0070863

SAF-RC-047
100 & 300 Area Component of the RCBRA Sediment and Tissues FINAL VALIDATION PACKAGE

COMPLETE COPY OF VALIDATION PACKAGE TO:

Jeanette Duncan **(2 copies)** H9-02 Da 08/23/06
INITIAL/DATE

COMMENTS:

SDG K0358 **SAF-RC-047**

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Date: 11 August 2006
To: Washington Closure Hanford (technical representative)
From: TechLaw, Inc.
Project: 100 Area and 300 Area Component of the RCBRA Sediment & Tissue
Subject: Semivolatile - Data Package No. K0358-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0358 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	Date
J11WW7	5/9/06	Solid	C	See note 1
J11WW8	5/9/06	Solid	C	See note 1
J11WW9	5/10/06	Solid	C	See note 1
J11WW9R*	5/10/06	Solid	C	See note 1
J11WX0	5/10/06	Solid	C	See note 1
J11WX5	5/9/06	Solid	C	See note 1
J11WX6	5/9/06	Solid	C	See note 1
J11WX9	5/9/06	Solid	C	See note 1
J11WY0	5/9/06	Solid	C	See note 1
J11WY5	5/9/06	Solid	C	See note 1
J11WY6	5/9/06	Solid	C	See note 1
J11WY7	5/9/06	Solid	C	See note 1
J11WY8	5/9/06	Solid	C	See note 1
J11WW5	5/9/06	Solid	C	See note 1
J11WW6	5/9/06	Solid	C	See note 1
J11X01	5/9/06	Solid	C	See note 1
J11X02	5/9/06	Solid	C	See note 1
J11X03	5/9/06	Solid	C	See note 1
J11X04	5/9/06	Solid	C	See note 1
J11X44	5/12/06	Solid	C	See note 1
J11X45	5/12/06	Solid	C	See note 1

1– Semivolatiles by 8270C.
* - Reprepared and reanalyzed.

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 100 Area and 300 Area Component of the RCBRA Sampling and Analysis Plan (DOE/RL-2005-42, Rev. 0, October 2005). 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 Preservation**

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

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".

Due to the holding time being exceeded by less that twice the limit, all results (except J11WW9R) were qualified as estimates and flagged "J".

Due to the holding time being exceeded by greater than twice the limit, all undetected results in sample J11WW9R were rejected and flagged "R".

Due to the holding time being exceeded by greater than twice the limit, all detected results in sample J11WW9R were qualified as estimates and flagged "J".

- **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, the bis(2-ethylhexyl)phthalate result in samples J11WW7, J11WW9R, J11WY6 and J11WW5 were qualified as undetected, raised to the RQL and flagged "U".

Due to method blank contamination, the bis(2-ethylhexyl)phthalate result in sample J11X01 was qualified as undetected and flagged "U".

Due to method blank contamination, the di-n-butylphthalate result in samples J11WW9R and J11WY6 were qualified as undetected, raised to the RQL and flagged "U".

Due to method blank contamination, the di-n-butylphthalate result in samples J11WX9 and J11WX6 were qualified as undetected and flagged "U".

All other 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 below control limits are qualified as estimates and flagged "UJ". Undetected sample results are not qualified if the spike recovery is above control limits. Sample results greater than five times the spike concentration require no qualification.

No matrix spike or matrix spike duplicate was analyzed with preparation batchs 06LE0452 and 06LE0573. All associated sample results (J11WY7, J11WY8, J11WW9R, J11WW5, J11WW6, J11X01, J11X02, J11X03, J11X04, J11X44 and J11X45) were qualified as estimates and flagged "J".

All other 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".

Due to surrogate recoveries below 10%, all undetected semivolatile results (except 2,4-dichlorophenol, 2,4,5-trichlorophenol, 2,4,6-trichlorophenol, pentachlorophenol, bis(2-chloroethyl)ether, bis(2-chloroethoxy)methane, 4-chlorophenyl-phenylether and 4-bromophenyl-phenylether) in sample J11WW9 were rejected and flagged "UR".

Due to surrogate recovery of 10%, the 2,4-dichlorophenol, 2,4,5-trichlorophenol, 2,4,6-trichlorophenol, pentachlorophenol, bis(2-chloroethyl)ether, bis(2-chloroethoxy)methane, 4-chlorophenyl-phenylether and 4-bromophenyl-phenylether results in sample J11WW9 were qualified as estimates and flagged "J".

All other 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 +/-20%. 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.

No matrix spike or matrix spike duplicate was analyzed with preparation batchs 06LE0452 and 06LE0573. All associated sample results (J11WY7, J11WY8, J11WW9R, J11WW5, J11WW6, J11X01, J11X02, J11X03, J11X04, J11X44 and J11X45) were qualified as estimates and flagged "J".

All other precision results were acceptable.

Field Duplicate Samples

No field duplicates were submitted for analysis.

- **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. No RQLs were specified.

- **Completeness**

Data package No. K0358 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 99.4%.

MAJOR DEFICIENCIES

The following minor deficiencies were noted:

- Due to surrogate recoveries below 10%, all undetected semivolatile results (except 2,4-dichlorophenol, 2,4,5-trichlorophenol, 2,4,6-trichlorophenol, pentachlorophenol, bis(2-chloroethyl)ether, bis(2-chloroethoxy)methane, 4-chlorophenyl-phenylether and 4-bromophenyl-phenylether) in sample J11WW9 were rejected and flagged "UR".

- Due to the holding time being exceeded by greater than twice the limit, all undetected results in sample J11WW9R were rejected and flagged "R".

Rejected data is unusable and should not be reported.

MINOR DEFICIENCIES

The following minor deficiencies were noted:

- Due to the holding time being exceeded by less that twice the limit, all results (except J11WW9R) were qualified as estimates and flagged "J".

- Due to the holding time being exceeded by greater than twice the limit, all detected results in sample J11WW9R were qualified as estimates and flagged "J".

- Due to method blank contamination, the bis(2-ethylhexyl)phthalate result in samples J11WW7, J11WW9R, J11WY6 and J11WW5 were qualified as undetected, raised to the RQL and flagged "U".

- Due to method blank contamination, the bis(2-ethylhexyl)phthalate result in sample J11X01 was qualified as undetected and flagged "U".

- Due to method blank contamination, the di-n-butylphthalate result in samples J11WW9R and J11WY6 were qualified as undetected, raised to the RQL and flagged "U".

- Due to method blank contamination, the di-n-butylphthalate result in samples J11WX9 and J11WX6 were qualified as undetected and flagged "U".

- No matrix spike or matrix spike duplicate was analyzed with preparation batchs 06LE0452 and 06LE0573. All associated sample results (J11WY7, J11WY8, J11WW9R, J11WW5, J11WW6, J11X01, J11X02, J11X03, J11X04, J11X44 and J11X45) were qualified as estimates and flagged "J".

- Due to surrogate recovery of 10%, the 2,4-dichlorophenol, 2,4,5-trichlorophenol, 2,4,6-trichlorophenol, pentachlorophenol, bis(2-chloroethyl)ether, bis(2-chloroethoxy)methane, 4-chlorophenyl-phenylether and 4-bromophenyl-phenylether results in sample J11WW9 were qualified as estimates and flagged "J".

Data flagged "J" indicates that the associated concentration is an estimate, but under the WCH 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

WCH, Contract #20266, *Validation Statement of Work*, Washington Closure Hanford Incorporated, July 7, 2003.

DOE/RL-2005-42, Rev. 0, October 2005, *100 Area and 300 Area Component of the RCBRA Sampling and Analysis Plan*.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with the WCH 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

SEMVOLATILE DATA QUALIFICATION SUMMARY*

SDG: K0358	REVIEWER: TLI	Project: RCBRA	PAGE 1 OF 1
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
All	J	All except J11WW9R	Holding time
All (except bis(2-ethylhexylphthalate & di-n-butylphthalate)	UR	J11WW9R	Holding time
Bis(2-ethylhexylphthalate Di-n-butylphthalate	J	J11WW9R	Holding time
Bis(2-ethylhexyl)phthalate	U at RQL	J11WW7, J11WW9R J11WY6 J11WW5	Method blank contamination
Bis(2-ethylhexyl)phthalate	U	J11X01	Method blank contamination
Di-n-butylphthalate	U at ROL	J11WW9R, J11WY6	Method blank contamination
Di-n-butylphthalate	U	J11WX9, J11WX6	Method blank contamination
All	J	J11WY7, J11WY8 J11WW5, J11WW6 J11WW9R, J11X01 J11X02, J11X03 J11X04, J11X44 J11X45	No MS/MSD
All (except 2,4-dichlorophenol, 2,4,5-trichlorophenol, 2,4,6-trichlorophenol, pentachlorophenol, bis(2-chloroethyl)ether, bis(2-chloroethoxy)methane, 4-chlorophenyl-phenylether and 4-bromophenyl-phenylether)	R	J11WW9	Surrogate recovery
2,4-dichlorophenol 2,4,5-trichlorophenol 2,4,6-trichlorophenol pentachlorophenol bis(2-chloroethyl)ether bis(2-chloroethoxy)methane 4-chlorophenyl-phenylether 4-bromophenyl-phenylether	J	J11WW9	Surrogate recovery

SEMVOLATILE DATA QUALIFICATION SUMMARY*

* - 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

SEMIVOLATILE ANALYSIS, SOLID MATRIX, (UG/KG)

Project: WASHINGTON CLOSURE HANFORD
Laboratory: LLI SDG: K0358

Sample Number		J11WW7		J11WW8		J11WW9		J11WW9R		J11WX0		J11WX5		J11WX6		J11WX9		J11WY0	
Remarks																			
Sample Date		5/9/06		5/9/06		5/10/06		5/10/06		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06	
Extraction Date		6/1/06		6/1/06		6/1/06		7/14/06		6/1/06		6/1/06		6/1/06		6/1/06		6/1/06	
Analysis Date		7/3/06		7/10/06		6/25/06		7/20/06		7/3/06		7/12/06		7/3/06		7/3/06		7/3/06	
Semivolatile (8270C)	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	580	J	8000	UJ
bis(2-Chloroethyl)ether		2000	UJ	8000	UJ	2000	UJ	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
2-Chlorophenol		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
1,3-Dichlorobenzene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
1,4-Dichlorobenzene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
1,2-Dichlorobenzene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
2-Methylphenol		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
2,2'-oxybis(1-chloropropane)		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
3 and/or 4-Methylphenol		430	J	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	110	J	8000	UJ
N-Nitroso-di-n-propylamine		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
Hexachloroethane		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
Nitrobenzene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
Isophorone		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
2-Nitrophenol		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
2,4-Dimethylphenol		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
bis(2-Chloroethoxy)methane		2000	UJ	8000	UJ	2000	UJ	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
2,4-Dichlorophenol		2000	UJ	8000	UJ	2000	UJ	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
1,2,4-Trichlorobenzene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
Naphthalene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
4-Chloroaniline		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
Hexachlorobutadiene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
4-Chloro-3-methylphenol		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
2-Methylnaphthalene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
Hexachlorocyclopentadiene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
2,4,6-Trichlorophenol		2000	UJ	8000	UJ	2000	UJ	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
2,4,5-Trichlorophenol		5000	UJ	20000	UJ	5000	UJ	830	UR	20000	UJ	10000	UJ	20000	UJ	50000	UJ	20000	UJ
2-Chloronaphthalene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
2-Nitroaniline		5000	UJ	20000	UJ	5000	UR	830	UR	20000	UJ	10000	UJ	20000	UJ	50000	UJ	20000	UJ
Dimethylphthalate		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
Acenaphthylene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
2,6-Dinitrotoluene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ

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.

* - RQL exceeded

000014

SEMIVOLATILE ANALYSIS, SOLID MATRIX, (UG/KG)

Project: WASHINGTON CLOSURE HANFORD
Laboratory: LLI SDG: K0358

Sample Number		J11WW7		J11WW8		J11WW9		J11WW9R		J11WX0		J11WX5		J11WX6		J11WX9		J11WY0	
Remarks																			
Sample Date		5/9/06		5/9/06		5/10/06		5/10/06		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06	
Extraction Date		6/1/06		6/1/06		6/1/06		7/14/06		6/1/06		6/1/06		6/1/06		6/1/06		6/1/06	
Analysis Date		7/3/06		7/10/06		6/25/06		7/20/06		7/3/06		7/12/06		7/3/06		7/3/06		7/3/06	
Semivolatile (8270C)	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
3-Nitroaniline		5000	UJ	20000	UJ	5000	UR	830	UR	20000	UJ	10000	UJ	20000	UJ	50000	UJ	20000	UJ
Acenaphthene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
2,4-Dinitrophenol		5000	UJ	20000	UJ	5000	UR	830	UR	20000	UJ	10000	UJ	20000	UJ	50000	UJ	20000	UJ
4-Nitrophenol		5000	UJ	20000	UJ	5000	UR	830	UR	20000	UJ	10000	UJ	20000	UJ	50000	UJ	20000	UJ
Dibenzofuran		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
2,4-Dinitrotoluene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
Diethylphthalate		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
4-Chlorophenyl-phenyl ether		2000	UJ	8000	UJ	2000	UJ	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
Fluorene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
4-Nitroaniline		5000	UJ	20000	UJ	5000	UR	830	UR	20000	UJ	10000	UJ	20000	UJ	50000	UJ	20000	UJ
4,6-Dinitro-2-methylphenol		5000	UJ	20000	UJ	5000	UR	830	UR	20000	UJ	10000	UJ	20000	UJ	50000	UJ	20000	UJ
N-Nitrosodiphenylamine		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
4-Bromophenyl-phenyl ether		2000	UJ	8000	UJ	2000	UJ	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
Hexachlorobenzene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
Pentachlorophenol		5000	UJ	20000	UJ	5000	UJ	830	UR	20000	UJ	10000	UJ	20000	UJ	50000	UJ	20000	UJ
Phenanthrene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
Anthracene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
Carbazole		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
Di-n-butylphthalate		2000	UJ	8000	UJ	2000	UR	330	UJ	8000	UJ	4000	UJ	480	UJ	400	UJ	8000	UJ
Fluoranthene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
Pyrene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
Butylbenzylphthalate		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
3,3'-Dichlorobenzidine		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
Benzo(a)anthracene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
Chrysene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
bis(2-Ethylhexyl)phthalate		330	UJ	8000	UJ	2000	UR	330	UJ	540	J	4000	UJ	8000	UJ	300	J	8000	UJ
Di-n-octylphthalate		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
Benzo(b)fluoranthene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
Benzo(k)fluoranthene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
Benzo(a)pyrene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
Indeno(1,2,3-cd)pyrene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
Dibenz(a,h)anthracene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ
Benzo(g,h,i)perylene		2000	UJ	8000	UJ	2000	UR	330	UR	8000	UJ	4000	UJ	8000	UJ	2000	UJ	8000	UJ

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.

* - RQL exceeded

000015

SEMIVOLATILE ANALYSIS, SOLID MATRIX, (UG/KG)

Project: WASHINGTON CLOSURE HANFORD
Laboratory: LLI SDG: K0358

Sample Number		J11WY5		J11WY6		J11WY7		J11WY8		J11WW5		J11WW6		J11X01		J11X02		J11X03	
Remarks																			
Sample Date		5/9/06		5/9/06		5/10/06		5/10/06		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06	
Extraction Date		6/1/06		6/1/06		6/1/06		7/14/06		6/1/06		6/1/06		6/1/06		6/1/06		6/1/06	
Analysis Date		7/3/06		7/3/06		6/27/06		7/3/06		6/27/06		7/10/06		6/27/06		7/10/06		6/27/06	
Semivolatile (8270C)	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol		1200	J	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
bis(2-Chloroethyl)ether		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
2-Chlorophenol		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
1,3-Dichlorobenzene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
1,4-Dichlorobenzene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
1,2-Dichlorobenzene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
2-Methylphenol		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
2,2'-oxybis(1-chloropropane)		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
3 and/or 4-Methylphenol		8000	UJ	2000	UJ	3600	UJ	7500	UJ	1500	J	6800	UJ	3600	UJ	7800	UJ	3400	UJ
N-Nitroso-di-n-propylamine		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
Hexachloroethane		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
Nitrobenzene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
Isophorone		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
2-Nitrophenol		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
2,4-Dimethylphenol		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
bis(2-Chloroethoxy)methane		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
2,4-Dichlorophenol		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
1,2,4-Trichlorobenzene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
Naphthalene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
4-Chloroaniline		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
Hexachlorobutadiene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
4-Chloro-3-methylphenol		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
2-Methylnaphthalene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
Hexachlorocyclopentadiene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
2,4,6-Trichlorophenol		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
2,4,5-Trichlorophenol		20000	UJ	5000	UJ	9100	UJ	19000	UJ	9600	UJ	17000	UJ	9000	UJ	19000	UJ	8600	UJ
2-Chloronaphthalene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
2-Nitroaniline		20000	UJ	5000	UJ	9100	UJ	19000	UJ	9600	UJ	17000	UJ	9000	UJ	19000	UJ	8600	UJ
Dimethylphthalate		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
Acenaphthylene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
2,6-Dinitrotoluene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ

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.

* - RQL exceeded

SEMIVOLATILE ANALYSIS, SOLID MATRIX, (UG/KG)

Project: WASHINGTON CLOSURE HANFORD
Laboratory: LLI SDG: K0358

Sample Number		J11WY5		J11WY6		J11WY7		J11WY8		J11WW5		J11WW6		J11X01		J11X02		J11X03	
Remarks																			
Sample Date		5/9/06		5/9/06		5/10/06		5/10/06		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06	
Extraction Date		6/1/06		6/1/06		6/1/06		7/14/06		6/1/06		6/1/06		6/1/06		6/1/06		6/1/06	
Analysis Date		7/3/06		7/3/06		6/27/06		7/3/06		6/27/06		7/10/06		6/27/06		7/10/06		6/27/06	
Semivolatile (8270C)	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
3-Nitroaniline		20000	UJ	5000	UJ	9100	UJ	19000	UJ	9600	UJ	17000	UJ	9000	UJ	19000	UJ	8600	UJ
Acenaphthene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
2,4-Dinitrophenol		20000	UJ	5000	UJ	9100	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
4-Nitrophenol		20000	UJ	5000	UJ	9100	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
Dibenzofuran		8000	UJ	2000	UJ	3600	UJ	19000	UJ	9600	UJ	17000	UJ	9000	UJ	19000	UJ	8600	UJ
2,4-Dinitrotoluene		8000	UJ	2000	UJ	3600	UJ	19000	UJ	9600	UJ	17000	UJ	9000	UJ	19000	UJ	8600	UJ
Diethylphthalate		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
4-Chlorophenyl-phenyl ether		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
Fluorene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
4-Nitroaniline		20000	UJ	5000	UJ	9100	UJ	19000	UJ	9600	UJ	17000	UJ	9000	UJ	19000	UJ	8600	UJ
4,6-Dinitro-2-methylphenol		20000	UJ	5000	UJ	9100	UJ	19000	UJ	9600	UJ	17000	UJ	9000	UJ	19000	UJ	8600	UJ
N-Nitrosodiphenylamine		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
4-Bromophenyl-phenyl ether		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
Hexachlorobenzene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
Pentachlorophenol		20000	UJ	5000	UJ	9100	UJ	19000	UJ	9600	UJ	17000	UJ	9000	UJ	19000	UJ	8600	UJ
Phenanthrene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
Anthracene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
Carbazole		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
Di-n-butylphthalate		920	J	330	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
Fluoranthene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
Pyrene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
Butylbenzylphthalate		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
3,3'-Dichlorobenzidine		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
Benzo(a)anthracene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
Chrysene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
bis(2-Ethylhexyl)phthalate		8000	UJ	330	UJ	3600	UJ	720	J	330	UJ	1100	J	360	UJ	1000	J	3400	UJ
Di-n-octylphthalate		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
Benzo(b)fluoranthene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
Benzo(k)fluoranthene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
Benzo(a)pyrene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
Indeno(1,2,3-cd)pyrene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
Dibenz(a,h)anthracene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ
Benzo(g,h,i)perylene		8000	UJ	2000	UJ	3600	UJ	7500	UJ	3800	UJ	6800	UJ	3600	UJ	7800	UJ	3400	UJ

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.

* - RQL exceeded

000012

SEMIVOLATILE ANALYSIS, SOLID MATRIX, (UG/KG)

Project: WASHINGTON CLOSURE HANFORD																			
Laboratory: LLI	SDG: K0358																		
Sample Number		J11X04		J11X44		J11X45													
Remarks																			
Sample Date		5/9/06		5/12/06		5/12/06													
Extraction Date		6/1/06		6/1/06		6/1/06													
Analysis Date		7/10/06		7/10/06		7/11/06													
Semivolatile (8270C)	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol		3600	UJ	7800	UJ	15000	UJ												
bis(2-Chloroethyl)ether		3600	UJ	7800	UJ	15000	UJ												
2-Chlorophenol		3600	UJ	7800	UJ	15000	UJ												
1,3-Dichlorobenzene		3600	UJ	7800	UJ	15000	UJ												
1,4-Dichlorobenzene		3600	UJ	7800	UJ	15000	UJ												
1,2-Dichlorobenzene		3600	UJ	7800	UJ	15000	UJ												
2-Methylphenol		3600	UJ	7800	UJ	15000	UJ												
2,2'-oxybis(1-chloropropane)		3600	UJ	7800	UJ	15000	UJ												
3 and/or 4-Methylphenol		3600	UJ	7800	UJ	15000	UJ												
N-Nitroso-di-n-propylamine		3600	UJ	7800	UJ	15000	UJ												
Hexachloroethane		3600	UJ	7800	UJ	15000	UJ												
Nitrobenzene		3600	UJ	7800	UJ	15000	UJ												
Isophorone		3600	UJ	7800	UJ	15000	UJ												
2-Nitrophenol		3600	UJ	7800	UJ	15000	UJ												
2,4-Dimethylphenol		3600	UJ	7800	UJ	15000	UJ												
bis(2-Chloroethoxy)methane		3600	UJ	7800	UJ	15000	UJ												
2,4-Dichlorophenol		3600	UJ	7800	UJ	15000	UJ												
1,2,4-Trichlorobenzene		3600	UJ	7800	UJ	15000	UJ												
Naphthalene		3600	UJ	7800	UJ	15000	UJ												
4-Chloroaniline		3600	UJ	7800	UJ	15000	UJ												
Hexachlorobutadiene		3600	UJ	7800	UJ	15000	UJ												
4-Chloro-3-methylphenol		3600	UJ	7800	UJ	15000	UJ												
2-Methylnaphthalene		3600	UJ	7800	UJ	15000	UJ												
Hexachlorocyclopentadiene		3600	UJ	7800	UJ	15000	UJ												
2,4,6-Trichlorophenol		3600	UJ	7800	UJ	15000	UJ												
2,4,5-Trichlorophenol		8900	UJ	19000	UJ	3700	UJ												
2-Chloronaphthalene		3600	UJ	7800	UJ	15000	UJ												
2-Nitroaniline		8900	UJ	19000	UJ	3700	UJ												
Dimethylphthalate		3600	UJ	7800	UJ	15000	UJ												
Acenaphthylene		3600	UJ	7800	UJ	15000	UJ												
2,6-Dinitrotoluene		3600	UJ	7800	UJ	15000	UJ												

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.

* - RQL exceeded

000018

SEMIVOLATILE ANALYSIS, SOLID MATRIX, (UG/KG)

Project: WASHINGTON CLOSURE HANFORD
Laboratory: LLI SDG: K0358

Sample Number		J11X04		J11X44		J11X45													
Remarks																			
Sample Date		5/9/06		5/12/06		5/12/06													
Extraction Date		6/1/06		6/1/06		6/1/06													
Analysis Date		7/10/06		7/10/06		7/11/06													
Semivolatile (8270C)	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
3-Nitroaniline		8900	UJ	19000	UJ	3700	UJ												
Acenaphthene		3600	UJ	7800	UJ	15000	UJ												
2,4-Dinitrophenol		8900	UJ	19000	UJ	3700	UJ												
4-Nitrophenol		8900	UJ	19000	UJ	3700	UJ												
Dibenzofuran		3600	UJ	7800	UJ	15000	UJ												
2,4-Dinitrotoluene		3600	UJ	7800	UJ	15000	UJ												
Diethylphthalate		3600	UJ	7800	UJ	8400	J												
4-Chlorophenyl-phenyl ether		3600	UJ	7800	UJ	15000	UJ												
Fluorene		3600	UJ	7800	UJ	15000	UJ												
4-Nitroaniline		8900	UJ	19000	UJ	3700	UJ												
4,6-Dinitro-2-methylphenol		8900	UJ	19000	UJ	3700	UJ												
N-Nitrosodiphenylamine		3600	UJ	7800	UJ	15000	UJ												
4-Bromophenyl-phenyl ether		3600	UJ	7800	UJ	15000	UJ												
Hexachlorobenzene		3600	UJ	7800	UJ	15000	UJ												
Pentachlorophenol		8900	UJ	19000	UJ	3700	UJ												
Phenanthrene		3600	UJ	7800	UJ	15000	UJ												
Anthracene		3600	UJ	7800	UJ	15000	UJ												
Carbazole		3600	UJ	7800	UJ	15000	UJ												
Di-n-butylphthalate		3600	UJ	7800	UJ	15000	UJ												
Fluoranthene		3600	UJ	7800	UJ	15000	UJ												
Pyrene		3600	UJ	7800	UJ	15000	UJ												
Butylbenzylphthalate		3600	UJ	7800	UJ	15000	UJ												
3,3'-Dichlorobenzidine		3600	UJ	7800	UJ	15000	UJ												
Benzo(a)anthracene		3600	UJ	7800	UJ	15000	UJ												
Chrysene		3600	UJ	7800	UJ	15000	UJ												
bis(2-Ethylhexyl)phthalate		930	J	7800	UJ	15000	UJ												
Di-n-octylphthalate		3600	UJ	7800	UJ	15000	UJ												
Benzo(b)fluoranthene		3600	UJ	7800	UJ	15000	UJ												
Benzo(k)fluoranthene		3600	UJ	7800	UJ	15000	UJ												
Benzo(a)pyrene		3600	UJ	7800	UJ	15000	UJ												
Indeno(1,2,3-cd)pyrene		3600	UJ	7800	UJ	15000	UJ												
Dibenz(a,h)anthracene		3600	UJ	7800	UJ	15000	UJ												
Benzo(g,h,i)perylene		3600	UJ	7800	UJ	15000	UJ												

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.

* - RQL exceeded

Semivolatiles by GC/MS, HSL List

Report Date: 07/25/06 13:51

RFW Batch Number: 0605L041 Client: TNUHANFORD RC-047 K0358 Work Order: 11343606001 Page: 1a

	Cust ID:	J11WW7	J11WW8	J11WW8	J11WW8	J11WW9	J11WW9
Sample Information	RFW#:	001	002	002 MS	002 MSD	003	003
	Matrix:	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
	D.F.:	1.00	4.00	4.00	4.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG REPREP
Surrogate Recovery	Nitrobenzene-d5	66 %	70 %	68 %	68 %	6 * %	40 %
	2-Fluorobiphenyl	63 %	64 %	68 %	69 %	7 * %	40 %
	Terphenyl-d14	65 %	75 %	80 %	75 %	8 * %	49 %
	Phenol-d5	60 %	69 %	69 %	70 %	7 * %	39 %
	2-Fluorophenol	58 %	58 %	58 %	59 %	8 * %	38 %
	2,4,6-Tribromophenol	74 %	71 %	76 %	75 %	10 * %	46 %
		fl	fl	fl	fl	fl	fl
Phenol		2000 U J	8000 U J	66 %	71 %	2000 U R	330 U R
bis(2-Chloroethyl)ether		2000 U	8000 U	8000 U	8000 U	2000 U J	330 U
2-Chlorophenol		2000 U	8000 U	65 %	65 %	2000 U R	330 U
1,3-Dichlorobenzene		2000 U	8000 U	8000 U	8000 U	2000 U	330 U
1,4-Dichlorobenzene		2000 U	8000 U	62 %	56 %	2000 U	330 U
1,2-Dichlorobenzene		2000 U	8000 U	8000 U	8000 U	2000 U	330 U
2-Methylphenol		2000 U	8000 U	8000 U	8000 U	2000 U	330 U
2,2'-oxybis(1-Chloropropane)		2000 U	8000 U	8000 U	8000 U	2000 U	330 U
3/4-Methylphenol		430 J	8000 U	8000 U	8000 U	2000 U	330 U
N-Nitroso-di-n-propylamine		2000 U	8000 U	72 %	76 %	2000 U	330 U
Hexachloroethane		2000 U	8000 U	8000 U	8000 U	2000 U	330 U
Nitrobenzene		2000 U	8000 U	8000 U	8000 U	2000 U	330 U
Isophorone		2000 U	8000 U	8000 U	8000 U	2000 U	330 U
2-Nitrophenol		2000 U	8000 U	8000 U	8000 U	2000 U	330 U
2,4-Dimethylphenol		2000 U	8000 U	8000 U	8000 U	2000 U	330 U
bis(2-Chloroethoxy)methane		2000 U	8000 U	8000 U	8000 U	2000 U J	330 U
2,4-Dichlorophenol		2000 U	8000 U	8000 U	8000 U	2000 U J	330 U
1,2,4-Trichlorobenzene		2000 U	8000 U	66 %	66 %	2000 U R	330 U
Naphthalene		2000 U	8000 U	8000 U	8000 U	2000 U	330 U
4-Chloroaniline		2000 U	8000 U	8000 U	8000 U	2000 U	330 U
Hexachlorobutadiene		2000 U	8000 U	8000 U	8000 U	2000 U	330 U
4-Chloro-3-methylphenol		2000 U	8000 U	65 %	67 %	2000 U	330 U
2-Methylnaphthalene		2000 U	8000 U	8000 U	8000 U	2000 U	330 U
Hexachlorocyclopentadiene		2000 U	8000 U	8000 U	8000 U	2000 U	330 U
2,4,6-Trichlorophenol		2000 U	8000 U	8000 U	8000 U	2000 U J	330 U
2,4,5-Trichlorophenol		5000 U	20000 U	20000 U	20000 U	5000 U J	830 U

*= Outside of EPA CLP QC limits.

K 8/10/06

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Cust ID:	J11WW7	J11WW8	J11WW8	J11WW8	J11WW9	J11WW9
RFW#:	001	002	002 MS	002 MSD	003	003 REPREP
2-Chloronaphthalene	2000 U J	8000 U J	8000 U	8000 U	2000 U R	330 U R
2-Nitroaniline	5000 U	20000 U	20000 U	20000 U	5000 U	830 U
Dimethylphthalate	2000 U	8000 U	8000 U	8000 U	2000 U	330 U
Acenaphthylene	2000 U	8000 U	8000 U	8000 U	2000 U	330 U
2,6-Dinitrotoluene	2000 U	8000 U	8000 U	8000 U	2000 U	330 U
3-Nitroaniline	5000 U	20000 U	20000 U	20000 U	5000 U	830 U
Acenaphthene	2000 U	8000 U	68 %	70 %	2000 U	330 U
2,4-Dinitrophenol	5000 U	20000 U	20000 U	20000 U	5000 U	830 U
4-Nitrophenol	5000 U	20000 U	49 %	51 %	5000 U	830 U
Dibenzofuran	2000 U	8000 U	8000 U	8000 U	2000 U	330 U
2,4-Dinitrotoluene	2000 U	8000 U	60 %	59 %	2000 U	330 U
Diethylphthalate	2000 U	8000 U	8000 U	8000 U	2000 U	330 U
4-Chlorophenyl-phenylether	2000 U	8000 U	8000 U	8000 U	2000 U J	330 U
Fluorene	2000 U	8000 U	8000 U	8000 U	2000 U R	330 U
4-Nitroaniline	5000 U	20000 U	20000 U	20000 U	5000 U	830 U
4,6-Dinitro-2-methylphenol	5000 U	20000 U	20000 U	20000 U	5000 U	830 U
N-Nitrosodiphenylamine (1)	2000 U	8000 U	8000 U	8000 U	2000 U	330 U
4-Bromophenyl-phenylether	2000 U	8000 U	8000 U	8000 U	2000 U J	330 U
Hexachlorobenzene	2000 U	8000 U	8000 U	8000 U	2000 U R	330 U
Pentachlorophenol	5000 U	20000 U	47 %	43 %	5000 U J	830 U
Phenanthrene	2000 U	8000 U	8000 U	8000 U	2000 U R	330 U
Anthracene	2000 U	8000 U	8000 U	8000 U	2000 U	330 U
Carbazole	2000 U	8000 U	8000 U	8000 U	2000 U	330 U
Di-n-butylphthalate	2000 U	8000 U	8000 U	8000 U	2000 U	330 ~~24~~ J U J
Fluoranthene	2000 U	8000 U	8000 U	8000 U	2000 U	330 U R
Pyrene	2000 U	8000 U	78 %	74 %	2000 U	330 U
Butylbenzylphthalate	2000 U	8000 U	8000 U	8000 U	2000 U	330 U
3,3'-Dichlorobenzidine	2000 U	8000 U	8000 U	8000 U	2000 U	330 U
Benzo(a)anthracene	2000 U	8000 U	8000 U	8000 U	2000 U	330 U
Chrysene	2000 U	8000 U	8000 U	8000 U	2000 U	330 U
bis(2-Ethylhexyl)phthalate	330 ~~27~~ JB U J	8000 U	480 JB	1600 JB	2000 U	330 ~~28~~ JB U J
Di-n-octyl phthalate	2000 U J	8000 U	8000 U	8000 U	2000 U	330 U R
Benzo(b)fluoranthene	2000 U	8000 U	8000 U	8000 U	2000 U	330 U
Benzo(k)fluoranthene	2000 U	8000 U	8000 U	8000 U	2000 U	330 U
Benzo(a)pyrene	2000 U	8000 U	8000 U	8000 U	2000 U	330 U
Indeno(1,2,3-cd)pyrene	2000 U	8000 U	8000 U	8000 U	2000 U	330 U
Dibenz(a,h)anthracene	2000 U	8000 U	8000 U	8000 U	2000 U	330 U
Benzo(g,h,i)perylene	2000 U	8000 U	8000 U	8000 U	2000 U	330 U

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

JL 8/10/06

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Lionville Laboratory, Inc.
Semivolatiles by GC/MS, HSL List

Report Date: 07/25/06 13:51

RFW Batch Number: 0605L041 Client: TNUHANFORD RC-047 K0358 Work Order: 11343606001 Page: 2a

	Cust ID:	J11WX0	J11WX5	J11WX6	J11WX9	J11WY0	J11WY5
Sample Information	RFW#:	004	005	006	007	008	009
	Matrix:	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
	D.F.:	4.00	2.00	4.00	1.00	4.00	4.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate Recovery	Nitrobenzene-d5	58 %	50 %	57 %	64 %	54 %	89 %
	2-Fluorobiphenyl	60 %	41 %	52 %	60 %	59 %	91 %
	Terphenyl-d14	73 %	49 %	70 %	54 %	71 %	103 %
	Phenol-d5	53 %	44 %	63 %	53 %	52 %	92 %
	2-Fluorophenol	50 %	47 %	53 %	52 %	46 %	98 %
	2,4,6-Tribromophenol	63 %	53 %	66 %	66 %	61 %	93 %
		fl	fl	fl	fl	fl	fl
Phenol		8000 U J	4000 U J	8000 U J	580 J J	8000 U J	1200 J J
bis(2-Chloroethyl)ether		8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
2-Chlorophenol		8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
1,3-Dichlorobenzene		8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
1,4-Dichlorobenzene		8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
1,2-Dichlorobenzene		8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
2-Methylphenol		8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
2,2'-oxybis(1-Chloropropane)		8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
3/4-Methylphenol		8000 U	4000 U	8000 U	110 J	8000 U	8000 U
N-Nitroso-di-n-propylamine		8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
Hexachloroethane		8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
Nitrobenzene		8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
Isophorone		8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
2-Nitrophenol		8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
2,4-Dimethylphenol		8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
bis(2-Chloroethoxy)methane		8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
2,4-Dichlorophenol		8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
1,2,4-Trichlorobenzene		8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
Naphthalene		8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
4-Chloroaniline		8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
Hexachlorobutadiene		8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
4-Chloro-3-methylphenol		8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
2-Methylnaphthalene		8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
Hexachlorocyclopentadiene		8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
2,4,6-Trichlorophenol		8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
2,4,5-Trichlorophenol		20000 U	10000 U	20000 U	5000 U	20000 U	20000 U

*= Outside of EPA CLP QC limits.

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Cust ID:	J11WX0	J11WX5	J11WX6	J11WX9	J11WY0	J11WY5
RFW#:	004	005	006	007	008	009
2-Chloronaphthalene	8000 U J	4000 U J	8000 U J	2000 U J	8000 U J	8000 U J
2-Nitroaniline	20000 U	10000 U	20000 U	5000 U	20000 U	20000 U
Dimethylphthalate	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
Acenaphthylene	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
2,6-Dinitrotoluene	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
3-Nitroaniline	20000 U	10000 U	20000 U	5000 U	20000 U	20000 U
Acenaphthene	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
2,4-Dinitrophenol	20000 U	10000 U	20000 U	5000 U	20000 U	20000 U
4-Nitrophenol	20000 U	10000 U	20000 U	5000 U	20000 U	20000 U
Dibenzofuran	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
2,4-Dinitrotoluene	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
Diethylphthalate	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
4-Chlorophenyl-phenylether	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
Fluorene	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
4-Nitroaniline	20000 U	10000 U	20000 U	5000 U	20000 U	20000 U
4,6-Dinitro-2-methylphenol	20000 U	10000 U	20000 U	5000 U	20000 U	20000 U
N-Nitrosodiphenylamine (1)	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
4-Bromophenyl-phenylether	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
Hexachlorobenzene	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
Pentachlorophenol	20000 U	10000 U	20000 U	5000 U	20000 U	20000 U
Phenanthrene	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
Anthracene	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
Carbazole	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
Di-n-butylphthalate	8000 U	4000 U	480 ~~JB~~ U	400 ~~JB~~ U	8000 U	920 ~~JB~~
Fluoranthene	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
Pyrene	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
Butylbenzylphthalate	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
3,3'-Dichlorobenzidine	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
Benzo(a)anthracene	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
Chrysene	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
bis(2-Ethylhexyl)phthalate	540 ~~JB~~	4000 U	8000 U	300 ~~200 JB~~ J	8000 U	8000 U
Di-n-octyl phthalate	8000 U	4000 U	8000 U	2000 U J	8000 U	8000 U
Benzo(b)fluoranthene	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
Benzo(k)fluoranthene	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
Benzo(a)pyrene	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
Indeno(1,2,3-cd)pyrene	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
Dibenz(a,h)anthracene	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U
Benzo(g,h,i)perylene	8000 U	4000 U	8000 U	2000 U	8000 U	8000 U

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

8/10/06

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Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 07/25/06 13:51

RFW Batch Number: 0605L041 Client: TNUHANFORD RC-047 K0358 Work Order: 11343606001 Page: 3a

	Cust ID:	J11WY6	J11WY7	J11WY8	J11WW5	J11WW6	J11X01
Sample Information	RFW#:	010	011	012	013	014	015
	Matrix:	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
	D.F.:	1.00	2.00	4.00	2.00	4.00	2.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate Recovery	Nitrobenzene-d5	55 %	65 %	61 %	63 %	106 %	43 %
	2-Fluorobiphenyl	56 %	61 %	66 %	62 %	105 %	59 %
	Terphenyl-d14	65 %	62 %	80 %	64 %	127 %	71 %
	Phenol-d5	56 %	52 %	60 %	61 %	111 %	53 %
	2-Fluorophenol	54 %	59 %	56 %	65 %	98 %	49 %
	2,4,6-Tribromophenol	61 %	78 %	66 %	74 %	124 * %	81 %
		fl	fl	fl	fl	fl	fl
Phenol		2000 U J	3600 U J	7500 U J	3800 U J	6800 U J	3600 U J
bis(2-Chloroethyl)ether		2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
2-Chlorophenol		2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
1,3-Dichlorobenzene		2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
1,4-Dichlorobenzene		2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
1,2-Dichlorobenzene		2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
2-Methylphenol		2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
2,2'-oxybis(1-Chloropropane)		2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
3/4-Methylphenol		2000 U	3600 U	7500 U	1500 J	6800 U	3600 U
N-Nitroso-di-n-propylamine		2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
Hexachloroethane		2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
Nitrobenzene		2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
Isophorone		2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
2-Nitrophenol		2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
2,4-Dimethylphenol		2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
bis(2-Chloroethoxy)methane		2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
2,4-Dichlorophenol		2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
1,2,4-Trichlorobenzene		2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
Naphthalene		2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
4-Chloroaniline		2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
Hexachlorobutadiene		2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
4-Chloro-3-methylphenol		2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
2-Methylnaphthalene		2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
Hexachlorocyclopentadiene		2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
2,4,6-Trichlorophenol		2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
2,4,5-Trichlorophenol		5000 U	9100 U	19000 U	9600 U	17000 U	9000 U

*= Outside of EPA CLP QC limits.

8/10/06

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Cust ID:	J11WY6	J11WY7	J11WY8	J11WW5	J11WW6	J11X01
RFW#:	010	011	012	013	014	015
2-Chloronaphthalene	2000 U J	3600 U J	7500 U J	3800 U J	6800 U J	3600 U J
2-Nitroaniline	5000 U	9100 U	19000 U	9600 U	17000 U	9000 U
Dimethylphthalate	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
Acenaphthylene	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
2,6-Dinitrotoluene	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
3-Nitroaniline	5000 U	9100 U	19000 U	9600 U	17000 U	9000 U
Acenaphthene	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
2,4-Dinitrophenol	5000 U	9100 U	19000 U	9600 U	17000 U	9000 U
4-Nitrophenol	5000 U	9100 U	19000 U	9600 U	17000 U	9000 U
Dibenzofuran	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
2,4-Dinitrotoluene	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
Diethylphthalate	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
4-Chlorophenyl-phenylether	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
Fluorene	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
4-Nitroaniline	5000 U	9100 U	19000 U	9600 U	17000 U	9000 U
4,6-Dinitro-2-methylphenol	5000 U	9100 U	19000 U	9600 U	17000 U	9000 U
N-Nitrosodiphenylamine (1)	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
4-Bromophenyl-phenylether	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
Hexachlorobenzene	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
Pentachlorophenol	5000 U	9100 U	19000 U	9600 U	17000 U	9000 U
Phenanthrene	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
Anthracene	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
Carbazole	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
Di-n-butylphthalate	330 ~~250~~ JB U	3600 U	7500 U	3800 U	6800 U	3600 U
Fluoranthene	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
Pyrene	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
Butylbenzylphthalate	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
3,3'-Dichlorobenzidine	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
Benzo(a)anthracene	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
Chrysene	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
bis(2-Ethylhexyl)phthalate	330 ~~230~~ JB U	3600 U	720 ~~720~~ JB U	330 ~~210~~ JB U	1100 JB	360 JB U
Di-n-octyl phthalate	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
Benzo(b)fluoranthene	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
Benzo(k)fluoranthene	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
Benzo(a)pyrene	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
Indeno(1,2,3-cd)pyrene	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
Dibenz(a,h)anthracene	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U
Benzo(g,h,i)perylene	2000 U	3600 U	7500 U	3800 U	6800 U	3600 U

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

8/10/06

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Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 07/25/06 13:51

RFW Batch Number: 0605L041 Client: TNUHANFORD RC-047 K0358 Work Order: 11343606001 Page: 4a

	Cust ID:	J11X02		J11X03		J11X04		J11X44		J11X45		SBLKYK	
Sample Information	RFW#:	016		017		018		019		020		06LE0451-MB1	
	Matrix:	SOLID		SOLID		SOLID		SOLID		SOLID		SOIL	
	D.F.:	4.00		2.00		2.00		4.00		8.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate Recovery	Nitrobenzene-d5	99	%	39	%	76	%	69	%	76	%	72	%
	2-Fluorobiphenyl	97	%	43	%	70	%	63	%	61	%	72	%
	Terphenyl-d14	118	%	61	%	80	%	79	%	82	%	106	%
	Phenol-d5	103	%	47	%	72	%	68	%	82	%	83	%
	2-Fluorophenol	91	%	41	%	67	%	66	%	73	%	83	%
	2,4,6-Tribromophenol	111	%	59	%	80	%	77	%	61	%	83	%
			fl		fl		fl		fl		fl		fl
Phenol		7800	U J	3400	U J	3600	U J	7800	U J	15000	U J	330	U J
bis(2-Chloroethyl)ether		7800	U	3400	U	3600	U	7800	U	15000	U	330	U
2-Chlorophenol		7800	U	3400	U	3600	U	7800	U	15000	U	330	U
1,3-Dichlorobenzene		7800	U	3400	U	3600	U	7800	U	15000	U	330	U
1,4-Dichlorobenzene		7800	U	3400	U	3600	U	7800	U	15000	U	330	U
1,2-Dichlorobenzene		7800	U	3400	U	3600	U	7800	U	15000	U	330	U
2-Methylphenol		7800	U	3400	U	3600	U	7800	U	15000	U	330	U
2,2'-oxybis(1-Chloropropane)		7800	U	3400	U	3600	U	7800	U	15000	U	330	U
3/4-Methylphenol		7800	U	3400	U	3600	U	7800	U	15000	U	330	U
N-Nitroso-di-n-propylamine		7800	U	3400	U	3600	U	7800	U	15000	U	330	U
Hexachloroethane		7800	U	3400	U	3600	U	7800	U	15000	U	330	U
Nitrobenzene		7800	U	3400	U	3600	U	7800	U	15000	U	330	U
Isophorone		7800	U	3400	U	3600	U	7800	U	15000	U	330	U
2-Nitrophenol		7800	U	3400	U	3600	U	7800	U	15000	U	330	U
2,4-Dimethylphenol		7800	U	3400	U	3600	U	7800	U	15000	U	330	U
bis(2-Chloroethoxy)methane		7800	U	3400	U	3600	U	7800	U	15000	U	330	U
2,4-Dichlorophenol		7800	U	3400	U	3600	U	7800	U	15000	U	330	U
1,2,4-Trichlorobenzene		7800	U	3400	U	3600	U	7800	U	15000	U	330	U
Naphthalene		7800	U	3400	U	3600	U	7800	U	15000	U	330	U
4-Chloroaniline		7800	U	3400	U	3600	U	7800	U	15000	U	330	U
Hexachlorobutadiene		7800	U	3400	U	3600	U	7800	U	15000	U	330	U
4-Chloro-3-methylphenol		7800	U	3400	U	3600	U	7800	U	15000	U	330	U
2-Methylnaphthalene		7800	U	3400	U	3600	U	7800	U	15000	U	330	U
Hexachlorocyclopentadiene		7800	U	3400	U	3600	U	7800	U	15000	U	330	U
2,4,6-Trichlorophenol		7800	U	3400	U	3600	U	7800	U	15000	U	330	U
2,4,5-Trichlorophenol		19000	U	8600	U	8900	U	19000	U	37000	U	830	U

*= Outside of EPA CLP QC limits.

000026

000000015

Cust ID:	J11X02		J11X03		J11X04		J11X44		J11X45		SBLKYK	
RFW#:	016		017		018		019		020		06LE0451-MB1	
2-Chloronaphthalene	7800	U J	3400	U J	3600	U J	7800	U J	15000	U J	330	U
2-Nitroaniline	19000	U	8600	U	8900	U	19000	U	37000	U	830	U
Dimethylphthalate	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
Acenaphthylene	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
2,6-Dinitrotoluene	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
3-Nitroaniline	19000	U	8600	U	8900	U	19000	U	37000	U	830	U
Acenaphthene	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
2,4-Dinitrophenol	19000	U	8600	U	8900	U	19000	U	37000	U	830	U
4-Nitrophenol	19000	U	8600	U	8900	U	19000	U	37000	U	830	U
Dibenzofuran	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
2,4-Dinitrotoluene	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
Diethylphthalate	7800	U	3400	U	3600	U	7800	U	8400	J	330	U
4-Chlorophenyl-phenylether	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
Fluorene	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
4-Nitroaniline	19000	U	8600	U	8900	U	19000	U	37000	U	830	U
4,6-Dinitro-2-methylphenol	19000	U	8600	U	8900	U	19000	U	37000	U	830	U
N-Nitrosodiphenylamine (1)	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
4-Bromophenyl-phenylether	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
Hexachlorobenzene	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
Pentachlorophenol	19000	U	8600	U	8900	U	19000	U	37000	U	830	U
Phenanthrene	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
Anthracene	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
Carbazole	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
Di-n-butylphthalate	7800	U	3400	U	3600	U	7800	U	15000	U	79	J
Fluoranthene	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
Pyrene	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
Butylbenzylphthalate	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
3,3'-Dichlorobenzidine	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
Benzo(a)anthracene	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
Chrysene	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
bis(2-Ethylhexyl)phthalate	1000	JB	3400	U	930	JB	7800	U	15000	U	27	J
Di-n-octyl phthalate	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
Benzo(b)fluoranthene	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
Benzo(k)fluoranthene	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
Benzo(a)pyrene	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
Indeno(1,2,3-cd)pyrene	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
Dibenz(a,h)anthracene	7800	U	3400	U	3600	U	7800	U	15000	U	330	U
Benzo(g,h,i)perylene	7800	U	3400	U	3600	U	7800	U	15000	U	330	U

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

K 8/10/06

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000000016

Lionville Laboratory, Inc.
Semivolatiles by GC/MS, HSL List
Report Date: 07/25/06 13:51

RFW Batch Number: 0605L041 Client: TNUHANFORD RC-047 K0358 Work Order: 11343606001 Page: 5a

000000017

	Cust ID:	SBLKYK BS		SBLKAH		SBLKAH BS		SBLKYU		SBLKYU BS	
Sample Information	RFW#:	06LE0451-MB1		06LE0573-MB1		06LE0573-MB1		06LE0452-MB1		06LE0452-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate Recovery	Nitrobenzene-d5	48	%	57	%	63	%	65	%	70	%
	2-Fluorobiphenyl	53	%	61	%	73	%	68	%	75	%
	Terphenyl-d14	80	%	90	%	78	%	82	%	96	%
	Phenol-d5	62	%	64	%	70	%	68	%	74	%
	2-Fluorophenol	63	%	58	%	66	%	74	%	79	%
	2,4,6-Tribromophenol	74	%	29	%	73	%	66	%	84	%
Phenol		63	%	330	U	70	%	330	U	79	%
bis(2-Chloroethyl)ether		330	U	330	U	1500		330	U	330	U
2-Chlorophenol		63	%	330	U	67	%	330	U	80	%
1,3-Dichlorobenzene		330	U	330	U	1600		330	U	330	U
1,4-Dichlorobenzene		52	%	330	U	63 ~~64~~	%	330	U	74	%
1,2-Dichlorobenzene		330	U	330	U	1700		330	U	330	U
2-Methylphenol		330	U	330	U	1600		330	U	330	U
2,2'-oxybis(1-Chloropropane)		330	U	330	U	1400		330	U	330	U
3/4-Methylphenol		330	U	330	U	1600		330	U	330	U
N-Nitroso-di-n-propylamine		65	%	330	U	63 ~~64~~	%	330	U	74	%
Hexachloroethane		330	U	330	U	1500		330	U	330	U
Nitrobenzene		330	U	330	U	1500		330	U	330	U
Isophorone		330	U	330	U	1700		330	U	330	U
2-Nitrophenol		330	U	330	U	1500		330	U	330	U
2,4-Dimethylphenol		330	U	330	U	1300		330	U	330	U
bis(2-Chloroethoxy)methane		330	U	330	U	1600		330	U	330	U
2,4-Dichlorophenol		330	U	330	U	1700		330	U	330	U
1,2,4-Trichlorobenzene		53	%	330	U	65 ~~69~~	%	330	U	79	%
Naphthalene		330	U	330	U	1600		330	U	330	U
4-Chloroaniline		330	U	330	U	1800		330	U	330	U
Hexachlorobutadiene		330	U	330	U	1800		330	U	330	U
4-Chloro-3-methylphenol		57	%	330	U	70	%	330	U	75	%
2-Methylnaphthalene		330	U	330	U	1700		330	U	330	U
Hexachlorocyclopentadiene		330	U	330	U	1700		330	U	330	U
2,4,6-Trichlorophenol		330	U	330	U	1500		330	U	330	U
2,4,5-Trichlorophenol		830	U	830	U	1700		830	U	830	U

*= Outside of EPA CLP QC limits.

000028

8/10/06

Recalculated to reflect spike concentration RBC 7/25/06

Cust ID:	SBLKYK BS		SBLKAH		SBLKAH BS		SBLKYU		SBLKYU BS	
RFW#:	06LE0451-MB1		06LE0573-MB1		06LE0573-MB1		06LE0452-MB1		06LE0452-MB1	
2-Chloronaphthalene	330	U	330	U	1800		330	U	330	U
2-Nitroaniline	830	U	830	U	1800		830	U	830	U
Dimethylphthalate	330	U	330	U	1900		330	U	330	U
Acenaphthylene	330	U	330	U	2000		330	U	330	U
2,6-Dinitrotoluene	330	U	330	U	2000		330	U	330	U
3-Nitroaniline	830	U	830	U	2100		830	U	830	U
Acenaphthene	54	%	330	U	75 ~~112~~	%	330	U	76	%
2,4-Dinitrophenol	830	U	830	U	830	U	830	U	830	U
4-Nitrophenol	59	%	830	U	52	%	830	U	64	%
Dibenzofuran	330	U	330	U	1900		330	U	330	U
2,4-Dinitrotoluene	53	%	330	U	78 ~~126~~	% ok	330	U	74	%
Diethylphthalate	330	U	330	U	2000		330	U	330	U
4-Chlorophenyl-phenylether	330	U	330	U	1900		330	U	330	U
Fluorene	330	U	330	U	2000		330	U	330	U
4-Nitroaniline	830	U	830	U	1700		830	U	830	U
4,6-Dinitro-2-methylphenol	830	U	830	U	1600		830	U	830	U
N-Nitrosodiphenylamine (1)	330	U	330	U	1500		330	U	330	U
4-Bromophenyl-phenylether	330	U	330	U	1800		330	U	330	U
Hexachlorobenzene	330	U	330	U	2000		330	U	330	U
Pentachlorophenol	30	%	830	U	39	%	830	U	26	%
Phenanthrene	330	U	330	U	2000		330	U	330	U
Anthracene	330	U	330	U	2100		330	U	330	U
Carbazole	330	U	330	U	1800		330	U	330	U
Di-n-butylphthalate	82	JB	330	U	2000		330	U	27	J
Fluoranthene	330	U	330	U	2000		330	U	330	U
Pyrene	71	%	330	U	79 ~~119~~	%	330	U	88	%
Butylbenzylphthalate	330	U	330	U	2200		330	U	330	U
3,3'-Dichlorobenzidine	330	U	330	U	1900		330	U	330	U
Benzo(a)anthracene	330	U	330	U	1900		330	U	330	U
Chrysene	330	U	330	U	2000		330	U	330	U
bis(2-Ethylhexyl)phthalate	20	JB	17	J	2100	B	46	J	46	JB
Di-n-octyl phthalate	330	U	330	U	2000		330	U	330	U
Benzo(b)fluoranthene	330	U	330	U	1800		330	U	330	U
Benzo(k)fluoranthene	330	U	330	U	1900		330	U	330	U
Benzo(a)pyrene	330	U	330	U	1900		330	U	330	U
Indeno(1,2,3-cd)pyrene	330	U	330	U	2100		330	U	330	U
Dibenz(a,h)anthracene	330	U	330	U	2000		330	U	330	U
Benzo(g,h,i)perylene	330	U	330	U	2100		330	U	330	U

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

Recalculated to reflect spike concentration RQ 7/2016

VC 8/10/05

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000000018

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-047
LVL #: 0605L041
SDG/SAF # K0358/RC-047

W.O. #: 11343-606-001-9999-00
Date Received: 05-17-2006

SEMIVOLATILE

Twenty (20) solid samples were collected on 05-09,10,12-2006.

The samples and their associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3540C on 06-01-2006 and 07-14-2006; and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 06-16,25,27-2006 and 07-03,05,10,11,20-2006.

The following is a summary of QC results accompanying the sample results. Lionville Laboratory Inc (LvLI) certifies that all test results meet the requirements of NELAC except as noted below:

1. Samples were extracted outside the required holding time. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

2. Non-target compounds were detected in the samples.

3. All soil sample results were reported on a wet-weight basis.

4. Several samples required a 2-fold dilution due to dark and viscous nature of the sample matrix. Due to the nature of the sample matrix, elevated final volume for the analysis and reduced initial volume for the extraction was used resulting in higher sample results. A copy of the Sample Extraction Record has been enclosed for detail information.

5. Seven (7) of one hundred seventy-four (174) surrogate recoveries were outside acceptance criteria. The out of criteria sample J11WW9 was re-extracted on 07-14-2006, analyzed on 07-20-2006 and reported. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

6. All matrix spike recoveries were within acceptance criteria.

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 6 5 pages.

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LvLI
LIONVILLE LABORATORY INC.

7. All blank spike recoveries were within acceptance criteria. The blank spike samples 06LE0451-MB1 BS and 06LE0452-MB1 were spiked with BNA EMS spike. The blank spike 06LE0573-MB1 BS was spiked with LCS full list spike as documented on the Sample Extraction Record. However, the detection of additional compounds in the blank spike sample reflects that spiking compounds were not found in the EMS spike. The base-neutral spike compounds were re-calculated to reflect the two different spiking levels.

8. The method blanks contained the common laboratory contaminants Bis (2-Ethylhexyl) phthalate and/or Di-n-butylphthalate at levels less than the CRQL.

9. Internal standard area and retention time criteria were met.

10. 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").

11. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

12. 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.

Judy Stm

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

7/26/06
Date

som\gorup\data\bna\tmu-hanford\0605-041.doc

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Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 06PM002

Initiator: Orlette Johnson
Date: 6/21/06
Client: TMU Hanford RC047

Batch: a0625a91 (Rev 7/18/06 TC)
Samples: All
Method: SW846/MCAWW/CLP/

Parameter: a625H
Matrix: Solid
Prep Batch: a06EF051 ⊥ a052

1. Reason for SDR

a. COC Discrepancy __ Tech Profile Error __ Client Request __ Sampler Error on C-O-C __ Transcription Error __ Wrong Test Code __ Other _____

b. General Discrepancy

__ Missing Sample/Extract* __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
X Hold Time Exceeded __ Insufficient Sample* __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary)

Sample(s) was/were extracted 6, 8, 9 days beyond the hold time

2. Known or Probable Causes(s) due to a temporary glassware shortage created by a malfunctioning drying kiln i.e, much of our glassware was lost when one of the kilns overheated. We made every effort to replace glassware as soon as possible but our needs exceeded on-the-shelf vendor stocks of certain critical items. This problem was exacerbated by an unusually high number of samples received during this period of time for organics extraction.

3. Discussion and Proposed Action

__ Re-log
__ Entire Batch
__ Following Samples: _____
__ Re-leach
__ Re-extract
__ Re-digest
__ Revise EDD
__ Change Test Code to _____
__ Place On/Take Off Hold (circle)

Other Description:

We have replenished glassware stocks to higher levels than those in-house before the kiln malfunction. We have also replaced the kiln.

4. Project Manager Instructions...signature/date: [signature] 6/21/06

__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
X Include in Case Narrative
__ Client Contacted:
Date/Person _____
__ Add
__ Cancel

5. Final Action...signature/date: [signature] 7/18/06

Other Explanation:

__ Verified re-[log][leach][extract][digest][analysis] (circle)
X Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
__	X Initiator	__	__ Metals: Welsh
__	X Lab General Manager: L Daniels	__	__ Inorganic: Perrone
1	X Project Mgr: Stone/Johnson		GC/LC: Kiger
__	X Data Management: Stilwell	1	X MS: Schneider/Carden
__	__ Sample Prep: Kiger	__	__ Log-in: Perry
		__	__ Admin: _____
		__	__ Other: _____

QA-105-A-0805

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 06MS228

Initiator: Sharon Saylor
Date: 7-14-06
Client: ~~Severn~~ TNU TESS 7-14-06

Batch: 0605L041
Samples: 003, 020
Method: SW846/MCAWW/CLP/

Parameter: 8270
Matrix: SOLID
Prep Batch: 061E0451/452

1. Reason for SDR

a. COC Discrepancy
__ Tech Profile Error __ Client Request __ Sampler Error on C-O-C
__ Transcription Error __ Wrong Test Code __ Other _____

b. General Discrepancy
__ Missing Sample/Extract* __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
__ Hold Time Exceeded __ Insufficient Sample* __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary)

low surrogate. recoveries in sample J11WW9 (003) & J11X45 (020) ok

2. Known or Probable Causes(s)

Extract ~~Sample~~ 003 (J11WW9) contained water (put extract through NaSO4 column to try to remove water, reanalyzed with similar results)
difficult matrix + extraction loss

3. Discussion and Proposed Action
__ Re-log
__ Entire Batch
__ Following Samples: _____
__ Re-leach
✓ Re-extract
__ Re-digest
__ Revise EDD
__ Change Test Code to _____
__ Place On/Take Off Hold (circle)

Other Description:
reextract if possible 003 J11WW9

4. Project Manager Instructions...signature/date: [signature] 7/14/06
✓ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
__ Include in Case Narrative
__ Client Contacted:
Date/Person _____
__ Add
__ Cancel

5. Final Action...signature/date: [signature] 7/14/06
__ Verified re-[log][leach][extract][digest][analysis] (circle)
__ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

Other Explanation:
Reextracted in batch 06LE0573

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
__	X Initiator	__	__ Metals: Beegle
__	X Lab General Manager: M. Taylor	__	__ Inorganic: Perrone
1	X Project Mgr: Stone/Johnson	__	__ GC/LC: Kiger
__	__ Data Management: Stilwell	2	X MS: Rychlak/Daley
__	__ Sample Prep: Beegle/Kiger	__	__ Log-in: Perry
		__	__ Admin: _____
		__	__ Other: _____

QA-105-A-0805

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-357	Page 1 of 1

Collector: TILLER, B. TR KLINCKMAN	Company Contact: JOAN KESSNER; Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 9N; Air Quality ☐; Data Turnaround: 45 Days
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: 100-K RIPARIAN SITE # 5	SAF No.: RC-047	
Ice Chest No.: ERC-03-107	Field Logbook No.: EL-1597; COA: BESRAS6520	Method of Shipment: FED EX	
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A060469	Bill of Lading/Air Bill No.: SEE OSPC	

000000055

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

000035

Preservation	None	None	None	Cool 4C	Cool 4C	Cool 4C	cool 4C			
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	750g	2g	5g	15g	50g	50g	50g/250g			
SAMPLE ANALYSIS	See items (1) in Special Instructions.	Carbon-14	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	SEMI-VOA 8270A			
Sample No.	Matrix *	Sample Date	Sample Time									
J11WW7	OTHER SOLID	5-9-06	1420				X	X	X	X		
J11WW8 (Full QC)	OTHER SOLID	5-9-06	1435				X	X	X	X		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
TR KLINCKMAN	5-9-06 1445	EAS LOCKED STORAGE	5-9-06 1445
EAS LOCKED STORAGE	0730 MAY 15 2006	T.R. Edmondson	5-15-06 0730
T.R. Edmondson	5-16-06 1500	Fed Ex	
[illegible]	5-17-06 / 0925	D J Smith	5-17-06 / 0925

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) [Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238]

Matrix *: 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

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

BHI-EE-011 (08/29/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-358	Page 1 of 1

Collector: TILLER, B.	Company Contact: JOAN KESSNER — Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 9N — Data Turnaround: 45 Days
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: UPRIVER RIPARIAN SITE # 12	SAF No.: RC-047	Air Quality ☐
Ice Chest No.: ERC-03-107	Field Logbook No.: EL-1597 — COA: BESRAS6520	Method of Shipment: FED EX	
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A060469	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

000036

Preservation	None	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4c				
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1	1				
Volume	750g	2g	5g	15g	50g	50g	50g				
SAMPLE ANALYSIS	See item (1) in Special Instructions	Carbon-14	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	Semi-VOA 8270A				
Sample No.	Matrix *	Sample Date	Sample Time								
J11WW9	OTHER SOLID	5-10-06	8:45				X*	X*	X*	X*	
J11WX0	OTHER SOLID	5-10-06	8:55				X*	X*	X*	X*	

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: TR KLINCKMAN	5-10-06 0400	EAS LOCKED STORAGE	5-10-06 0900
Relinquished By/Removed From: EAS LOCKED STORAGE	MAY 15 2006	TR Klinckman	5-15-06 0730
Relinquished By/Removed From: WCH	5-16-06 1500	Fed Ex	
Relinquished By/Removed From: Fed Ex	5-17-06 0925		5-17-06 0925
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) {Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238}.

Matrix *
S=Soil
SD=Sediment
SO=Solid
Sl=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
To=Tissue
Wi=Wipe
Li=Liquid
Ve=Vegetation
X=Other

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

BHI-EE-011 (08/29/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-361	Page 1 of 1

Collector: TILLER, B. TR KLINCKMAN	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 9N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: 100-D RIPARIAN SITE # 3		SAF No.: RC-047
Ice Chest No.: ERC-03-107	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A060469		Bill of Lading/Air Bill No.: SEE OSPC

00000057

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

0100037

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C					
Type of Container	G/P	G/P	G/P	aG	aG	aG					
No. of Container(s)	1	1	1	1	1	1					
Volume	750g	5g	15g	50g	50g	50g					
SAMPLE ANALYSIS	See Item (1) in Special Instructions.	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	SEMI VOA 8270A					
Sample No.	Matrix *	Sample Date	Sample Time								
J11WX5	OTHER SOLID	5-9-06	1345			X	X	X	X		
J11WX6	OTHER SOLID	5-9-06	1400			X	X	X	X		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: TR KLINCKMAN	Date/Time: 5-9-06 1415	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 5-9-06 1415
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: MAY 15 2006 0770	Received By/Stored In: [illegible]	Date/Time: 5-15-06 0730
Relinquished By/Removed From: [illegible]	Date/Time: 5-16-06 1500	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 5-17-06 0925	Received By/Stored In: [illegible]	Date/Time: 5-17-06 0925
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) [Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238]

Matrix *
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

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

BHI-EE-011 (08/29/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-363	Page 1 of 1

Collector TILLER, B. TR KLINCKMAN	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH
Project Designation 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location 100-F RIPARIAN SITE # 7		SAF No. RC-047
Ice Chest No. ERC-03-107	Field Logbook No. EL-1597	COA BESRAS6520	Method of Shipment FED EX
Shipped To EBBERLINE SERVICES LIONVILLE	Offsite Property No. A060469		Bill of Lading/Air Bill No. SEE OSPC

Price Code 9N

Air Quality ☐

Data Turnaround 45 Days

850000000

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

000038

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	COOL4C						
Type of Container	G/P	G/P	G/P	aG	aG	aG						
No. of Container(s)	1	1	1	1	1	1						
Volume	750g	5g	15g	50g	50g	50g						
SAMPLE ANALYSIS	See Item (1) in Special Instructions.	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	Semi. VOA 82709						
Sample No.	Matrix *	Sample Date	Sample Time									
J11WX9	OTHER SOLID	5-9-06	9:40			X	X	X	X			
J11WY0	OTHER SOLID	5-9-06	10:20			X	X	X	X			

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: TR KLINCKMAN	5-9-06 10:15	EAS LOCKED STORAGE	5-9-06 10:15
Relinquished By/Removed From: EAS LOCKED STORAGE	0730 MAY 15 2006	Received By/Stored In: TR Klinckman	5-15-06 0730
Relinquished By/Removed From: TR Klinckman	5-16-06 1500	Received By/Stored In: Fed Ex	
Relinquished By/Removed From: Fed Ex	5-17-06 1025	Received By/Stored In: [illegible]	5-17-06 1025
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) (Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238)

Matrix *

S=Soil
SE=Sediment
SO=Solid
B=Biota
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
W/W=Wipe
L=Liquid
Ve=Vegetation
X=Other

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

BHI-EE-011 (08/29/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-366	Page 1 of 1

Collector TILLER, B. TR KLINCKMAN	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 9N Air Quality ☐	Data Turnaround 45 Days
Project Designation 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location 100-D RIPARIAN SITE # 10		SAF No. RC-047		
Ice Chest No. ERC-03-107	Field Logbook No. EL-1597	COA BESRAS6520	Method of Shipment FED EX		
Shipped To EBERLINE SERVICES (LONVILLE)	Offsite Property No. A060469		Bill of Lading/Air Bill No. SEE OSPC		

000000059

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	COOL 4C				
Type of Container	G/P	G/P	G/P	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1				
Volume	750g	5g	15g	50g	50g	50g				
SAMPLE ANALYSIS	See Item (1) in Special Instructions.	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	SEMI-VOA 8270A				

000039

Sample No.	Matrix *	Sample Date	Sample Time										
J11WY5	OTHER SOLID	5-9-06	11:00			X	X	X	X				
J11WY6	OTHER SOLID	5-9-06	11:15			X	X	X	X				

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
TR KLINCKMAN	5-9-06 11:20	EAS LOCKED STORAGE	5-9-06 11:20
EAS LOCKED STORAGE	0730 MAY 15 2006		5-15-06 0730
	5-16-06 1500	Fed Ex	
Fed Ex	5-17-06 10925		5-17-06 10925

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) [Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238]

Matrix *

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

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

BHI-EE-011 (08/29/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-367	Page 1 of 1

Collector TILLER, B. TR KLINCKMAN	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 9N	Data Turnaround 45 Days
Project Designation 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location UPRIVER RIPARIAN SITE # 11		SAF No. RC-047	Air Quality ☐	
Ice Chest No. ERC-03-107	Field Logbook No. EL-1597	COA BESRAS6520	Method of Shipment FED EX		
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A060469		Bill of Lading/Air Bill No. SEE OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

000040

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C				
Type of Container	G/P	G/P	G/P	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1				
Volume	750g	5g	15g	50g	50g	50g				
SAMPLE ANALYSIS	See Item (1) in Special Instructions.	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	SEMI-VOA 8270A				

Sample No.	Matrix *	Sample Date	Sample Time										
J11WY7	OTHER SOLID	5-9-06	10:15			X	X	X	X				
J11WY8	OTHER SOLID	5-9-06	10:30			X	X	X	X				

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From TR KLINCKMAN	5-9-06 10:45	Received By/Stored In EAS LOCKED STORAGE	5-9-06 10:45
Relinquished By/Removed From EAS LOCKED STORAGE	0730 MAY 15 2006	Received By/Stored In [illegible]	5-15-06 0730
Relinquished By/Removed From [illegible]	5-16-06 1500	Received By/Stored In Fed Ex	
Relinquished By/Removed From Fed Ex	5-17-06 / 0925	Received By/Stored In [illegible]	5-17-06 / 0925
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) [Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238]

Matrix *
S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
Ti=Tissue
Wx=Wipe
Lq=Liquid
Ve=Vegetation
X=Other

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

BHI-EE-011 (08/29/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-356	Page 1 of 1

Collector: TILLER, B. TR KLINCKMAN	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 9N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: 100-K RIPARIAN SITE # 4	SAF No.: RC-047	
Ice Chest No.: ERC-03-107	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EDERLINE SERVICES (LIONVILLE)	Offsite Property No.: A060468	Bill of Lading/Air Bill No.: SEE OSPC	

19000000

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

000041

Preservation	None	None	None	Cool 4C	Cool 4C	Cool 4C	COOL4C				
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1	1				
Volume	750g	2g	5g	15g	50g	50g	50g				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Carbon-14	Strontium-89,90 – Total Sr; Isotopic Thorium, Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	SEMI VOA 8270A				
Sample No.	Matrix *	Sample Date	Sample Time								
J11WW5	OTHER SOLID	5-9-06	1315				X *	X *	X *	X *	
J11WW6	OTHER SOLID	5-9-06	1330				X *	X *	X *	X *	

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: TR KLINCKMAN	5-9-06 1340	Received By/Stored In: EAS LOCKED STORAGE	5-9-06 1340
Relinquished By/Removed From: EAS LOCKED STORAGE	MAY 15 2006 0730	Received By/Stored In: TK Klinckman	5-15-06 0730
Relinquished By/Removed From: TK Klinckman	5-16-06 1500	Received By/Stored In: Fed Ex	
Relinquished By/Removed From:	5-17-06 0925	Received By/Stored In: D. Smith	5-17-06 0925
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) (Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238)

Matrix *

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

BHI-EE-011 (08/29/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-369	Page 1 of 1

Collector: TILLER, B. TR KLINCKMAN	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: UPRIVER RIPARIAN SITE # 14		SAF No.: RC-047
Ice Chest No.: ERC-03-107	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A060469		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 9N

Air Quality ☐

Data Turnaround: 45 Days

000000062

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

000042

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	COOL 4C				
Type of Container	G/P	G/P	G/P	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1				
Volume	750g	5g	15g	50g	50g	50g				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	Semi-VOA 8270A				

Sample No.	Matrix *	Sample Date	Sample Time										
J11X01	OTHER SOLID	MAY 09 2006	8:50			X	X	X	X				
J11X02	OTHER SOLID	5-9-06	9:15			X	X	X	X				

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By/Removed From: TR KLINCKMAN Date/Time: 09:30 MAY 09 2006	Received By/Stored In: EAS LOCKED STORAGE Date/Time: 9:30 MAY 09 2006	(1) Gamma Spec - (Full List) {Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238}	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: EAS LOCKED STORAGE Date/Time: 0730 MAY 14 2006	Received By/Stored In: [signature] Date/Time: 5-15-06 0730		
Relinquished By/Removed From: [signature] Date/Time: MAY 16 2006 /1500	Received By/Stored In: Fed Ex Date/Time:		
Relinquished By/Removed From: Fed Ex Date/Time: 5-17-06 /0925	Received By/Stored In: [signature] Date/Time: 5-17-06 /0925		
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

BHI-EE-011 (08/29/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-370	Page 1 of 1

Collector TILLER, B. TR KLINCKMAN	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH
Price Code 9N	Data Turnaround 45 Days	Air Quality ☐	
Project Designation 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location UPRIVER RIPARIAN SITE # 16	SAF No. RC-047	
Ice Chest No. ERC-03-107	Field Logbook No. EL-1597	COA BESRAS6520	Method of Shipment FED EX
Shipped To EBERLINE SERVICES KLONVILLE	Offsite Property No. A060469	Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	COOL 4C						
Type of Container	G/P	G/P	G/P	aG	aG	aG						
No. of Container(s)	1	1	1	1	1	1						
Volume	750g	5g	15g	50g	50g	50g						
SAMPLE ANALYSIS	See Item (1) in Special Instructions.	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	Semi-VOA 8270A						
Sample No.	Matrix *	Sample Date	Sample Time									
J11X03	OTHER SOLID	5-9-06	12:45 12:30			X	X	X	X			
J11X04	OTHER SOLID	5-9-06	12:45			X	X	X	X			

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
TR KLINCKMAN	5-9-06 1245	EAS LOCKED STORAGE	5-9-06 1245
EAS LOCKED STORAGE	MAY 15 2006 0730		5-15-06 0730
	5-16-06 1500	Fed Ex	
Fed Ex	5-17-06 10925		5-17-06 10925

SPECIAL INSTRUCTIONS

R. Curet 5-9-06

(1) Gamma Spec - (Full List) (Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238)

Matrix *

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

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

BHI-EE-011 (08/29/2005)

0000043

0000063

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-372	Page 1 of 1

Collector: TILLER, B. TR KLINCKMAN	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 9N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: 1607-H2		SAF No.: RC-047
Ice Chest No.: ERC-03-107	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A060469		Bill of Lading/Air Bill No.: SEE OSPC

000000064

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

000044

SAMPLE ANALYSIS													
Preservation				None	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C			
Type of Container				G/P	G/P	G/P	G/P	aG	aG	aG			
No. of Container(s)				1	1	1	1	1	1	1			
Volume				750g	5g	5g	15g	50g	50g	50g			
				See Item (1) in Special Instructions	Strontium-89,90 -- Total Sr; Isotopic Thorium; Isotopic Uranium	Isotopic Plutonium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	Semi-VOA 8270A			
Sample No.	Matrix *	Sample Date	Sample Time										
J11X44	OTHER SOLID	5-12-06	1015				X	X	X	X			
J11X45	OTHER SOLID	5-12-06	1030				X	X	X	X			

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: TR KLINCKMAN	5-12-06 1045	Received By/Stored In: EAS LOCKED STORAGE	5-12-06 1045
Relinquished By/Removed From: EAS LOCKED STORAGE	MAY 15 2006 0730	Received By/Stored In: TR Blanchard	5-15-06 0730
Relinquished By/Removed From: TR Blanchard	MAY 16 2006 1500	Received By/Stored In: Fed Ex	
Relinquished By/Removed From: Fed Ex	5-17-06 10:25	Received By/Stored In: W Smith	5-17-06 10:25
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) [Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238]

Matrix *

S=Soil
SD=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
Wi=Wipe
L=Liquid
Ve=Vegetation
X=Other

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

BHI-EE-011 (08/29/2005)

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-047 K0358

RECEIVED JUL 2006

DATE RECEIVED: 05/17/06 LVL LOT # : 06L041

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J11WW7	001	SO	06LE0451	05/09/06	06/01/06	07/03/06
J11WW8	002	SO	06LE0451	05/09/06	06/01/06	07/10/06
J11WW8	002 MS	SO	06LE0451	05/09/06	06/01/06	07/10/06
J11WW8	002 MSD	SO	06LE0451	05/09/06	06/01/06	07/10/06
J11WW9	003	SO	06LE0451	05/10/06	06/01/06	06/25/06
J11WW9	003 R1	SO	06LE0573	05/10/06	07/14/06	07/20/06
J11WX0	004	SO	06LE0451	05/10/06	06/01/06	07/03/06
J11WX5	005	SO	06LE0451	05/09/06	06/01/06	07/12/06
J11WX6	006	SO	06LE0451	05/09/06	06/01/06	07/03/06
J11WX9	007	SO	06LE0451	05/09/06	06/01/06	07/03/06
J11WY0	008	SO	06LE0451	05/09/06	06/01/06	07/03/06
J11WY5	009	SO	06LE0451	05/09/06	06/01/06	07/03/06
J11WY6	010	SO	06LE0451	05/09/06	06/01/06	07/03/06
J11WY7	011	SO	06LE0452	05/09/06	06/01/06	06/27/06
J11WY8	012	SO	06LE0452	05/09/06	06/01/06	07/03/06
J11WW5	013	SO	06LE0452	05/09/06	06/01/06	06/27/06
J11WW6	014	SO	06LE0452	05/09/06	06/01/06	07/10/06
J11X01	015	SO	06LE0452	05/09/06	06/01/06	06/27/06
J11X02	016	SO	06LE0452	05/09/06	06/01/06	07/10/06
J11X03	017	SO	06LE0452	05/09/06	06/01/06	06/27/06
J11X04	018	SO	06LE0452	05/09/06	06/01/06	07/10/06
J11X44	019	SO	06LE0452	05/12/06	06/01/06	07/10/06
J11X45	020	SO	06LE0452	05/12/06	06/01/06	07/11/06

LAB QC:

SBLKYK	MB1	S	06LE0451	N/A	06/01/06	06/16/06
SBLKYK	MB1 BS	S	06LE0451	N/A	06/01/06	06/16/06
SBLKAH	MB1	S	06LE0573	N/A	07/14/06	07/20/06
SBLKAH	MB1 BS	S	06LE0573	N/A	07/14/06	07/20/06
SBLKYU	MB1	S	06LE0452	N/A	06/01/06	07/05/06
SBLKYU	MB1 BS	S	06LE0452	N/A	06/01/06	07/05/06

Appendix 5

Data Validation Supporting Documentation

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: RCBRA			DATA PACKAGE: K0358		
VALIDATOR: JLI		LAB: LCI		DATE: 8/6/04	
			SDG: K0358		
ANALYSES PERFORMED					
SW-846 8260		SW-846 8260 (TCLP)	SW-846 8270		SW-846 8270 (TCLP)
SAMPLES/MATRIX					
J11WW7	J11WW8	J11WW9	J11WW9R	J11WX0	
J11WX5	J11WX6	J11WX9	J11WY0	J11WY5	
J11WY6	J11WY7	J11WY8	J11WW5	J11WW6	
J11X01	J11X02	J11X03	J11X04	J11X44	
J11X45					solid

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: bis(2-ethylhexyl)phthalate - WW7, WW9R, WX9, WY6, WW5 - U at RQL

bis(2-ethylhexyl)phthalate - WY9, X01 - U

di-n-butyl phthalate - WW9R, WY6 - U at RQL no FB

di-n-butyl phthalate - WX6, WX9 - U

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: WW9 - UR all (but tribromophenol assoc) no PAS

WW9 - J all tribromophenol assoc)

NO MS/MSD for prep batch 452 + 573 - J all

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: no MS/MSD w/prep batch 452 – J all 573

6. SYSTEM PERFORMANCE (Levels D and E)

Internal standards analyzed? ..... Yes No N/A

Iinternal 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: all but WW9 <2X – J all
WW9R >2X – UR all but bis + di-n-butyl
WW9R >2X – J bis(2-ethylhexyl)phthalate + di-n-butylphthalate | phthalate

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: no RQL specified

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: 11 August 2006
To: Washington Closure Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 100 Area and 300 Area Component of the RCBRA Sediment & Tissues
Subject: Radiochemistry - Data Package No. K0358-EB

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0358 prepared by Eberline Services (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	Date
J11WW7	5/9/06	Solid	C	See note 1&2
J11WW8	5/9/06	Solid	C	See note 1&2
J11WW9	5/10/06	Solid	C	See note 1&2
J11WX0	5/10/06	Solid	C	See note 1&2
J11WX5	5/9/06	Solid	C	See note 1
J11WX6	5/9/06	Solid	C	See note 1
J11WX9	5/9/06	Solid	C	See note 1
J11WY0	5/9/06	Solid	C	See note 1
J11WY5	5/9/06	Solid	C	See note 1
J11WY6	5/9/06	Solid	C	See note 1
J11WY7	5/9/06	Solid	C	See note 1
J11WY8	5/9/06	Solid	C	See note 1
J11WW5	5/9/06	Solid	C	See note 1&2
J11WW6	5/9/06	Solid	C	See note 1&2
J11X01	5/9/06	Solid	C	See note 1
J11X02	5/9/06	Solid	C	See note 1
J11X03	5/9/06	Solid	C	See note 1
J11X04	5/9/06	Solid	C	See note 1
J11X44	5/12/06	Solid	C	See note 1&3
J11X45	5/12/06	Solid	C	See note 1&3

1– Total strontium, isotopic thorium, isotopic uranium, gamma spectroscopy.
2 – Carbon-14.
3 – Isotopic plutonium.

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 100 Area and 300 Area Component of the RCBRA Water Sampling Plan (DOE/RL-2005, Rev. 0, October 2005). 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.

- **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

No field blanks were submitted for analysis.

- **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 80-120%. 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.

Due to the lack of an LCS analysis, all thorium-228 and thorium-232 results were qualified as estimates and flagged "J".

All other 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 detection limit (CRDL) and the RPD is less than 20%, 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 Duplicates

No field duplicates were submitted for analysis.

- **Detection Levels**

Reported analytical detection levels for undetected analytes are compared against the 100 & 300 Area RQLs to ensure that laboratory detection levels meet the required criteria. Seventeen analytes exceeded the RQL. Under the WCH statement of work, no qualification is required.

- **Completeness**

Data package No. K0358 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 an LCS analysis, all thorium-228 and thorium-232 results were qualified as estimates and flagged "J". Data flagged "J" indicates that the associated concentration is an estimate, but under the WCH 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.

Seventeen analytes exceeded the RQL. Under the WCH statement of work, no qualification is required.

REFERENCES

WCH, Contract #20266, *Validation Statement of Work*, Washington Closure Hanford Incorporated, July 7, 2003.

DOE/RL-2005, Rev. 0, October 2005, *100 Area and 300 Area Component of the RCBRA Water Sampling Plan*.

Appendix 1

Glossary of Data Reporting Qualifiers

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

RADIOCHEMISTRY DATA QUALIFICATION SUMMARY*

SDG: K0358	REVIEWER: TEL	Project: RGBRA	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Thorium-228 Thorium-232	J	All	No 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

Project: WASHINGTON CLOSURE HANFORD																					
Laboratory: EB																					
Case	SDG: K0358																				
Sample Number		J11WW5		J11WW6		J11WW7		J11WW8		J11WW9		J11WX0		J11WX5		J11WX6		J11WX9		J11WY0	
Remarks																					
Sample Date		5/9/06		5/9/06		5/9/06		5/9/06		5/10/06		5/10/06		5/9/06		5/9/06		5/9/06		5/9/06	
Radiochemistry	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Carbon-14	50	-0.406	U	12.5		1.07	U	2.62	U	0.167	U	2.67	U	NA		NA		NA		NA	
Total Strontium	1	-0.028	U	-0.049	U	-0.042	U	-0.028	U	-0.022	U	-0.027	U	0.011	U	-0.032	U	-0.009	U	-0.017	U
Thorium-228		0.029	UJ	0.138	UJ	0	UJ	0.054	UJ	-0.033	UJ	0	UJ	0.020	UJ	0	UJ	0.013	UJ	0.022	UJ
Thorium-230		0.287		0.302		0.108	U	0.322		0.257		0.100	U	0.145	U	0.113	U	0.085	U	0.066	
Thorium-232		-0.029	UJ	-0.027	UJ	-0.027	UJ	0	UJ	0	UJ	-0.029	UJ	0.007	UJ	-0.030	UJ	-0.013	UJ	-0.022	UJ
Uranium-233/234	1	0	U	0	U	-0.017	U	0	U	0.045	U	0	U	0	U	0	U	-0.014	U	0	U
Uranium-235	1	0	U	0	U	0.021	U	0.018	U	0	U	0	U	0	U	0.015	U	0	U	0	U
Uranium-238	1	0	U	0	U	0	U	0	U	0	U	0.029	U	0.013	U	0.012	U	0	U	0	U
Potassium-40		3.33		9.78		4.16		5.38		4.93		4.69		3.19		8.19		4.27		6.38	
Cobalt 60	0.05	U	U*	U	U*	U	U*	U	U*	U	U	U	U	U	U*	U	U*	U	U*	U	U*
Cesium 137	0.1	U	U	U	U	U	U*	U	U*	U	U	U	U	U	U	U	U	U	U	U	U
Radium-226		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Radium-228		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Europium 152		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Europium 154		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Europium 155		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Thorium-228		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Thorium-232		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Uranium-235(gea)		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Uranium-238(gea)		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Americium-241(gea)		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Beryllium-7		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Ruthenium-106		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Antimony-125		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Cesium-134		U	U	U	U	U	U	U	U	U	U	U	U	U	U	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.

Project: WASHINGTON CLOSURE HANFORD																					
Laboratory: EB																					
Case	SDG: K0358																				
Sample Number		J11WY5		J11WY6		J11WY7		J11WY8		J11X01		J11X02		J11X03		J11X04		J11X44		J11X45	
Remarks																					
Sample Date		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06		5/12/06		5/12/06	
Radiochemistry	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Carbon-14	50	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total Strontium	1	0.035	U	0.013	U	-0.017	U	-0.012	U	0.043	U	-0.003	U	-0.002	U	-0.005	U	0.042	U	-0.027	U
Thorium-228		-0.038	UJ	-0.014	UJ	0.170	UJ	0.082	UJ	0.154	UJ	0.063	UJ	0.052	UJ	0.102	UJ	0.039	UJ	-0.038	UJ
Thorium-230		-0.070	U	0.040	U	0.269		-0.162	U	0.102	U	0.092	U	-0.026	U	-0.051	U	-0.078	U	0.192	U
Thorium-232		0	UJ	-0.007	UJ	-0.034	UJ	-0.040	UJ	0	UJ	-0.006	UJ	-0.013	UJ	0	UJ	0	UJ	-0.038	UJ
Uranium-233/234	1	0.016	U	0	U	0	U	0.023	U	0	U	0.041	U	0	U	0	U	0.026	U	-0.006	U
Uranium-235	1	0.019	U	0	U	0	U	0	U	0	U	0.025	U	0.025	U	0	U	0	U	0	U
Uranium-238	1	0	U	0.028	U	0	U	0.023	U	0.020	U	0	U	0	U	0	U	0	U	0	U
Plutonium-238		NA		NA		NA		NA		NA		NA		NA		NA		-0.045	U	0.054	U
Plutonium-239/240		NA		NA		NA		NA		NA		NA		NA		NA		0.023	U	0.027	U
Potassium-40		4.96		10.4		9.05		4.36		4.93		U	U	3.70		4.67		2.66		10.5	
Cobalt 60	0.05	U	U*	U	U*	U	U	U	U	U	U*	U	U	U	U*	U	U*	U	U*	U	U*
Cesium 137	0.1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Radium-226		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Radium-228		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Europium 152		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Europium 154		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Europium 155		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Thorium-228		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Thorium-232		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Uranium-235(gea)		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Uranium-238(gea)		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Americium-241(gea)		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Ruthenium-106		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Antimony-125		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Beryllium-7		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Cesium-134		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U

000011

* - 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 K0358

R605144-01 J11WW5

DATA SHEET

SDG	7449	Client/Case no	Hanford SDG K0358
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R605144-01	Client sample id	J11WW5
Dept sample id	7449-001	Location/Matrix	100-K RIPARIAN SITE #4 SOLID
Received	05/17/06	Collected/Weight	05/09/06 13:15 720 g
% solids	100.0	Custody/SAF No	RC-047-356 RC-047

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Carbon 14	14762-75-5	-0.406	3.0	5.1	50	U	C
Total Strontium	SR-RAD	-0.028	0.075	0.16	1.0	U	SR
Thorium 228	14274-82-9	0.029	0.17	0.36	1.0	U J	TH
Thorium 230	14269-63-7	0.287	0.23	0.27	1.0		TH
Thorium 232	TH-232	-0.029	0.057	0.22	1.0	U J	TH
Uranium 233/234	U-233/234	0	0.033	0.12	1.0	U	U
Uranium 235	15117-96-1	0	0.039	0.15	1.0	U	U
Uranium 238	U-238	0	0.033	0.12	1.0	U	U
Potassium 40	13966-00-2	3.33	1.3	1.2			GAM
Cobalt 60	10198-40-0	U		0.13	0.050	U	GAM
Cesium 137	10045-97-3	U		0.084	0.10	U	GAM
Radium 226	13982-63-3	U		0.16	0.10	U	GAM
Radium 228	15262-20-1	U		0.44	0.20	U	GAM
Europium 152	14683-23-9	U		0.13	0.10	U	GAM
Europium 154	15585-10-1	U		0.39	0.10	U	GAM
Europium 155	14391-16-3	U		0.070	0.10	U	GAM
Thorium 228	14274-82-9	U		0.067		U	GAM
Thorium 232	TH-232	U		0.44		U	GAM
Uranium 235	15117-96-1	U		0.12		U	GAM
Uranium 238	U-238	U		12		U	GAM
Americium 241	14596-10-2	U		0.069		U	GAM
Beryllium 7	13966-02-4	U		1.1		U	GAM
Ruthenium 106	13967-48-1	U		0.76		U	GAM
Antimony 125	14234-35-6	U		0.15		U	GAM
Cesium 134	13967-70-9	U		0.13		U	GAM

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

6/21/06

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	07/19/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605144-02 J11WW6

DATA SHEET

SDG	7449	Client/Case no	Hanford	SDG K0358	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R605144-02	Client sample id	J11WW6		
Dept sample id	7449-002	Location/Matrix	100-K RIPARIAN SITE #4	SOLID	
Received	05/17/06	Collected/Amount	05/09/06 13:30	602	
% solids	100.0	Custody/SAF No	RC-047-356	RC-047	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	12.5	2.8	4.3	50		C
Total Strontium	SR-RAD	-0.049	0.068	0.16	1.0	U	SR
Thorium 228	14274-82-9	0.138	0.22	0.34	1.0	U J	TH
Thorium 230	14269-63-7	0.302	0.22	0.21	1.0		TH
Thorium 232	TH-232	-0.027	0.055	0.21	1.0	U J	TH
Uranium 233/234	U-233/234	0	0.030	0.11	1.0	U	U
Uranium 235	15117-96-1	0	0.036	0.14	1.0	U	U
Uranium 238	U-238	0	0.030	0.11	1.0	U	U
Potassium 40	13966-00-2	9.78	2.6	0.60			GAM
Cobalt 60	10198-40-0	U		0.081	0.050	U	GAM
Cesium 137	10045-97-3	U		0.072	0.10	U	GAM
Radium 226	13982-63-3	U		0.18	0.10	U	GAM
Radium 228	15262-20-1	U		0.36	0.20	U	GAM
Europium 152	14683-23-9	U		0.19	0.10	U	GAM
Europium 154	15585-10-1	U		0.24	0.10	U	GAM
Europium 155	14391-16-3	U		0.23	0.10	U	GAM
Thorium 228	14274-82-9	U		0.12		U	GAM
Thorium 232	TH-232	U		0.36		U	GAM
Uranium 235	15117-96-1	U		0.31		U	GAM
Uranium 238	U-238	U		9.2		U	GAM
Americium 241	14596-10-2	U		0.55		U	GAM
Beryllium 7	13966-02-4	U		1.2		U	GAM
Ruthenium 106	13967-48-1	U		0.65		U	GAM
Antimony 125	14234-35-6	U		0.17		U	GAM
Cesium 134	13967-70-9	U		0.082		U	GAM

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

8/9/06

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	07/19/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605144-03 J11WW7

DATA SHEET

SDG	7449	Client/Case no	Hanford	SDG K0358	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R605144-03	Client sample id	J11WW7		
Dept sample id	7449-003	Location/Matrix	100-K RIPARIAN SITE #5	SOLID	
Received	05/17/06	Collected/Weight	05/09/06 14:20	674 g	
% solids	100.0	Custody/SAF No	RC-047-357	RC-047	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Carbon 14	14762-75-5	1.07	2.2	3.7	50	U	C
Total Strontium	SR-RAD	-0.042	0.072	0.16	1.0	U	SR
Thorium 228	14274-82-9	0	0.11	0.21	1.0	U J	TH
Thorium 230	14269-63-7	0.108	0.16	0.21	1.0	U	TH
Thorium 232	TH-232	-0.027	0.054	0.21	1.0	U J	TH
Uranium 233/234	U-233/234	-0.017	0.035	0.13	1.0	U	U
Uranium 235	15117-96-1	0.021	0.042	0.16	1.0	U	U
Uranium 238	U-238	0	0.035	0.13	1.0	U	U
Potassium 40	13966-00-2	4.16	1.5	1.2			GAM
Cobalt 60	10198-40-0	U		0.15	0.050	U	GAM
Cesium 137	10045-97-3	U		0.11	0.10	U	GAM
Radium 226	13982-63-3	U		0.19	0.10	U	GAM
Radium 228	15262-20-1	U		0.51	0.20	U	GAM
Europium 152	14683-23-9	U		0.15	0.10	U	GAM
Europium 154	15585-10-1	U		0.46	0.10	U	GAM
Europium 155	14391-16-3	U		0.079	0.10	U	GAM
Thorium 228	14274-82-9	U		0.075		U	GAM
Thorium 232	TH-232	U		0.51		U	GAM
Uranium 235	15117-96-1	U		0.15		U	GAM
Uranium 238	U-238	U		20		U	GAM
Americium 241	14596-10-2	U		0.081		U	GAM
Beryllium 7	13966-02-4	U		1.3		U	GAM
Ruthenium 106	13967-48-1	U		1.0		U	GAM
Antimony 125	14234-35-6	U		0.19		U	GAM
Cesium 134	13967-70-9	U		0.13		U	GAM

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

8/9/06

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605144-04 J11WW8

DATA SHEET

SDG	7449	Client/Case no	Hanford SDG K0358
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R605144-04	Client sample id	J11WW8
Dept sample id	7449-004	Location/Matrix	100-K RIPARIAN SITE #5 SOLID
Received	05/17/06	Collected/Weight	05/09/06 14:35 1243 g
% solids	100.0	Custody/SAF No	RC-047-357 RC-047

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Carbon 14	14762-75-5	2.62	2.3	3.7	50	U	C
Total Strontium	SR-RAD	-0.028	0.074	0.16	1.0	U	SR
Thorium 228	14274-82-9	0.054	0.16	0.30	1.0	U J	TH
Thorium 230	14269-63-7	0.322	0.22	0.21	1.0		TH
Thorium 232	TH-232	0	0.054	0.21	1.0	U J	TH
Uranium 233/234	U-233/234	0	0.030	0.11	1.0	U	U
Uranium 235	15117-96-1	0.018	0.036	0.14	1.0	U	U
Uranium 238	U-238	0	0.030	0.11	1.0	U	U
Potassium 40	13966-00-2	5.38	3.0	1.2			GAM
Cobalt 60	10198-40-0	U		0.11	0.050	U	GAM
Cesium 137	10045-97-3	U		0.11	0.10	U	GAM
Radium 226	13982-63-3	U		0.25	0.10	U	GAM
Radium 228	15262-20-1	U		0.49	0.20	U	GAM
Europium 152	14683-23-9	U		0.27	0.10	U	GAM
Europium 154	15585-10-1	U		0.36	0.10	U	GAM
Europium 155	14391-16-3	U		0.31	0.10	U	GAM
Thorium 228	14274-82-9	U		0.17		U	GAM
Thorium 232	TH-232	U		0.49		U	GAM
Uranium 235	15117-96-1	U		0.42		U	GAM
Uranium 238	U-238	U		13		U	GAM
Americium 241	14596-10-2	U		0.75		U	GAM
Beryllium 7	13966-02-4	U		1.7		U	GAM
Ruthenium 106	13967-48-1	U		0.87		U	GAM
Antimony 125	14234-35-6	U		0.26		U	GAM
Cesium 134	13967-70-9	U		0.13		U	GAM

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

8/9/06

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
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Version	3.06
Report date	07/19/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605144-05 J11WW9

DATA SHEET

SDG	7449	Client/Case no	Hanford SDG K0358
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R605144-05	Client sample id	J11WW9
Dept sample id	7449-005	Location/Matrix	UPRIVER RIPARIAN SITE#12 SOLID
Received	05/17/06	Collected/Weight	05/10/06 08:45 720 g
% solids	100.0	Custody/SAF No	RC-047-358 RC-047

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Carbon 14	14762-75-5	0.167	2.0	3.3	50	U	C
Total Strontium	SR-RAD	-0.022	0.073	0.16	1.0	U	SR
Thorium 228	14274-82-9	-0.033	0.040	0.089	1.0	U J	TH
Thorium 230	14269-63-7	0.257	0.13	0.21	1.0		TH
Thorium 232	TH-232	0	0.026	0.050	1.0	U J	TH
Uranium 233/234	U-233/234	0.045	0.045	0.17	1.0	U	U
Uranium 235	15117-96-1	0	0.054	0.21	1.0	U	U
Uranium 238	U-238	0	0.045	0.17	1.0	U	U
Potassium 40	13966-00-2	4.93	0.70	0.52			GAM
Cobalt 60	10198-40-0	U		0.049	0.050	U	GAM
Cesium 137	10045-97-3	U		0.037	0.10	U	GAM
Radium 226	13982-63-3	U		0.070	0.10	U	GAM
Radium 228	15262-20-1	U		0.19	0.20	U	GAM
Europium 152	14683-23-9	U		0.058	0.10	U	GAM
Europium 154	15585-10-1	U		0.16	0.10	U	GAM
Europium 155	14391-16-3	U		0.031	0.10	U	GAM
Thorium 228	14274-82-9	U		0.028		U	GAM
Thorium 232	TH-232	U		0.19		U	GAM
Uranium 235	15117-96-1	U		0.052		U	GAM
Uranium 238	U-238	U		5.8		U	GAM
Americium 241	14596-10-2	U		0.029		U	GAM
Beryllium 7	13966-02-4	U		0.44		U	GAM
Ruthenium 106	13967-48-1	U		0.33		U	GAM
Antimony 125	14234-35-6	U		0.066		U	GAM
Cesium 134	13967-70-9	U		0.051		U	GAM

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

8/2/06

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	07/19/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605144-06 J11WX0

DATA SHEET

SDG	7449	Client/Case no	Hanford SDG K0358
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R605144-06	Client sample id	J11WX0
Dept sample id	7449-006	Location/Matrix	UPRIVER RIPARIAN SITE#12 SOLID
Received	05/17/06	Collected/Weight	05/10/06 08:55 524 g
% solids	100.0	Custody/SAF No	RC-047-358 RC-047

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	2.67	2.4	3.9	50	U	C
Total Strontium	SR-RAD	-0.027	0.071	0.15	1.0	U	SR
Thorium 228	14274-82-9	0	0.058	0.11	1.0	U J	TH
Thorium 230	14269-63-7	0.100	0.11	0.19	1.0	U	TH
Thorium 232	TH-232	-0.029	0.014	0.068	1.0	U J	TH
Uranium 233/234	U-233/234	0	0.029	0.11	1.0	U	U
Uranium 235	15117-96-1	0	0.035	0.14	1.0	U	U
Uranium 238	U-238	0.029	0.029	0.11	1.0	U	U
Potassium 40	13966-00-2	4.69	0.87	0.59			GAM
Cobalt 60	10198-40-0	U		0.046	0.050	U	GAM
Cesium 137	10045-97-3	U		0.040	0.10	U	GAM
Radium 226	13982-63-3	U		0.061	0.10	U	GAM
Radium 228	15262-20-1	U		0.14	0.20	U	GAM
Europium 152	14683-23-9	U		0.11	0.10	U	GAM
Europium 154	15585-10-1	U		0.14	0.10	U	GAM
Europium 155	14391-16-3	U		0.064	0.10	U	GAM
Thorium 228	14274-82-9	U		0.055		U	GAM
Thorium 232	TH-232	U		0.14		U	GAM
Uranium 235	15117-96-1	U		0.11		U	GAM
Uranium 238	U-238	U		5.1		U	GAM
Americium 241	14596-10-2	U		0.040		U	GAM
Beryllium 7	13966-02-4	U		0.55		U	GAM
Ruthenium 106	13967-48-1	U		0.33		U	GAM
Antimony 125	14234-35-6	U		0.084		U	GAM
Cesium 134	13967-70-9	U		0.053		U	GAM

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

8/2/06

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	07/19/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605144-07 J11WX5

DATA SHEET

SDG	7449	Client/Case no	Hanford	SDG K0358	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R605144-07	Client sample id	J11WX5		
Dept sample id	7449-007	Location/Matrix	100-D RIPARIAN SITE #3	SOLID	
Received	05/17/06	Collected/Weight	05/09/06 13:45	569 g	
% solids	100.0	Custody/SAF No	RC-047-361	RC-047	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Total Strontium	SR-RAD	0.011	0.082	0.16	1.0	U	SR
Thorium 228	14274-82-9	0.020	0.053	0.089	1.0	U J	TH
Thorium 230	14269-63-7	0.145	0.12	0.21	1.0	U	TH
Thorium 232	TH-232	0.007	0.026	0.050	1.0	U J	TH
Uranium 233/234	U-233/234	0	0.026	0.10	1.0	U	U
Uranium 235	15117-96-1	0	0.032	0.12	1.0	U	U
Uranium 238	U-238	0.013	0.026	0.10	1.0	U	U
Potassium 40	13966-00-2	3.19	1.1	1.1			GAM
Cobalt 60	10198-40-0	U		0.11	0.050	U	GAM
Cesium 137	10045-97-3	U		0.077	0.10	U	GAM
Radium 226	13982-63-3	U		0.14	0.10	U	GAM
Radium 228	15262-20-1	U		0.38	0.20	U	GAM
Europium 152	14683-23-9	U		0.11	0.10	U	GAM
Europium 154	15585-10-1	U		0.35	0.10	U	GAM
Europium 155	14391-16-3	U		0.056	0.10	U	GAM
Thorium 228	14274-82-9	U		0.050		U	GAM
Thorium 232	TH-232	U		0.38		U	GAM
Uranium 235	15117-96-1	U		0.096		U	GAM
Uranium 238	U-238	U		9.4		U	GAM
Americium 241	14596-10-2	U		0.055		U	GAM
Beryllium 7	13966-02-4	U		0.90		U	GAM
Ruthenium 106	13967-48-1	U		0.63		U	GAM
Antimony 125	14234-35-6	U		0.13		U	GAM
Cesium 134	13967-70-9	U		0.10		U	GAM

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605144-08 J11WX6

DATA SHEET

SDG	7449	Client/Case no	Hanford SDG K0358
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R605144-08	Client sample id	J11WX6
Dept sample id	7449-008	Location/Matrix	100-D RIPARIAN SITE #3 SOLID
Received	05/17/06	Collected/Weight	05/09/06 14:00 647 g
% solids	100.0	Custody/SAF No	RC-047-361 RC-047

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Total Strontium	SR-RAD	-0.032	0.071	0.16	1.0	U	SR
Thorium 228	14274-82-9	0	0.061	0.11	1.0	U J	TH
Thorium 230	14269-63-7	0.113	0.12	0.20	1.0	U	TH
Thorium 232	TH-232	-0.030	0.015	0.072	1.0	U J	TH
Uranium 233/234	U-233/234	0	0.025	0.094	1.0	U	U
Uranium 235	15117-96-1	0.015	0.030	0.11	1.0	U	U
Uranium 238	U-238	0.012	0.025	0.094	1.0	U	U
Potassium 40	13966-00-2	8.19	2.0	0.65			GAM
Cobalt 60	10198-40-0	U		0.075	0.050	U	GAM
Cesium 137	10045-97-3	U		0.063	0.10	U	GAM
Radium 226	13982-63-3	U		0.13	0.10	U	GAM
Radium 228	15262-20-1	U		0.29	0.20	U	GAM
Europium 152	14683-23-9	U		0.15	0.10	U	GAM
Europium 154	15585-10-1	U		0.18	0.10	U	GAM
Europium 155	14391-16-3	U		0.18	0.10	U	GAM
Thorium 228	14274-82-9	U		0.091		U	GAM
Thorium 232	TH-232	U		0.29		U	GAM
Uranium 235	15117-96-1	U		0.23		U	GAM
Uranium 238	U-238	U		7.3		U	GAM
Americium 241	14596-10-2	U		0.30		U	GAM
Beryllium 7	13966-02-4	U		0.86		U	GAM
Ruthenium 106	13967-48-1	U		0.50		U	GAM
Antimony 125	14234-35-6	U		0.13		U	GAM
Cesium 134	13967-70-9	U		0.083		U	GAM

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605144-09 J11WX9

DATA SHEET

SDG	7449	Client/Case no	Hanford SDG K0358
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R605144-09	Client sample id	J11WX9
Dept sample id	7449-009	Location/Matrix	100-F RIPARIAN SITE #7 SOLID
Received	05/17/06	Collected/Weight	05/09/06 09:40 587 g
% solids	100.0	Custody/SAF No	RC-047-363 RC-047

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Total Strontium	SR-RAD	-0.009	0.083	0.17	1.0	U	SR
Thorium 228	14274-82-9	0.013	0.066	0.11	1.0	U J	TH
Thorium 230	14269-63-7	0.085	0.12	0.21	1.0	U	TH
Thorium 232	TH-232	-0.013	0.026	0.062	1.0	U J	TH
Uranium 233/234	U-233/234	-0.014	0.028	0.11	1.0	U	U
Uranium 235	15117-96-1	0	0.034	0.13	1.0	U	U
Uranium 238	U-238	0	0.028	0.11	1.0	U	U
Potassium 40	13966-00-2	4.27	1.3	1.1			GAM
Cobalt 60	10198-40-0	U		0.11	0.050	U	GAM
Cesium 137	10045-97-3	U		0.068	0.10	U	GAM
Radium 226	13982-63-3	U		0.11	0.10	U	GAM
Radium 228	15262-20-1	U		0.31	0.20	U	GAM
Europium 152	14683-23-9	U		0.086	0.10	U	GAM
Europium 154	15585-10-1	U		0.29	0.10	U	GAM
Europium 155	14391-16-3	U		0.055	0.10	U	GAM
Thorium 228	14274-82-9	U		0.041		U	GAM
Thorium 232	TH-232	U		0.31		U	GAM
Uranium 235	15117-96-1	U		0.082		U	GAM
Uranium 238	U-238	U		10		U	GAM
Americium 241	14596-10-2	U		0.058		U	GAM
Beryllium 7	13966-02-4	U		0.61		U	GAM
Ruthenium 106	13967-48-1	U		0.51		U	GAM
Antimony 125	14234-35-6	U		0.10		U	GAM
Cesium 134	13967-70-9	U		0.083		U	GAM

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605144-10 J11WY0

DATA SHEET

SDG	7449	Client/Case no	Hanford	SDG K0358	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R605144-10	Client sample id	J11WY0		
Dept sample id	7449-010	Location/Matrix	100-F RIPARIAN SITE #7	SOLID	
Received	05/17/06	Collected/Weight	05/09/06 10:00	643 g	
% solids	100.0	Custody/SAF No	RC-047-363	RC-047	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Total Strontium	SR-RAD	-0.017	0.075	0.16	1.0	U	SR
Thorium 228	14274-82-9	0.022	0.059	0.099	1.0	U J	TH
Thorium 230	14269-63-7	0.066	0.12	0.20	1.0	U	TH
Thorium 232	TH-232	-0.022	0.029	0.070	1.0	U J	TH
Uranium 233/234	U-233/234	0	0.027	0.10	1.0	U	U
Uranium 235	15117-96-1	0	0.033	0.13	1.0	U	U
Uranium 238	U-238	0	0.027	0.10	1.0	U	U
Potassium 40	13966-00-2	6.38	0.95	0.44			GAM
Cobalt 60	10198-40-0	U		0.060	0.050	U	GAM
Cesium 137	10045-97-3	U		0.051	0.10	U	GAM
Radium 226	13982-63-3	U		0.090	0.10	U	GAM
Radium 228	15262-20-1	U		0.20	0.20	U	GAM
Europium 152	14683-23-9	U		0.097	0.10	U	GAM
Europium 154	15585-10-1	U		0.17	0.10	U	GAM
Europium 155	14391-16-3	U		0.064	0.10	U	GAM
Thorium 228	14274-82-9	U		0.068		U	GAM
Thorium 232	TH-232	U		0.20		U	GAM
Uranium 235	15117-96-1	U		0.14		U	GAM
Uranium 238	U-238	U		6.3		U	GAM
Americium 241	14596-10-2	U		0.042		U	GAM
Beryllium 7	13966-02-4	U		0.60		U	GAM
Ruthenium 106	13967-48-1	U		0.34		U	GAM
Antimony 125	14234-35-6	U		0.088		U	GAM
Cesium 134	13967-70-9	U		0.055		U	GAM

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605144-11 J11WY5

DATA SHEET

SDG	7449	Client/Case no	Hanford SDG K0358
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R605144-11	Client sample id	J11WY5
Dept sample id	7449-011	Location/Matrix	100-D RIPARIAN SITE #10 SOLID
Received	05/17/06	Collected/Weight	05/09/06 11:00 592 g
% solids	100.0	Custody/SAF No	RC-047-366 RC-047

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Total Strontium	SR-RAD	0.035	0.083	0.16	1.0	U	SR
Thorium 228	14274-82-9	-0.038	0.051	0.10	1.0	U J	TH
Thorium 230	14269-63-7	-0.070	0.089	0.20	1.0	U	TH
Thorium 232	TH-232	0	0.025	0.061	1.0	U J	TH
Uranium 233/234	U-233/234	0.016	0.032	0.12	1.0	U	U
Uranium 235	15117-96-1	0.019	0.038	0.15	1.0	U	U
Uranium 238	U-238	0	0.032	0.12	1.0	U	U
Potassium 40	13966-00-2	4.96	1.3	0.83			GAM
Cobalt 60	10198-40-0	U		0.077	0.050	U	GAM
Cesium 137	10045-97-3	U		0.058	0.10	U	GAM
Radium 226	13982-63-3	U		0.099	0.10	U	GAM
Radium 228	15262-20-1	U		0.27	0.20	U	GAM
Europium 152	14683-23-9	U		0.096	0.10	U	GAM
Europium 154	15585-10-1	U		0.24	0.10	U	GAM
Europium 155	14391-16-3	U		0.045	0.10	U	GAM
Thorium 228	14274-82-9	U		0.039		U	GAM
Thorium 232	TH-232	U		0.27		U	GAM
Uranium 235	15117-96-1	U		0.076		U	GAM
Uranium 238	U-238	U		9.3		U	GAM
Americium 241	14596-10-2	U		0.041		U	GAM
Beryllium 7	13966-02-4	U		0.74		U	GAM
Ruthenium 106	13967-48-1	U		0.45		U	GAM
Antimony 125	14234-35-6	U		0.091		U	GAM
Cesium 134	13967-70-9	U		0.083		U	GAM

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605144-12 J11WY6

DATA SHEET

SDG	7449	Client/Case no	Hanford	SDG K0358	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R605144-12	Client sample id	J11WY6		
Dept sample id	7449-012	Location/Matrix	100-D RIPARIAN SITE #10	SOLID	
Received	05/17/06	Collected/Weight	05/09/06 11:15	582 g	
% solids	100.0	Custody/SAF No	RC-047-366	RC-047	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	0.013	0.084	0.17	1.0	U	SR
Thorium 228	14274-82-9	-0.014	0.068	0.12	1.0	U J	TH
Thorium 230	14269-63-7	0.040	0.12	0.22	1.0	U	TH
Thorium 232	TH-232	-0.007	0.027	0.064	1.0	U J	TH
Uranium 233/234	U-233/234	0	0.028	0.11	1.0	U	U
Uranium 235	15117-96-1	0	0.034	0.13	1.0	U	U
Uranium 238	U-238	0.028	0.028	0.11	1.0	U	U
Potassium 40	13966-00-2	10.4	2.7	0.87			GAM
Cobalt 60	10198-40-0	U		0.088	0.050	U	GAM
Cesium 137	10045-97-3	U		0.096	0.10	U	GAM
Radium 226	13982-63-3	U		0.20	0.10	U	GAM
Radium 228	15262-20-1	U		0.44	0.20	U	GAM
Europium 152	14683-23-9	U		0.22	0.10	U	GAM
Europium 154	15585-10-1	U		0.27	0.10	U	GAM
Europium 155	14391-16-3	U		0.27	0.10	U	GAM
Thorium 228	14274-82-9	U		0.14		U	GAM
Thorium 232	TH-232	U		0.44		U	GAM
Uranium 235	15117-96-1	U		0.34		U	GAM
Uranium 238	U-238	U		11		U	GAM
Americium 241	14596-10-2	U		0.63		U	GAM
Beryllium 7	13966-02-4	U		1.3		U	GAM
Ruthenium 106	13967-48-1	U		0.84		U	GAM
Antimony 125	14234-35-6	U		0.20		U	GAM
Cesium 134	13967-70-9	U		0.097		U	GAM

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605146-01 J11WY7

DATA SHEET

SDG	7450	Client/Case no	Hanford SDG K0358
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R605146-01	Client sample id	J11WY7
Dept sample id	7450-001	Location/Matrix	UPRIVER RIPARIAN SITE#11 SOLID
Received	05/17/06	Collected/Weight	05/09/06 10:15 675 g
% solids	100.0	Custody/SAF No	RC-047-367 RC-047

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Total Strontium	SR-RAD	-0.017	0.088	0.19	1.0	U	SR
Thorium 228	14274-82-9	0.170	0.20	0.38	1.0	U J	TH
Thorium 230	14269-63-7	0.269	0.27	0.26	1.0		TH
Thorium 232	TH-232	-0.034	0.067	0.26	1.0	U J	TH
Uranium 233/234	U-233/234	0	0.042	0.16	1.0	U	U
Uranium 235	15117-96-1	0	0.051	0.19	1.0	U	U
Uranium 238	U-238	0	0.042	0.16	1.0	U	U
Potassium 40	13966-00-2	9.05	1.2	0.41			GAM
Cobalt 60	10198-40-0	U		0.044	0.050	U	GAM
Cesium 137	10045-97-3	U		0.040	0.10	U	GAM
Radium 226	13982-63-3	U		0.090	0.10	U	GAM
Radium 228	15262-20-1	U		0.20	0.20	U	GAM
Europium 152	14683-23-9	U		0.098	0.10	U	GAM
Europium 154	15585-10-1	U		0.15	0.10	U	GAM
Europium 155	14391-16-3	U		0.12	0.10	U	GAM
Thorium 228	14274-82-9	U		0.059		U	GAM
Thorium 232	TH-232	U		0.20		U	GAM
Uranium 235	15117-96-1	U		0.15		U	GAM
Uranium 238	U-238	U		5.3		U	GAM
Americium 241	14596-10-2	U		0.28		U	GAM
Beryllium 7	13966-02-4	U		1.3		U	GAM
Ruthenium 106	13967-48-1	U		0.34		U	GAM
Antimony 125	14234-35-6	U		0.090		U	GAM
Cesium 134	13967-70-9	U		0.047		U	GAM

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605146-02 J11WY8

DATA SHEET

SDG	7450	Client/Case no	Hanford SDG K0358
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R605146-02	Client sample id	J11WY8
Dept sample id	7450-002	Location/Matrix	UPRIVER RIPARIAN SITE#11 SOLID
Received	05/17/06	Collected/Weight	05/09/06 10:30 531 g
% solids	100.0	Custody/SAF No	RC-047-367 RC-047

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Total Strontium	SR-RAD	-0.012	0.091	0.19	1.0	U	SR
Thorium 228	14274-82-9	0.082	0.082	0.31	1.0	U J	TH
Thorium 230	14269-63-7	-0.162	0.082	0.31	1.0	U	TH
Thorium 232	TH-232	-0.040	0.081	0.31	1.0	U J	TH
Uranium 233/234	U-233/234	0.023	0.046	0.18	1.0	U	U
Uranium 235	15117-96-1	0	0.056	0.21	1.0	U	U
Uranium 238	U-238	0.023	0.046	0.18	1.0	U	U
Potassium 40	13966-00-2	4.36	0.72	0.44			GAM
Cobalt 60	10198-40-0	U		0.044	0.050	U	GAM
Cesium 137	10045-97-3	U		0.039	0.10	U	GAM
Radium 226	13982-63-3	U		0.064	0.10	U	GAM
Radium 228	15262-20-1	U		0.19	0.20	U	GAM
Europium 152	14683-23-9	U		0.079	0.10	U	GAM
Europium 154	15585-10-1	U		0.12	0.10	U	GAM
Europium 155	14391-16-3	U		0.089	0.10	U	GAM
Thorium 228	14274-82-9	U		0.053		U	GAM
Thorium 232	TH-232	U		0.19		U	GAM
Uranium 235	15117-96-1	U		0.15		U	GAM
Uranium 238	U-238	U		5.7		U	GAM
Americium 241	14596-10-2	U		0.23		U	GAM
Beryllium 7	13966-02-4	U		0.58		U	GAM
Ruthenium 106	13967-48-1	U		0.27		U	GAM
Antimony 125	14234-35-6	U		0.075		U	GAM
Cesium 134	13967-70-9	U		0.046		U	GAM

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605146-03 J11X01

DATA SHEET

SDG	7450	Client/Case no	Hanford SDG K0358
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R605146-03	Client sample id	J11X01
Dept sample id	7450-003	Location/Matrix	UPRIVER RIPARIAN SITE#14 SOLID
Received	05/17/06	Collected/Weight	05/09/06 08:50 629 g
% solids	100.0	Custody/SAF No	RC-047-369 RC-047

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Total Strontium	SR-RAD	0.043	0.085	0.17	1.0	U	SR
Thorium 228	14274-82-9	0.154	0.21	0.39	1.0	U J	TH
Thorium 230	14269-63-7	0.102	0.20	0.39	1.0	U	TH
Thorium 232	TH-232	0	0.10	0.39	1.0	U J	TH
Uranium 233/234	U-233/234	0	0.041	0.16	1.0	U	U
Uranium 235	15117-96-1	0	0.049	0.19	1.0	U	U
Uranium 238	U-238	0.020	0.041	0.16	1.0	U	U
Potassium 40	13966-00-2	4.62	1.0	0.52			GAM
Cobalt 60	10198-40-0	U		0.071	0.050	U	GAM
Cesium 137	10045-97-3	U		0.055	0.10	U	GAM
Radium 226	13982-63-3	U		0.097	0.10	U	GAM
Radium 228	15262-20-1	U		0.24	0.20	U	GAM
Europium 152	14683-23-9	U		0.076	0.10	U	GAM
Europium 154	15585-10-1	U		0.24	0.10	U	GAM
Europium 155	14391-16-3	U		0.044	0.10	U	GAM
Thorium 228	14274-82-9	U		0.064		U	GAM
Thorium 232	TH-232	U		0.24		U	GAM
Uranium 235	15117-96-1	U		0.071		U	GAM
Uranium 238	U-238	U		9.5		U	GAM
Americium 241	14596-10-2	U		0.041		U	GAM
Beryllium 7	13966-02-4	U		0.66		U	GAM
Ruthenium 106	13967-48-1	U		0.50		U	GAM
Antimony 125	14234-35-6	U		0.094		U	GAM
Cesium 134	13967-70-9	U		0.081		U	GAM

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

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Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605146-04 J11X02

DATA SHEET

SDG	7450	Client/Case no	Hanford SDG K0358
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R605146-04	Client sample id	J11X02
Dept sample id	7450-004	Location/Matrix	UPRIVER RIPARIAN SITE#14 SOLID
Received	05/17/06	Collected/Weight	05/09/06 09:15 620 g
% solids	100.0	Custody/SAF No	RC-047-369 RC-047

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Total Strontium	SR-RAD	-0.003	0.085	0.18	1.0	U	SR
Thorium 228	14274-82-9	0.063	0.063	0.084	1.0	U J	TH
Thorium 230	14269-63-7	0.092	0.11	0.19	1.0	U	TH
Thorium 232	TH-232	-0.006	0.025	0.059	1.0	U J	TH
Uranium 233/234	U-233/234	0.041	0.041	0.16	1.0	U	U
Uranium 235	15117-96-1	0.025	0.049	0.19	1.0	U	U
Uranium 238	U-238	0	0.041	0.16	1.0	U	U
Potassium 40	13966-00-2	U		0.69		U	GAM
Cobalt 60	10198-40-0	U		0.031	0.050	U	GAM
Cesium 137	10045-97-3	U		0.028	0.10	U	GAM
Radium 226	13982-63-3	U		0.059	0.10	U	GAM
Radium 228	15262-20-1	U		0.12	0.20	U	GAM
Europium 152	14683-23-9	U		0.072	0.10	U	GAM
Europium 154	15585-10-1	U		0.078	0.10	U	GAM
Europium 155	14391-16-3	U		0.081	0.10	U	GAM
Thorium 228	14274-82-9	U		0.039		U	GAM
Thorium 232	TH-232	U		0.12		U	GAM
Uranium 235	15117-96-1	U		0.11		U	GAM
Uranium 238	U-238	U		2.8		U	GAM
Americium 241	14596-10-2	U		0.12		U	GAM
Beryllium 7	13966-02-4	U		0.35		U	GAM
Ruthenium 106	13967-48-1	U		0.24		U	GAM
Antimony 125	14234-35-6	U		0.059		U	GAM
Cesium 134	13967-70-9	U		0.034		U	GAM

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

8/9/06

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	07/11/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605146-05 J11X03

DATA SHEET

SDG	7450	Client/Case no	Hanford SDG K0358
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R605146-05	Client sample id	J11X03
Dept sample id	7450-005	Location/Matrix	UPRIVER RIPARIAN SITE#16 SOLID
Received	05/17/06	Collected/Weight	05/09/06 12:30 646 g
% solids	100.0	Custody/SAF No	RC-047-370 RC-047

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	-0.002	0.058	0.12	1.0	U	SR
Thorium 228	14274-82-9	0.052	0.078	0.12	1.0	U J	TH
Thorium 230	14269-63-7	-0.026	0.10	0.20	1.0	U	TH
Thorium 232	TH-232	-0.013	0.026	0.061	1.0	U J	TH
Uranium 233/234	U-233/234	0	0.042	0.16	1.0	U	U
Uranium 235	15117-96-1	0.025	0.051	0.19	1.0	U	U
Uranium 238	U-238	0	0.042	0.16	1.0	U	U
Potassium 40	13966-00-2	3.70	0.98	0.74			GAM
Cobalt 60	10198-40-0	U		0.085	0.050	U	GAM
Cesium 137	10045-97-3	U		0.051	0.10	U	GAM
Radium 226	13982-63-3	U		0.11	0.10	U	GAM
Radium 228	15262-20-1	U		0.24	0.20	U	GAM
Europium 152	14683-23-9	U		0.086	0.10	U	GAM
Europium 154	15585-10-1	U		0.24	0.10	U	GAM
Europium 155	14391-16-3	U		0.044	0.10	U	GAM
Thorium 228	14274-82-9	U		0.039		U	GAM
Thorium 232	TH-232	U		0.24		U	GAM
Uranium 235	15117-96-1	U		0.077		U	GAM
Uranium 238	U-238	U		8.9		U	GAM
Americium 241	14596-10-2	U		0.040		U	GAM
Beryllium 7	13966-02-4	U		0.64		U	GAM
Ruthenium 106	13967-48-1	U		0.47		U	GAM
Antimony 125	14234-35-6	U		0.091		U	GAM
Cesium 134	13967-70-9	U		0.077		U	GAM

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

8/9/06

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	07/11/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605146-06 J11X04

DATA SHEET

SDG	7450	Client/Case no	Hanford SDG K0358
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R605146-06	Client sample id	J11X04
Dept sample id	7450-006	Location/Matrix	UPRIVER RIPARIAN SITE#14 SOLID
Received	05/17/06	Collected/Weight	05/09/06 12:45 583 g
% solids	100.0	Custody/SAF No	RC-047-370 RC-047

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Total Strontium	SR-RAD	-0.005	0.087	0.18	1.0	U	SR
Thorium 228	14274-82-9	0.102	0.20	0.39	1.0	U J	TH
Thorium 230	14269-63-7	-0.051	0.20	0.39	1.0	U	TH
Thorium 232	TH-232	0	0.10	0.39	1.0	U J	TH
Uranium 233/234	U-233/234	0	0.050	0.19	1.0	U	U
Uranium 235	15117-96-1	0	0.061	0.23	1.0	U	U
Uranium 238	U-238	0	0.050	0.19	1.0	U	U
Potassium 40	13966-00-2	4.67	0.69	0.40			GAM
Cobalt 60	10198-40-0	U		0.052	0.050	U	GAM
Cesium 137	10045-97-3	U		0.032	0.10	U	GAM
Radium 226	13982-63-3	U		0.064	0.10	U	GAM
Radium 228	15262-20-1	U		0.16	0.20	U	GAM
Europium 152	14683-23-9	U		0.085	0.10	U	GAM
Europium 154	15585-10-1	U		0.13	0.10	U	GAM
Europium 155	14391-16-3	U		0.099	0.10	U	GAM
Thorium 228	14274-82-9	U		0.048		U	GAM
Thorium 232	TH-232	U		0.16		U	GAM
Uranium 235	15117-96-1	U		0.13		U	GAM
Uranium 238	U-238	U		4.2		U	GAM
Americium 241	14596-10-2	U		0.19		U	GAM
Beryllium 7	13966-02-4	U		0.48		U	GAM
Ruthenium 106	13967-48-1	U		0.30		U	GAM
Antimony 125	14234-35-6	U		0.076		U	GAM
Cesium 134	13967-70-9	U		0.043		U	GAM

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

VC 8/9/06

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	07/11/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605146-07 J11X44

DATA SHEET

SDG	7450	Client/Case no	Hanford SDG K0358
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R605146-07	Client sample id	J11X44
Dept sample id	7450-007	Location/Matrix	1607-H2 SOLID
Received	05/17/06	Collected/Weight	05/12/06 10:15 664 g
% solids	100.0	Custody/SAF No	RC-047-372 RC-047

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	0.042	0.092	0.18	1.0	U	SR
Thorium 228	14274-82-9	0.039	0.16	0.37	1.0	U J	TH
Thorium 230	14269-63-7	-0.078	0.16	0.30	1.0	U	TH
Thorium 232	TH-232	0	0.078	0.30	1.0	U J	TH
Uranium 233/234	U-233/234	0.026	0.052	0.20	1.0	U	U
Uranium 235	15117-96-1	0	0.062	0.24	1.0	U	U
Uranium 238	U-238	0	0.051	0.20	1.0	U	U
Plutonium 238	13981-16-3	-0.045	0.045	0.22	1.0	U	PU
Plutonium 239/240	PU-239/240	0.023	0.045	0.17	1.0	U	PU
Potassium 40	13966-00-2	2.66	1.4	1.4			GAM
Cobalt 60	10198-40-0	U		0.053	0.050	U	GAM
Cesium 137	10045-97-3	U		0.048	0.10	U	GAM
Radium 226	13982-63-3	U		0.15	0.10	U	GAM
Radium 228	15262-20-1	U		0.21	0.20	U	GAM
Europium 152	14683-23-9	U		0.13	0.10	U	GAM
Europium 154	15585-10-1	U		0.17	0.10	U	GAM
Europium 155	14391-16-3	U		0.089	0.10	U	GAM
Thorium 228	14274-82-9	U		0.088		U	GAM
Thorium 232	TH-232	U		0.21		U	GAM
Uranium 235	15117-96-1	U		0.18		U	GAM
Uranium 238	U-238	U		7.2		U	GAM
Americium 241	14596-10-2	U		0.060		U	GAM
Beryllium 7	13966-02-4	U		0.73		U	GAM
Ruthenium 106	13967-48-1	U		0.55		U	GAM
Antimony 125	14234-35-6	U		0.14		U	GAM
Cesium 134	13967-70-9	U		0.081		U	GAM

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

6/9/06

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	07/11/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605146-08 J11X45

DATA SHEET

SDG	7450	Client/Case no	Hanford SDG K0358
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R605146-08	Client sample id	J11X45
Dept sample id	7450-008	Location/Matrix	1607-H2 SOLID
Received	05/17/06	Collected/Weight	05/12/06 10:30 734 g
% solids	100.0	Custody/SAF No	RC-047-372 RC-047

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Total Strontium	SR-RAD	-0.027	0.075	0.16	1.0	U	SR
Thorium 228	14274-82-9	-0.038	0.077	0.29	1.0	U	TH
Thorium 230	14269-63-7	0.192	0.23	0.29	1.0	U	TH
Thorium 232	TH-232	-0.038	0.077	0.29	1.0	U	TH
Uranium 233/234	U-233/234	-0.006	0.013	0.024	1.0	U	U
Uranium 235	15117-96-1	0	0.015	0.030	1.0	U	U
Uranium 238	U-238	0	0.013	0.024	1.0	U	U
Plutonium 238	13981-16-3	0.054	0.11	0.26	1.0	U	PU
Plutonium 239/240	PU-239/240	0.027	0.054	0.21	1.0	U	PU
Potassium 40	13966-00-2	10.5	2.4	0.70			GAM
Cobalt 60	10198-40-0	U		0.085	0.050	U	GAM
Cesium 137	10045-97-3	U		0.083	0.10	U	GAM
Radium 226	13982-63-3	U		0.19	0.10	U	GAM
Radium 228	15262-20-1	U		0.41	0.20	U	GAM
Europium 152	14683-23-9	U		0.21	0.10	U	GAM
Europium 154	15585-10-1	U		0.27	0.10	U	GAM
Europium 155	14391-16-3	U		0.26	0.10	U	GAM
Thorium 228	14274-82-9	U		0.13		U	GAM
Thorium 232	TH-232	U		0.41		U	GAM
Uranium 235	15117-96-1	U		0.34		U	GAM
Uranium 238	U-238	U		10		U	GAM
Americium 241	14596-10-2	U		0.60		U	GAM
Beryllium 7	13966-02-4	U		2.4		U	GAM
Ruthenium 106	13967-48-1	U		0.74		U	GAM
Antimony 125	14234-35-6	U		0.19		U	GAM
Cesium 134	13967-70-9	U		0.091		U	GAM

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

8/9/06

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	07/11/06

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K0358 was composed of thirty-six solid (other solid) samples designated under SAF No. RC-047 with a Project Designation of: 100 & 300 Area Component of the RCBRA sediment and Ti.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklists. All results were transmitted to WCH via e-mail on July 19, 2006.

2.0 ANALYSIS NOTES

2.1 Carbon-14 Analysis

The samples were reanalyzed due to an error in the counting instructions; the original sample planchets were only counted for one minute. No problems were encountered during the course of the reanalyses.

2.2 Total Strontium Analysis

No problems were encountered during the course of the analyses.

2.3 Isotopic Thorium Analysis

No problems were encountered during the course of the analyses.

2.4 Isotopic Uranium Analysis

No problems were encountered during the course of the analyses.

2.5 Isotopic Plutonium Analysis

No problems were encountered during the course of the analyses

2.6 Gamma Spectroscopy

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 Mannion — 7/19/06

Melissa C. Mannion
Senior Program Manager

Date

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-356	Page 1 of 1

Collector: TILLER, B. TR KLINCKMAN	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 9N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: 100-K RIPARIAN SITE # 4 K0358 (7449)	SAF No.: RC-047	
Ice Chest No.: ERC-02-001	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A060414	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

~~COOL 4C~~ TRE 5-16-06

000034

Preservation	None	None	None	Cool 4C	Cool 4C	Cool 4C					
Type of Container	G/P	G/P	G/P	G/P	aG	aG					
No. of Container(s)	1	1	1	1	1	1					
Volume	750g	2g	5g	15g	50g	50g					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Carbon-14	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082 *					

Sample No.	Matrix *	Sample Date	Sample Time										
J11WW5	OTHER SOLID	5-9-06	1315	X •	X ••	X ••							
J11WW6	OTHER SOLID	5-9-06	1330	X •	X ••	X ••							

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time 5-9-06 1340	Received By/Stored In EAS LOCKED STORAGE	Date/Time 5-9-06 1340
Relinquished By/Removed From EAS LOCKED STORAGE	Date/Time 0730 MAY 15 2006	Received By/Stored In TR Eberlein 5-16-06	Date/Time 0730
Relinquished By/Removed From TR Eberlein 5-16-06	Date/Time 1500	Received By/Stored In Fed Ex	Date/Time
Relinquished By/Removed From FED EX	Date/Time	Received By/Stored In	Date/Time 05/17/06 9:30
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) {Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238}

Matrix *

SoSoil
SESediment
SOSolid
SlSludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WiWipe
LiLiquid
VeVegetation
X=Other

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

BHI-EE-011 (08/29/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-357	Page 1 of 1

Collector: TILLER, B. KLINCKMAN	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: 100-K RIPARIAN SITE # 5 K0358 (7449)		SAF No.: RC-047
Ice Chest No.: ERC-02-001	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A060414		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 9N
Air Quality ☐
Data Turnaround: 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS
POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage
~~COOL 4C~~ TRE 5-16-06

000035

Preservation	None	None	None	Cool 4C	Cool 4C	Cool 4C							
Type of Container	G/P	G/P	G/P	G/P	aG	aG							
No. of Container(s)	1	1	1	1	1	1							
Volume	750g	2g	5g	15g	50g	50g							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Carbon-14	Strontium-89,90 -- Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082							
Sample No. / Matrix * / Sample Date / Sample Time													
J11WW7 / OTHER SOLID / 5-9-06 / 1420	X	X	X										
J11WW8 (Full QC) / OTHER SOLID / 5-9-06 / 1435	X	X	X										

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: TR KLINCKMAN	Date/Time: 5-9-06 1445	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 5-9-06 1445
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 0730 MAY 15 2006	Received By/Stored In: TR Edmondson	Date/Time: 5-15-06 0730
Relinquished By/Removed From: TR Edmondson WCH TR Edmondson	Date/Time: 5-16-06 1500	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: FED EX	Date/Time:	Received By/Stored In: [signature]	Date/Time: 05/17/06 9:20
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) {Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238}

Matrix *
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

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

BHI-EE-011 (08/29/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-047-358	Page 1 of 1
Collector TILLER, B.	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 9N Air Quality ☐
Project Designation 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location UPRIVER RIPARIAN SITE # 12 K0358 (7449)		SAF No. RC-047	Data Turnaround 45 Days
Ice Chest No. ERC-02-001	Field Logbook No. EL-1597	COA BESRAS6520	Method of Shipment FED EX	
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A060414		Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

~~COOL~~ 4C TRF 5-16-06

Preservation	None	None	None	Cool 4C	Cool 4C	Cool 4C				
Type of Container	G/P	G/P	G/P	G/P	aG	aG				
No. of Container(s)	1	1	1	1	1	1				
Volume	750g	2g	5g	15g	50g	50g				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Carbon-14	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082				

000036

Sample No.	Matrix *	Sample Date	Sample Time										
J11WW9	OTHER SOLID	5-10-06	8:45	X	X	X							
J11WX0	OTHER SOLID	5-10-06	8:55	X	X	X							

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From TR KLINCKMAN	Date/Time 5-10-06 0900	Received By/Stored In EAS LOCKED STORAGE	Date/Time 5-10-06 0900
Relinquished By/Removed From EAS LOCKED STORAGE	Date/Time 0730 MAY 15 2006	Received By/Stored In T.K. Edmundson T.K. Edmundson 5-15-06	Date/Time 0730
Relinquished By/Removed From T.K. Edmundson WCH T.K. Edmundson 5-16-06	Date/Time 1500	Received By/Stored In Fed Ex	Date/Time
Relinquished By/Removed From FED EX	Date/Time	Received By/Stored In MFM	Date/Time 05/17/06 9:30
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) [Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238]

Matrix *
S=Soil
SS=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

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

BHI-EE-011 (08/29/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-361	Page 1 of 1
Collector: TILLER, B. TR KLINCKMAN	Company Contact: JOAN KESSNER; Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 9N; Data Turnaround: 45 Days
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: 100-D RIPARIAN SITE # 3 K0358 (7449)	SAF No.: RC-047	Air Quality ☐
Ice Chest No.: ERC-02-001	Field Logbook No.: EL-1597; COA: BESRAS6520	Method of Shipment: FED EX	
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A060414	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

~~COOL 4C~~ TRG 5-16-06

000037

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C						
Type of Container	G/P	G/P	G/P	aG	aG						
No. of Container(s)	1	1	1	1	1						
Volume	750g	5g	15g	50g	50g						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082						
Sample No.	Matrix *	Sample Date	Sample Time								
J11WX5	OTHER SOLID	5-9-06	1345	X	X						
J11WX6	OTHER SOLID	5-9-06	1400	X	X						

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: TR KLINCKMAN	5-9-06 1415	Received By/Stored In: EAS LOCKED STORAGE	5-9-06 1415
Relinquished By/Removed From: EAS LOCKED STORAGE	0730 MAY 15 2006	Received By/Stored In: TR Eberline	5-15-06 0730
Relinquished By/Removed From: TR Eberline	5-16-06 1500	Received By/Stored In: Fed Ex	
Relinquished By/Removed From: FEDEX		Received By/Stored In:	05/17/06 9:20
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Gamma Spec + (Full List) {Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238}

Matrix *: 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

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

BHI-EE-011 (08/29/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-363	Page 1 of 1

Collector TILLER, B. TR KLINCKMAN	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH
Project Designation 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location 100-F RIPARIAN SITE # 7 K0358 (7449)		SAF No. RC-047
Ice Chest No. ERC-02-001	Field Logbook No. EL-1597	COA BESRAS6520	Method of Shipment FED EX
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A060414		Bill of Lading/Air Bill No. SEE OSPC

Price Code 9N

Air Quality ☐

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

~~COOL 4C~~ TRE 5-16-06

000038

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C							
Type of Container	G/P	G/P	G/P	aG	aG							
No. of Container(s)	1	1	1	1	1							
Volume	750g	5g	15g	50g	50g							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082							

Sample No.	Matrix *	Sample Date	Sample Time										
J11WX9	OTHER SOLID	5-9-06	9:40	X	X								
J11WY0	OTHER SOLID	5-9-06	10:00	X	X								

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From TR KLINCKMAN	Date/Time 5-9-06 10:15	Received By/Stored In EAS LOCKED STORAGE	Date/Time 5-9-06 10:15
Relinquished By/Removed From EAS LOCKED STORAGE	Date/Time 0730 MAY 14 2006	Received By/Stored In TR Edmundson TR Edmundson 5-15-06	Date/Time 0730
Relinquished By/Removed From TR Edmundson 5-16-06	Date/Time 1500	Received By/Stored In Fed Ex	Date/Time
Relinquished By/Removed From FED EX	Date/Time	Received By/Stored In [signature]	Date/Time 05/17/06 9:20
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) [Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238]

Matrix *
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

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

BHI-EE-011 (08/29/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-366	Page 1 of 1

Collector TILLER, B. TR KLINCKMAN	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 9N	Data Turnaround 45 Days
Project Designation 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location 100-D RIPARIAN SITE # 10 K0358 (7449)		SAF No. RC-047	Air Quality ☐	
Ice Chest No. ERC-02-001	Field Logbook No. EL-1597	COA BESRAS6520	Method of Shipment FED EX		
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A060414		Bill of Lading/Air Bill No. SEE OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

~~COOL 4C~~ TRE 5-16-06

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C						
Type of Container	G/P	G/P	G/P	aG	aG						
No. of Container(s)	1	1	1	1	1						
Volume	750g	5g	15g	50g	50g						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082						

000039

Sample No.	Matrix *	Sample Date	Sample Time										
J11WY5	OTHER SOLID	5-9-06	11:00	X	X								
J11WY6	OTHER SOLID	5-9-06	11:15	X	X								

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From TR KLINCKMAN	5-9-06 11:20	Received By/Stored In EAS LOCKED STORAGE	5-9-06 11:20
Relinquished By/Removed From EAS LOCKED STORAGE	0730 MAY 15 2006	Received By/Stored In TR Glandon	5-15-06 0730
Relinquished By/Removed From TR Glandon	WCH 5-16-06 1500	Received By/Stored In Fed Ex	
Relinquished By/Removed From FED EX		Received By/Stored In MFM	05/17/06 9:20
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) [Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238]

Matrix *

S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
Wi=Wipe
Li=Liquid
Ve=Vegetation
X=Other

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

BHI-EE-011 (08/29/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-367	Page 1 of 1

Collector TILLER, B TR KLINCKMAN	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 9N	Data Turnaround 45 Days
Project Designation 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location UPRIVER RIPARIAN SITE # 11 K0358 (7450)		SAF No. RC-047	Air Quality ☐	
Ice Chest No. ERC-02-0001	Field Logbook No. EL-1597	COA BESRAS6520	Method of Shipment FED EX		
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A060414		Bill of Lading/Air Bill No. SEE OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C THRU 5-16-06

000040

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C						
Type of Container	G/P	G/P	G/P	aG	aG						
No. of Container(s)	1	1	1	1	1						
Volume	750g	5g	15g	50g	50g						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082						
Sample No.	Matrix *	Sample Date	Sample Time								
J11WY7	OTHER SOLID	5-9-06	10:15	X*	X**						
J11WY8	OTHER SOLID	5-9-06	10:30	X*	X**						

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From TR KLINCKMAN	5-9-06 10:45	Received By/Stored In EAS LOCKED STORAGE	5-9-06 10:45
Relinquished By/Removed From EAS LOCKED STORAGE	0730 MAY 15 2006	Received By/Stored In TR Klinckman 5-15-06	0730
Relinquished By/Removed From TR Klinckman 5-16-06	1500	Received By/Stored In Fed Ex	
Relinquished By/Removed From Fed Ex		Received By/Stored In May 05/17/06	9:20
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) [Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238]

Matrix *

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
Ve=Vegetation
X=Other

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

BHI-EE-011 (08/29/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-369	Page 1 of 1

Collector: TILLER, B. TR KLINCKMAN	Company Contact: JOAN KESSNER; Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 9N; Data Turnaround: 45 Days
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: UPRIVER RIPARIAN SITE # 14 KO358 (7450)	SAF No.: RC-047	Air Quality ☐
Ice Chest No.: ERC-02-001	Field Logbook No.: EL-1597; COA: BESRAS6520	Method of Shipment: FED EX	
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A060 414	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

~~COOL 4C~~ TRE 5-16-06

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C						
Type of Container	G/P	G/P	G/P	aG	aG						
No. of Container(s)	1	1	1	1	1						
Volume	750g	5g	15g	50g	50g						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082						

000041

Sample No.	Matrix *	Sample Date	Sample Time										
J11X01	OTHER SOLID	5-9-06	8:50	X	X								
J11X02	OTHER SOLID	5-9-06	9:15	X	X								

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: TR KLINCKMAN	Date/Time: 5-9-06 9:30	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 5-9-06 9:30
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 0730 MAY 15 2006	Received By/Stored In: TR Edmundson	Date/Time: 5-15-06 0730
Relinquished By/Removed From: TR Edmundson	Date/Time: 5-16-06 1500	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: FED EX	Date/Time:	Received By/Stored In: [signature]	Date/Time: 05/17/06 9:30
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) [Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238]

Matrix *: 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

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

BHI-EE-011 (08/29/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-370	Page 1 of 1

Collector TILLER, B. TR KLINCKMAN	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH
Price Code 9N	Data Turnaround 45 Days	Air Quality ☐	
Project Designation 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location UPRIVER RIPARIAN SITE # 16 K0358 (7450)	SAF No. RC-047	
Ice Chest No. ERC-02-001	Field Logbook No. EL-1597	COA BESRAS6520	Method of Shipment FED EX
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A060414	Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

~~COOL 4C~~ TRE 5-16-06

000042

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C							
Type of Container	G/P	G/P	G/P	aG	aG							
No. of Container(s)	1	1	1	1	1							
Volume	750g	5g	15g	50g	50g							
SAMPLE ANALYSIS	See Item (1) in Special Instructions.	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082							

Sample No.	Matrix *	Sample Date	Sample Time											
J11X03	OTHER SOLID	5-9-06	1230	X	X									
J11X04	OTHER SOLID	5-9-06	12:45	X	X									

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From TR KLINCKMAN	Date/Time 5-9-06 12:45	Received By/Stored In EAS LOCKED STORAGE	Date/Time 5-9-06 12:45
Relinquished By/Removed From EAS LOCKED STORAGE	Date/Time 0730 MAY 15 2006	Received By/Stored In TR Klinckman 5-15-06	Date/Time 0730
Relinquished By/Removed From J.R. Blundell 5-16-06	Date/Time 1500	Received By/Stored In Fed Ex	Date/Time
Relinquished By/Removed From FED EX	Date/Time	Received By/Stored In TFM	Date/Time 05/17/06 9:20
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) {Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238}

Matrix *

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

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

BHI-EE-011 (08/29/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-372	Page 1 of 1

Collector: TILLER, B. TR KLINCKMAN	Company Contact: JOAN KESSNER; Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 9N; Data Turnaround: 45 Days
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: 1607-H2 K0358 (7450)	SAF No.: RC-047	Air Quality ☐
Ice Chest No.: ERC-02-001	Field Logbook No.: EL-1597; COA: BESRAS6520	Method of Shipment: FED EX	
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A060414	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

~~COOL 4C~~ TRE 5-16-06

Preservation	None	None	None	Cool 4C	Cool 4C	Cool 4C					
Type of Container	G/P	G/P	G/P	G/P	aG	aG					
No. of Container(s)	1	1	1	1	1	1					
Volume	750g	5g	5g	15g	50g	50g					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr; Isotopic Thorium; Isotopic Uranium	Isotopic Plutonium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082					

000043

Sample No.	Matrix *	Sample Date	Sample Time										
J11X44	OTHER SOLID	5-12-06	1015	X	X	X							
J11X45	OTHER SOLID	5-12-06	1030	X	X	X							

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: TR KLINCKMAN	Date/Time: 1045 5-12-06	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 1045 5-12-06
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 0730 MAY 15 2006	Received By/Stored In: [signature]	Date/Time: 5-15-06 0730
Relinquished By/Removed From: [signature] J.R. Edmundson	Date/Time: 5-16-06 1500	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: FED EX	Date/Time:	Received By/Stored In: [signature]	Date/Time: 05/17/06 9:30
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) [Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238]

Matrix *: 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

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

BHI-EE-011 (08/29/2005)

Appendix 5

Data Validation Supporting Documentation

APPENDIX A

RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: RCBRA			DATA PACKAGE:	K0358	
VALIDATOR: TLT		LAB: EB		DATE: 8/6/06	
			SDG:	K0358	

ANALYSES PERFORMED					
Gross Alpha/Beta	Strontium-90	Technetium-99	Alpha Spectroscopy	Gamma Spectroscopy	
Total Uranium	Radium-22	Tritium	P-14		

SAMPLES/MATRIX					
J11WW5	J11WW6	J11WW7	J11WW8	J11WW9	J11WX0
J11WX5	J11WX6	J11WX9	J11WY0	J11WY5	J11WY6
J11WY7	J11WY8	J11X01	J11X02	J11X03	J11X04
J11X44	J11X45				
					Solid

1. Completeness ..... ☐ N/A

Technical verification forms present? ..... Yes (No) N/A

Comments: _____

2. Initial Calibration (Levels D, E) ..... ☒ N/A

Instruments/detectors calibrated? ..... Yes No N/A

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

Standards NIST traceable? ..... Yes No N/A

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

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

Comments: _____

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: no FB

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: no th 228 or 232 LCS

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 Field QC

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: 28 over

17

Appendix 6

Additional Documentation Requested by Client

WS-Y6

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605144-14 Method Blank

METHOD BLANK

SDG	7449	Client/Case no	Hanford SDG K0358
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R605144-14	Client sample id	Method Blank
Dept sample id	7449-014	Material/Matrix	SOLID
		SAF No	RC-047

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Total Strontium	SR-RAD	0.021	0.078	0.16	1.0	U	SR
Thorium 228	14274-82-9	-0.043	0.072	0.14	1.0	U	TH
Thorium 230	14269-63-7	0.014	0.10	0.19	1.0	U	TH
Thorium 232	TH-232	-0.014	0.028	0.079	1.0	U	TH
Uranium 233/234	U-233/234	-0.003	0.013	0.024	1.0	U	U
Uranium 235	15117-96-1	-0.004	0.008	0.029	1.0	U	U
Uranium 238	U-238	0.003	0.006	0.024	1.0	U	U
Potassium 40	13966-00-2	U		0.61		U	GAM
Cobalt 60	10198-40-0	U		0.060	0.050	U	GAM
Cesium 137	10045-97-3	U		0.040	0.10	U	GAM
Radium 226	13982-63-3	U		0.097	0.10	U	GAM
Radium 228	15262-20-1	U		0.20	0.20	U	GAM
Europium 152	14683-23-9	U		0.12	0.10	U	GAM
Europium 154	15585-10-1	U		0.19	0.10	U	GAM
Europium 155	14391-16-3	U		0.076	0.10	U	GAM
Thorium 228	14274-82-9	U		0.069		U	GAM
Thorium 232	TH-232	U		0.20		U	GAM
Uranium 235	15117-96-1	U		0.15		U	GAM
Uranium 238	U-238	U		5.8		U	GAM
Americium 241	14596-10-2	U		0.048		U	GAM
Beryllium 7	13966-02-4	U		0.33		U	GAM
Ruthenium 106	13967-48-1	U		0.40		U	GAM
Antimony 125	14234-35-6	U		0.11		U	GAM
Cesium 134	13967-70-9	U		0.057		U	GAM

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

QC-BLANK 57303

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	07/19/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605144-17 Method Blank

METHOD BLANK

SDG	7449	Client/Case no	Hanford SDG K0358
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R605144-17	Client sample id	Method Blank
Dept sample id	7449-017	Material/Matrix	SOLID
		SAF No	RC-047

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	1.70	2.9	4.8	50	U	C

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

QC-BLANK #57776

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	07/19/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605144-13

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7449

Contact Melissa C. Mannion

Client/Case no Hanford SDG K0358

Contract No. 630

Lab sample id R605144-13

Dept sample id 7449-013

Client sample id Lab Control Sample

Material/Matrix SOLID

SAF No RC-047

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Total Strontium	11.7	0.49	0.17	1.0		SR	10.8	0.43	108	81-119	80-120
Thorium 230	40.8	1.9	0.21	1.0		TH	40.4	1.6	101	88-112	80-120
Uranium 233/234	19.0	0.73	0.32	1.0		U	19.3	0.77	98	89-111	80-120
Uranium 235	16.0	0.65	0.028	1.0		U	15.7	0.63	102	88-112	80-120
Uranium 238	19.8	0.75	0.30	1.0		U	21.0	0.84	94	89-111	80-120
Cobalt 60	1.44	0.12	0.078	0.050		GAM	1.46	0.058	99	74-126	80-120
Cesium 137	1.71	0.11	0.087	0.10		GAM	1.54	0.062	111	72-128	80-120

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

QC-LCS 57302

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 07/19/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605144-16

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7449

Contact Melissa C. Mannion

Client/Case no Hanford SDG K0358

Contract No. 630

Lab sample id R605144-16

Dept sample id 7449-016

Client sample id Lab Control Sample

Material/Matrix SOLID

SAF No RC-047

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Carbon 14	2990	20	4.6	50		C	3190	130	94	85-115	80-120

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

QC-LCS #57775

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 07/19/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605144-15 J11WW8

DUPLICATE

SDG	7449	Client/Case no	Hanford SDG K0358
Contact	Melissa C. Mannion	Contract	No. 630
DUPLICATE		ORIGINAL	
Lab sample id	R605144-15	Lab sample id	R605144-04
Dept sample id	7449-015	Dept sample id	7449-004
		Received	05/17/06
% solids	100.0	% solids	100.0
Client sample id	J11WW8		
Location/Matrix	100-K RIPARIAN SITE #5 SOLID		
Collected/Weight	05/09/06 14:35 1243 g		
Custody/SAF No	RC-047-357 RC-047		

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 TOT	DER σ
Total Strontium	-0.057	0.077	0.17	1.0	U	SR	-0.028	0.074	0.16	U	-		0.5
Thorium 228	-0.012	0.061	0.11	1.0	U	TH	0.054	0.16	0.30	U	-		0.8
Thorium 230	0.085	0.11	0.19	1.0	U	TH	0.322	0.22	0.21		116	182	1.9
Thorium 232	0.006	0.036	0.058	1.0	U	TH	0	0.054	0.21	U	-		0.2
Uranium 233/234	0	0.014	0.026	1.0	U	U	0	0.030	0.11	U	-		0
Uranium 235	0	0.016	0.031	1.0	U	U	0.018	0.036	0.14	U	-		0.9
Uranium 238	0.007	0.014	0.026	1.0	U	U	0	0.030	0.11	U	-		0.4
Potassium 40	4.65	1.1	0.64			GAM	5.38	3.0	1.2		15	101	0.4
Cobalt 60	U		0.070	0.050	U	GAM	U		0.11	U	-		0.6
Cesium 137	U		0.072	0.10	U	GAM	U		0.11	U	-		0.6
Radium 226	U		0.12	0.10	U	GAM	U		0.25	U	-		0.9
Radium 228	U		0.28	0.20	U	GAM	U		0.49	U	-		0.7
Europium 152	U		0.15	0.10	U	GAM	U		0.27	U	-		0.8
Europium 154	U		0.19	0.10	U	GAM	U		0.36	U	-		0.8
Europium 155	U		0.18	0.10	U	GAM	U		0.31	U	-		0.7
Thorium 228	U		0.089		U	GAM	U		0.17	U	-		0.8
Thorium 232	U		0.28		U	GAM	U		0.49	U	-		0.7
Uranium 235	U		0.24		U	GAM	U		0.42	U	-		0.7
Uranium 238	U		8.0		U	GAM	U		13	U	-		0.6
Americium 241	U		0.37		U	GAM	U		0.75	U	-		0.9
Beryllium 7	U		0.88		U	GAM	U		1.7	U	-		0.8
Ruthenium 106	U		0.56		U	GAM	U		0.87	U	-		0.6
Antimony 125	U		0.14		U	GAM	U		0.26	U	-		0.8
Cesium 134	U		0.097		U	GAM	U		0.13	U	-		0.4

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

QC-DUP#4 57304

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	07/19/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605144-18

J11WW8

DUPLICATE

SDG 7449		Client/Case no Hanford	SDG K0358
Contact Melissa C. Mannion		Contract No. 630	
DUPLICATE	ORIGINAL		
Lab sample id R605144-18	Lab sample id R605144-04	Client sample id J11WW8	
Dept sample id 7449-018	Dept sample id 7449-004	Location/Matrix 100-K RIPARIAN SITE #5	SOLID
	Received 05/17/06	Collected/Weight 05/09/06 14:35	1243 g
% solids 100.0	% solids 100.0	Custody/SAF No RC-047-357	RC-047

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 TOT	DER σ
Carbon 14	2.05	2.2	3.6	50	U	C	2.62	2.3	3.7	U	-		0.4

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	07/19/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605146-14 Method Blank

METHOD BLANK

SDG	7450	Client/Case no	Hanford SDG K0358
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R605146-14	Client sample id	Method Blank
Dept sample id	7450-014	Material/Matrix	SOLID
		SAF No	RC-047

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Total Strontium	SR-RAD	-0.045	0.075	0.17	1.0	U	SR
Thorium 228	14274-82-9	0.046	0.074	0.13	1.0	U	TH
Thorium 230	14269-63-7	-0.036	0.11	0.21	1.0	U	TH
Thorium 232	TH-232	0	0.036	0.069	1.0	U	TH
Uranium 233/234	U-233/234	0	0.017	0.026	1.0	U	U
Uranium 235	15117-96-1	0	0.007	0.026	1.0	U	U
Uranium 238	U-238	0	0.011	0.026	1.0	U	U
Plutonium 238	13981-16-3	0	0.032	0.12	1.0	U	PU
Plutonium 239/240	PU-239/240	-0.016	0.032	0.12	1.0	U	PU
Potassium 40	13966-00-2	U		2.1		U	GAM
Cobalt 60	10198-40-0	U		0.097	0.050	U	GAM
Cesium 137	10045-97-3	U		0.076	0.10	U	GAM
Radium 226	13982-63-3	U		0.17	0.10	U	GAM
Radium 228	15262-20-1	U		0.36	0.20	U	GAM
Europium 152	14683-23-9	U		0.20	0.10	U	GAM
Europium 154	15585-10-1	U		0.22	0.10	U	GAM
Europium 155	14391-16-3	U		0.23	0.10	U	GAM
Thorium 228	14274-82-9	U		0.11		U	GAM
Thorium 232	TH-232	U		0.36		U	GAM
Uranium 235	15117-96-1	U		0.32		U	GAM
Uranium 238	U-238	U		8.2		U	GAM
Americium 241	14596-10-2	U		0.35		U	GAM
Beryllium 7	13966-02-4	U		0.53		U	GAM
Ruthenium 106	13967-48-1	U		0.64		U	GAM
Antimony 125	14234-35-6	U		0.17		U	GAM
Cesium 134	13967-70-9	U		0.089		U	GAM

100&300 Area Compnt.RCBRA-Sedmnt.&Ti

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	07/11/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0358

R605146-13

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7450
Contact Melissa C. Mannion

Client/Case no Hanford SDG K0358
Contract No. 630

Lab sample id R605146-13
Dept sample id 7450-013

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No RC-047

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Total Strontium	10.0	0.51	0.18	1.0		SR	9.77	0.39	102	82-118	80-120
Thorium 230	40.0	4.2	0.29	1.0		TH	40.4	1.6	99	82-118	80-120
Uranium 233/234	18.0	0.71	0.31	1.0		U	18.6	0.74	97	89-111	80-120
Uranium 235	14.6	0.62	0.028	1.0		U	15.1	0.60	97	89-111	80-120
Uranium 238	20.2	0.77	0.29	1.0		U	20.2	0.81	100	89-111	80-120
Plutonium 238	23.7	1.8	0.12	1.0		PU	23.8	0.95	100	85-115	80-120
Plutonium 239/240	25.4	1.9	0.12	1.0		PU	26.4	1.1	96	86-114	80-120
Cobalt 60	1.99	0.22	0.087	0.050		GAM	1.96	0.078	102	71-129	80-120
Cesium 137	2.07	0.20	0.16	0.10		GAM	2.07	0.083	100	73-127	80-120

1006300 Area Compnt.RCBRA-Sedmnt.&Ti

QC-LCS 57305

Lab id EBRLNR
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 07/11/06

Date: 11 August 2006
To: Washington Closure Hanford (technical representative)
From: TechLaw, Inc.
Project: 100 Area and 300 Area Component of the RCBRA Sediment & Tissue
Subject: Inorganic - Data Package No. K0358-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0358 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	Date
J11WW7	5/9/06	Solid	C	See note 1
J11WW8	5/9/06	Solid	C	See note 1
J11WW9	5/10/06	Solid	C	See note 1
J11WX0	5/10/06	Solid	C	See note 1
J11WX5	5/9/06	Solid	C	See note 1
J11WX6	5/9/06	Solid	C	See note 1
J11WX9	5/9/06	Solid	C	See note 1
J11WY0	5/9/06	Solid	C	See note 1
J11WY5	5/9/06	Solid	C	See note 1
J11WY6	5/9/06	Solid	C	See note 1
J11WY7	5/9/06	Solid	C	See note 1
J11WY8	5/9/06	Solid	C	See note 1
J11WW5	5/9/06	Solid	C	See note 1
J11WW6	5/9/06	Solid	C	See note 1
J11X01	5/9/06	Solid	C	See note 1
J11X02	5/9/06	Solid	C	See note 1
J11X03	5/9/06	Solid	C	See note 1
J11X04	5/9/06	Solid	C	See note 1
J11X44	5/12/06	Solid	C	See note 1
J11X45	5/12/06	Solid	C	See note 1

1 - ICP metals (6010B) and mercury by 7471A.

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 100 Area and 300 Area Component of the RCBRA Sampling & Analysis Plan (DOE/RL-2005-42, Rev. 0, October 2005). 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 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 6 months for ICP metals and 28 days for mercury.

All holding times were acceptable.

- **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 method blank contamination, the aluminum result in samples J11WX6, J11WY6 and J11X44 were qualified as estimates and flagged "UJ".

Due to method blank contamination, the copper result in sample J11WW6 was qualified as an estimate and flagged "UJ".

Due to method blank contamination, the tin result in samples J11X01, J11X03, J11X45 and J11WW9 were qualified as estimates and flagged "UJ".

Due to method blank contamination, the uranium result in samples J11WW7, J11WX5, J11WX6, J11WX9, J11WY0 and J11WY8 were qualified as estimates and flagged "UJ".

All other preparation blank results were acceptable.

Field (Equipment) Blank

No field blanks were submitted for analysis.

- **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 80% to 120%. 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 79% and a sample result less than the IDL are qualified "UJ". Samples with a recovery of greater than 120% or less than 80% and a sample result greater than the IDL are qualified as estimates and flagged "J". Finally, for samples with a recovery greater than 120% and a sample result less than the IDL, no qualification is required.

Due to a matrix spike recovery outside QC limits (69.4%), all aluminum result were qualified as estimates and flagged "J".

Due to a matrix spike recovery outside QC limits (-37%), all iron results were qualified as estimates and flagged "J".

Due to a matrix spike recovery outside QC limits (8.2%), all silicon results were qualified as estimates and flagged "J".

Due to an LCS recovery outside QC limits (21.7%), all silicon results were qualified as estimates and flagged "J".

All other accuracy 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 20%, 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 (32.8%), all phosphorous results were qualified as estimates and flagged "J".

All other laboratory duplicate results were acceptable.

Field Duplicate

No field duplicates were submitted for analysis.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the 100 and 300 Area RQLs to ensure that laboratory detection levels meet the required criteria. All results met the RQL.

- **Completeness**

Data package No. K0358 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

The following minor deficiencies were noted:

- Due to method blank contamination, the aluminum result in samples J11WX6, J11WY6 and J11X44 were qualified as estimates and flagged "UJ".
- Due to method blank contamination, the copper result in sample J11WW6 was qualified as an estimate and flagged "UJ".
- Due to method blank contamination, the tin result in samples J11X01, J11X03, J11X45 and J11WW9 were qualified as estimates and flagged "UJ".
- Due to method blank contamination, the uranium result in samples J11WW7, J11WX5, J11WX6, J11WX9, J11WY0 and J11WY8 were qualified as estimates and flagged "UJ".
- Due to a matrix spike recovery outside QC limits (69.4%), all aluminum result were qualified as estimates and flagged "J".
- Due to a matrix spike recovery outside QC limits (-37%), all iron results were qualified as estimates and flagged "J".
- Due to a matrix spike recovery outside QC limits (8.2%), all silicon results were qualified as estimates and flagged "J".
- Due to an LCS recovery outside QC limits (21.7%), all silicon results were qualified as estimates and flagged "J".
- Due to an RPD outside QC limits (32.8%), all phosphorous results were qualified as estimates and flagged "J".

Data flagged "J" indicates that the associated concentration is an estimate, but under the WCH 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

WCH, Contract #20266, *Validation Statement of Work*, Washington Closure Hanford Incorporated, July 7, 2003.

DOE/RL-2005-42, Rev. 0, October 2005, *100 Area and 300 Area Component of the RCBRA Sampling & Analysis Plan.*

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with WCH 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).

Appendix 2

Summary of Data Qualification

METALS DATA QUALIFICATION SUMMARY*

SDG: K0358	REVIEWER: [illegible]	Project: RCBRA	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Aluminum	UJ	J11WX6, J11WY6 J11X44	Blank contamination
Copper	UJ	J11WW6	Blank contamination
Tin	UJ	J11X01, J11X03, J11X45, J11WW9	Blank contamination
Uranium	UJ	J11WW7, J11WX5, J11WX6, J11WX9, J11WY0, J11WY8	Blank contamination
Aluminum Iron Silicon	J	All	MS/MSD recovery
Silicon	J	All	LCS recovery
Phosphorous	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.

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

Project: WASHINGTON CLOSURE HANFORD
Laboratory: LLI SDG: K0358

Sample Number		J11WW7		J11WW8		J11WW9		J11WX0		J11WX5		J11WX6		J11WX9		J11WY0		J11WY5		J11WY6	
Remarks																					
Sample Date		5/9/06		5/9/06		5/10/06		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06	
Inorganics	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Silver	1	0.07	U	0.07	U	0.07	U	0.07	U	0.07		0.07	U	0.07	U	0.07	U	0.07	U	0.07	U
Aluminum	5	85.9	J	168	J	26.1	J	269	J	43.0	J	12.6	UJ	57.6	J	27.4	J	44.9	J	17.0	UJ
Arsenic	10	0.60	U	0.59	U	0.59	U	0.59	U	0.59	U	0.60	U	0.59	U	0.60	U	0.59	U	0.59	U
Boron		5.9		0.49		5.9		0.71		4.7		0.95		4.4		0.80		5.4		1.1	
Barium	2	4.8		5.2		2.8		6.9		4.0		3.2		3.4		4.6		3.8		3.7	
Beryllium	0.5	0.02	U	0.02		0.02	U	0.03		0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Bismuth		0.50	U	0.50	U	0.49	U	0.49	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.49	U
Calcium		3220		853		2280		1010		1810		1060		1610		983		2100		859	
Cadmium	1	0.07	U	0.07	U	0.07	U	0.07		0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U
Cobalt		0.14	U	0.18		0.13	U	0.21		0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.13	U
Chromium	1	0.30		0.63		0.18		0.78		0.18		0.28		0.21		0.56		0.24		0.54	
Copper	6	2.3		1.6		1.7		2.0		1.9		2.1		1.9		1.6		2.5		1.8	
Iron	6	189	J	342	J	69.3	J	517	J	120	J	34.6	J	150	J	62.4	J	126	J	49.5	J
Mercury	0.2	0.01	U	0.01	U	0.01	U	0.02	U	0.02	U	0.02	U	0.01	U	0.02	U	0.01	U	0.01	U
Potassium	400	4850		3840		5760		3800		5500		7710		5440		6160		5850		7110	
Lithium		0.1		0.21		0.03		0.30		0.05		0.03		0.05		0.03		0.04		0.03	U
Magnesium		793		509		640		511		550		603		592		419		654		352	
Manganese	5	10.8		17.5		5.9		24.4		6.4		6.5		5.5		8.6		6.4		6.2	
Molybdenum		0.57		0.28	U	0.37		0.28	U	0.28	U	0.29		0.28	U	0.28	U	0.35		0.28	U
Sodium		16.8		40.9		11.0		52.6		12.5		8.8		10.3		12.6		9.1		6.8	
Nickel	4	1.9		1.1		1.3		1.5		0.73		0.45		0.84		0.58		1.3		0.34	
Phosphorous	5	929	J	334	J	783	J	335	J	1160	J	677	J	1020	J	529	J	1440	J	689	J
Lead	5	0.37		0.49		0.30	U	0.75		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.46	
Antimony	6	0.43	U	0.43	U	0.42	U	0.42	U	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U	0.42	U
Selenium		0.46	U	0.46	U	0.45	U	0.45	U	0.46	U	0.46	U	0.46	U	0.46	U	0.46	U	0.45	U
Silicon		102	J	224	J	84.1	J	259	J	94.1	J	232	J	103	J	213	J	85.3	J	182	J
Tin	10	1.0	U	1.0	U	1.1	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Strontium		10.8		4.5		7.2		5.2		6.7		3.9		6.0		4.1		7.7		3.2	
Titanium		8.6		13.3		3.0		20.4		6.1		1.1		7.8		2.2		6.0		1.5	
Thallium		0.69	U	0.68	U	0.67	U	0.67	U	0.68	U	0.69	U	0.68	U	0.69	U	0.68	U	0.67	U
Uranium	30	1.0	UJ	0.85	U	0.85	U	0.85	U	0.93	UJ	1.3	UJ	0.90	UJ	1.2	UJ	0.85	U	0.85	U
Vanadium	2.5	0.28		0.55		0.09	U	0.96		0.16		0.09	U	0.18		0.09	U	0.14		0.09	U
Zinc	1	8.8		9.3		5.3		12.0		9.3		14.7		8.0		6.4		11.2		9.0	
Zirconium		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	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.

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Project: WASHINGTON CLOSURE HANFORD																				
Laboratory: LLI SDG: K0358																				
Sample Number		J11WY7		J11WY8		J11WW5		J11WW6		J11X01		J11X02		J11X03		J11X04		J11X44		J11X45	
Remarks																					
Sample Date		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06		5/12/06		5/12/06	
Inorganics	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Silver	1	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U
Aluminum	5	28.6	J	108	J	33.8	J	43.1	J	29.2	J	150	J	41.9	J	138	J	6.6	UJ	41.4	J
Arsenic	10	0.59	U	0.60	U	0.59	U	0.59	U	0.59	U	0.59	U	0.58	U	0.58	U	0.60		0.59	U
Boron		5.7		0.55		8.0		0.31		5.6		0.36		7.2		0.38		11.3		25.1	
Barium	2	4.1		3.3		3.8		2.2		3.6		4.7		3.6		4.0		4.8		2.5	
Beryllium	0.5	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	
Bismuth		0.49	U	0.50	U	0.50	U	0.49	U	0.49	U	0.49	U	0.49	U	0.49	U	0.50	U	0.50	U
Calcium		2670		839		3020		480		2240		634		3030		669		795		2530	
Cadmium	1	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.14	
Cobalt		0.13	U	0.14	U	0.14	U	0.13	U	0.13	U	0.14		0.13	U	0.13	U	0.14	U	0.14	U
Chromium	1	0.16		0.46		0.19		0.26		0.30		0.68		0.26		0.59		0.48		0.28	
Copper	6	1.8		1.9		1.8		1.2	UJ	1.4		1.8		2.2		2.0		2.2		3.1	
Iron	5	101	J	217	J	90.9	J	131	J	109	J	319	J	100	J	272	J	26.7	J	98.2	J
Mercury	0.2	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.01	U	0.01	U	0.02	U	0.01	U
Potassium	400	5460		4880		5000		4770		4250		5400		5170		5310		5090		6800	
Lithium		0.03	U	0.11		0.03		0.05		0.08		0.23		0.08		0.21		0.05		0.09	
Magnesium		659		341		629		374		572		402		707		412		452		619	
Manganese	5	6.5		18.4		6.0		7.8		5.4		18.6		7.6		17.2		10.0		22.7	
Molybdenum		0.38		0.28	U	0.35		0.28	U	0.47		0.28	U	0.49		0.28	U	0.77		0.38	
Sodium		11.3		26.7		12.5		9.7		9.9		20.1		13.6		18.7		48.9		9.6	
Nickel	4	0.45		0.63		0.73		0.38		0.34		0.60		0.66		0.73		0.23	U	0.32	
Phosphorous	5	828	J	478	J	738	J	282	J	631	J	452	J	895	J	620	J	1040	J	676	J
Lead	5	0.30	U	0.39		0.30	U	0.30	U	0.30	U	0.69		0.30	U	0.73		0.30	U	0.39	
Antimony	6	0.42	U	0.43	U	0.43	U	0.42	U	0.42	U	0.42	U	0.42	U	0.42	U	0.43	U	0.43	U
Selenium		0.45	U	0.46	U	0.46	U	0.45	U	0.64		0.45	U	0.59		0.45	U	0.80		0.93	
Silicon		72.1	J	167	J	95.2	J	142	J	74.0	J	183	J	107	J	222	J	170	J	63.7	J
Tin	10	1.0	U	1.0	U	1.0	U	1.0	U	1.1	UJ	1.0	U	1.1	UJ	1.0	U	1.0	U	1.2	UJ
Strontium		9.6		3.6		8.6		2.6		7.7		3.5		8.6		3.2		4.2		9.8	
Titanium		3.2		7.4		3.9		3.0		4.0		13.7		5.3		11.6		0.70		6.0	
Thallium		0.67	U	0.69	U	0.68	U	0.67	U	0.67	U	0.67	U	0.67	U	0.67	U	0.68	U	0.68	U
Uranium	30	0.85	U	0.87	UJ	0.85	U	0.85	U	0.85	U	0.85	U	0.84	U	0.84	U	0.85	U	0.85	U
Vanadium	2.5	0.09	U	0.32		0.09	U	0.1		0.12		0.55		0.18		0.47		0.09	U	0.17	
Zinc	1	5.7		7.0		5.9		11.0		6.3		12.4		7.5		13.6		14.2		15.5	
Zirconium		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	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.

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/27/06

CLIENT: TNUHANFORD RC-047 K0358

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

LVL LOT #: 0605L041

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J11WW7	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	85.9 J	MG/KG	2.3	1.0
		Arsenic, Total	0.60 u	MG/KG	0.60	1.0
		Boron, Total	5.9	MG/KG	0.24	1.0
		Barium, Total	4.8	MG/KG	0.02	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Bismuth, Total	0.50 u	MG/KG	0.50	1.0
		Calcium, Total	3220	MG/KG	2.4	1.0
		Cadmium, Total	0.07 u	MG/KG	0.07	1.0
		Cobalt, Total	0.14 u	MG/KG	0.14	1.0
		Chromium, Total	0.30	MG/KG	0.13	1.0
		Copper, Total	2.3	MG/KG	0.22	1.0
		Iron, Total	189 J	MG/KG	3.4	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	4850	MG/KG	75.6	1.0
		Lithium, Total	0.1	MG/KG	0.03	1.0
		Magnesium, Total	793	MG/KG	0.95	1.0
		Manganese, Total	10.8	MG/KG	0.03	1.0
		Molybdenum, Total	0.57	MG/KG	0.28	1.0
		Sodium, Total	16.8	MG/KG	0.74	1.0
		Nickel, Total	1.9	MG/KG	0.24	1.0
		Phosphorus, Total	929 J	MG/KG	0.88	1.0
		Lead, Total	0.37	MG/KG	0.30	1.0
		Antimony, Total	0.43 u	MG/KG	0.43	1.0
		Selenium, Total	0.46 u	MG/KG	0.46	1.0
		Silicon, Total	102 J	MG/KG	2.2	1.0
		Tin, Total	1.0 u	MG/KG	1.0	1.0
		Strontium, Total	10.8	MG/KG	0.01	1.0
		Titanium, Total	8.6	MG/KG	0.03	1.0
		Thallium, Total	0.69 u	MG/KG	0.69	1.0
		Uranium, Total	1.0 UJ	MG/KG	0.86	1.0
		Vanadium, Total	0.28	MG/KG	0.09	1.0
		Zinc, Total	8.8	MG/KG	0.16	1.0
		Zirconium, Total	1.0 u	MG/KG	1.0	1.0

8/9/06

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/27/06

CLIENT: TNUHANFORD RC-047 K0358

WORK ORDER: 11242-606-001-9999-00

LVL LOT #: 0605L041

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J11WW8	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	168 J	MG/KG	2.3	1.0
		Arsenic, Total	0.59 u	MG/KG	0.59	1.0
		Boron, Total	0.49	MG/KG	0.23	1.0
		Barium, Total	5.2	MG/KG	0.02	1.0
		Beryllium, Total	0.02	MG/KG	0.02	1.0
		Bismuth, Total	0.50 u	MG/KG	0.50	1.0
		Calcium, Total	852	MG/KG	2.4	1.0
		Cadmium, Total	0.07 u	MG/KG	0.07	1.0
		Cobalt, Total	0.18	MG/KG	0.14	1.0
		Chromium, Total	0.63	MG/KG	0.13	1.0
		Copper, Total	1.6	MG/KG	0.21	1.0
		Iron, Total	342 J	MG/KG	3.4	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	3840	MG/KG	74.9	1.0
		Lithium, Total	0.21	MG/KG	0.03	1.0
		Magnesium, Total	509	MG/KG	0.94	1.0
		Manganese, Total	17.5	MG/KG	0.03	1.0
		Molybdenum, Total	0.28 u	MG/KG	0.28	1.0
		Sodium, Total	40.9	MG/KG	0.74	1.0
		Nickel, Total	1.1	MG/KG	0.23	1.0
		Phosphorus, Total	334 J	MG/KG	0.87	1.0
		Lead, Total	0.49	MG/KG	0.30	1.0
		Antimony, Total	0.43 u	MG/KG	0.43	1.0
		Selenium, Total	0.46 u	MG/KG	0.46	1.0
		Silicon, Total	224 J	MG/KG	2.2	1.0
		Tin, Total	1.0 u	MG/KG	1.0	1.0
		Strontium, Total	4.5	MG/KG	0.01	1.0
		Titanium, Total	13.3	MG/KG	0.03	1.0
		Thallium, Total	0.68 u	MG/KG	0.68	1.0
		Uranium, Total	0.85 u	MG/KG	0.85	1.0
		Vanadium, Total	0.55	MG/KG	0.09	1.0
		Zinc, Total	9.3	MG/KG	0.16	1.0
		Zirconium, Total	1.0 u	MG/KG	1.0	1.0

6/9/06

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/27/06

CLIENT: TNUHANFORD RC-047 K0358

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

LVL LOT #: 0605L041

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	J11WW9	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	26.1 J	MG/KG	2.3	1.0
		Arsenic, Total	0.59 u	MG/KG	0.59	1.0
		Boron, Total	5.9	MG/KG	0.23	1.0
		Barium, Total	2.8	MG/KG	0.02	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Bismuth, Total	0.49 u	MG/KG	0.49	1.0
		Calcium, Total	2280	MG/KG	2.4	1.0
		Cadmium, Total	0.07 u	MG/KG	0.07	1.0
		Cobalt, Total	0.13 u	MG/KG	0.13	1.0
		Chromium, Total	0.18	MG/KG	0.12	1.0
		Copper, Total	1.7	MG/KG	0.21	1.0
		Iron, Total	69.3 J	MG/KG	3.4	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	5760	MG/KG	74.1	1.0
		Lithium, Total	0.03	MG/KG	0.03	1.0
		Magnesium, Total	640	MG/KG	0.93	1.0
		Manganese, Total	5.9	MG/KG	0.03	1.0
		Molybdenum, Total	0.37	MG/KG	0.28	1.0
		Sodium, Total	11.0	MG/KG	0.73	1.0
		Nickel, Total	1.3	MG/KG	0.23	1.0
		Phosphorus, Total	783 J	MG/KG	0.86	1.0
		Lead, Total	0.30 u	MG/KG	0.30	1.0
		Antimony, Total	0.42 u	MG/KG	0.42	1.0
		Selenium, Total	0.45 u	MG/KG	0.45	1.0
		Silicon, Total	84.1 J	MG/KG	2.2	1.0
		Tin, Total	1.1 UJ	MG/KG	1.0	1.0
		Strontium, Total	7.2	MG/KG	0.01	1.0
		Titanium, Total	3.0	MG/KG	0.03	1.0
		Thallium, Total	0.67 u	MG/KG	0.67	1.0
		Uranium, Total	0.85 u	MG/KG	0.85	1.0
		Vanadium, Total	0.09 u	MG/KG	0.09	1.0
		Zinc, Total	5.3	MG/KG	0.15	1.0
		Zirconium, Total	1.0 u	MG/KG	1.0	1.0

8/9/06

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/27/06

CLIENT: TNUHANFORD RC-047 K035A

LVL LOT #: 0605L041

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	J11WX0	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	269 J	MG/KG	2.3	1.0
		Arsenic, Total	0.59 u	MG/KG	0.59	1.0
		Boron, Total	0.71	MG/KG	0.23	1.0
		Barium, Total	6.9	MG/KG	0.02	1.0
		Beryllium, Total	0.03	MG/KG	0.02	1.0
		Bismuth, Total	0.49 u	MG/KG	0.49	1.0
		Calcium, Total	1010	MG/KG	2.4	1.0
		Cadmium, Total	0.07	MG/KG	0.07	1.0
		Cobalt, Total	0.21	MG/KG	0.13	1.0
		Chromium, Total	0.78	MG/KG	0.12	1.0
		Copper, Total	2.0	MG/KG	0.21	1.0
		Iron, Total	517 J	MG/KG	3.4	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Potassium, Total	3800	MG/KG	74.1	1.0
		Lithium, Total	0.30	MG/KG	0.03	1.0
		Magnesium, Total	511	MG/KG	0.93	1.0
		Manganese, Total	24.4	MG/KG	0.03	1.0
		Molybdenum, Total	0.28 u	MG/KG	0.28	1.0
		Sodium, Total	52.6	MG/KG	0.73	1.0
		Nickel, Total	1.5	MG/KG	0.23	1.0
		Phosphorus, Total	335 J	MG/KG	0.86	1.0
		Lead, Total	0.75	MG/KG	0.30	1.0
		Antimony, Total	0.42 u	MG/KG	0.42	1.0
		Selenium, Total	0.45 u	MG/KG	0.45	1.0
		Silicon, Total	259 J	MG/KG	2.2	1.0
		Tin, Total	1.0 u	MG/KG	1.0	1.0
		Strontium, Total	5.2	MG/KG	0.01	1.0
		Titanium, Total	20.4	MG/KG	0.03	1.0
		Thallium, Total	0.67 u	MG/KG	0.67	1.0
		Uranium, Total	0.85 u	MG/KG	0.85	1.0
		Vanadium, Total	0.96	MG/KG	0.09	1.0
		Zinc, Total	12.0	MG/KG	0.15	1.0
		Zirconium, Total	1.0 u	MG/KG	1.0	1.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/27/06

CLIENT: TNUHANFORD RC-047 K0358 LVL LOT #: 0605L041

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	J11WX5	Silver, Total	0.07	MG/KG	0.07	1.0
		Aluminum, Total	43.0 J	MG/KG	2.3	1.0
		Arsenic, Total	0.59 u	MG/KG	0.59	1.0
		Boron, Total	4.7	MG/KG	0.23	1.0
		Barium, Total	4.0	MG/KG	0.02	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Bismuth, Total	0.50 u	MG/KG	0.50	1.0
		Calcium, Total	1810	MG/KG	2.4	1.0
		Cadmium, Total	0.07 u	MG/KG	0.07	1.0
		Cobalt, Total	0.14 u	MG/KG	0.14	1.0
		Chromium, Total	0.18	MG/KG	0.13	1.0
		Copper, Total	1.9	MG/KG	0.21	1.0
		Iron, Total	120 J	MG/KG	3.4	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Potassium, Total	5500	MG/KG	74.9	1.0
		Lithium, Total	0.05	MG/KG	0.03	1.0
		Magnesium, Total	550	MG/KG	0.94	1.0
		Manganese, Total	6.4	MG/KG	0.03	1.0
		Molybdenum, Total	0.28 u	MG/KG	0.28	1.0
		Sodium, Total	12.5	MG/KG	0.74	1.0
		Nickel, Total	0.73	MG/KG	0.23	1.0
		Phosphorus, Total	1160 J	MG/KG	0.87	1.0
		Lead, Total	0.30 u	MG/KG	0.30	1.0
		Antimony, Total	0.43 u	MG/KG	0.43	1.0
		Selenium, Total	0.46 u	MG/KG	0.46	1.0
		Silicon, Total	94.1 J	MG/KG	2.2	1.0
		Tin, Total	1.0 u	MG/KG	1.0	1.0
		Strontium, Total	6.7	MG/KG	0.01	1.0
		Titanium, Total	6.1	MG/KG	0.03	1.0
		Thallium, Total	0.68 u	MG/KG	0.68	1.0
		Uranium, Total	0.93 UJ	MG/KG	0.85	1.0
		Vanadium, Total	0.16	MG/KG	0.09	1.0
		Zinc, Total	9.3	MG/KG	0.16	1.0
		Zirconium, Total	1.0 u	MG/KG	1.0	1.0

8/9/06

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/27/06

CLIENT: TNUHANFORD RC-047 K0358

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

LVL LOT #: 0605L041

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-006	J11WX6	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	12.6 UJ	MG/KG	2.3	1.0
		Arsenic, Total	0.60 u	MG/KG	0.60	1.0
		Boron, Total	0.95	MG/KG	0.24	1.0
		Barium, Total	3.2	MG/KG	0.02	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Bismuth, Total	0.50 u	MG/KG	0.50	1.0
		Calcium, Total	1060	MG/KG	2.4	1.0
		Cadmium, Total	0.07 u	MG/KG	0.07	1.0
		Cobalt, Total	0.14 u	MG/KG	0.14	1.0
		Chromium, Total	0.28	MG/KG	0.13	1.0
		Copper, Total	2.1	MG/KG	0.22	1.0
		Iron, Total	34.6 J	MG/KG	3.4	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Potassium, Total	7710	MG/KG	75.6	1.0
		Lithium, Total	0.03	MG/KG	0.03	1.0
		Magnesium, Total	603	MG/KG	0.98	1.0
		Manganese, Total	5.5	MG/KG	0.03	1.0
		Molybdenum, Total	0.29	MG/KG	0.28	1.0
		Sodium, Total	8.8	MG/KG	0.74	1.0
		Nickel, Total	0.45	MG/KG	0.24	1.0
		Phosphorus, Total	677 J	MG/KG	0.88	1.0
		Lead, Total	0.30 u	MG/KG	0.30	1.0
		Antimony, Total	0.43 u	MG/KG	0.43	1.0
		Selenium, Total	0.46 u	MG/KG	0.46	1.0
		Silicon, Total	232 J	MG/KG	2.2	1.0
		Tin, Total	1.0 u	MG/KG	1.0	1.0
		Strontium, Total	3.9	MG/KG	0.01	1.0
		Titanium, Total	1.1	MG/KG	0.03	1.0
		Thallium, Total	0.69 u	MG/KG	0.69	1.0
		Uranium, Total	1.2 UJ	MG/KG	0.86	1.0
		Vanadium, Total	0.09 u	MG/KG	0.09	1.0
		Zinc, Total	14.7	MG/KG	0.16	1.0
		Zirconium, Total	1.0 u	MG/KG	1.0	1.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/27/06

CLIENT: TNUHANFORD RC-047 K0358

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

LVL LOT #: 0605L041

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-007	J11WX9	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	57.6 J	MG/KG	2.3	1.0
		Arsenic, Total	0.59 u	MG/KG	0.59	1.0
		Boron, Total	4.4	MG/KG	0.23	1.0
		Barium, Total	3.4	MG/KG	0.02	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Bismuth, Total	0.50 u	MG/KG	0.50	1.0
		Calcium, Total	1610	MG/KG	2.4	1.0
		Cadmium, Total	0.07 u	MG/KG	0.07	1.0
		Cobalt, Total	0.14 u	MG/KG	0.14	1.0
		Chromium, Total	0.21	MG/KG	0.13	1.0
		Copper, Total	1.9	MG/KG	0.21	1.0
		Iron, Total	150 J	MG/KG	3.4	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	5440	MG/KG	74.9	1.0
		Lithium, Total	0.05	MG/KG	0.03	1.0
		Magnesium, Total	592	MG/KG	0.94	1.0
		Manganese, Total	5.5	MG/KG	0.03	1.0
		Molybdenum, Total	0.28 u	MG/KG	0.28	1.0
		Sodium, Total	10.3	MG/KG	0.74	1.0
		Nickel, Total	0.84	MG/KG	0.23	1.0
		Phosphorus, Total	1020 J	MG/KG	0.87	1.0
		Lead, Total	0.30 u	MG/KG	0.30	1.0
		Antimony, Total	0.43 u	MG/KG	0.43	1.0
		Selenium, Total	0.46 u	MG/KG	0.46	1.0
		Silicon, Total	103 J	MG/KG	2.2	1.0
		Tin, Total	1.0 u	MG/KG	1.0	1.0
		Strontium, Total	6.0	MG/KG	0.01	1.0
		Titanium, Total	7.8	MG/KG	0.02	1.0
		Thallium, Total	0.68 u	MG/KG	0.68	1.0
		Uranium, Total	0.90 UJ	MG/KG	0.85	1.0
		Vanadium, Total	0.18	MG/KG	0.09	1.0
		Zinc, Total	8.0	MG/KG	0.16	1.0
		Zirconium, Total	1.0 u	MG/KG	1.0	1.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/27/06

CLIENT: TNUHANFORD RC-047 K0358

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

LVL LOT #: 0605L041

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-008	J11WY0	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	27.4 J	MG/KG	2.3	1.0
		Arsenic, Total	0.60 u	MG/KG	0.60	1.0
		Boron, Total	0.80	MG/KG	0.24	1.0
		Barium, Total	4.6	MG/KG	0.02	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Bismuth, Total	0.50 u	MG/KG	0.50	1.0
		Calcium, Total	983	MG/KG	2.4	1.0
		Cadmium, Total	0.07 u	MG/KG	0.07	1.0
		Cobalt, Total	0.14 u	MG/KG	0.14	1.0
		Chromium, Total	0.56	MG/KG	0.12	1.0
		Copper, Total	1.6	MG/KG	0.22	1.0
		Iron, Total	62.4 J	MG/KG	3.4	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Potassium, Total	6160	MG/KG	75.6	1.0
		Lithium, Total	0.03	MG/KG	0.03	1.0
		Magnesium, Total	419	MG/KG	0.95	1.0
		Manganese, Total	8.6	MG/KG	0.03	1.0
		Molybdenum, Total	0.28 u	MG/KG	0.28	1.0
		Sodium, Total	12.6	MG/KG	0.74	1.0
		Nickel, Total	0.58	MG/KG	0.24	1.0
		Phosphorus, Total	529 J	MG/KG	0.88	1.0
		Lead, Total	0.30 u	MG/KG	0.30	1.0
		Antimony, Total	0.43 u	MG/KG	0.43	1.0
		Selenium, Total	0.46 u	MG/KG	0.46	1.0
		Silicon, Total	213 J	MG/KG	2.2	1.0
		Tin, Total	1.0 u	MG/KG	1.0	1.0
		Strontium, Total	4.1	MG/KG	0.01	1.0
		Titanium, Total	2.2	MG/KG	0.03	1.0
		Thallium, Total	0.69 u	MG/KG	0.69	1.0
		Uranium, Total	1.2 UJ	MG/KG	0.86	1.0
		Vanadium, Total	0.09 u	MG/KG	0.09	1.0
		Zinc, Total	6.4	MG/KG	0.16	1.0
		Zirconium, Total	1.0 u	MG/KG	1.0	1.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/27/06

CLIENT: TNUHANFORD RC-047 K0258 LVL LOT #: 0605L041

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-009	J11WYS	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	44.9 J	MG/KG	2.3	1.0
		Arsenic, Total	0.59 u	MG/KG	0.59	1.0
		Boron, Total	5.4	MG/KG	0.23	1.0
		Barium, Total	3.8	MG/KG	0.02	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Bismuth, Total	0.50 u	MG/KG	0.50	1.0
		Calcium, Total	2100	MG/KG	2.4	1.0
		Cadmium, Total	0.07 u	MG/KG	0.07	1.0
		Cobalt, Total	0.14 u	MG/KG	0.14	1.0
		Chromium, Total	0.24	MG/KG	0.13	1.0
		Copper, Total	2.5	MG/KG	0.21	1.0
		Iron, Total	126 J	MG/KG	3.4	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	5850	MG/KG	74.9	1.0
		Lithium, Total	0.04	MG/KG	0.03	1.0
		Magnesium, Total	654	MG/KG	0.94	1.0
		Manganese, Total	6.4	MG/KG	0.03	1.0
		Molybdenum, Total	0.35	MG/KG	0.28	1.0
		Sodium, Total	9.1	MG/KG	0.74	1.0
		Nickel, Total	1.3	MG/KG	0.23	1.0
		Phosphorus, Total	1440 J	MG/KG	0.87	1.0
		Lead, Total	0.30 u	MG/KG	0.30	1.0
		Antimony, Total	0.43 u	MG/KG	0.43	1.0
		Selenium, Total	0.46 u	MG/KG	0.46	1.0
		Silicon, Total	85.3 J	MG/KG	2.2	1.0
		Tin, Total	1.0 u	MG/KG	1.0	1.0
		Strontium, Total	7.7	MG/KG	0.01	1.0
		Titanium, Total	6.0	MG/KG	0.02	1.0
		Thallium, Total	0.68 u	MG/KG	0.68	1.0
		Uranium, Total	0.85 u	MG/KG	0.85	1.0
		Vanadium, Total	0.14	MG/KG	0.09	1.0
		Zinc, Total	11.2	MG/KG	0.16	1.0
		Zirconium, Total	1.0 u	MG/KG	1.0	1.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/27/06

CLIENT: TNUHANFORD RC-047 K0358

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

LVL LOT #: 0605L041

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-010	J11WY6	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	17.0 U J	MG/KG	2.3	1.0
		Arsenic, Total	0.59 u	MG/KG	0.59	1.0
		Boron, Total	1.1	MG/KG	0.23	1.0
		Barium, Total	3.7	MG/KG	0.02	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Bismuth, Total	0.49 u	MG/KG	0.49	1.0
		Calcium, Total	859	MG/KG	2.4	1.0
		Cadmium, Total	0.07 u	MG/KG	0.07	1.0
		Cobalt, Total	0.13 u	MG/KG	0.13	1.0
		Chromium, Total	0.54	MG/KG	0.12	1.0
		Copper, Total	1.8	MG/KG	0.21	1.0
		Iron, Total	49.5 J	MG/KG	3.4	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	7110	MG/KG	74.1	1.0
		Lithium, Total	0.03 u	MG/KG	0.03	1.0
		Magnesium, Total	352	MG/KG	0.93	1.0
		Manganese, Total	6.2	MG/KG	0.03	1.0
		Molybdenum, Total	0.28 u	MG/KG	0.28	1.0
		Sodium, Total	6.8	MG/KG	0.73	1.0
		Nickel, Total	0.34	MG/KG	0.23	1.0
		Phosphorus, Total	689 J	MG/KG	0.86	1.0
		Lead, Total	0.46	MG/KG	0.30	1.0
		Antimony, Total	0.42 u	MG/KG	0.42	1.0
		Selenium, Total	0.45 u	MG/KG	0.45	1.0
		Silicon, Total	182 J	MG/KG	2.2	1.0
		Tin, Total	1.0 u	MG/KG	1.0	1.0
		Strontium, Total	3.2	MG/KG	0.01	1.0
		Titanium, Total	1.5	MG/KG	0.03	1.0
		Thallium, Total	0.67 u	MG/KG	0.67	1.0
		Uranium, Total	0.85 u	MG/KG	0.85	1.0
		Vanadium, Total	0.09 u	MG/KG	0.09	1.0
		Zinc, Total	9.0	MG/KG	0.15	1.0
		Zirconium, Total	1.0 u	MG/KG	1.0	1.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/27/06

CLIENT: TNUHANFORD RC-047 K0358

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

LVL LOT #: 0605L041

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-011	J11WY7	Silver, Total	0.07	u	MG/KG	0.07	1.0
		Aluminum, Total	28.6	J	MG/KG	2.3	1.0
		Arsenic, Total	0.59	u	MG/KG	0.59	1.0
		Boron, Total	5.7		MG/KG	0.23	1.0
		Barium, Total	4.1		MG/KG	0.02	1.0
		Beryllium, Total	0.02	u	MG/KG	0.02	1.0
		Bismuth, Total	0.49	u	MG/KG	0.49	1.0
		Calcium, Total	2670		MG/KG	2.4	1.0
		Cadmium, Total	0.07	u	MG/KG	0.07	1.0
		Cobalt, Total	0.13	u	MG/KG	0.13	1.0
		Chromium, Total	0.16		MG/KG	0.12	1.0
		Copper, Total	1.8		MG/KG	0.21	1.0
		Iron, Total	101	J	MG/KG	3.4	1.0
		Mercury, Total	0.02	u	MG/KG	0.02	1.0
		Potassium, Total	5460		MG/KG	74.1	1.0
		Lithium, Total	0.03	u	MG/KG	0.03	1.0
		Magnesium, Total	659		MG/KG	0.93	1.0
		Manganese, Total	6.5		MG/KG	0.03	1.0
		Molybdenum, Total	0.28		MG/KG	0.28	1.0
		Sodium, Total	11.3		MG/KG	0.73	1.0
		Nickel, Total	0.45		MG/KG	0.23	1.0
		Phosphorus, Total	828	J	MG/KG	0.86	1.0
		Lead, Total	0.30	u	MG/KG	0.30	1.0
		Antimony, Total	0.42	u	MG/KG	0.42	1.0
		Selenium, Total	0.45	u	MG/KG	0.45	1.0
		Silicon, Total	72.1	J	MG/KG	2.3	1.0
		Tin, Total	1.0	u	MG/KG	1.0	1.0
		Strontium, Total	9.6		MG/KG	0.01	1.0
		Titanium, Total	3.2		MG/KG	0.03	1.0
		Thallium, Total	0.67	u	MG/KG	0.67	1.0
		Uranium, Total	0.85	u	MG/KG	0.85	1.0
		Vanadium, Total	0.09	u	MG/KG	0.09	1.0
		Zinc, Total	5.7		MG/KG	0.15	1.0
		Zirconium, Total	1.0	u	MG/KG	1.0	1.0

R 8/9/06

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/27/06

CLIENT: TNUHANFORD RC-047 X0358 LVL LOT #: 0605L041

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-012	J11WY6	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	108 J	MG/KG	2.3	1.0
		Arsenic, Total	0.60 u	MG/KG	0.60	1.0
		Boron, Total	0.55	MG/KG	0.24	1.0
		Barium, Total	2.2	MG/KG	0.02	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Bismuth, Total	0.50 u	MG/KG	0.50	1.0
		Calcium, Total	839	MG/KG	2.4	1.0
		Cadmium, Total	0.07 u	MG/KG	0.07	1.0
		Cobalt, Total	0.14 u	MG/KG	0.14	1.0
		Chromium, Total	0.46	MG/KG	0.13	1.0
		Copper, Total	1.9	MG/KG	0.22	1.0
		Iron, Total	217 J	MG/KG	3.4	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Potassium, Total	4880	MG/KG	75.6	1.0
		Lithium, Total	0.11	MG/KG	0.03	1.0
		Magnesium, Total	341	MG/KG	0.95	1.0
		Manganese, Total	18.4	MG/KG	0.03	1.0
		Molybdenum, Total	0.28 u	MG/KG	0.28	1.0
		Sodium, Total	26.7	MG/KG	0.74	1.0
		Nickel, Total	0.63	MG/KG	0.24	1.0
		Phosphorus, Total	478 J	MG/KG	0.88	1.0
		Lead, Total	0.39	MG/KG	0.30	1.0
		Antimony, Total	0.43 u	MG/KG	0.43	1.0
		Selenium, Total	0.46 u	MG/KG	0.46	1.0
		Silicon, Total	167 J	MG/KG	2.2	1.0
		Tin, Total	1.0 u	MG/KG	1.0	1.0
		Strontium, Total	3.6	MG/KG	0.01	1.0
		Titanium, Total	7.4	MG/KG	0.03	1.0
		Thallium, Total	0.69 u	MG/KG	0.69	1.0
		Uranium, Total	0.87 UJ	MG/KG	0.86	1.0
		Vanadium, Total	0.32	MG/KG	0.09	1.0
		Zinc, Total	7.0	MG/KG	0.16	1.0
		Zirconium, Total	1.0 u	MG/KG	1.0	1.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/27/06

CLIENT: TNUHANFORD RC-047 K0358

LVL LOT #: 0605L041

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-013	J11WW5	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	33.8 J	MG/KG	2.3	1.0
		Arsenic, Total	0.59 u	MG/KG	0.59	1.0
		Boron, Total	8.0	MG/KG	0.23	1.0
		Barium, Total	3.8	MG/KG	0.02	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Bismuth, Total	0.50 u	MG/KG	0.50	1.0
		Calcium, Total	2020	MG/KG	2.4	1.0
		Cadmium, Total	0.07 u	MG/KG	0.07	1.0
		Cobalt, Total	0.14 u	MG/KG	0.14	1.0
		Chromium, Total	0.19	MG/KG	0.13	1.0
		Copper, Total	1.8	MG/KG	0.21	1.0
		Iron, Total	90.9 J	MG/KG	3.4	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Potassium, Total	5000	MG/KG	74.9	1.0
		Lithium, Total	0.03	MG/KG	0.03	1.0
		Magnesium, Total	629	MG/KG	0.94	1.0
		Manganese, Total	6.0	MG/KG	0.03	1.0
		Molybdenum, Total	0.35	MG/KG	0.28	1.0
		Sodium, Total	12.5	MG/KG	0.74	1.0
		Nickel, Total	0.73	MG/KG	0.23	1.0
		Phosphorus, Total	738 J	MG/KG	0.87	1.0
		Lead, Total	0.30 u	MG/KG	0.30	1.0
		Antimony, Total	0.43 u	MG/KG	0.43	1.0
		Selenium, Total	0.46 u	MG/KG	0.46	1.0
		Silicon, Total	95.2 J	MG/KG	2.2	1.0
		Tin, Total	1.0 u	MG/KG	1.0	1.0
		Strontium, Total	8.6	MG/KG	0.01	1.0
		Titanium, Total	3.9	MG/KG	0.03	1.0
		Thallium, Total	0.68 u	MG/KG	0.68	1.0
		Uranium, Total	0.85 u	MG/KG	0.85	1.0
		Vanadium, Total	0.09 u	MG/KG	0.09	1.0
		Zinc, Total	5.9	MG/KG	0.16	1.0
		Zirconium, Total	1.0 u	MG/KG	1.0	1.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/27/06

CLIENT: TNUHANFORD RC-047 K0358 LVL LOT #: 0605L041

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-014	J11WN6	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	43.1 J	MG/KG	2.3	1.0
		Arsenic, Total	0.59 u	MG/KG	0.59	1.0
		Boron, Total	0.31	MG/KG	0.23	1.0
		Barium, Total	2.2	MG/KG	0.02	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Bismuth, Total	0.49 u	MG/KG	0.49	1.0
		Calcium, Total	480	MG/KG	2.4	1.0
		Cadmium, Total	0.07 u	MG/KG	0.07	1.0
		Cobalt, Total	0.13 u	MG/KG	0.13	1.0
		Chromium, Total	0.26	MG/KG	0.12	1.0
		Copper, Total	1.2 UJ	MG/KG	0.21	1.0
		Iron, Total	131 J	MG/KG	3.4	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Potassium, Total	4770	MG/KG	74.1	1.0
		Lithium, Total	0.05	MG/KG	0.03	1.0
		Magnesium, Total	374	MG/KG	0.93	1.0
		Manganese, Total	7.8	MG/KG	0.03	1.0
		Molybdenum, Total	0.28 u	MG/KG	0.28	1.0
		Sodium, Total	9.7	MG/KG	0.73	1.0
		Nickel, Total	0.38	MG/KG	0.23	1.0
		Phosphorus, Total	282 J	MG/KG	0.86	1.0
		Lead, Total	0.30 u	MG/KG	0.30	1.0
		Antimony, Total	0.42 u	MG/KG	0.42	1.0
		Selenium, Total	0.45 u	MG/KG	0.45	1.0
		Silicon, Total	142 J	MG/KG	2.3	1.0
		Tin, Total	1.0 u	MG/KG	1.0	1.0
		Strontium, Total	2.6	MG/KG	0.01	1.0
		Titanium, Total	3.0	MG/KG	0.02	1.0
		Thallium, Total	0.67 u	MG/KG	0.67	1.0
		Uranium, Total	0.85 u	MG/KG	0.85	1.0
		Vanadium, Total	0.1	MG/KG	0.09	1.0
		Zinc, Total	11.0	MG/KG	0.15	1.0
		Zirconium, Total	1.0 u	MG/KG	1.0	1.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/27/06

CLIENT: TNUHANFORD RC-047 K0358 LVL LOT #: 0605L041

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-015	J11X01	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	29.2 J	MG/KG	2.3	1.0
		Arsenic, Total	0.59 u	MG/KG	0.59	1.0
		Boron, Total	5.6	MG/KG	0.23	1.0
		Barium, Total	3.6	MG/KG	0.02	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Bismuth, Total	0.49 u	MG/KG	0.49	1.0
		Calcium, Total	2240	MG/KG	2.4	1.0
		Cadmium, Total	0.07 u	MG/KG	0.07	1.0
		Cobalt, Total	0.13 u	MG/KG	0.13	1.0
		Chromium, Total	0.30	MG/KG	0.12	1.0
		Copper, Total	1.4	MG/KG	0.21	1.0
		Iron, Total	109 J	MG/KG	3.4	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Potassium, Total	4250	MG/KG	74.1	1.0
		Lithium, Total	0.08	MG/KG	0.03	1.0
		Magnesium, Total	572	MG/KG	0.93	1.0
		Manganese, Total	5.4	MG/KG	0.03	1.0
		Molybdenum, Total	0.47	MG/KG	0.28	1.0
		Sodium, Total	9.9	MG/KG	0.73	1.0
		Nickel, Total	0.34	MG/KG	0.23	1.0
		Phosphorus, Total	631 J	MG/KG	0.86	1.0
		Lead, Total	0.30 u	MG/KG	0.30	1.0
		Antimony, Total	0.42 u	MG/KG	0.42	1.0
		Selenium, Total	0.64	MG/KG	0.45	1.0
		Silicon, Total	74.0 J	MG/KG	2.2	1.0
		Tin, Total	1.1 UJ	MG/KG	1.0	1.0
		Strontium, Total	7.7	MG/KG	0.01	1.0
		Titanium, Total	4.0	MG/KG	0.03	1.0
		Thallium, Total	0.67 u	MG/KG	0.67	1.0
		Uranium, Total	0.85 u	MG/KG	0.85	1.0
		Vanadium, Total	0.12	MG/KG	0.09	1.0
		Zinc, Total	6.3	MG/KG	0.15	1.0
		Zirconium, Total	1.0 u	MG/KG	1.0	1.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/27/06

CLIENT: TNUHANFORD RC-047 K0358 LVL LOT #: 0605L041

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-016	J11X02	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	150 J	MG/KG	2.3	1.0
		Arsenic, Total	0.59 u	MG/KG	0.59	1.0
		Boron, Total	0.36	MG/KG	0.23	1.0
		Barium, Total	4.7	MG/KG	0.02	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Bismuth, Total	0.49 u	MG/KG	0.49	1.0
		Calcium, Total	634	MG/KG	2.4	1.0
		Cadmium, Total	0.07 u	MG/KG	0.07	1.0
		Cobalt, Total	0.14	MG/KG	0.13	1.0
		Chromium, Total	0.68	MG/KG	0.12	1.0
		Copper, Total	1.8	MG/KG	0.21	1.0
		Iron, Total	319 J	MG/KG	3.4	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Potassium, Total	5400	MG/KG	74.1	1.0
		Lithium, Total	0.23	MG/KG	0.03	1.0
		Magnesium, Total	402	MG/KG	0.93	1.0
		Manganese, Total	18.6	MG/KG	0.03	1.0
		Molybdenum, Total	0.28 u	MG/KG	0.28	1.0
		Sodium, Total	20.1	MG/KG	0.73	1.0
		Nickel, Total	0.60	MG/KG	0.23	1.0
		Phosphorus, Total	452 J	MG/KG	0.86	1.0
		Lead, Total	0.69	MG/KG	0.30	1.0
		Antimony, Total	0.42 u	MG/KG	0.42	1.0
		Selenium, Total	0.45 u	MG/KG	0.45	1.0
		Silicon, Total	183 J	MG/KG	2.2	1.0
		Tin, Total	1.0 u	MG/KG	1.0	1.0
		Strontium, Total	3.5	MG/KG	0.01	1.0
		Titanium, Total	13.7	MG/KG	0.03	1.0
		Thallium, Total	0.67 u	MG/KG	0.67	1.0
		Uranium, Total	0.85 u	MG/KG	0.85	1.0
		Vanadium, Total	0.56	MG/KG	0.09	1.0
		Zinc, Total	12.4	MG/KG	0.15	1.0
		Zirconium, Total	1.0 u	MG/KG	1.0	1.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/27/06

CLIENT: TNUHANFORD RC-047 K0358 LVL LOT #: 0605L041

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-017	J11X03	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	41.9 J	MG/KG	2.2	1.0
		Arsenic, Total	0.58 u	MG/KG	0.58	1.0
		Boron, Total	7.2	MG/KG	0.23	1.0
		Barium, Total	3.6	MG/KG	0.02	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Bismuth, Total	0.49 u	MG/KG	0.49	1.0
		Calcium, Total	3030	MG/KG	2.4	1.0
		Cadmium, Total	0.07 u	MG/KG	0.07	1.0
		Cobalt, Total	0.13 u	MG/KG	0.13	1.0
		Chromium, Total	0.26	MG/KG	0.12	1.0
		Copper, Total	2.2	MG/KG	0.21	1.0
		Iron, Total	100 J	MG/KG	3.3	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	5170	MG/KG	73.4	1.0
		Lithium, Total	0.08	MG/KG	0.03	1.0
		Magnesium, Total	707	MG/KG	0.92	1.0
		Manganese, Total	7.6	MG/KG	0.03	1.0
		Molybdenum, Total	0.49	MG/KG	0.28	1.0
		Sodium, Total	13.6	MG/KG	0.72	1.0
		Nickel, Total	0.66	MG/KG	0.23	1.0
		Phosphorus, Total	895 J	MG/KG	0.86	1.0
		Lead, Total	0.30 u	MG/KG	0.30	1.0
		Antimony, Total	0.42 u	MG/KG	0.42	1.0
		Selenium, Total	0.59	MG/KG	0.45	1.0
		Silicon, Total	107 J	MG/KG	2.2	1.0
		Tin, Total	1.1 UJ	MG/KG	1.0	1.0
		Strontium, Total	8.6	MG/KG	0.01	1.0
		Titanium, Total	5.3	MG/KG	0.03	1.0
		Thallium, Total	0.67 u	MG/KG	0.67	1.0
		Uranium, Total	0.84 u	MG/KG	0.84	1.0
		Vanadium, Total	0.18	MG/KG	0.09	1.0
		Zinc, Total	7.5	MG/KG	0.15	1.0
		Zirconium, Total	1.0 u	MG/KG	1.0	1.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/27/06

CLIENT: TNUHANFORD RC-047 K0358 LVL LOT #: 0605L041

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-018	J11X04	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	138 J	MG/KG	2.2	1.0
		Arsenic, Total	0.58 u	MG/KG	0.58	1.0
		Boron, Total	0.38	MG/KG	0.23	1.0
		Barium, Total	4.0	MG/KG	0.02	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Bismuth, Total	0.49 u	MG/KG	0.49	1.0
		Calcium, Total	669	MG/KG	2.4	1.0
		Cadmium, Total	0.07 u	MG/KG	0.07	1.0
		Cobalt, Total	0.13 u	MG/KG	0.13	1.0
		Chromium, Total	0.59	MG/KG	0.12	1.0
		Copper, Total	2.0	MG/KG	0.21	1.0
		Iron, Total	272 J	MG/KG	3.3	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	5310	MG/KG	73.4	1.0
		Lithium, Total	0.21	MG/KG	0.03	1.0
		Magnesium, Total	412	MG/KG	0.92	1.0
		Manganese, Total	17.2	MG/KG	0.03	1.0
		Molybdenum, Total	0.28 u	MG/KG	0.28	1.0
		Sodium, Total	18.7	MG/KG	0.72	1.0
		Nickel, Total	0.73	MG/KG	0.23	1.0
		Phosphorus, Total	620 J	MG/KG	0.86	1.0
		Lead, Total	0.73	MG/KG	0.30	1.0
		Antimony, Total	0.42 u	MG/KG	0.42	1.0
		Selenium, Total	0.45 u	MG/KG	0.45	1.0
		Silicon, Total	222 J	MG/KG	2.2	1.0
		Tin, Total	1.0 u	MG/KG	1.0	1.0
		Strontium, Total	3.2	MG/KG	0.01	1.0
		Titanium, Total	11.6	MG/KG	0.03	1.0
		Thallium, Total	0.67 u	MG/KG	0.67	1.0
		Uranium, Total	0.84 u	MG/KG	0.84	1.0
		Vanadium, Total	0.47	MG/KG	0.09	1.0
		Zinc, Total	13.6	MG/KG	0.15	1.0
		Zirconium, Total	1.0 u	MG/KG	1.0	1.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/27/06

CLIENT: TNUHANFORD RC-047 K0358 LVL LOT #: 0605L041

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-019	J11X44	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	6.6 UJ	MG/KG	2.3	1.0
		Arsenic, Total	0.60	MG/KG	0.59	1.0
		Boron, Total	11.3	MG/KG	0.23	1.0
		Barium, Total	4.8	MG/KG	0.02	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Bismuth, Total	0.50 u	MG/KG	0.50	1.0
		Calcium, Total	795	MG/KG	2.4	1.0
		Cadmium, Total	0.07 u	MG/KG	0.07	1.0
		Cobalt, Total	0.14 u	MG/KG	0.14	1.0
		Chromium, Total	0.48	MG/KG	0.13	1.0
		Copper, Total	2.2	MG/KG	0.21	1.0
		Iron, Total	26.7 J	MG/KG	3.4	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Potassium, Total	5090	MG/KG	74.9	1.0
		Lithium, Total	0.05	MG/KG	0.03	1.0
		Magnesium, Total	452	MG/KG	0.94	1.0
		Manganese, Total	10.0	MG/KG	0.03	1.0
		Molybdenum, Total	0.77	MG/KG	0.28	1.0
		Sodium, Total	48.9	MG/KG	0.74	1.0
		Nickel, Total	0.23 u	MG/KG	0.23	1.0
		Phosphorus, Total	1040 J	MG/KG	0.87	1.0
		Lead, Total	0.30 u	MG/KG	0.30	1.0
		Antimony, Total	0.43 u	MG/KG	0.43	1.0
		Selenium, Total	0.80	MG/KG	0.46	1.0
		Silicon, Total	170 J	MG/KG	2.2	1.0
		Tin, Total	1.0 u	MG/KG	1.0	1.0
		Strontium, Total	4.2	MG/KG	0.01	1.0
		Titanium, Total	0.70	MG/KG	0.03	1.0
		Thallium, Total	0.68 u	MG/KG	0.68	1.0
		Uranium, Total	0.85 u	MG/KG	0.85	1.0
		Vanadium, Total	0.09 u	MG/KG	0.09	1.0
		Zinc, Total	14.2	MG/KG	0.16	1.0
		Zirconium, Total	1.0 u	MG/KG	1.0	1.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/27/06

CLIENT: TNUHANFORD RC-047 K0358 LVL LOT #: 0605L041

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-020	J11X45	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	41.4 J	MG/KG	2.3	1.0
		Arsenic, Total	0.59 u	MG/KG	0.59	1.0
		Boron, Total	25.1	MG/KG	0.23	1.0
		Barium, Total	2.5	MG/KG	0.02	1.0
		Beryllium, Total	0.02	MG/KG	0.02	1.0
		Bismuth, Total	0.50 u	MG/KG	0.50	1.0
		Calcium, Total	2530	MG/KG	2.4	1.0
		Cadmium, Total	0.14	MG/KG	0.07	1.0
		Cobalt, Total	0.14 u	MG/KG	0.14	1.0
		Chromium, Total	0.28	MG/KG	0.13	1.0
		Copper, Total	3.1	MG/KG	0.21	1.0
		Iron, Total	98.2 J	MG/KG	3.4	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	6800	MG/KG	74.9	1.0
		Lithium, Total	0.09	MG/KG	0.03	1.0
		Magnesium, Total	619	MG/KG	0.94	1.0
		Manganese, Total	22.7	MG/KG	0.03	1.0
		Molybdenum, Total	0.38	MG/KG	0.28	1.0
		Sodium, Total	9.6	MG/KG	0.74	1.0
		Nickel, Total	0.32	MG/KG	0.23	1.0
		Phosphorus, Total	676 J	MG/KG	0.87	1.0
		Lead, Total	0.39	MG/KG	0.30	1.0
		Antimony, Total	0.43 u	MG/KG	0.43	1.0
		Selenium, Total	0.93	MG/KG	0.46	1.0
		Silicon, Total	62.7 J	MG/KG	2.2	1.0
		Tin, Total	1.2	MG/KG	1.0	1.0
		Strontium, Total	9.8	MG/KG	0.01	1.0
		Titanium, Total	6.0	MG/KG	0.03	1.0
		Thallium, Total	0.68 u	MG/KG	0.68	1.0
		Uranium, Total	0.85 u	MG/KG	0.85	1.0
		Vanadium, Total	0.17	MG/KG	0.09	1.0
		Zinc, Total	15.5	MG/KG	0.16	1.0
		Zirconium, Total	1.0 u	MG/KG	1.0	1.0

8/a/06

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-047
LVL#: 0605L041
SDG/SAF#: K0358/RC-047

W.O.#: 11343-606-001-9999-00
Date Received: 05-17-06

METALS CASE NARRATIVE

The following is a summary of the QC results accompanying the sample results. Lionville Laboratory (LvLI) certifies that all test results meet the requirements of NELAC except as noted below.

All soil samples are reported on a dry weight basis unless requested by the client, required by the method, or noted otherwise.

1. This narrative covers the analyses of 20 solid samples.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary. The samples are reported on a wet weight, 'as-received' basis.

   Sample results for Aluminum, Beryllium, Calcium, Copper, Potassium, and Zirconium, were reported from the Phosphorous run, due to sample matrix.

3. All analyses were performed within the required holding times.

4. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits with the exception of the ending CCV in file TA0613B for some analytes. Affected samples were rerun in file TA0615B.

5. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).

6. 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.

7. All ICP Interference Check Standards were within control limits.

8. All laboratory control samples (LCS) were within the 80-120% control limits with the exception of Silicon at 21.7%. Refer to the Inorganics Laboratory Control Standards Report. Associated sample results may be biased low.

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 69 pages.

208 Welsh Pool Road • Exton, PA 19341- 1313 • (610) 280-3000 • Fax (610) 280-3041

9. The matrix spike (MS) recoveries for 5 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

10. 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:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J11WW8	Aluminum	4,000	102.6
	Calcium	22,000	107.3
	Iron	2,000	95.2
	Phosphorous	2,000	110.9
	Silicon	2,100	92.6

11. The duplicate analyses for 5 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

12. 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.

13. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

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.

for Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

6/28/06
Date

jjw/m05-041

LVLI LIONVILLE LABORATORY INC.

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-357	Page 1 of 1

Collector: TILLER, B. TR KLINCKMAN	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 9N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: 100-K RIPARIAN SITE # 5	SAF No.: RC-047	
Ice Chest No.: ERC-03-107	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A060469	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	None	None	None	Cool 4C	Cool 4C	Cool 4C	cool 4C			
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	750g	2g	5g	15g	50g	50g	50g/250g			
SAMPLE ANALYSIS	See Item (1) in Special Instructions.	Carbon-14	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	SEMI-VOA 8270A			

(00037)

Sample No.	Matrix *	Sample Date	Sample Time										
J11WW7	OTHER SOLID	5-9-06	1420				X	X	X	X			
J11WW8 (Full ac)	OTHER SOLID	5-9-06	1435				X	X	X	X			

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By/Removed From: TR KLINCKMAN	Received By/Stored In: EAS LOCKED STORAGE	5-9-06 1445
Relinquished By/Removed From: EAS LOCKED STORAGE	Received By/Stored In:	0730 MAY 15 2006
Relinquished By/Removed From:	Received By/Stored In:	5-16-06 0730
Relinquished By/Removed From:	Received By/Stored In: Fed Ex	5/16/06 1500
Relinquished By/Removed From:	Received By/Stored In:	5-17-06 / 0925
Relinquished By/Removed From:	Received By/Stored In:	5-17-06 / 0925
Relinquished By/Removed From:	Received By/Stored In:	

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) [Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238]

Matrix *

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

BHI-EE-011 (08/29/2005)

00000059

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-358	Page 1 of 1

Collector: TILLER, B.	Company Contact: JOAN KESSNER — Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 9N — Data Turnaround: 45 Days
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: UPRIVER RIPARIAN SITE # 12	SAF No.: RC-047	Air Quality ☐
Ice Chest No.: ERC-03-107	Field Logbook No.: EL-1597 — COA: BESRAS6520	Method of Shipment: FED EX	
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A060469	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	None	None	None	Cool 4C	Cool 4C	Cool 4C	COOL 4C			
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	750g	2g	5g	15g	50g	50g	50g			
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Carbon-14	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	SEMI-VOA 8270A			

000038

Sample No.	Matrix *	Sample Date	Sample Time										
J11WW9	OTHER SOLID	5-10-06	8:45				X	X	X	X			
J11WX0	OTHER SOLID	5-10-06	8:55				X	X	X	X			

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: TR KLINCKMAN	Date/Time: 5-10-06 0900	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 5-10-06 0900
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: MAY 15 2006	Received By/Stored In: [signature]	Date/Time: 5-15-06 0730
Relinquished By/Removed From: [signature]	Date/Time: 5-16-06 1500	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 5-17-06 / 0925	Received By/Stored In: [signature]	Date/Time: 5-17-06 / 0925
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) [Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238]

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

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

000000060

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-361	Page 1 of 1

Collector: TILLER, B. TR KLINCKMAN	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 9N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: 100-D RIPARIAN SITE # 3		SAF No.: RC-047
Ice Chest No.: ERC-03-107	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A060469		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

000039

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C						
Type of Container	G/P	G/P	G/P	aG	aG	aG						
No. of Container(s)	1	1	1	1	1	1						
Volume	750g	5g	15g	30g	50g	50g						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	SEMI VOA 8270A						
Sample No.	Matrix *	Sample Date	Sample Time									
J11WX5	OTHER SOLID	5-9-06	1345			X	X	X	X			
J11WX6	OTHER SOLID	5-9-06	1400			X	X	X	X			

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: TR KLINCKMAN	5-9-06 1415	Received By/Stored In: EAS LOCKED STORAGE	5-9-06 1415
Relinquished By/Removed From: EAS LOCKED STORAGE	MAY 15 2006 0730	Received By/Stored In: TR Klinckman	5-15-06 0730
Relinquished By/Removed From: TR Klinckman	5-16-06 1500	Received By/Stored In: Fed Ex	
Relinquished By/Removed From: Fed Ex	5-17-06 0925	Received By/Stored In: [illegible]	5-17-06 0925
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) [Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238]

Matrix *: S=Soil; SE=Sediment; SO=Solid; Sl=Sludge; W=Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquid; T=Tissue; Wi=Wipe; L=Liquid; Ve=Vegetation; X=Other

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

RHI-EF-011 (08/29/2005)

000000061

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-363	Page 1 of 1

Collector: TILLER, B. TR KLINCKMAN	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 9N	Data Turnaround: 45 Days
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: 100-F RIPARIAN SITE # 7		SAF No.: RC-047	Air Quality ☐	
Ice Chest No.: ERC-03-107	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX		
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A060469		Bill of Lading/Air Bill No.: SEE OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	COOL 4C					
Type of Container	G/P	G/P	G/P	aG	aG	aG					
No. of Container(s)	1	1	1	1	1	1					
Volume	750g	5g	15g	50g	50g	50g					
SAMPLE ANALYSIS	See Item (1) in Special Instructions.	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	SEMI-VOA 8270A					
Sample No.	Matrix *	Sample Date	Sample Time								
J11WX9	OTHER SOLID	5-9-06	9:40			X	X	X	X		
J11WY0	OTHER SOLID	5-9-06	10:20			X	X	X	X		

03-0000

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: TR KLINCKMAN	5-9-06 10:15	Received By/Stored In: EAS LOCKED STORAGE	5-9-06 10:15
Relinquished By/Removed From: EAS LOCKED STORAGE	0730 MAY 15 2006	Received By/Stored In: [illegible]	5-15-06 0730
Relinquished By/Removed From: [illegible]	5-16-06 1500	Received By/Stored In: Fed Ex	
Relinquished By/Removed From: [illegible]	5-17-06 10925	Received By/Stored In: [illegible]	5-17-06 10925
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) {Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238}

Matrix *: S=Soil; SD=Sediment; SO=Solid; SL=Sludge; W=Water; O=Oil; A=Air; DS=Drum Solid; DL=Drum Liquid; T=Tissue; WI=Wipe; L=Liquid; V=Vegetation; X=Other

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

RHLEF-011 (08/29/2005)

000000062

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-366	Page 1 of 1

Collector: TILLER, B.TR KLINCKMAN	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 9N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: 100-D RIPARIAN SITE # 10	SAF No.: RC-047	
Ice Chest No.: ERC-03-107	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A060469	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C					
Type of Container	G/P	G/P	G/P	aG	aG	aG					
No. of Container(s)	1	1	1	1	1	1					
Volume	750g	5g	15g	50g	50g	50g					

SAMPLE ANALYSIS

Sample No.	Matrix*	Sample Date	Sample Time	See Item (1) in Special Instructions	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	SEMI-VOA 8270A				
J11WY5	OTHER SOLID	5-9-06	11:00			X	X	X	X				
J11WY6	OTHER SOLID	5-9-06	11:15			X	X	X	X				

000041

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: B KLINCKMAN	Date/Time: 5-9-06 11:20	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 5-9-06 11:20
Relinquished By/Removed From: EAS LOCKED STORAGE MAY 15 2006	Date/Time: 0730	Received By/Stored In: 5-15-06	Date/Time: 0730
Relinquished By/Removed From: WCH	Date/Time: 5-16-06 1500	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: 5-17-06	Date/Time: 1092S	Received By/Stored In: 5-17-06	Date/Time: 1092S
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) [Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238]

Matrix*

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

BHI-EE-011 (08/29/2005)

000000063

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-367	Page 1 of 1

Collector: TILLER, B. TR KLINCKMAN	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: UPRIVER RIPARIAN SITE # 11		SAF No.: RC-047
Ice Chest No.: ERC-03-107	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A060469		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 9N

Air Quality ☐

Data Turnaround: 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	COOL 4C				
Type of Container	G/P	G/P	G/P	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1				
Volume	750g	5g	15g	50g	50g	50g				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	SEMI-VOA 8270A				

000042

Sample No.	Matrix *	Sample Date	Sample Time										
J11WY7	OTHER SOLID	5-9-06	10:15			X	X	X	X				
J11WY8	OTHER SOLID	5-9-06	10:30			X	X	X	X				

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: TR KLINCKMAN	Date/Time: 5-9-06 10:45	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 5-9-06 10:45
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 0730 MAY 15 2006	Received By/Stored In: [signature] TR Edmondson	Date/Time: 5-15-06 0730
Relinquished By/Removed From: WCH TR Edmondson	Date/Time: 5-16-06 1500	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 5-17-06 / 0925	Received By/Stored In: [signature]	Date/Time: 5-17-06/0925
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) {Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238}

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

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

RHLEE 011 (08/20/2005)

000000064

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-356	Page 1 of 1

Collector: TILLER, B. TR KLINCKMAN	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: 100-K RIPARIAN SITE # 4		SAF No.: RC-047
Ice Chest No.: ERC-03-107	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A060469		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 9N

Air Quality: ☐

Data Turnaround: 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

000043

Preservation				None	None	None	Cool 4C	Cool 4C	Cool 4C	COOL4C			
Type of Container				G/P	G/P	G/P	G/P	aG	aG	aG			
No. of Container(s)				1	1	1	1	1	1	1			
Volume				750g	2g	5g	15g	50g	50g	50g			
SAMPLE ANALYSIS				See item (1) in Special Instructions.	Carbon-14	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	SEMI VOA 8270A			
Sample No.	Matrix *	Sample Date	Sample Time										
J11WW5	OTHER SOLID	5-9-06	1315				X	X	X	X			
J11WW6	OTHER SOLID	5-9-06	1330				X	X	X	X			

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: TR KLINCKMAN	Date/Time: 5-9-06 1340	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 5-9-06 1340
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: MAY 15 2006 0730	Received By/Stored In: TR Edmondson	Date/Time: 5-15-06 0730
Relinquished By/Removed From: TR Edmondson	Date/Time: 5-16-06 1500	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 5.17.06 / 0925	Received By/Stored In: D J Smith	Date/Time: 5.17.06 / 0925
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) [Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238]

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

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

PHLEE 011 (08/20/2005)

000000065

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-047-369	Page 1 of 1
Collector TH KLINCKMAN TILLER, B.	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 9N Data Turnaround 45 Days
Project Designation 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location UPRIVER RIPARIAN SITE # 14		SAF No. RC-047	Air Quality ☐
Ice Chest No. ERC-03-107	Field Logbook No. EL-1597	COA BESRAS6520	Method of Shipment FED EX	
Shipped To EBERLINE SERVICES ALIONVILLE	Offsite Property No. A060469		Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

000044

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	COOL 4C				
Type of Container	G/P	G/P	G/P	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1				
Volume	750g	5g	15g	50g	50g	50g				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	Semi-VOA 8270A				

Sample No.	Matrix *	Sample Date	Sample Time										
J11X01	OTHER SOLID	MAY 09 2006	8:50			X	X	X	X				
J11X02	OTHER SOLID	5-9-06	9:15			X	X	X	X				

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By/Removed From TH KLINCKMAN Date/Time 09:30 MAY 09 2006	Received By/Stored In EAS LOCKED STORAGE Date/Time 9:30 MAY 09 2006	(1) Gamma Spec - (Full List) [Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238]	S=Soil SE=Sediment SO=Solid SI=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquid T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From EAS LOCKED STORAGE Date/Time MAY 15 2006	Received By/Stored In TR Edmundson Date/Time 5-15-06 0730		
Relinquished By/Removed From TR Edmundson Date/Time MAY 16 2006 /1500	Received By/Stored In Fed Ex Date/Time		
Relinquished By/Removed From Fed Ex Date/Time 5-17-06 /0925	Received By/Stored In [signature] Date/Time 5-17-06 /0925		
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

BHI-EE-011 (08/29/2005)

000000066

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-370	Page 1 of 1

Collector: TILLER, B. TR KLINCKMAN	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: UPRIVER RIPARIAN SITE # 16		SAF No.: RC-047
Ice Chest No.: ERC-03-107	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A060469		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 9N

Air Quality ☐

Data Turnaround: 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	COOL 4C					
Type of Container	G/P	G/P	G/P	aG	aG	aG					
No. of Container(s)	1	1	1	1	1	1					
Volume	750g	5g	15g	50g	50g	50g					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	Semi-VOA 8270A					

000045

Sample No.	Matrix *	Sample Date	Sample Time										
J11X03	OTHER SOLID	5-9-06	R.Curet 5-9-06 12:30			X	X	X	X				
J11X04	OTHER SOLID	5-9-06	12:45			X	X	X	X				

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
TR KLINCKMAN	5-9-06 1200 12:45	R.Curet 5-9-06 EAS LOCKED STORAGE	5-9-06 1200 12:45
EAS LOCKED STORAGE	MAY 15 2006 0730	[signature] 5-15-06	0730
[signature] 5-16-06	1500	Fed Ex	
[signature] 5-17-06	10925	[signature] 5-17-06	10925

SPECIAL INSTRUCTIONS

R.Curet 5-9-06

(1) Gamma Spec - (Full List) [Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238]

Matrix *

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

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

BHI-EE-011 (08/28/2005)

000000067

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-372	Page 1 of 1

Collector: TILLER, B. TR KLINCKMAN	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 9N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: 1607-H2	SAF No.: RC-047	
Ice Chest No.: ERC-03-107	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A060469		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

(000046)

SAMPLE ANALYSIS												
Preservation	None	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C			
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	750g	5g	5g	15g	50g	50g	50g			
	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr; Isotopic Thorium; Isotopic Uranium	Isotopic Plutonium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	Semi-VOA 8270A			
Sample No.	Matrix *	Sample Date	Sample Time									
J11X44	OTHER SOLID	5-12-06	1015				X	X	X	X		
J11X45	OTHER SOLID	5-12-06	1030				X	X	X	X		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: TR KLINCKMAN	Date/Time: 1045 5-12-06	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 1045 5-12-06
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 0730 MAY 15 2006	Received By/Stored In: TR Edmondson	Date/Time: 5-15-06 0730
Relinquished By/Removed From: TR Edmondson	Date/Time: MAY 16 2006 1500	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 5-17-06 10925	Received By/Stored In: W Smith	Date/Time: 5-17-06 10925
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) [Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238]

Matrix *
S=Soil
Sd=Sediment
SO=Solid
Sl=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solid
DL=Drum Liquid
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

RHI-FF-011 (08/29/2005)

000000068

Appendix 5

Data Validation Supporting Documentation

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: RCRA			DATA PACKAGE: K0358		
VALIDATOR: TLJ		LAB: LCI		DATE: 8/6/01	
			SDG: K0358		
ANALYSES PERFORMED					
SW-846/ICP	SW-846/GFAA	SW-846/Hg	SW-846 Cyanide		
SAMPLES/MATRIX					
J11WW7	J11WW8	J11WW9	J11WX0	J11WX5	J11WX6
J11WX9	J11WY0	J11WY5	J11WY6	J11WY7	J11WY8
J11WW5	J11WW6	J11X01	J11X02	J11X03	J11X04
J11X44	J11X45				
					Solid

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: al - X6, Y6 - Y4 UJ all
Copper - WW6 - UJ
tin - X01, X03, X45 - WW7 - UJ
Uranium - WW7, WX5, WX6, WX5, WY0 WY8 - UJ
no PS

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 - al 69.4% - J all no PS
Fe - 37% - J all
Silicon 8.3% - J all

LCS - Silicon 21.7% J all

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: phosphorous - 32.8% - 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

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 06/27/06

CLIENT: TNUHANFORD RC-047 K0358 LVL LOT #: 0605L041

WORK ORDER: 13343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	06L0357-MB1	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	3.5	MG/KG	2.4	1.0
		Arsenic, Total	0.61 u	MG/KG	0.61	1.0
		Boron, Total	0.24 u	MG/KG	0.24	1.0
		Barium, Total	0.02 u	MG/KG	0.02	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Bismuth, Total	0.51 u	MG/KG	0.51	1.0
		Calcium, Total	2.5 u	MG/KG	2.5	1.0
		Cadmium, Total	0.07 u	MG/KG	0.07	1.0
		Cobalt, Total	0.14 u	MG/KG	0.14	1.0
		Chromium, Total	0.13 u	MG/KG	0.13	1.0
		Copper, Total	0.26	MG/KG	0.22	1.0
		Iron, Total	3.5 u	MG/KG	3.5	1.0
		Potassium, Total	77.1 u	MG/KG	77.1	1.0
		Lithium, Total	0.03 u	MG/KG	0.03	1.0
		Magnesium, Total	0.97 u	MG/KG	0.97	1.0
		Manganese, Total	0.03 u	MG/KG	0.03	1.0
		Molybdenum, Total	0.29 u	MG/KG	0.29	1.0
		Sodium, Total	0.76 u	MG/KG	0.76	1.0
		Nickel, Total	0.24 u	MG/KG	0.24	1.0
		Phosphorus, Total	0.90 u	MG/KG	0.90	1.0
		Lead, Total	0.31 u	MG/KG	0.31	1.0
		Antimony, Total	0.44 u	MG/KG	0.44	1.0
		Selenium, Total	0.47 u	MG/KG	0.47	1.0
		Silicon, Total	2.3 u	MG/KG	2.3	1.0
		Tin, Total	1.2	MG/KG	1.1	1.0
		Strontium, Total	0.01 u	MG/KG	0.01	1.0
		Titanium, Total	0.03 u	MG/KG	0.03	1.0
		Thallium, Total	0.70 u	MG/KG	0.70	1.0
		Uranium, Total	1.1	MG/KG	0.88	1.0
		Vanadium, Total	0.09 u	MG/KG	0.09	1.0
		Zinc, Total	0.16 u	MG/KG	0.16	1.0
		Zirconium, Total	1.1 u	MG/KG	1.1	1.0
BLANK1	06C0100-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 06/27/06

CLIENT: TNUHANFORD RC-047 K0358

LVL LOT #: 0605L041

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	J11MW8	Silver, Total	4.5	0.07u	4.9	91.8	1.0
		Aluminum, Total	302	168	194	69.4	1.0
		Arsenic, Total	162	0.59u	194	83.4	1.0
		Boron, Total	81.5	0.49	97.1	83.4	1.0
		Barium, Total	174	5.2	194	86.9	1.0
		Beryllium, Total	4.5	0.02	4.9	91.4	1.0
		Bismuth, Total	422	0.50u	486	86.9	1.0
		Calcium, Total	2550	853	2430	70.0	1.0
		Cadmium, Total	4.2	0.07u	4.9	85.7	1.0
		Cobalt, Total	43.6	0.18	48.6	89.3	1.0
		Chromium, Total	18.1	0.63	19.4	90.0	1.0
		Copper, Total	23.7	1.6	24.3	90.9	1.0
		Iron, Total	306	342	97.1	-37.	1.0
		Mercury, Total	0.14	0.01u	0.14	105.9	1.0
		Mercury, Total MSD	0.16	0.01u	0.15	108.2	1.0
		Potassium, Total	6580	3840	2430	113.2	1.0
		Lithium, Total	93.6	0.21	97.1	96.2	1.0
		Magnesium, Total	2540	509	2430	83.5	1.0
		Manganese, Total	58.0	17.5	48.6	83.3	1.0
		Molybdenum, Total	87.3	0.28u	97.1	89.9	1.0
		Sodium, Total	2190	40.9	2430	88.7	1.0
		Nickel, Total	42.5	1.1	48.6	85.2	1.0
		Phosphorus, Total	956	334	486	127.9	1.0
		Lead, Total	42.0	0.49	48.6	85.4	1.0
		Antimony, Total	40.3	0.43u	48.6	82.9	1.0
		Selenium, Total	156	0.46u	194	80.6	1.0
		Silicon, Total	232	224	97.1	8.2	1.0
		Tin, Total	86.8	1.0 u	97.1	89.4	1.0
		Strontium, Total	89.9	4.5	97.1	88.0	1.0
		Titanium, Total	92.4	13.3	97.1	81.5	1.0
		Thallium, Total	170	0.68u	194	87.5	1.0
		Uranium, Total	217	0.85u	~~[illegible]~~	~~[illegible]~~ 89.3	1.0
		Vanadium, Total	44.5	0.55	48.6	90.4	1.0
		Zinc, Total	51.2	9.3	48.6	86.2	1.0
		Zirconium, Total	394	1.0 u	486	81.1	1.0

corrected values
PW 6/22/06

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 06/27/06

CLIENT: TNUHANFORD RC-047 K0358 LVL LOT #: 0605L041

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
-002	J11NW8	Mercury, Total	105.9	108.2	2.1

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 06/27/06

CLIENT: TNUHANFORD RC-047 K0258 LVL LOT #: 0605L041

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-002REP	J11WW8	Silver, Total	0.07u	0.07u	NC	1.0
		Aluminum, Total	168	168	0.48	1.0
		Arsenic, Total	0.59u	0.59u	NC	1.0
		Boron, Total	0.49	0.38	25.0	1.0
		Barium, Total	5.2	4.4	16.7	1.0
		Beryllium, Total	0.02	0.02	13.3	1.0
		Bismuth, Total	0.50u	0.50u	NC	1.0
		Calcium, Total	853	777	9.4	1.0
		Cadmium, Total	0.07u	0.07u	NC	1.0
		Cobalt, Total	0.18	0.17	8.4	1.0
		Chromium, Total	0.63	0.69	8.4	1.0
		Copper, Total	1.6	2.0	22.2	1.0
		Iron, Total	342	357	4.2	1.0
		Mercury, Total	0.01u	0.01u	NC	1.0
		Potassium, Total	3840	4670	19.6	1.0
		Lithium, Total	0.21	0.19	12.7	1.0
		Magnesium, Total	509	516	1.4	1.0
		Manganese, Total	17.5	17.4	0.57	1.0
		Molybdenum, Total	0.28u	0.28u	NC	1.0
		Sodium, Total	40.9	35.1	15.3	1.0
		Nickel, Total	1.1	1.2	8.7	1.0
		Phosphorus, Total	234	466	32.8	1.0
		Lead, Total	0.49	0.52	5.8	1.0
		Antimony, Total	0.43u	0.43u	NC	1.0
		Selenium, Total	0.46u	0.46u	NC	1.0
		Silicon, Total	224	176	23.7	1.0
		Tin, Total	1.0 u	1.0 u	NC	1.0
		Strontium, Total	4.5	4.3	4.5	1.0
		Titanium, Total	13.3	12.7	4.6	1.0
		Thallium, Total	0.68u	0.68u	NC	1.0
		Uranium, Total	0.85u	0.85u	NC	1.0
		Vanadium, Total	0.55	0.56	0.86	1.0
		Zinc, Total	9.3	11.5	21.2	1.0
		Zirconium, Total	1.0 u	1.0 u	NC	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 06/27/06

CLIENT: TMUHANFORD RC-047 K0358 LVL LOT #: 0605L041

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	06L0357-LC1	Silver, LCS	47.6	50.0	MG/KG	95.2
		Aluminum, LCS	450	500	MG/KG	90.1
		Arsenic, LCS	933	1000	MG/KG	93.3
		Boron, LCS	475	500	MG/KG	95.0
		Barium, LCS	492	500	MG/KG	98.4
		Beryllium, LCS	23.9	25.0	MG/KG	95.6
		Bismuth, LCS	487	500	MG/KG	97.3
		Calcium, LCS	2180	2500	MG/KG	87.3
		Cadmium, LCS	24.0	25.0	MG/KG	96.0
		Cobalt, LCS	236	250	MG/KG	94.5
		Chromium, LCS	48.7	50.0	MG/KG	97.4
		Copper, LCS	116	125	MG/KG	93.0
		Iron, LCS	476	500	MG/KG	95.1
		Potassium, LCS	2250	2500	MG/KG	90.1
		Lithium, LCS	496	500	MG/KG	99.2
		Magnesium, LCS	2360	2500	MG/KG	94.6
		Manganese, LCS	75.1	75.0	MG/KG	100.1
		Molybdenum, LCS	478	500	MG/KG	95.7
		Sodium, LCS	2320	2500	MG/KG	92.9
		Nickel, LCS	196	200	MG/KG	97.8
		Phosphorus, LCS	477	500	MG/KG	95.4
		Lead, LCS	243	250	MG/KG	97.2
		Antimony, LCS	285	300	MG/KG	95.1
		Selenium, LCS	886	1000	MG/KG	88.6
		Silicon, LCS	109	500	MG/KG	21.7
		Tin, LCS	479	500	MG/KG	95.8
		Strontium, LCS	488	500	MG/KG	97.6
		Titanium, LCS	492	500	MG/KG	98.5
		Thallium, LCS	960	1000	MG/KG	96.0
		Uranium, LCS	244	250 ~~200~~ *	MG/KG	* ~~48.8~~ 97.7
		Vanadium, LCS	242	250	MG/KG	96.7
		Zinc, LCS	95.6	100	MG/KG	95.6
		Zirconium, LCS	478	500	MG/KG	95.6
LCS1	06C0100-LC1	Mercury, LCS	6.4	6.2	MG/KG	103.9

* corrected values
JW 6/28/06

Date: 11 August 2006
To: Washington Closure Hanford (technical representative)
From: TechLaw, Inc.
Project: 100 Area and 300 Area Component of the RCBRA Sediment & Tissue
Subject: PCB/Pesticide - Data Package No. K0358-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0358 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	Date
J11WW7	5/9/06	Solid	C	See note 1
J11WW8	5/9/06	Solid	C	See note 1
J11WW9	5/10/06	Solid	C	See note 1
J11WX0	510/06	Solid	C	See note 1
J11WX5	5/9/06	Solid	C	See note 1
J11WX6	5/9/06	Solid	C	See note 1
J11WX9	5/9/06	Solid	C	See note 1
J11WY0	5/9/06	Solid	C	See note 1
J11WY5	5/9/06	Solid	C	See note 1
J11WY6	5/9/06	Solid	C	See note 1
J11WY7	5/9/06	Solid	C	See note 1
J11WY8	5/9/06	Solid	C	See note 1
J11WW5	5/9/06	Solid	C	See note 1
J11WW6	5/9/06	Solid	C	See note 1
J11X01	5/9/06	Solid	C	See note 1
J11X02	5/9/06	Solid	C	See note 1
J11X03	5/9/06	Solid	C	See note 1
J11X04	5/9/06	Solid	C	See note 1
J11X44	5/12/06	Solid	C	See note 1
J11X45	5/12/06	Solid	C	See note 1

1– Pesticides by 8081A and PCBs by 8082.

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 100 Area and 300 Area Component of the RCBRA Sampling & Analysis Plan (DOE/RL-2005-42, Rev. 0, October 2005). 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 Preservation**

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.

If holding times are exceeded by less than or equal to twice 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".

Due to the holding time being exceeded by less than or equal to twice the limit, all pesticide and PCB results were qualified as estimates and flagged "J".

- **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 results were acceptable.

Field Blanks

No field blanks were submitted for analysis.

- **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 80% to 120%. 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 matrix spike, matrix spike duplicate and LCS analysis, all toxaphene results were qualified as estimates and flagged "J".

Due to matrix spike and matrix spike duplicate recoveries outside QC limits, all alpha-BHC (43% & 46%), gamma-BHC (44% & 48%), heptachlor (57% & 59%), delta-BHC (42% & 44%), aldrin (46% & 48%) and dieldrin (58% & 59%) results were qualified as estimates and flagged "J".

Due to matrix spike recoveries outside QC limits, all 4,4'-DDE (59%) and endosulfan sulfate (59%) results were qualified as estimates and flagged "J".

Due to LCS recoveries outside QC limits, all endosulfan I (42%) and endosulfan II results (3%) were qualified as estimates and flagged "J".

All other accuracy 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.

Due to a surrogate recovery outside QC limits (35%), all pesticide results in sample J11WY8 were qualified as estimates and flagged "J".

All other 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 20%. 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 matrix spike and matrix spike duplicate analysis, all toxaphene results were qualified as estimates and flagged "J".

All other precision results were acceptable.

Field Duplicate Samples

No field duplicates were submitted for analysis.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the project specific RQLs to ensure that laboratory detection levels meet the required criteria. All results (with an RQL) exceeded the RQL. Under the WCH validation statement of work, no qualification is required.

- **Completeness**

Data Package No. K0358 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

The following minor deficiencies were noted:

- Due to the holding time being exceeded by les than or equal to twice the limit, all pesticide and PCB results were qualified as estimates and flagged "J".
- Due to the lack of a matrix spike, matrix spike duplicate and LCS analysis, all toxaphene results were qualified as estimates and flagged "J".
- Due to matrix spike and matrix spike duplicate recoveries outside QC limits, all alpha-BHC (43% & 46%), gamma-BHC (44% & 48%), heptachlor (57% & 59%), delta-BHC (42% & 44%), aldrin (46% & 48%) and dieldrin (58% & 59%) results were qualified as estimates and flagged "J".
- Due to matrix spike recoveries outside QC limits, all 4,4'-DDE (59%) and endosulfan sulfate (59%) results were qualified as estimates and flagged "J".
- Due to LCS recoveries outside QC limits, all endosulfan I (42%) and endosulfan II results (3%) were qualified as estimates and flagged "J".
- Due to a surrogate recovery outside QC limits (35%), all pesticide results in sample J11WY8 were qualified as estimates and flagged "J".

Data flagged "J" indicates that the associated concentration is an estimate, but under the WCH 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.

All results (with an RQL) exceeded the RQL. Under the WCH validation statement of work, no qualification is required.

REFERENCES

WCH, Contract #20266, *Validation Statement of Work*, Washington Closure Hanford Incorporated, July 7, 2003.

DOE/RL-2005-42, Rev. 0, October 2005, *100 Area and 300 Area Component of the RCBRA Sampling & Analysis Plan.*

Appendix 1

Glossary of Data Reporting Qualifiers

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

PESTICIDE/PCB DATA QUALIFICATION SUMMARY*

SDG: K0358	REVIEWER: TLI	Project: RCBRA	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
All pesticides	J	J11WY8	Surrogate recovery
All pesticide & PCBs	J	All	Holding time*
Alpha-BHC Gamma-BHC Heptachlor Delta-BHC Aldrin Dieldrin	J	All	MS/MSD recovery
4,4'-DDE Endosulfan Sulfate	J	All	MS recovery
Endosulfan I Endosulfan II	J	All	LCS recovery
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

PESTICIDE/PCB ANALYSIS, SOLID MATRIX, (UG/KG)

Project: WASHINGTON CLOSURE HANFORD

Laboratory: LLI SDG: K0358

Sample Number		J11WW7		J11WW8		J11WW9		J11WX0		J11WX5		J11WX6		J11WX9		J11WY0		J11WY5		J11WY6	
Remarks																					
Sample Date		5/9/06		5/9/06		5/10/06		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06	
Extraction Date		6/6/06		6/6/06		6/6/06		6/6/06		6/6/06		6/6/06		6/6/06		6/6/06		6/6/06		6/6/06	
Analysis Date		7/3/06		7/3/06		7/3/06		7/3/06		7/3/06		7/3/06		7/3/06		7/3/06		7/3/06		7/3/06	
PCB	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aroclor-1016		200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ
Aroclor-1221		200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ
Aroclor-1232	16.5	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ
Aroclor-1242	16.5	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ
Aroclor-1248		200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ
Aroclor-1254	16.5	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ
Aroclor-1260	16.5	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ

Sample Number		J11WW7		J11WW8		J11WW9		J11WX0		J11WX5		J11WX6		J11WX9		J11WY0		J11WY5		J11WY6	
Remarks																					
Sample Date		5/9/06		5/9/06		5/10/06		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06	
Extraction Date		6/6/06		6/6/06		6/6/06		6/6/06		6/6/06		6/6/06		6/6/06		6/6/06		6/6/06		6/6/06	
Analysis Date		7/3/06		7/3/06		7/4/06		7/4/06		7/4/06		7/4/06		7/4/06		7/4/06		7/4/06		7/4/06	
Pesticide	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Alpha-BHC	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Gamma-BHC (Lindane)	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Beta-BHC	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Heptachlor	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Delta-BHC	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Aldrin	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Heptachlor Epoxide	5	8.5	J	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Endosulfan I	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Dieldrin	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
4,4'-DDE	5	73	J	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Endrin	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Endosulfan II	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
4,4'-DDD	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Endosulfan Sulfate	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
4,4'-DDT	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Methoxychlor	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Endrin Ketone	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Endrin Aldehyde	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
alpha-Chlordane	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
gamma-Chlordane	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	26	J	20	UJ	20	UJ	20	UJ
Toxaphene	5	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ

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

PESTICIDE/PCB ANALYSIS, SOLID MATRIX, (UG/KG)

Project: WASHINGTON CLOSURE HANFORD
Laboratory: LLI SDG: K0358

Sample Number		J11WY7		J11WY8		J11WW5		J11WW6		J11X01		J11X02		J11X03		J11X04		J11X44		J11X45	
Remarks																					
Sample Date		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06		5/12/06		5/12/06	
Extraction Date		6/6/06		6/6/06		6/6/06		6/6/06		6/6/06		6/6/06		6/6/06		6/6/06		6/6/06		6/6/06	
Analysis Date		7/4/06		7/4/06		7/4/06		7/4/06		7/4/06		7/4/06		7/4/06		7/4/06		7/4/06		7/4/06	
PCB	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aroclor-1016		200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ
Aroclor-1221		200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ
Aroclor-1232	16.5	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ
Aroclor-1242	16.5	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ
Aroclor-1248		200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ
Aroclor-1254	16.5	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ
Aroclor-1260	16.5	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ

Sample Number		J11WY7		J11WY8		J11WW5		J11WW6		J11X01		J11X02		J11X03		J11X04		J11X44		J11X45	
Remarks																					
Sample Date		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06		5/9/06		5/12/06		5/12/06	
Extraction Date		6/6/06		6/6/06		6/6/06		6/6/06		6/6/06		6/6/06		6/6/06		6/6/06		6/6/06		6/6/06	
Analysis Date		7/4/06		7/4/06		7/4/06		7/4/06		7/4/06		7/4/06		7/4/06		7/4/06		7/4/06		7/4/06	
Pesticide	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Alpha-BHC	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Gamma-BHC (Lindane)	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Beta-BHC	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	15	J
Heptachlor	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	12	J
Delta-BHC	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Aldrin	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Heptachlor Epoxide	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	12	J	20	UJ	20	UJ	20	UJ	20	UJ
Endosulfan I	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Dieldrin	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
4,4'-DDE	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	32	J
Endrin	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Endosulfan II	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
4,4'-DDD	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Endosulfan Sulfate	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
4,4'-DDT	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Methoxychlor	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Endrin Ketone	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Endrin Aldehyde	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
alpha-Chlordane	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
gamma-Chlordane	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Toxaphene	5	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ	200	UJ

000012

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.
PCBs by GC

Report Date: 07/06/06 12:04

RFW Batch Number: 0605L041 Client: TNUHANFORD RC-047 K0358 Work Order: 11343606001 Page: 1

000000006

	Cust ID:	J11WW7	J11WW8	J11WW8	J11WW8	J11WW9	J11WX0
Sample Information	RFW#:	001	002	002 MS	002 MSD	003	004
	Matrix:	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
	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:	Tetrachloro-m-xylene	80 %	38 %	88 %	78 %	66 %	48 %
	Decachlorobiphenyl	77 %	43 %	85 %	75 %	62 %	48 %
		fl	fl	fl	fl	fl	fl
Aroclor-1016		200 U J	200 U J	81 %	82 %	200 U J	200 U J
Aroclor-1221		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor-1232		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor-1242		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor-1248		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor-1254		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor-1260		200 U	200 U	83 %	83 %	200 U	200 U

	Cust ID:	J11WX5	J11WX6	J11WX9	J11WY0	J11WY5	J11WY6
Sample Information	RFW#:	005	006	007	008	009	010
	Matrix:	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
	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:	Tetrachloro-m-xylene	76 %	90 %	86 %	84 %	88 %	59 %
	Decachlorobiphenyl	76 %	90 %	86 %	84 %	87 %	61 %
		fl	fl	fl	fl	fl	fl
Aroclor-1016		200 U J	200 U J	200 U J	200 U J	200 U J	200 U J
Aroclor-1221		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor-1232		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor-1242		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor-1248		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor-1254		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor-1260		200 U	200 U	200 U	200 U	200 U	200 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

8/10/06

7/11/6

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Lionville Laboratory, Inc.
PCBs by GC

Report Date: 07/06/06 12:04

RFW Batch Number: 0605L041 Client: TNUHANFORD RC-047 K0358 Work Order: 11343606001 Page: 2

	Cust ID:	J11WY7	J11WY8	J11WW5	J11WW6	J11X01	J11X02
Sample Information	RFW#:	011	012	013	014	015	016
	Matrix:	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
	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:	Tetrachloro-m-xylene	80 %	83 %	92 %	96 %	97 %	98 %
	Decachlorobiphenyl	82 %	81 %	87 %	92 %	93 %	94 %
		fl	fl	fl	fl	fl	fl
Aroclor-1016		200 U J	200 U J	200 U J	200 U J	200 U J	200 U J
Aroclor-1221		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor-1232		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor-1242		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor-1248		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor-1254		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor-1260		200 U	200 U	200 U	200 U	200 U	200 U

	Cust ID:	J11X03	J11X04	J11X44	J11X45	PBLKKD	PBLKKD BS
Sample Information	RFW#:	017	018	019	020	06LE0464-MB1	06LE0464-MB1
	Matrix:	SOLID	SOLID	SOLID	SOLID	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:	Tetrachloro-m-xylene	89 %	91 %	97 %	85 %	72 %	92 %
	Decachlorobiphenyl	83 %	88 %	91 %	83 %	70 %	82 %
		fl	fl	fl	fl	fl	fl
Aroclor-1016		200 U J	200 U J	200 U J	200 U J	200 U	86 %
Aroclor-1221		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor-1232		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor-1242		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor-1248		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor-1254		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor-1260		200 U	200 U	200 U	200 U	200 U	86 %

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

JR 8/10/06

8/11/06

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

Report Date: 07/10/06 11:13

RFW Batch Number: 0605L041 Client: TNUHANFORD RC-047 K0358 Work Order: 11343606001 Page: 1

000000007

	Cust ID:	J11WW7	J11WW8	J11WW8	J11WW8	J11WW9	J11WX0
Sample Information	RFW#:	001	002	002 MS	002 MSD	003	004
	Matrix:	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
	D.F.:	4.00	4.00	4.00	4.00	4.00	4.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	81 %	29 %	71 %	84 %	62 %	40 %
	Decachlorobiphenyl	96 %	43 %	87 %	95 %	77 %	52 %
		fl	fl	fl	fl	fl	fl
Alpha-BHC		20 U J	20 U J	43 * %	46 * %	20 U J	20 U J
gamma-BHC (Lindane)		20 U	20 U	44 * %	48 * %	20 U	20 U
Beta-BHC		20 U	20 U	61 %	61 %	20 U	20 U
Heptachlor		20 U	20 U	57 * %	59 * %	20 U	20 U
Delta-BHC		20 U	20 U	42 * %	44 * %	20 U	20 U
Aldrin		20 U	20 U	46 * %	48 * %	20 U	20 U
Heptachlor epoxide		8.5 JB	20 U	62 %	64 %	20 U	20 U
gamma-Chlordane		20 U	20 U	63 %	66 %	20 U	20 U
Endosulfan I		20 U	20 U	62 %	64 %	20 U	20 U
alpha-Chlordane		20 U	20 U	63 %	65 %	20 U	20 U
4,4'-DDE		73	20 U	59 * %	62 %	20 U	20 U
Dieldrin		20 U	20 U	58 * %	59 * %	20 U	20 U
Endrin		20 U	20 U	61 %	63 %	20 U	20 U
4,4'-DDD		20 U	20 U	64 %	67 %	20 U	20 U
Endosulfan II		20 U	20 U	63 %	65 %	20 U	20 U
4,4'-DDT		20 U	20 U	70 %	73 %	20 U	20 U
Endrin aldehyde		20 U	20 U	57 %	52 %	20 U	20 U
Endosulfan sulfate		20 U	20 U	59 * %	61 %	20 U	20 U
Methoxychlor		20 U	20 U	90 %	94 %	20 U	20 U
Endrin ketone		20 U	20 U	64 %	65 %	20 U	20 U
Toxaphene		200 U	200 U	200 U	200 U	200 U	200 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

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8/10/06

7/18/06

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

Report Date: 07/10/06 11:13

RFW Batch Number: 0605L041 Client: TNUHANFORD RC-047 K0358 Work Order: 11343606001 Page: 2

	Cust ID:	J11WX5	J11WX6	J11WX9	J11WY0	J11WY5	J11WY6
Sample Information	RFW#:	005	006	007	008	009	010
	Matrix:	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
	D.F.:	4.00	4.00	4.00	4.00	4.00	4.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate: Tetrachloro-m-xylene		74 %	99 %	79 %	83 %	86 %	57 %
Decachlorobiphenyl		92 %	108 %	106 %	96 %	105 %	69 %
		fl	fl	fl	fl	fl	fl
Alpha-BHC		20 U J	20 U J	20 U J	20 U J	20 U J	20 U J
gamma-BHC (Lindane)		20 U	20 U	20 U	20 U	20 U	20 U
Beta-BHC		20 U	20 U	20 U	20 U	20 U	20 U
Heptachlor		20 U	20 U	20 U	20 U	20 U	20 U
Delta-BHC		20 U	20 U	20 U	20 U	20 U	20 U
Aldrin		20 U	20 U	20 U	20 U	20 U	20 U
Heptachlor epoxide		20 U	20 U	20 U	20 U	20 U	20 U
gamma-Chlordane		20 U	20 U	26	20 U	20 U	20 U
Endosulfan I		20 U	20 U	20 U	20 U	20 U	20 U
alpha-Chlordane		20 U	20 U	20 U	20 U	20 U	20 U
4,4'-DDE		20 U	20 U	20 U	20 U	20 U	20 U
Dieldrin		20 U	20 U	20 U	20 U	20 U	20 U
Endrin		20 U	20 U	20 U	20 U	20 U	20 U
4,4'-DDD		20 U	20 U	20 U	20 U	20 U	20 U
Endosulfan II		20 U	20 U	20 U	20 U	20 U	20 U
4,4'-DDT		20 U	20 U	20 U	20 U	20 U	20 U
Endrin aldehyde		20 U	20 U	20 U	20 U	20 U	20 U
Endosulfan sulfate		20 U	20 U	20 U	20 U	20 U	20 U
Methoxychlor		20 U	20 U	20 U	20 U	20 U	20 U
Endrin ketone		20 U	20 U	20 U	20 U	20 U	20 U
Toxaphene		200 U	200 U	200 U	200 U	200 U	200 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

8/10/06

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

Report Date: 07/10/06 11:13

RFW Batch Number: 0605L041 Client: TNUHANFORD RC-047 K0358 Work Order: 11343606001 Page: 3

	Cust ID:	J11WY7	J11WY8	J11WW5	J11WW6	J11X01	J11X02
Sample Information	RFW#:	011	012	013	014	015	016
	Matrix:	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
	D.F.:	4.00	4.00	4.00	4.00	4.00	4.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	84 %	30 %	90 %	89 %	111 %	88 %
	Decachlorobiphenyl	100 %	35 * %	106 %	109 %	121 %	99 %
		fl	fl	fl	fl	fl	fl
Alpha-BHC		20 U J	20 U J	20 U J	20 U J	20 U J	20 U J
gamma-BHC (Lindane)		20 U	20 U	20 U	20 U	20 U	20 U
Beta-BHC		20 U	20 U	20 U	20 U	20 U	20 U
Heptachlor		20 U	20 U	20 U	20 U	20 U	20 U
Delta-BHC		20 U	20 U	20 U	20 U	20 U	20 U
Aldrin		20 U	20 U	20 U	20 U	20 U	20 U
Heptachlor epoxide		20 U	20 U	20 U	20 U	20 U	12 J
gamma-Chlordane		20 U	20 U	20 U	20 U	20 U	20 U
Endosulfan I		20 U	20 U	20 U	20 U	20 U	20 U
alpha-Chlordane		20 U	20 U	20 U	20 U	20 U	20 U
4,4'-DDE		20 U	20 U	20 U	20 U	20 U	20 U
Dieldrin		20 U	20 U	20 U	20 U	20 U	20 U
Endrin		20 U	20 U	20 U	20 U	20 U	20 U
4,4'-DDD		20 U	20 U	20 U	20 U	20 U	20 U
Endosulfan II		20 U	20 U	20 U	20 U	20 U	20 U
4,4'-DDT		20 U	20 U	20 U	20 U	20 U	20 U
Endrin aldehyde		20 U	20 U	20 U	20 U	20 U	20 U
Endosulfan sulfate		20 U	20 U	20 U	20 U	20 U	20 U
Methoxychlor		20 U	20 U	20 U	20 U	20 U	20 U
Endrin ketone		20 U	20 U	20 U	20 U	20 U	20 U
Toxaphene		200 U	200 U	200 U	200 U	200 U	200 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

8/10/06

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

Report Date: 07/10/06 11:13

RFW Batch Number: 0605L041 Client: TNUHANFORD RC-047 K0358 Work Order: 11343606001 Page: 4

	Cust ID:	J11X03	J11X04	J11X44	J11X45	PBLKKD	PBLKKD BS
Sample Information	RFW#:	017	018	019	020	06LE0464-MB1	06LE0464-MB1
	Matrix:	SOLID	SOLID	SOLID	SOLID	SOIL	SOIL
	D.F.:	4.00	4.00	4.00	4.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate: Tetrachloro-m-xylene		95 %	85 %	94 %	30 %	48 %	83 %
Decachlorobiphenyl		114 %	101 %	109 %	38 %	72 %	92 %
Alpha-BHC		20 U J	20 U J	20 U J	20 U J	5.0 U	64 %
gamma-BHC (Lindane)		20 U	20 U	20 U	20 U	5.0 U	67 %
Beta-BHC		20 U	20 U	20 U	15 J	5.0 U	66 %
Heptachlor		20 U	20 U	20 U	12 J	5.0 U	71 %
Delta-BHC		20 U	20 U	20 U	20 U	5.0 U	53 %
Aldrin		20 U	20 U	20 U	20 U	5.0 U	65 %
Heptachlor epoxide		20 U	20 U	20 U	20 U	5.0 U	74 %
gamma-Chlordane		20 U	20 U	20 U	20 U	5.0 U	67 %
Endosulfan I		20 U	20 U	20 U	20 U	5.0 U	42 * %
alpha-Chlordane		20 U	20 U	20 U	20 U	5.0 U	73 %
4,4'-DDE		20 U	20 U	20 U	32	5.0 U	67 %
Dieldrin		20 U	20 U	20 U	20 U	5.0 U	77 %
Endrin		20 U	20 U	20 U	20 U	5.0 U	79 %
4,4'-DDD		20 U	20 U	20 U	20 U	5.0 U	65 %
Endosulfan II		20 U	20 U	20 U	20 U	5.0 U	3 * %
4,4'-DDT		20 U	20 U	20 U	20 U	5.0 U	70 %
Endrin aldehyde		20 U	20 U	20 U	20 U	5.0 U	70 %
Endosulfan sulfate		20 U	20 U	20 U	20 U	5.0 U	70 %
Methoxychlor		20 U	20 U	20 U	20 U	5.0 U	86 %
Endrin ketone		20 U	20 U	20 U	20 U	5.0 U	76 %
Toxaphene		200 U	200 U	200 U	200 U	50 U	50 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

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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-047
LVL #: 0605L041
SDG/SAF # K0358/RC-047

W.O. #: 11343-606-001-9999-00
Date Received: 05-17-2006

PCB

Twenty (20) solid samples were collected on 05-09,10,12-2006.

The samples and their associated QC samples were extracted on 06-06-2006 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 07-03,04-2006. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8082.

The following is a summary of QC results accompanying the sample results. Lionville Laboratory Inc (LvLI) certifies that all test results meet the requirements of NELAC except as noted below:

1. Samples were extracted 14-days outside the required holding time. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

2. All sample results were reported on a wet-weight basis.

3. The 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. All surrogate recoveries were within acceptance criteria.

6. The blank spike recoveries were within acceptance criteria.

7. All matrix spike recoveries were within acceptance criteria.

8. The initial calibrations associated with this data set were within acceptance criteria.

9. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

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 2 2 pages.

208 Welsh Pool Road • Exton, PA 19341- 1313 • (610) 280-3000 • Fax (610) 280-3041

LvLI
LIONVILLE LABORATORY INC.

10. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

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

4/13/0
Date

som\r:\group\data\pest\tru hanford\0605-041.pcbs

208 Welsh Pool Road • Exton, PA 19341- 1313 • (610) 280-3000 • Fax (610) 280-3041

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 06PM002

Initiator: Orlette Johnson
Date: 6/21/06
Client:

Batch:
Samples:
Method: SW846/MCAWW/CLP/

Parameter:
Matrix:
Prep Batch:

1. Reason for SDR

a. COC Discrepancy
__ Tech Profile Error __ Client Request __ Sampler Error on C-O-C
__ Transcription Error __ Wrong Test Code __ Other

b. General Discrepancy
__ Missing Sample/Extract* __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
X Hold Time Exceeded __ Insufficient Sample* __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date:

c. Problem (Include all relevant specific results; attach data if necessary)

Sample(s) was/were extracted 14 days beyond the hold time

2. Known or Probable Causes(s) due to a temporary glassware shortage created by a malfunctioning drying kiln i.e, much of our glassware was lost when one of the kilns overheated. We made every effort to replace glassware as soon as possible but our needs exceeded on-the-shelf vendor stocks of certain critical items. This problem was exacerbated by an unusually high number of samples received during this period of time for organics extraction.

3. Discussion and Proposed Action
__ Re-log
__ Entire Batch
__ Following Samples:
__ Re-leach
__ Re-extract
__ Re-digest
__ Revise EDD
__ Change Test Code to
__ Place On/Take Off Hold (circle)

Other Description:

We have replenished glassware stocks to higher levels than those in-house before the kiln malfunction. We have also replaced the kiln.

4. Project Manager Instructions...signature/date: 6/21/06
__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
X Include in Case Narrative
__ Client Contacted:
Date/Person
__ Add
__ Cancel

5. Final Action...signature/date:

Other Explanation:

__ Verified re-[log][leach][extract][digest][analysis] (circle)
X Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
__	X Initiator	__	__ Metals: Welsh
__	X Lab General Manager: I. Daniels	__	__ Inorganic: Perrone
__	X Project Mgr: Stone/Johnson	__	__ GC/LC: Kiger
__	X Data Management: Stilwell	__	__ MS: Schneider/Carden
__	__ Sample Prep: Kiger	__	__ Log-in: Perry
		__	__ Admin:
		__	__ Other:

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Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-047 K0358

RECEIVED JUL 2006

DATE RECEIVED: 05/17/06 LVL LOT # :0605L

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J11WW7	001	SO	06LE0464	05/09/06	06/06/06	07/03/06
J11WW8	002	SO	06LE0464	05/09/06	06/06/06	07/03/06
J11WW8	002 MS	SO	06LE0464	05/09/06	06/06/06	07/03/06
J11WW8	002 MSD	SO	06LE0464	05/09/06	06/06/06	07/03/06
J11WW9	003	SO	06LE0464	05/10/06	06/06/06	07/03/06
J11WX0	004	SO	06LE0464	05/10/06	06/06/06	07/03/06
J11WX5	005	SO	06LE0464	05/09/06	06/06/06	07/03/06
J11WX6	006	SO	06LE0464	05/09/06	06/06/06	07/03/06
J11WX9	007	SO	06LE0464	05/09/06	06/06/06	07/03/06
J11WY0	008	SO	06LE0464	05/09/06	06/06/06	07/03/06
J11WY5	009	SO	06LE0464	05/09/06	06/06/06	07/03/06
J11WY6	010	SO	06LE0464	05/09/06	06/06/06	07/04/06
J11WY7	011	SO	06LE0464	05/09/06	06/06/06	07/04/06
J11WY8	012	SO	06LE0464	05/09/06	06/06/06	07/04/06
J11WW5	013	SO	06LE0464	05/09/06	06/06/06	07/04/06
J11WW6	014	SO	06LE0464	05/09/06	06/06/06	07/04/06
J11X01	015	SO	06LE0464	05/09/06	06/06/06	07/04/06
J11X02	016	SO	06LE0464	05/09/06	06/06/06	07/04/06
J11X03	017	SO	06LE0464	05/09/06	06/06/06	07/04/06
J11X04	018	SO	06LE0464	05/09/06	06/06/06	07/04/06
J11X44	019	SO	06LE0464	05/12/06	06/06/06	07/04/06
J11X45	020	SO	06LE0464	05/12/06	06/06/06	07/04/06

LAB QC:

PBLKKD	MB1	S	06LE0464	N/A	06/06/06	7/03/06
PBLKKD	MB1 BS	S	06LE0464	N/A	06/06/06	7/03/06

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-047
LVL #: 0605L041
SDG/SAF # K0358/RC-047

W.O. #: 11343-606-001-9999-00
Date Received: 05-17-2006

CHLORINATED PESTICIDES

Twenty (20) solid samples were collected on 05-09,10,12-2006.

The samples and their associated QC samples were extracted on 06-06-2006 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 07-03,04-2006. 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. Lionville Laboratory Inc (LvLI) certifies that all test results meet the requirements of NELAC except as noted below:

1. Samples were extracted outside required holding time. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

2. All sample results were reported on a wet-weight basis.

3. The samples and their associated QC samples received a Copper-Sulfur cleanup according to Lionville Laboratory SOPs based on SW846 method 3660A.

4. The method blank was below the reporting limits for all target compounds.

5. One (1) of forty-eight (48) surrogate recoveries was outside acceptance criteria. However, the surrogate recovery acceptance criteria were met (i.e., no more than one outlier per sample).

6. Two (2) of twenty (20) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

7. Fourteen (14) of forty (40) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

8. All samples required a 4-fold instrument dilution due to the nature of the sample matrix. The reporting limits were adjusted to reflect the necessary dilution.

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 2 5 pages.

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LIONVILLE LABORATORY INC.

9. The initial calibrations associated with this data set were within acceptance criteria.

10. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

11. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

12. 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.

for Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

7/20/06
Date

som\r:\group\data\pest\tnu hanford\0605-041.pst

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Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #GC301

Initiator: Vanessa Boschi
Date: 7/18/06
Client: INU

Batch: 0605L041
Samples: 2MS, 2MSD
Method: SW846/MCAWW/CLP/

Parameter: Pest.
Matrix: Solid
Prep Batch: 06LE02164

1. Reason for SDR

a. COC Discrepancy
__ Tech Profile Error __ Client Request __ Sampler Error on C-O-C
__ Transcription Error __ Wrong Test Code __ Other _____

b. General Discrepancy
__ Missing Sample/Extract* __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
__ Hold Time Exceeded __ Insufficient Sample* __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary)

① matrix spike recoveries ~~elevated~~ exceed acceptance criteria for several target compounds
[illegible] 7/18/06

② ~~Sndt~~ Ends I and Ends II < acceptance criteria in BS

2. Known or Probable Causes(s)

3. Discussion and Proposed Action
__ Re-log
__ Entire Batch
__ Following Samples: _____
__ Re-leach
__ Re-extract
__ Re-digest
__ Revise EDD
__ Change Test Code to _____
__ Place On/Take Off Hold (circle)

Other Description:

① narrate - all affected target ~~samples~~ compounds meet criteria in the LCS

② narrate - Ends I and II meet criteria in ms/msd

4. Project Manager Instructions...signature/date: [signature] 7/20/06
✓ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
__ Include in Case Narrative
__ Client Contacted:
Date/Person _____
__ Add
__ Cancel

5. Final Action...signature/date: [signature] 7/18/06
__ Verified re-[log][leach][extract][digest][analysis] (circle)
__ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

Other Explanation:

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
__	X Initiator	__	__ Metals: Beegle
__	X Lab General Manager: M. Taylor	__	__ Inorganic: Perrone
__	X Project Mgr: Stone/Johnson	__	__ GC/LC: Kiger
__	__ Data Management: Stilwell	__	__ MS: Rychlak/Daley
__	__ Sample Prep: Beegle/Kiger	__	__ Log-In: Perry
		__	__ Admin: _____
		__	__ Other: _____

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 06PM002 (06084, 06254, 01)

Initiator: Orlette Johnson
Date: 6/21/06
Client: INU-Hanford

Batch: 06051041
Samples: all
Method: SW846/MCAWW/CLP/

Parameter:
Matrix: SS
Prep Batch: 06LE0464

1. Reason for SDR

a. COC Discrepancy __ Tech Profile Error __ Client Request __ Sampler Error on C-O-C __ Transcription Error __ Wrong Test Code __ Other _____

b. General Discrepancy

__ Missing Sample/Extract* __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
X Hold Time Exceeded __ Insufficient Sample* __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary)

Sample(s) was/were extracted 6-14 days beyond the hold time

2. Known or Probable Causes(s) due to a temporary glassware shortage created by a malfunctioning drying kiln i.e, much of our glassware was lost when one of the kilns overheated. We made every effort to replace glassware as soon as possible but our needs exceeded on-the-shelf vendor stocks of certain critical items. This problem was exacerbated by an unusually high number of samples received during this period of time for organics extraction.

3. Discussion and Proposed Action

__ Re-log
__ Entire Batch
__ Following Samples: _____
__ Re-leach
__ Re-extract
__ Re-digest
__ Revise EDD
__ Change Test Code to _____
__ Place On/Take Off Hold (circle)

Other Description:

We have replenished glassware stocks to higher levels than those in-house before the kiln malfunction. We have also replaced the kiln.

4. Project Manager Instructions...signature/date: 6/21/06

__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
X Include in Case Narrative
__ Client Contacted:
Date/Person _____
__ Add
__ Cancel

5. Final Action...signature/date: 07/19/06

Other Explanation:

__ Verified re-[log][leach][extract][digest][analysis] (circle)
X Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
__	X Initiator	__	__ Metals: Welsh
__	X Lab General Manager: I. Daniels	__	__ Inorganic: Perrone
__	X Project Mgr: Stone/Johnson	__	__ GC/LC: Kiger
__	X Data Management: Stilwell	__	__ MS: Schneider/Carden
__	__ Sample Prep: Kiger	__	__ Log-in: Perry
		__	__ Admin: _____
		__	__ Other: _____

000027

Lionville Laboratory, Inc.
PEST/PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-047 K0358

RECEIVED JUL 2006

DATE RECEIVED: 05/17/06 LVL LOT # : 0605L041

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J11WW7	001	SO	06LE0464	05/09/06	06/06/06	07/03/06
J11WW8	002	SO	06LE0464	05/09/06	06/06/06	07/03/06
J11WW8	002 MS	SO	06LE0464	05/09/06	06/06/06	07/03/06
J11WW8	002 MSD	SO	06LE0464	05/09/06	06/06/06	07/04/06
J11WW9	003	SO	06LE0464	05/10/06	06/06/06	07/04/06
J11WX0	004	SO	06LE0464	05/10/06	06/06/06	07/04/06
J11WX5	005	SO	06LE0464	05/09/06	06/06/06	07/04/06
J11WX6	006	SO	06LE0464	05/09/06	06/06/06	07/04/06
J11WX9	007	SO	06LE0464	05/09/06	06/06/06	07/04/06
J11WY0	008	SO	06LE0464	05/09/06	06/06/06	07/04/06
J11WY5	009	SO	06LE0464	05/09/06	06/06/06	07/04/06
J11WY6	010	SO	06LE0464	05/09/06	06/06/06	07/04/06
J11WY7	011	SO	06LE0464	05/09/06	06/06/06	07/04/06
J11WY8	012	SO	06LE0464	05/09/06	06/06/06	07/04/06
J11WW5	013	SO	06LE0464	05/09/06	06/06/06	07/04/06
J11WW6	014	SO	06LE0464	05/09/06	06/06/06	07/04/06
J11X01	015	SO	06LE0464	05/09/06	06/06/06	07/04/06
J11X02	016	SO	06LE0464	05/09/06	06/06/06	07/04/06
J11X03	017	SO	06LE0464	05/09/06	06/06/06	07/04/06
J11X04	018	SO	06LE0464	05/09/06	06/06/06	07/04/06
J11X44	019	SO	06LE0464	05/12/06	06/06/06	07/04/06
J11X45	020	SO	06LE0464	05/12/06	06/06/06	07/04/06

LAB QC:

PBLKKD	MB1	S	06LE0464	N/A	06/06/06	07/03/06
PBLKKD	MB1 BS	S	06LE0464	N/A	06/06/06	07/03/06

7/18/06

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-357	Page 1 of 1

Collector TILLER, B. TR KLINCKMAN	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 9N Data Turnaround 45 Days
Project Designation 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location 100-K RIPARIAN SITE # 5		SAF No. RC-047	Air Quality ☐
Ice Chest No. ERC-03-107	Field Logbook No. EL-1597	COA BESRAS6520	Method of Shipment FED EX	
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A060469		Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage
COOL 4C

100029

Preservation	None	None	None	Cool 4C	Cool 4C	Cool 4C	cool 4c				
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1	1				
Volume	750g	2g	3g	15g	50g	50g	50g/250g				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Carbon-14	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	Semi-VOA 8270A				
Sample No.	Matrix *	Sample Date	Sample Time								
J11WW7	OTHER SOLID	5-9-06	1420				X *	X *	X *	X *	
J11WW8 (Full ac)	OTHER SOLID	5-9-06	1435				X *	X *	X *	X *	

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From TR KLINCKMAN	Date/Time 5-9-06 1445	Received By/Stored In EAS LOCKED STORAGE	Date/Time 5-9-06 1445
Relinquished By/Removed From EAS LOCKED STORAGE	Date/Time 0730 MAY 15 2006	Received By/Stored In TR Klinckman	Date/Time 5-16-06 0730
Relinquished By/Removed From TR Klinckman	Date/Time 5-16-06 1500	Received By/Stored In Fed Ex	Date/Time
Relinquished By/Removed From [illegible]	Date/Time 5-17-06 / 0925	Received By/Stored In D J Smith	Date/Time 5-17-06 / 0925
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) {Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238}

Matrix *
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
Ve=Vegetation
X=Other

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

BHI-EE-011 (08/29/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-358	Page 1 of 1

Collector TILLER, B.	Company Contact JOAN KESSNER Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 9N Air Quality ☐ Data Turnaround 45 Days
Project Designation 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location UPRIVER RIPARIAN SITE # 12	SAF No. RC-047	
Ice Chest No. ERC-03-107	Field Logbook No. EL-1597 COA BESRAS6520	Method of Shipment FED EX	
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A060469	Bill of Lading/Air Bill No. SEE OSPC	

000000013

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	None	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C			
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	750g	2g	5g	15g	50g	50g	50g			
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Carbon-14	Strontium-89,90 -- Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	Semi-VOA 8270A			

000030

Sample No.	Matrix *	Sample Date	Sample Time										
J11WW9	OTHER SOLID	5-10-06	8:45				X	X	X	X			
J11WX0	OTHER SOLID	5-10-06	8:55				X	X	X	X			

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From TR KLINCKMAN	Date/Time 5-10-06 0400	Received By/Stored In EAS LOCKED STORAGE	Date/Time 5-10-06 0900
Relinquished By/Removed From EAS LOCKED STORAGE	Date/Time 0700 MAY 15 2006	Received By/Stored In TR Klinckman	Date/Time 5-15-06 0730
Relinquished By/Removed From T.S. Edmundson WCH	Date/Time 5-16-06 1500	Received By/Stored In Fed Ex	Date/Time
Relinquished By/Removed From Fed Ex	Date/Time 5-17-06 / 0925	Received By/Stored In D. Smith	Date/Time 5-17-06 / 0925
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) (Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238)

Matrix *
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

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

BHI-EE-011 (08/29/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-361	Page 1 of 1

Collector: TILLER, B. TR KLINCKMAN	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 9N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: 100-D RIPARIAN SITE # 3		SAF No.: RC-047
Ice Chest No.: ERC-03-107	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES ALLIONVILLE	Offsite Property No.: A060469		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	COOL 4C					
Type of Container	G/P	G/P	G/P	aG	aG	aG					
No. of Container(s)	1	1	1	1	1	1					
Volume	750g	5g	15g	30g	50g	50g					
SAMPLE ANALYSIS	See Item (1) in Special Instructions.	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	SEMI VOA 8270A					
Sample No.	Matrix *	Sample Date	Sample Time								
J11WX5	OTHER SOLID	5-9-06	1345			X	X	X	X		
J11WX6	OTHER SOLID	5-9-06	1400			X	X	X	X		

0000031

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: TR KLINCKMAN	Date/Time: 5-9-06 1415	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 5-9-06 1415
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: MAY 15 2006 0730	Received By/Stored In: TR Klinckman	Date/Time: 5-15-06 0730
Relinquished By/Removed From: TR Klinckman	Date/Time: 5-16-06 1500	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 5-17-06 0925	Received By/Stored In: [illegible]	Date/Time: 5-17-06 0925
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) (Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238)

Matrix *
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
VE=Vegetation
X=Other

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

BHLEF-011 (08/29/2005)

0000000014

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-363	Page 1 of 1

Collector: TILLER, B. TR KLINCKMAN	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 9N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: 100-F RIPARIAN SITE # 7	SAF No.: RC-047	
Ice Chest No.: ERC-03-107	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A060469	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	COOL4C					
Type of Container	G/P	G/P	G/P	aG	aG	aG					
No. of Container(s)	1	1	1	1	1	1					
Volume	750g	5g	15g	50g	50g	50g					

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	See Item (1) in Special Instructions.	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	SEMI-VOA 82709				
J11WX9	OTHER SOLID	5-9-06	9:40			X	X	X	X				
J11WY0	OTHER SOLID	5-9-06	10:20			X	X	X	X				

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: TR KLINCKMAN	5-9-06 10:15	Received By/Stored In: EAS LOCKED STORAGE	5-9-06 10:15
Relinquished By/Removed From: EAS LOCKED STORAGE	0730 MAY 24 2006	Received By/Stored In:	5-16-06 0730
Relinquished By/Removed From:	5-16-06 1500	Received By/Stored In: Fed Ex	
Relinquished By/Removed From:	5-17-06 10925	Received By/Stored In:	5-17-06 10925
Relinquished By/Removed From:		Received By/Stored In:	
Relinquished By/Removed From:		Received By/Stored In:	

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) [Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238]

Matrix *
S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
Ts=Tissue
Wi=Wipe
Li=Liquid
Ve=Vegetation
Z=Other

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

BHI-EE-011 (08/29/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-366	Page 1 of 1

Collector: TILLER, B. TR KLINCKMAN	Company Contact: JOAN KESSNER — Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 9N — Data Turnaround: 45 Days
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: 100-D RIPARIAN SITE # 10	SAF No.: RC-047	Air Quality ☐
Ice Chest No.: ERC-03-107	Field Logbook No.: EL-1597 — COA: BESRAS6520	Method of Shipment: FED EX	
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A060469	Bill of Lading/Air Bill No.: SEE OSPC	

000000016

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	COOL 4C				
Type of Container	G/P	G/P	G/P	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1				
Volume	750g	5g	15g	50g	50g	50g				
SAMPLE ANALYSIS	See item (1) in Special Instructions	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	SEMI-VOA 8270A				

000033

Sample No.	Matrix *	Sample Date	Sample Time										
J11WY5	OTHER SOLID	5-9-06	11:00			X	X	X	X				
J11WY6	OTHER SOLID	5-9-06	11:15			X	X	X	X				

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From: TR KLINCKMAN — Date/Time: 5-9-06 11:20	Received By/Stored In: EAS LOCKED STORAGE — Date/Time: 5-9-06 11:20	
Relinquished By/Removed From: EAS LOCKED STORAGE — Date/Time: 0730 MAY 15 2006	Received By/Stored In: [signature] — Date/Time: 5-15-06 0730	
Relinquished By/Removed From: WCH — Date/Time: 5-16-06 1500	Received By/Stored In: Fed Ex — Date/Time:	
Relinquished By/Removed From: Fed Ex — Date/Time: 5-17-06 1025	Received By/Stored In: [signature] — Date/Time: 5-17-06 1025	
Relinquished By/Removed From: — Date/Time:	Received By/Stored In: — Date/Time:	
Relinquished By/Removed From: — Date/Time:	Received By/Stored In: — Date/Time:	

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) [Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238]

Matrix *: 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

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

BHI-EE-011 (08/29/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-047-367	Page 1 of 1
Collector TILLER, B. TR KLINCKMAN	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 9N / Data Turnaround 45 Days
Project Designation 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location UPRIVER RIPARIAN SITE # 11		SAF No. RC-047	Air Quality ☐
Ice Chest No. ERC-03-107	Field Logbook No. EL-1597	COA BESRAS6520	Method of Shipment FED EX	
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A060469		Bill of Lading/Air Bill No. SEE OSPC	

000000017

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

000034

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C				
Type of Container	G/P	G/P	G/P	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1				
Volume	750g	5g	15g	50g	50g	50g				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	SEMI-VOA 8270A				
Sample No.	Matrix *	Sample Date	Sample Time									
J11WY7	OTHER SOLID	5-9-06	10:15			X	X	X	X			
J11WY8	OTHER SOLID	5-9-06	10:30			X	X	X	X			

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From TR KLINCKMAN	Date/Time 5-9-06 10:45	Received By/Stored In EAS LOCKED STORAGE	Date/Time 5-9-06 10:45
Relinquished By/Removed From EAS LOCKED STORAGE	Date/Time 0730 MAY 15 2006	Received By/Stored In [signature]	Date/Time 5-15-06 0730
Relinquished By/Removed From [signature]	Date/Time 5-16-06 1500	Received By/Stored In Fed Ex	Date/Time
Relinquished By/Removed From Fed Ex	Date/Time 5-17-06 / 0925	Received By/Stored In [signature]	Date/Time 5-17-06/0925
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) [Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238]

Matrix *
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

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

BHI-EE-011 (08/29/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-356	Page 1 of 1

Collector: TILLER, B. TR KLINCKMAN	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 9N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: 100-K RIPARIAN SITE # 4	SAF No.: RC-047	
Ice Chest No.: ERC-03-107	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A060468	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL4C

Preservation	None	None	None	Cool 4C	Cool 4C	Cool 4C	COOL4C			
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	750g	2g	5g	15g	50g	50g	50g			
SAMPLE ANALYSIS	See Item (1) in Special Instructions.	Carbon-14	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	SEMI VOA 8270A			

Sample No.	Matrix *	Sample Date	Sample Time										
J11WW5	OTHER SOLID	5-9-06	1315				X	X	X	X			
J11WW6	OTHER SOLID	5-9-06	1330				X	X	X	X			

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
TR KLINCKMAN	5-9-06 1340	EAS LOCKED STORAGE	5-9-06 1340
EAS LOCKED STORAGE	MAY 15 2006 0730	[illegible]	5-15-06 0730
[illegible]	5-16-06 1500	Fed Ex	
[illegible]	5-17-06 0925	[illegible]	5-17-06 0925

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) [Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238]

Matrix *

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, Ve=Vegetation, X=Other

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

BHI-EE-011 (08/29/2005)

000035

000018

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-369	Page 1 of 1

Collector TILLER, B. TR KLINGKMAN	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH
Price Code 9N	Data Turnaround 45 Days	Air Quality ☐	
Project Designation 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location UPRIVER RIPARIAN SITE # 14	SAF No. RC-047	
Ice Chest No. ERC-03-107	Field Logbook No. EL-1597	COA BESRAS6520	Method of Shipment FED EX
Shipped To EBERLINE SERVICES, JONVILLE	Offsite Property No. A060469	Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

000036

SAMPLE ANALYSIS												
Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	COOL 4C						
Type of Container	G/P	G/P	G/P	aG	aG	aG						
No. of Container(s)	1	1	1	1	1	1						
Volume	750g	5g	15g	50g	50g	50g						
	See item (1) in Special Instructions.	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	Semi-VOA 8270A						
Sample No.	Matrix *	Sample Date	Sample Time									
J11X01	OTHER SOLID	MAY 09 2006	8:50			X	X	X	X			
J11X02	OTHER SOLID	5-9-06	9:15			X	X	X	X			

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From TR KLINGKMAN	Date/Time 09:30 MAY 09 2006	Received By/Stored In EAS LOCKED STORAGE	Date/Time 9:30 MAY 09 2006
Relinquished By/Removed From EAS LOCKED STORAGE	Date/Time 6:30 MAY 1 2006 15:15	Received By/Stored In J.R. Edmundson 5-15-06	Date/Time 0730
Relinquished By/Removed From J.R. Edmundson	Date/Time MAY 16 2006 /1500	Received By/Stored In Fed Ex	Date/Time
Relinquished By/Removed From Fed Ex	Date/Time 5-17-06 /0925	Received By/Stored In	Date/Time 5-17-06 /0925
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) [Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238]

Matrix *

Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
Air=Air
DS=Drum Solids
DL=Drum Liquids
Ti=Tissue
Wi=Wipe
Li=Liquid
Ve=Vegetation
X=Other

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

BHI-EE-011 (08/29/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-370	Page 1 of 1

Collector: TILLER, B. TR KLINCKMAN	Company Contact: JOAN KESSNER — Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 9N — Data Turnaround: 45 Days
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: UPRIVER RIPARIAN SITE # 16	SAF No.: RC-047	Air Quality ☐
Ice Chest No.: ERC-03-107	Field Logbook No.: EL-1597 — COA: BESRAS6520	Method of Shipment: FED EX	
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A060469	Bill of Lading/Air Bill No.: SEE OSPC	

000000020

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	COOL 4C					
Type of Container	G/P	G/P	G/P	aG	aG	aG					
No. of Container(s)	1	1	1	1	1	1					
Volume	750g	5g	15g	50g	50g	50g					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	Semi-VOA 8270A					

000037

Sample No.	Matrix *	Sample Date	Sample Time										
J11X03	OTHER SOLID	5-9-06	~~12:45~~ 12:30	5-9-05		X	X	X	X				
J11X04	OTHER SOLID	5-9-06	12:45			X	X	X	X				

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By/Removed From: TR KLINCKMAN — Date/Time: 5-9-06 1300 12:45	Received By/Stored In: R. Curet 5-9-06 EAS LOCKED STORAGE — Date/Time: 5-9-06 1300 12:45	R. Curet 5-9-06 (1) Gamma Spec - (Full List) {Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238}	S=Soil, SS=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: EAS LOCKED STORAGE — Date/Time: 0730 MAY 15 2006	Received By/Stored In: [signature] 5-15-06 — Date/Time: 0730		
Relinquished By/Removed From: J.R. Elmendorf WCH — Date/Time: 5-16-06 1500	Received By/Stored In: Fed Ex — Date/Time:		
Relinquished By/Removed From: FedEx 5-17-06 10925	Received By/Stored In: [signature] 5-17-06/0925 — Date/Time:		
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

RHLEF 011 (08/20/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-047-372	Page 1 of 1

Collector: TILLER, B. TR KLINCKMAN	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 9N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti	Sampling Location: 1607-H2	SAF No.: RC-047	
Ice Chest No.: ERC-03-107	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A060469		Bill of Lading/Air Bill No.: SEE OSPC

00000021

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE <DOT LIMITS

Special Handling and/or Storage

COOL 4C

00038

Preservation	None	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C				
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1	1				
Volume	750g	5g	5g	15g	50g	50g	50g				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Strontium-89,90 – Total Sr; Isotopic Thorium; Isotopic Uranium	Isotopic Plutonium	ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)	Pesticides - 8081	PCBs - 8082	Semi-VOA 8270A				
Sample No.	Matrix *	Sample Date	Sample Time								
J11X44	OTHER SOLID	5-12-06	1015				X	X	X	X	
J11X45	OTHER SOLID	5-12-06	1030				X	X	X	X	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
TR KLINCKMAN	5-12-06 1045	EAS LOCKED STORAGE	5-12-06 1045
EAS LOCKED STORAGE	MAY 15 2006 0730	[illegible]	5-15-06 0730
[illegible]	MAY 16 2006 1500	Fed Ex	
Fed Ex	5-17-06 10925	[illegible]	5-17-06 10925

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) [Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238]

Matrix *

S=Soil
SE=Sediment
SO=Solid
Sto=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
Te=Tissue
Wi=Wipe
Li=Liquid
Ve=Vegetation
X=Other

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

BHI-EE-011 (08/29/2005)

Appendix 5

Data Validation Supporting Documentation

PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: RCBRA			DATA PACKAGE: K0358		
VALIDATOR: TLI		LAB: LLI		DATE: 8/6/06	
			SDG: K0358		
ANALYSES PERFORMED					
SW-846 8081	SW-846 8081 (TCLP)	SW-846 8082	SW-846 8081 (TCLP)		
SAMPLES/MATRIX					
J11WW7	J11WW8	J11WW9	J11WX0	J11WX5	
J11WX6	J11WX9	J11WY0	J11WY5	J11WY6	
J11WY7	J11WY8	J11WW5	J11WW6	J11X01	
J11X02	J11X03	J11X04	J11X44	J11X45	
				solid	

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:

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: no FB

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: WY8 - Surr - J all part
MS/MSD - alpha BHC, gamma BHC, heptachlor, delta-BHC, aldrin, dieldrin - J a
MS - 4,4 DDE, Endosulfan Sulfate - J all
LCS - Endosulfan I, Endosulfan II - J all

no toxaphene MS/MSD or LCS

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:

no toxaphene 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: all >2x ht – J all

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: all over

9. SAMPLE CLEANUP (Levels D and E)

Fluoricil ® (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: