

0063548

SAF-B03-015
Remaining Sites Confirmation
Sampling-Soil
FINAL VALIDATION PACKAGE

MAIL COMPLETE COPY OF VALIDATION PACKAGE TO:

Jeanette Duncan (1)

mip @ 1-3-05
INITIAL/DATE

SAF-B03-015

SDG H 2765

Sample Location/Waste Site: 1607-F3

Please Note: Validation Task Canceled by Remaining Sites Project

RECEIVED
JAN 31 2005
EDMC

**Validation
Task for 1607-F3
(H2765)
Canceled
By
Remaining Sites
Project
(in validation
process – report
initially prepared
but not reviewed)**

Date: 10 November 2004
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: Remaining Sites Confirmation Sampling - Soil - Waste Site 1607-F3
Subject: Volatile - Data Package No. H2765-LLI (SDG No. H2765)

INTRODUCTION

This memo presents the results of data validation on Data Package No. H2765-LLI prepared by Lionville Laboratory Inc. (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Waste Site	Analysis
J01XJ0	10/1/04	Soil	C	1607-F3	See note 1
J01XJ1	10/1/04	Soil	C	1607-F3	See note 1

1 - Volatiles by 8260B.

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the Data Quality Objectives Summary Report for 100/300 Area Remaining Sites Analytical Sampling Effort, (BHI-01249, Rev. 3, March 2003). Appendices 1 through 5 provide the following information as indicated below:

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

DATA QUALITY OBJECTIVES

- **Holding Times**

Analytical holding times were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be extracted within 14 days of the date of sample collection and analyzed within 40 days from the date of extraction.

If holding times are exceeded, but not by greater than two times the limit, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ" for non-detects. If holding times are exceeded by greater than two times the

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limit, all associated detectable sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

All holding times were met.

- **Method Blanks**

Method blank analyses are conducted to determine the extent of laboratory contamination introduced through sampling, sample preparation and analysis. At least one acceptable method blank analysis must be conducted for every 20 samples. No contaminants should be present in the method blank. Analytical results for analytes present in any sample at less than five times the concentration of that analyte found in the associated blank are qualified as non-detects and flagged "U". Common laboratory contaminants present in samples at less than ten times the concentration of that analyte found in the associated blank are qualified as non-detects. If a sample result is less than the CRQL and is less than five times (or less than ten times for lab contaminants) the highest associated blank result, the sample result value is raised to the CRQL level and qualified as undetected "U".

All method blank results were acceptable.

Field Blanks

No field blanks were submitted for analysis.

- **Accuracy**

Matrix Spike/Matrix Spike Duplicate & Blank Spike Recoveries

Matrix spike/matrix spike duplicate analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify sample concentrations. Matrix spike/matrix spike duplicate analyses are performed in duplicate using five compounds for which percent recoveries must be within a range of 50-150% or within laboratory control limits. If spike recoveries are outside control limits, detected sample results less than five times the spike concentration are qualified as estimates and flagged "J". Undetected sample results with spike recoveries outside control limits are qualified as estimates and flagged "UJ". Sample results greater than five times the spike concentration require no qualification.

All accuracy results were acceptable.

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Surrogate Recovery

The analyses of surrogate compounds provide a measure of performance for individual samples. Matrix-specific surrogate compound recovery control windows have been established by the EPA CLP program. If two surrogates of the same class of compounds (base/neutral or acid) are out of control limits, all associated sample results greater than the contract required quantitation limit (CRQL) are qualified as estimates and flagged "J". Sample results less than the CRQL and below the lower control limit are qualified as estimates and flagged "UJ". Sample results less than the CRQL with recoveries above the upper control limit require no qualification. If a surrogate recovery is less than 10%, detects are qualified as estimates and flagged "J" and nondetects are rejected and flagged "UR".

All surrogate results were acceptable.

- **Precision**

Matrix Spike/Matrix Spike Duplicate Samples

Matrix spike (MS)/matrix spike duplicate (MSD) results provide matrix-specific information on the precision of the method for specific target compound classes. Precision is expressed by the relative percent difference (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample.

Samples results must be within RPD limits of +/-30%. If RPD values are out of specification and the sample concentration is less than five times the spike concentration, all associated detected sample results are qualified as estimates and flagged "J". If RPD values are out of specification and the sample concentration is greater than five times the spike concentration, no qualification is required.

All MS/MSD RPD results were acceptable.

Field Duplicate Samples

One set of field duplicates (J01XJ0/J01XJ1) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the required quantitation limits (RQL's) to ensure that laboratory detection levels meet the required criteria.

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Sixteen analytes exceeded the RQL. Under the BHI statement of work, no qualification is required.

- **Completeness**

Data package No. H2765-LLI was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Sixteen analytes exceeded the RQL. Under the BHI statement of work, no qualification is required.

REFERENCES

BHI, MRB-SBB-A23665, *Validation Statement of Work*, Bechtel Hanford Incorporated, September 5, 1997.

BHI-01249, Rev. 3, *Data Quality Objectives Summary Report for 100/300 Area Remaining Sites Analytical Sampling Effort*, Bechtel Hanford Incorporated, March 2003.

Appendix 1

Glossary of Data Reporting Qualifiers

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Qualifiers which may be applied by data validators in compliance with the BHI validation SOW are as follows:

- U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the same quantitation limit corrected for sample dilution and moisture content by the laboratory.
- UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.
- UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.
- NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).
- N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

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VOLATILE ORGANIC DATA QUALIFICATION SUMMARY*

SDG: H2765	REVIEWER: TLI	DATE: 11/10/04	PAGE <u>1</u> OF <u>1</u>
COMMENTS: No qualifiers assigned			

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

VOLATILE ORGANIC ANALYSIS, SOIL MATRIX (ug/Kg)

Project: BECHTEL-HANFORD									
Laboratory: LLI									
Case:		SDG: H2765							
Sample Number		J01XJ0			J01XJ1				
Remarks		Duplicate							
Sample Date		10/01/04			10/01/04				
Analysis Date		10/07/04			10/08/04				
VOA/Alcohols/Formaldehyde	RDL	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	11	U	12	U				
Bromomethane	10	11	U	12	U				
Vinyl Chloride	10	11	U	12	U				
Chloroethane	10	11	U	12	U				
Methylene Chloride	10	14		14					
Acetone	10	11	U	12	U				
Carbon Disulfide	10	6	U	6	U				
1,1-Dichloroethene	10	6	U	6	U				
1,1-Dichloroethane	10	6	U	6	U				
1,2-Dichloroethene (total)	10	6	U	6	U				
Chloroform	10	6	U	6	U				
1,2-Dichloroethane	10	6	U	6	U				
2-Butanone	10	11	U	12	U				
1,1,1-Trichloroethane	10	6	U	6	U				
Carbon Tetrachloride	10	6	U	6	U				
Bromodichloromethane	10	6	U	6	U				
1,2-Dichloropropane	10	6	U	6	U				
cis-1,3-Dichloropropene	10	6	U	6	U				
Trichloroethene	10	6	U	6	U				
Dibromochloromethane	10	6	U	6	U				
1,1,2-Trichloroethane	10	6	U	6	U				
Benzene	10	6	U	6	U				
trans-1,3-Dichloropropene	10	6	U	6	U				
Bromoform	10	6	U	6	U				
4-Methyl-2-pentanone	10	11	U	12	U				
2-Hexanone	10	11	U	12	U				
Tetrachloroethene	10	6	U	6	U				
1,1,2,2-Tetrachloroethane	10	6	U	6	U				
Toluene	10	6	U	6	U				
Chlorobenzene	10	6	U	6	U				
Ethylbenzene	10	6	U	6	U				
Styrene	10	6	U	6	U				
Xylene	10	6	U	6	U				

000010

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize mis-interpretation of results. All other qualifiers shown were applied during validation.

Cust ID: J01XJ0 J01XJ1 J01XJ1 J01XJ1 VBLKXV VBLKXV BS

RFW#: 001 002 002 MS 002 MSD 04LVG318-MB1 04LVG318-MB1

Chlorobenzene	6 U	6 U	102 %	103 %	5 U	105 %
Ethylbenzene	6 U	6 U	6 U	5 U	5 U	5 U
Styrene	6 U	6 U	6 U	5 U	5 U	5 U
Xylene (total)	6 U	6 U	6 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

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Handwritten signature
11/8/04

Lionville Laboratory, Inc.

Volatiles by GC/MS, HSL List

Report Date: 10/12/04 20:33

RFW Batch Number: 0410L814

Client: TNU-HANFORD B03-015

Work Order: 11343606001 Page: 2a

Cust ID: VBLKXW

Sample Information RFW#: 04LVG320-MB1 Matrix: SOIL D.F.: 1.00 Units: ug/Kg

Table with 4 columns: Compound Name, Concentration, and Units. Includes entries like Toluene-d8 (103%), Bromofluorobenzene (100%), and various chlorinated hydrocarbons.

000013

Handwritten signature and date: 11/8/04

*= Outside of EPA CLP QC limits.

Cust ID: VBLKXW

RFW#: 04LVG320-MB1

Chlorobenzene	5	U
Ethylbenzene	5	U
Styrene	5	U
Xylene (total)	5	U

*= Outside of EPA CLP QC limits.

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11/8/04

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation



Client: TNU-HANFORD B03-015
LVL #: 0410L814
SDG/SAF # H2765/B03-015

W.O. #: 11343-606-001-9999-00
Date Received: 10-06-2004

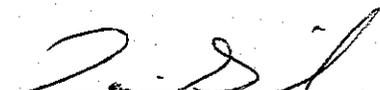
GC/MS VOLATILE

Two (2) soil samples were collected on 10-01-2004.

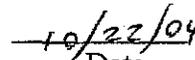
The samples and their associated QC samples were analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8260B for TCL volatile target compounds on 10-07,08-2004.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. Samples were analyzed within required holding time.
3. Non-target compounds were not detected in the samples.
4. All surrogate recoveries were within acceptance criteria.
5. All matrix spike recoveries were within acceptance criteria.
6. All blank spike recoveries were within acceptance criteria.
7. Internal standard area and retention time criteria were met.
8. "I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."


Iain Daniels

Laboratory Manager
Lionville Laboratory Incorporated


Date

son\group\data\voa\tnu-hanford\0408-814.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 12 pages.

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Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B03-015-255	Page 1 of 1
Director Lankovich/Rivera	Company Contact M Stankovich	Telephone No. 531-7620	Project Coordinator KESSNER, JH		Price Code 8B	Data Turnaround
Project Designation Remaining Sites Confirmation Sampling-Soil	Sampling Location 1607-F3	SAF No. B03-015	Air Quality <input type="checkbox"/>		7 Days	
Chest No. ERC 99 067	Field Logbook No. EL 1578-2	COA C607F36700	Method of Shipment Fed Ex		Bill of Lading/Air Bill No. SEE OSPC	
Company EDERLINE SERVICES (Formerly TMA)	Offsite Property No. A040 237					

Special Handling and/or Storage Cool 4c	Preservation	NONE	COOL 4°C	COOL 4°C	COOL	COOL 4°C	S/D 10/504		
	Type of Container	G/P	G/P	aG	aG	aG	G	0	aG
	No. of Container(s)	1	1	1	1	1	1	1	1
	Volume	1000mL	250mL	250mL	120mL	250mL	60mL	250mL	1000mL

SAMPLE ANALYSIS				See item (1) in Special Instructions.	See item (2) in Special Instructions.	PCBs - 8082; Pesticides - 8081; Other	Semi-VOA - 8270A (TCL)	PAHs - 8310	VOA - 8260A (TCL)	TPH (Total) - 418	See item (3) in special instructions
Sample No.	Matrix *	Sample Date	Sample Time								
J01 XJ0	Soil	10/1/04	0940	X	X	X	X		X		
J01 XJ1	Soil	10/1/04	0940	X	X	X	X		X		
J01 XJ2	Soil	10/1/04	0900		X	X	X				X

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From M Stankovich MCB	Date/Time 10/1/04	Received By/Stored In FRIG 26	Date/Time 10/1/04	(1) Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add on (Americium-241), Americium-241, Gross Alpha & Gross Beta; Nickel-63, Isotopic Potassium (Potassium-238, Potassium-239/240), Chromium-89, 90, Technetium-99, Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238) CR 10/1/04 (2) ICP Metals - 6010TR (SW846) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV) (3) GEA only Personnel not available to relinquish samples from 3728 Ref # ZC on 10/5/04				S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From REF ZC	Date/Time 10/5/04	Received By/Stored In SJOALE	Date/Time 10/5/04					
Relinquished By/Removed From SJOALE	Date/Time 10/5/04	Received By/Stored In FED EX	Date/Time 0900					
Relinquished By/Removed From FED EX	Date/Time 10/6/04	Received By/Stored In NOV MICH	Date/Time 10/6/04					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Appendix 5

Data Validation Supporting Documentation

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GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	RWS 1607-F3		DATA PACKAGE: H276S		
VALIDATOR:	TLI	LAB: LLI	DATE: 11/7/04		
			SDG: H276S		
ANALYSES PERFORMED					
SW-846 8260		SW-846 8260 (TCLP)	SW-846 8270		SW-846 8270 (TCLP)
SAMPLES/MATRIX					
J01XJ0		J01XJ1			

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? Yes **6** No N/A

Comments: _____

2. INSTRUMENT TUNING AND CALIBRATION (Levels D and E)

GC/MS tuning/performance check acceptable? Yes No **N/A**

Initial calibrations acceptable? Yes No **N/A**

Continuing calibrations acceptable? Yes No **N/A**

Standards traceable? Yes No **N/A**

Standards expired? Yes No **N/A**

Calculation check acceptable? Yes No **N/A**

Comments: _____

GC/MS ORGANIC DATA VALIDATION CHECKLIST

3. BLANKS (Levels B, C, D, and E)

Calibration blanks analyzed? (Levels D, E)..... Yes No N/A
Calibration blank results acceptable? (Levels D, E)..... Yes No N/A
Laboratory blanks analyzed? Yes No N/A
Laboratory blank results acceptable?..... Yes No N/A
Field/trip blanks analyzed? (Levels C, D, E)..... Yes No N/A
Field/trip blank results acceptable? (Levels C, D, E)..... Yes No N/A
Transcription/calculation errors? (Levels D, E)..... Yes No N/A
Comments: NO FB

4. ACCURACY (Levels C, D, and E)

Surrogates/system monitoring compounds analyzed? Yes No N/A
Surrogate/system monitoring compound recoveries acceptable? Yes No N/A
Surrogates traceable? (Levels D, E)..... Yes No N/A
Surrogates expired? (Levels D, E)..... Yes No N/A
MS/MSD samples analyzed?..... Yes No N/A
MS/MSD results acceptable?..... Yes No N/A
MS/MSD standards NIST traceable? (Levels D, E) Yes No N/A
MS/MSD standards? (Levels D, E) Yes No N/A
LCS/BSS samples analyzed? Yes No N/A
LCS/BSS results acceptable?..... Yes No N/A
Standards traceable? (Levels D, E)..... Yes No N/A
Standards expired? (Levels D, E) Yes No N/A
Transcription/calculation errors? (Levels D, E)..... Yes No N/A
Performance audit sample(s) analyzed?..... Yes No N/A
Performance audit sample results acceptable?..... Yes No N/A
Comments: NO PAS

GC/MS ORGANIC DATA VALIDATION CHECKLIST

5. PRECISION (Levels C, D, and E)

MS/MSD samples analyzed? Yes No N/A
MS/MSD RPD values acceptable? Yes No N/A
MS/MSD standards NIST traceable? (Levels D, E) Yes No N/A
MS/MSD standards expired? (Levels D, E) Yes No N/A
Field duplicate RPD values acceptable? Yes No N/A
Field split RPD values acceptable? Yes No N/A
Transcription/calculation errors? (Levels D, E) Yes No N/A

Comments: _____

6. SYSTEM PERFORMANCE (Levels D and E)

Internal standards analyzed? Yes No N/A
Internal standard areas acceptable? Yes No N/A
Internal standard retention times acceptable? Yes No N/A
Standards traceable? Yes No N/A
Standards expired? Yes No N/A
Transcription/calculation errors? Yes No N/A

Comments: _____

7. HOLDING TIMES (all levels)

Samples properly preserved? Yes No N/A
Sample holding times acceptable? Yes No N/A

Comments: _____

GC/MS ORGANIC DATA VALIDATION CHECKLIST

8. COMPOUND IDENTIFICATION, QUANTITATION, AND DETECTION LIMITS (all levels)

Compound identification acceptable? (Levels D, E) Yes No N/A
Compound quantitation acceptable? (Levels D, E) Yes No N/A
Results reported for all requested analyses? Yes No N/A
Results supported in the raw data? (Levels D, E) Yes No N/A
Samples properly prepared? (Levels D, E) Yes No N/A
Laboratory properly identified and coded all TIC? (Levels D, E) Yes No N/A
Detection limits meet RDL? Yes No N/A
Transcription/calculation errors? (Levels D, E) Yes No N/A

Comments: 16 over

9. SAMPLE CLEANUP (Levels D and E)

GPC cleanup performed? Yes No N/A
GPC check performed? Yes No N/A
GPC check recoveries acceptable? Yes No N/A
GPC calibration performed? Yes No N/A
GPC calibration check performed? Yes No N/A
GPC calibration check retention times acceptable? Yes No N/A
Check/calibration materials traceable? Yes No N/A
Check/calibration materials Expired? Yes No N/A
Analytical batch QC given similar cleanup? Yes No N/A
Transcription/Calculation Errors? Yes No N/A

Comments: _____

Date: 10 November 2004
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: Remaining Sites Confirmation Sampling - Soil - Waste Site 1607-F-3
Subject: Inorganic - Data Package No. H2765-LLI (SDG No. H2765)

INTRODUCTION

This memo presents the results of data validation on Data Package No. H2765 -LLI prepared by Lionville Laboratory Inc. (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Waste Site	Analysis
J01XJ0	10/1/04	Soil	C	1607-F-3	See note 1
J01XJ1	10/1/04	Soil	C	1607-F-3	See note 1
J01XJ2	10/1/04	Soil	C	1607-F-3	See note 1

1 - ICP metals; mercury by 7471A.

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and Data Quality Objectives Summary Report for 100/300 Area Remaining Sites Analytical Sampling Effort, (BHI-01249, Rev. 3, March 2003). Appendices 1 through 6 provide the following information as indicated below:

- Appendix 1. Glossary of Data Reporting Qualifiers
- Appendix 2. Summary of Data Qualification
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- Appendix 5. Data Validation Supporting Documentation
- Appendix 6. Additional Documentation Requested by Client

DATA QUALITY PARAMETERS

- **Holding Times**

Analytical holding times for metals are assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be analyzed within 28 days for mercury and 6 months for ICP metals.

All holding times were acceptable.

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- **Preparation (Method) Blanks**

Preparation Blanks

At least one preparation blank, consisting of deionized distilled water processed through each sample preparation and analysis procedure, must be prepared and analyzed with every sample delivery group. In the case of positive blank results, samples with digestate concentrations less than five times the preparation blank value have had their associated values qualified as non-detected and flagged "U". Samples with concentrations of greater than five times the highest blank concentration do not require qualification.

In the case of negative blank results, if the absolute value exceeds the contract required detection limit (CRDL), all nondetects are rejected and flagged "UR" and all detects that are less than ten times the absolute value of the associated preparation blank result are qualified as estimates and flagged "J". If the absolute value of the negative preparation blank is greater than the instrument detection limit (IDL) and less than or equal to the CRDL, all nondetects are qualified as estimates and flagged "UJ" and all detects less than ten times the absolute value of the blank are qualified as estimates and flagged "J". If the sample results are greater than ten times the absolute value of the preparation blank, no qualification is necessary.

Due to preparation blank contamination, the chromium result in sample J01XJ2 was qualified as an estimate and flagged "J".

All other preparation blank results were acceptable.

Field (Equipment) Blank

One equipment blank (J01JX2) was submitted for analysis. Aluminum, barium, beryllium, calcium, cobalt, chromium, copper, iron, potassium, magnesium, manganese, sodium, silicon and zinc were detected in the equipment blank. Under the BHI statement of work, no qualification is required.

- **Accuracy**

Matrix Spike and Laboratory Control Sample

Matrix spike (MS) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data. The matrix spike is used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 70% to 130%. Samples with a recovery of less than 30% and a sample result below the IDL are rejected and flagged "UR". Samples with a recovery of 30% to 69% and a sample result less than the IDL are qualified "UJ". Samples with a recovery of greater than 130% or less than 70% and a sample result greater than the IDL are qualified as estimates and flagged "J".

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Finally, for samples with a recovery greater than 130% and a sample result less than the IDL, no qualification is required.

Due to a percent recovery outside QC limits (62%), all antimony results were qualified as estimates and flagged "J".

Due to a percent recovery outside QC limits (-6.4%), all silicon results were qualified as estimates and flagged "J".

All other matrix spike recovery results were acceptable.

- **Precision**

Laboratory Duplicate Samples

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of matrix spike duplicate (MSD) analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the CRDL and the RPD is less than 30%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

Due to an RPD outside QC limits (50%), all calcium results were qualified as estimates and flagged "J".

All other laboratory duplicate results were acceptable.

Field Duplicate

One set of field duplicates (J01XJ0/J01XJ1) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the remaining waste sites RDLs to ensure that laboratory detection levels meet the required criteria. All reported results met the analyte specific RDL.

- **Completeness**

Data package No. H2765-LLI was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Due to an RPD outside QC limits (50%), all calcium results were qualified as estimates and flagged "J". Due to a percent recovery outside QC limits (62%), all antimony results were qualified as estimates and flagged "J". Due to a percent recovery outside QC limits (-6.4%), all silicon results were qualified as estimates and flagged "J". Due to preparation blank contamination, the chromium result in sample JO1XJ2 was qualified as an estimate and flagged "J". Data flagged "J" indicates that the associated concentration is an estimate, but under the BHI statement of work, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

REFERENCES

BHI, MRB-SBB-A23665, *Validation Statement of Work*, Bechtel Hanford Incorporated, September 5, 1997.

BHI-01249, Rev. 3, *Data Quality Objectives Summary Report for 100/300 Area Remaining Sites Analytical Sampling Effort*, Bechtel Hanford Incorporated, March 2003.

Appendix 1

Glossary of Data Reporting Qualifiers

000005

Qualifiers which may be applied by data validators in compliance with BHI validation SOW are as follows:

- U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.
- UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.
- BJ - Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.
- R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.
- UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.
- NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).
- N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

000006

Appendix 2

Summary of Data Qualification

000007

INORGANIC DATA QUALIFICATION SUMMARY*

SDG: H2765	REVIEWER: TLI	DATE: 11/10/04	PAGE <u>1</u> OF <u>1</u>
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Chromium	J	J01XJ2	Blank contamination
Antimony Silicon	J	All	MS recovery
Calcium	J	All	RPD

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

000008

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

000009

Project: BECHTEL-HANFORD										
Laboratory: LLI										
Case		SDG: H2765								
Sample Number	J01XJ0			J01XJ1			J01XJ2			
Remarks				Duplicate			E. Blank			
Sample Date	10/1/04			10/1/04			10/1/04			
Inorganics	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result
Silver	0.2	0.1	U	0.09	U	0.07	U			
Aluminum		6130		6130		36.5				
Arsenic		14.4		14.1		0.30	U			
Boron		1.1		1.0		0.42	U			
Barium	20	62.3		57.2		0.85				
Beryllium		0.32		0.31		0.008				
Calcium		3130	J	2930	J	31.1	J			
Cadmium	0.2	0.11		0.16		0.02	U			
Cobalt		5.9		5.8		0.08				
Chromium	1	10.8		10.7		0.17	J			
Copper		12.4		13.2		0.1				
Iron		19900		15700		76.5				
Mercury	0.2	0.04		0.07		0.01	U			
Potassium		977		939		17.3				
Magnesium		3850		3760		5.8				
Manganese		230		231		2.8				
Molybdenum		0.51		0.29		0.11	U			
Sodium		134		129		8.5				
Nickel		9.8		9.6		0.1	U			
Lead	5	50.6		47.0		0.16	U			
Antimony		0.47	J	0.33	J	0.25	UJ			
Selenium	1	0.41	U	0.39	U	0.32	U			
Silicon		370	J	369	J	30.7	J			
Vanadium		33.9		34.3		0.05	U			
Zinc		53.1		51.8		5.8				

000010

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 10/12/04

CLIENT: TNU-HANFORD B03-015

H2765

LVL LOT #: 0410L814

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J01XJ0	Silver, Total	0.1	u MG/KG	0.1	1.0
		Aluminum, Total	6130	MG/KG	0.86	1.0
		Arsenic, Total	14.4	MG/KG	0.38	1.0
		Boron, Total	1.1	MG/KG	0.54	1.0
		Barium, Total	62.3	MG/KG	0.02	1.0
		Beryllium, Total	0.32	MG/KG	0.01	1.0
		Calcium, Total	3130	MG/KG	0.73	1.0
		Cadmium, Total	0.11	MG/KG	0.03	1.0
		Cobalt, Total	5.9	MG/KG	0.08	1.0
		Chromium, Total	10.8	MG/KG	0.06	1.0
		Copper, Total	12.4	MG/KG	0.05	1.0
		Iron, Total	15900	MG/KG	2.4	1.0
		Mercury, Total	0.04	MG/KG	0.02	1.0
		Potassium, Total	977	MG/KG	3.7	1.0
		Magnesium, Total	3850	MG/KG	0.70	1.0
		Manganese, Total	230	MG/KG	0.01	1.0
		Molybdenum, Total	0.51	MG/KG	0.14	1.0
		Sodium, Total	134	MG/KG	0.24	1.0
		Nickel, Total	9.8	MG/KG	0.13	1.0
		Lead, Total	50.6	MG/KG	0.20	1.0
		Antimony, Total	0.47	MG/KG	0.32	1.0
		Selenium, Total	0.41	MG/KG	0.41	1.0
		Silicon, Total	370	MG/KG	0.53	1.0
		Vanadium, Total	33.9	MG/KG	0.06	1.0
		Zinc, Total	53.1	MG/KG	0.04	1.0

W 11/8/04

000011

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 10/12/04

CLIENT: TNU-HANFORD B03-015

LVL LOT #: 0410L814

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	J01XJ2	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	36.5	MG/KG	0.66	1.0
		Arsenic, Total	0.30 u	MG/KG	0.30	1.0
		Boron, Total	0.42 u	MG/KG	0.42	1.0
		Barium, Total	0.85	MG/KG	0.02	1.0
		Beryllium, Total	0.008	MG/KG	0.008	1.0
		Calcium, Total	31.1 J	MG/KG	0.57	1.0
		Cadmium, Total	0.02 u	MG/KG	0.02	1.0
		Cobalt, Total	0.08	MG/KG	0.07	1.0
		Chromium, Total	0.17 J	MG/KG	0.05	1.0
		Copper, Total	0.08	MG/KG	0.04	1.0
		Iron, Total	76.5	MG/KG	1.9	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	17.3	MG/KG	2.9	1.0
		Magnesium, Total	5.8	MG/KG	0.54	1.0
		Manganese, Total	2.8	MG/KG	0.008	1.0
		Molybdenum, Total	0.11 u	MG/KG	0.11	1.0
		Sodium, Total	8.5	MG/KG	0.19	1.0
		Nickel, Total	0.1 u	MG/KG	0.1	1.0
		Lead, Total	0.16 u	MG/KG	0.16	1.0
		Antimony, Total	0.25 u J	MG/KG	0.25	1.0
		Selenium, Total	0.32 u	MG/KG	0.32	1.0
		Silicon, Total	30.7 J	MG/KG	0.41	1.0
		Vanadium, Total	0.05 u	MG/KG	0.05	1.0
		Zinc, Total	5.8	MG/KG	0.03	1.0

W
11/8/04

000013

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

000014



Analytical Report

Client: TNU-HANFORD B03-015
LVL#: 0410L814
SDG/SAF#: H2765/B03-015

W.O.#: 11343-606-001-9999-00
Date Received: 10-06-04

METALS CASE NARRATIVE

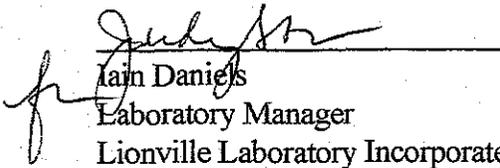
1. This narrative covers the analyses of 3 soil samples.
2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary.
3. All analyses were performed within the required holding times.
4. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
8. All ICP Interference Check Standards were within control limits.
9. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.
10. The matrix spike (MS) recoveries for 4 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.
11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A PDS was prepared at meaningful concentration level for the following analytes:

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 19 pages.

000015

<u>Sample ID</u>	<u>Element</u>	<u>PDS</u> <u>Concentration (ppb)</u>	<u>PDS</u> <u>% Recovery</u>
J01XJ0	Aluminum	20,000	118.2
	Iron	20,000	84.8
	Antimony	100	101.1
	Silicon	2100	96.7

12. The duplicate analyses for 4 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
13. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.
14. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.


 Iain Daniels
 Laboratory Manager
 Lionville Laboratory Incorporated

10/21/04
 Date

jjw/m10-814



000016

SECRET

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B03-015-255	Page 1 of 1
Collector Stankovich/Rivera	Company Contact M Stankovich	Telephone No. 531-7620	Project Coordinator KESSNER, JH		Price Code 8B	Data Turnaround 7 Days
Project Designation Remaining Sites Confirmation Sampling-Soil		Sampling Location 1607-F3	SAF No. B03-015		Air Quality <input type="checkbox"/>	
Ice Chest No. ERC 99 067	Field Logbook No. EL 1578-2	COA C607F36700	Method of Shipment Fed Ex			
Shipped To LVLH EBERLINE SERVICES (Formerly TMA)		Offsite Property No. A040 237	Bill of Lading/Air Bill No. SEE OSPC			

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	NONE	COOL 4°C	COOL 4°C	COOL 4°C	COOL 4°C	COOL 4°C	COOL 4°C	COOL 4°C	COOL 4°C	COOL 4°C	COOL 4°C	COOL 4°C
	Type of Container	G/P	G/P	aG	aG	aG	G	G	G	G	G	G	G
	No. of Container(s)	1	1	1	1	1	1	1	1	1	1	1	1
	Volume	1000mL	250mL	250mL	120mL	200mL	60mL	200mL	1000mL	1000mL	1000mL	1000mL	1000mL
Special Handling and/or Storage Cool 4c	See item (1) in Special Instructions.	See item (2) in Special Instructions.	PCBs - 8082; Pesticides - 808; Other Herbicides - 808	Semi-VOA - 8270A (TCL)	PAHs - 8310	VOA - 8260A (TCL)	TPH (Total) - 418	See item (3) in special instructions					
	SAMPLE ANALYSIS												
	Sample No.	Matrix *	Sample Date	Sample Time									
	J01 XJ0	Soil	10/1/04	0940	X	X	X	X	X	X	X	X	X
J01 XJ1	Soil	10/1/04	0940	X	X	X	X	X	X	X	X	X	
J01 XJ2	Soil	10/1/04	0900		X	X	X					X	

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS		Matrix *
Relinquished By/Removed From M Stankovich	Date/Time 10/1/04	Received By/Stored In FRIG 26	Date/Time 10/1/04 1445	(1) Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec Add-on (Americium-241, Americium-244, Gross Alpha & Gross Beta); Nickel-63, Isotopic Plutonium (Plutonium-238, Plutonium-239/240); Bromine-82, Total Gamma Radiation; (2) ICP Metals - 6010TR (SW846) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV)		S=Soil SE=Sediment SO=Solid SI=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From REF 2C	Date/Time 10504 0900	Received By/Stored In SJOALE	Date/Time 10504 0900			
Relinquished By/Removed From SJOALE	Date/Time 10504 0900	Received By/Stored In FED EX	Date/Time			
Relinquished By/Removed From FED EX	Date/Time 10-6-04/10:00	Received By/Stored In NOV MICH	Date/Time 10-6-04/10:00			
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time	Personnel not available to relinquish samples from 3728 Ref # 2C on 10/5/04		

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Appendix 5

Data Validation Supporting Documentation

000018

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

ALIDATION LEVEL:	A	B	C	D	E
PROJECT:	RWS 1607-F-3		DATA PACKAGE: H2675 H2765		
VALIDATOR:	TLI	LAB:	DATE: 11/7/09		
		SDG:	H2765		
ANALYSES PERFORMED					
SW-846/ICP	SW-846/GFAA	SW-846/Hg	SW-846 Cyanide		
SAMPLES/MATRIX					
JOIXJO JOIXJI JOIXJZ					
Soil					

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? Yes No N/A

Comments: _____

2. INSTRUMENT PERFORMANCE AND CALIBRATIONS (Levels D and E)

Initial calibrations performed on all instruments? Yes No N/A

Initial calibrations acceptable?..... Yes No N/A

ICP interference checks acceptable?..... Yes No N/A

ICV and CCV checks performed on all instruments?..... Yes No N/A

ICV and CCV checks acceptable?..... Yes No N/A

Standards traceable? Yes No N/A

Standards expired?..... Yes No N/A

Calculation check acceptable? Yes No N/A

Comments: _____

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

3. BLANKS (Levels B, C, D, and E)

ICB and CCB checks performed for all applicable analyses? (Levels D, E)..... Yes No N/A
 ICB and CCB results acceptable? (Levels D, E)..... Yes No N/A
 Laboratory blanks analyzed? Yes No N/A
 Laboratory blank results acceptable?..... Yes No N/A
 Field blanks analyzed? (Levels C, D, E)..... Yes No N/A
 Field blank results acceptable? (Levels C, D, E)..... Yes No N/A
 Transcription/calculation errors? (Levels D, E)..... Yes No N/A
 Comments: CR-X2-J

FB - aluminum, barium, beryllium, calcium, cobalt, chromium, copper, iron, potassium, magnesium, manganese, sodium, silicon, zinc

4. ACCURACY (Levels C, D, and E)

MS/MSD samples analyzed? Yes No N/A
 MS/MSD results acceptable?..... Yes No N/A
 MS/MSD standards NIST traceable? (Levels D, E) Yes No N/A
 MS/MSD standards expired? (Levels D, E)..... Yes No N/A
 LCS/BSS samples analyzed? Yes No N/A
 LCS/BSS results acceptable?..... Yes No N/A
 Standards traceable? (Levels D, E)..... Yes No N/A
 Standards expired? (Levels D, E) Yes No N/A
 Transcription/calculation errors? (Levels D, E)..... Yes No N/A
 Performance audit sample(s) analyzed?..... Yes No N/A
 Performance audit sample results acceptable?..... Yes No N/A
 Comments: MS - antimony 6.2% - J NO PAS
Silicon - 6.4% - J

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

5. PRECISION (Levels C, D, and E)

- Duplicate RPD values acceptable? Yes No N/A
- Duplicate results acceptable? Yes No N/A
- MS/MSD standards NIST traceable? (Levels D, E) Yes No N/A
- MS/MSD standards expired? (Levels D, E) Yes No N/A
- Field duplicate RPD values acceptable? Yes No N/A
- Field split RPD values acceptable? Yes No N/A
- Transcription/calculation errors? (Levels D, E) Yes No N/A

Comments: calcium - 50% J all

6. ICP QUALITY CONTROL (Levels D and E)

- ICP serial dilution samples analyzed? Yes No N/A
- ICP serial dilution %D values acceptable? Yes No N/A
- ICP post digestion spike required? Yes No N/A
- ICP post digestion spike values acceptable? Yes No N/A
- Standards traceable? Yes No N/A
- Standards expired? Yes No N/A
- Transcription/calculation errors? Yes No N/A

Comments: _____

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

7. FURNACE AA QUALITY CONTROL (Levels D and E)

Duplicate injections performed as required? Yes No N/A
Duplicate injection %RSD values acceptable? Yes No N/A
Analytical spikes performed as required? Yes No N/A
Analytical spike recoveries acceptable? Yes No N/A
Standards traceable? Yes No N/A
Standards expired? Yes No N/A
MSA performed as required? Yes No N/A
MSA results acceptable? Yes No N/A
Transcription/calculation errors? Yes No N/A
Comments: _____

8. HOLDING TIMES (all levels)

Samples properly preserved? Yes No N/A
Sample holding times acceptable? Yes No N/A
Comments: _____

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

9. RESULT QUANTITATION AND DETECTION LIMITS (all levels)

Results reported for all requested analyses? Yes No N/A
Results supported in the raw data? (Levels D, E) Yes No N/A
Samples properly prepared? (Levels D, E) Yes No N/A
Detection limits meet RDL? Yes No N/A
Transcription/calculation errors? (Levels D, E) Yes No N/A

Comments: _____

Appendix 6

Additional Documentation Requested by Client

000024

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 10/12/04

CLIENT: TNU-HANFORD B03-015

LVL LOT #: 0410L814

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK1	04L0623-MB1	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Aluminum, Total	0.81 u	MG/KG	0.81	1.0
		Arsenic, Total	0.36 u	MG/KG	0.36	1.0
		Boron, Total	0.51 u	MG/KG	0.51	1.0
		Barium, Total	0.02 u	MG/KG	0.02	1.0
		Beryllium, Total	0.01 u	MG/KG	0.01	1.0
		Calcium, Total	2.0	MG/KG	0.69	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Cobalt, Total	0.08 u	MG/KG	0.08	1.0
		Chromium, Total	0.17	MG/KG	0.06	1.0
		Copper, Total	0.05 u	MG/KG	0.05	1.0
		Iron, Total	2.3 u	MG/KG	2.3	1.0
		Potassium, Total	3.5 u	MG/KG	3.5	1.0
		Magnesium, Total	0.68	MG/KG	0.66	1.0
		Manganese, Total	0.01	MG/KG	0.01	1.0
		Molybdenum, Total	0.13 u	MG/KG	0.13	1.0
		Sodium, Total	0.23 u	MG/KG	0.23	1.0
		Nickel, Total	0.12 u	MG/KG	0.12	1.0
		Lead, Total	0.19 u	MG/KG	0.19	1.0
		Antimony, Total	0.30 u	MG/KG	0.30	1.0
		Selenium, Total	0.39 u	MG/KG	0.39	1.0
		Silicon, Total	0.50 u	MG/KG	0.50	1.0
		Vanadium, Total	0.06 u	MG/KG	0.06	1.0
		Zinc, Total	0.04 u	MG/KG	0.04	1.0
BLANK1	04C0227-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

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00000013

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 10/12/04

CLIENT: TNU-HANFORD B03-015

LVL LOT #: 0410L814

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	J01XJ0	Silver, Total	4.5	0.1 u	4.9	91.8	1.0
		Aluminum, Total	7260	6130	194	580.4*	1.0
		Arsenic, Total	200	14.4	194	95.9	1.0
		Boron, Total	90.5	1.1	97.0	92.2	1.0
		Barium, Total	234	62.3	194	88.5	1.0
		Beryllium, Total	5.1	0.32	4.9	97.6	1.0
		Calcium, Total	5920	3130	2420	115.2	1.0
		Cadmium, Total	4.9	0.11	4.9	97.8	1.0
		Cobalt, Total	54.0	5.9	48.5	99.2	1.0
		Chromium, Total	31.7	10.8	19.4	107.7	1.0
		Copper, Total	34.9	12.4	24.3	92.6	1.0
		Iron, Total	17200	15900	97.0	1427 *	1.0
		Mercury, Total	0.21	0.04	0.17	99.4	1.0
		Potassium, Total	3320	977	2420	96.5	1.0
		Magnesium, Total	6780	3850	2420	120.9	1.0
		Manganese, Total	290	230	48.5	124.9*	1.0
		Molybdenum, Total	93.6	0.51	97.0	96.0	1.0
		Sodium, Total	2490	134	2420	97.0	1.0
		Nickel, Total	59.3	9.8	48.5	102.1	1.0
		Lead, Total	99.9	50.6	48.5	101.6	1.0
		Antimony, Total	30.8	0.47	48.5	62.5	1.0
		Selenium, Total	182	0.41u	194	93.9	1.0
		Silicon, Total	364	370	97.0	-6.4	1.0
		Vanadium, Total	83.9	33.9	48.5	103.1	1.0
		Zinc, Total	102	53.1	48.5	100.2	1.0

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Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 10/12/04

CLIENT: TNU-HANFORD B03-015
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0410L814

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-001REP	J01XJ0	Silver, Total	0.1 u	0.09u	NC	1.0
		Aluminum, Total	6130	5710	7.1	1.0
		Arsenic, Total	14.4	16.6	14.2	1.0
		Boron, Total	1.1	1.1	0.00	1.0
		Barium, Total	62.3	53.7	14.8	1.0
		Beryllium, Total	0.32	0.31	2.8	1.0
		Calcium, Total	3130	5220	50.0	1.0
		Cadmium, Total	0.11	0.10	7.7	1.0
		Cobalt, Total	5.9	6.1	3.3	1.0
		Chromium, Total	10.8	11.3	4.5	1.0
		Copper, Total	12.4	13.1	5.5	1.0
		Iron, Total	15900	15300	3.6	1.0
		Mercury, Total	0.04	0.04	19.5	1.0
		Potassium, Total	977	894	8.8	1.0
		Magnesium, Total	3850	3750	2.7	1.0
		Manganese, Total	230	222	3.2	1.0
		Molybdenum, Total	0.51	0.38	28.7	1.0
		Sodium, Total	134	127	5.7	1.0
		Nickel, Total	9.8	9.7	1.0	1.0
		Lead, Total	50.6	48.0	5.3	1.0
		Antimony, Total	0.47	0.76	46.3	1.0
		Selenium, Total	0.41u	0.51		1.0
		Silicon, Total	370	346	6.9	1.0
		Vanadium, Total	33.9	33.0	2.7	1.0
		Zinc, Total	53.1	58.0	8.8	1.0

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Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 10/12/04

CLIENT: TNU-HANFORD B03-015

LVL LOT #: 0410L814

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED	SPIKED	UNITS	%RECOV
			SAMPLE	AMOUNT		
LCS1	04L0623-LC1	Silver, LCS	47.8	50.0	MG/KG	95.6
		Aluminum, LCS	477	500	MG/KG	95.3
		Arsenic, LCS	942	1000	MG/KG	94.2
		Boron, LCS	470	500	MG/KG	94.0
		Barium, LCS	473	500	MG/KG	94.5
		Beryllium, LCS	24.5	25.0	MG/KG	98.0
		Calcium, LCS	2530	2500	MG/KG	101.3
		Cadmium, LCS	24.8	25.0	MG/KG	99.2
		Cobalt, LCS	249	250	MG/KG	99.6
		Chromium, LCS	50.1	50.0	MG/KG	100.2
		Copper, LCS	119	125	MG/KG	95.2
		Iron, LCS	495	500	MG/KG	98.9
		Potassium, LCS	2390	2500	MG/KG	95.7
		Magnesium, LCS	2490	2500	MG/KG	99.7
		Manganese, LCS	75.6	75.0	MG/KG	100.8
		Molybdenum, LCS	497	500	MG/KG	99.4
		Sodium, LCS	2360	2500	MG/KG	94.5
		Nickel, LCS	199	200	MG/KG	99.6
		Lead, LCS	248	250	MG/KG	99.4
		Antimony, LCS	283	300	MG/KG	94.5
		Selenium, LCS	916	1000	MG/KG	91.6
		Silicon, LCS	435	500	MG/KG	87.1
		Vanadium, LCS	243	250	MG/KG	97.1
		Zinc, LCS	96.6	100	MG/KG	96.6
LCS1	04C0227-LC1	Mercury, LCS	6.1	6.2	MG/KG	98.0

000028

Date: 10 November 2004
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: Remaining Sites Confirmation Sampling - Soil - Waste Site 1607-F3
Subject: Semivolatile - Data Package No. H2765-LLI (SDG No. H2765)

INTRODUCTION

This memo presents the results of data validation on Data Package No. H2765-LLI prepared by Lionville Laboratory Inc. (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Waste Site	Analysis
J01XP1	10/1/04	Soil	C	1607-F3	See note 1
J01XP2	10/1/04	Soil	C	1607-F3	See note 1
J01XP3	10/1/04	Soil	C	1607-F3	See note 1

1- Semivolatiles by 8270C.

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the Data Quality Objectives Summary Report for 100/300 Area Remaining Sites Analytical Sampling Effort, (BHI-01249, Rev. 3, March 2003). Appendices 1 through 5 provide the following information as indicated below:

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

DATA QUALITY OBJECTIVES

- **Holding Times**

Analytical holding times were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be extracted within 14 days of the date of sample collection and analyzed within 40 days from the date of extraction.

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If holding times are exceeded, but not by greater than two times the limit, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ" for non-detects. If holding times are exceeded by greater than two times the limit, all associated detectable sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

All holding times were met.

- **Method Blanks**

Method blank analyses are conducted to determine the extent of laboratory contamination introduced through sampling, sample preparation and analysis. At least one acceptable method blank analysis must be conducted for every 20 samples. No contaminants should be present in the method blank. Analytical results for analytes present in any sample at less than five times the concentration of that analyte found in the associated blank are qualified as non-detects and flagged "U". Common laboratory contaminants present in samples at less than ten times the concentration of that analyte found in the associated blank are qualified as non-detects. If a sample result is less than the CRQL and is less than five times (or less than ten times for lab contaminants) the highest associated blank result, the sample result value is raised to the CRQL level and qualified as undetected "U".

Due to method blank contamination, all di-n-butylphthalate results were raised to the RDL, qualified as undetected and flagged "U".

All other method blank results were acceptable.

Field Blanks

One equipment blank (J01XP1) was submitted for analysis. Diethylphthalate, di-n-butylphthalate and bis(2-ethylhexyl)phthalate were detected in the equipment blank. Under the BHI statement of work, no qualification is required.

- **Accuracy**

Matrix Spike/Matrix Spike Duplicate & Blank Spike Recoveries

Matrix spike/matrix spike duplicate analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify sample concentrations. Matrix spike/matrix spike duplicate analyses are performed in duplicate using five compounds for which percent recoveries must be within a range of 50-150% or within laboratory control limits. If spike recoveries are outside control limits, detected sample results less than five

times the spike concentration are qualified as estimates and flagged "J". Undetected sample results with spike recoveries outside control limits are qualified as estimates and flagged "UJ". Sample results greater than five times the spike concentration require no qualification.

All accuracy results were acceptable.

Surrogate Recovery

The analyses of surrogate compounds provide a measure of performance for individual samples. Matrix-specific surrogate compound recovery control windows have been established by the EPA CLP program. If two surrogates of the same class of compounds (base/neutral or acid) are out of control limits, all associated sample results greater than the contract required quantitation limit (CRQL) are qualified as estimates and flagged "J". Sample results less than the CRQL and below the lower control limit are qualified as estimates and flagged "UJ". Sample results less than the CRQL with recoveries above the upper control limit require no qualification. If a surrogate recovery is less than 10%, detects are qualified as estimates and flagged "J" and nondetects are rejected and flagged "UR".

All surrogate results were acceptable.

- **Precision**

Matrix Spike/Matrix Spike Duplicate Samples

Matrix spike (MS)/matrix spike duplicate (MSD) results provide matrix-specific information on the precision of the method for specific target compound classes. Precision is expressed by the relative percent difference (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample.

Samples results must be within RPD limits of +/-30%. If RPD values are out of specification and the sample concentration is less than five times the spike concentration, all associated detected sample results are qualified as estimates and flagged "J". If RPD values are out of specification and the sample concentration is greater than five times the spike concentration, no qualification is required.

All MS/MSD RPD results were acceptable.

Field Duplicate Samples

One set of field duplicates (J01XJ0/J01XJ1) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

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- **Analytical Detection Levels**

Reported analytical detection levels are compared against the required quantitation limits (RQL's) to ensure that laboratory detection levels meet the required criteria. Twenty-four analytes exceeded the RQL. Under the BHI statement of work, no qualification is required.

- **Completeness**

Data package No. H2765-LLI was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Due to method blank contamination, all di-n-butylphthalate results were raised to the RDL, qualified as undetected and flagged "U".

Twenty-four analytes exceeded the RQL in all samples. Under the BHI statement of work, no qualification is required.

REFERENCES

BHI, MRB-SBB-A23665, *Validation Statement of Work*, Bechtel Hanford Incorporated, September 5, 1997.

BHI-01249, Rev. 3, *Data Quality Objectives Summary Report for 100/300 Area Remaining Sites Analytical Sampling Effort*, Bechtel Hanford Incorporated, March 2003.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with the BHI validation SOW are as follows:

- U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the same quantitation limit corrected for sample dilution and moisture content by the laboratory.
- UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.
- UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.
- NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).
- N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

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SEMIVOLATILE DATA QUALIFICATION SUMMARY*

SDG: H2765	REVIEWER: TLI	DATE: 11/10/04	PAGE <u>1</u> OF <u>1</u>
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
di-n-butylphthalate	U	All	Blank contamination

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

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Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

Project: BECHTEL-HANFORD														
Laboratory: LLI														
Case:		SDG: H2765												
Sample Number	J01XJ0			J01XJ1			J01XJ2							
Remarks				Duplicate			E. Blank							
Sample Date	10/1/04			10/1/04			10/1/04							
Extraction Date	10/7/04			10/7/04			10/7/04							
Analysis Date	10/8/04			10/8/04			10/8/04							
Semivolatile (8270C)	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	
Phenol	660	350	U	360	U	330	U							
bis(2-Chloroethyl)ether	660	350	U	360	U	330	U							
2-Chlorophenol	660	350	U	360	U	330	U							
1,3-Dichlorobenzene	660	350	U	360	U	330	U							
1,4-Dichlorobenzene	660	350	U	360	U	330	U							
1,2-Dichlorobenzene	660	350	U	360	U	330	U							
2-methylphenol	660	350	U	360	U	330	U							
2,2'-oxybis(1-chloropropane)	660	350	U	360	U	330	U							
3 and/or 4-Methylphenol	660	350	U	360	U	330	U							
N-Nitroso-di-n-propylamine	660	350	U	360	U	330	U							
Hexachloroethane	660	350	U	360	U	330	U							
Nitrobenzene	660	350	U	360	U	330	U							
Isophorone	660	350	U	360	U	330	U							
2-Nitrophenol	660	350	U	360	U	330	U							
2,4-Dimethylphenol	660	350	U	360	U	330	U							
bis(2-Chloroethoxy)methane	660	350	U	360	U	330	U							
2,4-Dichlorophenol	660	350	U	360	U	330	U							
1,2,4-Trichlorobenzene	660	350	U	360	U	330	U							
Naphthalene	660	350	U	360	U	330	U							
4-Chloroaniline	660	350	U	360	U	330	U							
Hexachlorobutadiene	660	350	U	360	U	330	U							
4-Chloro-3-methylphenol	660	350	U	360	U	330	U							
2-Methylnaphthalene	660	350	U	360	U	330	U							
Hexachlorocyclopentadiene	660	350	U	360	U	330	U							
2,4,6-Trichlorophenol	660	350	U	360	U	330	U							
2,4,5-Trichlorophenol	660	880	U	890	U	840	U							
2-Chloronaphthalene	660	350	U	360	U	330	U							
2-Nitroaniline	660	880	U	890	U	840	U							
Dimethylphthalate	660	350	U	360	U	330	U							
Acenaphthylene	660	54		360	U	330	U							
2,6-Dinitrotoluene	660	350	U	360	U	330	U							

000010

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize miss-interpretation of results. All other qualifiers shown were applied during validation.

Project: BECHTEL-HANFORD													
Laboratory: LLI													
Case:		SDG: H2765											
Sample Number		J01XJ0		J01XJ1		J01XJ2							
Remarks				Duplicate		E. Blank							
Sample Date		10/1/04		10/1/04		10/1/04							
Extraction Date		10/7/04		10/7/04		10/7/04							
Analysis Date		10/8/04		10/8/04		10/8/04							
Semivolatile (8270C)		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
3-Nitroaniline	660	880	U	890	U	840	U						
Acenaphthene	660	350	U	360	U	330	U						
2,4-Dinitrophenol	660	880	U	890	U	840	U						
4-Nitrophenol	660	880	U	890	U	840	U						
Dibenzofuran	660	350	U	360	U	330	U						
2,4-Dinitrotoluene	660	350	U	360	U	330	U						
Diethylphthalate	660	350	U	360	U	40							
4-Chlorophenyl-phenyl ether	660	350	U	360	U	330	U						
Fluorene	660	21		360	U	330	U						
4-Nitroaniline	660	880	U	890	U	840	U						
4,6-Dinitro-2-methylphenol	660	880	U	890	U	840	U						
N-Nitrosodiphenylamine	660	350	U	360	U	330	U						
4-Bromophenyl-phenyl ether	660	350	U	360	U	330	U						
Hexachlorobenzene	660	350	U	360	U	330	U						
Pentachlorophenol	660	880	U	890	U	840	U						
Phenanthrene	660	350	U	360	U	330	U						
Anthracene	660	63		360	U	330	U						
Carbazole	660	350	U	360	U	330	U						
Di-n-butylphthalate	660	660	U	660	U	660	U						
Fluoranthene	660	400		360	U	330	U						
Pyrene	660	430		19		330	U						
Butylbenzylphthalate	660	350	U	360	U	330	U						
3,3'-Dichlorobenzidine	660	350	U	360	U	330	U						
Benzo(a)anthracene	660	200		360	U	330	U						
Chrysene	660	220		360	U	330	U						
bis(2-Ethylhexyl)phthalate	660	25		31		35							
Di-n-octylphthalate	660	350	U	360	U	330	U						
Benzo(b)fluoranthene	660	140		360	U	330	U						
Benzo(k)fluoranthene	660	150		360	U	330	U						
Benzo(a)pyrene	660	220		360	U	330	U						
Indeno(1,2,3-cd)pyrene	660	110		360	U	330	U						
Dibenz(a,h)anthracene	660	31		360	U	330	U						
Benzo(g,h,i)perylene	660	140		360	U	330	U						

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize miss-interpretation of results. All other qualifiers shown were applied during validation.

000011

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 10/14/04 09:20

RFW Batch Number: 0410L814

Client: TNU-HANFORD B03-015

Work Order: 11343606001

Page: 1a

Sample Information	Cust ID:	J01XJ0	J01XJ0	J01XJ0	J01XJ1	J01XJ2	SBLKYM
	RFW#:	001	001 MS	001 MSD	002	003	04LE1258-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate	Nitrobenzene-d5	68 %	71 %	69 %	72 %	70 %	68 %
Recovery	2-Fluorobiphenyl	78 %	77 %	74 %	78 %	76 %	72 %
	Terphenyl-d14	95 %	92 %	95 %	97 %	93 %	94 %
	Phenol-d5	84 %	79 %	77 %	80 %	75 %	71 %
	2-Fluorophenol	74 %	74 %	73 %	74 %	70 %	66 %
	2,4,6-Tribromophenol	43 %	58 %	45 %	54 %	34 %	46 %
	=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====						
	Phenol	350 U	80 %	87 %	360 U	330 U	330 U
	bis(2-Chloroethyl) ether	350 U	350 U	350 U	360 U	330 U	330 U
	2-Chlorophenol	350 U	75 %	81 %	360 U	330 U	330 U
	1,3-Dichlorobenzene	350 U	350 U	350 U	360 U	330 U	330 U
	1,4-Dichlorobenzene	350 U	58 %	61 %	360 U	330 U	330 U
	1,2-Dichlorobenzene	350 U	350 U	350 U	360 U	330 U	330 U
	2-Methylphenol	350 U	350 U	350 U	360 U	330 U	330 U
	2,2'-oxybis(1-Chloropropane)	350 U	350 U	350 U	360 U	330 U	330 U
	4-Methylphenol	350 U	350 U	350 U	360 U	330 U	330 U
	N-Nitroso-di-n-propylamine	350 U	68 %	74 %	360 U	330 U	330 U
	Hexachloroethane	350 U	350 U	350 U	360 U	330 U	330 U
	Nitrobenzene	350 U	350 U	350 U	360 U	330 U	330 U
	Isophorone	350 U	350 U	350 U	360 U	330 U	330 U
	2-Nitrophenol	350 U	350 U	350 U	360 U	330 U	330 U
	2,4-Dimethylphenol	350 U	350 U	350 U	360 U	330 U	330 U
	bis(2-Chloroethoxy) methane	350 U	350 U	350 U	360 U	330 U	330 U
	2,4-Dichlorophenol	350 U	350 U	350 U	360 U	330 U	330 U
	1,2,4-Trichlorobenzene	350 U	66 %	70 %	360 U	330 U	330 U
	Naphthalene	350 U	350 U	350 U	360 U	330 U	330 U
	4-Chloroaniline	350 U	350 U	350 U	360 U	330 U	330 U
	Hexachlorobutadiene	350 U	350 U	350 U	360 U	330 U	330 U
	4-Chloro-3-methylphenol	350 U	88 %	94 %	360 U	330 U	330 U
	2-Methylnaphthalene	350 U	350 U	350 U	360 U	330 U	330 U
	Hexachlorocyclopentadiene	350 U	350 U	350 U	360 U	330 U	330 U
	2,4,6-Trichlorophenol	350 U	350 U	350 U	360 U	330 U	330 U
	2,4,5-Trichlorophenol	880 U	880 U	880 U	890 U	840 U	840 U

000012

*= Outside of EPA CLP QC limits.

R 11/8/04

Cust ID: J01XJ0 J01XJ0 J01XJ0 J01XJ1 J01XJ2 SBLKYM

RFW#: 001 001 MS 001 MSD 002 003 04LE1258-MB1

2-Chloronaphthalene	350 U	350 U	350 U	360 U	330 U	330 U
2-Nitroaniline	880 U	880 U	880 U	890 U	840 U	840 U
Dimethylphthalate	350 U	350 U	350 U	360 U	330 U	330 U
Acenaphthylene	54 J	350 U	350 U	360 U	330 U	330 U
2,6-Dinitrotoluene	350 U	350 U	350 U	360 U	330 U	330 U
3-Nitroaniline	880 U	880 U	880 U	890 U	840 U	840 U
Acenaphthene	350 U	79 %	82 %	360 U	330 U	330 U
2,4-Dinitrophenol	880 U	880 U	880 U	890 U	840 U	840 U
4-Nitrophenol	880 U	75 %	72 %	890 U	840 U	840 U
Dibenzofuran	350 U	350 U	350 U	360 U	330 U	330 U
2,4-Dinitrotoluene	350 U	83 %	89 %	360 U	330 U	330 U
Diethylphthalate	350 U	350 U	350 U	360 U	40 J	330 U
4-Chlorophenyl-phenylether	350 U	350 U	350 U	360 U	330 U	330 U
Fluorene	21 J	350 U	350 U	360 U	330 U	330 U
4-Nitroaniline	880 U	880 U	880 U	890 U	840 U	840 U
4,6-Dinitro-2-methylphenol	880 U	880 U	880 U	890 U	840 U	840 U
N-Nitrosodiphenylamine (1)	350 U	350 U	350 U	360 U	330 U	330 U
4-Bromophenyl-phenylether	350 U	350 U	350 U	360 U	330 U	330 U
Hexachlorobenzene	350 U	350 U	350 U	360 U	330 U	330 U
Pentachlorophenol	880 U	63 %	50 %	890 U	840 U	840 U
Phenanthrene	280 J	22 J	18 J	360 U	330 U	330 U
Anthracene	63 J	350 U	350 U	360 U	330 U	330 U
Carbazole	350 U	350 U	350 U	360 U	330 U	330 U
Di-n-butylphthalate	660 20 ^{JB} _{11/20} U	23 JB	19 JB	660 21 ^{JB} _{11/20} U	660 37 ^{JB} _{11/20} U	17 J
Fluoranthene	400	44 J	42 J	360 U	330 U	330 U
Pyrene	430	65 %	71 %	19 J	330 U	330 U
Butylbenzylphthalate	350 U	350 U	350 U	360 U	330 U	330 U
3,3'-Dichlorobenzidine	350 U	350 U	350 U	360 U	330 U	330 U
Benzo(a)anthracene	200 J	25 J	27 J	360 U	330 U	330 U
Chrysene	220 J	30 J	35 J	360 U	330 U	330 U
bis(2-Ethylhexyl)phthalate	25 J	70 J	18 J	31 J	35 J	330 U
Di-n-octyl phthalate	350 U	350 U	350 U	360 U	330 U	330 U
Benzo(b)fluoranthene	140 J	18 J	25 J	360 U	330 U	330 U
Benzo(k)fluoranthene	150 J	24 J	29 J	360 U	330 U	330 U
Benzo(a)pyrene	220 J	30 J	37 J	360 U	330 U	330 U
Indeno(1,2,3-cd)pyrene	110 J	350 U	23 J	360 U	330 U	330 U
Dibenz(a,h)anthracene	31 J	350 U	350 U	360 U	330 U	330 U
Benzo(g,h,i)perylene	140 J	21 J	27 J	360 U	330 U	330 U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

u u/s/oc

000013

Cust ID: SBLKYM BS

Sample Information RFW#: 04LE1258-MB1
 Matrix: SOIL
 D.F.: 1.00
 Units: UG/KG

Surrogate	Nitrobenzene-d5	63	%
Recovery	2-Fluorobiphenyl	66	%
	Terphenyl-d14	75	%
	Phenol-d5	65	%
	2-Fluorophenol	62	%
	2,4,6-Tribromophenol	38	%

=====fl=====fl=====fl=====fl=====fl=====fl=====fl

Phenol	66	%
bis(2-Chloroethyl) ether	330	U
2-Chlorophenol	63	%
1,3-Dichlorobenzene	330	U
1,4-Dichlorobenzene	60	%
1,2-Dichlorobenzene	330	U
2-Methylphenol	330	U
2,2'-oxybis(1-Chloropropane)	330	U
4-Methylphenol	330	U
N-Nitroso-di-n-propylamine	61	%
Hexachloroethane	330	U
Nitrobenzene	330	U
Isophorone	330	U
2-Nitrophenol	330	U
2,4-Dimethylphenol	330	U
bis(2-Chloroethoxy) methane	330	U
2,4-Dichlorophenol	330	U
1,2,4-Trichlorobenzene	62	%
Naphthalene	330	U
4-Chloroaniline	330	U
Hexachlorobutadiene	330	U
4-Chloro-3-methylphenol	70	%
2-Methylnaphthalene	330	U
Hexachlorocyclopentadiene	330	U
2,4,6-Trichlorophenol	330	U
2,4,5-Trichlorophenol	840	U

000014

JK
10/8/04

*= Outside of EPA CLP QC limits.

Cust ID: SBLKYM BS

RFW#: 04LE1258-MB1

2-Chloronaphthalene	330	U
2-Nitroaniline	840	U
Dimethylphthalate	330	U
Acenaphthylene	330	U
2,6-Dinitrotoluene	330	U
3-Nitroaniline	840	U
Acenaphthene	66	%
2,4-Dinitrophenol	840	U
4-Nitrophenol	68	%
Dibenzofuran	330	U
2,4-Dinitrotoluene	67	%
Diethylphthalate	330	U
4-Chlorophenyl-phenylether	330	U
Fluorene	330	U
4-Nitroaniline	840	U
4,6-Dinitro-2-methylphenol	840	U
N-Nitrosodiphenylamine (1)	330	U
4-Bromophenyl-phenylether	330	U
Hexachlorobenzene	330	U
Pentachlorophenol	45	%
Phenanthrene	330	U
Anthracene	330	U
Carbazole	330	U
Di-n-butylphthalate	330	U
Fluoranthene	330	U
Pyrene	71	%
Butylbenzylphthalate	330	U
3,3'-Dichlorobenzidine	330	U
Benzo (a) anthracene	330	U
Chrysene	330	U
bis (2-Ethylhexyl)phthalate	330	U
Di-n-octyl phthalate	330	U
Benzo (b) fluoranthene	330	U
Benzo (k) fluoranthene	330	U
Benzo (a) pyrene	330	U
Indeno (1,2,3-cd) pyrene	330	U
Dibenz (a,h) anthracene	330	U
Benzo (g,h,i) perylene	330	U

000015

MS
11/8/04

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation



Client: TNU-HANFORD B03-015
LVL #: 0410L814
SDG/SAF # H2765/B03-015

W.O. #: 11343-606-001-9999-00
Date Received: 10-06-2004

SEMIVOLATILE

Three (3) soil samples were collected on 10-01-2004.

The samples and their associated QC samples were extracted according to Lionville Laboratory SOPs based on method 3540C on 10-07-2004 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 10-08-2004.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LVL's sample acceptance policy.
2. Samples were extracted and analyzed within required holding time.
3. Non-target compounds were detected in the samples.
4. All surrogate recoveries were within acceptance criteria.
5. All matrix spike recoveries were within acceptance criteria.
6. All blank spike recoveries were within acceptance criteria.
7. The method blank contained the common laboratory contaminant Di-n-butylphthalate at a level less than the CRQL.
8. Internal standard area and retention time criteria were met.
9. Manual integrations are performed according to SOP QA-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").
10. I certify, that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data, contained in this hard-copy data package, has been authorized, by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

10/22/04
Date

son\group\data\bna\tnu-hanford\0410-814.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 16 pages.

000017

0000002

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B03-015-255		Page 1 of 1	
Collector Stankovich/Rivera		Company Contact M Stankovich		Telephone No. 531-7620		Project Coordinator KESSNER, JH		Price Code 8B	
Project Designation Remaining Sites Confirmation Sampling-Soil		Sampling Location 1607-F3		SAF No. B03-015		Air Quality <input type="checkbox"/>		Data Turnaround 7 Days	
Case Chest No. ERC 99 067		Field Logbook No. EL 1578-2		COA C607F36700		Method of Shipment Fed Ex			
Shipped To LVI EDERLINE SERVICES (Formerly TMA)		Offsite Property No. A040 237		Bill of Lading/Air Bill No. SEE OSPC					

Special Handling and/or Storage <i>Cool 4c</i>	Preservation		<i>NONE</i>	<i>COOL 4°C</i>	<i>COOL 4°C</i>	<i>COOL 4°C</i>	<i>COOL 4°C</i>	<i>NO</i>	
	Type of Container	<i>G/P</i>	<i>G/P</i>	<i>aG</i>	<i>aG</i>	<i>aG</i>	<i>G</i>	<i>G</i>	<i>aG</i>
	No. of Container(s)	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>
	Volume	<i>1000mL</i>	<i>250mL</i>	<i>250mL</i>	<i>120mL</i>	<i>250mL</i>	<i>60mL</i>	<i>250mL</i>	<i>1000mL</i>

000018	SAMPLE ANALYSIS				See item (1) in Special Instructions.	See item (2) in Special Instructions.	PCBs - 8082; Pesticides - 8081; Other	Semi-VOA - 8270A (TCL)	PAHs - 8310	VOA - 8260A (TCL)	TPH (Total) - 418	See item (3) in special instructions
	Sample No.	Matrix *	Sample Date	Sample Time								
	J01 XJ0	Soil	10/1/04	0940	X	X	X	X		X		
	J01 XJ1	Soil	10/1/04	0940	X	X	X	X		X		
J01 XJ2	Soil	10/1/04	0900		X	X	X				X	

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From <i>M Stankovich</i>	Date/Time <i>10/1/04</i>	Received By/Stored In <i>Frig 26</i>	Date/Time <i>10/1/04 1445</i>	(1) Gamma Spectroscopy (TCL List) [Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155]; Gamma Spec - Add on (Americium-241); Americium-241; Gross Alpha & Gross Beta; Nickel-63; Isotopic Plutonium (Plutonium-238, Plutonium-239/240); Bromine-82; Total C-14; Technetium-99; Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238) CCR 10/1/04 (2) ICP Metals - 6010TR (SW846) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV) (3) GEA only Personnel not available to relinquish samples from 3728 Ref # ZC on 10/5/04				S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From <i>REF ZC</i>	Date/Time <i>10504 0900</i>	Received By/Stored In <i>SJGALE</i>	Date/Time <i>10504 0900</i>					
Relinquished By/Removed From <i>SJGALE</i>	Date/Time <i>10504 0900</i>	Received By/Stored In <i>FED EX</i>	Date/Time					
Relinquished By/Removed From <i>Geo Ex</i>	Date/Time <i>10-6-04/10:00</i>	Received By/Stored In <i>W/Smith</i>	Date/Time <i>10-6-04/10:00</i>					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Appendix 5

Data Validation Supporting Documentation

000019

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	<u>C</u>	D	E
PROJECT:	RWS 1607-F3		DATA PACKAGE: H2765		
VALIDATOR:	TLI	LAB:	LLI	DATE: 11/7/04	
			SDG:	H2765	
ANALYSES PERFORMED					
SW-846 8260	SW-846 8260 (TCLP)	<u>SW-846 8270</u>		SW-846 8270 (TCLP)	
SAMPLES/MATRIX					
JOIXJO		JOIXJI		JOIXJR	
soil					

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? Yes No N/A

Comments: _____

2. INSTRUMENT TUNING AND CALIBRATION (Levels D and E)

GC/MS tuning/performance check acceptable? Yes No N/A
 Initial calibrations acceptable? Yes No N/A
 Continuing calibrations acceptable? Yes No N/A
 Standards traceable? Yes No N/A
 Standards expired? Yes No N/A
 Calculation check acceptable? Yes No N/A

Comments: _____

GC/MS ORGANIC DATA VALIDATION CHECKLIST

3. BLANKS (Levels B, C, D, and E)

Calibration blanks analyzed? (Levels D, E)..... Yes No N/A
 Calibration blank results acceptable? (Levels D, E)..... Yes No N/A
 Laboratory blanks analyzed? Yes No N/A
 Laboratory blank results acceptable?..... Yes No N/A
 Field/trip blanks analyzed? (Levels C, D, E)..... Yes No N/A
 Field/trip blank results acceptable? (Levels C, D, E)..... Yes No N/A
 Transcription/calculation errors? (Levels D, E)..... Yes No N/A
 Comments: LB - di-n-butyl phthalate to RQL + U

-FB di-n-butyl phthalate, bis(2-ethylhexyl) phthalate, diethyl phthalate

4. ACCURACY (Levels C, D, and E)

Surrogates/system monitoring compounds analyzed? Yes No N/A
 Surrogate/system monitoring compound recoveries acceptable? Yes No N/A
 Surrogates traceable? (Levels D, E)..... Yes No N/A
 Surrogates expired? (Levels D, E)..... Yes No N/A
 MS/MSD samples analyzed? Yes No N/A
 MS/MSD results acceptable?..... Yes No N/A
 MS/MSD standards NIST traceable? (Levels D, E)..... Yes No N/A
 MS/MSD standards? (Levels D, E)..... Yes No N/A
 LCS/BSS samples analyzed? Yes No N/A
 LCS/BSS results acceptable?..... Yes No N/A
 Standards traceable? (Levels D, E)..... Yes No N/A
 Standards expired? (Levels D, E)..... Yes No N/A
 Transcription/calculation errors? (Levels D, E)..... Yes No N/A
 Performance audit sample(s) analyzed?..... Yes No N/A
 Performance audit sample results acceptable?..... Yes No N/A
 Comments: No PAS

GC/MS ORGANIC DATA VALIDATION CHECKLIST

5. PRECISION (Levels C, D, and E)

MS/MSD samples analyzed? Yes No N/A
MS/MSD RPD values acceptable? Yes No N/A
MS/MSD standards NIST traceable? (Levels D, E) Yes No N/A
MS/MSD standards expired? (Levels D, E) Yes No N/A
Field duplicate RPD values acceptable? Yes No N/A
Field split RPD values acceptable? Yes No N/A
Transcription/calculation errors? (Levels D, E) Yes No N/A

Comments: _____

6. SYSTEM PERFORMANCE (Levels D and E)

Internal standards analyzed? Yes No N/A
Internal standard areas acceptable? Yes No N/A
Internal standard retention times acceptable? Yes No N/A
Standards traceable? Yes No N/A
Standards expired? Yes No N/A
Transcription/calculation errors? Yes No N/A

Comments: _____

7. HOLDING TIMES (all levels)

Samples properly preserved? Yes No N/A
Sample holding times acceptable? Yes No N/A

Comments: _____

GC/MS ORGANIC DATA VALIDATION CHECKLIST

8. COMPOUND IDENTIFICATION, QUANTITATION, AND DETECTION LIMITS (all levels)

Compound identification acceptable? (Levels D, E) Yes No N/A
Compound quantitation acceptable? (Levels D, E)..... Yes No N/A
Results reported for all requested analyses? Yes No N/A
Results supported in the raw data? (Levels D, E)..... Yes No N/A
Samples properly prepared? (Levels D, E) Yes No N/A
Laboratory properly identified and coded all TIC? (Levels D, E)..... Yes No N/A
Detection limits meet RDL? Yes No N/A
Transcription/calculation errors? (Levels D, E)..... Yes No N/A
Comments: 24 over

9. SAMPLE CLEANUP (Levels D and E)

GPC cleanup performed? Yes No N/A
GPC check performed? Yes No N/A
GPC check recoveries acceptable? Yes No N/A
GPC calibration performed? Yes No N/A
GPC calibration check performed? Yes No N/A
GPC calibration check retention times acceptable? Yes No N/A
Check/calibration materials traceable? Yes No N/A
Check/calibration materials Expired? Yes No N/A
Analytical batch QC given similar cleanup? Yes No N/A
Transcription/Calculation Errors? Yes No N/A
Comments:

Date: 10 November 2004
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: Remaining Sites Confirmation Sampling - Soil - Waste Site 1607-F3
Subject: Radiochemistry - Data Package No. H2765-EB (SDG No. H2765)

INTRODUCTION

This memo presents the results of data validation on Data Package No. H2753 prepared by Eberline Services Inc. (EB). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Waste Site	Analysis
J01XJ0	10/1/04	Soil	C	1607-F3	See note 1 & 2
J01XJ1	10/1/04	Soil	C	1607-F3	See note 1 & 2
J01XJ2	10/1/04	Soil	C	1607-F3	See note 1

1 - Gamma spectroscopy

2 - Gross alpha/beta.

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the Data Quality Objectives Summary Report for 100/300 Area Remaining Sites Analytical Sampling Effort, (BHI-01249, Rev. 3, March 2003). Appendices 1 through 6 provide the following information as indicated below:

- Appendix 1. Glossary of Data Reporting Qualifiers
- Appendix 2. Summary of Data Qualification
- Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
- Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
- Appendix 5. Data Validation Supporting Documentation
- Appendix 6. Additional Data Requested by Client

DATA QUALITY PARAMETERS

- **Holding Times**

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for radiochemical analysis is 6 months.

All holding times were acceptable.

000001

- **Preparation (Method) Blanks**

Laboratory Blanks

Blank samples are analyzed to determine if positive results are due to laboratory reagent, sample container, or detector contamination. If blank analysis results indicate the presence of an analyte above the minimum detectable activity (MDA), the following qualifiers are applied: All positive sample results less than five times the highest blank concentration are qualified as estimates and flagged "J"; sample results below the MDA are qualified as undetected and flagged "U"; sample results above the MDA and greater than five times the highest blank concentration are not qualified.

All blank results were acceptable.

Field (Equipment) Blank

One equipment blank (J01XJ2) was submitted for analysis. Potassium-40, radium-226, radium-228, thorium-228 and thorium-232 were detected in the equipment blank. Under the BHI statement of work, no qualification is required.

- **Accuracy**

Accuracy is evaluated from laboratory control sample (LCS) or blank spike sample (BSS) batch samples and spiked samples from the analytical batch. Measured activities are compared to the known added amounts. The acceptable LCS or BSS and matrix spike (MS) recovery range is 70-130%. In addition, samples may be spiked with a radiochemical tracer to assist in isolating the radioisotope of interest with the yield of the tracer being used in calculating sample activity. The acceptable range for tracer recovery is 20% to 105%. Spike sample results outside the above ranges result in associated sample results being qualified as estimates, or not qualified, depending on the activity of the individual sample. Results are rejected for LCS/BSS recoveries of less than 30% and tracer recoveries of less than 20%, and tracer recoveries of greater than 115% for detected results.

All accuracy results were acceptable.

- **Laboratory Duplicates**

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the contract required

000002

detection limit (CRDL) and the RPD is less than 30%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All duplicate results were acceptable.

Field Duplicate

One set of field duplicates (J01XJ0/J01XJ1) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

- **Detection Levels**

Reported analytical detection levels for undetected analytes are compared against the remaining waste sites RQLs to ensure that laboratory detection levels meet the required criteria. Six analytes exceeded the RQL. Under the BHI statement of work, no qualification is required. All other reported results met the analyte specific RQL.

- **Completeness**

Data package No. H2765 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Six analytes exceeded the RQL. Under the BHI statement of work, no qualification is required.

REFERENCES

FHI, Contract #20266, *Validation Statement of Work*, Bechtel Hanford Incorporated, July 7, 2003.

BHI-01249, Rev. 3, *Data Quality Objectives Summary Report for 100/300 Area Remaining Sites Analytical Sampling Effort*, Bechtel Hanford Incorporated, March 2003.

Appendix 1

Glossary of Data Reporting Qualifiers

000005

Qualifiers which may be applied by data validators in compliance with the BHI statement of work are as follows:

- U - Indicates the compound or analyte was analyzed for and not detected above the minimum detectable activity (MDA) in the sample. The value reported is the sample result corrected for sample dilution and moisture content by the laboratory. The data is usable for decision making purposes.
- UJ - Indicates the compound or analyte was analyzed for and not detected at concentrations above the minimum detectable activity (MDA) in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate, but is usable for decision making purposes.
- J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.
- R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.
- UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

Appendix 2

Summary of Data Qualification

000007

RADIOCHEMISTRY DATA QUALIFICATION SUMMARY*

SDG: H2765	REVIEWER: TLI	DATE: 11/10/04	PAGE <u>1</u> OF <u>1</u>
COMMENTS: No qualifiers assigned			

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

000009

Project: BECHTEL-HANFORD											
Laboratory: EB											
Case		SDG: H2765									
Sample Number		J01XJ0		J01XJ1		J01XJ2					
Remarks				Duplicate		E. Blank					
Sample Date		10/1/04		10/1/04		10/1/04					
Radiochemistry	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Gross Alpha		7.48		10.3		NA					
Gross Beta		18.1		20.4		NA					
Potassium-40		14.0		15.4		6.0					
Cobalt 60	0.05	U	U*	U	U	U	U				
Cesium 137	0.05	U	U*	U	U	U	U				
Radium-226		0.577		0.554		0.149					
Radium-228		0.748		0.724		0.231					
Europium 152	0.1	U	U*	U	U	U	U				
Europium 154	0.1	U	U*	U	U*	U	U				
Europium 155	0.1	U	U*	U	U	U	U				
Thorium-228		0.669		0.648		0.144					
Thorium-232		0.748		0.724		0.231					
Uranium-235(gea)		U	U	U	U	U	U				
Uranium-238(gea)		U	U	U	U	U	U				
Americium-241(gea)		U	U	U	U	U	U				

000010

* - RQL exceeded

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize potential miss-interpretation of results. All other qualifiers shown were applied during validation.

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2765

7121-001

J01XJ0

D A T A S H E E T

SDG <u>7121</u>	Client/Case no <u>Hanford</u>	SDG <u>H2765</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R410029-01</u>	Client sample id <u>J01XJ0</u>	
Dept sample id <u>7121-001</u>	Location/Matrix <u>1603-F3</u>	<u>SOLID</u>
Received <u>10/06/04</u>	Collected/Weight <u>10/01/04 09:40</u>	<u>929.2 g</u>
% solids <u>94.0</u>	Custody/SAF No <u>B03-015-255</u>	<u>B03-015</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	7.48	3.5	2.6	10		93A
Gross Beta	12587-47-2	18.1	4.2	5.2	15		93B
Potassium 40	13966-00-2	14.0	1.1	0.56			GAM
Cobalt 60	10198-40-0	U		<u>0.053</u>	0.050	U	GAM
Cesium 137	10045-97-3	U		<u>0.052</u>	0.10	U	GAM
Radium 226	13982-63-3	0.577	0.11	<u>0.11</u>	0.10		GAM
Radium 228	15262-20-1	0.748	0.25	<u>0.27</u>	0.20		GAM
Europium 152	14683-23-9	U		<u>0.11</u>	0.10	U	GAM
Europium 154	15585-10-1	U		<u>0.21</u>	0.10	U	GAM
Europium 155	14391-16-3	U		<u>0.13</u>	0.10	U	GAM
Thorium 228	14274-82-9	0.669	0.060	0.062			GAM
Thorium 232	TH-232	0.748	0.25	0.27			GAM
Uranium 235	15117-96-1	U		0.18		U	GAM
Uranium 238	U-238	U		6.4		U	GAM
Americium 241	14596-10-2	U		0.18		U	GAM

Remaining Sites Confirmation - Soil

M
11/8/04

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>10/16/04</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2765

7121-002

J01XJ1

DATA SHEET

SDG <u>7121</u>	Client/Case no <u>Hanford</u>	SDG <u>H2765</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R410029-02</u>	Client sample id <u>J01XJ1</u>	
Dept sample id <u>7121-002</u>	Location/Matrix <u>1603-F3</u>	<u>SOLID</u>
Received <u>10/06/04</u>	Collected/Weight <u>10/01/04 09:40</u>	<u>955.7 g</u>
% solids <u>93.8</u>	Custody/SAF No <u>B03-015-255</u>	<u>B03-015</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	10.3	4.1	2.9	10		93A
Gross Beta	12587-47-2	20.4	4.4	5.4	15		93B
Potassium 40	13966-00-2	15.4	0.70	0.28			GAM
Cobalt 60	10198-40-0	U		0.032	0.050	U	GAM
Cesium 137	10045-97-3	U		0.032	0.10	U	GAM
Radium 226	13982-63-3	0.554	0.062	0.056	0.10		GAM
Radium 228	15262-20-1	0.724	0.13	0.13	0.20		GAM
Europium 152	14683-23-9	U		0.073	0.10	U	GAM
Europium 154	15585-10-1	U		<u>0.11</u>	0.10	U	GAM
Europium 155	14391-16-3	U		0.084	0.10	U	GAM
Thorium 228	14274-82-9	0.648	0.038	0.036			GAM
Thorium 232	TH-232	0.724	0.13	0.13			GAM
Uranium 235	15117-96-1	U		0.11		U	GAM
Uranium 238	U-238	U		3.8		U	GAM
Americium 241	14596-10-2	U		0.11		U	GAM

Remaining Sites Confirmation - Soil

R
11/8/04

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>10/16/04</u>

000012

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2765

7121-003

J01XJ2

DATA SHEET

SDG <u>7121</u>	Client/Case no <u>Hanford</u>	SDG <u>H2765</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R410029-03</u>	Client sample id <u>J01XJ2</u>	
Dept sample id <u>7121-003</u>	Location/Matrix <u>1603-F3</u>	<u>SOLID</u>
Received <u>10/06/04</u>	Collected/Weight <u>10/01/04 09:00</u>	<u>1245 g</u>
% solids <u>100.0</u>	Custody/SAF No <u>B03-015-255</u>	<u>B03-015</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Potassium 40	13966-00-2	6.00	0.52	0.25			GAM
Cobalt 60	10198-40-0	U		0.022	0.050	U	GAM
Cesium 137	10045-97-3	U		0.023	0.10	U	GAM
Radium 226	13982-63-3	0.149	0.044	0.044	0.10		GAM
Radium 228	15262-20-1	0.231	0.11	0.11	0.20		GAM
Europium 152	14683-23-9	U		0.053	0.10	U	GAM
Europium 154	15585-10-1	U		0.077	0.10	U	GAM
Europium 155	14391-16-3	U		0.075	0.10	U	GAM
Thorium 228	14274-82-9	0.144	0.024	0.028			GAM
Thorium 232	TH-232	0.231	0.11	0.11			GAM
Uranium 235	15117-96-1	U		0.093		U	GAM
Uranium 238	U-238	U		3.0		U	GAM
Americium 241	14596-10-2	U		0.18		U	GAM

Remaining Sites Confirmation - Soil

KS
10/8/04

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>10/16/04</u>

000013

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

000014

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H2765 was composed of three soil samples designated under SAF No. B03-015 with a Project Designation of: Remaining Sites Confirmation Sampling-Soil.

The samples were received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-mail on October 16, 2004. The electronic data deliverable (EDD) was transmitted to BHI via e-mail on October 20, 2004.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

No problems were encountered during the course of the analyses.

2.2 Gamma Spectroscopy Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."



Melissa C. Mannion
Senior Program Manager

10/21/4

Date

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B03-015-255		Page 1 of 1	
Collector Stankovich/Rivera		Company Contact M Stankovich		Telephone No. 531-7620		Project Coordinator KESSNER, JH		Price Code 8B	
Project Designation Remaining Sites Confirmation Sampling-Soil		Sampling Location 1607-F3		H2165 (7121)		SAF No. B03-015		Data Turnaround 7 Days	
Ice Chest No. AFS 04 056		Field Logbook No. EL 1578-2		COA C607F36700		Method of Shipment Fed Ex		Air Quality <input type="checkbox"/>	
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. A040250				Bill of Lading/Air Bill No. SEE OSPC			

Special Handling and/or Storage Cool 4c	Preservation								
	Type of Container	G/P	G/P	aG	aG	aG	G	G	aG
	No. of Container(s)	1	1	1	1	1	1	1	1
	Volume	1000mL	250mL	250mL	120mL	250mL	60mL	210mL	1000mL

000016	SAMPLE ANALYSIS				See item (1) in Special Instructions.	See item (2) in Special Instructions.	PCBs - 8081; Pesticides - 8081; Heavy Metals - 8081	Semi-VOA - 8270A (TCL)	PAHs - 8310	VOA - 8260A (TCL)	TPH (Total) - 418	See item (3) in special instructions
	Sample No.	Matrix *	Sample Date	Sample Time								
	J01 XJ0	Soil	10/1/04	0940	X	X	X	X		X		
	J01 XJ1	Soil	10/1/04	0940	X	X	X	X		X		
J01 XJ2	Soil	10/1/04	0900		X	X	X				X	

CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time	Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time	(1) Gamma Spectroscopy (TCL List) [Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155]; Gamma Spec - Add on (Americium-241), Americium-241, Gross Alpha & Gross Beta; Nickel-63, ISOTOPE Plutonium (Plutonium-238, Plutonium-239/240); Uranium-89,90 - Total Cr; Technetium-99, Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238) - CR 10/1/04 (2) ICP Metals - 6010TR (SW846) [Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc]; Mercury - 7471 - (CV) (3) GEA only Personnel not available to relinquish samples from 3728 Ref# 2C on 10/5/04	S=Soil SE=Sediment SO=Soil SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation N=Other			
M Stankovich	10/1/04	FRIG 26	10/1/04	REF 2C	10/5/04	SJGALE	10/5/04					
SJGALE	10/5/04	FED EX		FED EX	10/6/04	FRIG 26	10/6/04					
FRIG 26	10/6/04											

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Appendix 5

Data Validation Supporting Documentation

000017

3. Continuing Calibration (Levels D, E)..... N/A

Calibration checked within required frequency? Yes No N/A

Calibration check acceptable?..... Yes No N/A

Calibration check standards traceable?..... Yes No N/A

Calibration check standards expired? Yes No N/A

Calculation check acceptable? Yes No N/A

Comments: _____

4. Background Counts (Levels D, E)..... N/A

Background Counts checked within required frequency? Yes No N/A

Background Counts acceptable?..... Yes No N/A

Calculation check acceptable? Yes No N/A

Comments: _____

5. Blanks (Levels B, C, D, E) N/A

Method blank analyzed within required frequency? Yes No N/A

Method blank results acceptable? Yes No N/A

Analytes detected in method blank? Yes No N/A

Field blank(s) analyzed? Yes No N/A

Field blank results acceptable? Yes No N/A

Analytes detected in field blank(s)? Yes No N/A

Transcription/Calculation Errors? (Levels D, E) Yes No N/A

Comments: FB - K40, R226, R228, Jh 228, Jh 232

6. Laboratory Control Samples or Blank Spike Samples (Levels C, D, E) N/A

LCS /BSS analyzed within required frequency? Yes No N/A

LCS/BSS recoveries acceptable? Yes No N/A

LCS/BSS traceable? (Levels D,E) Yes No N/A

LCS/BSS expired? (Levels D,E) Yes No N/A

LCS/BSS levels correct? (Levels D,E) Yes No N/A

Transcription/Calculation Errors? (Levels D, E) Yes No N/A

Comments: _____

7. Chemical Carrier Recovery (Levels C, D, E) N/A

Chemical carrier added? Yes No N/A

Chemical recovery acceptable? Yes No N/A

Chemical carrier traceable? (Levels D, E) Yes No N/A

Chemical carrier expired? (Levels D, E)Yes No N/A

Transcription/Calculation errors? (Levels D, E).....Yes No N/A

Comments: _____

8. Tracer Recovery (Levels C, D, E) N/A

Tracer added?.....Yes No N/A

Tracer recovery acceptable?Yes No N/A

Tracer traceable? (Levels D, E)Yes No N/A

Tracer expired? (Levels D, E).....Yes No N/A

Transcription/Calculation errors? (Levels D, E).....Yes No N/A

Comments: _____

9. Matrix Spikes (Levels C, D, E)..... N/A

Matrix spike analyzed?Yes No N/A

Spike recoveries acceptable?Yes No N/A

Spike source traceable? (Levels D, E)Yes No N/A

Spike source expired? Levels D, E).....Yes No N/A

Transcription/Calculation Errors? (Levels D, E).....Yes No N/A

Comments: _____

10. Duplicates (Levels C, D, E) N/A

Duplicates Analyzed at required frequency? Yes No N/A

RPD Values Acceptable? Yes No N/A

Transcription/Calculation Errors? (Levels D, E) Yes No N/A

Comments: _____

11. Field QC Samples (Levels C, D E) N/A

Field duplicate sample(s) analyzed? Yes No N/A

Field duplicate RPD values acceptable? Yes No N/A

Field split sample(s) analyzed? Yes No N/A

Field split RPD values acceptable? Yes No N/A

Performance audit sample(s) analyzed? Yes No N/A

Performance audit sample results acceptable? Yes No N/A

Comments: NO FS or PAs

12. Holding Times (All levels)

Are sample holding times acceptable? Yes No N/A

Comments: _____

13. Results and Detection Limits (All Levels) N/A

Results reported for all required sample analyses? Yes No N/A

Results supported in raw data?(Levels D, E) Yes No N/A

Results Acceptable? (Levels D, E) Yes No N/A

Transcription/Calculation errors? (Levels D, E) Yes No N/A

MDA's meet required detection limits? Yes No N/A

Transcription/calculation errors? (Levels D, E) Yes No N/A

Comments: cover

Appendix 6

Additional Documentation Requested by Client

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2765

7121-005

Method Blank

METHOD BLANK

SDG <u>7121</u>	Client/Case no <u>Hanford</u>	SDG <u>H2765</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R410029-05</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7121-005</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>B03-015</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	-0.499	1.7	3.7	10	U	93A
Gross Beta	12587-47-2	-1.97	3.4	6.0	15	U	93B
Potassium 40	13966-00-2	U		0.35		U	GAM
Cobalt 60	10198-40-0	U		0.033	0.050	U	GAM
Cesium 137	10045-97-3	U		0.029	0.10	U	GAM
Radium 226	13982-63-3	U		0.065	0.10	U	GAM
Radium 228	15262-20-1	U		0.12	0.20	U	GAM
Europium 152	14683-23-9	U		0.059	0.10	U	GAM
Europium 154	15585-10-1	U		0.071	0.10	U	GAM
Europium 155	14391-16-3	U		0.058	0.10	U	GAM
Thorium 228	14274-82-9	U		0.032		U	GAM
Thorium 232	TH-232	U		0.12		U	GAM
Uranium 235	15117-96-1	U		0.084		U	GAM
Uranium 238	U-238	U		2.4		U	GAM
Americium 241	14596-10-2	U		0.080		U	GAM

Remaining Sites Confirmation - Soil

QC-BLANK 49310

Lab id <u>EBERLINE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>10/16/04</u>

000025

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2765

7121-004

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7121</u> Contact <u>Melissa C. Mannion</u>	Client/Case no <u>Hanford</u> SDG <u>H2765</u> Contract No. <u>630</u>
Lab sample id <u>R410029-04</u> Dept sample id <u>7121-004</u>	Client sample id <u>Lab Control Sample</u> Material/Matrix <u>SOLID</u> SAF No <u>B03-015</u>

ANALYTE	RESULT	2σ ERR	MDA	RDL	QUALI-	ADDED	2σ ERR	REC	3σ LMTS	PROTOCOL
	pCi/g	(COUNT)	pCi/g	pCi/g	FIERS TEST	pCi/g	pCi/g	%	(TOTAL)	LIMITS
Gross Alpha	244	16	2.7	10	93A	214	8.6	114	64-136	70-130
Gross Beta	240	11	6.8	15	93B	224	9.0	107	74-126	70-130
Cobalt 60	0.852	0.048	0.024	0.050	GAM	0.869	0.035	98	76-124	80-120
Cesium 137	0.840	0.041	0.031	0.10	GAM	0.844	0.034	100	76-124	80-120

Remaining Sites Confirmation - Soil

QC-LCS 49309

000026

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>10/16/04</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2765

7121-006

J01XJ0

DUPLICATE

SDG <u>7121</u>	Client/Case no <u>Hanford</u>	SDG <u>H2765</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>R410029-06</u>	Lab sample id <u>R410029-01</u>	Client sample id <u>J01XJ0</u>
Dept sample id <u>7121-006</u>	Dept sample id <u>7121-001</u>	Location/Matrix <u>1603-F3</u> SOLID
	Received <u>10/06/04</u>	Collected/Weight <u>10/01/04 09:40</u> <u>929.2 g</u>
% solids <u>94.0</u>	% solids <u>94.0</u>	Custody/SAF No <u>B03-015-255</u> <u>B03-015</u>

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI- FIERS	RPD %	3σ PROT TOT LIMIT
Gross Alpha	5.78	3.3	3.3	10		93A	7.48	3.5	2.6		26	117
Gross Beta	19.0	4.7	6.1	15		93B	18.1	4.2	5.2		5	60
Potassium 40	14.4	0.75	0.35			GAM	14.0	1.1	0.56		3	35
Cobalt 60	U		0.034	0.050	U	GAM	U		0.053	U	-	
Cesium 137	U		0.069	0.10	U	GAM	U		0.052	U	-	
Radium 226	0.499	0.063	0.060	0.10		GAM	0.577	0.11	0.11		14	48
Radium 228	0.809	0.13	0.12	0.20		GAM	0.748	0.25	0.27		8	63
Europium 152	U		0.071	0.10	U	GAM	U		0.11	U	-	
Europium 154	U		0.12	0.10	U	GAM	U		0.21	U	-	
Europium 155	U		0.087	0.10	U	GAM	U		0.13	U	-	
Thorium 228	0.657	0.040	0.037			GAM	0.669	0.060	0.062		2	36
Thorium 232	0.809	0.13	0.12			GAM	0.748	0.25	0.27		8	63
Uranium 235	U		0.13		U	GAM	U		0.18	U	-	
Uranium 238	U		4.1		U	GAM	U		6.4	U	-	
Americium 241	U		0.12		U	GAM	U		0.18	U	-	

Remaining Sites Confirmation - Soil

QC-DUP#1 49311

DUPLICATES

Page 1

SUMMARY DATA SECTION

Page 9

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>10/16/04</u>

000027

Date: 10 November 2004
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: Remaining Sites Confirmation Sampling - Soil - Waste Site 1607-F-3
Subject: PCB/Pesticide - Data Package No. H2765-LLI (SDG No. H2756)

INTRODUCTION

This memo presents the results of data validation on Summary Data Package No. H2765-LLI prepared by Lionville Laboratory Incorporated (LLI). A list of the samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Waste Site	Analysis
J01XJ0	10/1/04	Soil	C	1607-F-3	See note 1
J01XJ1	10/1/04	Soil	C	1607-F-3	See note 1
J01XJ2	10/1/04	Soil	C	1607-F-3	See note 1

1 - PCBs by 8082 and pesticides by 8081A.

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the Data Quality Objectives Summary Report for 100/300 Area Remaining Sites Analytical Sampling Effort, (BHI-01249, Rev. 3, March 2003). Appendices 1 through 5 provide the following information as indicated below:

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

DATA QUALITY OBJECTIVES

- **Holding Times**

Sample data were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be extracted within 14 days of the date of sample collection and analyzed within 40 days from the date of extraction.

000001

If holding times are exceeded by less than two times the limit, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ" for non-detects. If holding times are exceeded by greater than two times the limit, all associated detected sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

All holding times were acceptable.

- **Method Blank**

Method blank analyses are performed to determine the extent of laboratory contamination introduced through sampling, sample preparation or analysis. At least one method blank analysis must be conducted for every 20 samples. Method blanks should not contain target compounds at a concentration greater than required quantitation limit (RQL). If target compounds are present, sample results less than five times the blank concentration are qualified as undetected and flagged "U". If the sample result is less than five times the blank concentration and less than RQL, the result is qualified as undetected and elevated to the RQL.

All method blank target compound results were acceptable.

Field Blanks

One equipment blank (J01XJ2) was submitted for analysis. No analytes were detected in the equipment blank.

- **Accuracy**

Matrix Spike & Laboratory Control Sample

Matrix spike (MS) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data. The matrix spike is used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 50% to 150% (laboratory CLP limits for chlorinated pesticides). If spike recoveries are outside control limits, detected sample results less than five times the spike concentration are qualified as estimates and flagged "J". Non-detected sample results with spike recoveries outside control limits are qualified as estimates and flagged "UJ". Sample results greater than five times the spike concentration require no qualification.

Due to the lack of a MS, MSD and LCS analysis, all toxaphene results were qualified as estimates and flagged "J".

All other accuracy spike results were acceptable.

Surrogate Recovery

The analysis of surrogate compounds provides a measure of performance for individual samples. Matrix-specific surrogate compound recovery control windows have been established by the laboratory. When a surrogate compound recovery is outside the control window, all positively identified target compounds associated with the unacceptable surrogate recoveries are qualified as estimates and flagged "J". Non-detected compounds with surrogate recoveries less than the lower control limit are qualified as having an estimated detection limit and flagged "UJ". Non-detected compounds with surrogate recoveries above the upper control limit require no qualification.

All surrogate results were acceptable.

- **Precision**

Matrix Spike/Matrix Spike Duplicate Samples

Matrix spike/matrix spike duplicate results provide matrix-specific information on the precision of the method for specific target compound classes. Precision is expressed as the relative percent difference (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample. For soil samples, results must be within RPD limits of plus/minus 30%. If RPD values are out of specification and the sample concentration is less than five times the spike concentration, all associated detected sample results are qualified as estimates and flagged "J". If RPD values are out of specification and the sample concentration is greater than five times the spike concentration, no qualification is required.

Due to the lack of a MS and MSD analysis, all toxaphene results were qualified as estimates and flagged "J".

All other matrix spike/matrix spike duplicate results were acceptable.

Field Duplicate Samples

One set of field duplicates (J01XJ0/J01XJ1) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

000003

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the Remaining Waste Sites RQLs to ensure that laboratory detection levels meet the required criteria. All analytes met the RQL.

- **Completeness**

Data Package No. H2765-LLI was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Due to the lack of a MS, MSD and LCS analysis, all toxaphene results were qualified as estimates and flagged "J". Data flagged "J" indicates that the associated concentration is an estimate, but under the BHI statement of work, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

REFERENCES

BHI, MRB-SBB-A23665, *Validation Statement of Work*, Bechtel Hanford Incorporated, September 5, 1997.

BHI-01249, Rev. 3, *Data Quality Objectives Summary Report for 100/300 Area Remaining Sites Analytical Sampling Effort*, Bechtel Hanford Incorporated, March 2003.

Appendix 1

Glossary of Data Reporting Qualifiers

000005

Qualifiers which may be applied by data validators in compliance with the procedures herein are as follows:

- U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.
- UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.
- UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.
- NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).
- N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

000007

PESTICIDE/PCB DATA QUALIFICATION SUMMARY*

SDG: H2765	REVIEWER: TLI	DATE: 11/10/04	PAGE <u>1</u> OF <u>1</u>
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Toxaphene	J	All	No MS, MSD or LCS

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

000009

Project: BECHTEL-HANFORD											
Laboratory: Lionville Laboratory Inc.											
Case:		SDG: H2765									
Sample Number	J01XJ0	J01XJ1	J01XJ2								
Remarks		Duplicate	E. Blank								
Sample Date	10/1/04	10/1/04	10/1/04								
Extraction Date	10/7/04	10/7/04	10/7/04								
Analysis Date	10/13/04	10/13/04	10/13/04								
PCB	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aroclor-1016	20	14	U	14	U	13	U				
Aroclor-1221	20	14	U	14	U	13	U				
Aroclor-1232	20	14	U	14	U	13	U				
Aroclor-1242	20	14	U	14	U	13	U				
Aroclor-1248	20	14	U	14	U	13	U				
Aroclor-1254	20	14	U	14	U	13	U				
Aroclor-1260	20	14	U	14	U	13	U				
Sample Date	10/1/04	10/1/04	10/1/04								
Extraction Date	10/7/04	10/7/04	10/7/04								
Analysis Date	10/13/04	10/13/04	10/13/04								
Pesticide	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Alpha-BHC	5	1.8	U	1.8	U	1.7	U				
Beta-BHC	5	1.8	U	1.8	U	1.7	U				
Delta-BHC	5	1.8	U	1.8	U	1.7	U				
Gamma-BHC (Lindane)	5	1.8	U	1.8	U	1.7	U				
Heptachlor	5	1.8	U	1.8	U	1.7	U				
Aldrin	5	1.8	U	1.8	U	1.7	U				
Heptachlor Epoxide	5	1.8	U	1.8	U	1.7	U				
Endosulfan I	5	1.8	U	1.8	U	1.7	U				
Dieldrin	5	3.5	U	3.6	U	3.3	U				
4,4'-DDE	5	3.5	U	3.6	U	3.3	U				
Endrin	5	3.5	U	3.6	U	3.3	U				
Endosulfan II	5	3.5	U	3.6	U	3.3	U				
4,4'-DDD	5	3.5	U	3.6	U	3.3	U				
Endosulfan Sulfate	5	3.5	U	3.6	U	3.3	U				
4,4'-DDT	5	3.5	U	3.6	U	3.3	U				
Methoxychlor	5	18	U	18	U	17	U				
Endrin Ketone	5	3.5	U	3.6	U	3.3	U				
Endrin Aldehyde	5	3.5	U	3.6	U	3.3	U				
alpha-Chlordane	5	1.8	U	1.8	U	1.7	U				
gamma-Chlordane	5	1.8	U	1.8	U	1.7	U				
Toxaphene	5	180	UJ	180	UJ	170	UJ				

000010

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize miss-interpretation of results. All other qualifiers shown were applied during validation.

Lionville Laboratory, Inc.
Pesticide/PCBs by GC, CLP List

Report Date: 10/18/04 13:17

RFW Batch Number: 0410L814

Client: TNU-HANFORD B03-015

Work Order: 11343606001 Page: 1

Cust ID:	J01XJ0	J01XJ1	J01XJ1	J01XJ1	J01XJ1	J01XJ2	PBLKYC
Sample Information	RFW#: 001	002	002 MS	002 MSD	003	04LE1259-MB1	
	Matrix: SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.: 1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Units: UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	89 %	87 %	99 %	98 %	96 %	106 %
	Decachlorobiphenyl	97 %	88 %	93 %	96 %	97 %	103 %
		fl	fl	fl	fl	fl	fl
Alpha-BHC	1.8 U	1.8 U	109 %	111 %	1.7 U	1.7 U	1.7 U
Beta-BHC	1.8 U	1.8 U	102 %	104 %	1.7 U	1.7 U	1.7 U
Delta-BHC	1.8 U	1.8 U	100 %	104 %	1.7 U	1.7 U	1.7 U
gamma-BHC (Lindane)	1.8 U	1.8 U	106 %	108 %	1.7 U	1.7 U	1.7 U
Heptachlor	1.8 U	1.8 U	108 %	110 %	1.7 U	1.7 U	1.7 U
Aldrin	1.8 U	1.8 U	107 %	108 %	1.7 U	1.7 U	1.7 U
Heptachlor epoxide	1.8 U	1.8 U	106 %	107 %	1.7 U	1.7 U	1.7 U
Endosulfan I	1.8 U	1.8 U	102 %	104 %	1.7 U	1.7 U	1.7 U
Dieldrin	3.5 U	3.6 U	107 %	111 %	3.3 U	3.3 U	3.3 U
4,4'-DDE	3.5 U	3.6 U	113 %	116 %	3.3 U	3.3 U	3.3 U
Endrin	3.5 U	3.6 U	124 %	128 %	3.3 U	3.3 U	3.3 U
Endosulfan II	3.5 U	3.6 U	96 %	97 %	3.3 U	3.3 U	3.3 U
4,4'-DDD	3.5 U	3.6 U	99 %	102 %	3.3 U	3.3 U	3.3 U
Endosulfan sulfate	3.5 U	3.6 U	107 %	110 %	3.3 U	3.3 U	3.3 U
4,4'-DDT	3.5 U	3.6 U	119 %	120 %	3.3 U	3.3 U	3.3 U
Methoxychlor	18 U	18 U	111 %	118 %	17 U	17 U	17 U
Endrin ketone	3.5 U	3.6 U	105 %	111 %	3.3 U	3.3 U	3.3 U
Endrin aldehyde	3.5 U	3.6 U	111 %	110 %	3.3 U	3.3 U	3.3 U
alpha-Chlordane	1.8 U	1.8 U	107 %	108 %	1.7 U	1.7 U	1.7 U
gamma-Chlordane	1.8 U	1.8 U	105 %	107 %	1.7 U	1.7 U	1.7 U
Toxaphene	180 U J	180 U J	180 U	180 U	170 U J	170 U	170 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Handwritten signature and date: 11/18/04

000011

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

000013



Analytical Report

Client: TNU HANFORD B03-015

LVL#: 0410L814

SDG/SAF#: H2765/B03-015

W.O.#: 11343-606-001-9999-00

Date Received: 10-06-2004

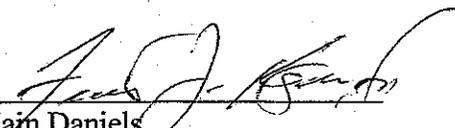
PCB

Three (3) soil samples were collected on 10-01-2004.

The samples and their associated QC samples were extracted on 10-07-2004 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 10-13-2004. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8082.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LVL's sample acceptance policy.
2. Samples were extracted and analyzed within required holding time.
3. Samples and their associated QC samples received Copper-Sulfur and Sulfuric Acid cleanups according to Lionville Laboratory SOPs based on SW846 methods 3660A and 3665A respectively.
4. The method blank was below the reporting limits for all target compounds.
5. Ten (10) of fourteen (14) surrogate recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
6. The blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
7. Two (2) of four (4) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
8. Confirmation was not required because target compounds were not detected in the samples.
9. All initial calibrations associated with this data set were within acceptance criteria.
10. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
11. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.


Iain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

10/21/04
Date

son\vr\group\data\pest\tnu hanford\0410-814.pcb

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 8 pages.

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Appendix 5

Data Validation Supporting Documentation

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PESTICIDE/PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	RWS-1607-F-3		DATA PACKAGE: H2765		
VALIDATOR:	TLF	LAB:	LLF	DATE: 11/7/04	
			SDG:	H2765	
ANALYSES PERFORMED					
SW-846 8081	SW-846 8081 (TCLP)	SW-846 8082	SW-846 8081 (TCLP)		
SAMPLES/MATRIX					
JOIXJO JOIXJI JOIXJR					
soil					

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? Yes **No** N/A

Comments: _____

2. INSTRUMENT PERFORMANCE AND CALIBRATIONS (Levels D and E)

Initial calibrations acceptable? Yes No **N/A**
 Continuing calibrations acceptable? Yes No **N/A**
 Standards traceable? Yes No **N/A**
 Standards expired? Yes No **N/A**
 Calculation check acceptable? Yes No **N/A**
 DDT and endrin breakdowns acceptable? Yes No **N/A**

Comments: _____

PESTICIDE/PCB DATA VALIDATION CHECKLIST

3. BLANKS (Levels B, C, D, and E)

Calibration blanks analyzed? (Levels D, E)..... Yes No N/A
Calibration blank results acceptable? (Levels D, E)..... Yes No N/A
Laboratory blanks analyzed?..... Yes No N/A
Laboratory blank results acceptable?..... Yes No N/A
Field/trip blanks analyzed? (Levels C, D, E)..... Yes No N/A
Field/trip blank results acceptable? (Levels C, D, E)..... Yes No N/A
Transcription/calculation errors? (Levels D, E)..... Yes No N/A

Comments: _____

4. ACCURACY (Levels C, D, and E)

Surrogates analyzed?..... Yes No N/A
Surrogate recoveries acceptable?..... Yes No N/A
Surrogates traceable? (Levels D, E)..... Yes No N/A
Surrogates expired? (Levels D, E)..... Yes No N/A
MS/MSD samples analyzed?..... Yes No N/A
MS/MSD results acceptable?..... Yes No N/A
MS/MSD standards NIST traceable? (Levels D, E)..... Yes No N/A
MS/MSD standards expired? (Levels D, E)..... Yes No N/A
LCS/BSS samples analyzed?..... Yes No N/A
LCS/BSS results acceptable?..... Yes No N/A
Standards traceable? (Levels D, E)..... Yes No N/A
Standards expired? (Levels D, E)..... Yes No N/A
Transcription/calculation errors? (Levels D, E)..... Yes No N/A
Performance audit sample(s) analyzed?..... Yes No N/A
Performance audit sample results acceptable?..... Yes No N/A

Comments: Toxaphene - NO MS, MSD or LCS - J all
-PCB- MS/MSD + Surr + LCS High but no detects

PESTICIDE/PCB DATA VALIDATION CHECKLIST

5. PRECISION (Levels C, D, and E)

Duplicate RPD values acceptable? Yes No N/A
Duplicate results acceptable? Yes No N/A
MS/MSD standards NIST traceable? (Levels D, E) Yes No N/A
MS/MSD standards expired? (Levels D, E) Yes No N/A
Field duplicate RPD values acceptable? Yes No N/A
Field split RPD values acceptable? Yes No N/A
Transcription/calculation errors? (Levels D, E) Yes No N/A

Comments: toxaphen - no ms/msd - J all

6. SYSTEM PERFORMANCE (Levels D and E)

Chromatographic performance acceptable? Yes No N/A
Positive results resolved acceptably? Yes No N/A

Comments: _____

7. HOLDING TIMES (all levels)

Samples properly preserved? Yes No N/A
Sample holding times acceptable? Yes No N/A

Comments: _____

PESTICIDE/PCB DATA VALIDATION CHECKLIST

8. COMPOUND IDENTIFICATION, QUANTITATION, AND DETECTION LIMITS (all levels)

Compound identification acceptable? (Levels D, E) Yes No N/A

Compound quantitation acceptable? (Levels D, E)..... Yes No N/A

Results reported for all requested analyses? Yes No N/A

Results supported in the raw data? (Levels D, E) Yes No N/A

Samples properly prepared? (Levels D, E) Yes No N/A

Detection limits meet RDL? Yes No N/A

Transcription/calculation errors? (Levels D, E)..... Yes No N/A

Comments: methoxychlor + toxaphene over

9. SAMPLE CLEANUP (Levels D and E)

Fluorocil ® (or other absorbent) cleanup performed? Yes No N/A

Lot check performed? Yes No N/A

Check recoveries acceptable? Yes No N/A

GPC cleanup performed? Yes No N/A

GPC check performed? Yes No N/A

GPC check recoveries acceptable? Yes No N/A

GPC calibration performed? Yes No N/A

GPC calibration check performed? Yes No N/A

GPC calibration check retention times acceptable? Yes No N/A

Check/calibration materials traceable? Yes No N/A

Check/calibration materials Expired? Yes No N/A

Analytical batch QC given similar cleanup? Yes No N/A

Transcription/Calculation Errors? Yes No N/A

Comments: _____



Analytical Report

Client: TNU HANFORD B03-015
LVL#: 0410L814
SDG/SAF#: H2765/B03-015

W.O.#: 11343-606-001-9999-00
Date Received: 10-06-2004

CHLORINATED PESTICIDES

Three (3) soil samples were collected on 10-01-2004.

The samples and their associated QC samples were extracted on 10-07-2004 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 10-12,13-2004. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8081A.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LVL's sample acceptance policy.
2. Samples were extracted and analyzed within the holding time.
3. The method blank was below the reporting limits for all target compounds.
4. All obtainable surrogate recoveries were within acceptance criteria.
5. All matrix spike recoveries were within acceptance criteria.
6. All blank spike recoveries were within acceptance criteria.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

10/21/04
Date

son\tr\group\data\pest\tnu hanford\0410-814.pes

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 8 pages.

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Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B03-015-255 Page 1 of 1

Collector Stankovich/Rivera	Company Contact M Stankovich	Telephone No. 531-7620	Project Coordinator KESSNER, JH	Price Code 8B	Data Turnaround 7 Days
Project Designation Remaining Sites Confirmation Sampling-Soil	Sampling Location 1607-F3	SAF No. 1303-015	Air Quality <input type="checkbox"/>		
Ice Chest No. ERC 99 067	Field Logbook No. EL 1578-2	COA C607F36700	Method of Shipment Fed Ex		
Shipped To EDERLINE SERVICES (Formerly TMA)	Offsite Property No. A040 237	Bill of Lading/Air Bill No. SEE OSPC			

Special Handling and/or Storage Cool 4c	Preservation	None	COOL 4°C	COOL 4°C	COOL	COOL 4°C	COOL 4°C	COOL 4°C	COOL 4°C
	Type of Container	G/P	G/P	aG	aG	aG	G	G	aG
	No. of Container(s)	1	1	1	1	1	1	1	1
	Volume	1000mL	250mL	250mL	120mL	250mL	60mL	250mL	1000mL

SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	PCBs - 8082; Pesticides - 8081; Mercury - 8083	Semi-VOA - 8270A (TCL)	PAHs - 8310	VOA - 8260A (TCL)	TPH (Total) - 418	See item (3) in special instructions
	000016	See item (1) in Special Instructions.	See item (2) in Special Instructions.	PCBs - 8082; Pesticides - 8081; Mercury - 8083	Semi-VOA - 8270A (TCL)	PAHs - 8310	VOA - 8260A (TCL)	TPH (Total) - 418

Sample No.	Matrix *	Sample Date	Sample Time						
J01 XJ0	Soil	10/1/04	0940	X	X	X	X	X	X
J01 XJ1	Soil	10/1/04	0940	X	X	X	X	X	X
J01 XJ2	Soil	10/1/04	0900		X	X	X		X

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS		Matrix *
Relinquished By/Removed From M Stankovich	Date/Time 10/1/04	Received By/Stored In EJG	Date/Time 10/1/04 1445	(1) Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155 ; Gross Alpha & Gross Beta; Micahel-69, isotopic Plutonium (Plutonium-238, Plutonium-239/240), Americium-241, Curium-244, Technetium-99, Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238), Uranium-238 ; Mercury - 7471 - (CV) (2) ICP Metals - 6010TR (SW846) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV) (3) GEA only Personnel not available to relinquish samples from 3728 Ref # ZC on 10/5/04		S=Soil SE=Sediment SD=Solid SL=Sludge W=Water O=Oil A=Air DS=Drawn Solids DL=Drawn Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From REF 2C	Date/Time 10504 0900	Received By/Stored In SJOALE	Date/Time 10504 0900			
Relinquished By/Removed From SJOALE	Date/Time 10504 0900	Received By/Stored In FED EX	Date/Time			
Relinquished By/Removed From Fed Ex	Date/Time 10-6-04/10:00	Received By/Stored In M Stankovich	Date/Time 10-6-04/10:00			
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time			

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time