)azobenzene	1000	U
119-93-7	3,3'-Dimethylbenzidine	2700	U
53-96-3	2-Acetylaminofluorene	340	U
57-97-6	7,12-Dimethylbenz(a)anthracen	680	U
70-30-4	Hexachlorophene	1700	U
56-49-5	3-Methylcholanthrene	1000	U

TB 9-26-94

FORM I SV-2

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC960

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3174

Sample wt/vol: 30.4 (g/mL) G Lab File ID: AB3174

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 3 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.0

Number TICs found: 8

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q		Q
1.		UNKNOWN	1.72	75	~~J~~		JN
2.		UNKNOWN	2.80	120	~~J~~		JN
3.	2207-04-7	CYCLOHEXANE, 1,4-DIMETHYL-,	2.92	85	JN		
4.	56336-06-2	2-CYCLOHEXEN-1-ONE, 3,5-DIME	3.27	300	~~AJN~~	R	~~JN~~
5.	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.20	10000	~~ABJN~~	R	~~JN~~
6.	57-10-3	HEXADECANOIC ACID	17.84	140	JN		
7.	593-45-3	OCTADECANE	24.70	150	JN		
8.		UNKNOWN	26.26	92	~~J~~		JN

Verified [illegible] 9-26-94

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
FIELD EQUIPMENT BLANK
BOCBM9

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3181

Sample wt/vol: 30.1 (g/mL) G Lab File ID: AB3181

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 0 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
108-95-2	Phenol	330	U	
111-44-4	bis(2-Chloroethyl)Ether	330	U	
95-57-8	2-Chlorophenol	330	U	
541-73-1	1,3-Dichlorobenzene	330	U	
106-46-7	1,4-Dichlorobenzene	330	U	
100-51-6	Benzyl Alcohol	330	U	
95-50-1	1,2-Dichlorobenzene	330	U	
95-48-7	2-Methylphenol	330	U	
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U	
106-44-5	4-Methylphenol	330	U	
621-64-7	N-Nitroso-Di-n-Propylamine	330	~~U~~	UJ
67-72-1	Hexachloroethane	330	U	
98-95-3	Nitrobenzene	330	~~U~~	UJ
78-59-1	Isophorone	330	U	
88-75-5	2-Nitrophenol	330	U	
105-67-9	2,4-Dimethylphenol	330	U	
65-85-0	Benzoic Acid	1600	U	
111-91-1	bis(2-Chloroethoxy)Methane	330	U	
120-83-2	2,4-Dichlorophenol	330	U	
120-82-1	1,2,4-Trichlorobenzene	330	U	
91-20-3	Naphthalene	330	U	
106-47-8	4-Chloroaniline	330	U	
87-68-3	Hexachlorobutadiene	330	U	
59-50-7	4-Chloro-3-Methylphenol	330	U	
91-57-6	2-Methylnaphthalene	330	U	
77-47-4	Hexachlorocyclopentadiene	330	U	
88-06-2	2,4,6-Trichlorophenol	330	U	
95-95-4	2,4,5-Trichlorophenol	1600	U	
91-58-7	2-Chloronaphthalene	330	U	
88-74-4	2-Nitroaniline	1600	~~U~~	UJ
131-11-3	Dimethylpthalate	330	U	
208-96-8	Acenaphthylene	330	U	
606-20-2	2,6-Dinitrotoluene	330	~~U~~	UJ

FORM I SV-1 9-26-94 1/87 Rev.

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
EQUIPMENT BLANK
BOCBM9

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3181

Sample wt/vol: 30.1 (g/mL) G Lab File ID: AB3181

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 0 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q	Q
99-09-2	3-Nitroaniline	1600	~~U~~	UJ
83-32-9	Acenaphthene	330	U	
51-28-5	2,4-Dinitrophenol	1600	U	
100-02-7	4-Nitrophenol	1600	U	
132-64-9	Dibenzofuran	330	U	
121-14-2	2,4-Dinitrotoluene	330	~~U~~	UJ
84-66-2	Diethylphthalate	330	U	
7005-72-3	4-Chlorophenyl-phenylether	330	U	
86-73-7	Fluorene	330	U	
100-01-6	4-Nitroaniline	1600	~~U~~	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	1600	U	
86-30-6	N-Nitrosodiphenylamine (1)	330	~~U~~	UJ
101-55-3	4-Bromophenyl-phenylether	330	U	
118-74-1	Hexachlorobenzene	330	U	
87-86-5	Pentachlorophenol	1600	U	
85-01-8	Phenanthrene	330	U	
120-12-7	Anthracene	330	U	
84-74-2	Di-n-Butylphthalate	330	U	
206-44-0	Fluoranthene	330	U	
129-00-0	Pyrene	330	U	
85-68-7	Butylbenzylphthalate	330	U	
91-94-1	3,3'-Dichlorobenzidine	660	U	
56-55-3	Benzo(a)Anthracene	330	U	
218-01-9	Chrysene	330	U	
117-81-7	bis(2-Ethylhexyl)Phthalate	330	U	
117-84-0	Di-n-Octyl Phthalate	330	U	
205-99-2	Benzo(b)Fluoranthene	330	U	
207-08-9	Benzo(k)Fluoranthene	330	U	
50-32-8	Benzo(a)Pyrene	330	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U	
53-70-3	Dibenz(a,h)Anthracene	330	U	
191-24-2	Benzo(g,h,i)Perylene	330	U	

(1) - Cannot be separated from Diphenylamine

PB 9-26-94

FORM I SV-2 1/87 Rev.

1X

APPENDIX IX SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
EQUIPMENT BLANK
BOCBM9

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3181

Sample wt/vol: 30.1 (g/mL) G Lab File ID: AB3181

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 0 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/02/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
62-75-9	N-Nitrosodimethylamine	330	U
97-63-2	Ethyl methacrylate	660	U
109-06-8	2-Picoline	2300	U
10595-95-6	N-Nitrosomethylethylamine	330	U
66-27-3	Methyl methanesulfonate	330	U
55-18-5	N-Nitrosodiethylamine	330	U
62-50-0	Ethyl methanesulfonate	330	U
62-53-3	Aniline	330	U
110-86-1	Pyridine	330	U
76-01-7	Pentachloroethane	660	U
930-55-2	N-Nitrosopyrrolidine	330	U
108-39-4	3-Methylphenol	330	U
98-86-2	Acetophenone	330	U
59-89-2	N-Nitrosomorpholine	330	U
95-53-4	o-Toluidine	330	U
100-75-4	N-Nitrosopiperidine	330	U
126-68-1	o,o,o-Triethylphosphorothioat	330	U
87-65-0	2,6-Dichlorophenol	330	U
1888-71-7	Hexachloropropene	660	U
122-09-8	a,a-dimethylphenethylamine	330	U
924-16-3	N-Nitrosodi-N-butylamine	660	U
106-50-3	p-Phenylenediamine	1700	U
94-59-7	Safrole	330	U
95-94-3	1,2,4,5-Tetrachlorobenzene	330	U
120-58-1	Isosafrole	330	U
130-15-4	1,4-Naphthoquinone	330	U
99-65-0	m-Dinitrobenzene	330	U
608-93-5	Pentachlorobenzene	660	U

9-26-94

FORM I SV-1

1X
APPENDIX IX SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
EQUIPMENT BLANK
BOCBM9

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3181

Sample wt/vol: 30.1 (g/mL) G Lab File ID: AB3181

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: 0 decanted: ___ Date Extracted: 07/19/94

Date Analyzed: 08/02/94

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
91-59-8	2-Naphthylamine	5600	U
134-32-7	1-Naphthylamine	4000	U
58-90-2	2,3,4,6-Tetrachlorophenol	330	U
99-55-8	5-Nitro-o-toluidine	660	U
122-39-4	Diphenylamine	330	U
3689-24-5	Tetraethyl dithiopyrophosphat	330	U
99-35-4	sym-Trinitrobenzene	330	U
62-44-2	Phenacetin	330	U
2303-16-4	Diallate	330	U
92-67-1	4-Aminobiphenyl	1700	U
23950-58-5	Pronamide	1000	U
82-68-8	Pentachloronitrobenzene	660	U
88-85-7	Dinoseb	660	U
56-57-5	4-Nitroquinoline-1-oxide	330	U
91-80-5	Methapyrilene	1300	U
140-57-8	Aramite	330	U
60-11-7	p-(Dimethylamino)azobenzene	1000	U
119-93-7	3,3'-Dimethylbenzidine	2700	U
53-96-3	2-Acetylaminofluorene	330	U
57-97-6	7,12-Dimethylbenz(a)anthracen	660	U
70-30-4	Hexachlorophene	1700	U
56-49-5	3-Methylcholanthrene	1000	U

9-26-94

FORM I SV-2

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
EQUIPMENT BLANK
BOCBM9

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3181

Sample wt/vol: 30.1 (g/mL) G Lab File ID: AB3181

Level: (low/med) LOW Date Received: 07/19/94

% Moisture: not dec. 0 dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.0

Number TICs found: 8

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Q
1. 53951-40-9	PROPANE, 2-METHOXY-2-PROPOXY	2.83	1200	~~BJN~~	BJN
2. 624-29-3	CYCLOHEXANE, 1,4-DIMETHYL-,	2.95	76	JN	
3. 56336-06-2	2-CYCLOHEXEN-1-ONE, 3,5-DIME	3.30	230	~~AJN~~	~~JN~~ R
4. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.20	7600	~~ABJN~~	~~JN~~ R
5. 57-10-3	HEXADECANOIC ACID	17.87	100	JN	
6.	UNKNOWN	19.45	1100	~~J~~	JN
7.	UNKNOWN	19.59	100	~~J~~	JN
8.	UNKNOWN	20.10	230	~~J~~	JN

Verified 9-26-94

FORM I SV-TIC 1/87 Rev.

Revised 10-11-94

9413299.1443

ATTACHMENT 4

LABORATORY NARRATIVE and CHAIN-OF-CUSTODY DOCUMENTATION

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

IT Corporation
2800 George Washington Way
Richland, WA 99352
Attn: Van Pettey

August 22, 1994

Job Number: 854

This is the Certificate of Analysis for the following samples:

SDG:	W0130
Client Project ID:	WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan
Received by Knoxville:	July 19, 1994
Number of Samples:	Thirteen (13)
Sample Type:	Soil

I. Introduction

On July 15, 1994, thirteen (13) soil samples arrived at ITAS-Richland, Washington and were transferred to ITAS-Knoxville for chemical analysis. 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.

The samples were analyzed for Appendix IX volatile and semivolatile organic compounds by gas chromatography/mass spectroscopy (GS/MS) based on EPA SW-846 methods 8240 and 8270.

Reviewed and Approved:

Sheree A. Schneider

Sheree' A. Schneider
Project Manager

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

IT Corporation
August 22, 1994
Job Number: 854
Client Project ID: WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan

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 ILM03.0 Statement of Work.

The samples were analyzed for nitrate-nitrite based on EPA method 353.2.

The samples were analyzed for anions by ion chromatography using EPA method 300.0.

The samples were analyzed for nitroexplosives by high performance liquid chromatography (HPLC) based on draft EPA method 8330.

III. Quality Control

The volatiles analyses were performed by purge and trap with a J & W DB-624 capillary column on a Finnigan INCOS 500 GC/MS/DS. A matrix spike and matrix spike duplicate were analyzed using sample BOC950. All QC results met method specified limits.

The semivolatiles analyses were performed by direct injection of sample extract on a Restek XTI-5 capillary column on a Finnigan 4500 XL GC/MS/DS. Sample BOC954 was initially analyzed at a five-fold dilution due to the appearance of the extract. BOC954 required an additional fifty-fold dilution due to target compound concentrations that were greater than the calibration range in the five-fold dilution run. Four surrogate standards were diluted out in the fifty-fold dilution run. Daily calibrations were performed for the usual 8270 targets and for the additional Appendix IX compounds, with the excetpion of the fifty-fold dilution of BOC954. No Appendix IX calibration was performed on the fifty-fold dilution of BOC954 due to no Appendix IX compounds being identified in the five-fold dilution. The samples did not contain any Appendix IX compounds. A matrix spike and matrix spike duplicate were analyzed using sample BOC950. The matrix spike and matrix spike duplicate passed all QC criteria with the exception of 2,4-dinitrotoluene in the matrix spike duplicate, which was one percentage point above the criteria. However, the laboratory control sample did meet all QC criteria.

Data were reported with qualifiers as follows:

U - Compound analyzed for but not detected; value given is quantitation limit.
E - Compound exceeded calibration range.
D - Compound analyzed at a secondary dilution factor.
J - Compound detected but below quantitation limit; value estimated.
S - Spiked compound.

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

IT Corporation
August 22, 1994
Job Number: 854
Client Project ID: WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan

III. Quality Control (Continued)

B - Compound found in method blank.
A - Suspected aldol condensation product.
Y - Indistinguishable isomer in tentatively identified compounds.
N - Presumptive evidence of compound presence.

The samples were digested on July 22, 1994 for ICP and July 22 and August 2, 1994 for GFAA. The CVAA analysis for mercury was performed on July 25, 1994; the GFAA analyses for arsenic, lead, selenium and thallium were performed July 22 thru August 5, 1994; the remaining metals were analyzed by ICP on July 25, 1994. All run QC was acceptable. A duplicate/spike pair was prepared using sample number BOC950. Spike recovery (accuracy) results were within acceptance limits for all parameters except for antimony, arsenic, copper, manganese and zinc. Poor spike recovery for these analytes appears to be attributable to sample nonhomogeneity and matrix interference. Duplicate RPD (precision) results were within acceptance limits for all parameters except for chromium, zinc and titanium, which exhibited slight variations due to sample nonhomogeneity.

Data were reported with qualifiers as follows:

"C" Qualifiers

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.

"Q" Qualifiers

* - Duplicate analysis outside control limits.
N - Spiked sample recovery outside control limits.
W - Post-digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.
S - The reported value was determined by method of standard additions.

"M" Qualifiers

P - Analysis performed by ICP.
V - Analysis performed by CVAA.
F - Analysis performed by GFAA.
C - Cyanide analysis by manual distillation/colorimetric determination.

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

IT Corporation
August 22, 1994
Job Number: 854
Client Project ID: WHC SAF 94-329 200 West Ash Pit Demolition Site Closure Plan

III. Quality Control (Continued)

Miscellaneous

D - Duplicate.
S - Spike.
NR - Not required.
G - Native analyte > 4 times spike added, therefore, acceptance criteria do not apply.
X - Detection limits higher than normal due to sample matrix interferences.

The samples were analyzed for nitrate/nitrite on July 26, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC950. All QC results were acceptable.

The samples were analyzed for fluoride, chloride, phosphate, nitrate, nitrite and sulfate by EPA method 300.0 on August 1 and 2, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC950. All QC results were acceptable.

The samples were analyzed for nitroexplosives on August 12, 1994. A matrix spike and matrix spike duplicate were analyzed using sample BOC950. All QC results were acceptable.

Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST WO #651	Page 1 of 4 007448

Collector SL Spencer
SAF No. 94-329
Ice Chest No. SML-445
Method of Shipment Government Vehicle
Shipped to IT Analytical 2800 George Washington Way Richland WA, 99352
Possible Sample Hazards/Remarks None / Work Done to RCRA Protocol
Special Handling and/or Storage

Company Contact ID Jacques/JW Ball
Project Designation 200 West Ash Pit Demolition Site Closure Plan
Bill of Lading/Airbill No. N/A

Telephone 376-3306/372-2653
Sampling Locations 200 West / 200-SS-2
Offsite Property No.
Field Logbook No.

SPECIAL INSTRUCTIONS Standalone Deliverable
Appendix IX SDG W0130

	Sample Number	*	Date Collected	Time	Number and Type of Containers	Analysis Required	Preservative	# of
01 A	BOC950	SE	07-12-94	1540	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°	10
B	BOC950	SE	07-12-94	1540	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°	
C	BOC950	SE	07-12-94	1540	120ml aGs	Detonation Residue (8330)	Cool to 4°	
D	BOC950	SE	07-12-94	1540	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°	
E	BOC950	SE	07-12-94	1540	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°	
F	BOC950	SE	07-12-94	1540	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°	
G	BOC950	SE	07-12-94	1540	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°	
02 A	BOC951	SE	07-12-94	1445	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°	
B	BOC951	SE	07-12-94	1445	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°	
C	BOC951	SE	07-12-94	1445	120ml aGs	Detonation Residue (8330)	Cool to 4°	
D	BOC951	SE	07-12-94	1445	120ml aGs	Anions(EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°	
E	BOC951	SE	07-12-94	1445	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°	
F	BOC951	SE	07-12-94	1445	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°	
G	BOC951	SE	07-12-94	1445	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°	
03 A	BOC952	SE	07-12-94	1620	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°	
B	BOC952	SE	07-12-94	1620	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°	
C	BOC952	SE	07-12-94	1620	120ml aGs	Detonation Residue (8330)	Cool to 4°	
D	BOC952	SE	07-12-94	1620	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°	
E	BOC952	SE	07-12-94	1620	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°	
F	BOC952	SE	07-12-94	1620	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°	
G	BOC952	SE	07-12-94	1620	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°	

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Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	Page 2 of 4
		007448

WO#834

	A	BOC953	SE	07-12-94	1620	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC953	SE	07-12-94	1620	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC953	SE	07-12-94	1620	120ml aGs	Detonation Residue (8330)	Cool to 4°
04	D	BOC953	SE	07-12-94	1620	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC953	SE	07-12-94	1620	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC953	SE	07-12-94	1620	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC953	SE	07-12-94	1620	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC954	SE	07-12-94	1645	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC954	SE	07-12-94	1645	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC954	SE	07-12-94	1645	120ml aGs	Detonation Residue (8330)	Cool to 4°
05	D	BOC954	SE	07-12-94	1645	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC954	SE	07-12-94	1645	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC954	SE	07-12-94	1645	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC954	SE	07-12-94	1645	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC955	SE	07-12-94	1530	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC955	SE	07-12-94	1530	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC955	SE	07-12-94	1530	120ml aGs	Detonation Residue (8330)	Cool to 4°
06	D	BOC955	SE	07-12-94	1530	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC955	SE	07-12-94	1530	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC955	SE	07-12-94	1530	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC955	SE	07-12-94	1530	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC956	SE	07-12-94	1440	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC956	SE	07-12-94	1440	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC956	SE	07-12-94	1440	120ml aGs	Detonation Residue (8330)	Cool to 4°
07	D	BOC956	SE	07-12-94	1440	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC956	SE	07-12-94	1440	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC956	SE	07-12-94	1440	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC956	SE	07-12-94	1440	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC957	SE	07-12-94	1430	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
08	B	BOC957	SE	07-12-94	1430	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°

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100

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Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	WO#954	Page 3 of 4
			007448

02F
100

	C	BOC957	SE	07-12-94	1430	120ml aGs	Detonation Residue (8330)	Cool to 4°
	D	BOC957	SE	07-12-94	1430	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
08	E	BOC957	SE	07-12-94	1430	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC957	SE	07-12-94	1430	120 aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC957	SE	07-12-94	1430	40 ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC958	SE	07-12-94	1515	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC958	SE	07-12-94	1515	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC958	SE	07-12-94	1515	120ml aGs	Detonation Residue (8330)	Cool to 4°
09	D	BOC958	SE	07-12-94	1515	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC958	SE	07-12-94	1515	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC958	SE	07-12-94	1515	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC958	SE	07-12-94	1515	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC959	SE	07-12-94	1558	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC959	SE	07-12-94	1558	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC959	SE	07-12-94	1558	120ml aGs	Detonation Residue (8330)	Cool to 4°
10	D	BOC959	SE	07-12-94	1558	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC959	SE	07-12-94	1558	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC959	SE	07-12-94	1558	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC959	SE	07-12-94	1558	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOC960	SE	07-12-94	1500	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOC960	SE	07-12-94	1500	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
	C	BOC960	SE	07-12-94	1500	120ml aGs	Detonation Residue (8330)	Cool to 4°
11	D	BOC960	SE	07-12-94	1500	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°
	E	BOC960	SE	07-12-94	1500	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
	F	BOC960	SE	07-12-94	1500	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
	G	BOC960	SE	07-12-94	1500	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
	A	BOCBM9	SE	07-12-94	1415	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°
	B	BOCBM9	SE	07-12-94	1415	120ml aGs	Semi-Voa (8270 Appendix IX)	Cool to 4°
12	C	BOCBM9	SE	07-12-94	1415	120ml aGs	Detonation Residue (8330)	Cool to 4°
	D	BOCBM9	SE	07-12-94	1415	120ml aGs	Anions (EPA 300.0) -F, Cl, SO4 -PO4, NO2, NO3	Cool to 4°

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088

Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	Page 4 of 4
		007448

WO#851

2ml
10x

12 E	BOCBM9	SE	07-12-94	1415	120ml aGs	NO2 - NO3 (EPA 353.1)	Cool to 4°
F	BOCBM9	SE	07-12-94	1415	120ml aGs	ICP Metals 6010, AA Metals -As 7060, -Pb 7421, -Se 7740, -Hg 7471	Cool to 4°
G	BOCBM9	SE	07-12-94	1415	40ml aGs	Activity Scan (Lab Specific)	Cool to 4°
13 A	BOCBN0	SE	07-11-94	1600	120ml aGs	VOA (8240 Appendix IX)	Cool to 4°

Chain of Possession Relinquished By (Sign and Print Names)	Date	Time	Received By
Shannon L. Spencer Shannon L. Spencer	7-14-94	1170	RM Arnold RM Arnold
RM Arnold RM Arnold	7-15-94	0930	R. Boyd Quantera 2400 7/15/94 1130

*Matrix

A = Air
DL = Drum Liquids
DS = Drum Solids
L = Liquid
O = Oil
S = Soil
SE = Sediment
SL = Sludge
SO = Solid
T = Tissue
W = Water
WI = Wipe
X = Other

LABORATORY SECTION	Received By	Title	Date/Time
Final Sample Disposition	Disposal Method:	Disposed by:	Date/Time:

9413269.1451

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680

9413299.1452

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 200 WEST ASH PIT	DATA PACKAGE:	
VALIDATOR: T. Stapp	LAB: IT Analytical	DATE: 9-21-94
CASE:	SDG: W0130-QES-143	

ANALYSES PERFORMED

☐ CLP Volatiles	☐ SW-846 8240 (cap column)	☐ SW-846 8260 (packed column)	☐ CLP Semivolatiles	☒ SW-846 8270 (cap column)	☐ SW-846 (packed column)
☐	☐	☐	☐	☐	☐

SAMPLES/MATRIX	
B0C950 through B0C960	/ Sediment
B0CBM9	/ Sediment

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? . . . . . (Yes) No N/A

Is a case narrative present? . . . . . (Yes) No N/A

Comments:

2. HOLDING TIMES

Are sample holding times acceptable? . . . . . (Yes) No N/A

Comments:

	Collected	Extracted	Analyzed	DAYS
All Samples	7-12-94	7-19-94	8-02-94 (*except)	≤ 14
* B0C957			8-03-94	≤ 14
B0C958				≤ 14
B0C959				≤ 14
B0C960				≤ 14
B0C954DL	7-12-94	7-19-94	8-04-94 ≤14	~~≤ 14~~

TS 9-28 TS 9-21-94

GC/MS ORGANIC DATA VALIDATION CHECKLIST

3. INSTRUMENT TUNING AND CALIBRATION

Is the GC/MS tuning/performance check acceptable? . . . . . (Yes) No N/A

Are initial calibrations acceptable? . Note ①+② . . . . (Yes) No N/A

Are continuing calibrations acceptable? . . . . . (Yes) No N/A

Comments: ① Minimum of 5 levels for initial Calib. not provided for 2,4,5-Trichlorophenol, Benzoic Acid, 2-Nitroaniline, 3-Nitroaniline, 2,4-DiNitrophenol, 4Nitrophenol, 4-Nitroaniline, 4,6-DiNitro-2-methyphenol and Pentachlorophenol. ② Initial Calib. not provided for Appendix IX cmpnds however RRF and ICAL Dates are given.

4. BLANKS

Were laboratory blanks analyzed? . . . . . (Yes) No N/A

Are laboratory blank results acceptable? Note ① . . . . . (Yes) No N/A

Were field/trip blanks analyzed? . . . . Note ② . . . . . (Yes) No N/A

Are field/trip blank results acceptable? . . . . . (Yes) No N/A

Comments: ① See method blank summary page attached. ② Equipment Blank BOCBM9 is non-detect for all components except some TIC cmpnds.

5. ACCURACY

Were surrogates/System Monitoring Compounds analyzed? . . . . . (Yes) No N/A

Are surrogate/System Monitoring Compound recoveries acceptable? (Yes) No N/A

Were MS/MSD samples analyzed? . . . . . (Yes) No N/A

Are MS/MSD results acceptable? . . . . Note ① . . . . . Yes (No) N/A

Comments: ① MSD recovery of 2,4-Dinitrotoluene outside of lab control limits of 89% (89.9) ~~however default control limits of 50-150% are satisfied and no~~ qualification will be applied to associated Sample results. (J/UJ)

GC/MS ORGANIC DATA VALIDATION CHECKLIST

6. PRECISION

Are MS/MSD RPD values acceptable? . . . . . Yes No N/A

Are field duplicate RPD values acceptable? Note ①. . . . . Yes No ~~N/A~~ 9-27

Are field split RPD values acceptable? . . ~~Note ①~~ 9-27. . Yes No N/A

Comments: ~~① Field duplicate/split samples were not identified in this SDG but have been requested and will be evaluated in the final data summary~~ ① Field duplicate B0C953 of sample B0C952 is within acceptable RPD limits.

9-27-94

7. SYSTEM PERFORMANCE

Were internal standards analyzed? . . . . . Yes No N/A

Are internal standard areas acceptable? . . . . . Yes No N/A

Are internal standard retention times acceptable? . . . . . Yes No N/A

Comments:

8. COMPOUND IDENTIFICATION AND QUANTITATION

Is compound identification acceptable? . . . . . Yes No N/A

Is compound quantitation acceptable? . . . . . Yes No N/A

Comments:

9. REPORTED RESULTS AND QUANTITATION LIMITS

Are results reported for all requested analyses? . . . . . Yes No N/A

Are all results supported in the raw data? . . . . . Yes No N/A

Do results meet the CRQLs? . . . . . Yes No N/A

Has the laboratory properly identified and coded all TIC? . . . Yes No N/A

Comments:

9413299.1456

~~001498~~

METHOD BLANK SUMMARY

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKAB3481B ★

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3481

Sample wt/vol: 30.0 (g/mL) G Lab File ID: AB3481

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1600	U
83-32-9	Acenaphthene	330	U
51-28-5	2,4-Dinitrophenol	1600	U
100-02-7	4-Nitrophenol	1600	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-01-6	4-Nitroaniline	1600	U
534-52-1	4,6-Dinitro-2-Methylphenol	1600	U
86-30-6	N-Nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	1600	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
84-74-2	Di-n-Butylphthalate	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	660	U
56-55-3	Benzo(a)Anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)Phthalate	2	J
117-84-0	Di-n-Octyl Phthalate	330	U
205-99-2	Benzo(b)Fluoranthene	330	U
207-08-9	Benzo(k)Fluoranthene	330	U
50-32-8	Benzo(a)Pyrene	330	U
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U
53-70-3	Dibenz(a,h)Anthracene	330	U
191-24-2	Benzo(g,h,i)Perylene	330	U

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9-28

(1) - Cannot be separated from Diphenylamine

★ This blank associated with all Samples in this SDG (#W0130-QES-143).

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METHOD BLANK SUMMARY

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SBLKAB3481B

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 854 SAS No.: _____ SDG No.: W0130

Matrix: (soil/water) SOIL Lab Sample ID: AB3481

Sample wt/vol: 30.0 (g/mL) G Lab File ID: AB3481

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/19/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

Number TICs found: 6

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 53951-40-9	PROPANE, 2-METHOXY-2-PROPOXY	2.82	48	JN
638-04-0	CYCLOHEXANE, 1,3-DIMETHYL-,	2.93	4.0	JN
141-79-7	3-PENTEN-2-ONE, 4-METHYL-	3.28	8.7	AJN
4. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.20	300	AJN
5.	UNKNOWN	17.85	2.2	J
6.	UNKNOWN	24.40	8.0	J