0070216

SAF-RC-048
100 Area and 300 Area Component of the RCBRA Water Sampling
FINAL VALIDATION PACKAGE

COMPLETE COPY OF VALIDATION PACKAGE TO:

Jeanette Duncan (2) H9-02 DE 07/06/06
INITIAL/DATE

COMMENTS:

SDG K0205 SAF-RC-048

Sample Location/Waste Site:
Cr. 3 Surface Water
Cr. 4 Pore Water/Surface Water
Cr. 5 Pore Water/Surface Water
Cr. 6 Pore Water/Surface Water
Cr. 6 Vertical Tube
Cr. 10 Pore Water/Surface Water
Cr. 7 Pore Water/Surface Water

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Date: 7 June 2006
To: Washington Closure Hanford (technical representative)
From: TechLaw, Inc.
Project: 100 Area and 300 Area Component of the RCBRA Water Sampling
Subject: Semivolatile - Data Package No. K0205-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0205 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	Matrix	Validation	Date
J112X3	2/1/06	Water	C	See note 1
J112X9	2/1/06	Water	C	See note 1
J112F9	2/1/06	Water	C	See note 1
J11250	2/1/06	Water	C	See note 1
J112C3	2/1/06	Water	C	See note 1
J112F6	2/1/06	Water	C	See note 1
J11247	2/1/06	Water	C	See note 1
J11238	1/29/06	Water	C	See note 1
J11232	1/29/06	Water	C	See note 1
J11239	1/29/06	Water	C	See note 1
J11279	1/29/06	Water	C	See note 1
J11245	1/29/06	Water	C	See note 1

1 – Semivolatiles by 8270C, gasoline range organics (GRO) and diesel range organics (DRO) by 8015B.

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**

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.

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

All holding times were met.

- **Method Blanks**

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

Due to method blank contamination, the bis(2-ethylhexyl)phthalate results in all samples were qualified as undetected, raised to the RQL 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.

Due to a matrix spike recovery outside QC limits (17%), all 4-chloroanaline results were qualified as estimates and flagged "J".

Due to the lack of a matrix spike or matrix spike duplicate analysis, the TPH-G result in samples J11250, J112C3, J112F6, J11247, J11279 and J11245 were qualified as estimates and flagged "J".

Due to an LCS recovery outside QC limits, all 4-chloranaline (5%), acenaphthylene (47%) and 3-nitroanaline (7%) results in samples 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".

All surrogate results were acceptable.

- **Precision**

Matrix Spike/Matrix Spike Duplicate Samples

Matrix spike (MS)/matrix spike duplicate (MSD) results provide matrix-specific information on the precision of the method for specific target compound classes. Precision is expressed by the relative percent difference (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample. Samples results must be within RPD limits of +/-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 an RPD outside QC limits (131%), all 4-chloroanaline results were qualified as estimates and flagged "J".

Due to an RPD outside QC limits (95%), all 3-nitroanaline results were qualified as estimates and flagged "J".

Due to an RPD outside QC limits (41%), all 2,4-dinitrophenol results were qualified as estimates and flagged "J".

Due to an RPD outside QC limits (184%), all 3,3-dichlorobenzidine results were qualified as estimates and flagged "J".

Due to the lack of a matrix spike or matrix spike duplicate analysis, the TPH-G result in samples J11250, J112C3, J112F6, J11247, J11279 and J11245 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. All analytes met the RQL.

- **Completeness**

Data package No. K0205 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 bis(2-ethylhexyl)phthalate results in all samples were qualified as undetected, raised to the RQL and flagged "U".
- Due to a matrix spike recovery outside QC limits (17%), all 4-chloroanaline results were qualified as estimates and flagged "J".
- Due to the lack of a matrix spike or matrix spike duplicate analysis, the TPH-G result in samples J11250, J112C3, J112F6, J11247, J11279 and J11245 were qualified as estimates and flagged "J".
- Due to an LCS recovery outside QC limits, all 4-chloranaline (5%), acenaphthylene (47%) and 3-nitroanaline (7%) results in samples were qualified as estimates and flagged "J".
- Due to an RPD outside QC limits (131%), all 4-chloroanaline results were qualified as estimates and flagged "J".
- Due to an RPD outside QC limits (95%), all 3-nitroanaline results were qualified as estimates and flagged "J".
- Due to an RPD outside QC limits (41%), all 2,4-dinitrophenol results were qualified as estimates and flagged "J".
- Due to an RPD outside QC limits (184%), all 3,3-dichlorobenzidine 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 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

SEMIVOLATILE DATA QUALIFICATION SUMMARY*

SDG: K0205	REVIEWER: TLI	Project: RCBRA	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Bis(2-ethylhexyl)phthalate	U at RQL	All	Blank contamination
4-Chloroanaline	J	All	MS recovery
Gasoline range organics	J	J11250, J112C3 J112F6, J11247 J11279, J11245	No MS/MSD
4-Chloroanaline Acenaphthylene 3-Nitroanaline	J	All	LCS recovery
4-Chloroanaline 3-Nitroanaline 2,4-Dinitrophenol 3,3-Dichlorobenzidine	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

SEMIVOLATILE/DRO/GRO ANALYSIS, WATER MATRIX, (UG/L) Page__1__ of__5__

Project: WASHINGTON CLOSURE HANFORD																			
Laboratory: LLI	SDG: K0205																		
Sample Number		J112X3		J112X9		J112F9		J11250		J112C3		J112F6		J11247		J11238		J11232	
Remarks																			
Sample Date		2/1/06		2/1/06		2/1/06		2/1/06		2/1/06		2/1/06		2/1/06		1/29/06		1/29/06	
Extraction Date		2/5/06		2/5/06		2/5/06		2/5/06		2/5/06		2/5/06		2/5/06		2/5/06		2/5/06	
Analysis Date		2/8/06		2/9/06		2/9/06		2/9/06		2/9/06		2/9/06		2/9/06		2/8/06		2/8/06	
Semivolatile (8270C)	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	0.7	
bis(2-Chloroethyl)ether		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Chlorophenol		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,3-Dichlorobenzene		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,4-Dichlorobenzene		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichlorobenzene	650	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Methylphenol		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2,2'-oxybis(1-chloropropane)		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
3 and/or 4-Methylphenol		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
N-Nitroso-di-n-propylamine		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Hexachloroethane		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Nitrobenzene		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Isophorone		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Nitrophenol		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2,4-Dimethylphenol		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
bis(2-Chloroethoxy)methane		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2,4-Dichlorophenol		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2,4-Trichlorobenzene	650	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Naphthalene		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Chloroaniline		10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
Hexachlorobutadiene		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Chloro-3-methylphenol		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Methylnaphthalene		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Hexachlorocyclopentadiene		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2,4,6-Trichlorophenol	330	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2,4,5-Trichlorophenol	330	26	U	26	U	26	U	25	U	25	U	26	U	25	U	26	U	25	U
2-Chloronaphthalene		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Nitroaniline		26	U	26	U	26	U	25	U	25	U	26	U	25	U	26	U	25	U
Dimethylphthalate		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Acenaphthylene		10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
2,6-Dinitrotoluene		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U

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.

* - RQL exceeded

SEMIVOLATILE/DRO/GRO ANALYSIS, WATER MATRIX, (UG/L)

Project: WASHINGTON CLOSURE HANFORD																			
Laboratory: LLI	SDG: K0188																		
Sample Number		J112X3		J112X9		J112F9		J11250		J112C3		J112F6		J11247		J11238		J11232	
Remarks																			
Sample Date		2/1/06		2/1/06		2/1/06		2/1/06		2/1/06		2/1/06		2/1/06		1/29/06		1/29/06	
Extraction Date		2/5/06		2/5/06		2/5/06		2/5/06		2/5/06		2/5/06		2/5/06		2/5/06		2/5/06	
Analysis Date		2/8/06		2/9/06		2/9/06		2/9/06		2/9/06		2/9/06		2/9/06		2/8/06		2/8/06	
Semivolatile (8270C)	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
3-Nitroaniline		26	UJ	26	UJ	26	UJ	25	UJ	25	UJ	26	UJ	25	UJ	26	UJ	25	UJ
Acenaphthene		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2,4-Dinitrophenol		26	UJ	26	UJ	26	UJ	25	UJ	25	UJ	26	UJ	25	UJ	26	UJ	25	UJ
4-Nitrophenol		26	U	26	U	26	U	25	U	25	U	26	U	25	U	26	U	25	U
Dibenzofuran	330	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2,4-Dinitrotoluene		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Diethylphthalate		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Chlorophenyl-phenyl ether		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Fluorene		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Nitroaniline		26	U	26	U	26	U	25	U	25	U	26	U	25	U	26	U	25	U
4,6-Dinitro-2-methylphenol		26	U	26	U	26	U	25	U	25	U	26	U	25	U	26	U	25	U
N-Nitrosodiphenylamine		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Bromophenyl-phenyl ether		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Hexachlorobenzene		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Pentachlorophenol	330	26	U	26	U	26	U	25	U	25	U	26	U	25	U	26	U	25	U
Phenanthrene		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Anthracene		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Carbazole		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Di-n-butylphthalate		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Fluoranthene		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Pyrene		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Butylbenzylphthalate		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
3,3'-Dichlorobenzidine		10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
Benzo(a)anthracene		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chrysene		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
bis(2-Ethylhexyl)phthalate		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Di-n-octylphthalate		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Benzo(b)fluoranthene		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Benzo(k)fluoranthene		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Benzo(a)pyrene		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Indeno(1,2,3-cd)pyrene		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Dibenz(a,h)anthracene		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Benzo(g,h,i)perylene		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	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.

* - RQL exceeded

SEMIVOLATILE/DRO/GRO ANALYSIS, WATER MATRIX, (UG/L) Page__3__ of__5__

Project: WASHINGTON CLOSURE HANFORD																			
Laboratory: LLI	SDG: K0205																		
Sample Number		J11239		J11279		J11245													
Remarks																			
Sample Date		1/29/06		1/29/06		1/29/06													
Extraction Date		2/5/06		2/5/06		2/5/06													
Analysis Date		2/8/06		2/8/06		2/8/06													
Semivolatile (8270C)	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol		10	U	10	U	10	U												
bis(2-Chloroethyl)ether		10	U	10	U	10	U												
2-Chlorophenol		10	U	10	U	10	U												
1,3-Dichlorobenzene		10	U	10	U	10	U												
1,4-Dichlorobenzene		10	U	10	U	10	U												
1,2-Dichlorobenzene	650	10	U	10	U	10	U												
2-Methylphenol		10	U	10	U	10	U												
2,2'-oxybis(1-chloropropane)		10	U	10	U	10	U												
3 and/or 4-Methylphenol		10	U	10	U	10	U												
N-Nitroso-di-n-propylamine		10	U	10	U	10	U												
Hexachloroethane		10	U	10	U	10	U												
Nitrobenzene		10	U	10	U	10	U												
Isophorone		10	U	10	U	10	U												
2-Nitrophenol		10	U	10	U	10	U												
2,4-Dimethylphenol		10	U	10	U	10	U												
bis(2-Chloroethoxy)methane		10	U	10	U	10	U												
2,4-Dichlorophenol		10	U	10	U	10	U												
1,2,4-Trichlorobenzene	650	10	U	10	U	10	U												
Naphthalene		10	U	10	U	10	U												
4-Chloroaniline		10	UJ	10	UJ	10	UJ												
Hexachlorobutadiene		10	U	10	U	10	U												
4-Chloro-3-methylphenol		10	U	10	U	10	U												
2-Methylnaphthalene		10	U	10	U	10	U												
Hexachlorocyclopentadiene		10	U	10	U	10	U												
2,4,6-Trichlorophenol	330	10	U	10	U	10	U												
2,4,5-Trichlorophenol	330	25	U	25	U	26	U												
2-Chloronaphthalene		10	U	10	U	10	U												
2-Nitroaniline		25	U	25	U	26	U												
Dimethylphthalate		10	U	10	U	10	U												
Acenaphthylene		10	UJ	10	UJ	10	UJ												
2,6-Dinitrotoluene		10	U	10	U	10	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.

* - RQL exceeded

000014

SEMIVOLATILE/DRO/GRO ANALYSIS, WATER MATRIX, (UG/L)

Project: WASHINGTON CLOSURE HANFORD																			
Laboratory: LLI	SDG: K0205																		
Sample Number		J11239		J11279		J11245													
Remarks																			
Sample Date		1/29/06		1/29/06		1/29/06													
Extraction Date		2/5/06		2/5/06		2/5/06													
Analysis Date		2/8/06		2/8/06		2/8/06													
Semivolatile (8270C)	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
3-Nitroaniline		25	UJ	25	UJ	26	UJ												
Acenaphthene		10	U	10	U	10	U												
2,4-Dinitrophenol		25	UJ	25	UJ	26	UJ												
4-Nitrophenol		25	U	25	U	26	U												
Dibenzofuran	330	10	U	10	U	10	U												
2,4-Dinitrotoluene		10	U	10	U	10	U												
Diethylphthalate		10	U	10	U	10	U												
4-Chlorophenyl-phenyl ether		10	U	10	U	10	U												
Fluorene		10	U	10	U	10	U												
4-Nitroaniline		25	U	25	U	26	U												
4,6-Dinitro-2-methylphenol		25	U	25	U	26	U												
N-Nitrosodiphenylamine		10	U	10	U	10	U												
4-Bromophenyl-phenyl ether		10	U	10	U	10	U												
Hexachlorobenzene		10	U	10	U	10	U												
Pentachlorophenol	330	25	U	25	U	26	U												
Phenanthrene		10	U	10	U	10	U												
Anthracene		10	U	10	U	10	U												
Carbazole		10	U	10	U	10	U												
Di-n-butylphthalate		10	U	10	U	10	U												
Fluoranthene		10	U	10	U	10	U												
Pyrene		10	U	10	U	10	U												
Butylbenzylphthalate		10	U	10	U	10	U												
3,3'-Dichlorobenzidine		10	UJ	10	UJ	10	UJ												
Benzo(a)anthracene		10	U	10	U	10	U												
Chrysene		10	U	10	U	10	U												
bis(2-Ethylhexyl)phthalate		10	U	10	U	10	U												
Di-n-octylphthalate		10	U	10	U	10	U												
Benzo(b)fluoranthene		10	U	10	U	10	U												
Benzo(k)fluoranthene		10	U	10	U	10	U												
Benzo(a)pyrene		10	U	10	U	10	U												
Indeno(1,2,3-cd)pyrene		10	U	10	U	10	U												
Dibenz(a,h)anthracene		10	U	10	U	10	U												
Benzo(g,h,i)perylene		10	U	10	U	10	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.

* - RQL exceeded

SEMIVOLATILE/DRO/GRO ANALYSIS, WATER MATRIX, (UG/L)

Project: WASHINGTON CLOSURE HANFORD																			
Laboratory: LLI	SDG: K0205																		
Sample Number		J112X3		J112X9		J112F9		J11250		J112C3		J112F6		J11247		J11238		J11232	
Remarks																			
Sample Date		2/1/06		2/1/06		2/1/06		2/1/06		2/1/06		2/1/06		2/1/06		1/29/06		1/29/06	
Extraction Date		2/5/06		2/5/06		2/5/06		2/5/06		2/5/06		2/5/06		2/5/06		2/5/06		2/5/06	
Analysis Date		2/8/06		2/9/06		2/9/06		2/9/06		2/9/06		2/9/06		2/9/06		2/8/06		2/8/06	
TPH-D & TPH-G	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Gasoline Range Organics		30	U	30	U	30	U	30	UJ	30	UJ	30	UJ	30	UJ	30	U	30	U
Diesel Range Organics	500	101	U	200		103	U	101	U	102	U	101	U	101	U	102	U	103	U
Sample Number		J11239		J11279		J11245													
Remarks																			
Sample Date		1/29/06		1/29/06		1/29/06													
Extraction Date		2/5/06		2/5/06		2/5/06													
Analysis Date		2/8/06		2/8/06		2/8/06													
TPH-D & TPH-G	RQL	Result	Q	Result	Q	Result	Q												
Gasoline Range Organics		30	U	30	UJ	30	UJ												
Diesel Range Organics	500	104	U	101		101	U												

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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

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 02/16/06 16:59

RFW Batch Number: 0602L209 Client: TNUHANFORD RCS-048 K0205 Work Order: 11343606001 Page: 1a

	Cust ID:	J112X3		J112X3		J112X3		J112X9		J112X9		J112X9	
Sample Information	RFW#:	001		001 MS		001 MSD		002		002 MS		002 MSD	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Surrogate Recovery	Nitrobenzene-d5	80	%	64	%	54	%	72	%	57	%	51	%
	2-Fluorobiphenyl	70	%	71	%	66	%	60	%	71	%	66	%
	Terphenyl-d14	115	%	80	%	74	%	101	%	79	%	73	%
	Phenol-d5	88	%	81	%	83	%	78	%	85	%	77	%
	2-Fluorophenol	81	%	74	%	71	%	75	%	78	%	69	%
	2,4,6-Tribromophenol	91	%	85	%	81	%	80	%	90	%	88	%
			fl		fl		fl		fl		fl		fl
Phenol		10	U	91	%	96	%	10	U	99	%	89	%
bis(2-Chloroethyl)ether		10	U	86	%	88	%	10	U	93	%	83	%
2-Chlorophenol		10	U	88	%	86	%	10	U	94	%	84	%
1,3-Dichlorobenzene		10	U	65	%	63	%	10	U	65	%	66	%
1,4-Dichlorobenzene		10	U	66	%	64	%	10	U	64	%	65	%
1,2-Dichlorobenzene		10	U	71	%	70	%	10	U	70	%	71	%
2-Methylphenol		10	U	81	%	81	%	10	U	93	%	83	%
2,2'-oxybis(1-Chloropropane)		10	U	86	%	86	%	10	U	90	%	82	%
4-Methylphenol		10	U	93	%	96	%	10	U	102	%	92	%
N-Nitroso-di-n-propylamine		10	U	88	%	88	%	10	U	92	%	83	%
Hexachloroethane		10	U	60	%	59	%	10	U	61	%	63	%
Nitrobenzene		10	U	71	%	62	%	10	U	63	%	58	%
Isophorone		10	U	78	%	65	%	10	U	68	%	63	%
2-Nitrophenol		10	U	67	%	59	%	10	U	61	%	57	%
2,4-Dimethylphenol		10	U	70	%	64	%	10	U	57	%	53	%
bis(2-Chloroethoxy)methane		10	U	75	%	63	%	10	U	66	%	60	%
2,4-Dichlorophenol		10	U	74	%	62	%	10	U	65	%	61	%
1,2,4-Trichlorobenzene		10	U	60	%	50	%	10	U	54	%	52	%
Naphthalene		10	U	64	%	54	%	10	U	56	%	53	%
4-Chloroaniline		10	UJ	17 *	%	81	%	10	UJ	82	%	75	%
Hexachlorobutadiene		10	U	60	%	50	%	10	U	54	%	55	%
4-Chloro-3-methylphenol		10	U	78	%	66	%	10	U	72	%	68	%
2-Methylnaphthalene		10	U	71	%	59	%	10	U	62	%	59	%
Hexachlorocyclopentadiene		10	U	50	%	55	%	10	U	59	%	65	%
2,4,6-Trichlorophenol		10	U	103	%	104	%	10	U	104	%	98	%
2,4,5-Trichlorophenol		26	U	75	%	77	%	26	U	83	%	79	%

*= Outside of EPA CLP QC limits.

K 6/4/06

000017

000000009

Cust ID:	J112X3	J112X3	J112X3	J112X9	J112X9	J112X9
RFW#:	001	001 MS	001 MSD	002	002 MS	002 MSD
2-Chloronaphthalene	10 U	82 %	82 %	10 U	85 %	78 %
2-Nitroaniline	26 U	88 %	94 %	26 U	88 %	78 %
Dimethylphthalate	10 U	94 %	87 %	10 U	87 %	79 %
Acenaphthylene	10 U J	83 %	83 %	10 U J	84 %	75 %
2,6-Dinitrotoluene	10 U	94 %	90 %	10 U	88 %	78 %
3-Nitroaniline	26 U J	41 %	116 %	26 U J	104 %	91 %
Acenaphthene	10 U	84 %	83 %	10 U	83 %	75 %
2,4-Dinitrophenol	26 U J	88 %	58 %	26 U J	51 %	47 * %
4-Nitrophenol	26 U	101 %	105 %	26 U	86 %	75 %
Dibenzofuran	10 U	88 %	87 %	10 U	86 %	76 %
2,4-Dinitrotoluene	10 U	102 %	95 %	10 U	90 %	79 %
Diethylphthalate	10 U	96 %	86 %	10 U	85 %	77 %
4-Chlorophenyl-phenylether	10 U	89 %	85 %	10 U	85 %	76 %
Fluorene	10 U	89 %	85 %	10 U	84 %	74 %
4-Nitroaniline	26 U	87 %	102 * %	26 U	91 %	76 %
4,6-Dinitro-2-methylphenol	26 U	95 %	94 %	26 U	83 %	77 %
N-Nitrosodiphenylamine (1)	10 U	61 %	70 %	10 U	72 %	67 %
4-Bromophenyl-phenylether	10 U	76 %	74 %	10 U	77 %	73 %
Hexachlorobenzene	10 U	87 %	84 %	10 U	83 %	80 %
Pentachlorophenol	26 U	102 %	101 %	26 U	100 %	105 * %
Phenanthrene	10 U	89 %	86 %	10 U	86 %	78 %
Anthracene	10 U	89 %	87 %	10 U	87 %	79 %
Carbazole	10 U	93 %	93 %	10 U	88 %	77 %
Di-n-butylphthalate	10 U	89 %	79 %	10 U	80 %	74 %
Fluoranthene	10 U	97 %	90 %	10 U	82 %	73 %
Pyrene	10 U	84 %	82 %	10 U	89 %	81 %
Butylbenzylphthalate	10 U	91 %	84 %	10 U	92 %	83 %
3,3'-Dichlorobenzidine	10 U J	3 %	72 %	10 U J	68 %	65 %
Benzo(a)anthracene	10 U	92 %	88 %	10 U	87 %	79 %
Chrysene	10 U	91 %	88 %	10 U	85 %	78 %
bis(2-Ethylhexyl)phthalate	10 ~~1 JB~~ U	92 %	79 %	10 ~~1 JB~~ U	91 %	83 %
Di-n-octyl phthalate	10 U	96 %	79 %	10 U	98 %	89 %
Benzo(b)fluoranthene	10 U	95 %	83 %	10 U	86 %	80 %
Benzo(k)fluoranthene	10 U	92 %	89 %	10 U	87 %	82 %
Benzo(a)pyrene	10 U	87 %	83 %	10 U	83 %	79 %
Indeno(1,2,3-cd)pyrene	10 U	86 %	94 %	10 U	86 %	79 %
Dibenz(a,h)anthracene	10 U	86 %	94 %	10 U	86 %	75 %
Benzo(g,h,i)perylene	10 U	84 %	95 %	10 U	85 %	77 %

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

K 6/4/06

000018

000000010

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 02/16/06 16:59

RFW Batch Number: 0602L209 Client: TNUHANFORD RCS-048 K0205 Work Order: 11343606001 Page: 2a

	Cust ID:	J112F9		J11250		J112C3		J112F6		J11247		SBLKTL	
Sample Information	RFW#:	003		004		005		006		007		06LE0089-MB1	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Surrogate Recovery	Nitrobenzene-d5	73	%	53	%	58	%	80	%	66	%	68	%
	2-Fluorobiphenyl	63	%	46	%	50	%	70	%	56	%	60	%
	Terphenyl-d14	110	%	106	%	114	%	129	%	117	%	79	%
	Phenol-d5	73	%	63	%	68	%	79	%	76	%	67	%
	2-Fluorophenol	77	%	54	%	60	%	85	%	67	%	59	%
	2,4,6-Tribromophenol	81	%	71	%	81	%	90	%	85	%	55	%
		fl		fl		fl		fl		fl		fl	
Phenol		10	U	10	U	10	U	10	U	10	U	10	U
bis(2-Chloroethyl)ether		10	U	10	U	10	U	10	U	10	U	10	U
2-Chlorophenol		10	U	10	U	10	U	10	U	10	U	10	U
1,3-Dichlorobenzene		10	U	10	U	10	U	10	U	10	U	10	U
1,4-Dichlorobenzene		10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichlorobenzene		10	U	10	U	10	U	10	U	10	U	10	U
2-Methylphenol		10	U	10	U	10	U	10	U	10	U	10	U
2,2'-oxybis(1-Chloropropane)		10	U	10	U	10	U	10	U	10	U	10	U
4-Methylphenol		10	U	10	U	10	U	10	U	10	U	10	U
N-Nitroso-di-n-propylamine		10	U	10	U	10	U	10	U	10	U	10	U
Hexachloroethane		10	U	10	U	10	U	10	U	10	U	10	U
Nitrobenzene		10	U	10	U	10	U	10	U	10	U	10	U
Isophorone		10	U	10	U	10	U	10	U	10	U	10	U
2-Nitrophenol		10	U	10	U	10	U	10	U	10	U	10	U
2,4-Dimethylphenol		10	U	10	U	10	U	10	U	10	U	10	U
bis(2-Chloroethoxy)methane		10	U	10	U	10	U	10	U	10	U	10	U
2,4-Dichlorophenol		10	U	10	U	10	U	10	U	10	U	10	U
1,2,4-Trichlorobenzene		10	U	10	U	10	U	10	U	10	U	10	U
Naphthalene		10	U	10	U	10	U	10	U	10	U	10	U
4-Chloroaniline		10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	U
Hexachlorobutadiene		10	U	10	U	10	U	10	U	10	U	10	U
4-Chloro-3-methylphenol		10	U	10	U	10	U	10	U	10	U	10	U
2-Methylnaphthalene		10	U	10	U	10	U	10	U	10	U	10	U
Hexachlorocyclopentadiene		10	U	10	U	10	U	10	U	10	U	10	U
2,4,6-Trichlorophenol		10	U	10	U	10	U	10	U	10	U	10	U
2,4,5-Trichlorophenol		26	U	25	U	25	U	26	U	25	U	25	U

*= Outside of EPA CLP QC limits.

4/4/06

000019

0000000011

RFW Batch Number: 06UZL209

Cust ID:	J112F9		J11250		J112C3		J112F6		J11247		SBLKTL	
RFW#:	003		004		005		006		007		06LE0089-MB1	
2-Chloronaphthalene	10	U	10	U	10	U	10	U	10	U	10	U
2-Nitroaniline	26	U	25	U	25	U	26	U	25	U	25	U
Dimethylphthalate	10	U	10	U	10	U	10	U	10	U	10	U
Acenaphthylene	10	U J	10	U J	10	U J	10	U J	10	U J	10	U
2,6-Dinitrotoluene	10	U	10	U	10	U	10	U	10	U	10	U
3-Nitroaniline	26	U J	25	U J	25	U J	26	U J	25	U J	25	U
Acenaphthene	10	U	10	U	10	U	10	U	10	U	10	U
2,4-Dinitrophenol	26	U J	25	U J	25	U J	26	U J	25	U J	25	U
4-Nitrophenol	26	U	25	U	25	U	26	U	25	U	25	U
Dibenzofuran	10	U	10	U	10	U	10	U	10	U	10	U
2,4-Dinitrotoluene	10	U	10	U	10	U	10	U	10	U	10	U
Diethylphthalate	10	U	10	U	10	U	10	U	10	U	10	U
4-Chlorophenyl-phenylether	10	U	10	U	10	U	10	U	10	U	10	U
Fluorene	10	U	10	U	10	U	10	U	10	U	10	U
4-Nitroaniline	26	U	25	U	25	U	26	U	25	U	25	U
4,6-Dinitro-2-methylphenol	26	U	25	U	25	U	26	U	25	U	25	U
N-Nitrosodiphenylamine (1)	10	U	10	U	10	U	10	U	10	U	10	U
4-Bromophenyl-phenylether	10	U	10	U	10	U	10	U	10	U	10	U
Hexachlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U
Pentachlorophenol	26	U	25	U	25	U	26	U	25	U	25	U
Phenanthrene	10	U	10	U	10	U	10	U	10	U	10	U
Anthracene	10	U	10	U	10	U	10	U	10	U	10	U
Carbazole	10	U	10	U	10	U	10	U	10	U	10	U
Di-n-butylphthalate	10	U	10	U	0.5	J	10	U	10	U	10	U
Fluoranthene	10	U	10	U	10	U	10	U	10	U	10	U
Pyrene	10	U	10	U	10	U	10	U	10	U	10	U
Butylbenzylphthalate	10	U	10	U	10	U	10	U	10	U	10	U
3,3'-Dichlorobenzidine	10	U J	10	U J	10	U J	10	U J	10	U J	10	U
Benzo(a)anthracene	10	U	10	U	10	U	10	U	10	U	10	U
Chrysene	10	U	10	U	10	U	10	U	10	U	10	U
bis(2-Ethylhexyl)phthalate	10 ~~0.6~~ 6/14/06 ~~JB~~	U	10 ~~2~~ 6/14/06 ~~JB~~	U	10 ~~2~~ 6/14/06 ~~JB~~	U	10 ~~1~~ 6/14/06 ~~JB~~	U	10 ~~1~~ 6/14/06 ~~JB~~	U	0.6	J
Di-n-octyl phthalate	10	U	10	U	10	U	10	U	10	U	10	U
Benzo(b)fluoranthene	10	U	10	U	10	U	10	U	10	U	10	U
Benzo(k)fluoranthene	10	U	10	U	10	U	10	U	10	U	10	U
Benzo(a)pyrene	10	U	10	U	10	U	10	U	10	U	10	U
Indeno(1,2,3-cd)pyrene	10	U	10	U	10	U	10	U	10	U	10	U
Dibenz(a,h)anthracene	10	U	10	U	10	U	10	U	10	U	10	U
Benzo(g,h,i)perylene	10	U	10	U	10	U	10	U	10	U	10	U

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

6/4/06

000020

000000012

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

RFW Batch Number: 0602L209 Client: TNUHANFORD RCS-048 K0205 Work Order: 11343606001 Report Date: 02/16/06 16:59 Page: 3a

	Cust ID:	SBLKTL BS	SBLKTL BSD	SBLKTP	SBLKTP BS	SBLKTP BSD	J11238
Sample Information	RFW#:	06LE0089-MB1	06LE0089-MB1	06LE0102-MB1	06LE0102-MB1	06LE0102-MB1	184-001
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Surrogate Recovery	Nitrobenzene-d5	80 %	81 %	61 %	53 %	91 %	73 %
	2-Fluorobiphenyl	73 %	73 %	52 %	63 %	85 %	65 %
	Terphenyl-d14	89 %	83 %	95 %	74 %	92 %	82 %
	Phenol-d5	56 %	84 %	65 %	77 %	94 %	71 %
	2-Fluorophenol	72 %	78 %	57 %	70 %	95 %	63 %
	2,4,6-Tribromophenol	75 %	73 %	71 %	85 %	111 %	63 %
Phenol		84 %	94 %	10 U	85 %	108 %	10 U
bis(2-Chloroethyl)ether		88 %	98 %	10 U	80 %	101 %	10 U
2-Chlorophenol		84 %	90 %	10 U	81 %	104 %	10 U
1,3-Dichlorobenzene		66 %	70 %	10 U	57 %	81 %	10 U
1,4-Dichlorobenzene		67 %	70 %	10 U	56 %	80 %	10 U
1,2-Dichlorobenzene		70 %	73 %	10 U	60 %	86 %	10 U
2-Methylphenol		83 %	89 %	10 U	81 %	101 %	10 U
2,2'-oxybis(1-Chloropropane)		90 %	95 %	10 U	76 %	98 %	10 U
4-Methylphenol		89 %	94 %	10 U	88 %	111 * %	10 U
N-Nitroso-di-n-propylamine		82 %	86 %	10 U	79 %	95 %	10 U
Hexachloroethane		65 %	65 %	10 U	53 %	75 %	10 U
Nitrobenzene		83 %	84 %	10 U	55 %	96 %	10 U
Isophorone		90 %	95 %	10 U	60 %	102 %	10 U
2-Nitrophenol		81 %	82 %	10 U	55 %	96 %	10 U
2,4-Dimethylphenol		85 %	83 %	10 U	58 %	102 %	10 U
bis(2-Chloroethoxy)methane		25 %	82 %	10 U	58 %	98 %	10 U
2,4-Dichlorophenol		79 %	77 %	10 U	59 * %	102 %	10 U
1,2,4-Trichlorobenzene		66 %	65 %	10 U	47 %	88 %	10 U
Naphthalene		73 %	72 %	10 U	49 * %	88 %	10 U
4-Chloroaniline		5 * %	21 %	10 U	70 %	86 %	10 U J
Hexachlorobutadiene		62 %	61 %	10 U	47 %	93 %	10 U
4-Chloro-3-methylphenol		84 %	83 %	10 U	64 %	108 %	10 U
2-Methylnaphthalene		78 %	76 %	10 U	55 %	95 %	10 U
Hexachlorocyclopentadiene		58 %	56 %	10 U	52 %	72 %	10 U
2,4,6-Trichlorophenol		76 %	75 %	10 U	94 %	124 * %	10 U
2,4,5-Trichlorophenol		76 %	72 %	25 U	74 %	99 %	26 U

*= Outside of EPA CLP QC limits.

R 6/4/06

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000000013

RFW Batch Number: 0602L209 Client: TNOHANFORD RCS-048 K0205 Work Order: 11343606001 Page: 3b

Cust ID:	SBLKTL BS	SBLKTL BSD	SBLKTP	SBLKTP BS	SBLKTP BSD	J11238
RFW#:	06LE0089-MB1	06LE0089-MB1	06LE0102-MB1	06LE0102-MB1	06LE0102-MB1	184-001
2-Chloronaphthalene	76 %	75 %	10 U	74 %	97 %	10 U
2-Nitroaniline	87 %	90 %	25 U	76 %	96 %	26 U
Dimethylphthalate	83 %	83 %	10 U	76 %	97 %	10 U
Acenaphthylene	47 * %	75 %	10 U	72 %	91 %	10 U J
2,6-Dinitrotoluene	83 %	83 %	10 U	76 %	96 %	10 U
3-Nitroaniline	7 * %	30 %	25 U	89 %	87 %	26 U J
Acenaphthene	74 %	74 %	10 U	72 %	93 %	10 U
2,4-Dinitrophenol	106 %	95 %	25 U	47 * %	96 %	26 U J
4-Nitrophenol	90 %	91 %	25 U	72 %	93 %	26 U
Dibenzofuran	76 %	74 %	10 U	74 %	95 %	10 U
2,4-Dinitrotoluene	85 %	83 %	10 U	77 %	97 %	10 U
Diethylphthalate	81 %	82 %	10 U	73 %	94 %	10 U
4-Chlorophenyl-phenylether	77 %	75 %	10 U	73 %	95 %	10 U
Fluorene	88 %	85 %	10 U	72 %	92 %	10 U
4-Nitroaniline	19 %	79 %	25 U	76 %	93 %	26 U
4,6-Dinitro-2-methylphenol	105 %	98 %	25 U	73 %	99 %	26 U
N-Nitrosodiphenylamine (1)	36 %	58 %	10 U	57 %	58 %	10 U
4-Bromophenyl-phenylether	72 %	70 %	10 U	68 %	89 %	10 U
Hexachlorobenzene	73 %	71 %	10 U	75 %	97 %	10 U
Pentachlorophenol	97 %	91 %	25 U	92 %	139 * %	26 U
Phenanthrene	82 %	80 %	10 U	74 %	96 %	10 U
Anthracene	81 %	80 %	10 U	75 %	96 %	10 U
Carbazole	49 %	83 %	10 U	75 %	96 %	10 U
Di-n-butylphthalate	82 %	81 %	10 U	73 %	94 %	10 U
Fluoranthene	83 %	82 %	10 U	72 %	94 %	10 U
Pyrene	83 %	84 %	10 U	76 %	97 %	10 U
Butylbenzylphthalate	76 %	89 %	10 U	80 %	104 %	10 U
3,3'-Dichlorobenzidine	0 %	2 %	10 U	41 %	51 %	10 U J
Benzo(a)anthracene	89 %	86 %	10 U	77 %	99 %	10 U
Chrysene	89 %	86 %	10 U	75 %	97 %	10 U
bis(2-Ethylhexyl)phthalate	91 %	87 %	2 J	78 %	102 %	10 U
Di-n-octyl phthalate	159 * %	100 %	10 U	82 %	107 %	10 U
Benzo(b)fluoranthene	155 * %	103 %	10 U	77 %	101 %	10 U
Benzo(k)fluoranthene	154 * %	95 %	10 U	77 %	98 %	10 U
Benzo(a)pyrene	127 %	95 %	10 U	73 %	95 %	10 U
Indeno(1,2,3-cd)pyrene	149 * %	103 %	10 U	77 %	104 %	10 U
Dibenz(a,h)anthracene	160 * %	105 %	10 U	72 %	98 %	10 U
Benzo(g,h,i)perylene	134 %	98 %	10 U	76 %	105 %	10 U

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

6/4/06

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Semivolatiles by GC/MS, HSL List

Report Date: 02/16/06 16:59

RFW Batch Number: 0602L209 Client: TNUHANFORD RCS-048 K0205 Work Order: 11343606001 Page: 4a

	Cust ID:	J11232		J11239		J11279		J11245	
Sample Information	RFW#:	184-002		184-003		184-004		184-005	
	Matrix:	WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00	
	Units:	ug/L		ug/L		ug/L		ug/L	
Surrogate Recovery	Nitrobenzene-d5	56	%	65	%	74	%	64	%
	2-Fluorobiphenyl	50	%	59	%	62	%	56	%
	Terphenyl-d14	66	%	81	%	80	%	110	%
	Phenol-d5	46	%	56	%	66	%	48	%
	2-Fluorophenol	47	%	53	%	60	%	66	%
	2,4,6-Tribromophenol	57	%	69	%	72	%	80	%
Phenol		0.7	J	10	U	10	U	10	U
bis(2-Chloroethyl)ether		10	U	10	U	10	U	10	U
2-Chlorophenol		10	U	10	U	10	U	10	U
1,3-Dichlorobenzene		10	U	10	U	10	U	10	U
1,4-Dichlorobenzene		10	U	10	U	10	U	10	U
1,2-Dichlorobenzene		10	U	10	U	10	U	10	U
2-Methylphenol		10	U	10	U	10	U	10	U
2,2'-oxybis(1-Chloropropane)		10	U	10	U	10	U	10	U
4-Methylphenol		10	U	10	U	10	U	10	U
N-Nitroso-di-n-propylamine		10	U	10	U	10	U	10	U
Hexachloroethane		10	U	10	U	10	U	10	U
Nitrobenzene		10	U	10	U	10	U	10	U
Isophorone		10	U	10	U	10	U	10	U
2-Nitrophenol		10	U	10	U	10	U	10	U
2,4-Dimethylphenol		10	U	10	U	10	U	10	U
bis(2-Chloroethoxy)methane		10	U	10	U	10	U	10	U
2,4-Dichlorophenol		10	U	10	U	10	U	10	U
1,2,4-Trichlorobenzene		10	U	10	U	10	U	10	U
Naphthalene		10	U	10	U	10	U	10	U
4-Chloroaniline		10	UJ	10	UJ	10	UJ	10	UJ
Hexachlorobutadiene		10	U	10	U	10	U	10	U
4-Chloro-3-methylphenol		10	U	10	U	10	U	10	U
2-Methylnaphthalene		10	U	10	U	10	U	10	U
Hexachlorocyclopentadiene		10	U	10	U	10	U	10	U
2,4,6-Trichlorophenol		10	U	10	U	10	U	10	U
2,4,5-Trichlorophenol		25	U	25	U	25	U	26	U

*= Outside of EPA CLP QC limits.

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Cust ID:	J11232		J11239		J11279		J11245	
RFW#:	184-002		184-003		184-004		184-005	
2-Chloronaphthalene	10	U	10	U	10	U	10	U
2-Nitroaniline	25	U	25	U	25	U	26	U
Dimethylphthalate	10	U	10	U	10	U	10	U
Acenaphthylene	10	UJ	10	UJ	10	UJ	10	UJ
2,6-Dinitrotoluene	10	U	10	U	10	U	10	U
3-Nitroaniline	25	UJ	25	UJ	25	UJ	26	UJ
Acenaphthene	10	U	10	U	10	U	10	U
2,4-Dinitrophenol	25	UJ	25	UJ	25	UJ	26	UJ
4-Nitrophenol	25	U	25	U	25	U	26	U
Dibenzofuran	10	U	10	U	10	U	10	U
2,4-Dinitrotoluene	10	U	10	U	10	U	10	U
Diethylphthalate	10	U	10	U	10	U	10	U
4-Chlorophenyl-phenylether	10	U	10	U	10	U	10	U
Fluorene	10	U	10	U	10	U	10	U
4-Nitroaniline	25	U	25	U	25	U	26	U
4,6-Dinitro-2-methylphenol	25	U	25	U	25	U	26	U
N-Nitrosodiphenylamine (1)	10	U	10	U	10	U	10	U
4-Bromophenyl-phenylether	10	U	10	U	10	U	10	U
Hexachlorobenzene	10	U	10	U	10	U	10	U
Pentachlorophenol	25	U	25	U	25	U	26	U
Phenanthrene	10	U	10	U	10	U	10	U
Anthracene	10	U	10	U	10	U	10	U
Carbazole	10	U	10	U	10	U	10	U
Di-n-butylphthalate	10	U	10	U	10	U	10	U
Fluoranthene	10	U	10	U	10	U	10	U
Pyrene	10	U	10	U	10	U	10	U
Butylbenzylphthalate	10	U	10	U	10	U	10	U
3,3'-Dichlorobenzidine	10	UJ	10	UJ	10	UJ	10	UJ
Benzo(a)anthracene	10	U	10	U	10	U	10	U
Chrysene	10	U	10	U	10	U	10	U
bis(2-Ethylhexyl)phthalate	10 ~~1 JB~~ 6/14/06	U	10 ~~1 JB~~ 6/14/06	U	10 ~~0.7 JB~~ 6/14/06	U	10 ~~0.9 JB~~ 6/14/06	U
Di-n-octyl phthalate	10	U	10	U	10	U	10	U
Benzo(b)fluoranthene	10	U	10	U	10	U	10	U
Benzo(k)fluoranthene	10	U	10	U	10	U	10	U
Benzo(a)pyrene	10	U	10	U	10	U	10	U
Indeno(1,2,3-cd)pyrene	10	U	10	U	10	U	10	U
Dibenz(a,h)anthracene	10	U	10	U	10	U	10	U
Benzo(g,h,i)perylene	10	U	10	U	10	U	10	U

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

6/14/06

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Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

Report Date: 02/18/06 15:34

RFW Batch Number: 0601L184 Client: TNUHANFORD RCS-048 K0205 Work Order: 11343606001 Page: 1

	Cust ID:	J11238	J11232	J11239	J11279	J11245	BLK
Sample Information	RFW#:	001	002	003	004	005	06LE0087-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	p-Terphenyl	79 %	61 %	71 %	69 %	60 %	74 %
Diesel Range Organics		102 U	103 U	104 U	101 U	101 U	100 U

	Cust ID:	BLK BS	BLK BSD
Sample Information	RFW#:	06LE0087-MB1	06LE0087-MB1
	Matrix:	WATER	WATER
	D.F.:	1.00	1.00
	Units:	ug/L	ug/L
	p-Terphenyl	50 %	41 %
Diesel Range Organics		57 %	57 %

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

6/4/06

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DIESEL RANGE ORGANICS BY GC

Report Date: 03/03/06 16:15

RFW Batch Number: 0602L209 Client: TNUHANFORD RCS-048 K0205 Work Order: 11343606001 Page: 1

	Cust ID:	J112X3	J112X3	J112X3	J112X9	J112X9	J112X9
Sample Information	RFW#:	001	001 MS	001 MSD	002	002 MS	002 MSD
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	p-Terphenyl	66 %	83 %	86 %	77 %	59 %	58 %
Diesel Range Organics		101 U	83 %	77 %	200	52 %	46 %

	Cust ID:	J112F9	J11250	J112C3	J112F6	J11247	BLK
Sample Information	RFW#:	003	004	005	006	007	06LE0087-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	p-Terphenyl	84 %	76 %	64 %	74 %	65 %	74 %
Diesel Range Organics		103 U	101 U	102 U	101 U	101 U	100 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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3/3/06

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DIESEL RANGE ORGANICS BY GC

Report Date: 03/03/06 16:15

RFW Batch Number: 0602L209 Client: TNUHANFORD RCS-048 K0205 Work Order: 11343606001 Page: 2

	Cust ID:	BLK BS	BLK BSD
Sample Information	RFW#:	06LE0087-MB1	06LE0087-MB1
	Matrix:	WATER	WATER
	D.F.:	1.00	1.00
	Units:	ug/L	ug/L
	p-Terphenyl	50 %	41 %
Diesel Range Organics		57 %	57 %

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.

6/4/06

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Lionville Laboratory, Inc.
GAS RANGE ORGANICS

Report Date: 02/09/06 13:39

RFW Batch Number: 0601L184 Client: TNUHANFORD RCS-048 K0205 Work Order: 11343606001 Page: 1

	Cust ID:	J11238	J11238	J11238	J11232	J11239	J11279
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
	Fluorobenzene	83 %	90 %	83 %	84 %	85 %	84 %
		fl	fl	fl	fl	fl	fl
Gasoline Range Organics (GRO)		30 U	101 %	86 %	30 U	30 U	30 UJ

	Cust ID:	J11245	TBLKXU	TBLKXU BS	TBLKXV	TBLKXV BS	TBLKXV BSD
Sample Information	RFW#:	005	06LVJ201-MB1	06LVJ201-MB1	06LVJ202-MB1	06LVJ202-MB1	06LVJ202-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
	Fluorobenzene	85 %	86 %	89 %	87 %	91 %	93 %
		fl	fl	fl	fl	fl	fl
Gasoline Range Organics (GRO)		30 UJ	30 U	103 %	30 U	101 %	101 %

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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Lionville Laboratory, Inc.
GAS RANGE ORGANICS

Report Date: 02/18/06 15:12

RFW Batch Number: 0602L209 Client: TNUHANFORD RCS-048 K0205 Work Order: 11343606001 Page: 1

	Cust ID:	J112X3	J112X3	J112X3	J112X9	J112X9	J112X9
Sample Information	RFW#:	001	001 MS	001 MSD	002	002 MS	002 MSD
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Fluorobenzene		86 %	90 %	90 %	85 %	89 %	90 %
Gasoline Range Organics (GRO)		30 U	102 %	101 %	30 U	99 %	101 %

	Cust ID:	J112F9	J11250	J112C3	J112F6	J11247	TBLKXW
Sample Information	RFW#:	003	004	005	006	007	06LVJ207-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Fluorobenzene		86 %	88 %	86 %	86 %	85 %	87 %
Gasoline Range Organics (GRO)		30 U	30 UJ	30 UJ	30 UJ	30 UJ	30 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

4/4/06

2/21/06

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Lionville Laboratory, Inc.
GAS RANGE ORGANICS

Report Date: 02/18/06 15:12

RFW Batch Number: 0602L209 Client: TNUHANFORD RCS-048 K0205 Work Order: 11343606001 Page: 2

	Cust ID:	TBLKXW BS	TBLKYB	TBLKYB BS	TBLKYB BSD
Sample Information	RFW#:	06LVJ207-MB1	06LVJ208-MB1	06LVJ208-MB1	06LVJ208-MB1
	Matrix:	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L
Fluorobenzene		90 %	87 %	79 %	93 %
Gasoline Range Organics (GRO)		100 %	30 U	87 %	101 %

6/4/06

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

2/21/06

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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RCS-048
LVL #: 0601L184 and 0602L209
SDG/SAF # K0205/RCS-048

W.O. #: 11343-606-001-9999-00
Date Received: 01-31-2006 & 02-03-2006

SEMIVOLATILE

Twelve (12) water samples were collected on 01-29-2006 and 02-01-2006.

The samples and their associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3520C on 02-05,08-2006 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 02-08,09,13-2006.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. Samples were extracted and analyzed within required holding time.
3. Non-target compounds were detected in the samples.
4. All surrogate recoveries were within acceptance criteria.
5. Four (4) of two hundred fifty-six (256) matrix spike recoveries were outside acceptance criteria.

   Fourteen (14) of two hundred fifty-six (256) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Reports (SDR) has been enclosed.
6. The method blanks contained the common laboratory contaminant Bis (2-Ethylhexyl) phthalate at levels less than the CRQL.
7. Internal standard area and retention time criteria were met.
8. 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").
9. 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.
10. I certify, that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data, contained in this hard-copy data package, has been authorized, by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

2/17/06
Date

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som\gorup\data\bna\tnu-hanford\0601-184 & 0602-209.doc
The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 5 8 pages.

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 06MSU48

Initiator: Sharon Saylor
Date: 06OIL184 2-9-06
Client: TAM

Batch: 06OIL 184
Samples: BS BSD
Method: SW846/MCAWW/CLP/

Parameter: 8270
Matrix: Aqueous
Prep Batch: 06LE0089

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)

<10% recovery of 4-chloroaniline, 3-nitroaniline + 3,3'dichlorobenzidine in blankspike &

<10% recovery of 3,3'-dichlorobenzidine in the blankspike dup

2. Known or Probable Causes(s)

loss during 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:

narrate

4. Project Manager Instructions...signature/date: [signature] 2/17/06
__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
__ Include in Case Narrative
__ Client Contacted:
Date/Person _____
__ Add
__ Cancel

Not likely the chloroanilines and benzidines exhibit erratic chromatography behavior due to their polarity

5. Final Action...signature/date: [signature] 2/17/06
__ 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.

[signature] 2-17

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	✓	X MS: Rychlak/Daley
__	__ Sample Prep: Beegle/Kiger	__	__ Log-In: Perry
		__	__ Admin: _____
		__	__ Other: _____

QA-105-A-0805

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 06MS052

Initiator: Sharon Saylor
Date: 2-10-06
Client: TMU

Batch: 0602L209
Samples: MS + BS
Method: SW846/MCAWW/CLP/

Parameter: 8270
Matrix: Aqueous
Prep Batch: 06LE0089

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 recovery of several analytes in the matrix spike and blank spike but matrix spike dup and blank spike dup are ok

2. Known or Probable Causes(s)

loss during extraction

3. Discussion and Proposed Action Other Description:

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

narrate

4. Project Manager Instructions...signature/date: 2/17/06

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

Not likely all compounds that are easily lost during extraction and concentration

5. Final Action...signature/date: 2/17/06 Other Explanation:

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

recovered very well
2-chloroaniline and 4-chloroaniline exhibit erratic behavior due to their polarity
CARTER NOLTE

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	✓	X MS: Rychlak/Daley
__	__ Data Management: Stilwell	__	__ Log-in: Perry
__	__ Sample Prep: Beegle/Kiger	__	__ Admin: _____
		__	__ Other: _____

QA-105-A-0805

2/17/06

000000005

RECEIVED
MAR 2006

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RCS-048 K0205

DATE RECEIVED: 01/31/06 LVL LOT # :0601L184

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J11238	001	W	06LE0089	01/29/06	02/05/06	02/08/06
J11232	002	W	06LE0089	01/29/06	02/05/06	02/08/06
J11239	003	W	06LE0089	01/29/06	02/05/06	02/08/06
J11279	004	W	06LE0089	01/29/06	02/05/06	02/08/06
J11245	005	W	06LE0089	01/29/06	02/05/06	02/08/06
LAB QC:						
SBLKTL	MB1	W	06LE0089	N/A	02/05/06	02/08/06
SBLKTL	MB1 BS	W	06LE0089	N/A	02/05/06	02/08/06
SBLKTL	MB1 BSD	W	06LE0089	N/A	02/05/06	02/08/06

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RCS-048 K0205

DATE RECEIVED: 02/03/06 LVL LOT # :0602L209

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J112X3	001	W	06LE0089	02/01/06	02/05/06	02/08/06
J112X3	001 MS	W	06LE0089	02/01/06	02/05/06	02/08/06
J112X3	001 MSD	W	06LE0089	02/01/06	02/05/06	02/09/06
J112X9	002	W	06LE0089	02/01/06	02/05/06	02/09/06
J112X9	002 MS	W	06LE0102	02/01/06	02/08/06	02/13/06
J112X9	002 MSD	W	06LE0102	02/01/06	02/08/06	02/13/06
J112F9	003	W	06LE0089	02/01/06	02/05/06	02/09/06
J11250	004	W	06LE0089	02/01/06	02/05/06	02/09/06
J112C3	005	W	06LE0089	02/01/06	02/05/06	02/09/06
J112F6	006	W	06LE0089	02/01/06	02/05/06	02/09/06
J11247	007	W	06LE0089	02/01/06	02/05/06	02/09/06
LAB QC:						
SBLKTL	MB1	W	06LE0089	N/A	02/05/06	02/08/06
SBLKTL	MB1 BS	W	06LE0089	N/A	02/05/06	02/08/06
SBLKTL	MB1 BSD	W	06LE0089	N/A	02/05/06	02/08/06
SBLKTP	MB1	W	06LE0102	N/A	02/08/06	02/13/06
SBLKTP	MB1 BS	W	06LE0102	N/A	02/08/06	02/13/06
SBLKTP	MB1 BSD	W	06LE0102	N/A	02/08/06	02/13/06

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RCS-048
LVL #: 0601L184 and 0602L209
SDG/SAF # K0205/RCS-048

W.O. #: 11343-606-001-9999-00
Date Received: 01-31-2006
03-03-2006

DIESEL RANGE ORGANICS

Twelve (12) water samples were collected on 01-29-2006 and 02-01-2006.

The samples and their associated QC samples were extracted on 02-05-2006 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedure on 02-07,08-2006 and 03-03-2006. The analysis was based on method 8015B. The analysis met the intent of method WTPH-D.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.

2. Samples were extracted and analyzed within required holding time.

3. The method blanks were below the reporting limit for the target compound.

4. All surrogate recoveries were within acceptance criteria.

5. The blank spike recoveries were within acceptance criteria.

6. All matrix spike recoveries were within acceptance criteria.

7. All initial calibrations associated with this data set were within acceptance criteria.

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

9. 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.

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 3 6 pages.

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

LIONVILLE LABORATORY INC.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

3/7/6
Date

som\r:\group\data\dro\tnu hanford\0601-184-209.doc

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Lionville Laboratory, Inc.
DRO ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RCS-048 K0205

RECEIVED 2006

DATE RECEIVED: 01/31/06 LVL LOT # :0601L184

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J11238	001	W	06LE0087	01/29/06	02/05/06	02/07/06
J11232	002	W	06LE0087	01/29/06	02/05/06	02/07/06
J11239	003	W	06LE0087	01/29/06	02/05/06	02/07/06
J11279	004	W	06LE0087	01/29/06	02/05/06	02/08/06
J11245	005	W	06LE0087	01/29/06	02/05/06	02/08/06
LAB QC:						
BLK	MB1	W	06LE0087	N/A	02/05/06	02/07/06
BLK	MB1 BS	W	06LE0087	N/A	02/05/06	02/07/06
BLK	MB1 BSD	W	06LE0087	N/A	02/05/06	02/07/06

Lionville Laboratory, Inc.
DRO ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RCS-048 K0205

DATE RECEIVED: 02/03/06 LVL LOT # :0602L209

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J112X3	001	W	06LE0087	02/01/06	02/05/06	02/08/06
J112X3	001 MS	W	06LE0087	02/01/06	02/05/06	03/03/06
J112X3	001 MSD	W	06LE0087	02/01/06	02/05/06	03/03/06
J112X9	002	W	06LE0087	02/01/06	02/05/06	02/08/06
J112X9	002 MS	W	06LE0087	02/01/06	02/05/06	02/08/06
J112X9	002 MSD	W	06LE0087	02/01/06	02/05/06	02/08/06
J112F9	003	W	06LE0087	02/01/06	02/05/06	02/08/06
J11250	004	W	06LE0087	02/01/06	02/05/06	02/08/06
J112C3	005	W	06LE0087	02/01/06	02/05/06	02/08/06
J112F6	006	W	06LE0087	02/01/06	02/05/06	02/08/06
J11247	007	W	06LE0087	02/01/06	02/05/06	02/08/06

LAB QC:

BLK	MB1	W	06LE0087	N/A	02/05/06	02/07/06
BLK	MB1 BS	W	06LE0087	N/A	02/05/06	02/07/06
BLK	MB1 BSD	W	06LE0087	N/A	02/05/06	02/07/06

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RCS-048
LVL #: 0601L184 and 0602L209
SDG/SAF # K0205/RCS-048

W.O. #: 11343-606-001-9999-00
Date Received: 01-31-2006 & 02-03-2006

GRO

Twelve (12) water samples were collected on 01-29-2006 and 02-01-2006.

The samples and their associated QC samples were analyzed according to Lionville Laboratory SOPs based on SW-846 method 8015B for Gasoline Range Organics (GRO) on 02-01,02,07,08-2006.

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

2/22/06
Date

somr\group\data\gro\tnu-hanford\0601-184 & 0602-209.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 3 5 pages.

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~~000000197~~ 2 wk 2-22-

RECEIVED
MAR 2006

Lionville Laboratory, Inc.
GRO ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RCS-048 K0205

DATE RECEIVED: 01/31/06 LVL LOT # :0601L184

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J11238	001	W	06LVJ201	01/29/06	N/A	02/01/06
J11238	001 MS	W	06LVJ201	01/29/06	N/A	02/01/06
J11238	001 MSD	W	06LVJ201	01/29/06	N/A	02/01/06
J11232	002	W	06LVJ201	01/29/06	N/A	02/01/06
J11239	003	W	06LVJ201	01/29/06	N/A	02/01/06
J11279	004	W	06LVJ202	01/29/06	N/A	02/02/06
J11245	005	W	06LVJ202	01/29/06	N/A	02/02/06
LAB QC:						
TBLKXU	MB1	W	06LVJ201	N/A	N/A	02/01/06
TBLKXU	MB1 BS	W	06LVJ201	N/A	N/A	02/01/06
TBLKXV	MB1	W	06LVJ202	N/A	N/A	02/02/06
TBLKXV	MB1 BS	W	06LVJ202	N/A	N/A	02/02/06
TBLKXV	MB1 BSD	W	06LVJ202	N/A	N/A	02/02/06

2/5/6

Lionville Laboratory, Inc.
GRO ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RCS-048 K0205

DATE RECEIVED: 02/03/06 LVL LOT # :0602L209

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J112X3	001	W	06LVJ207	02/01/06	N/A	02/07/06
J112X3	001 MS	W	06LVJ207	02/01/06	N/A	02/07/06
J112X3	001 MSD	W	06LVJ207	02/01/06	N/A	02/07/06
J112X9	002	W	06LVJ207	02/01/06	N/A	02/07/06
J112X9	002 MS	W	06LVJ207	02/01/06	N/A	02/07/06
J112X9	002 MSD	W	06LVJ207	02/01/06	N/A	02/07/06
J112F9	003	W	06LVJ207	02/01/06	N/A	02/07/06
J11250	004	W	06LVJ208	02/01/06	N/A	02/08/06
J112C3	005	W	06LVJ208	02/01/06	N/A	02/08/06
J112F6	006	W	06LVJ208	02/01/06	N/A	02/08/06
J11247	007	W	06LVJ208	02/01/06	N/A	02/08/06
LAB QC:						
TBLKXW	MB1	W	06LVJ207	N/A	N/A	02/07/06
TBLKXW	MB1 BS	W	06LVJ207	N/A	N/A	02/07/06
TBLKYB	MB1	W	06LVJ208	N/A	N/A	02/08/06
TBLKYB	MB1 BS	W	06LVJ208	N/A	N/A	02/08/06
TBLKYB	MB1 BSD	W	06LVJ208	N/A	N/A	02/08/06

2/21/6

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-048-251	Page 1 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 3, SURFACE WATER		SAF No.: RC-048
Ice Chest No.: ERC-96-012	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A060273		Bill of Lading/Air Bill No.: SEE OSPC

0000003

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

0000044

Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	125mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226, Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
Sample No. / Matrix * / Sample Date / Sample Time										
J11238 / WATER / 1-29-06 / 1330							X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JAMES BERNHARD	1-29-06 2000	EAS LOCKED STORAGE	1-29-06 2000
EAS LOCKED STORAGE	1-30-06 0710	RZ Stiffler R.Z. Stiffler	1-30-06 0710
RZ Stiffler R.Z. Stiffler	1-30-06 1500	Fed Ex	
Fed Ex	1-31-06 1010	D. Smith	1-31-06 1010

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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238]

(2) ICP Metals - 6010 (Full List) [Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc]; Mercury - 7470 - (CV)

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-048-251	Page 2 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 3, SURFACE WATER		SAF No.: RC-048
Ice Chest No.: ERC-96-012	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES/LIONVILLE	Offsite Property No.: A060273		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N
Air Quality: ☐
Data Turnaround: 45 Days

000000033

POSSIBLE SAMPLE HAZARDS/REMARKS
POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage
COOL 4C

000045

Preservation	Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	HCl to pH <2 Cool 4C	HCl to pH <2 Cool 4C					
Type of Container	P	G	G/P	aG	aGs*					
No. of Container(s)	1	1	1	1	1					
Volume	125mL	500mL	125mL	1000mL	40mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	TPH (Total) - 418.1	NO2/NO3 - 353.2	TPH-Diesel Range - WTPH-D	TPH-Gasoline Range - WTPH-G					

3 SJB 12406

Sample No.	Matrix *	Sample Date	Sample Time										
J11238	WATER	1-29-06	1330	X	X	X	X	X					

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: JAMES BERNHARD	Date/Time: 1-29-06 2000	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 1-29-06 2000
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 0710 01-30-06	Received By/Stored In: RZ Steffler R.Z. Steffler	Date/Time: 0710 1-30-06
Relinquished By/Removed From: RZ Steffler R.Z. Steffler	Date/Time: 1500 WCH 1-30-06	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 1-31-06 / 0910	Received By/Stored In: D. Smith	Date/Time: 1-31-06 / 0910
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
3 SJB 12406
(1) IC Anions - 300.0 [Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate]

Matrix *
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

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-048-244	Page 2 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 4, PORE WATER		SAF No.: RC-048
Ice Chest No.: AFS-04-052	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A060274		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N

Air Quality ☐

Data Turnaround: 45 Days

000000034

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C.

Preservation	Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	HCl to pH <2 Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G	G/P	aG	aGs*	G/P	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	1	1
Volume	~~125mL~~ 60mL	500mL	125mL	1000mL	40mL	125mL	250mL	125mL	250mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	TPH (Total) - 418.1	NO2/NO3 - 353.2	TPH-Diesel Range - WTPH-D	TPH-Gasoline Range - WTPH-G	Ammonia - 350.3	Nitrogen by Kjeldahl - 351.2	Alkalinity - 310.1	TDS - 160.1; TSS - 160.2

000046

Sample No.	Matrix *	Sample Date	Sample Time									
J11232	WATER	1-29-06	1415	X	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: [signature]	Date/Time: 1-29-06 2000	Received By/Stored In: EAS LOCKED STORAGE [signature]	Date/Time: 1-29-06 2000
Relinquished By/Removed From: JAMES BERNHARD EAS LOCKED STORAGE [signature]	Date/Time: 01-30-06 0710	Received By/Stored In: RZ Stettler R.Z. Stettler [signature]	Date/Time: 0710 1-30-06
Relinquished By/Removed From: RZ Stettler R.Z. Stettler [signature]	Date/Time: 1500 1-30-06	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 1-31-06 / 0910	Received By/Stored In: D. [signature]	Date/Time: 1-31-06 / 0910
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

3 HP 12406

(1) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)

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-048-244	Page 1 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 4, PORB WATER		SAF No.: RC-048
Ice Chest No.: AFS-04-052	Field Logbook No.: EL-1597	COA: BBSRAS6520	Method of Shipment: FED EX
Shipped To: BBERLINE SERVICES/ LIONVILLE	Offsite Property No.: A060274		Bill of Lading/Air Bill No.: SEE OSPC

0000035

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	125mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL

000047

SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium-226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
Sample No. / Matrix * / Sample Date / Sample Time										
J11232 / WATER / 1-29-06 / 1415							X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By/Removed From: JAMES BERNHARD		1-29-06 1415
Received By/Stored In: EAS LOCKED STORAGE		1-29-06 1415
Relinquished By/Removed From: EAS LOCKED STORAGE		01-30-06 0710
Received By/Stored In: RZ Stoffler		1-30-06 0710
Relinquished By/Removed From: RZ Stoffler		1-30-06 1500
Received By/Stored In: Fed Ex		
Relinquished By/Removed From: Fed Ex		1-31-06 1010
Received By/Stored In:		1-31-06 1010
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238]

(2) ICP Metals - 6010 (Full List) [Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc]; Mercury - 7470 - (CV)

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-048-252	Page 1 of 2

Collector: TILLER, B — JAMES BERNHARD	Company Contact: JOAN KESSNER — Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 7N — Data Turnaround: 45 Days
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 4, SURFACE WATER	SAF No.: RC-048	Air Quality ☐
Ice Chest No.: AFS-04-050	Field Logbook No.: EL-1597 — COA: BESRAS6520	Method of Shipment: FED EX	
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A060272	Bill of Lading/Air Bill No.: SEE OSPC	

000000036

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	125mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

000048

Sample No.	Matrix *	Sample Date	Sample Time										
J11239	WATER	1-29-06	1530							X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: JAMES BERNHARD	Date/Time: 1-29-06 2000	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 1-29-06 2000
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 01-30-04 0710	Received By/Stored In: RZ Steffler R.J. Steffler	Date/Time: 0710 1-30-06
Relinquished By/Removed From: RZ Steffler R.J. Steffler	Date/Time: 1500 WCH 1-30-06	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 1-31-06/0910	Received By/Stored In: D.J. Mohr	Date/Time: 1-31-06/0910
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238)

(2) ICP Metals - 6010 (Full List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc); Mercury - 7470 - (CV)

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-048-252	Page 2 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 4, SURFACE WATER		SAF No.: RC-048
Ice Chest No.: AFS-04-050	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A060272		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N

Air Quality ☐

Data Turnaround: 45 Days

0000003

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

000049

Preservation	Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	HCl to pH <2 Cool 4C	HCl to pH <2 Cool 4C
Type of Container	P	G	G/P	aG	aGs*
No. of Container(s)	1	1	1	1	1
Volume	125mL	500mL	125mL	1000mL	40mL
SAMPLE ANALYSIS	See item (2) in Special Instructions.	TPH (Total) - 418.1	NO2/NO3 - 353.2	TPH-Diesel Range - WTPH-D	TPH-Gasoline Range - WTPH-G

3 AUG 2006

Sample No.	Matrix *	Sample Date	Sample Time					
J11239	WATER	1-29-06	1530	X	X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS
Relinquished By/Removed From: JAMES BERNHARD Date/Time: 1-29-06 2000	Received By/Stored In: EAS LOCKED STORAGE Date/Time: 1-29-06 2000	3 AUG 2006 (1) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)
Relinquished By/Removed From: EAS LOCKED STORAGE Date/Time: 01-30-06 0710	Received By/Stored In: RZ Steffler Date/Time: 1-30-06 0710	
Relinquished By/Removed From: RZ Steffler Date/Time: 1-30-06 1500	Received By/Stored In: Fed Ex Date/Time:	
Relinquished By/Removed From: Fed Ex Date/Time: 1-31-06 0910	Received By/Stored In: D. J. Mitch Date/Time: 1-31-06 0910	
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:	
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:	

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-048-276	Page 1 of 2

Collector: TILLER, B — JAMES BERNHARD	Company Contact: JOAN KESSNER — Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 7N — Data Turnaround: 45 Days
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 5, SURFACE WATER	SAF No.: RC-048	Air Quality ☐
Ice Chest No.: AFS-04-050	Field Logbook No.: EL-1597 — COA: BESRAS6520	Method of Shipment: FED EX	
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A060272	Bill of Lading/Air Bill No.: SEE OSPC	

000000038

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

000050

Preservation			None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container			P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)			1	1	1	1	1	1	1	1	1	1
Volume			60mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS			Tritium - 3H	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
Sample No.	Matrix *	Sample Date	Sample Time									
J11279	WATER	1-29-06	1600							X	X	X	X

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: JAMES BERNHARD	Date/Time: 2000 BH 1-29-06 ~~1600~~	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 2000 BH 1-29-06 ~~1600~~
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 1-30-06/0700	Received By/Stored In: RZ Steffler R.Z. Steffler	Date/Time: 0700 1-30-06
Relinquished By/Removed From: RZ Steffler R.Z. Steffler	Date/Time: 1600 WCH 1-30-06	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 1-31-06/0910	Received By/Stored In: D.J. Mich	Date/Time: 1-31-06/0910
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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-048-276	Page 2 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 5, SURFACE WATER		SAF No.: RC-048
Ice Chest No.: AFS-04-050	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A060272		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N

Air Quality ☐

Data Turnaround: 45 Days

0000003

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	HCl to pH <2 Cool 4C	HCl to pH <2 Cool 4C						
Type of Container	P	G	G/P	aG	aGs*						
No. of Container(s)	1	1	1	1	1						
Volume	125mL	500mL 3 AH 12606	125mL	1000mL	40mL						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	TPH (Total) - 418.1	NO2/NO3 - 353.2	TPH-Diesel Range - WTPH-D	TPH-Gasoline Range - WTPH-G						

000051

Sample No.	Matrix *	Sample Date	Sample Time										
J11279	WATER	1-29-06	1600	X	X	X	X	X					

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: JAMES BERNHARD	Date/Time: 1-29-06 2000	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 1-29-06 2000
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 1-30-06 0710	Received By/Stored In: RZ Steffler R.Z. Steffler	Date/Time: 1-30-06 0710
Relinquished By/Removed From: RZ Steffler R.Z. Steffler	Date/Time: 1-30-06 1500	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 1-31-06 0910	Received By/Stored In: D Y Mills	Date/Time: 1-31-06 0910
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

3 AH 12606

(1) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)

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-048-258	Page 1 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 5, PORE WATER		SAF No.: RC-048
Ice Chest No.: ERC-96-012	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES, LIONVILLE	Offsite Property No.: A060273		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N

Air Quality: ☐

Data Turnaround: 45 Days

000000040

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

000052

Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	~~125mL~~ 60 [illegible]	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

Sample No.	Matrix *	Sample Date	Sample Time										
J11245	WATER	1-29-06	1630							X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: JAMES BERNHARD	Date/Time: 1-29-06 2000	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 1-29-06 2000
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 0710 21-30-06	Received By/Stored In: RZ Steffler R.J. Steffler	Date/Time: 0710 1-30-06
Relinquished By/Removed From: RZ Steffler R.J. Steffler	Date/Time: 1500 WCH 1-30-06	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: [signature]	Date/Time: 1-31-06 / 0910	Received By/Stored In: [signature]	Date/Time: 1-31-06 / 0910
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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-048-258	Page 2 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 5, PORE WATER		SAF No.: RC-048
Ice Chest No.: ERC-96-012	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A060273		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N

Air Quality ☐

Data Turnaround: 45 Days

000000041

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	HCl to pH <2 Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	Cool 4C	
Type of Container	P	G	G/P	aG	aGa*	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	125mL	500mL	125mL	1000mL	40mL	125mL	250mL	125mL	250mL	
SAMPLE ANALYSIS	See item (1) in Special Instructions.	TPH (Total) - 418.1	NO2/NO3 - 353.2	TPH-Diesel Range - WTPH-D	TPH-Gasoline Range - WTPH-G	Ammonia - 350.3	Nitrogen by Kjeldahl - 351.2	Alkalinity - 310.1	TDS - 160.1; TSS - 160.2	

3 12606

000053

Sample No.	Matrix *	Sample Date	Sample Time										
J11245	WATER	1-29-06	1630	X	X	X	X	X	X	X	X	X	

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: JAMES BERNHARD	Date/Time: 1-29-06 7000	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 1-29-06 2000
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 01-30-06 0710	Received By/Stored In: RZ Steffler R.J. Steffler	Date/Time: 1-30-06 0710
Relinquished By/Removed From: RZ Steffler R.J. Steffler	Date/Time: 1-30-06 1500	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 1-31-06 0910	Received By/Stored In: D. J. Mills	Date/Time: 1-31-06 0910
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

3 12606 4P

(1) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)

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-048-290	Page 1 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr-6, PORE WATER FULL QC		SAF No.: RC-048
Ice Chest No.: FIC-02-504	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A060278		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

SAMPLE ANALYSIS	Trilium - H3	See item (1) in Special Instructions.	Strontium-89,90 – Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	3	2	3
Volume	125mL	1000mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL

Sample No.	Matrix *	Sample Date	Sample Time									
J112X3	WATER	02-01-06	1445							X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JAMES BERNHARD	02-01-06 2030	EAS LOCKED STORAGE	02/01/06 2030
EAS LOCKED STORAGE	02/02/06 1200	David Stephenson	02-02-06 1200
David Stephenson	02/02/06 1400	Fed Ex	
Fed Ex	2-3-06 0930		2-3-06 0930

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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

Matrix *

S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
Ti=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-048-290	Page 2 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr-6 PORE WATER FULL QC		SAF No.: RC-048
Ice Chest No.: ERC-02-504	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES ALIONVILLE	Offsite Property No.: A060278		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

SAMPLE ANALYSIS												
Preservation				Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	Cool 4C
Type of Container				P	G	G/P	uG	uGz*	G/P	G/P	G/P	G/P
No. of Container(s)				1	1	1	2	2	1	1	1	1
Volume				125mL	1000mL 3 AD 13006	125mL	1000mL	40mL	125mL	250mL	125mL	250mL
Sample No.	Matrix *	Sample Date	Sample Time	See item (f) in Special Instructions	TPH (Total) - 418.1	NO2/NO3 - 353.2	TPH-Diesel Range - WTPH-D	TPH-Gasoline Range - WTPH-G	Ammonia - 350.3	Nitrogen by Kjeldahl - 351.2	Alkalinity - 310.1	TDS - 160.1; TSS - 160.2
J112X3	WATER	02-01-06	1445	X	X	X	X	X	X	X	X	X

000055

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: JAMES BERNHARD	Date/Time: 02-01-06 2030	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 02-01-06 2030
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 02-02-06 1200	Received By/Stored In: David St. John West	Date/Time: 02-02-06 1200
Relinquished By/Removed From: David St. John West	Date/Time: 02/02/06 1400	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 2/3/06 0930	Received By/Stored In:	Date/Time: 2-3-06 0930
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

3 AD 13006

(f) IC Anions - 300.0 [Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate]

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-048-296	Page 1 of 2

Collector TILLER, B JAMES BERNHARD	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH
Price Code 7N	Data Turnaround 45 Days	Air Quality ☐	
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location Cr-6, SURFACE WATER FULL QC		SAF No. RC-048
Ice Chest No. ERC-99-061	Field Logbook No. EL-1597	COA BESRA86520	Method of Shipment FED EX
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A060278		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	HNO3 to pH 2	HNO3 to pH 2	HNO3 to pH 2	HNO3 to pH 2	HNO3 to pH 2	HNO3 to pH 2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	3	2	3
Volume	125mL	1000mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
Sample No. / Matrix * / Sample Date / Sample Time										
J112X9 / WATER / 02-01-06 / 1430							X	X	X	X

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JAMES BERNHARD	02-01-06 2030	EAS LOCKED STORAGE	02-01-06 2030
EAS LOCKED STORAGE	02-02-06 1200	David St. John WCH	02-02-06 1200
David St. John WCH	02/02/06 1400	FedEx	
FedEx	2-3-06 0930		2-3-06 0930

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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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-048-296	Page 2 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr-6 SURFACE WATER FULL QC		SAF No.: RC-048
Ice Chest No.: ERC-99-061	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A060278		Bill of Lading/Air Bill No.: SEE OSPC

0000004

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

0000057

SAMPLE ANALYSIS												
Preservation				Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	HCl to pH <2 Cool 4C				
Type of Container				P	G	G/P	aG	aGs*				
No. of Container(s)				1	1	1	2	2				
Volume				125mL	1000mL	125mL	1000mL	40mL				
				3								
				See Item (f) in Special Instructions	TPH (Total) - 418.1	NO2/NO3 - 353.2	TPH-Diesel Range - WTPH-D	TPH-Gasoline Range - WTPH-G				
Sample No.	Matrix *	Sample Date	Sample Time									
J112X9	WATER	02-01-06	1430	X	X	X	X	X				

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: JAMES BERNHARD	2030 02-01-06	EAS LOCKED STORAGE	2030 02-01-06
Relinquished By/Removed From: EAS LOCKED STORAGE	1200 02-02-06	David St. John Walk	1200 02-02-06
Relinquished By/Removed From: David St. John Walk	1400 02/02/06	FedEx	
Relinquished By/Removed From: FedEx	2-3-06 0930		2-3-06 0930
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

3

(f) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)

Matrix *

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-048-285	Page 2 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 10, SURFACE WATER		SAF No.: RC-048
Ice Chest No.: ERC-96-061	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A060278		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N

Air Quality ☐

Data Turnaround: 45 Days

0000000048

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	HCl to pH <2 Cool 4C							
Type of Container	P	G	G/P	aG	aGs*							
No. of Container(s)	1	1	1	1	1							
Volume	125mL	500mL	125mL	1000mL	40mL							
SAMPLE ANALYSIS	See item (d) in Special Instructions.	TPH (Total) - 418.1	NO2/NO3 - 353.2	TPH-Diesel Range - WTPH-D	TPH-Gasoline Range - WTPH-G							

3 AP 12606

000058

Sample No.	Matrix *	Sample Date	Sample Time										
J112F9	WATER	02-01-06	1830	X	X	X	X	X					

CHAIN OF POSSESSION	Sign/Print Names
Relinquished By/Removed From: JAMES BERNHARD Date/Time: 2130 02-01-06	Received By/Stored In: EAS LOCKED STORAGE Date/Time: 2130 2-1-06
Relinquished By/Removed From: EAS LOCKED STORAGE Date/Time: 1200 02-02-06	Received By/Stored In: David St. Johnwick Date/Time: 1200 02-02-06
Relinquished By/Removed From: David St. Johnwick Date/Time: 1400 02/02/06	Received By/Stored In: Fed Ex Date/Time:
Relinquished By/Removed From: Fed Ex Date/Time: 2-3-06 0930	Received By/Stored In: [signature] Date/Time: 2-3-06 0930
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

3 AP 12606

(1) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)

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-048-285	Page 1 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 10, SURFACE WATER		SAF No.: RC-048
Ice Chest No.: ERC-96-061	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES ALLONVILLE	Offsite Property No.: A06D278		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	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium-226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
J112F9	WATER	07-01-06	1830							X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JAMES BERNHARD	7-1-06	EAS LOCKED STORAGE	7-1-06 2130
EAS LOCKED STORAGE	02-02-06 1200		02-02-06 1200
	02/02/06 1400	Fed EX	
Fed EX	2-3-06 0930		2-3-06 0930

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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238]

(2) ICP Metals - 6010 (Full List) [Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc]; Mercury - 7470 - (CV)

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; 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-048-263	Page 2 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 10, PORE WATER		SAF No.: RC-048
Ice Chest No.: ERC-02-002	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A060278		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N

Air Quality ☐

Data Turnaround: 45 Days

000000050

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	HCl to pH <2 Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G	G/P	aG	aGs*	G/P	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	1	1
Volume	125mL	500mL	125mL	1000mL	40mL	125mL	250mL	125mL	250mL

3/11/2006

090000

SAMPLE ANALYSIS	See item (1) in Special Instructions.	TPH (Total) - 418.1	NO2/NO3 - 353.2	TPH-Diesel Range - WTPH-D	TPH-Gasoline Range - WTPH-G	Ammonia - 350.3	Nitrogen by Kjeldahl - 351.2	Alkalinity - 310.1	TDS - 160.1; TSS - 160.2
Sample No. / Matrix * / Sample Date / Sample Time									
J11250 / WATER / 02-01-06 / 1900	X	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS
Relinquished By/Removed From: JAMES BERNHARD Date/Time: 02-01-06 2030	Received By/Stored In: EAS LOCKED STORAGE Date/Time: 02-01-06 2030	3/11/2006 (1) IC Anions - 300.0 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}
Relinquished By/Removed From: EAS LOCKED STORAGE Date/Time: 02-02-06 1200	Received By/Stored In: David Sigman WCH Date/Time: 02-02-06 1200	
Relinquished By/Removed From: David Sigman WCH Date/Time: 02/02/06 1400	Received By/Stored In: Fed EX Date/Time:	
Relinquished By/Removed From: Fed Ex Date/Time: 2-3-06 0930	Received By/Stored In: [signature] Date/Time: 2-3-06 0930	
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:	
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:	

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-048-263	Page 1 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 10, PORE WATER		SAF No.: RC-048
Ice Chest No.: ERC-02-002	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: AD60278		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N

Air Quality ☐

Data Turnaround: 45 Days

000000051

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

000061

Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	125mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

Sample No.	Matrix *	Sample Date	Sample Time										
J11250	WATER	02-01-06	1900							X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names
Relinquished By/Removed From: JAMES BERNHARD Date/Time: 02-01-06 2030	Received By/Stored In: EAS LOCKED STORAGE Date/Time: 02-01-06 2030
Relinquished By/Removed From: EAS LOCKED STORAGE Date/Time: 02-02-06 1200	Received By/Stored In: David St. Johnwell Date/Time: 02-02-06 1200
Relinquished By/Removed From: David St. Johnwell Date/Time: 02/02/06 1400	Received By/Stored In: Fed Ex Date/Time:
Relinquished By/Removed From: Fed Ex Date/Time: 2-3-06 0930	Received By/Stored In: [signature] Date/Time: 2-3-06 0930
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238]

(2) ICP Metals - 6010 (Full List) [Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc]; Mercury - 7470 - (CV)

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-048-280	Page 1 of 2

Collector TILLER, B JAMES BERNHARD	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH
Price Code 7N	Data Turnaround 45 Days	Air Quality ☐	
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location Cr 6, VERTICAL TUBE		SAF No. RC-048
Ice Chest No. ERc-02-002	Field Logbook No. EL-1597	COA BESRAS6520	Method of Shipment FED EX
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A060278 ~~A0600~~ PAS 02/02/06		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	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 – Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium-226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
Sample No. / Matrix * / Sample Date / Sample Time										
J112C3 / WATER / 02-01-06 / 1530							X	X	X	X

2900062

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From JAMES BERNHARD 02-01-06	Date/Time 2030	Received By/Stored In EAS LOCKED STORAGE 02-01-06	Date/Time 2030
Relinquished By/Removed From EAS LOCKED STORAGE 02-02-06	Date/Time 1200	Received By/Stored In WCH 02-02-06	Date/Time 1200
Relinquished By/Removed From WCH 02/02/06	Date/Time 1420	Received By/Stored In Fed Ex	Date/Time
Relinquished By/Removed From Fed Ex	Date/Time 2-3-06 0930	Received By/Stored In [illegible]	Date/Time 2-3-06 0930
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238)

(2) ICP Metals - 6010 (Full List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc); Mercury - 7470 - (CV)

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-048-280	Page 2 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 6, VERTICAL TUBE		SAF No.: RC-048
Ice Chest No.: ERC-02-002	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N

Air Quality ☐

Data Turnaround: 45 Days

00000053

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	Cool 4C	
Type of Container	P	G	G/P	aG	aGs*	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	125mL	500mL	125mL	1000mL	40mL	125mL	250mL	125mL	250mL	
SAMPLE ANALYSIS	See item (1) in Special Instructions.	TPH (Total) - 418.1	NO2/NO3 - 353.2	TPH-Diesel Range - WTPH-D	TPH-Gasoline Range - WTPH-G	Ammonia - 350.3	Nitrogen by Kjeldahl - 351.2	Alkalinity - 310.1	TDS - 160.1; TSS - 160.2	

3 AP 13006

000063

Sample No.	Matrix *	Sample Date	Sample Time										
J112C3	WATER	02-01-06	1530	X	X	X	X	X	X	X	X	X	

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From: JAMES BERNHARD Date/Time: 02-01-06 2030	Received By/Stored In: EAS LOCKED STORAGE Date/Time: 02-01-06 2030	
Relinquished By/Removed From: EAS LOCKED STORAGE Date/Time: 02-02-06 1200	Received By/Stored In: David St. John WCH Date/Time: 02-02-06 1200	
Relinquished By/Removed From: David St. John WCH Date/Time: 02/02/06 1400	Received By/Stored In: Fed Ex Date/Time:	
Relinquished By/Removed From: Fed Ex Date/Time: 2-3-06 0930	Received By/Stored In: [signature] Date/Time: 2-3-06 0930	
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

3 AP 13006

(1) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)

Matrix *

S=Soil
SB=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-048-282	Page 1 of 2

Collector TILLER, B Bernhard	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location Cr 7, SURFACE WATER		SAF No. RC-048
Ice Chest No. ERC-03-106	Field Logbook No. EL-1597	COA BESRAS6520	Method of Shipment FED EX
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A060278		Bill of Lading/Air Bill No. SEE OSPC

Price Code 7N

Air Quality ☐

Data Turnaround 45 Days

4500000000

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See Item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See Item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
Sample No. / Matrix * / Sample Date / Sample Time										
J112F6 / WATER / 2-1-06 / 1600							X	X	X	X

000064

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JAMES BERNHARD	2-1-06 2:30	EAS LOCKED STORAGE	2-1-06 2130
EAS LOCKED STORAGE	2-02-06 1200	[illegible]	2-02-06 1200
[illegible]	02/02/06 1400	Fed Ex	
Fed Ex	2-3-06 0930	[illegible]	2-3-06 0930

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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238]

(2) ICP Metals - 6010 (Full List) [Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc]; Mercury - 7470 - (CV)

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-048-282	Page 2 of 2

Collector: TILLER, B Bernhard	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 7, SURFACE WATER		SAF No.: RC-048
Ice Chest No.: ERC-03-106	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A060278		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N

Air Quality ☐

Data Turnaround: 45 Days

000000055

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	HCl to pH <2 Cool 4C					
Type of Container	P	G	G/P	aG	aGs*					
No. of Container(s)	1	1	1	1	1					
Volume	125mL	500mL	125mL	1000mL	40mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	TPH (Total) - 418.1	NO2/NO3 - 353.2	TPH-Diesel Range - WTPH-D	TPH-Gasoline Range - WTPH-G					

3 AA 12606

000065

Sample No.	Matrix *	Sample Date	Sample Time										
J112F6	WATER	2-1-06	1600	X	X	X	X	X					

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JAMES BERNHARD	2130 2-1-06	EAS LOCKED STORAGE	2130 2-1-06
EAS LOCKED STORAGE	1200 02-02-06	David St. John WCH	1200 02-02-06
David St. John WCH	1400 02/02/06	Fed Ex	
Fed Ex	2-3-06 0930	T. Nemarty	2-3-06 0930

SPECIAL INSTRUCTIONS

3 AA 12606

(1) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)

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-048-260	Page 1 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 7, PORE WATER		SAF No.: RC-048
Ice Chest No.: ERC-03-106	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES/LIONVILLE	Offsite Property No.: A060278		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

990066

SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	125mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL

Sample No.	Matrix *	Sample Date	Sample Time										
J11247	WATER	2-1-06	1615							X	X	X	X

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: JAMES BERNHARD	2130 2-1-06	EAS LOCKED STORAGE	2130 2-1-06
Relinquished By/Removed From: EAS LOCKED STORAGE	1200 02-02-06	Received By/Stored In: [illegible]	1200 02-02-06
Relinquished By/Removed From: [illegible]	1600 02/02/06	Received By/Stored In: Fed Ex	
Relinquished By/Removed From: FedEx	2-3-06 0930	Received By/Stored In: [illegible]	2-3-06 0930
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238)

(2) ICP Metals - 6010 (Full List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc); Mercury - 7470 - (CV)

Matrix *

S=Soil
SE=Sediment
SD=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-048-260	Page 2 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 7, PORE WATER		SAF No.: RC-048
Ice Chest No.: ERC-03-106	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES/LIONVILLE	Offsite Property No.: A060278		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N

Air Quality ☐

Data Turnaround: 45 Days

00000057

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	HCl to pH <2 Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G	G/P	aG	aGs*	G/P	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	1	1
Volume	125mL	500mL	125mL	1000mL	40mL	125mL	250mL	125mL	250mL
SAMPLE ANALYSIS	See item (2) in Special Instructions.	TPH (Total) - 418.1	NO2/NO3 - 353.2	TPH-Diesel Range - WTPH-D	TPH-Gasoline Range - WTPH-G	Ammonia - 350.3	Nitrogen by Kjeldahl - 351.2	Alkalinity - 310.1	TDS - 160.1; TSS - 160.2

3 JH 12606

Sample No.	Matrix *	Sample Date	Sample Time									
J11247	WATER	2-1-06	1615	X	X	X	X	X	X	X	X	X

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JAMES BERNHARD	2130 2-1-06	EAS LOCKED STORAGE	2130 2-1-06
EAS LOCKED STORAGE	02-02-06 1200	David St John WCH	1200 02-02-06
David St John WCH	1400 02/02/06	Fed EX	
FWEx	2-3-06 0930	[signature]	2-3-06 0930

SPECIAL INSTRUCTIONS

3 JH 12606

(1) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)

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

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: RCBRA wcde			DATA PACKAGE: K0205		
VALIDATOR: TLI		LAB: LII		DATE: 6/3/06	
			SDG: K0205		
ANALYSES PERFORMED					
SW-846 8260		SW-846 8260 (TCLP)	SW-846 8270	8310B	SW-846 8270 (TCLP)
SAMPLES/MATRIX					
J112X3	J112X9	J112F9	J11250	J112C3	
J112F6	J11247	J11238	J11232	J11239	
J11279	J11245				
					Water

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: no FB
bis(2-ethylhexyl)phthalate - U at RQL - all

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: MS - 4chloroaniline - 179% MS - J all no PAS
LCS - " " 57% - J all
LCS - acenaphthylene - 47% - J all
LCS - 3-nitroaniline - 7% - J all
GRO - 79+45 - no MS/MSD - J all
GRO - 50, C3, F6, 47 - no MS/MSD - 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: GRO - 79, 45, 50, C3, F6, 47 - no ms/msd - J all
4-chloroaniline - RPD 131% - J all
3-nitroaniline - RPD 95% - J all
2,4-dinitrophenol - RPD - 41% - J all
3,3-dichlorobenzidine - RPD - 184% - J all

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:

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:

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: 7 June 2006
To: Washington Closure Hanford (technical representative)
From: TechLaw, Inc.
Project: 100 Area and 300 Area Component of the RCBRA Water Sampling
Subject: PCB/Pesticide - Data Package No. K0205-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0205 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	Matrix	Validation	Date
J112X3	2/1/06	Water	C	See note 1
J112X9	2/1/06	Water	C	See note 1
J112F9	2/1/06	Water	C	See note 1
J11250	2/1/06	Water	C	See note 1
J112C3	2/1/06	Water	C	See note 1
J112F6	2/1/06	Water	C	See note 1
J11247	2/1/06	Water	C	See note 1
J11238	1/29/06	Water	C	See note 1
J11232	1/29/06	Water	C	See note 1
J11239	1/29/06	Water	C	See note 1
J11279	1/29/06	Water	C	See note 1
J11245	1/29/06	Water	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 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 two times the limit, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ" for non-detects. If holding times are exceeded by greater than two times the limit, all associated detected sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

All holding times were acceptable.

- **Method Blank**

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

All method blank 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".

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.

All surrogate results were acceptable.

- **Precision**

Matrix Spike/Matrix Spike Duplicate Samples

Matrix spike/matrix spike duplicate results provide matrix-specific information on the precision of the method for specific target compound classes. Precision is expressed as the relative percent difference (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample. For soil samples, results must be within RPD limits of plus/minus 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 analytes met the RQL.

- **Completeness**

Data Package No. K0205 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

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

REFERENCES

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 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: K0205	REVIEWER: TU	Project: RCBRA	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Toxaphene	J	All	No MS, MSD or LCS

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

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

PESTICIDE/PCB ANALYSIS, WATER MATRIX, (UG/L)

Project: WASHINGTON CLOSURE HANFORD
Laboratory: LLI SDG: K0205

Sample Number		J112X3		J112X9		J112F9		J11250		J112C3		J112F6		J11247		J11238		J11232	
Remarks																			
Sample Date		2/1/06		2/1/06		2/1/06		2/1/06		2/1/06		2/1/06		2/1/06		1/29/06		1/29/06	
Extraction Date		2/5/06		2/5/06		2/5/06		2/5/06		2/5/06		2/5/06		2/5/06		2/5/06		2/5/06	
Analysis Date		2/7/06		2/7/06		2/7/06		2/7/06		2/7/06		2/7/06		2/7/06		2/7/06		2/7/06	
PCB	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aroclor-1016		0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.40	U	0.41	U	0.41	U
Aroclor-1221		0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.40	U	0.41	U	0.41	U
Aroclor-1232	16.5	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.40	U	0.41	U	0.41	U
Aroclor-1242	16.5	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.40	U	0.41	U	0.41	U
Aroclor-1248		0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.40	U	0.41	U	0.41	U
Aroclor-1254	16.5	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.40	U	0.41	U	0.41	U
Aroclor-1260	16.5	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.40	U	0.41	U	0.41	U

Sample Number		J112X3		J112X9		J112F9		J11250		J112C3		J112F6		J11247		J11238		J11232	
Remarks																			
Sample Date		2/1/06		2/1/06		2/1/06		2/1/06		2/1/06		2/1/06		2/1/06		1/29/06		1/29/06	
Extraction Date		2/5/06		2/5/06		2/5/06		2/5/06		2/5/06		2/5/06		2/5/06		2/5/06		2/5/06	
Analysis Date		2/7/06		2/7/06		2/7/06		2/7/06		2/7/06		2/7/06		2/7/06		2/7/06		2/7/06	
Pesticide	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Alpha-BHC	5	0.052	U	0.051	U	0.052	U	0.051	U	0.051	U	0.051	U	0.050	U	0.052	U	0.051	U
Gamma-BHC (Lindane)	5	0.052	U	0.051	U	0.052	U	0.051	U	0.051	U	0.051	U	0.050	U	0.052	U	0.051	U
Beta-BHC	5	0.052	U	0.051	U	0.052	U	0.051	U	0.051	U	0.051	U	0.050	U	0.052	U	0.051	U
Heptachlor	5	0.052	U	0.051	U	0.052	U	0.051	U	0.051	U	0.051	U	0.050	U	0.052	U	0.051	U
Delta-BHC	5	0.052	U	0.051	U	0.052	U	0.051	U	0.051	U	0.051	U	0.050	U	0.052	U	0.051	U
Aldrin	5	0.052	U	0.051	U	0.052	U	0.051	U	0.051	U	0.051	U	0.050	U	0.052	U	0.051	U
Heptachlor Epoxide	5	0.052	U	0.051	U	0.052	U	0.051	U	0.051	U	0.051	U	0.050	U	0.052	U	0.051	U
Endosulfan I	5	0.052	U	0.051	U	0.052	U	0.051	U	0.051	U	0.051	U	0.050	U	0.052	U	0.051	U
Dieldrin	5	0.052	U	0.051	U	0.052	U	0.051	U	0.051	U	0.051	U	0.050	U	0.052	U	0.051	U
4,4'-DDE	5	0.052	U	0.051	U	0.052	U	0.051	U	0.051	U	0.051	U	0.050	U	0.052	U	0.051	U
Endrin	5	0.052	U	0.051	U	0.052	U	0.051	U	0.051	U	0.051	U	0.050	U	0.052	U	0.051	U
Endosulfan II	5	0.052	U	0.051	U	0.052	U	0.051	U	0.051	U	0.051	U	0.050	U	0.052	U	0.051	U
4,4'-DDD	5	0.052	U	0.051	U	0.052	U	0.051	U	0.051	U	0.051	U	0.050	U	0.052	U	0.051	U
Endosulfan Sulfate	5	0.052	U	0.051	U	0.052	U	0.051	U	0.051	U	0.051	U	0.050	U	0.052	U	0.051	U
4,4'-DDT	5	0.052	U	0.051	U	0.052	U	0.051	U	0.051	U	0.051	U	0.050	U	0.052	U	0.051	U
Methoxychlor	5	0.052	U	0.051	U	0.052	U	0.051	U	0.051	U	0.051	U	0.050	U	0.052	U	0.051	U
Endrin Ketone	5	0.052	U	0.051	U	0.052	U	0.051	U	0.051	U	0.051	U	0.050	U	0.052	U	0.051	U
Endrin Aldehyde	5	0.052	U	0.051	U	0.052	U	0.051	U	0.051	U	0.051	U	0.050	U	0.052	U	0.051	U
alpha-Chlordane	5	0.052	U	0.051	U	0.052	U	0.051	U	0.051	U	0.051	U	0.050	U	0.052	U	0.051	U
gamma-Chlordane	5	0.052	U	0.051	U	0.052	U	0.051	U	0.051	U	0.051	U	0.050	U	0.052	U	0.051	U
Toxaphene	5	0.52	UJ	0.51	UJ	0.52	UJ	0.51	UJ	0.51	UJ	0.51	UJ	0.50	UJ	0.52	UJ	0.51	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.

000010

PESTICIDE/PCB ANALYSIS, WATER MATRIX, (UG/L)

Project: WASHINGTON CLOSURE HANFORD							
Laboratory: LLI	SDG: K0205						
Sample Number		J11239		J11279		J11245	
Remarks							
Sample Date		1/29/06		1/29/06		1/29/06	
Extraction Date		2/5/06		2/5/06		2/5/06	
Analysis Date		2/7/06		2/7/06		2/7/06	
PCB	RQL	Result	Q	Result	Q	Result	Q
Aroclor-1016		0.41	U	0.41	U	0.41	U
Aroclor-1221		0.41	U	0.41	U	0.41	U
Aroclor-1232	16.5	0.41	U	0.41	U	0.41	U
Aroclor-1242	16.5	0.41	U	0.41	U	0.41	U
Aroclor-1248		0.41	U	0.41	U	0.41	U
Aroclor-1254	16.5	0.41	U	0.41	U	0.41	U
Aroclor-1260	16.5	0.41	U	0.41	U	0.41	U
Sample Number		J11239		J11279		J11245	
Remarks							
Sample Date		1/29/06		1/29/06		1/29/06	
Extraction Date		2/5/06		2/5/06		2/5/06	
Analysis Date		2/7/06		2/7/06		2/7/06	
Pesticide	RQL	Result	Q	Result	Q	Result	Q
Alpha-BHC	5	0.051	U	0.051	U	0.051	U
Gamma-BHC (Lindane)	5	0.051	U	0.051	U	0.051	U
Beta-BHC	5	0.051	U	0.051	U	0.051	U
Heptachlor	5	0.051	U	0.051	U	0.051	U
Delta-BHC	5	0.051	U	0.051	U	0.051	U
Aldrin	5	0.051	U	0.051	U	0.051	U
Heptachlor Epoxide	5	0.051	U	0.051	U	0.051	U
Endosulfan I	5	0.051	U	0.051	U	0.051	U
Dieldrin	5	0.051	U	0.051	U	0.051	U
4,4'-DDE	5	0.051	U	0.051	U	0.051	U
Endrin	5	0.051	U	0.051	U	0.051	U
Endosulfan II	5	0.051	U	0.051	U	0.051	U
4,4'-DDD	5	0.051	U	0.051	U	0.051	U
Endosulfan Sulfate	5	0.051	U	0.051	U	0.051	U
4,4'-DDT	5	0.051	U	0.051	U	0.051	U
Methoxychlor	5	0.051	U	0.051	U	0.051	U
Endrin Ketone	5	0.051	U	0.051	U	0.051	U
Endrin Aldehyde	5	0.051	U	0.051	U	0.051	U
alpha-Chlordane	5	0.051	U	0.051	U	0.051	U
gamma-Chlordane	5	0.051	U	0.051	U	0.051	U
Toxaphene	5	0.51	UJ	0.51	UJ	0.51	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

PCBs by GC

Report Date: 02/08/06 11:58

RFW Batch Number: 0602L209 Client: TMU-HANFORD RCS-048/K0205 Work Order: 11343606001 Page: 1

000000006

	Cust ID:	J112X3	J112X3	J112X3	J112X9	J112F9	J11250
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate: Tetrachloro-m-xylene		76 %	78 %	87 %	74 %	75 %	84 %
Decachlorobiphenyl		65 %	70 %	75 %	80 %	82 %	85 %
Aroclor-1016		0.41 U	93 %	101 %	0.41 U	0.41 U	0.41 U
Aroclor-1221		0.41 U	0.40 U	0.41 U	0.41 U	0.41 U	0.41 U
Aroclor-1232		0.41 U	0.40 U	0.41 U	0.41 U	0.41 U	0.41 U
Aroclor-1242		0.41 U	0.40 U	0.41 U	0.41 U	0.41 U	0.41 U
Aroclor-1248		0.41 U	0.40 U	0.41 U	0.41 U	0.41 U	0.41 U
Aroclor-1254		0.41 U	0.40 U	0.41 U	0.41 U	0.41 U	0.41 U
Aroclor-1260		0.41 U	96 %	103 %	0.41 U	0.41 U	0.41 U

000012

	Cust ID:	J112C3	J112F6	J11247	PBLKBA	PBLKBA BS	PBLKBA BSD
Sample Information	RFW#:	005	006	007	06LE0088-MB1	06LE0088-MB1	06LE0088-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate: Tetrachloro-m-xylene		88 %	82 %	68 %	51 %	70 %	77 %
Decachlorobiphenyl		92 %	87 %	77 %	73 %	75 %	89 %
Aroclor-1016		0.41 U	0.41 U	0.40 U	0.40 U	80 %	91 %
Aroclor-1221		0.41 U	0.41 U	0.40 U	0.40 U	0.40 U	0.40 U
Aroclor-1232		0.41 U	0.41 U	0.40 U	0.40 U	0.40 U	0.40 U
Aroclor-1242		0.41 U	0.41 U	0.40 U	0.40 U	0.40 U	0.40 U
Aroclor-1248		0.41 U	0.41 U	0.40 U	0.40 U	0.40 U	0.40 U
Aroclor-1254		0.41 U	0.41 U	0.40 U	0.40 U	0.40 U	0.40 U
Aroclor-1260		0.41 U	0.41 U	0.40 U	0.40 U	89 %	100 %

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

6/5/06

PCBs by GC

Report Date: 02/07/06 15:03

RFW Batch Number: 0601L184 Client: TNU-HANFORD RCS-048,K0205 Work Order: 11343606001 Page: 1

000000005

	Cust ID:	J11238	J11232	J11239	J11279	J11245	PBLKBA
Sample Information	RFW#:	001	002	003	004	005	06LE0088-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate: Tetrachloro-m-xylene		101 %	82 %	80 %	79 %	75 %	51 %
Decachlorobiphenyl		95 %	81 %	80 %	76 %	83 %	73 %
Aroclor-1016		0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.40 U
Aroclor-1221		0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.40 U
Aroclor-1232		0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.40 U
Aroclor-1242		0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.40 U
Aroclor-1248		0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.40 U
Aroclor-1254		0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.40 U
Aroclor-1260		0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.40 U

	Cust ID:	PBLKBA BS	PBLKBA BSD
Sample Information	RFW#:	06LE0088-MB1	06LE0088-MB1
	Matrix:	WATER	WATER
	D.F.:	1.00	1.00
	Units:	UG/L	UG/L
Surrogate: Tetrachloro-m-xylene		70 %	77 %
Decachlorobiphenyl		75 %	89 %
Aroclor-1016		80 %	91 %
Aroclor-1221		0.40 U	0.40 U
Aroclor-1232		0.40 U	0.40 U
Aroclor-1242		0.40 U	0.40 U
Aroclor-1248		0.40 U	0.40 U
Aroclor-1254		0.40 U	0.40 U
Aroclor-1260		89 %	100 %

JR 2/5/06

000013

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

Pesticide/PCBs by GC, CLP List Report Date: 02/09/06 13:07

RFW Batch Number: 0602L209 Client: TNU-HANFORD RCS-048 Work Order: 11343606001 Page: 1

	Cust ID:	J112X3		J112X3		J112X3		J112X9		J112F9		J11250	
Sample Information	RFW#:	001		001 MS		001 MSD		002		003		004	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	UG/L		UG/L		UG/L		UG/L		UG/L		UG/L	
Surrogate:	Tetrachloro-m-xylene	59	%	57	%	60	%	55	%	58	%	59	%
	Decachlorobiphenyl	52	%	47	%	46	%	63	%	66	%	64	%
			fl		fl		fl		fl		fl		fl
Alpha-BHC		0.052	U	93	%	88	%	0.051	U	0.052	U	0.051	U
gamma-BHC (Lindane)		0.052	U	93	%	87	%	0.051	U	0.052	U	0.051	U
Beta-BHC		0.052	U	84	%	75	%	0.051	U	0.052	U	0.051	U
Heptachlor		0.052	U	82	%	79	%	0.051	U	0.052	U	0.051	U
Delta-BHC		0.052	U	91	%	84	%	0.051	U	0.052	U	0.051	U
Aldrin		0.052	U	85	%	83	%	0.051	U	0.052	U	0.051	U
Heptachlor epoxide		0.052	U	90	%	84	%	0.051	U	0.052	U	0.051	U
gamma-Chlordane		0.052	U	88	%	82	%	0.051	U	0.052	U	0.051	U
Endosulfan I		0.052	U	85	%	80	%	0.051	U	0.052	U	0.051	U
alpha-Chlordane		0.052	U	88	%	82	%	0.051	U	0.052	U	0.051	U
4,4'-DDE		0.052	U	89	%	86	%	0.051	U	0.052	U	0.051	U
Dieldrin		0.052	U	94	%	88	%	0.051	U	0.052	U	0.051	U
Endrin		0.052	U	103	%	96	%	0.051	U	0.052	U	0.051	U
4,4'-DDD		0.052	U	96	%	89	%	0.051	U	0.052	U	0.051	U
Endosulfan II		0.052	U	83	%	79	%	0.051	U	0.052	U	0.051	U
4,4'-DDT		0.052	U	87	%	85	%	0.051	U	0.052	U	0.051	U
Endrin aldehyde		0.052	U	85	%	79	%	0.051	U	0.052	U	0.051	U
Endosulfan sulfate		0.052	U	92	%	86	%	0.051	U	0.052	U	0.051	U
Methoxychlor		0.052	U	84	%	81	%	0.051	U	0.052	U	0.051	U
Endrin ketone		0.052	U	93	%	87	%	0.051	U	0.052	U	0.051	U
Toxaphene		0.52	U J	0.51	U	0.51	U	0.51	U J	0.52	U J	0.51	U J

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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Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List

Report Date: 02/09/06 13:07

RFW Batch Number: 0602L209 Client: TNU-HANFORD RCS-048 Work Order: 11343606001 Page: 2

	Cust ID:	J112C3	J112F6	J11247	PBLKBA	PBLKBA BS	PBLKBA BSD
Sample Information	RFW#:	005	006	007	06LE0088-MB1	06LE0088-MB1	06LE0088-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate: Tetrachloro-m-xylene		62 %	51 %	50 %	39 %	64 %	61 %
Decachlorobiphenyl		69 %	59 %	62 %	60 %	50 %	69 %
		fl	fl	fl	fl	fl	fl
Alpha-BHC		0.051 U	0.051 U	0.050 U	0.050 U	94 %	92 %
gamma-BHC (Lindane)		0.051 U	0.051 U	0.050 U	0.050 U	93 %	94 %
Beta-BHC		0.051 U	0.051 U	0.050 U	0.050 U	96 %	105 %
Heptachlor		0.051 U	0.051 U	0.050 U	0.050 U	83 %	83 %
Delta-BHC		0.051 U	0.051 U	0.050 U	0.050 U	91 %	93 %
Aldrin		0.051 U	0.051 U	0.050 U	0.050 U	89 %	86 %
Heptachlor epoxide		0.051 U	0.051 U	0.050 U	0.050 U	89 %	92 %
gamma-Chlordane		0.051 U	0.051 U	0.050 U	0.050 U	89 %	91 %
Endosulfan I		0.051 U	0.051 U	0.050 U	0.050 U	90 %	92 %
alpha-Chlordane		0.051 U	0.051 U	0.050 U	0.050 U	89 %	91 %
4,4'-DDE		0.051 U	0.051 U	0.050 U	0.050 U	96 %	98 %
Dieldrin		0.051 U	0.051 U	0.050 U	0.050 U	95 %	97 %
Endrin		0.051 U	0.051 U	0.050 U	0.050 U	101 %	103 %
4,4'-DDD		0.051 U	0.051 U	0.050 U	0.050 U	97 %	100 %
Endosulfan II		0.051 U	0.051 U	0.050 U	0.050 U	92 %	93 %
4,4'-DDT		0.051 U	0.051 U	0.050 U	0.050 U	93 %	95 %
Endrin aldehyde		0.051 U	0.051 U	0.050 U	0.050 U	86 %	88 %
Endosulfan sulfate		0.051 U	0.051 U	0.050 U	0.050 U	92 %	94 %
Methoxychlor		0.051 U	0.051 U	0.050 U	0.050 U	85 %	88 %
Endrin ketone		0.051 U	0.051 U	0.050 U	0.050 U	93 %	95 %
Toxaphene		0.51 U J	0.51 U J	0.50 U J	0.50 U	0.50 U	0.50 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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Pesticide/PCBs by GC, CLP List

Report Date: 02/09/06 12:55

RFW Batch Number: 0601L184 Client: TNUHANFORD RCS-048 K0205 Work Order: 11343606001 Page: 1

	Cust ID:	J11238	J11232	J11239	J11279	J11245	PBLKBA
Sample Information	RFW#:	001	002	003	004	005	06LE0088-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate: Tetrachloro-m-xylene		59 %	57 %	55 %	62 %	58 %	39 %
Decachlorobiphenyl		62 %	66 %	58 %	61 %	68 %	60 %
Alpha-BHC		0.052 U	0.051 U	0.051 U	0.051 U	0.051 U	0.050 U
gamma-BHC (Lindane)		0.052 U	0.051 U	0.051 U	0.051 U	0.051 U	0.050 U
Beta-BHC		0.052 U	0.051 U	0.051 U	0.051 U	0.051 U	0.050 U
Heptachlor		0.052 U	0.051 U	0.051 U	0.051 U	0.051 U	0.050 U
Delta-BHC		0.052 U	0.051 U	0.051 U	0.051 U	0.051 U	0.050 U
Aldrin		0.052 U	0.051 U	0.051 U	0.051 U	0.051 U	0.050 U
Heptachlor epoxide		0.052 U	0.051 U	0.051 U	0.051 U	0.051 U	0.050 U
gamma-Chlordane		0.052 U	0.051 U	0.051 U	0.051 U	0.051 U	0.050 U
Endosulfan I		0.052 U	0.051 U	0.051 U	0.051 U	0.051 U	0.050 U
alpha-Chlordane		0.052 U	0.051 U	0.051 U	0.051 U	0.051 U	0.050 U
4,4'-DDE		0.052 U	0.051 U	0.051 U	0.051 U	0.051 U	0.050 U
Dieldrin		0.052 U	0.051 U	0.051 U	0.051 U	0.051 U	0.050 U
Endrin		0.052 U	0.051 U	0.051 U	0.051 U	0.051 U	0.050 U
4,4'-DDD		0.052 U	0.051 U	0.051 U	0.051 U	0.051 U	0.050 U
Endosulfan II		0.052 U	0.051 U	0.051 U	0.051 U	0.051 U	0.050 U
4,4'-DDT		0.052 U	0.051 U	0.051 U	0.051 U	0.051 U	0.050 U
Endrin aldehyde		0.052 U	0.051 U	0.051 U	0.051 U	0.051 U	0.050 U
Endosulfan sulfate		0.052 U	0.051 U	0.051 U	0.051 U	0.051 U	0.050 U
Methoxychlor		0.052 U	0.051 U	0.051 U	0.051 U	0.051 U	0.050 U
Endrin ketone		0.052 U	0.051 U	0.051 U	0.051 U	0.051 U	0.050 U
Toxaphene		0.52 UJ	0.51 UJ	0.51 UJ	0.51 UJ	0.51 U	0.50 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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	Cust ID:	PBLKBA BS		PBLKBA BSD	
Sample Information	RFW#:	06LE0088-MB1		06LE0088-MB1	
	Matrix:	WATER		WATER	
	D.F.:	1.00		1.00	
	Units:	UG/L		UG/L	
Surrogate: Tetrachloro-m-xylene		64	%	61	%
Decachlorobiphenyl		50	%	69	%
Alpha-BHC		94	%	92	%
gamma-BHC (Lindane)		93	%	94	%
Beta-BHC		96	%	105	%
Heptachlor		83	%	83	%
Delta-BHC		91	%	93	%
Aldrin		89	%	86	%
Heptachlor epoxide		89	%	92	%
gamma-Chlordane		89	%	91	%
Endosulfan I		90	%	92	%
alpha-Chlordane		89	%	91	%
4,4'-DDE		96	%	98	%
Dieldrin		95	%	97	%
Endrin		101	%	103	%
4,4'-DDD		97	%	100	%
Endosulfan II		92	%	93	%
4,4'-DDT		93	%	95	%
Endrin aldehyde		86	%	88	%
Endosulfan sulfate		92	%	94	%
Methoxychlor		85	%	88	%
Endrin ketone		93	%	95	%
Toxaphene		0.50	U	0.50	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 RCS-048
LVL #: 0601L184 and 0602L209
SDG/SAF # K0205/RCS-048

W.O. #: 11343-606-001-9999-00
Date Received: 01-31-2006 and 02-03-2006

PCB

Twelve (12) water samples were collected on 01-29-2006 and 02-01-2006.

The samples and their associated QC samples were extracted on 02-05-2006 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 02-06,07-2006. The extraction procedure was based on method 3520C and the extracts were analyzed based on method 8082.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. Samples were extracted and analyzed within required holding time.
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. All 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.
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

2/10/06
Date

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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 3 4 pages.

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

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RCS-048
LVL #: 0601L184 and 0602L209
SDG/SAF # K0205/RCS-048

W.O. #: 11343-606-001-9999-00
Date Received: 01-31-2006 and 02-03-2006

CHLORINATED PESTICIDES

Twelve (12) water samples were collected on 01-29-2006 and 02-01-2006.

The samples and their associated QC samples were extracted on 02-05-2006 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 02-06,07-2006. The extraction procedure was based on method 3520C and the extracts were analyzed based on method 8081A.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. Samples were extracted and analyzed within required holding time.
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. All surrogate recoveries were within acceptance criteria.
6. All 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.
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

2/10/06
Date

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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 3 6 pages.

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-048-251

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 3, SURFACE WATER		SAF No.: RC-048
Ice Chest No.: ERC-96-012	Field Logbook No.: BL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A060273		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

SAMPLE ANALYSIS												
Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1	1
Volume	125mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 – Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
Sample No.	Matrix *	Sample Date	Sample Time									
J11238	WATER	1-29-06	1330					X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JAMES BERNHARD	1-29-06 2000	EAS LOCKED STORAGE	1-29-06 2000
EAS LOCKED STORAGE	01-30-06 0710	RZ Steffler	1-30-06 0710
RZ Steffler	1-30-06 1500	Fed EX	
	1-31-06 0910	D. Smith	1-31-06 0910

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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238)

(2) ICP Metals - 6010 (Full List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc); Mercury - 7470 - (CV)

Matrix *: S=Soil, SE=Sediment, SO=Solid, Sl=Sludge, W = Water, O=Oil, A=Air, DS=Drum Sol, DL=Drum Li, 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)

000021

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-048-244

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Day	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 4, PORE WATER		SAF No.: RC-048
Ice Chest No.: AFS-04-052	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A060274		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	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	125mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Tritium - H3	See item (1) in Special Instructions	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
J11232	WATER	1-29-06	1415							X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JAMES BERNHARD	1-29-06 1415	EAS LOCKED STORAGE	1-29-06 1415
EAS LOCKED STORAGE	01-30-06 0710	RZ Stiffler	1-30-06 0710
RZ Stiffler	1-30-06 1500	Fed Ex	
Fed Ex	1-31-06 0910		1-31-06 0910

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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238]

(2) ICP Metals - 6010 (Full List) [Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc]; Mercury - 7470 - (CV)

Matrix *: S=Soil; SE=Sediment; SO=Solid; Sl=Sludge; W = Water; O=Oil; A=Air; DS=Drum Solid; DL=Drum Liqu; 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)

000022

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-048-252	Page 1 of 2

Collector: TILLER, B [redacted] BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 4, SURFACE WATER		SAF No.: RC-048
Ice Chest No.: AFS-04-050	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A060272		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N

Air Quality ☐

Data Turnaround: 45 Days

0000012

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	125mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 – Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

Sample No.	Matrix *	Sample Date	Sample Time										
J11239	WATER	1-29-06	1530							X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: JAMES BERNHARD	Date/Time: 1-29-06 2000	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 1-29-06 2000
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 01-30-06 0710	Received By/Stored In: R.J. Steffler	Date/Time: 1-30-06 0710
Relinquished By/Removed From: R.J. Steffler	Date/Time: 1-30-06 1500	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 1-31-06/0910	Received By/Stored In: D.J. Mith	Date/Time: 1-31-06/0910
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

Matrix *
S=Soil
SE=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

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

000023

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-048-276	Page 1 of 2

Collector TILLER, B JAMES BERNHARD	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH
Price Code 7N	Data Turnaround 45 Days	Air Quality ☐	
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location Cr 5, SURFACE WATER		SAF No. RC-048
Ice Chest No. AFS-04-050	Field Logbook No. EL-1597	COA BESRAS6520	Method of Shipment FED EX
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A060272		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	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226, Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

Sample No.	Matrix *	Sample Date	Sample Time										
J11279	WATER	1-29-06	1600							X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JAMES BERNHARD	1-29-06 1600	EAS LOCKED STORAGE	1-29-06 1600
EAS LOCKED STORAGE	01-30-06 0700	RZ Stoffler	1-30-06 0700
RZ Stoffler	1-30-06 1600	Fed Ex	
Fed Ex	1-31-06 0910	D. Smith	1-31-06 0910

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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238)

(2) ICP Metals - 6010 (Full List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc); Mercury - 7470 - (CV)

Matrix *
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

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

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

00000014

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Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-048-258	Page 1 of 2

Collector: TILLER, B [redacted]	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 5, PORE WATER	SAF No.: RC-048	
Ice Chest No.: ERC-96-012	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES, LIONVILLE	Offsite Property No.: A060273	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

SAMPLE ANALYSIS												
Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1	1
Volume	125mL 60 BA 1-24-06	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium-226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
Sample No.	Matrix *	Sample Date	Sample Time									
J11245	WATER	1-29-06	1630						X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[redacted]	1-29-06 2000	EAS LOCKED STORAGE	1-29-06 2000
EAS LOCKED STORAGE	1-30-06 0710	RZ Stiffler	1-30-06 0710
RZ Stiffler	1-30-06 1500	Fed Ex	
	1-31-06 0910		1-31-06 0910

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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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-048-290	Page 1 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr- 6, PORE WATER FULL QC		SAF No.: RC-048
Ice Chest No.: FXC-02-504	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A060278		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	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	3	2	3
Volume	125mL	1000mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 – Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

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Sample No.	Matrix *	Sample Date	Sample Time										
J112X3	WATER	02-01-06	1445							X	X	X	X

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JAMES BERNHARD	02-01-06 2030	EAS LOCKED STORAGE	02/01/06 2030
EAS LOCKED STORAGE	02/02/06 1200	David Stephenson	02-02-06 1200
David Stephenson	02/02/06 1400	Fed Ex	
Fed Ex	2-3-06 0930	[illegible]	2-3-06 0930

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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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 (08/28/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-048-296	Page 1 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr- 6, SURFACE WATER FULL QC		SAF No.: RC-048
Ice Chest No.: ERC-99-061	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A060278		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium-226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	3	2	3
Volume	125mL	1000mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL

Sample No.	Matrix *	Sample Date	Sample Time	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium-226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
J112X9	WATER	02-01-06	1430							X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names	Received By/Stored In	Date/Time
Relinquished By/Removed From: JAMES BERNHARD	Date/Time: 02-01-06 2030	EAS LOCKED STORAGE	02-01-06 2030
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 02-02-06 1200	David St. John WCH	02-02-06 1200
Relinquished By/Removed From: David St. John WCH	Date/Time: 02/02/06 1400	Fed Ex	
Relinquished By/Removed From: FedEx	Date/Time: 2-3-06 0930		2-3-06 0930
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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
Vg=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-048-285	Page 1 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 10, SURFACE WATER		SAF No.: RC-048
Ice Chest No.: ERC-96-061	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES, LIONVILLE	Offsite Property No.: A06D278		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

SAMPLE ANALYSIS	Tritium - H3	See Item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium-226; Ra-228	See Item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL

Sample No.	Matrix *	Sample Date	Sample Time										
J112F9	WATER	02-01-06	1830							X	X	X	X

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JAMES BERNHARD	2-1-06	EAS LOCKED STORAGE	2-1-06 2130
EAS LOCKED STORAGE	02-02-06 1200	David Stephen WCH	02-02-06 1200
David Stephen	02/02/06 1400	Fed EX	
Fed EX	2-3-06 0930		2-3-06 0930

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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238]

(2) ICP Metals - 6010 (Full List) [Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc]; Mercury - 7470 - (CV)

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-048-263	Page 1 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 10, PORE WATER		SAF No.: RC-048
Ice Chest No.: ERC-02-002	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A060278		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N

Air Quality ☐

Data Turnaround: 45 Days

00000027

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	125mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See Item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See Item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

000029

Sample No.	Matrix *	Sample Date	Sample Time										
J11250	WATER	02-01-06	1900							X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names
Relinquished By/Removed From: JAMES BERNHARD Date/Time: 02-01-06 2030	Received By/Stored In: EAS LOCKED STORAGE Date/Time: 02-01-06 2030
Relinquished By/Removed From: EAS LOCKED STORAGE Date/Time: 02-02-06 1200	Received By/Stored In: David St. Johnwick Date/Time: 02-02-06 1200
Relinquished By/Removed From: David St. Johnwick Date/Time: 02/02/06 1400	Received By/Stored In: Fed EX Date/Time:
Relinquished By/Removed From: Fed Ex Date/Time: 2-3-06 0930	Received By/Stored In: [signature] Date/Time: 2-3-06 0930
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238]

(2) ICP Metals - 6010 (Full List) [Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc]; Mercury - 7470 - (CV)

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-048-280	Page 1 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 6, VERTICAL TUBE		SAF No.: RC-048
Ice Chest No.: ERC-02-002	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A060278 ~~A0600~~ PAS 02/02/06		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N

Data Turnaround: 45 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	None	HNO3 to pH <	HNO3 to pH <	HNO3 to pH <	HNO3 to pH <	HNO3 to pH <	HNO3 to pH <	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 – Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
J112C3	WATER	02-01-06	1530							X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JAMES BERNHARD 02-01-06	2070	EAS LOCKED STORAGE 02-01-06	2070
EAS LOCKED STORAGE 02-02-06	1200	[signature] 02-02-06	1200
[signature] 02/02/06	1420	Fed Ex	
Fed Ex	2-3-06 0930	[signature]	2-3-06 0930

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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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)

000000028

000030

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-048-282	Page 1 of 2

Collector: TILLER, B Bernhard	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 7, SURFACE WATER		SAF No.: RC-048
Ice Chest No.: ERC-03-106	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A060278		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N

Air Quality ☐

Data Turnaround: 45 Days

000000030

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

000031

Sample No.	Matrix *	Sample Date	Sample Time										
J112F6	WATER	2-1-06	1600							X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: JAMES BERNHARD	Date/Time: 2-1-06 2130	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 2-1-06 2130
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 02-02-06 1200	Received By/Stored In: David St. John WCH	Date/Time: 02-02-06 1200
Relinquished By/Removed From: David St. John WCH	Date/Time: 02/02/06 1400	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 2-3-06 0930	Received By/Stored In: [signature]	Date/Time: 2-3-06 0930
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238]

(2) ICP Metals - 6010 (Full List) [Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc]; Mercury - 7470 - (CV)

Matrix *

S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
Wt=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-048-260	Page 1 of 2

Collector TILLER, B JAMES BERNHARD	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH
Price Code 7N	Data Turnaround 45 Days	Air Quality ☐	
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location Cr 7, PORE WATER		SAF No. RC-048
Ice Chest No. ERC-03-106	Field Logbook No. EL-1597	COA BESRAS6520	Method of Shipment FED EX
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A060278		Bill of Lading/Air Bill No. SEE OSPC

000000032

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	None	HNO3 to pH < 2	HNO3 to pH < 2	HNO3 to pH < 2	HNO3 to pH < 2	HNO3 to pH < 2	HNO3 to pH < 2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	125mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226, Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

Sample No.	Matrix *	Sample Date	Sample Time									
J11247	WATER	2-1-06	1615						X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From JAMES BERNHARD	Date/Time 2130 2-1-06	Received By/Stored In EAS LOCKED STORAGE	Date/Time 2130 2-1-06
Relinquished By/Removed From EAS LOCKED STORAGE	Date/Time 1200 02-02-06	Received By/Stored In	Date/Time 1200 02-02-06
Relinquished By/Removed From	Date/Time 1600 02/02/06	Received By/Stored In Fed Ex	Date/Time
Relinquished By/Removed From FEDEX	Date/Time 2-3-06 0930	Received By/Stored In	Date/Time 2-3-06 0930
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238)
(2) ICP Metals - 6010 (Full List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc); Mercury - 7470 - (CV)

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

PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: RCBRA water			DATA PACKAGE: K0205		
VALIDATOR: TLI		LAB: LCI		DATE: 6/3/06	
			SDG: K0205		
ANALYSES PERFORMED					
SW-846 8081	SW-846 8081 (TCLP)	SW-846 8082	SW-846 8081 (TCLP)		
SAMPLES/MATRIX					
J11238	J11232	J11239	J11279	J11245	
J112X3	J112X9	J112F9	J11250	J11253	
J112F6	J11247				
					water

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: no PAS

No toxaphene MS/MSD/LCS – J all

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:

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:

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:

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:

Date: 7 June 2006
To: Washington Closure Hanford (technical representative)
From: TechLaw, Inc.
Project: 100 Area and 300 Area Component of the RCBRA Water Sampling
Subject: Wet Chemistry - Data Package No. K0205-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0205 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	Matrix	Validation	Date
J112X3	2/1/06	Water	C	See note 1 & 2
J112X9	2/1/06	Water	C	See note 1
J112F9	2/1/06	Water	C	See note 1
J11250	2/1/06	Water	C	See note 1 & 2
J112C3	2/1/06	Water	C	See note 1 & 2
J112F6	2/1/06	Water	C	See note 1
J11247	2/1/06	Water	C	See note 1 & 2
J11238	1/29/06	Water	C	See note 1
J11232	1/29/06	Water	C	See note 1 & 2
J11239	1/29/06	Water	C	See note 1
J11279	1/29/06	Water	C	See note 1
J11245	1/29/06	Water	C	See note 1 & 2

1 – IC anions by 300.0, nitrate/nitrite by 353.2, total organic carbon by 415.1 and petroleum hydrocarbons by 418.1.
2 – Alkalinity by 310.1, total kjeldhahl organic carbon (TKN) by 351.3, ammonia by 350.3, total dissolved solids by 160.1 and total suspended solids by 160.2.

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: 28 days for petroleum hydrocarbons, total organic carbon, total kieldahl carbon, ammonia, nitrate/nitrite, fluoride, bromide, chloride and sulfate; fourteen days for alkalinity; seven days for total suspended and dissolved solids; and 48 hours for phosphate, nitrate and nitrite.

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 than twice the limit, all phosphate, nitrate and nitrite results in samples J11238, J11232, J11239, J11279 and J11245 were qualified as estimates and flagged "J".

Due to the holding time being exceeded by greater than twice the limit, all phosphate and nitrite results in samples J112X3, J112X9, J112F9, J11250, J112C3, J112F6 and J11247 were rejected and flagged "UR".

Due to the holding time being exceeded by greater than twice the limit, all nitrate results in samples J112X3, J112X9, J112F9, J11250, J112C3, J112F6 and J11247 were qualified as estimates and flagged "J".

All other holding times were acceptable.

- **Method Blanks**

Method Blanks

Method blank analyses are performed 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. All blank results must fall below the contract required detection limit (CRQL) to be acceptable.

All method 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 130% or less than 70% 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 the lack of a matrix spike and matrix spike duplicate analysis, all nitrate/nitrite and sulfate results in samples J11238, J11232, J11239, J11279 and J11245 were qualified as estimates and flagged "J".

Due to the lack of a matrix spike analysis, all TKN and petroleum hydrocarbon 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 the lack of a matrix spike and matrix spike duplicate analysis, all

nitrate/nitrite and sulfate results in samples J11238, J11232, J11239, J11279 and J11245 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 required quantitation limits (RQLs) to ensure that laboratory detection levels meet the required criteria. All analytes met the RQL.

- **Completeness**

Data package No. K0205 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 87%.

MAJOR DEFICIENCIES

Due to the holding time being exceeded by greater than twice the limit, all phosphate and nitrite results in samples J112X3, J112X9, J112F9, J11250, J112C3, J112F6 and J11247 were rejected and flagged "UR". 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 than twice the limit, all phosphate, nitrate and nitrite results in samples J11238, J11232, J11239, J11279 and J11245 were qualified as estimates and flagged "J".

- Due to the holding time being exceeded by greater than twice the limit, all nitrate results in samples J112X3, J112X9, J112F9, J11250, J112C3, J112F6 and J11247 were qualified as estimates and flagged "J".

- Due to the lack of a matrix spike and matrix spike duplicate analysis, all nitrate/nitrite and sulfate results in samples J11238, J11232, J11239, J11279 and J11245 were qualified as estimates and flagged "J".

- Due to the lack of a matrix spike analysis, all TKN and petroleum hydrocarbon 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 BHI validation SOW are as follows:

U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.

BJ - Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.

R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.

UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

WET CHEMISTRY DATA QUALIFICATION SUMMARY*

SDG: K0205	REVIEWER: TEI	PROJECT: RCBRA	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Nitrate Nitrite Phosphate	J	J11238, J11232 J11239, J11279 J11245	Holding time
Nitrate	J	J112X3, J112X9 J112F9, J11250 J112C3, J112F6 J11247	Holding time
Phosphate Nitrite	UR	J112X3, J112X9 J112F9, J11250 J112C3, J112F6 J11247	Holding time
Nitrate/nitrite Sulfate	J	J11238, J11232 J11239, J11279 J11245	No MS/MSD
TKN Petroleum hydrocarbon	J	All	No matrix spike

* - 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

GENERAL CHEMISTRY ANALYSIS, WATER MATRIX, (MG/L)

Project: WASHINGTON CLOSURE HANFORD

Laboratory: Lionville Laboratory Inc. SDG: K0205

Sample Number		J112X3		J112X9		J112F9		J11250		J112C3		J112F6		J11247		J11238		J11232	
Remarks																			
Sample Date		2/1/06		2/1/06		2/1/06		2/1/06		2/1/06		2/1/06		2/1/06		1/29/06		1/29/06	
General Chemistry	**CRDL**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**
Alkalinity	**5000**	59.9		NA		NA		64.2		68.5		NA		59.9		NA		64.8	
Bromide		0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Chloride	**100**	1.0		1.0		1.0		1.0		2.4		1.0		0.99		1.0		1.8	
Fluoride	**500**	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Nitrite		0.25	UR	0.25	UR	0.25	UR	0.25	UR	0.25	UR	0.25	UR	0.25	UR	0.25	UJ	0.25	UJ
Nitrate	**250**	0.56	J	0.54	J	0.56	J	0.55	J	2.01	J	0.50	J	0.54	J	1.94	J	0.89	J
Phosphate	**500**	0.25	UR	0.25	UR	0.25	UR	0.25	UR	0.25	UR	0.25	UR	0.25	UR	0.25	UJ	0.25	UJ
Sulfate	**500**	10.7		10.5		10.4		10.3		29.7		10.1		10.1		42.3	J	10.6	J
Nitrate/Nitrite		0.15		0.13		0.14		0.14		0.45		0.14		0.14		2.0	J	25	J
Ammonia	**50**	0.10	U	NA		NA		0.10	U	0.10	U	NA		0.10	U	NA		0.10	U
Total Kjeldahl Nitrogen	**50**	0.10	UJ	NA		NA		0.14	J	0.10	UJ	NA		0.10	J	NA		0.10	UJ
Total Organic Carbon	**25**	1.2		1.1		1.0		0.88		0.83		1.5		0.98		1.3		1.2	
Petroleum Hydrocarbons	**500**	1.0	UJ	1.0	UJ	2.0	UJ	2.0	UJ	2.0	UJ	2.0	UJ	2.0	UJ	2.0	UJ	2.0	UJ
Total Dissolved Solids		82.0		NA		NA		88.0		129		NA		88.0		NA		83.0	
Total Suspended Solids		5.00	U	NA		NA		5.00	U	5.00	U	NA		5.00	U	NA		5.00	U

Sample Number		J11239		J11279		J11245	
Remarks							
Sample Date		1/29/06		1/29/06		1/29/06	
General Chemistry	**CRDL**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**
Alkalinity	**5000**	NA		NA		60.5	
Bromide		0.25	U	0.25	U	0.25	U
Chloride	**100**	1.0		1.0		1.0	
Fluoride	**500**	0.25	U	0.25	U	0.25	U
Nitrite		0.25	UJ	0.25	UJ	0.25	UJ
Nitrate	**250**	2.37	J	0.90	J	0.73	J
Phosphate	**500**	0.25	UJ	0.25	UJ	0.25	UJ
Sulfate	**500**	19.2	J	14.7	J	10.3	J
Nitrate/Nitrite		0.73	J	2.5	J	0.77	J
Ammonia	**50**	NA		NA		0.10	U
Total Kjeldahl Nitrogen	**50**	NA		NA		0.10	UJ
Total Organic Carbon	**25**	1.2		1.3		1.0	
Petroleum Hydrocarbons	**500**	2.0	UJ	2.0	UJ	2.0	UJ
Total Dissolved Solids		NA		NA		85.0	
Total Suspended Solids		NA		NA		5.00	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.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/28/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0602L209

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J112X3	Alkalinity	59.9	MG/L	4.0	1.0
		Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	1.0	MG/L	0.25	1.0
		Fluoride by IC	0.25 u	MG/L	0.25	1.0
		Nitrite by IC	0.25 uR	MG/L	0.25	1.0
		Nitrate by IC	0.56 J	MG/L	0.25	1.0
		Phosphate by IC	0.25 uR	MG/L	0.25	1.0
		Sulfate by IC	10.7	MG/L	0.50	2.0
		Nitrate Nitrite	0.15	MG/L	0.020	1.0
		Ammonia, as N	0.10 u	MG/L	0.10	1.0
		TKN	0.10 uJ	MG/L	0.10	1.0
		Total Organic Carbon	1.2	MG/L	0.50	1.0
		Petroleum Hydrocarbons	1.0 uJ	MG/L	1.0	1.0
		Total Dissolved Solids	82.0	MG/L	5.00	1.0
		Total Suspended Solids	5.00 u	MG/L	5.00	1.0
-002	J112X9	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	1.0	MG/L	0.25	1.0
		Fluoride by IC	0.25 u	MG/L	0.25	1.0
		Nitrite by IC	0.25 uR	MG/L	0.25	1.0
		Nitrate by IC	0.54 J	MG/L	0.25	1.0
		Phosphate by IC	0.25 uR	MG/L	0.25	1.0
		Sulfate by IC	10.5	MG/L	0.50	2.0
		Nitrate Nitrite	0.13	MG/L	0.020	1.0
		Total Organic Carbon	1.1	MG/L	0.50	1.0
		Petroleum Hydrocarbons	1.0 uJ	MG/L	1.0	1.0
-003	J112F9	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	1.0	MG/L	0.25	1.0
		Fluoride by IC	0.25 u	MG/L	0.25	1.0
		Nitrite by IC	0.25 uR	MG/L	0.25	1.0
		Nitrate by IC	0.56 J	MG/L	0.25	1.0
		Phosphate by IC	0.25 uR	MG/L	0.25	1.0
		Sulfate by IC	10.4	MG/L	0.50	2.0
		Nitrate Nitrite	0.14	MG/L	0.020	1.0
		Total Organic Carbon	1.0	MG/L	0.50	1.0
		Petroleum Hydrocarbons	2.0 uJ	MG/L	2.0	1.0

W 4/5/06

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/28/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0602L209

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	J11250	Alkalinity	64.2	MG/L	4.0	1.0
		Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	1.0	MG/L	0.25	1.0
		Fluoride by IC	0.25 u	MG/L	0.25	1.0
		Nitrite by IC	0.25 uR	MG/L	0.25	1.0
		Nitrate by IC	0.55 J	MG/L	0.25	1.0
		Phosphate by IC	0.25 uR	MG/L	0.25	1.0
		Sulfate by IC	10.3	MG/L	0.50	2.0
		Nitrate Nitrite	0.14 J	MG/L	0.020	1.0
		Ammonia, as N	0.10 u	MG/L	0.10	1.0
		TKN	0.14 J	MG/L	0.10	1.0
		Total Organic Carbon	0.88	MG/L	0.50	1.0
		Petroleum Hydrocarbons	2.0 uJ	MG/L	2.0	1.0
		Total Dissolved Solids	88.0	MG/L	5.00	1.0
		Total Suspended Solids	5.00 u	MG/L	5.00	1.0
-005	J112C3	Alkalinity	68.5	MG/L	4.0	1.0
		Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	2.4	MG/L	0.25	1.0
		Fluoride by IC	0.25 u	MG/L	0.25	1.0
		Nitrite by IC	0.25 uR	MG/L	0.25	1.0
		Nitrate by IC	2.01 J	MG/L	0.25	1.0
		Phosphate by IC	0.25 uR	MG/L	0.25	1.0
		Sulfate by IC	29.7	MG/L	1.2	5.0
		Nitrate Nitrite	0.45 J	MG/L	0.020	1.0
		Ammonia, as N	0.10 u	MG/L	0.10	1.0
		TKN	0.10 uJ	MG/L	0.10	1.0
		Total Organic Carbon	0.83	MG/L	0.50	1.0
		Petroleum Hydrocarbons	2.0 uJ	MG/L	2.0	1.0
		Total Dissolved Solids	129	MG/L	5.00	1.0
		Total Suspended Solids	5.00 u	MG/L	5.00	1.0
-006	J112F6	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	1.0	MG/L	0.25	1.0
		Fluoride by IC	0.25 u	MG/L	0.25	1.0
		Nitrite by IC	0.25 uR	MG/L	0.25	1.0
		Nitrate by IC	0.50 J	MG/L	0.25	1.0
		Phosphate by IC	0.25 uR	MG/L	0.25	1.0
		Sulfate by IC	10.1	MG/L	0.50	2.0
		Nitrate Nitrite	0.14 J	MG/L	0.020	1.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/28/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0602L209
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-006	J112F6	Total Organic Carbon	1.5	MG/L	0.50	1.0
		Petroleum Hydrocarbons	2.0 u J	MG/L	2.0	1.0

6/4/06

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/28/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0601L184
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J11238	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	1.0	MG/L	0.25	1.0
		Fluoride by IC	0.25 u	MG/L	0.25	1.0
		Nitrite by IC	0.25 u J	MG/L	0.25	1.0
		Nitrate by IC	1.94 J	MG/L	0.25	1.0
		Phosphate by IC	0.25 u J	MG/L	0.25	1.0
		Sulfate by IC	42.3 J	MG/L	1.2	5.0
		Nitrate Nitrite	2.0 J	MG/L	0.10	5.0
		Total Organic Carbon	1.3	MG/L	0.50	1.0
		Petroleum Hydrocarbons	2.0 u J	MG/L	2.0	1.0
-002	J11232	Alkalinity	64.8	MG/L	4.0	1.0
		Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	1.8	MG/L	0.25	1.0
		Fluoride by IC	0.25 u	MG/L	0.25	1.0
		Nitrite by IC	0.25 u J	MG/L	0.25	1.0
		Nitrate by IC	0.69 J	MG/L	0.25	1.0
		Phosphate by IC	0.25 u J	MG/L	0.25	1.0
		Sulfate by IC	10.6 J	MG/L	0.50	2.0
		Nitrate Nitrite	0.25 J	MG/L	0.020	1.0
		Ammonia, as N	0.10 u	MG/L	0.10	1.0
		TKN	0.10 u J	MG/L	0.10	1.0
		Total Organic Carbon	1.2	MG/L	0.50	1.0
		Petroleum Hydrocarbons	2.0 u J	MG/L	2.0	1.0
		Total Dissolved Solids	83.0	MG/L	5.00	1.0
		Total Suspended Solids	5.00 u	MG/L	5.00	1.0
-003	J11239	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	1.0	MG/L	0.25	1.0
		Fluoride by IC	0.25 u	MG/L	0.25	1.0
		Nitrite by IC	0.25 u J	MG/L	0.25	1.0
		Nitrate by IC	2.37 J	MG/L	0.25	1.0
		Phosphate by IC	0.25 u J	MG/L	0.25	1.0
		Sulfate by IC	19.2 J	MG/L	1.2	5.0
		Nitrate Nitrite	0.73 J	MG/L	0.020	1.0
		Total Organic Carbon	1.2	MG/L	0.50	1.0
		Petroleum Hydrocarbons	2.0 u J	MG/L	2.0	1.0

6/14/06

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/28/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0601L184
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	J11279	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	1.0	MG/L	0.25	1.0
		Fluoride by IC	0.25 u	MG/L	0.25	1.0
		Nitrite by IC	0.25 uJ	MG/L	0.25	1.0
		Nitrate by IC	0.90 J	MG/L	0.25	1.0
		Phosphate by IC	0.25 uJ	MG/L	0.25	1.0
		Sulfate by IC	14.7 J	MG/L	0.50	2.0
		Nitrate Nitrite	2.5 J	MG/L	0.10	5.0
		Total Organic Carbon	1.3	MG/L	0.50	1.0
		Petroleum Hydrocarbons	2.0 uJ	MG/L	2.0	1.0
-005	J11245	Alkalinity	60.5	MG/L	4.0	1.0
		Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	1.0	MG/L	0.25	1.0
		Fluoride by IC	0.25 u	MG/L	0.25	1.0
		Nitrite by IC	0.25 uJ	MG/L	0.25	1.0
		Nitrate by IC	0.73 J	MG/L	0.25	1.0
		Phosphate by IC	0.25 uJ	MG/L	0.25	1.0
		Sulfate by IC	10.3 J	MG/L	0.50	2.0
		Nitrate Nitrite	0.77 J	MG/L	0.020	1.0
		Ammonia, as N	0.10 u	MG/L	0.10	1.0
		TKN	0.10 uJ	MG/L	0.10	1.0
		Total Organic Carbon	1.0	MG/L	0.50	1.0
		Petroleum Hydrocarbons	2.0 uJ	MG/L	2.0	1.0
		Total Dissolved Solids	85.0	MG/L	5.00	1.0
		Total Suspended Solids	5.00 u	MG/L	5.00	1.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/28/06

CLIENT: TNUHANFORD RCS-04B K0205 LVL LOT #: 0602L209
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-007	J11247	Alkalinity	59.9	MG/L	4.0	1.0
		Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	0.99	MG/L	0.25	1.0
		Fluoride by IC	0.25 u	MG/L	0.25	1.0
		Nitrite by IC	0.25 uR	MG/L	0.25	1.0
		Nitrate by IC	0.54 J	MG/L	0.25	1.0
		Phosphate by IC	0.25 uR	MG/L	0.25	1.0
		Sulfate by IC	10.1 J	MG/L	0.50	2.0
		Nitrate Nitrite	0.14 J	MG/L	0.020	1.0
		Ammonia, as N	0.10 u	MG/L	0.10	1.0
		TKN	0.10 J	MG/L	0.10	1.0
		Total Organic Carbon	0.98	MG/L	0.50	1.0
		Petroleum Hydrocarbons	2.0 uJ	MG/L	2.0	1.0
		Total Dissolved Solids	88.0	MG/L	5.00	1.0
		Total Suspended Solids	5.00 u	MG/L	5.00	1.0

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6/4/06

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RCS-048 K0205
LVL#: 0602L184; 209

W.O.#: 11343-606-001-9999-00
Date Received: 01-31-06;02-03-06

INORGANIC NARRATIVE

1. This narrative covers the analyses of 12 water samples.

2. The samples were prepared and analyzed in accordance with the methods checked on the attached glossary.

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

3. Sample holding times as required by the method and/or contract were met with the exception of Nitrite, Nitrate and Phosphate (see the sample chronology summary for analyses times for short hold samples).

4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.

5. The method blanks were within the method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS for Petroleum Hydrocarbons (PHC), Alkalinity, Ammonia, Total Kjeldahl Nitrogen (TKN), Total Dissolved Solids (TDS) and Total Suspended Solids (TSS) were within the 20% Relative Percent Difference (RPD) control limit.

7. The matrix spike recoveries for Bromide, Chloride, Fluoride, Nitrite, Nitrate, Phosphate, Sulfate, Nitrate Nitrite, Total Organic Carbon (TOC) and Ammonia were within the 75-125% control limits. Insufficient sample was provided so as to perform matrix spike analyses for TKN and PHC.

The results presented in this report relate to the analytical testing and conditions of the samples upon 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 57 pages.

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8. The replicate analyses for Alkalinity, Bromide, Chloride, Fluoride, Nitrite, Nitrate, Phosphate, Sulfate, Nitrate Nitrite, Ammonia, TDS, TSS and TOC were within the 20% RPD control limit. Insufficient sample was provided so as to perform replicate analyses for TKN and PHC.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

3/20/06
Date

njp\i02-209

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RCS-048 K0205

RECEIVED MAR 2006

DATE RECEIVED: 01/31/06 LVL LOT # :0601L184

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	ANALYSIS Time
J11238							
BROMIDE BY IC	001	W	06LIC014	01/29/06	01/31/06	01/31/06	
BROMIDE BY IC	001 REP	W	06LIC014	01/29/06	01/31/06	01/31/06	
BROMIDE BY IC	001 MS	W	06LIC014	01/29/06	01/31/06	01/31/06	
CHLORIDE BY IC	001	W	06LIC014	01/29/06	01/31/06	01/31/06	
CHLORIDE BY IC	001 REP	W	06LIC014	01/29/06	01/31/06	01/31/06	
CHLORIDE BY IC	001 MS	W	06LIC014	01/29/06	01/31/06	01/31/06	
FLUORIDE BY IC	001	W	06LIC014	01/29/06	01/31/06	01/31/06	
FLUORIDE BY IC	001 REP	W	06LIC014	01/29/06	01/31/06	01/31/06	
FLUORIDE BY IC	001 MS	W	06LIC014	01/29/06	01/31/06	01/31/06	
NITRITE BY IC	001	W	06LIC014	01/29/06	01/31/06	01/31/06	1932
NITRITE BY IC	001 REP	W	06LIC014	01/29/06	01/31/06	01/31/06	1945
NITRITE BY IC	001 MS	W	06LIC014	01/29/06	01/31/06	01/31/06	1958
NITRATE BY IC	001	W	06LIC014	01/29/06	01/31/06	01/31/06	1932
NITRATE BY IC	001 REP	W	06LIC014	01/29/06	01/31/06	01/31/06	1945
NITRATE BY IC	001 MS	W	06LIC014	01/29/06	01/31/06	01/31/06	1958
PHOSPHATE BY IC	001	W	06LIC014	01/29/06	01/31/06	01/31/06	1932
PHOSPHATE BY IC	001 REP	W	06LIC014	01/29/06	01/31/06	01/31/06	1945
PHOSPHATE BY IC	001 MS	W	06LIC014	01/29/06	01/31/06	01/31/06	1958
SULFATE BY IC	001	W	06LIC014	01/29/06	01/31/06	01/31/06	
NITRATE NITRITE	001	W	06LN3010	01/29/06	02/23/06	02/23/06	
TOTAL ORGANIC CARBON	001	W	06LTC006	01/29/06	02/13/06	02/13/06	
PETROLEUM HYDROCARBO	001	W	06LHC014	01/29/06	02/19/06	02/21/06	
J11232							
ALKALINITY	002	W	06LAK006	01/29/06	02/01/06	02/01/06	
BROMIDE BY IC	002	W	06LIC014	01/29/06	01/31/06	01/31/06	
CHLORIDE BY IC	002	W	06LIC014	01/29/06	01/31/06	01/31/06	
FLUORIDE BY IC	002	W	06LIC014	01/29/06	01/31/06	01/31/06	
NITRITE BY IC	002	W	06LIC014	01/29/06	01/31/06	01/31/06	~~2019~~ 2012
NITRATE BY IC	002	W	06LIC014	01/29/06	01/31/06	01/31/06	
PHOSPHATE BY IC	002	W	06LIC014	01/29/06	01/31/06	01/31/06	
SULFATE BY IC	002	W	06LIC014	01/29/06	01/31/06	01/31/06	
NITRATE NITRITE	002	W	06LN3010	01/29/06	02/23/06	02/23/06	
AMMONIA	002	W	06LAM006	01/29/06	02/06/06	02/06/06	

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RCS-048 K0205

DATE RECEIVED: 01/31/06 LVL LOT # :0601L184

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	ANALYSIS TIME
TOTAL KJELDAHL NITRO	002	W	06LAM009	01/29/06	02/10/06	02/10/06	
TOTAL ORGANIC CARBON	002	W	06LTC006	01/29/06	02/13/06	02/13/06	
TOTAL ORGANIC CARBON	002 REP	W	06LTC006	01/29/06	02/13/06	02/13/06	
PETROLEUM HYDROCARBO	002	W	06LHC014	01/29/06	02/19/06	02/21/06	
TOTAL DISSOLVED SOLI	002	W	06LSSA10	01/29/06	02/03/06	02/03/06	
TOTAL DISSOLVED SOLI	002 REP	W	06LSSA10	01/29/06	02/03/06	02/03/06	
TOTAL SUSPENDED SOLI	002	W	06LSS010	01/29/06	02/03/06	02/03/06	
TOTAL SUSPENDED SOLI	002 REP	W	06LSS010	01/29/06	02/03/06	02/03/06	
J11239							
BROMIDE BY IC	003	W	06LIC014	01/29/06	01/31/06	01/31/06	
CHLORIDE BY IC	003	W	06LIC014	01/29/06	01/31/06	01/31/06	
FLUORIDE BY IC	003	W	06LIC014	01/29/06	01/31/06	01/31/06	
NITRITE BY IC	003	W	06LIC014	01/29/06	01/31/06	01/31/06	2025
NITRATE BY IC	003	W	06LIC014	01/29/06	01/31/06	01/31/06	
PHOSPHATE BY IC	003	W	06LIC014	01/29/06	01/31/06	01/31/06	
SULFATE BY IC	003	W	06LIC018	01/29/06	02/07/06	02/07/06	
NITRATE NITRITE	003	W	06LN3010	01/29/06	02/23/06	02/23/06	
TOTAL ORGANIC CARBON	003	W	06LTC006	01/29/06	02/13/06	02/13/06	
TOTAL ORGANIC CARBON	003 MS	W	06LTC006	01/29/06	02/13/06	02/13/06	
PETROLEUM HYDROCARBO	003	W	06LHC014	01/29/06	02/19/06	02/21/06	
J11279							
BROMIDE BY IC	004	W	06LIC014	01/29/06	01/31/06	01/31/06	
CHLORIDE BY IC	004	W	06LIC014	01/29/06	01/31/06	01/31/06	
FLUORIDE BY IC	004	W	06LIC014	01/29/06	01/31/06	01/31/06	
NITRITE BY IC	004	W	06LIC014	01/29/06	01/31/06	01/31/06	2038
NITRATE BY IC	004	W	06LIC014	01/29/06	01/31/06	01/31/06	
PHOSPHATE BY IC	004	W	06LIC014	01/29/06	01/31/06	01/31/06	
SULFATE BY IC	004	W	06LIC014	01/29/06	01/31/06	01/31/06	
NITRATE NITRITE	004	W	06LN3010	01/29/06	02/23/06	02/23/06	
TOTAL ORGANIC CARBON	004	W	06LTC006	01/29/06	02/13/06	02/13/06	
PETROLEUM HYDROCARBO	004	W	06LHC014	01/29/06	02/19/06	02/21/06	
J11245							
ALKALINITY	005	W	06LAK006	01/29/06	02/01/06	02/01/06	

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RCS-048 K0205

DATE RECEIVED: 01/31/06 LVL LOT # :0601L184

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	ANALYSIS TIME
ALKALINITY	005 REP	W	06LAK006	01/29/06	02/01/06	02/01/06	
BROMIDE BY IC	005	W	06LIC014	01/29/06	01/31/06	01/31/06	
CHLORIDE BY IC	005	W	06LIC014	01/29/06	01/31/06	01/31/06	
FLUORIDE BY IC	005	W	06LIC014	01/29/06	01/31/06	01/31/06	
NITRITE BY IC	005	W	06LIC014	01/29/06	01/31/06	01/31/06	2051
NITRATE BY IC	005	W	06LIC014	01/29/06	01/31/06	01/31/06	
PHOSPHATE BY IC	005	W	06LIC014	01/29/06	01/31/06	01/31/06	
SULFATE BY IC	005	W	06LIC014	01/29/06	01/31/06	01/31/06	
NITRATE NITRITE	005	W	06LN3010	01/29/06	02/23/06	02/23/06	
AMMONIA	005	W	06LAM006	01/29/06	02/06/06	02/06/06	
TOTAL KJELDAHL NITRO	005	W	06LAM009	01/29/06	02/10/06	02/10/06	
TOTAL ORGANIC CARBON	005	W	06LTC006	01/29/06	02/13/06	02/13/06	
PETROLEUM HYDROCARBO	005	W	06LHC014	01/29/06	02/19/06	02/21/06	
TOTAL DISSOLVED SOLI	005	W	06LSSA10	01/29/06	02/03/06	02/03/06	
TOTAL SUSPENDED SOLI	005	W	06LSS010	01/29/06	02/03/06	02/03/06	

LAB QC:

BROMIDE BY IC	MB1	W	06LIC014	N/A	01/31/06	01/31/06
BROMIDE BY IC	MB1 BS	W	06LIC014	N/A	01/31/06	01/31/06
CHLORIDE BY IC	MB1	W	06LIC014	N/A	01/31/06	01/31/06
CHLORIDE BY IC	MB1 BS	W	06LIC014	N/A	01/31/06	01/31/06
FLUORIDE BY IC	MB1	W	06LIC014	N/A	01/31/06	01/31/06
FLUORIDE BY IC	MB1 BS	W	06LIC014	N/A	01/31/06	01/31/06
NITRITE BY IC	MB1	W	06LIC014	N/A	01/31/06	01/31/06
NITRITE BY IC	MB1 BS	W	06LIC014	N/A	01/31/06	01/31/06
NITRATE BY IC	MB1	W	06LIC014	N/A	01/31/06	01/31/06
NITRATE BY IC	MB1 BS	W	06LIC014	N/A	01/31/06	01/31/06
PHOSPHATE BY IC	MB1	W	06LIC014	N/A	01/31/06	01/31/06
PHOSPHATE BY IC	MB1 BS	W	06LIC014	N/A	01/31/06	01/31/06
SULFATE BY IC	MB1	W	06LIC014	N/A	01/31/06	01/31/06
SULFATE BY IC	MB1 BS	W	06LIC014	N/A	01/31/06	01/31/06
NITRATE NITRITE	MB1	W	06LN3010	N/A	02/23/06	02/23/06
NITRATE NITRITE	MB1 BS	W	06LN3010	N/A	02/23/06	02/23/06
TOTAL ORGANIC CARBON	MB1	W	06LTC006	N/A	02/13/06	02/13/06
TOTAL ORGANIC CARBON	MB1 BS	W	06LTC006	N/A	02/13/06	02/13/06
PETROLEUM HYDROCARBO	MB1	W	06LHC014	N/A	02/19/06	02/21/06
PETROLEUM HYDROCARBO	MB1 BS	W	06LHC014	N/A	02/19/06	02/21/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RCS-048 K0205

DATE RECEIVED: 01/31/06 LVL LOT # :0601L184

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
PETROLEUM HYDROCARBO	MB1 BSD	W	06LHC014	N/A	02/19/06	02/21/06
ALKALINITY	MB1	W	06LAK006	N/A	02/01/06	02/01/06
ALKALINITY	MB1 BS	W	06LAK006	N/A	02/01/06	02/01/06
ALKALINITY	MB1 BSD	W	06LAK006	N/A	02/01/06	02/01/06
AMMONIA	MB1	W	06LAM006	N/A	02/06/06	02/06/06
AMMONIA	MB1 BS	W	06LAM006	N/A	02/06/06	02/06/06
AMMONIA	MB1 BSD	W	06LAM006	N/A	02/06/06	02/06/06
TOTAL KJELDAHL NITRO	MB1	W	06LAM009	N/A	02/10/06	02/10/06
TKN	MB1 BS	W	06LAM009	N/A	02/10/06	02/10/06
TKN	MB1 BSD	W	06LAM009	N/A	02/10/06	02/10/06
TOTAL DISSOLVED SOLI	MB1	W	06LSSA10	N/A	02/03/06	02/03/06
TOTAL DISSOLVED SOLI	MB1 BS	W	06LSSA10	N/A	02/03/06	02/03/06
TOTAL DISSOLVED SOLI	MB1 BSD	W	06LSSA10	N/A	02/03/06	02/03/06
TOTAL SUSPENDED SOLI	MB1	W	06LSS010	N/A	02/03/06	02/03/06
TOTAL SUSPENDED SOLI	MB1 BS	W	06LSS010	N/A	02/03/06	02/03/06
TOTAL SUSPENDED SOLI	MB1 BSD	W	06LSS010	N/A	02/03/06	02/03/06
SULFATE BY IC	MB1	W	06LIC018	N/A	02/07/06	02/07/06
SULFATE BY IC	MB1 BS	W	06LIC018	N/A	02/07/06	02/07/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RCS-048 K0205

DATE RECEIVED: 02/03/06 LVL LOT # :0602L209

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	ANALYSIS TIME
J112X3							
ALKALINITY	001	W	06LAK007	02/01/06	02/05/06	02/05/06	
ALKALINITY	001 REP	W	06LAK007	02/01/06	02/05/06	02/05/06	
BROMIDE BY IC	001	W	06LICA18	02/01/06	02/07/06	02/08/06	
BROMIDE BY IC	001 REP	W	06LICA18	02/01/06	02/07/06	02/08/06	
BROMIDE BY IC	001 MS	W	06LICA18	02/01/06	02/07/06	02/08/06	
CHLORIDE BY IC	001	W	06LICA18	02/01/06	02/07/06	02/08/06	
CHLORIDE BY IC	001 REP	W	06LICA18	02/01/06	02/07/06	02/08/06	
CHLORIDE BY IC	001 MS	W	06LICA18	02/01/06	02/07/06	02/08/06	
FLUORIDE BY IC	001	W	06LICA18	02/01/06	02/07/06	02/08/06	
FLUORIDE BY IC	001 REP	W	06LICA18	02/01/06	02/07/06	02/08/06	
FLUORIDE BY IC	001 MS	W	06LICA18	02/01/06	02/07/06	02/08/06	
NITRITE BY IC	001	W	06LICA18	02/01/06	02/07/06	02/08/06	1052
NITRITE BY IC	001 REP	W	06LICA18	02/01/06	02/07/06	02/08/06	1105
NITRITE BY IC	001 MS	W	06LICA18	02/01/06	02/07/06	02/08/06	1117
NITRATE BY IC	001	W	06LICA18	02/01/06	02/07/06	02/08/06	1052
NITRATE BY IC	001 REP	W	06LICA18	02/01/06	02/07/06	02/08/06	1105
NITRATE BY IC	001 MS	W	06LICA18	02/01/06	02/07/06	02/08/06	1117
PHOSPHATE BY IC	001	W	06LICA18	02/01/06	02/07/06	02/08/06	1052
PHOSPHATE BY IC	001 REP	W	06LICA18	02/01/06	02/07/06	02/08/06	1105
PHOSPHATE BY IC	001 MS	W	06LICA18	02/01/06	02/07/06	02/08/06	1117
SULFATE BY IC	001	W	06LICA18	02/01/06	02/07/06	02/07/06	
SULFATE BY IC	001 REP	W	06LICA18	02/01/06	02/07/06	02/08/06	
SULFATE BY IC	001 MS	W	06LICA18	02/01/06	02/07/06	02/08/06	
NITRATE NITRITE	001	W	06LN3010	02/01/06	02/23/06	02/23/06	
NITRATE NITRITE	001 REP	W	06LN3010	02/01/06	02/23/06	02/23/06	
NITRATE NITRITE	001 MS	W	06LN3010	02/01/06	02/23/06	02/23/06	
AMMONIA	001	W	06LAM006	02/01/06	02/06/06	02/06/06	
AMMONIA	001 REP	W	06LAM006	02/01/06	02/06/06	02/06/06	
AMMONIA	001 MS	W	06LAM006	02/01/06	02/06/06	02/06/06	
TOTAL KJELDAHL NITRO	001	W	06LAM009	02/01/06	02/10/06	02/10/06	
TOTAL ORGANIC CARBON	001	W	06LTC007	02/01/06	02/15/06	02/15/06	
TOTAL ORGANIC CARBON	001 REP	W	06LTC007	02/01/06	02/15/06	02/15/06	
TOTAL ORGANIC CARBON	001 MS	W	06LTC007	02/01/06	02/15/06	02/15/06	
PETROLEUM HYDROCARBO	001	W	06LHC014	02/01/06	02/19/06	02/21/06	
TOTAL DISSOLVED SOLI	001	W	06LSSA11	02/01/06	02/04/06	02/04/06	

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RCS-048 K0205

DATE RECEIVED: 02/03/06 LVL LOT # :0602L209

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	ANALYSIS TIME
TOTAL DISSOLVED SOLI	001 REP	W	06LSSA11	02/01/06	02/04/06	02/04/06	
TOTAL SUSPENDED SOLI	001	W	06LSS011	02/01/06	02/04/06	02/04/06	
TOTAL SUSPENDED SOLI	001 REP	W	06LSS011	02/01/06	02/04/06	02/04/06	
J112X9							
BROMIDE BY IC	002	W	06LICA18	02/01/06	02/07/06	02/08/06	
BROMIDE BY IC	002 REP	W	06LICA18	02/01/06	02/07/06	02/08/06	
BROMIDE BY IC	002 MS	W	06LICA18	02/01/06	02/07/06	02/08/06	
CHLORIDE BY IC	002	W	06LICA18	02/01/06	02/07/06	02/08/06	
CHLORIDE BY IC	002 REP	W	06LICA18	02/01/06	02/07/06	02/08/06	
CHLORIDE BY IC	002 MS	W	06LICA18	02/01/06	02/07/06	02/08/06	
FLUORIDE BY IC	002	W	06LICA18	02/01/06	02/07/06	02/08/06	
FLUORIDE BY IC	002 REP	W	06LICA18	02/01/06	02/07/06	02/08/06	
FLUORIDE BY IC	002 MS	W	06LICA18	02/01/06	02/07/06	02/08/06	
NITRITE BY IC	002	W	06LICA18	02/01/06	02/07/06	02/08/06	1209
NITRITE BY IC	002 REP	W	06LICA18	02/01/06	02/07/06	02/08/06	1222
NITRITE BY IC	002 MS	W	06LICA18	02/01/06	02/07/06	02/08/06	1235
NITRATE BY IC	002	W	06LICA18	02/01/06	02/07/06	02/08/06	1209
NITRATE BY IC	002 REP	W	06LICA18	02/01/06	02/07/06	02/08/06	1222
NITRATE BY IC	002 MS	W	06LICA18	02/01/06	02/07/06	02/08/06	1235
PHOSPHATE BY IC	002	W	06LICA18	02/01/06	02/07/06	02/08/06	1209
PHOSPHATE BY IC	002 REP	W	06LICA18	02/01/06	02/07/06	02/08/06	1222
PHOSPHATE BY IC	002 MS	W	06LICA18	02/01/06	02/07/06	02/08/06	1235
SULFATE BY IC	002	W	06LICA18	02/01/06	02/07/06	02/08/06	
SULFATE BY IC	002 REP	W	06LICA18	02/01/06	02/07/06	02/08/06	
SULFATE BY IC	002 MS	W	06LICA18	02/01/06	02/07/06	02/08/06	
NITRATE NITRITE	002	W	06LN3010	02/01/06	02/23/06	02/23/06	
NITRATE NITRITE	002 REP	W	06LN3010	02/01/06	02/23/06	02/23/06	
NITRATE NITRITE	002 MS	W	06LN3010	02/01/06	02/23/06	02/23/06	
TOTAL ORGANIC CARBON	002	W	06LTC007	02/01/06	02/15/06	02/15/06	
TOTAL ORGANIC CARBON	002 REP	W	06LTC007	02/01/06	02/15/06	02/15/06	
TOTAL ORGANIC CARBON	002 MS	W	06LTC007	02/01/06	02/15/06	02/15/06	
PETROLEUM HYDROCARBO	002	W	06LHC014	02/01/06	02/19/06	02/21/06	
J112F9							
BROMIDE BY IC	003	W	06LICA18	02/01/06	02/07/06	02/08/06	

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RCS-048 K0205

DATE RECEIVED: 02/03/06 LVL LOT # :0602L209

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	ANALYSIS TIME
CHLORIDE BY IC	003	W	06LICA18	02/01/06	02/07/06	02/08/06	
FLUORIDE BY IC	003	W	06LICA18	02/01/06	02/07/06	02/08/06	
NITRITE BY IC	003	W	06LICA18	02/01/06	02/07/06	02/08/06	1418
NITRATE BY IC	003	W	06LICA18	02/01/06	02/07/06	02/08/06	
PHOSPHATE BY IC	003	W	06LICA18	02/01/06	02/07/06	02/08/06	
SULFATE BY IC	003	W	06LICA18	02/01/06	02/07/06	02/08/06	
NITRATE NITRITE	003	W	06LN3010	02/01/06	02/23/06	02/23/06	
TOTAL ORGANIC CARBON	003	W	06LTC007	02/01/06	02/15/06	02/15/06	
PETROLEUM HYDROCARBO	003	W	06LHC014	02/01/06	02/19/06	02/21/06	
J11250							
ALKALINITY	004	W	06LAK007	02/01/06	02/05/06	02/05/06	
BROMIDE BY IC	004	W	06LICA18	02/01/06	02/07/06	02/08/06	
CHLORIDE BY IC	004	W	06LICA18	02/01/06	02/07/06	02/08/06	
FLUORIDE BY IC	004	W	06LICA18	02/01/06	02/07/06	02/08/06	
NITRITE BY IC	004	W	06LICA18	02/01/06	02/07/06	02/08/06	1431
NITRATE BY IC	004	W	06LICA18	02/01/06	02/07/06	02/08/06	
PHOSPHATE BY IC	004	W	06LICA18	02/01/06	02/07/06	02/08/06	
SULFATE BY IC	004	W	06LICA18	02/01/06	02/07/06	02/08/06	
NITRATE NITRITE	004	W	06LN3010	02/01/06	02/23/06	02/23/06	
AMMONIA	004	W	06LAM006	02/01/06	02/06/06	02/06/06	
TOTAL KJELDAHL NITRO	004	W	06LAM009	02/01/06	02/10/06	02/10/06	
TOTAL ORGANIC CARBON	004	W	06LTC007	02/01/06	02/15/06	02/15/06	
PETROLEUM HYDROCARBO	004	W	06LHC014	02/01/06	02/19/06	02/21/06	
TOTAL DISSOLVED SOLI	004	W	06LSSA11	02/01/06	02/04/06	02/04/06	
TOTAL SUSPENDED SOLI	004	W	06LSS011	02/01/06	02/04/06	02/04/06	
J112C3							
ALKALINITY	005	W	06LAK007	02/01/06	02/05/06	02/05/06	
BROMIDE BY IC	005	W	06LICA18	02/01/06	02/07/06	02/08/06	
CHLORIDE BY IC	005	W	06LICA18	02/01/06	02/07/06	02/08/06	
FLUORIDE BY IC	005	W	06LICA18	02/01/06	02/07/06	02/08/06	
NITRITE BY IC	005	W	06LICA18	02/01/06	02/07/06	02/08/06	1444
NITRATE BY IC	005	W	06LICA18	02/01/06	02/07/06	02/08/06	
PHOSPHATE BY IC	005	W	06LICA18	02/01/06	02/07/06	02/08/06	
SULFATE BY IC	005	W	06LICA18	02/01/06	02/07/06	02/08/06	

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RCS-048 K0205

DATE RECEIVED: 02/03/06 LVL LOT # :0602L209

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	ANALYSIS TIME
NITRATE NITRITE	005	W	06LN3010	02/01/06	02/23/06	02/23/06	
AMMONIA	005	W	06LAM006	02/01/06	02/06/06	02/06/06	
TOTAL KJELDAHL NITRO	005	W	06LAM009	02/01/06	02/10/06	02/10/06	
TOTAL ORGANIC CARBON	005	W	06LTC007	02/01/06	02/15/06	02/15/06	
PETROLEUM HYDROCARBO	005	W	06LHC014	02/01/06	02/19/06	02/21/06	
TOTAL DISSOLVED SOLI	005	W	06LSSA11	02/01/06	02/04/06	02/04/06	
TOTAL SUSPENDED SOLI	005	W	06LSS011	02/01/06	02/04/06	02/04/06	
J112F6							
BROMIDE BY IC	006	W	06LICA18	02/01/06	02/07/06	02/08/06	
CHLORIDE BY IC	006	W	06LICA18	02/01/06	02/07/06	02/08/06	
FLUORIDE BY IC	006	W	06LICA18	02/01/06	02/07/06	02/08/06	
NITRITE BY IC	006	W	06LICA18	02/01/06	02/07/06	02/08/06	1457
NITRATE BY IC	006	W	06LICA18	02/01/06	02/07/06	02/08/06	
PHOSPHATE BY IC	006	W	06LICA18	02/01/06	02/07/06	02/08/06	
SULFATE BY IC	006	W	06LICA18	02/01/06	02/07/06	02/08/06	
NITRATE NITRITE	006	W	06LN3010	02/01/06	02/23/06	02/23/06	
TOTAL ORGANIC CARBON	006	W	06LTC007	02/01/06	02/15/06	02/15/06	
PETROLEUM HYDROCARBO	006	W	06LHC014	02/01/06	02/19/06	02/21/06	
J11247							
ALKALINITY	007	W	06LAK007	02/01/06	02/05/06	02/05/06	
BROMIDE BY IC	007	W	06LICA18	02/01/06	02/07/06	02/08/06	
CHLORIDE BY IC	007	W	06LICA18	02/01/06	02/07/06	02/08/06	
FLUORIDE BY IC	007	W	06LICA18	02/01/06	02/07/06	02/08/06	
NITRITE BY IC	007	W	06LICA18	02/01/06	02/07/06	02/08/06	1510
NITRATE BY IC	007	W	06LICA18	02/01/06	02/07/06	02/08/06	
PHOSPHATE BY IC	007	W	06LICA18	02/01/06	02/07/06	02/08/06	
SULFATE BY IC	007	W	06LICA18	02/01/06	02/07/06	02/08/06	
NITRATE NITRITE	007	W	06LN3010	02/01/06	02/23/06	02/23/06	
AMMONIA	007	W	06LAM006	02/01/06	02/06/06	02/06/06	
TOTAL KJELDAHL NITRO	007	W	06LAM009	02/01/06	02/10/06	02/10/06	
TOTAL ORGANIC CARBON	007	W	06LTC007	02/01/06	02/15/06	02/15/06	
PETROLEUM HYDROCARBO	007	W	06LHC014	02/01/06	02/19/06	02/21/06	
TOTAL DISSOLVED SOLI	007	W	06LSSA11	02/01/06	02/04/06	02/04/06	
TOTAL SUSPENDED SOLI	007	W	06LSS011	02/01/06	02/04/06	02/04/06	

LAB QC:

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RCS-048 K0205

DATE RECEIVED: 02/03/06 LVL LOT # :0602L209

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALKALINITY	MB1	W	06LAK007	N/A	02/05/06	02/05/06
ALKALINITY	MB1 BS	W	06LAK007	N/A	02/05/06	02/05/06
ALKALINITY	MB1 BSD	W	06LAK007	N/A	02/05/06	02/05/06
BROMIDE BY IC	MB1	W	06LICA18	N/A	02/07/06	02/08/06
BROMIDE BY IC	MB1 BS	W	06LICA18	N/A	02/07/06	02/08/06
CHLORIDE BY IC	MB1	W	06LICA18	N/A	02/07/06	02/08/06
CHLORIDE BY IC	MB1 BS	W	06LICA18	N/A	02/07/06	02/08/06
FLUORIDE BY IC	MB1	W	06LICA18	N/A	02/07/06	02/08/06
FLUORIDE BY IC	MB1 BS	W	06LICA18	N/A	02/07/06	02/08/06
NITRITE BY IC	MB1	W	06LICA18	N/A	02/07/06	02/08/06
NITRITE BY IC	MB1 BS	W	06LICA18	N/A	02/07/06	02/08/06
NITRATE BY IC	MB1	W	06LICA18	N/A	02/07/06	02/08/06
NITRATE BY IC	MB1 BS	W	06LICA18	N/A	02/07/06	02/08/06
PHOSPHATE BY IC	MB1	W	06LICA18	N/A	02/07/06	02/08/06
PHOSPHATE BY IC	MB1 BS	W	06LICA18	N/A	02/07/06	02/08/06
SULFATE BY IC	MB1	W	06LICA18	N/A	02/07/06	02/08/06
NITRATE NITRITE	MB1	W	06LN3010	N/A	02/23/06	02/23/06
NITRATE NITRITE	MB1 BS	W	06LN3010	N/A	02/23/06	02/23/06
AMMONIA	MB1	W	06LAM006	N/A	02/06/06	02/06/06
AMMONIA	MB1 BS	W	06LAM006	N/A	02/06/06	02/06/06
AMMONIA	MB1 BSD	W	06LAM006	N/A	02/06/06	02/06/06
TOTAL KJELDAHL NITRO	MB1	W	06LAM009	N/A	02/10/06	02/10/06
TKN	MB1 BS	W	06LAM009	N/A	02/10/06	02/10/06
TKN	MB1 BSD	W	06LAM009	N/A	02/10/06	02/10/06
TOTAL ORGANIC CARBON	MB1	W	06LTC007	N/A	02/15/06	02/15/06
TOTAL ORGANIC CARBON	MB1 BS	W	06LTC007	N/A	02/15/06	02/15/06
PETROLEUM HYDROCARBO	MB1	W	06LHC014	N/A	02/19/06	02/21/06
PETROLEUM HYDROCARBO	MB1 BS	W	06LHC014	N/A	02/19/06	02/21/06
PETROLEUM HYDROCARBO	MB1 BSD	W	06LHC014	N/A	02/19/06	02/21/06
TOTAL DISSOLVED SOLI	MB1	W	06LSSA11	N/A	02/04/06	02/04/06
TOTAL DISSOLVED SOLI	MB1 BS	W	06LSSA11	N/A	02/04/06	02/04/06
TOTAL DISSOLVED SOLI	MB1 BSD	W	06LSSA11	N/A	02/04/06	02/04/06
TOTAL SUSPENDED SOLI	MB1	W	06LSS011	N/A	02/04/06	02/04/06
TOTAL SUSPENDED SOLI	MB1 BS	W	06LSS011	N/A	02/04/06	02/04/06
TOTAL SUSPENDED SOLI	MB1 BSD	W	06LSS011	N/A	02/04/06	02/04/06

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-048-290	Page 2 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Days 44	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr-6 PORE WATER FULL QC		SAF No.: RC-048
Ice Chest No.: ERC-02-504	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINB SERVICES ALLIONVILLE	Offsite Property No.: A060278		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	Cool 4C	
Type of Container	P	G	G/P	aG	aGs*	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	2	2	1	1	1	1	
Volume	125mL	1000mL 3 AD 13006	125mL	1000mL	40mL	125mL	250mL	125mL	250mL	
SAMPLE ANALYSIS	See Item (f) in Special Instructions	TPH (Total) - 418.1	NO2/NO3 - 353.2	TPH-Diesel Range - WTPH-D	TPH-Gasoline Range - WTPH-G	Ammonia - 350.3	Nitrogen by Kjeldahl - 351.2	Alkalinity - 310.1	TDS - 160.1; TSS - 160.2	

Sample No.	Matrix *	Sample Date	Sample Time										
J112X3	WATER	02-01-06	1445	X	X	X	X	X	X	X	X	X	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JAMES BERNHARD	02-01-06 2030	EAS LOCKED STORAGE	02-01-06 2030
EAS LOCKED STORAGE	02-02-06 1200		02-02-06 1200
David St. John West	02/02/06 1400	Fed Ex	
Fed Ex	2/3/06 0930		2-3-06 0930

SPECIAL INSTRUCTIONS

3 AD 13006

(f) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)

Matrix *

S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
Tu=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)

000030

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-048-296	Page 2 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr-6, SURFACE WATER FULL QC		SAF No.: RC-048
Ice Chest No.: ERC-99-061	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A060278		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N

Air Quality ☐

Data Turnaround: 45 Days

46

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	HCl to pH <2 Cool 4C
Type of Container	P	G	G/P	aG	aGs*
No. of Container(s)	1	1	1	2	2
Volume	125mL	1000mL	125mL	1000mL	40mL

3 [illegible] 1300

000031

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	See item (#) in Special Instructions	TPH (Total) - 418.1	NO2/NO3 - 353.2	TPH-Diesel Range - WTPH-D	TPH-Gasoline Range - WTPH-G
J112X9	WATER	02-01-06	1430	X	X	X	X	X

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] JAMES BERNHARD	2030 02-01-06	[signature] EAS LOCKED STORAGE	2030 02-01-06
EAS LOCKED STORAGE	1200 02-02-06	[signature]	1200 02-02-06
[signature]	1400 02/02/06	FedEx	
FedEx	2-3-06 0930	[signature]	2-3-06 0930

SPECIAL INSTRUCTIONS

3 [illegible] 1300

(1) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)

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-048-285	Page 2 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 10, SURFACE WATER		SAF No.: RC-048
Ice Chest No.: ERC-96-061	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / CLONVILLE	Offsite Property No.: A060278		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N

Air Quality ☐

Data Turnaround: 45 Days

47

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	HCl to pH <2 Cool 4C						
Type of Container	P	G	G/P	aG	aGs*						
No. of Container(s)	1	1	1	1	1						
Volume	125mL	500mL	125mL	1000mL	40mL						
SAMPLE ANALYSIS	See item (4) in Special Instructions.	TPH (Total) - 418.1	NO2/NO3 - 353.2	TPH-Diesel Range - WTPH-D	TPH-Gasoline Range - WTPH-G						

3 AP 12606

000032

Sample No.	Matrix *	Sample Date	Sample Time										
J112F9	WATER	02-01-06	1830	X	X	X	X	X					

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS
Relinquished By/Removed From: LGZ Date/Time: 2130 JAMES BERNHARD 02-01-06	Received By/Stored In: LGZ Date/Time: 2130 EAS LOCKED STORAGE 2-1-06	3 AP 12606 (1) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)
Relinquished By/Removed From: [signature] Date/Time: 1200 EAS LOCKED STORAGE 02-02-06	Received By/Stored In: David St. Johnwick Date/Time: 1200 [signature] 02-02-06	
Relinquished By/Removed From: David St. Johnwick Date/Time: 1400 [signature] 02/02/06	Received By/Stored In: Fed Ex Date/Time:	
Relinquished By/Removed From: Fed Ex Date/Time: 2-3-06 0930	Received By/Stored In: [signature] Date/Time: 2-3-06 0930	
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:	
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:	

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-048-263	Page 2 of 2

Collector TILLER, B JAMES BERNHARD	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location Cr 10, PORE WATER		SAF No. RC-048
Ice Chest No. ERC-02-002	Field Logbook No. EL-1597	COA BBSRAS6520	Method of Shipment FED EX
Shipped To EBERLINE SERVICES ALIONVILLE	Offsite Property No. A060278		Bill of Lading/Air Bill No. SEE OSPC

Price Code 7N

Air Quality ☐

Data Turnaround 45 Days

49

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

000033

Preservation	Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	HCl to pH <2 Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G	G/P	aG	aGs*	G/P	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	1	1
Volume	125mL	500mL 3 AH/2606	125mL	1000mL	40mL	125mL	250mL	125mL	250mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	See item (*) in Special Instructions	TPH (Total) - 418.1	NO2/NO3 - 353.2	TPH-Diesel Range - WTPH-D	TPH-Gasoline Range - WTPH-G	Ammonia - 350.3	Nitrogen by Kjeldahl - 351.2	Alkalinity - 310.1	TDS - 160.1; TSS - 160.2
J11250	WATER	02-01-06	1900	X	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JAMES BERNHARD	02-01-06 2030	EAS LOCKED STORAGE	02-01-06 2030
EAS LOCKED STORAGE	02-02-06 1200	David Bryan WCH	02-02-06 1200
David Bryan WCH	02/02/06 1400	Fed Ex	
Fed Ex	2-3-06 0930		2-3-06 0930

SPECIAL INSTRUCTIONS

3 AH/2606

(*) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)

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-048-280	Page 2 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 6, VERTICAL TUBE	SAF No.: RC-048	
Ice Chest No.: ERC-02-002	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.		Bill of Lading/Air Bill No.: SEE OSPC

52

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

000034

Preservation	Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	Cool 4C	
Type of Container	P	G	G/P	aG	aGs*	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	125mL	500mL	125mL	1000mL	40mL	125mL	250mL	125mL	250mL	
SAMPLE ANALYSIS	See item (f) in Special Instructions	TPH (Total) - 418.1	NO2/NO3 - 353.2	TPH-Diesel Range - WTPH-D	TPH-Gasoline Range - WTPH-G	Ammonia - 350.3	Nitrogen by Kjeldahl - 351.2	Alkalinity - 310.1	TDS - 160.1; TSS - 160.2	

3 AP 13006

Sample No.	Matrix *	Sample Date	Sample Time										
J112C3	WATER	02-01-06	1530	X	X	X	X	X	X	X	X	X	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JAMES BERNHARD	2030 02-01-06	EAS LOCKED STORAGE	2030 02-01-06
EAS LOCKED STORAGE	1200 02-02-06	[illegible]	1200 02-02-06
[illegible]	1400 02/02/06	Fed Ex	
Fed Ex	2-3-06 0930	[illegible]	2-3-06 0930

SPECIAL INSTRUCTIONS

3 AP 13006

(f) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)

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-048-282	Page 2 of 2

Collector: TILLER, B Bernhard	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 7, SURFACE WATER		SAF No.: RC-048
Ice Chest No.: ERC-03-106	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A060278		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N

Air Quality: ☐

Data Turnaround: 45 Days

54

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	HCl to pH <2 Cool 4C						
Type of Container	P	G	G/P	aG	aGs*						
No. of Container(s)	1	1	1	1	1						
Volume	125mL	500mL	125mL	1000mL	40mL						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	TPH (Total) - 418.1	NO2/NO3 - 353.2	TPH-Diesel Range - WTPH-D	TPH-Gasoline Range - WTPH-G						

3 Feb 2006

000035

Sample No.	Matrix *	Sample Date	Sample Time										
J112F6	WATER	2-1-06	1600	X	X	X	X	X					

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: JAMES BERNHARD	Date/Time: 2130 2-1-06	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 2130 2-1-06
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 1200 02-02-06	Received By/Stored In: David St. John WCH	Date/Time: 1200 02-02-06
Relinquished By/Removed From: David St. John WCH	Date/Time: 1400 02/22/06	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 2-3-06 0930	Received By/Stored In: [signature]	Date/Time: 2-3-06 0930
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

3 Feb 2006

(1) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)

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-048-260	Page 2 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 7, PORE WATER		SAF No.: RC-048
Ice Chest No.: ERC-03-106	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES/LIONVILLE	Offsite Property No.: A060278		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N

Air Quality ☐

Data Turnaround: 45 Days

56

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	HCl to pH <2 Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	Cool 4C	
Type of Container	P	G	G/P	aG	aGs*	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	125mL	500mL	125mL	1000mL	40mL	125mL	250mL	125mL	250mL	
SAMPLE ANALYSIS	See item (1) in Special Instructions.	TPH (Total) - 418.1	NO2/NO3 - 353.2	TPH-Diesel Range - WTPH-D	TPH-Gasoline Range - WTPH-G	Ammonia - 350.3	Nitrogen by Kjeldahl - 351.2	Alkalinity - 310.1	TDS - 160.1; TSS - 160.2	

3 JH 12606

000036

Sample No.	Matrix *	Sample Date	Sample Time										
J11247	WATER	2-1-06	1615	X	X	X	X	X	X	X	X	X	

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JAMES BERNHARD	2130 2-1-06	EAS LOCKED STORAGE	2130 2-1-06
EAS LOCKED STORAGE	02-02-06 1200	David St John WCH	1200 02-02-06
David St John WCH	1400 02/02/06	Fed EX	
FedEx	2-3-06 0930	[signature]	2-3-06 0930

SPECIAL INSTRUCTIONS

3 JH 12606

(1) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)

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-048-251	Page 2 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 3, SURFACE WATER		SAF No.: RC-048
Ice Chest No.: ERC-96-012	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES/ LIONVILLE	Offsite Property No.: A060273		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N

Air Quality ☐

Data Turnaround: 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	HCl to pH <2 Cool 4C	HCl to pH <2 Cool 4C							
Type of Container	P	G	G/P	aG	aGs*							
No. of Container(s)	1	1	1	1	1							
Volume	125mL	500mL	125mL	1000mL	40mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	TPH (Total) - 418.1	NO2/NO3 - 353.2	TPH-Diesel Range - WTPH-D	TPH-Gasoline Range - WTPH-G							

3 SJB 12406

000037

Sample No.	Matrix *	Sample Date	Sample Time										
J11238	WATER	1-29-06	1330	X	X	X	X	X					

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS
Relinquished By/Removed From: JAMES BERNHARD Date/Time: 1-29-06 2000	Received By/Stored In: EAS LOCKED STORAGE Date/Time: 1-29-06 2000	3 SJB 12406 (1) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)
Relinquished By/Removed From: EAS LOCKED STORAGE Date/Time: 0710 01-30-06	Received By/Stored In: RZ Steffler R.J. Steffler Date/Time: 0710 1-30-06	
Relinquished By/Removed From: RZ Steffler R.J. Steffler Date/Time: 1500 WCH 1-30-06	Received By/Stored In: Fed Ex Date/Time:	
Relinquished By/Removed From: Fed Ex Date/Time: 1-31-06 / 0910	Received By/Stored In: D. Smith Date/Time: 1-31-06 / 0910	
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:	
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:	

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-048-244	Page 2 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 4, PORE WATER		SAF No.: RC-048
Ice Chest No.: AFS-04-052	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A060274		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

0000038

SAMPLE ANALYSIS												
Preservation				Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	HCl to pH <2 Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	Cool 4C
Type of Container				P	G	G/P	aG	aGs*	G/P	G/P	G/P	G/P
No. of Container(s)				1	1	1	1	1	1	1	1	1
Volume				125mL	500mL	125mL	1000mL	40mL	125mL	250mL	125mL	250mL
				See item (f) in Special Instructions.	TPH (Total) - 418.1	NO2/NO3 - 353.2	TPH-Diesel Range - WTPH-D	TPH-Gasoline Range - WTPH-G	Ammonia - 350.3	Nitrogen by Kjeldahl - 351.2	Alkalinity - 310.1	TDS - 160.1; TSS - 160.2
Sample No.	Matrix *	Sample Date	Sample Time									
J11232	WATER	1-29-06	1415	X	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
	1-29-06 2000	EAS LOCKED STORAGE	1-29-06 2000
JAMES BERNHARD EAS LOCKED STORAGE	01-30-06 0210	RZ Stoffler	0710 1-30-06
RZ Stoffler	1500 1-30-06	Fed Ex	
Fed Ex	1-31-06 0910		1-31-06 0910

SPECIAL INSTRUCTIONS

3 4/0/2006

(f) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)

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-048-252	Page 2 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 4, SURFACE WATER		SAF No.: RC-048
Ice Chest No.: AFS-04-050	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A060272		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N

Air Quality: ☐

Data Turnaround: 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

000039

Preservation	Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	HCl to pH <2 Cool 4C	HCl to pH <2 Cool 4C								
Type of Container	P	G	G/P	aG	aGs*								
No. of Container(s)	1	1	1	1	1								
Volume	125mL	500mL 3 AUG 2006	125mL	1000mL	40mL								
SAMPLE ANALYSIS	See item (1) in Special Instructions	TPH (Total) - 418.1	NO2/NO3 - 353.2	TPH-Diesel Range - WTPH-D	TPH-Gasoline Range - WTPH-G								

Sample No.	Matrix *	Sample Date	Sample Time										
J11239	WATER	1-29-06	1530	X	X	X	X	X					

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: JAMES BERNHARD	Date/Time: 1-29-06 2000	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 1-29-06 2000
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 01-30-06 0910	Received By/Stored In: RZ Steffler R.J. Steffler	Date/Time: 1-30-06 0910
Relinquished By/Removed From: RZ Steffler R.J. Steffler	Date/Time: 1-30-06 1500	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 1-31-06 1010	Received By/Stored In: D. J. Miller	Date/Time: 1-31-06 1010
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

3 AUG 2006

(1) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)

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-048-276	Page 2 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 5, SURFACE WATER	SAF No.: RC-048	
Ice Chest No.: AFS-04-050	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A060272	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

000040

SAMPLE ANALYSIS												
Preservation	Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	HCl to pH <2 Cool 4C	HCl to pH <2 Cool 4C							
Type of Container	P	G	G/P	aG	aGs*							
No. of Container(s)	1	1	1	1	1							
Volume	125mL	500mL 3 AFA 12606	125mL	1000mL	40mL							
	See Item #7 in Special Instructions.	TPH (Total) - 418.1	NO2/NO3 - 353.2	TPH-Diesel Range - WTPH-D	TPH-Gasoline Range - WTPH-G							
Sample No.	Matrix *	Sample Date	Sample Time									
J11279	WATER	1-29-06	1600	X	X	X	X	X				

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: JAMES BERNHARD	Date/Time: 1-29-06 2000	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 1-29-06 2000
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 1-30-06 0710	Received By/Stored In: RZ Stoffler R.Z. Stoffler	Date/Time: 1-30-06 0710
Relinquished By/Removed From: RZ Stoffler R.Z. Stoffler	Date/Time: 1-30-06 1500	Received By/Stored In: Fed Ex	Date/Time: 1-30-06
Relinquished By/Removed From: Fed Ex	Date/Time: 1-31-06 1090	Received By/Stored In: D Smith	Date/Time: 1-31-06 1090
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

3 AFA 12606

(1) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)

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-048-258	Page 2 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 5, PORE WATER		SAF No.: RC-048
Ice Chest No.: ERC-96-012	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A060273		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N

Air Quality ☐

Data Turnaround: 45 Days

40

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	HCl to pH <2 Cool 4C	HCl to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	Cool 4C	
Type of Container	P	G	G/P	aG	aGs*	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	125mL	500mL	125mL	1000mL	40mL	125mL	250mL	125mL	250mL	
SAMPLE ANALYSIS	See item (1) to Special Instructions.	TPH (Total) - 418.1	NO2/NO3 - 353.2	TPH-Diesel Range - WTPH-D	TPH-Gasoline Range - WTPH-G	Ammonia - 350.3	Nitrogen by Kjeldahl - 351.2	Alkalinity - 310.1	TDS - 160.1; TSS - 160.2	

3 1260G

000041

Sample No.	Matrix *	Sample Date	Sample Time										
J11245	WATER	1-29-06	1630	X	X	X	X	X	X	X	X	X	

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS
Relinquished By/Removed From: JAMES BERNHARD Date/Time: 1-29-06 2000	Received By/Stored In: EAS LOCKED STORAGE Date/Time: 1-29-06 2000	3 1260G 4P (1) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)
Relinquished By/Removed From: EAS LOCKED STORAGE Date/Time: 0710 01-30-06	Received By/Stored In: RZ Steffler Date/Time: 0710 1-30-06	
Relinquished By/Removed From: RZ Steffler Date/Time: 1500 1-30-06	Received By/Stored In: Fed Ex Date/Time:	
Relinquished By/Removed From: Fed Ex Date/Time: 1-31-06 0910	Received By/Stored In: [signature] Date/Time: 1-31-06 0910	
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:	
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:	

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)

Appendix 5

Data Validation Supporting Documentation

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: RCBRA Water			DATA PACKAGE: K0205		
VALIDATOR: TLI		LAB: LLI		DATE: 6/3/06	
			SDG: K0205		

ANALYSES PERFORMED

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

SAMPLES/MATRIX

J11238 J11232 J11239 J11279 J11245

J112X3 J112X9 J112F9 J11250 J112C3 J112F6
J11247

Water

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

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:

GENERAL CHEMISTRY 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: no FB

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

Spike samples analyzed? ..... Yes No N/A

Spike recoveries acceptable? ..... Yes No N/A

Sike standards NIST traceable? (Levels D, E) ..... Yes No N/A

Spike 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:

no MS/MSD for no2/no3 38, 32, 39, 79, 45 no PAS

+ sulfate

TKN PH - all

GENERAL CHEMISTRY 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:

no ms/msd for no2/no3 – J all

6. HOLDING TIMES (all levels)

Samples properly preserved? ..... Yes No N/A

Sample holding times acceptable? ..... Yes No N/A

Comments:

nitrate nitrite phosphate – 238, 232, 239, 279, 245
over by <2x – J all

nitrate, nitrite phosphate – X3, X9, F9, 50, C3, F6, 24>
>2X limits – J/UR all

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

7. 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 02/28/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0601L184
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	06LIC014-MB1	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	0.25 u	MG/L	0.25	1.0
		Fluoride by IC	0.25 u	MG/L	0.25	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	0.25 u	MG/L	0.25	1.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	0.25 u	MG/L	0.25	1.0
BLANK10	06LN3010-MB1	Nitrate Nitrite	0.020u	MG/L	0.020	1.0
BLANK10	06LTC006-MB1	Total Organic Carbon	0.50 u	MG/L	0.50	1.0
BLANK10	06LHC014-MB1	Petroleum Hydrocarbons	1.0 u	MG/L	1.0	1.0
BLANK10	06LAK006-MB1	Alkalinity	0.50 u	MG/L	0.50	1.0
BLANK10	06LAM006-MB1	Ammonia, as N	0.10 u	MG/L	0.10	1.0
BLANK10	06LAM009-MB1	TKN	0.10 u	MG/L	0.10	1.0
BLANK10	06LSSA10-MB1	Total Dissolved Solids	5.00 u	MG/L	5.00	1.0
BLANK10	06LSS010-MB1	Total Suspended Solids	5.00 u	MG/L	5.00	1.0
BLANK10	06LIC018-MB1	Sulfate by IC	0.25 u	MG/L	0.25	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 02/28/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0601L184
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J11238	Bromide by IC	9.7	0.00	10.0	96.8	2.0
		Chloride by IC	10.6	1.0	10.0	95.6	2.0
		Fluoride by IC	9.6	0.029	10.0	96.1	2.0
		Nitrite by IC	9.77	0.25u	10.0	97.7	2.0
		Nitrate by IC	11.6	1.94	10.0	97.1	2.0
		Phosphate by IC	9.7	0.25u	10.0	97.3	2.0
-003	J11239	Total Organic Carbon	5.7	1.2	5.0	89.8	1.0
BLANK10	06LIC014-MB1	Bromide by IC	4.9	0.25u	5.0	97.2	1.0
		Chloride by IC	4.7	0.25u	5.0	93.7	1.0
		Fluoride by IC	4.9	0.25u	5.0	98.2	1.0
		Nitrite by IC	5.03	0.25u	5.00	100.6	1.0
		Nitrate by IC	4.94	0.25u	5.00	98.9	1.0
		Phosphate by IC	5.6	0.25u	5.0	111.5	1.0
		Sulfate by IC	5.0	0.25u	5.0	100.2	1.0
BLANK10	06LN3010-MB1	Nitrate Nitrite	0.48	0.02u	0.50	97.0	1.0
BLANK10	06LTC006-MB1	Total Organic Carbon	4.9	0.50u	5.0	97.9	1.0
BLANK10	06LHC014-MB1	Petroleum Hydrocarbons	4.4	1.0 u	4.2	104.5	1.0
		Petroleum Hydrocarbons	4.2	1.0 u	4.2	99.0	1.0
BLANK10	06LAK006-MB1	Alkalinity	100	0.50u	100	100.4	1.0
		Alkalinity MSD	100	0.50u	100	100.4	1.0
BLANK10	06LAM006-MB1	Ammonia, as N	2.0	0.10u	2.0	98.0	1.0
		Ammonia, as N MSD	2.0	0.10u	2.0	99.5	1.0
BLANK10	06LAM009-MB1	TKN	4.4	0.10u	4.0	109.2	1.0
		TKN MSD	4.3	0.10u	4.0	107.0	1.0
BLANK10	06LSSA10-MB1	Total Dissolved Solids	102	5.00u	100	102.0	1.0
		Total Dissolved Solids	94.0	5.00u	100	94.0	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 02/28/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0601L184

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
BLANK10	06LSS010-MB1	Total Suspended Solids	101	5.00u	100	100.9	1.0
		Total Suspended Solids	99.4	5.00u	100	99.4	1.0
BLANK10	06LIC018-MB1	Sulfate by IC	4.6	0.25u	5.0	92.9	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 02/28/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0601L184
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	06LHC014-MB1	Petroleum Hydrocarbons	104.5	99.0	5.4
BLANK10	06LAK006-MB1	Alkalinity	100.4	100.4	0.00
BLANK10	06LAM006-MB1	Ammonia, as N	98.0	99.5	1.5
BLANK10	06LAM009-MB1	TKN	109.2	107.0	2.1
BLANK10	06LSSA10-MB1	Total Dissolved Solids	102.0	94.0	8.2
BLANK10	06LSS010-MB1	Total Suspended Solids	100.9	99.4	1.5

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 02/28/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0601L184

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J11238	Bromide by IC	0.25u	0.25u	NC	1.0
		Chloride by IC	1.0	1.0	4.0	1.0
		Fluoride by IC	0.25u	0.25u	NC	1.0
		Nitrite by IC	0.25u	0.25u	NC	1.0
		Nitrate by IC	1.94	1.90	1.7	1.0
		Phosphate by IC	0.25u	0.25u	NC	1.0
-002REP	J11232	Total Organic Carbon	1.2	1.1	4.1	1.0
		Total Dissolved Solids	83.0	75.0	10.1	1.0
		Total Suspended Solids	5.00u	5.00u	NC	1.0
-005REP	J11245	Alkalinity	60.5	62.6	3.5	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 02/28/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0602L209
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	06LAK007-MB1	Alkalinity	0.50 u	MG/L	0.50	1.0
BLANK10	06LICA18-MB1	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	0.25 u	MG/L	0.25	1.0
		Fluoride by IC	0.25 u	MG/L	0.25	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	0.25 u	MG/L	0.25	1.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	0.25 u	MG/L	0.25	1.0
BLANK10	06LN3010-MB1	Nitrate Nitrite	0.020u	MG/L	0.020	1.0
BLANK10	06LAM006-MB1	Ammonia, as N	0.10 u	MG/L	0.10	1.0
BLANK10	06LAM009-MB1	TKN	0.10 u	MG/L	0.10	1.0
BLANK10	06LTC007-MB1	Total Organic Carbon	0.50 u	MG/L	0.50	1.0
BLANK10	06LHC014-MB1	Petroleum Hydrocarbons	1.0 u	MG/L	1.0	1.0
BLANK10	06LSSA11-MB1	Total Dissolved Solids	5.00 u	MG/L	5.00	1.0
BLANK10	06LSS011-MB1	Total Suspended Solids	5.00 u	MG/L	5.00	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 02/28/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0602L209
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J112X3	Bromide by IC	9.6	0.00	10.0	95.7	2.0
		Chloride by IC	10.6	1.0	10.0	95.7	2.0
		Fluoride by IC	9.4	0.031	10.0	93.6	2.0
		Nitrite by IC	9.72	0.25u	10.0	97.2	2.0
		Nitrate by IC	10.4	0.56	10.0	98.4	2.0
		Phosphate by IC	9.7	0.25u	10.0	96.6	2.0
		Sulfate by IC	35.9	10.7	25.0	100.8	5.0
		Nitrate Nitrite	0.63	0.15	0.50	95.6	1.0
		Ammonia, as N	2.1	0.10u	2.0	104.5	1.0
		Total Organic Carbon	6.5	1.2	5.0	106.0	1.0
-002	J112X9	Bromide by IC	9.9	0.00	10.0	99.2	2.0
		Chloride by IC	10.8	1.0	10.0	98.4	2.0
		Fluoride by IC	9.8	0.030	10.0	98.0	2.0
		Nitrite by IC	10.0	0.25u	10.0	100.2	2.0
		Nitrate by IC	10.5	0.54	10.0	100	2.0
		Phosphate by IC	9.7	0.25u	10.0	96.5	2.0
		Sulfate by IC	35.0	10.5	25.0	98.0	5.0
		Nitrate Nitrite	0.61	0.13	0.50	94.8	1.0
		Total Organic Carbon	6.8	1.1	5.0	114.7	1.0
BLANK10	06LAK007-MB1	Alkalinity	99.5	0.50u	100	99.5	1.0
		Alkalinity MSD	98.4	0.50u	100	98.4	1.0
BLANK10	06LICA18-MB1	Bromide by IC	4.8	0.25u	5.0	96.6	1.0
		Chloride by IC	4.6	0.25u	5.0	92.6	1.0
		Fluoride by IC	4.8	0.25u	5.0	96.8	1.0
		Nitrite by IC	4.92	0.25u	5.00	98.4	1.0
		Nitrate by IC	4.76	0.25u	5.00	95.2	1.0
		Phosphate by IC	5.3	0.25u	5.0	106.3	1.0
BLANK10	06LN3010-MB1	Nitrate Nitrite	0.48	0.02u	0.50	97.0	1.0
BLANK10	06LAM006-MB1	Ammonia, as N	2.0	0.10u	2.0	98.0	1.0
		Ammonia, as N MSD	2.0	0.10u	2.0	99.5	1.0
BLANK10	06LAM009-MB1	TKN	4.4	0.10u	4.0	109.2	1.0
		TKN MSD	4.3	0.10u	4.0	107.0	1.0
BLANK10	06LTC007-MB1	Total Organic Carbon	5.1	0.50u	5.0	101.4	1.0
BLANK10	06LHC014-MB1	Petroleum Hydrocarbons	4.4	1.0 u	4.2	104.5	1.0
		Petroleum Hydrocarbons	4.2	1.0 u	4.2	99.0	1.0
BLANK10	06LSSA11-MB1	Total Dissolved Solids	103	5.00u	100	103.0	1.0
		Total Dissolved Solids	101	5.00u	100	101.0	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 02/28/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0602L209
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
BLANK10	06LSS011-MB1	Total Suspended Solids	98.0	5.00u	100	98.0	1.0
		Total Suspended Solids	98.6	5.00u	100	98.6	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 02/28/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0602L209
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	06LAK007-MB1	Alkalinity	99.5	98.4	1.1
BLANK10	06LAM006-MB1	Ammonia, as N	98.0	99.5	1.5
BLANK10	06LAM009-MB1	TKN	109.2	107.0	2.1
BLANK10	06LHC014-MB1	Petroleum Hydrocarbons	104.5	99.0	5.4
BLANK10	06LSSA11-MB1	Total Dissolved Solids	103.0	101.0	2.0
BLANK10	06LSS011-MB1	Total Suspended Solids	98.0	98.6	0.61

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 02/28/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0602L209

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J112X3	Alkalinity	59.9	59.9	0.00	1.0
		Bromide by IC	0.25u	0.25u	NC	1.0
		Chloride by IC	1.0	0.99	2.8	1.0
		Fluoride by IC	0.25u	0.25u	NC	1.0
		Nitrite by IC	0.25u	0.25u	NC	1.0
		Nitrate by IC	0.56	0.59	4.2	1.0
		Phosphate by IC	0.25u	0.25u	NC	1.0
		Sulfate by IC	10.7	10.8	1.3	2.0
		Nitrate Nitrite	0.15	0.15	1.3	1.0
		Ammonia, as N	0.10u	0.10u	NC	1.0
		Total Organic Carbon	1.2	1.3	1.6	1.0
		Total Dissolved Solids	82.0	79.0	3.7	1.0
		Total Suspended Solids	5.00u	5.00u	NC	1.0
-002REP	J112X9	Bromide by IC	0.25u	0.25u	NC	1.0
		Chloride by IC	1.0	1.0	3.3	1.0
		Fluoride by IC	0.25u	0.25u	NC	1.0
		Nitrite by IC	0.25u	0.25u	NC	1.0
		Nitrate by IC	0.54	0.54	0.56	1.0
		Phosphate by IC	0.25u	0.25u	NC	1.0
		Sulfate by IC	10.5	10.8	3.2	2.0
		Nitrate Nitrite	0.13	0.14	2.2	1.0
		Total Organic Carbon	1.1	1.1	4.0	1.0

Date: 7 June 2006
To: Washington Closure Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 100 Area and 300 Area Component of the RCBRA Water Sampling
Subject: Inorganics - Data Package No. K0205-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0205 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	Sampler Date	Matrix	Validation	Date
J112X3	2/1/06	Water	C	See note 1
J112X9	2/1/06	Water	C	See note 1
J112F9	2/1/06	Water	C	See note 1
J11250	2/1/06	Water	C	See note 1
J112C3	2/1/06	Water	C	See note 1
J112F6	2/1/06	Water	C	See note 1
J11247	2/1/06	Water	C	See note 1
J11238	1/29/06	Water	C	See note 1
J11232	1/29/06	Water	C	See note 1
J11239	1/29/06	Water	C	See note 1
J11279	1/29/06	Water	C	See note 1
J11245	1/29/06	Water	C	See note 1

1 - ICP metals (6010B) and mercury (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 28 days for mercury and 6 months for ICP metals.

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 lithium results in samples J112X9, J112F9, J11250, J112C3, J112F6, J11247 and J11245 were qualified as estimates and flagged "UJ".

Due to method blank contamination, the zinc results in samples J112X3, J112F9, J11250, J112C3, J112F6, J11247 and J11232 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.

All 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.

All 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. K0205 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 lithium results in samples J112X9, J112F9, J11250, J112C3, J112F6, J11247 and J11245 were qualified as estimates and flagged "UJ".

- Due to method blank contamination, the zinc results in samples J112X3, J112F9, J11250, J112C3, J112F6, J11247 and J11232 were qualified as estimates and flagged "UJ".

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: K0205	REVIEWER: [illegible] RCBRA	PAGE 1 OF 1

COMMENTS:

COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Lithium	UJ	J112X9, J112F9 J11250, J112C3 J112F6, J11247 J11245	Blank contamination
Zinc	UJ	J112X3, J112F9 J11250, J112C3 J112F6, J11247 J11232	Blank contamination

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

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

Project: WASHINGTON CLOSURE HANFORD																			
Laboratory: LLI SDG: K0205																			
Sample Number		J112X3		J112X9		J112F9		J11250		J112C3		J112F6		J11247		J11238		J11232	
Remarks																			
Sample Date		2/1/06		2/1/06		2/1/06		2/1/06		2/1/06		2/1/06		2/1/06		1/29/06		1/29/06	
Inorganics	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Silver	10	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U
Aluminum	50	30.5	U	32.7		30.5	U	39.3		30.5	U	30.5	U	30.5	U	30.5	U	30.5	U
Arsenic	100	3.4	U	3.4	U	3.4	U	3.4	U	3.4	U	5.1		3.4	U	3.4	U	3.4	U
Boron		11.7		12.3		8.1		31.1		6.0		6.7		4.4		8.2		6.2	
Barium	20	25.9		27.2		27.2		27.3		27.3		27.0		27.2		27.1		27.4	
Beryllium	5	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Bismuth		6.1	U	6.1	U	6.1	U	6.1	U	6.1	U	6.1	U	6.1	U	6.1	U	6.1	U
Calcium		21700		21300		21600		21400		31600		21500		21500		20600		21000	
Cadmium	5	0.70	U	0.70	U	0.70	U	0.70	U	0.70	U	0.70	U	0.70	U	0.70	U	0.70	U
Cobalt		1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
Chromium	10	1.6	U	1.6	U	1.6	U	1.6	U	4.1		1.6	U	1.6	U	1.6	U	1.6	U
Copper	10	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U
Iron	50	32.1	U	37.2		32.1	U	32.1	U	32.1	U	32.1	U	32.1	U	32.1	U	32.1	U
Mercury	0.5	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Potassium		540	U	1040		650		959		1330		781		880		1070		636	
Lithium		1.8		1.6	UJ	1.6	UJ	1.4	UJ	0.91	UJ	1.3	UJ	1.3	UJ	2.6		2.1	
Magnesium		4860		4890		4940		4880		6240		4910		4880		4730		4810	
Manganese	5	2.2		3.4		2.3		2.1		8.3		2.4		1.9		2.4		1.8	
Molybdenum		1.3	U	1.3	U	1.3	U	1.5		1.3	U	1.6		1.8		1.3	U	1.3	U
Sodium		2310		2210		2190		2190		3750		2150		2120		2110		2210	
Nickel	40	1.3	U	1.3	U	1.3	U	1.3	U	1.7		1.3	U	1.3	U	1.3	U	1.3	U
Phosphorous		9.8		9.4		8.3	U	8.3	U	22.3		8.3	U	8.3	U	8.3	U	11.3	
Lead	50	3.1	U	3.1	U	3.1	U	3.1	U	3.1	U	3.1	U	3.1	U	3.1	U	3.1	U
Antimony	60	4.0	U	5.7		4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U
Selenium		3.6	U	5.9		3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U
Silicon		2490		2250		2270		2280		4620		2260		2260		2150		2190	
Tin	100	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U	5.2	U
Strontium		102		102		102		101		135		101		100		101		102	
Thallium		6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U
Uranium	3000	20.6	U	20.6	U	20.6	U	20.6	U	20.6	U	20.6	U	20.6	U	20.6	U	20.6	U
Vanadium	25	0.90	U	0.90	U	0.90	U	0.90	U	0.90	U	0.90	U	0.90	U	0.90	U	0.90	U
Zinc	10	2.1	UJ	4.1		1.7	UJ	2.1	UJ	2.3	UJ	1.5	UJ	3.1	UJ	4.2		1.6	UJ

000010

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

Project: WASHINGTON CLOSURE HANFORD							
Laboratory: LLI SDG: K0205							
Sample Number		J11239		J11279		J11245	
Remarks							
Sample Date		1/29/06		1/29/06		1/29/06	
Inorganics	RQL	Result	Q	Result	Q	Result	Q
Silver	10	1.4	U	1.4	U	1.4	U
Aluminum	50	30.5	U	30.5	U	30.5	U
Arsenic	100	3.4	U	3.4	U	3.4	U
Boron		5.2		5.5		3.9	
Barium	20	27.8		27.8		28.1	
Beryllium	5	0.20	U	0.20	U	0.20	U
Bismuth		6.1	U	6.1	U	6.1	U
Calcium		21100		21100		20900	
Cadmium	5	0.70	U	0.70	U	0.70	U
Cobalt		1.2	U	1.2	U	1.2	U
Chromium	10	1.6	U	1.6	U	1.6	U
Copper	10	2.9	U	2.9	U	2.9	U
Iron	50	32.1	U	32.1	U	32.1	U
Mercury	0.5	0.10	U	0.10	U	0.10	U
Potassium		973		843		830	
Lithium		1.9		1.8		1.6	UJ
Magnesium		4800		4830		4690	
Manganese	5	2.4		2.9		1.1	
Molybdenum		1.3	U	1.3		1.3	U
Sodium		2130		2170		2150	
Nickel	40	1.3	U	1.3	U	1.3	U
Phosphorous		8.3	U	8.3	U	9.1	
Lead	50	3.1	U	3.1	U	3.1	U
Antimony	60	4.0	U	4.0	U	4.0	U
Selenium		3.6	U	3.6	U	3.6	U
Silicon		2150		2180		2980	
Tin	100	5.2	U	5.2	U	5.2	U
Strontium		102		103		97.8	
Thallium		6.4	U	6.5		6.4	U
Uranium	3000	20.6	U	20.6	U	20.6	U
Vanadium	25	0.90	U	0.90	U	0.90	U
Zinc	10	3.7		4.2		3.7	

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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.

INORGANICS DATA SUMMARY REPORT 02/17/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0602L209

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J112X3	Silver, Total	1.4	u	UG/L	1.4	1.0
		Aluminum, Total	30.5	u	UG/L	30.5	1.0
		Arsenic, Total	3.4	u	UG/L	3.4	1.0
		Boron, Total	11.7		UG/L	2.7	1.0
		Barium, Total	25.9		UG/L	0.20	1.0
		Beryllium, Total	0.20	u	UG/L	0.20	1.0
		Bismuth, Total	6.1	u	UG/L	6.1	1.0
		Calcium, Total	21700		UG/L	11.9	1.0
		Cadmium, Total	0.70	u	UG/L	0.70	1.0
		Cobalt, Total	1.2	u	UG/L	1.2	1.0
		Chromium, Total	1.6	u	UG/L	1.6	1.0
		Copper, Total	2.9	u	UG/L	2.9	1.0
		Iron, Total	32.1	u	UG/L	32.1	1.0
		Mercury, Total	0.10	u	UG/L	0.10	1.0
		Potassium, Total	540	u	UG/L	540	1.0
		Lithium, Total	1.8		UG/L	0.30	1.0
		Magnesium, Total	4860		UG/L	13.5	1.0
		Manganese, Total	2.2		UG/L	0.20	1.0
		Molybdenum, Total	1.3	u	UG/L	1.3	1.0
		Sodium, Total	2310		UG/L	28.2	1.0
		Nickel, Total	1.3	u	UG/L	1.3	1.0
		Phosphorus, Total	9.8		UG/L	8.3	1.0
		Lead, Total	3.1	u	UG/L	3.1	1.0
		Antimony, Total	4.0	u	UG/L	4.0	1.0
		Selenium, Total	3.6	u	UG/L	3.6	1.0
		Silicon, Total	2490		UG/L	8.2	1.0
		Tin, Total	5.2	u	UG/L	5.2	1.0
		Strontium, Total	102		UG/L	0.10	1.0
		Thallium, Total	6.4	u	UG/L	6.4	1.0
		Uranium, Total	20.6	u	UG/L	20.6	1.0
		Vanadium, Total	0.90	u	UG/L	0.90	1.0
		Zinc, Total	2.1	UJ	UG/L	0.50	1.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/17/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0602L209

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J112X9	Silver, Total	1.4	u	UG/L	1.4	1.0
		Aluminum, Total	32.7		UG/L	30.5	1.0
		Arsenic, Total	3.4	u	UG/L	3.4	1.0
		Boron, Total	12.3		UG/L	2.7	1.0
		Barium, Total	27.2		UG/L	0.20	1.0
		Beryllium, Total	0.20	u	UG/L	0.20	1.0
		Bismuth, Total	6.1	u	UG/L	6.1	1.0
		Calcium, Total	21300		UG/L	11.9	1.0
		Cadmium, Total	0.70	u	UG/L	0.70	1.0
		Cobalt, Total	1.2	u	UG/L	1.2	1.0
		Chromium, Total	1.6	u	UG/L	1.6	1.0
		Copper, Total	2.9	u	UG/L	2.9	1.0
		Iron, Total	37.2		UG/L	32.1	1.0
		Mercury, Total	0.10	u	UG/L	0.10	1.0
		Potassium, Total	1040		UG/L	540	1.0
		Lithium, Total	1.6	UJ	UG/L	0.30	1.0
		Magnesium, Total	4890		UG/L	13.5	1.0
		Manganese, Total	3.4		UG/L	0.20	1.0
		Molybdenum, Total	1.3	u	UG/L	1.3	1.0
		Sodium, Total	2210		UG/L	28.2	1.0
		Nickel, Total	1.3	u	UG/L	1.3	1.0
		Phosphorus, Total	9.4		UG/L	8.3	1.0
		Lead, Total	3.1	u	UG/L	3.1	1.0
		Antimony, Total	5.7		UG/L	4.0	1.0
		Selenium, Total	5.9		UG/L	3.6	1.0
		Silicon, Total	2250		UG/L	8.2	1.0
		Tin, Total	5.2	u	UG/L	5.2	1.0
		Strontium, Total	102		UG/L	0.10	1.0
		Thallium, Total	6.4	u	UG/L	6.4	1.0
		Uranium, Total	20.6	u	UG/L	20.6	1.0
		Vanadium, Total	0.90	u	UG/L	0.90	1.0
		Zinc, Total	4.1		UG/L	0.50	1.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/17/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0602L209

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	J112F9	Silver, Total	1.4	u	UG/L	1.4	1.0
		Aluminum, Total	30.5	u	UG/L	30.5	1.0
		Arsenic, Total	3.4	u	UG/L	3.4	1.0
		Boron, Total	8.1		UG/L	2.7	1.0
		Barium, Total	27.2		UG/L	0.20	1.0
		Beryllium, Total	0.20	u	UG/L	0.20	1.0
		Bismuth, Total	6.1	u	UG/L	6.1	1.0
		Calcium, Total	21600		UG/L	11.9	1.0
		Cadmium, Total	0.70	u	UG/L	0.70	1.0
		Cobalt, Total	1.2	u	UG/L	1.2	1.0
		Chromium, Total	1.6	u	UG/L	1.6	1.0
		Copper, Total	2.9	u	UG/L	2.9	1.0
		Iron, Total	32.1	u	UG/L	32.1	1.0
		Mercury, Total	0.10	u	UG/L	0.10	1.0
		Potassium, Total	650		UG/L	540	1.0
		Lithium, Total	1.6	UJ	UG/L	0.30	1.0
		Magnesium, Total	4940		UG/L	13.5	1.0
		Manganese, Total	2.3		UG/L	0.20	1.0
		Molybdenum, Total	1.3	u	UG/L	1.3	1.0
		Sodium, Total	2190		UG/L	28.2	1.0
		Nickel, Total	1.3	u	UG/L	1.3	1.0
		Phosphorus, Total	8.3	u	UG/L	8.3	1.0
		Lead, Total	3.1	u	UG/L	2.1	1.0
		Antimony, Total	4.0	u	UG/L	4.0	1.0
		Selenium, Total	3.6	u	UG/L	3.6	1.0
		Silicon, Total	2270		UG/L	8.2	1.0
		Tin, Total	5.2	u	UG/L	5.2	1.0
		Strontium, Total	102		UG/L	0.10	1.0
		Thallium, Total	6.4	u	UG/L	6.4	1.0
		Uranium, Total	20.6	u	UG/L	20.6	1.0
		Vanadium, Total	0.90	u	UG/L	0.90	1.0
		Zinc, Total	1.7	UJ	UG/L	0.50	1.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/17/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0602L209

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	J11250	Silver, Total	1.4	u	UG/L	1.4	1.0
		Aluminum, Total	39.3		UG/L	30.5	1.0
		Arsenic, Total	3.4	u	UG/L	3.4	1.0
		Boron, Total	31.1		UG/L	2.7	1.0
		Barium, Total	27.3		UG/L	0.20	1.0
		Beryllium, Total	0.20	u	UG/L	0.20	1.0
		Bismuth, Total	6.1	u	UG/L	6.1	1.0
		Calcium, Total	21400		UG/L	11.9	1.0
		Cadmium, Total	0.70	u	UG/L	0.70	1.0
		Cobalt, Total	1.2	u	UG/L	1.2	1.0
		Chromium, Total	1.6	u	UG/L	1.6	1.0
		Copper, Total	2.9	u	UG/L	2.9	1.0
		Iron, Total	32.1	u	UG/L	32.1	1.0
		Mercury, Total	0.10	u	UG/L	0.10	1.0
		Potassium, Total	959		UG/L	540	1.0
		Lithium, Total	1.4	UJ	UG/L	0.30	1.0
		Magnesium, Total	4880		UG/L	13.5	1.0
		Manganese, Total	2.1		UG/L	0.20	1.0
		Molybdenum, Total	1.5		UG/L	1.3	1.0
		Sodium, Total	2190		UG/L	28.2	1.0
		Nickel, Total	1.3	u	UG/L	1.3	1.0
		Phosphorus, Total	8.3	u	UG/L	8.3	1.0
		Lead, Total	3.1	u	UG/L	3.1	1.0
		Antimony, Total	4.0	u	UG/L	4.0	1.0
		Selenium, Total	3.6	u	UG/L	3.6	1.0
		Silicon, Total	2280		UG/L	8.2	1.0
		Tin, Total	5.2	u	UG/L	5.2	1.0
		Strontium, Total	101		UG/L	0.10	1.0
		Thallium, Total	6.4	u	UG/L	6.4	1.0
		Uranium, Total	20.6	u	UG/L	20.6	1.0
		Vanadium, Total	0.90	u	UG/L	0.90	1.0
		Zinc, Total	2.1	UJ	UG/L	0.50	1.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/17/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0602L209

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	J112C3	Silver, Total	1.4	u	UG/L	1.4	1.0
		Aluminum, Total	30.5	u	UG/L	30.5	1.0
		Arsenic, Total	3.4	u	UG/L	3.4	1.0
		Boron, Total	6.0		UG/L	2.7	1.0
		Barium, Total	27.3		UG/L	0.20	1.0
		Beryllium, Total	0.20	u	UG/L	0.20	1.0
		Bismuth, Total	6.1	u	UG/L	6.1	1.0
		Calcium, Total	31600		UG/L	11.9	1.0
		Cadmium, Total	0.70	u	UG/L	0.70	1.0
		Cobalt, Total	1.2	u	UG/L	1.2	1.0
		Chromium, Total	4.1		UG/L	1.6	1.0
		Copper, Total	2.9	u	UG/L	2.9	1.0
		Iron, Total	32.1	u	UG/L	32.1	1.0
		Mercury, Total	0.10	u	UG/L	0.10	1.0
		Potassium, Total	1330		UG/L	540	1.0
		Lithium, Total	0.91	UJ	UG/L	0.30	1.0
		Magnesium, Total	6240		UG/L	13.5	1.0
		Manganese, Total	8.3		UG/L	0.20	1.0
		Molybdenum, Total	1.3	u	UG/L	1.3	1.0
		Sodium, Total	3750		UG/L	28.2	1.0
		Nickel, Total	1.7		UG/L	1.3	1.0
		Phosphorus, Total	22.3		UG/L	8.3	1.0
		Lead, Total	3.1	u	UG/L	3.1	1.0
		Antimony, Total	4.0	u	UG/L	4.0	1.0
		Selenium, Total	3.6	u	UG/L	3.6	1.0
		Silicon, Total	4620		UG/L	8.2	1.0
		Tin, Total	5.2	u	UG/L	5.2	1.0
		Strontium, Total	135		UG/L	0.10	1.0
		Thallium, Total	6.4	u	UG/L	6.4	1.0
		Uranium, Total	20.6	u	UG/L	20.6	1.0
		Vanadium, Total	0.90	u	UG/L	0.90	1.0
		Zinc, Total	2.3	UJ	UG/L	0.50	1.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/17/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0602L209

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-006	J112F6	Silver, Total	1.4	u	UG/L	1.4	1.0
		Aluminum, Total	30.5	u	UG/L	30.5	1.0
		Arsenic, Total	5.1		UG/L	3.4	1.0
		Boron, Total	6.7		UG/L	2.7	1.0
		Barium, Total	27.0		UG/L	0.20	1.0
		Beryllium, Total	0.20	u	UG/L	0.20	1.0
		Bismuth, Total	6.1	u	UG/L	6.1	1.0
		Calcium, Total	21500		UG/L	11.9	1.0
		Cadmium, Total	0.70	u	UG/L	0.70	1.0
		Cobalt, Total	1.2	u	UG/L	1.2	1.0
		Chromium, Total	1.6	u	UG/L	1.6	1.0
		Copper, Total	2.9	u	UG/L	2.9	1.0
		Iron, Total	32.1	u	UG/L	32.1	1.0
		Mercury, Total	0.10	u	UG/L	0.10	1.0
		Potassium, Total	781		UG/L	540	1.0
		Lithium, Total	1.3	UJ	UG/L	0.30	1.0
		Magnesium, Total	4910		UG/L	13.5	1.0
		Manganese, Total	2.4		UG/L	0.20	1.0
		Molybdenum, Total	1.6		UG/L	1.3	1.0
		Sodium, Total	2150		UG/L	28.2	1.0
		Nickel, Total	1.3	u	UG/L	1.3	1.0
		Phosphorus, Total	8.3	u	UG/L	8.3	1.0
		Lead, Total	3.1	u	UG/L	3.1	1.0
		Antimony, Total	4.0	u	UG/L	4.0	1.0
		Selenium, Total	3.6	u	UG/L	3.6	1.0
		Silicon, Total	2260		UG/L	8.2	1.0
		Tin, Total	5.2	u	UG/L	5.2	1.0
		Strontium, Total	101		UG/L	0.10	1.0
		Thallium, Total	6.4	u	UG/L	6.4	1.0
		Uranium, Total	20.6	u	UG/L	20.6	1.0
		Vanadium, Total	0.90	u	UG/L	0.90	1.0
		Zinc, Total	1.5	UJ	UG/L	0.50	1.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/17/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0602L209

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-007	J11247	Silver, Total	1.4	u	UG/L	1.4	1.0
		Aluminum, Total	30.5	u	UG/L	30.5	1.0
		Arsenic, Total	3.4	u	UG/L	3.4	1.0
		Boron, Total	4.4		UG/L	2.7	1.0
		Barium, Total	27.2		UG/L	0.20	1.0
		Beryllium, Total	0.20	u	UG/L	0.20	1.0
		Bismuth, Total	6.1	u	UG/L	6.1	1.0
		Calcium, Total	21500		UG/L	11.9	1.0
		Cadmium, Total	0.70	u	UG/L	0.70	1.0
		Cobalt, Total	1.2	u	UG/L	1.2	1.0
		Chromium, Total	1.6	u	UG/L	1.6	1.0
		Copper, Total	2.9	u	UG/L	2.9	1.0
		Iron, Total	32.1	u	UG/L	32.1	1.0
		Mercury, Total	0.10	u	UG/L	0.10	1.0
		Potassium, Total	880		UG/L	540	1.0
		Lithium, Total	1.3	UJ	UG/L	0.30	1.0
		Magnesium, Total	4880		UG/L	13.5	1.0
		Manganese, Total	1.9		UG/L	0.20	1.0
		Molybdenum, Total	1.8		UG/L	1.3	1.0
		Sodium, Total	2120		UG/L	28.2	1.0
		Nickel, Total	1.3	u	UG/L	1.3	1.0
		Phosphorus, Total	8.3	u	UG/L	8.3	1.0
		Lead, Total	3.1	u	UG/L	3.1	1.0
		Antimony, Total	4.0	u	UG/L	4.0	1.0
		Selenium, Total	3.6	u	UG/L	3.6	1.0
		Silicon, Total	2260		UG/L	8.2	1.0
		Tin, Total	5.2	u	UG/L	5.2	1.0
		Strontium, Total	100		UG/L	0.10	1.0
		Thallium, Total	6.4	u	UG/L	6.4	1.0
		Uranium, Total	20.6	u	UG/L	20.6	1.0
		Vanadium, Total	0.90	u	UG/L	0.90	1.0
		Zinc, Total	3.1	UJ	UG/L	0.50	1.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/17/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0601L184

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J11238	Silver, Total	1.4	u	UG/L	1.4	1.0
		Aluminum, Total	30.5	u	UG/L	30.5	1.0
		Arsenic, Total	3.4	u	UG/L	3.4	1.0
		Boron, Total	8.2		UG/L	2.7	1.0
		Barium, Total	27.1		UG/L	0.20	1.0
		Beryllium, Total	0.20	u	UG/L	0.20	1.0
		Bismuth, Total	6.1	u	UG/L	6.1	1.0
		Calcium, Total	20600		UG/L	11.9	1.0
		Cadmium, Total	0.70	u	UG/L	0.70	1.0
		Cobalt, Total	1.2	u	UG/L	1.2	1.0
		Chromium, Total	1.6	u	UG/L	1.6	1.0
		Copper, Total	2.9	u	UG/L	2.9	1.0
		Iron, Total	32.1	u	UG/L	32.1	1.0
		Mercury, Total	0.10	u	UG/L	0.10	1.0
		Potassium, Total	1070		UG/L	540	1.0
		Lithium, Total	2.6		UG/L	0.30	1.0
		Magnesium, Total	4730		UG/L	13.5	1.0
		Manganese, Total	2.4		UG/L	0.20	1.0
		Molybdenum, Total	1.3	u	UG/L	1.3	1.0
		Sodium, Total	2110		UG/L	28.2	1.0
		Nickel, Total	1.3	u	UG/L	1.3	1.0
		Phosphorus, Total	8.3	u	UG/L	8.3	1.0
		Lead, Total	3.1	u	UG/L	3.1	1.0
		Antimony, Total	4.0	u	UG/L	4.0	1.0
		Selenium, Total	3.6	u	UG/L	3.6	1.0
		Silicon, Total	2150		UG/L	8.2	1.0
		Tin, Total	5.2	u	UG/L	5.2	1.0
		Strontium, Total	101		UG/L	0.10	1.0
		Thallium, Total	6.4	u	UG/L	6.4	1.0
		Uranium, Total	20.6	u	UG/L	20.6	1.0
		Vanadium, Total	0.90	u	UG/L	0.90	1.0
		Zinc, Total	4.2		UG/L	0.50	1.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/17/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0601L184

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J11232	Silver, Total	1.4	u	UG/L	1.4	1.0
		Aluminum, Total	30.5	u	UG/L	30.5	1.0
		Arsenic, Total	3.4	u	UG/L	3.4	1.0
		Boron, Total	6.2		UG/L	2.7	1.0
		Barium, Total	27.4		UG/L	0.20	1.0
		Beryllium, Total	0.20	u	UG/L	0.20	1.0
		Bismuth, Total	6.1	u	UG/L	6.1	1.0
		Calcium, Total	21000		UG/L	11.9	1.0
		Cadmium, Total	0.70	u	UG/L	0.70	1.0
		Cobalt, Total	1.2	u	UG/L	1.2	1.0
		Chromium, Total	1.6	u	UG/L	1.6	1.0
		Copper, Total	2.9	u	UG/L	2.9	1.0
		Iron, Total	32.1	u	UG/L	32.1	1.0
		Mercury, Total	0.10	u	UG/L	0.10	1.0
		Potassium, Total	636		UG/L	540	1.0
		Lithium, Total	2.1		UG/L	0.30	1.0
		Magnesium, Total	4810		UG/L	13.5	1.0
		Manganese, Total	1.8		UG/L	0.20	1.0
		Molybdenum, Total	1.3	u	UG/L	1.3	1.0
		Sodium, Total	2210		UG/L	28.2	1.0
		Nickel, Total	1.3	u	UG/L	1.3	1.0
		Phosphorus, Total	11.3		UG/L	8.3	1.0
		Lead, Total	3.1	u	UG/L	3.1	1.0
		Antimony, Total	4.0	u	UG/L	4.0	1.0
		Selenium, Total	3.6	u	UG/L	3.6	1.0
		Silicon, Total	2190		UG/L	8.2	1.0
		Tin, Total	5.2	u	UG/L	5.2	1.0
		Strontium, Total	102		UG/L	0.10	1.0
		Thallium, Total	6.4	u	UG/L	6.4	1.0
		Uranium, Total	20.6	u	UG/L	20.6	1.0
		Vanadium, Total	0.90	u	UG/L	0.90	1.0
		Zinc, Total	1.6	UJ	UG/L	0.50	1.0

2/14/06

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/17/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0601L184

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	J11239	Silver, Total	1.4	u	UG/L	1.4	1.0
		Aluminum, Total	30.5	u	UG/L	30.5	1.0
		Arsenic, Total	3.4	u	UG/L	3.4	1.0
		Boron, Total	5.2		UG/L	2.7	1.0
		Barium, Total	27.8		UG/L	0.20	1.0
		Beryllium, Total	0.20	u	UG/L	0.20	1.0
		Bismuth, Total	6.1	u	UG/L	6.1	1.0
		Calcium, Total	21100		UG/L	11.9	1.0
		Cadmium, Total	0.70	u	UG/L	0.70	1.0
		Cobalt, Total	1.2	u	UG/L	1.2	1.0
		Chromium, Total	1.6	u	UG/L	1.6	1.0
		Copper, Total	2.9	u	UG/L	2.9	1.0
		Iron, Total	32.1	u	UG/L	32.1	1.0
		Mercury, Total	0.10	u	UG/L	0.10	1.0
		Potassium, Total	973		UG/L	540	1.0
		Lithium, Total	1.9		UG/L	0.30	1.0
		Magnesium, Total	4800		UG/L	13.5	1.0
		Manganese, Total	2.4		UG/L	0.20	1.0
		Molybdenum, Total	1.3	u	UG/L	1.3	1.0
		Sodium, Total	2130		UG/L	28.2	1.0
		Nickel, Total	1.3	u	UG/L	1.3	1.0
		Phosphorus, Total	8.3	u	UG/L	8.3	1.0
		Lead, Total	3.1	u	UG/L	3.1	1.0
		Antimony, Total	4.0	u	UG/L	4.0	1.0
		Selenium, Total	3.6	u	UG/L	3.6	1.0
		Silicon, Total	2150		UG/L	8.2	1.0
		Tin, Total	5.2	u	UG/L	5.2	1.0
		Strontium, Total	102		UG/L	0.10	1.0
		Thallium, Total	6.4	u	UG/L	6.4	1.0
		Uranium, Total	20.6	u	UG/L	20.6	1.0
		Vanadium, Total	0.90	u	UG/L	0.90	1.0
		Zinc, Total	3.7		UG/L	0.50	1.0

R
6/14/06

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/17/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0601L184

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	J11279	Silver, Total	1.4	u	UG/L	1.4	1.0
		Aluminum, Total	30.5	u	UG/L	30.5	1.0
		Arsenic, Total	3.4	u	UG/L	3.4	1.0
		Boron, Total	5.5		UG/L	2.7	1.0
		Barium, Total	27.8		UG/L	0.20	1.0
		Beryllium, Total	0.20	u	UG/L	0.20	1.0
		Bismuth, Total	6.1	u	UG/L	6.1	1.0
		Calcium, Total	21100		UG/L	11.9	1.0
		Cadmium, Total	0.70	u	UG/L	0.70	1.0
		Cobalt, Total	1.2	u	UG/L	1.2	1.0
		Chromium, Total	1.6	u	UG/L	1.6	1.0
		Copper, Total	2.9	u	UG/L	2.9	1.0
		Iron, Total	32.1	u	UG/L	32.1	1.0
		Mercury, Total	0.10	u	UG/L	0.10	1.0
		Potassium, Total	843		UG/L	540	1.0
		Lithium, Total	1.6		UG/L	0.30	1.0
		Magnesium, Total	4830		UG/L	13.5	1.0
		Manganese, Total	2.9		UG/L	0.20	1.0
		Molybdenum, Total	1.3		UG/L	1.3	1.0
		Sodium, Total	2170		UG/L	28.2	1.0
		Nickel, Total	1.3	u	UG/L	1.3	1.0
		Phouphorus, Total	8.3	u	UG/L	8.3	1.0
		Lead, Total	3.1	u	UG/L	3.1	1.0
		Antimony, Total	4.0	u	UG/L	4.0	1.0
		Selenium, Total	3.6	u	UG/L	3.6	1.0
		Silicon, Total	2180		UG/L	8.2	1.0
		Tin, Total	5.2	u	UG/L	5.2	1.0
		Strontium, Total	103		UG/L	0.10	1.0
		Thallium, Total	6.5		UG/L	6.4	1.0
		Uranium, Total	20.6	u	UG/L	20.6	1.0
		Vanadium, Total	0.90	u	UG/L	0.90	1.0
		Zinc, Total	4.2		UG/L	0.50	1.0

R
2/4/06

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/17/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0601L194

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	J11245	Silver, Total	1.4	u	UG/L	1.4	1.0
		Aluminum, Total	30.5	u	UG/L	30.5	1.0
		Arsenic, Total	3.4	u	UG/L	3.4	1.0
		Boron, Total	3.9		UG/L	2.7	1.0
		Barium, Total	28.1		UG/L	0.20	1.0
		Beryllium, Total	0.20	u	UG/L	0.20	1.0
		Bismuth, Total	6.1	u	UG/L	6.1	1.0
		Calcium, Total	20900		UG/L	11.9	1.0
		Cadmium, Total	0.70	u	UG/L	0.70	1.0
		Cobalt, Total	1.2	u	UG/L	1.2	1.0
		Chromium, Total	1.6	u	UG/L	1.6	1.0
		Copper, Total	2.9	u	UG/L	2.9	1.0
		Iron, Total	32.1	u	UG/L	32.1	1.0
		Mercury, Total	0.10	u	UG/L	0.10	1.0
		Potassium, Total	830		UG/L	540	1.0
		Lithium, Total	1.6	UJ	UG/L	0.30	1.0
		Magnesium, Total	4690		UG/L	13.5	1.0
		Manganese, Total	1.1		UG/L	0.20	1.0
		Molybdenum, Total	1.3	u	UG/L	1.3	1.0
		Sodium, Total	2150		UG/L	28.2	1.0
		Nickel, Total	1.3	u	UG/L	1.3	1.0
		Phosphorus, Total	9.1		UG/L	8.3	1.0
		Lead, Total	3.1	u	UG/L	3.1	1.0
		Antimony, Total	4.0	u	UG/L	4.0	1.0
		Selenium, Total	3.6	u	UG/L	3.6	1.0
		Silicon, Total	2980		UG/L	8.2	1.0
		Tin, Total	5.2	u	UG/L	5.2	1.0
		Strontium, Total	97.8		UG/L	0.10	1.0
		Thallium, Total	6.4	u	UG/L	6.4	1.0
		Uranium, Total	20.6	u	UG/L	20.6	1.0
		Vanadium, Total	0.90	u	UG/L	0.90	1.0
		Zinc, Total	3.7		UG/L	0.50	1.0

JR
6/14/06

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RCS-048
LVL#: 0601L184/0602L209
SDG/SAF#: K0205/RCS-048

W.O.#: 11343-606-001-9999-00
Dates Received: 01-31-06/02-03-06

METALS CASE NARRATIVE

1. This narrative covers the analyses of 12 water samples.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary. The samples were rerun for Aluminum, Beryllium, Copper, Potassium, Sodium, and Phosphorous due to high concentrations and sample matrix.

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

4. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).

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

7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

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

9. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.

10. All matrix spike (MS) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy Report.

11. The duplicate analyses for 3 analytes on sample J112X3 and for 6 analytes on sample J112X9 were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

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.

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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

2/17/06
Date

jjw/m01-184

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-048-251	Page 1 of 2

Collector TILLER, B JAMES BERNHARD	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 7N	Data Turnaround 45 Days
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location Cr 3, SURFACE WATER		SAF No. RC-048	Air Quality ☐	
Ice Chest No. ERC-96-012	Field Logbook No. EL-1597	COA BESRAS6520	Method of Shipment FED EX		
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A060273		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	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	125mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

Sample No.	Matrix *	Sample Date	Sample Time									
J11238	WATER	1-29-06	1330						X	X	X	X

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JAMES BERNHARD	1-29-06 2000	EAS LOCKED STORAGE	1-29-06 2000
EAS LOCKED STORAGE	01-30-06 0710	RZ Stiffler	1-30-06 0710
RZ Stiffler	1-30-06 1500	FED EX	
FED EX	1-31-06 0910	D. Smith	1-31-06 0910

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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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

FM-ER-044 (08/30/2005)

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-048-244	Page 1 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 4, PORE WATER	SAF No.: RC-048	
Ice Chest No.: AFS-04-052	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A060274	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

000028

SAMPLE ANALYSIS													
Preservation				None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container				P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)				1	1	1	1	1	1	1	1	1	1
Volume				125mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
Sample No.	Matrix *	Sample Date	Sample Time	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
J11232	WATER	1-29-06	1415							X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JAMES BERNHARD	1-29-06 1415	EAS LOCKED STORAGE	1-29-06 1415
EAS LOCKED STORAGE	01-30-06 0710	R2 Steffler	1-30-06 0710
R2 Steffler	1-30-06 1500	Fed Ex	1-30-06
Fed Ex	1-31-06 1010		1-31-06 1010

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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

Matrix *
S=Soil
SB=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
Wi=Wipe
L=Liquid
Vs=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-048-252	Page 1 of 2

Collector TILLER, B [redacted]	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location Cr 4, SURFACE WATER		SAF No. RC-048
Ice Chest No. AFS-04-050	Field Logbook No. EL-1597	COA BESRAS6520	Method of Shipment FED EX
Shipped To EBERLINE SERVICES KLONVILLE	Offsite Property No. A060272		Bill of Lading/Air Bill No. SEE OSPC

Price Code 7N

Air Quality ☐

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	125mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium-226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
Sample No. / Matrix * / Sample Date / Sample Time										
J11239 / WATER / 1-27-06 / 1530							X	X	X	X

000029

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From JAMES BERNHARD	Date/Time 1-27-06 2000	Received By/Stored In EAS LOCKED STORAGE	Date/Time 1-27-06 2000
Relinquished By/Removed From EAS LOCKED STORAGE	Date/Time 01-30-06 0710	Received By/Stored In R. Stiffler R.J. Stiffler	Date/Time 1-30-06 0710
Relinquished By/Removed From R. Stiffler R.J. Stiffler	Date/Time 1-30-06 1500	Received By/Stored In Fed Ex	Date/Time
Relinquished By/Removed From Fed Ex	Date/Time 1-31-06 0910	Received By/Stored In D.J. Mitch	Date/Time 1-31-06 0910
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238]

(2) ICP Metals - 6010 (Full List) [Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc]; Mercury - 7470 - (CV)

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
Lr=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-048-276	Page 1 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 5, SURFACE WATER		SAF No.: RC-048
Ice Chest No.: AFS-04-050	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A060272		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N
Air Quality: ☐
Data Turnaround: 45 Days

000000050

POSSIBLE SAMPLE HAZARDS/REMARKS
POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage
COOL 4C

000030

Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

Sample No.	Matrix *	Sample Date	Sample Time										
J11279	WATER	1-29-06	1600							X	X	X	X

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: JAMES BERNHARD	Date/Time: 1-29-06 ~~1600~~ 2000 BH 1-29-06	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 1-29-06 ~~1600~~ 2000 BH 1-29-06
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 1-30-06 0700	Received By/Stored In: RZ Steffler R.Z. Steffler	Date/Time: 1-30-06 0700
Relinquished By/Removed From: RZ Steffler R.Z. Steffler	Date/Time: 1600 WCH 1-30-06	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 1-31-06 0910	Received By/Stored In: D. J. Mich	Date/Time: 1-31-06 0910
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238)
(2) ICP Metals - 6010 (Full List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc); Mercury - 7470 - (CV)

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-048-258	Page 1 of 2

Collector: TILLER, B [redacted]	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 5, PORE WATER		SAF No.: RC-048
Ice Chest No.: ERC-96-012	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES, LIONVILLE	Offsite Property No.: A060273		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	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	~~125mL~~ 60 BA rad	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 – Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium-226, Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

Sample No.	Matrix *	Sample Date	Sample Time									
J11245	WATER	1-29-06	1630						X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[redacted]	1-29-06 2000	EAS LOCKED STORAGE	1-29-06 2000
EAS LOCKED STORAGE	01-30-06 0710	RZ Stoffler	1-30-06 0710
RZ Stoffler	1-30-06 1500	Fed Ex	
	1-31-06 0910		1-31-06 0910

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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238]

(2) ICP Metals - 6010 (Full List) [Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc]; Mercury - 7470 - (CV)

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)

000031

0000052

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-048-290	Page 1 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr- 6, PORE WATER FULL QC		SAF No.: RC-048
Ice Chest No.: FRC-02-504	Field Logbook No.: EL-1597	COA: BBSRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A060278		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

000032

Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	3	2	3
Volume	125mL	1000mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
Sample No. / Matrix * / Sample Date / Sample Time										
J112X3 / WATER / 02-01-06 / 1445							X	X	X	X

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: JAMES BERNHARD	02-01-06 2030	Received By/Stored In: EAS LOCKED STORAGE	02/01/06 2030
Relinquished By/Removed From: EAS LOCKED STORAGE	02/02/06 1200	Received By/Stored In: David Stephenson	02-02-06 1200
Relinquished By/Removed From: David Stephenson	02/02/06 1400	Received By/Stored In: Fed Ex	
Relinquished By/Removed From: Fed Ex	2-3-06 0930	Received By/Stored In:	2-3-06 0930
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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-048-285	Page 1 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 10, SURFACE WATER		SAF No.: RC-048
Ice Chest No.: ERC-96-061	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A06D278		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N

Air Quality ☐

Data Turnaround: 45 Days

000000059

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

000034

Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

Sample No.	Matrix *	Sample Date	Sample Time										
J112F9	WATER	07-01-06	1830							X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: JAMES BERNHARD	Date/Time: 2-1-06	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 2130 2-1-06
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 1200 02-02-06	Received By/Stored In: [signature]	Date/Time: 1200 02-02-06
Relinquished By/Removed From: [signature]	Date/Time: 1400 02/02/06	Received By/Stored In: Fed EX	Date/Time:
Relinquished By/Removed From: Fed EX	Date/Time: 2-3-06 0930	Received By/Stored In: [signature]	Date/Time: 2-3-06 0930
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

Matrix *

S=Soil
SB=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-048-263	Page 1 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 10, PORE WATER		SAF No.: RC-048
Ice Chest No.: ERC-02-002	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: AD60278		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N

Air Quality ☐

Data Turnaround: 45 Days

0000000061

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

000035

Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	125mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 – Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium-226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

Sample No.	Matrix *	Sample Date	Sample Time										
J11250	WATER	02-01-06	1900							X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names
Relinquished By/Removed From: JAMES BERNHARD Date/Time: 02-01-06 2030	Received By/Stored In: EAS LOCKED STORAGE Date/Time: 02-01-06 2030
Relinquished By/Removed From: EAS LOCKED STORAGE Date/Time: 02-02-06 1200	Received By/Stored In: David St. Johnwell Date/Time: 02-02-06 1200
Relinquished By/Removed From: David St. Johnwell Date/Time: 02/02/06 1400	Received By/Stored In: Fed Ex Date/Time:
Relinquished By/Removed From: FedEx Date/Time: 2-3-06 0930	Received By/Stored In: [signature] Date/Time: 2-3-06 0930
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238)

(2) ICP Metals - 6010 (Full List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc); Mercury - 7470 - (CV)

Matrix *

S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
Wt=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-048-280	Page 1 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 6, VERTICAL TUBE		SAF No.: RC-048
Ice Chest No.: ERC-02-002	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A060278 ~~A0600~~ PAS 02/02/06		Bill of Lading/Air Bill No.: SEE OSPC

000000062

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

000036

SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226, Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL

Sample No.	Matrix *	Sample Date	Sample Time										
J112C3	WATER	02-01-06	1530							X	X	X	X

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JAMES BERNHARD 02-01-06	2030	EAS LOCKED STORAGE 02-01-06	2030
EAS LOCKED STORAGE 02-02-06	1200	WCH	1200 02-02-06
WCH 02/02/06	1420	Fed Ex	
Fed Ex 2-3-06	0930	2-3-06	0930

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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238)
(2) ICP Metals - 6010 (Full List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc); Mercury - 7470 - (CV)

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-048-282	Page 1 of 2

Collector TILLER, B Bernhard	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location Cr 7, SURFACE WATER		SAF No. RC-048
Ice Chest No. ERC-03-106	Field Logbook No. EL-1597	COA BESRAS6520	Method of Shipment FED EX
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A060278		Bill of Lading/Air Bill No. SEE OSPC

Price Code 7N

Data Turnaround 45 Days

Air Quality ☐

000000064

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

000037

SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium-226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL

Sample No.	Matrix *	Sample Date	Sample Time										
J112F6	WATER	2-1-06	1600							X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JAMES BERNHARD	2-1-06 2:30	EAS LOCKED STORAGE	2-1-06 2130
EAS LOCKED STORAGE	2-2-06 1200	[illegible]	02-02-06 1200
[illegible]	02/02/06 1400	Fed Ex	
Fed Ex	2-3-06 0930	[illegible]	2-3-06 0930

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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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
Va=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-048-260	Page 1 of 2

Collector TILLER, B JAMES BERNHARD	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 7N	Data Turnaround 45 Days
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location Cr 7, PORE WATER		SAF No. RC-048	Air Quality ☐	
Ice Chest No. ERC-03-106	Field Logbook No. EL-1597	COA BESRAS6520	Method of Shipment FED EX		
Shipped To EDERLINE SERVICES / LIONVILLE	Offsite Property No. A060278		Bill of Lading/Air Bill No. SEE OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

000038

Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	125mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226, Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

Sample No.	Matrix *	Sample Date	Sample Time										
J11247	WATER	2-1-06	1615							X	X	X	X

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From JAMES BERNHARD	2130 2-1-06	Received By/Stored In EAS LOCKED STORAGE	2130 2-1-06
Relinquished By/Removed From EAS LOCKED STORAGE	1200 02-02-06	Received By/Stored In	02-02-06 1200
Relinquished By/Removed From	1600 02/02/06	Received By/Stored In Fed Ex	
Relinquished By/Removed From FEDEX	2-3-06 0930	Received By/Stored In	2-3-06 0930
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: RCBRA Water			DATA PACKAGE: K0205		
VALIDATOR: TLI		LAB: LLI		DATE: 6/3/06	
			SDG: K0205		
ANALYSES PERFORMED					
SW-846/ICP	SW-846/GFAA	SW-846/Hg	SW-846 Cyanide		
SAMPLES/MATRIX					
J112X3	J112X9	J112F9	J11250	J112C3	
J112F6	J11247	J11238	J11232	J11239	
J11279	J11245				
					Water

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: no FB

Lithium - X9, F9, 50, C3, F6, 47, 45 - UJ

zinc - X3, F9, 50, C3, F6, 47, 32 - UJ

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: no PAS

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: _____

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: ~~Mercury~~ ~~Alt~~ over
6/5/06

Appendix 6

Additional Documentation Requested by Client

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 02/17/06

CLIENT: TNUHANFORD RCS-048 K0205

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

LVL LOT #: 0601L184/06021209

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	06L0091-MB1	Silver, Total	1.4	u	UG/L	1.4	1.0
		Aluminum, Total	30.5	u	UG/L	30.5	1.0
		Arsenic, Total	3.4	u	UG/L	3.4	1.0
		Boron, Total	2.7	u	UG/L	2.7	1.0
		Barium, Total	0.20	u	UG/L	0.20	1.0
		Beryllium, Total	0.20	u	UG/L	0.20	1.0
		Bismuth, Total	6.1	u	UG/L	6.1	1.0
		Calcium, Total	12.5		UG/L	11.9	1.0
		Cadmium, Total	0.70	u	UG/L	0.70	1.0
		Cobalt, Total	1.2	u	UG/L	1.2	1.0
		Chromium, Total	1.6	u	UG/L	1.6	1.0
		Copper, Total	2.9	u	UG/L	2.9	1.0
		Iron, Total	32.1	u	UG/L	32.1	1.0
		Potassium, Total	540	u	UG/L	540	1.0
		Lithium, Total	0.36		UG/L	0.30	1.0
		Magnesium, Total	13.5	u	UG/L	13.5	1.0
		Manganese, Total	0.20	u	UG/L	0.20	1.0
		Molybdenum, Total	1.3	u	UG/L	1.3	1.0
		Sodium, Total	28.2	u	UG/L	28.2	1.0
		Nickel, Total	1.3	u	UG/L	1.3	1.0
		Phosphorus, Total	8.3	u	UG/L	8.3	1.0
		Lead, Total	3.1	u	UG/L	3.1	1.0
		Antimony, Total	4.0	u	UG/L	4.0	1.0
		Selenium, Total	3.6	u	UG/L	3.6	1.0
		Silicon, Total	8.2	u	UG/L	8.2	1.0
		Tin, Total	5.2	u	UG/L	5.2	1.0
		Strontium, Total	0.10	u	UG/L	0.10	1.0
		Thallium, Total	6.4	u	UG/L	6.4	1.0
		Uranium, Total	20.6	u	UG/L	20.6	1.0
		Vanadium, Total	0.90	u	UG/L	0.90	1.0
		Zinc, Total	0.69		UG/L	0.50	1.0
BLANK1	06C0025-MB1	Mercury, Total	0.10	u	UG/L	0.10	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 02/17/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: D602L209

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J112X3	Silver, Total	50.5	1.4 u	50.0	101.0	1.0
		Aluminum, Total	1990	30.5 u	2000	99.3	1.0
		Arsenic, Total	2000	3.4 u	2000	99.9	1.0
		Boron, Total	1080	11.7	1000	106.5	1.0
		Barium, Total	1960	25.9	2000	96.9	1.0
		Beryllium, Total	49.8	0.20u	50.0	99.6	1.0
		Bismuth, Total	4640	6.1 u	5000	92.8	1.0
		Calcium, Total	49100	21700	25000	109.6	1.0
		Cadmium, Total	49.7	0.70u	50.0	99.4	1.0
		Cobalt, Total	503	1.2 u	500	100.5	1.0
		Chromium, Total	207	1.6 u	200	103.6	1.0
		Copper, Total	250	2.9 u	250	99.8	1.0
		Iron, Total	1050	32.1 u	1000	105.2	1.0
		Mercury, Total	1.0	0.10u	1.0	101.6	1.0
		Potassium, Total	26400	540 u	25000	105.6	1.0
		Lithium, Total	1160	1.8	1000	116.2	1.0
		Magnesium, Total	31500	4860	25000	106.4	1.0
		Manganese, Total	544	2.2	500	108.4	1.0
		Molybdenum, Total	1030	1.3 u	1000	102.6	1.0
		Sodium, Total	27700	2310	25000	101.6	1.0
		Nickel, Total	502	1.3 u	500	100.5	1.0
		Phosphorus, Total	4940	9.8	5000	98.6	1.0
		Lead, Total	517	3.1 u	500	103.3	1.0
		Antimony, Total	517	4.0 u	500	103.4	1.0
		Selenium, Total	2030	3.6 u	2000	101.5	1.0
		Silicon, Total	3550	2490	1000	106.0	1.0
		Tin, Total	1050	5.2 u	1000	105.2	1.0
		Strontium, Total	1090	102	1000	99.3	1.0
		Thallium, Total	1980	6.4 u	2000	99.1	1.0
		Uranium, Total	2470	20.6 u	~~5000~~ 2500	~~49.4~~ 98.8	1.0
		Vanadium, Total	510	0.90u	500	101.9	1.0
		Zinc, Total	512	2.1	500	102.1	1.0

corrected entry MW 2/17/06

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 02/17/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0602L209

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	J112X9	Silver, Total	50.4	1.4 u	50.0	100.8	1.0
		Aluminum, Total	2000	32.7	2000	98.4	1.0
		Arsenic, Total	2030	3.4 u	2000	101.6	1.0
		Boron, Total	1100	12.3	1000	108.4	1.0
		Barium, Total	2000	27.2	2000	98.6	1.0
		Beryllium, Total	50.5	0.20u	50.0	101.0	1.0
		Bismuth, Total	4640	6.1 u	5000	92.8	1.0
		Calcium, Total	49400	21300	25000	112.8	1.0
		Cadmium, Total	50.8	0.70u	50.0	101.6	1.0
		Cobalt, Total	511	1.2 u	500	102.2	1.0
		Chromium, Total	211	1.6 u	200	105.7	1.0
		Copper, Total	254	2.9 u	250	101.7	1.0
		Iron, Total	1090	37.2	1000	105.0	1.0
		Mercury, Total	1.0	0.10u	1.0	100	1.0
		Potassium, Total	27000	1040	25000	103.7	1.0
		Lithium, Total	1200	1.6	1000	119.6	1.0
		Magnesium, Total	32200	4890	25000	109.1	1.0
		Manganese, Total	556	3.4	500	110.5	1.0
		Molybdenum, Total	1050	1.3 u	1000	105.0	1.0
		Sodium, Total	28200	2210	25000	103.8	1.0
		Nickel, Total	508	1.3 u	500	101.6	1.0
		Phosphorus, Total	5000	9.4	5000	99.9	1.0
		Lead, Total	528	3.1 u	500	105.6	1.0
		Antimony, Total	528	5.7	500	104.6	1.0
		Selenium, Total	2060	5.9	2000	102.6	1.0
		Silicon, Total	3430	2250	1000	117.4	1.0
		Tin, Total	1050	5.2 u	1000	105.5	1.0
		Strontium, Total	1110	102	1000	101.3	1.0
		Thallium, Total	2020	6.4 u	2000	101.2	1.0
		Uranium, Total	2530	20.6 u	~~5000~~ 2500	~~90.6~~ 101.2	1.0
		Vanadium, Total	519	0.90u	500	103.8	1.0
		Zinc, Total	520	4.1	500	103.3	1.0

corrected entry [illegible] 2/17/06

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 02/17/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0601L184 /06021209

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	06L0091-LC1	Silver, LCS	496	500	UG/L	99.1
		Aluminum, LCS	4970	5000	UG/L	99.4
		Arsenic, LCS	9700	10000	UG/L	97.0
		Boron, LCS	5020	5000	UG/L	100.3
		Barium, LCS	4790	5000	UG/L	95.8
		Beryllium, LCS	244	250	UG/L	97.8
		Bismuth, LCS	4850	5000	UG/L	97.0
		Calcium, LCS	25000	25000	UG/L	100.1
		Cadmium, LCS	243	250	UG/L	97.1
		Cobalt, LCS	2420	2500	UG/L	96.7
		Chromium, LCS	488	500	UG/L	97.5
		Copper, LCS	1220	1250	UG/L	97.2
		Iron, LCS	4920	5000	UG/L	98.4
		Potassium, LCS	24600	25000	UG/L	98.2
		Lithium, LCS	5260	5000	UG/L	105.2
		Magnesium, LCS	24900	25000	UG/L	99.5
		Manganese, LCS	769	750	UG/L	102.5
		Molybdenum, LCS	4960	5000	UG/L	99.2
		Sodium, LCS	23900	25000	UG/L	95.8
		Nickel, LCS	1940	2000	UG/L	96.9
		Phosphorus, LCS	4850	5000	UG/L	97.0
		Lead, LCS	2470	2500	UG/L	98.7
		Antimony, LCS	3020	3000	UG/L	100.7
		Selenium, LCS	9850	10000	UG/L	98.5
		Silicon, LCS	4900	5000	UG/L	98.1
		Tin, LCS	5050	5000	UG/L	101.0
		Strontium, LCS	4760	5000	UG/L	95.2
		Thallium, LCS	9810	10000	UG/L	98.1
		Uranium, LCS	2430	5000	UG/L	~~48.6~~ 97.2
		Vanadium, LCS	2470	2500	UG/L	98.6
		Zinc, LCS	978	1000	UG/L	97.8
LCS1	06C0025-LC1	Mercury, LCS	5.4	5.0	UG/L	108.1

corrected entry MW 2/17/06

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 02/17/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0602L209

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-002REP	J112X9	Silver, Total	1.4 u	1.4 u	NC	1.0
		Aluminum, Total	32.7	30.5 u	~~NC~~ 200 pw 2/17/06	1.0
		Arsenic, Total	3.4 u	3.4 u	NC	1.0
		Boron, Total	12.3	11.2	9.4	1.0
		Barium, Total	27.2	27.8	2.2	1.0
		Beryllium, Total	0.20u	0.20u	NC	1.0
		Bismuth, Total	6.1 u	6.1 u	NC	1.0
		Calcium, Total	21300	21300	0.14	1.0
		Cadmium, Total	0.70u	0.70u	NC	1.0
		Cobalt, Total	1.2 u	1.2 u	NC	1.0
		Chromium, Total	1.6 u	1.6 u	NC	1.0
		Copper, Total	2.9 u	2.9 u	NC	1.0
		Iron, Total	37.2	36.3	2.4	1.0
		Mercury, Total	0.10u	0.10u	NC	1.0
		Potassium, Total	1040	942	10.0	1.0
		Lithium, Total	1.6	2.4	40.0	1.0
		Magnesium, Total	4890	4870	0.34	1.0
		Manganese, Total	3.4	3.6	5.7	1.0
		Molybdenum, Total	1.3 u	1.3 u	NC	1.0
		Sodium, Total	2210	2150	2.8	1.0
		Nickel, Total	1.3 u	1.3 u	NC	1.0
		Phosphorus, Total	9.4	8.3 u	~~NC~~ 200 pw 2/17/06	1.0
		Lead, Total	3.1 u	3.1 u	NC	1.0
		Antimony, Total	5.7	4.0 u	~~NC~~ 200	1.0
		Selenium, Total	5.9	3.6 u	~~NC~~ 200 pw 2/17/06	1.0
		Silicon, Total	2250	2240	0.62	1.0
		Tin, Total	5.2 u	5.2 u	NC	1.0
		Strontium, Total	102	102	0.39	1.0
		Thallium, Total	6.4 u	6.4 u	NC	1.0
		Uranium, Total	20.6 u	20.6 u	NC	1.0
		Vanadium, Total	0.90u	0.90u	NC	1.0
		Zinc, Total	4.1	2.0	68.9	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 02/17/06

CLIENT: TNUHANFORD RCS-048 K0205 LVL LOT #: 0602L209

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J112X3	Silver, Total	1.4 u	1.4 u	NC	1.0
		Aluminum, Total	30.5 u	30.5 u	NC	1.0
		Arsenic, Total	3.4 u	3.4 u	NC	1.0
		Boron, Total	11.7	10.8	8.0	1.0
		Barium, Total	25.9	25.6	1.2	1.0
		Beryllium, Total	0.20u	0.20u	NC	1.0
		Bismuth, Total	6.1 u	6.1 u	NC	1.0
		Calcium, Total	21700	21700	0.18	1.0
		Cadmium, Total	0.70u	0.70u	NC	1.0
		Cobalt, Total	1.2 u	1.2 u	NC	1.0
		Chromium, Total	1.6 u	1.6 u	NC	1.0
		Copper, Total	2.9 u	2.9 u	NC	1.0
		Iron, Total	32.1 u	32.1 u	NC	1.0
		Mercury, Total	0.10u	0.10u	NC	1.0
		Potassium, Total	540 u	735	~~NC~~ 300	1.0
		Lithium, Total	1.8	1.3	32.3 MW 2/17/06	1.0
		Magnesium, Total	4860	4880	0.39	1.0
		Manganese, Total	2.2	2.3	4.4	1.0
		Molybdenum, Total	1.3 u	1.3 u	NC	1.0
		Sodium, Total	2310	2290	0.98	1.0
		Nickel, Total	1.3 u	1.3 u	NC	1.0
		Phosphorus, Total	9.8	12.3	22.6	1.0
		Lead, Total	3.1 u	3.1 u	NC	1.0
		Antimony, Total	4.0 u	4.0 u	NC	1.0
		Selenium, Total	3.6 u	3.6 u	NC	1.0
		Silicon, Total	2490	2500	0.22	1.0
		Tin, Total	5.2 u	5.2 u	NC	1.0
		Strontium, Total	102	102	0.098	1.0
		Thallium, Total	6.4 u	6.4 u	NC	1.0
		Uranium, Total	20.6 u	20.6 u	NC	1.0
		Vanadium, Total	0.90u	0.90u	NC	1.0
		Zinc, Total	2.1	1.9	10.0	1.0

Date: 7 June 2006
To: Washington Closure Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 100 Area and 300 Area Component of the RCBRA Water Sampling
Subject: Radiochemistry - Data Package No. K0205-EB

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0205 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	Sample Media	Validation	Date
J112X3	2/1/06	Water	C	See note 1
J112X9	2/1/06	Water	C	See note 1
J112F9	2/1/06	Water	C	See note 1
J11250	2/1/06	Water	C	See note 1
J112C3	2/1/06	Water	C	See note 1
J112F6	2/1/06	Water	C	See note 1
J11247	2/1/06	Water	C	See note 1
J11238	1/29/06	Water	C	See note 1 & 2
J11232	1/29/06	Water	C	See note 1 & 2
J11239	1/29/06	Water	C	See note 1 & 2
J11279	1/29/06	Water	C	See note 1
J11245	1/29/06	Water	C	See note 1

1 – Tritium, radium-228, radium-226, total strontium, isotopic thorium, isotopic uranium, gamma spectroscopy.
2 – Carbon-14.

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 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. One analyte exceeded the RQL. Under the WCH statement of work, no qualification is required. All other analytes met the RQL.

- **Completeness**

Data package No. K0205 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.

One analyte 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-2005-42, 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 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: K0205	REVIEWER: TLI	Project: RCBRA	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 SDG: K0205																			
Sample Number		J112X3		J112X9		J112F9		J11250		J112C3		J112F6		J11247		J11238		J11232	
Remarks																			
Sample Date		2/1/06		2/1/06		2/1/06		2/1/06		2/1/06		2/1/06		2/1/06		1/29/06		1/29/06	
Radiochemistry	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Tritium	400	54.1	U	-8.64	U	39.8	U	-34.8	U	39.3	U	68.8	U	-43.4	U	0	U	17.2	U
Carbon-14	50	NA		NA		NA		NA		NA		NA		NA		4.67	U	-19.8	U
Total Strontium	1	0.013	U	0.048	U	-0.005	U	-0.025	U	-0.053	U	-0.334	U	-0.009	U	0.065	U	-0.014	U
Radium-228	3	0.238	U	0.013	U	-0.260	U	0.108	U	0.516	U	-0.038	U	-0.377	U	0.102	U	-0.620	U
Thorium-228		0.026	UJ	0.264	UJ	0.085	UJ	0	UJ	0	UJ	-0.045	UJ	0.095	UJ	0.065	UJ	0.031	UJ
Thorium-230		-0.026	U	-0.087	U	-0.042	U	0.075	U	0.027	U	-0.045	U	-0.063	U	-0.065	U	-0.093	U
Thorium-232	1	0	UJ	0	UJ	0	UJ	0.037	UJ	0	UJ	0	UJ	0	UJ	0	UJ	0	UJ
Uranium-233/234	1	0.167		0.247		0.194		0.237		0.311		0.173		0.157	U	0.197		0.243	
Uranium-235	1	0	U	0	U	0	U	0	U	0.079	U	0.021	U	0.027	U	0	U	0	U
Uranium-238	1	0.146	U	0.247		0.242		0.158		0.360		0.173		0.270		0.217		0.243	
Radium-226	1	0.218	U	-0.100	U	-0.309	U	0.022	U	0.908		0.128	U	-0.092	U	0.133	U	-0.022	U
Potassium-40		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Cobalt 60	25	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Cesium 137	15	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
Radium-228		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
Europium 154		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
Thorium-228		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
Uranium-235(gea)		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
Americium-241(gea)		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
Antimony-125		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
Cesium-134		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U

* - 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.

000010

Project: WASHINGTON CLOSURE HANFORD																			
Laboratory: EB	SDG: K0205																		
Sample Number		J11239		J11279		J11245													
Remarks																			
Sample Date		1/29/06		1/29/06		1/29/06													
Radiochemistry	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Tritium	400	-42.8	U	-22.2	U	34.1	U												
Carbon-14	50	-18.0	U	NA		NA													
Total Strontium	1	-0.033	U	-0.054	U	0.220	U												
Radium-228	3	0.118	U	-0.339	U	-0.060	U												
Thorium-228		0.028	UJ	-0.051	UJ	0	UJ												
Thorium-230		-0.055	U	0.179	U	0	U												
Thorium-232	1	0	UJ	0.026	UJ	0	UJ												
Uranium-233/234	1	0.246		0.190		0.099	U												
Uranium-235	1	0	U	0	U	0	U												
Uranium-238	1	0.202		0.316		0.079	U												
Radium-226	1	0.078	U	0.214	U	0.215	U												
Potassium-40		U	U	U	U	U	U												
Cobalt 60	25	U	U	U	U	U	U												
Cesium 137	15	U	U	U	U	U	U												
Radium-226		U	U	U	U	U	U												
Radium-228		U	U	U	U	U	U												
Europium 152		U	U	U	U	U	U												
Europium 154		U	U	U	U	U	U												
Europium 155		U	U	U	U	U	U												
Thorium-228		U	U	U	U	U	U												
Thorium-232		U	U	U	U	U	U												
Uranium-235(gea)		U	U	U	U	U	U												
Uranium-238(gea)		U	U	U	U	U	U												
Americium-241(gea)		U	U	U	U	U	U												
Ruthenium-106		U	U	U	U	U	U												
Antimony-125		U	U	U	U	U	U												
Beryllium-7		U	U	U	U	U	U												
Cesium-134		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 K0205

7372-009 J112X3

DATA SHEET

SDG	7372	Client/Case no	Hanford SDG K0205
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R602010-09	Client sample id	J112X3
Dept sample id	7372-009	Location/Matrix	Cr 6, Pore Water Full QC WATER
Received	02/03/06	Collected/Volume	02/01/06 14:45 5.0 L
		Custody/SAF No	RC-048-290 RC-048

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	54.1	140	230	400	U	H
Total Strontium	SR-RAD	0.013	0.24	0.50	2.0	U	SR
Radium 228	15262-20-1	0.238	0.64	1.7	3.0	U	AC
Thorium 228	14274-82-9	0.026	0.10	0.25		U J	TH
Thorium 230	14269-63-7	-0.026	0.10	0.20	1.0	U	TH
Thorium 232	TH-232	0	0.052	0.20	1.0	U J	TH
Uranium 233/234	U-233/234	0.167	0.13	0.16	1.0		U
Uranium 235	15117-96-1	0	0.051	0.19	1.0	U	U
Uranium 238	U-238	0.146	0.13	0.16	1.0	U	U
Radium 226	13982-63-3	0.218	0.41	0.72	2.0	U	RA
Potassium 40	13966-00-2	U		630		U	GAM
Cobalt 60	10198-40-0	U		23	25	U	GAM
Cesium 137	10045-97-3	U		22	15	U	GAM
Radium 226	13982-63-3	U		51		U	GAM
Radium 228	15262-20-1	U		99		U	GAM
Europium 152	14683-23-9	U		60	50	U	GAM
Europium 154	15585-10-1	U		64	50	U	GAM
Europium 155	14391-16-3	U		73	50	U	GAM
Thorium 228	14274-82-9	U		35		U	GAM
Thorium 232	TH-232	U		99		U	GAM
Uranium 235	15117-96-1	U		88		U	GAM
Uranium 238	U-238	U		2400		U	GAM
Americium 241	14596-10-2	U		180		U	GAM
Ruthenium 106	13967-48-1	U		190		U	GAM
Antimony 125	14234-35-6	U		49		U	GAM
Beryllium 7	13966-02-4	U		210		U	GAM
Cesium 134	13967-70-9	U		24		U	GAM

100&300Area Component RCBRA Water Sa

4/5/06

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/21/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0205

7372-010 J112X9

DATA SHEET

SDG	7372	Client/Case no	Hanford SDG K0205
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R602010-10	Client sample id	J112X9
Dept sample id	7372-010	Location/Matrix	Cr 6, Pore Water Full QC WATER
Received	02/03/06	Collected/Volume	02/01/06 14:30 5.0 L
		Custody/SAF No	RC-048-296 RC-048

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	-8.64	140	230	400	U	H
Total Strontium	SR-RAD	0.048	0.35	0.71	2.0	U	SR
Radium 228	15262-20-1	0.013	0.65	1.8	3.0	U	AC
Thorium 228	14274-82-9	0.264	0.27	0.49		U J	TH
Thorium 230	14269-63-7	-0.087	0.088	0.33	1.0	U	TH
Thorium 232	TH-232	0	0.087	0.33	1.0	U J	TH
Uranium 233/234	U-233/234	0.247	0.14	0.14	1.0		U
Uranium 235	15117-96-1	0	0.043	0.16	1.0	U	U
Uranium 238	U-238	0.247	0.14	0.14	1.0		U
Radium 226	13982-63-3	-0.100	0.36	0.70	2.0	U	RA
Potassium 40	13966-00-2	U		100		U	GAM
Cobalt 60	10198-40-0	U		10	25	U	GAM
Cesium 137	10045-97-3	U		10	15	U	GAM
Radium 226	13982-63-3	U		19		U	GAM
Radium 228	15262-20-1	U		39		U	GAM
Europium 152	14683-23-9	U		31	50	U	GAM
Europium 154	15585-10-1	U		32	50	U	GAM
Europium 155	14391-16-3	U		36	50	U	GAM
Thorium 228	14274-82-9	U		15		U	GAM
Thorium 232	TH-232	U		39		U	GAM
Uranium 235	15117-96-1	U		48		U	GAM
Uranium 238	U-238	U		1200		U	GAM
Americium 241	14596-10-2	U		52		U	GAM
Ruthenium 106	13967-48-1	U		89		U	GAM
Antimony 125	14234-35-6	U		26		U	GAM
Beryllium 7	13966-02-4	U		110		U	GAM
Cesium 134	13967-70-9	U		13		U	GAM

100&300Area Component RCBRA Water Sa

4/5/06

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/21/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0205

7372-008 J112F9

DATA SHEET

SDG	7372	Client/Case no	Hanford SDG K0205
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R602010-08	Client sample id	J112F9
Dept sample id	7372-008	Location/Matrix	Cr 10, Surface Water WATER
Received	02/03/06	Collected/Volume	02/01/06 18:30 3.5 L
		Custody/SAF No	RC-048-285 RC-048

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	39.8	140	230	400	U	H
Total Strontium	SR-RAD	-0.005	0.27	0.54	2.0	U	SR
Radium 228	15262-20-1	-0.260	0.58	1.6	3.0	U	AC
Thorium 228	14274-82-9	0.085	0.17	0.33		U J	TH
Thorium 230	14269-63-7	-0.042	0.085	0.32	1.0	U	TH
Thorium 232	TH-232	0	0.085	0.32	1.0	U J	TH
Uranium 233/234	U-233/234	0.194	0.13	0.12	1.0		U
Uranium 235	15117-96-1	0	0.039	0.15	1.0	U	U
Uranium 238	U-238	0.242	0.13	0.12	1.0		U
Radium 226	13982-63-3	-0.309	0.31	0.69	2.0	U	RA
Potassium 40	13966-00-2	U		110		U	GAM
Cobalt 60	10198-40-0	U		10	25	U	GAM
Cesium 137	10045-97-3	U		11	15	U	GAM
Radium 226	13982-63-3	U		21		U	GAM
Radium 228	15262-20-1	U		45		U	GAM
Europium 152	14683-23-9	U		35	50	U	GAM
Europium 154	15585-10-1	U		32	50	U	GAM
Europium 155	14391-16-3	U		38	50	U	GAM
Thorium 228	14274-82-9	U		18		U	GAM
Thorium 232	TH-232	U		45		U	GAM
Uranium 235	15117-96-1	U		53		U	GAM
Uranium 238	U-238	U		1400		U	GAM
Americium 241	14596-10-2	U		57		U	GAM
Ruthenium 106	13967-48-1	U		93		U	GAM
Antimony 125	14234-35-6	U		28		U	GAM
Beryllium 7	13966-02-4	U		120		U	GAM
Cesium 134	13967-70-9	U		13		U	GAM

100&300Area Component RCBRA Water Sa

Cl 5/06

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/21/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0205

7372-012 J11250

DATA SHEET

SDG	7372	Client/Case no	Hanford	SDG K0205	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R602010-12	Client sample id	J11250		
Dept sample id	7372-012	Location/Matrix	Cr 10, Pore Water	WATER	
Received	02/03/06	Collected/Volume	02/01/06 19:00	3.5 L	
		Custody/SAF No	RC-048-263	RC-048	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	-34.8	140	240	400	U	H
Total Strontium	SR-RAD	-0.025	0.22	0.45	2.0	U	SR
Radium 228	15262-20-1	0.108	0.63	1.7	3.0	U	AC
Thorium 228	14274-82-9	0	0.15	0.36		UJ	TH
Thorium 230	14269-63-7	0.075	0.15	0.29	1.0	U	TH
Thorium 232	TH-232	0.037	0.075	0.29	1.0	UJ	TH
Uranium 233/234	U-233/234	0.237	0.13	0.12	1.0		U
Uranium 235	15117-96-1	0	0.038	0.15	1.0	U	U
Uranium 238	U-238	0.158	0.095	0.12	1.0		U
Radium 226	13982-63-3	0.022	0.36	0.72	2.0	U	RA
Potassium 40	13966-00-2	U		280		U	GAM
Cobalt 60	10198-40-0	U		14	25	U	GAM
Cesium 137	10045-97-3	U		14	15	U	GAM
Radium 226	13982-63-3	U		23		U	GAM
Radium 228	15262-20-1	U		56		U	GAM
Europium 152	14683-23-9	U		33	50	U	GAM
Europium 154	15585-10-1	U		41	50	U	GAM
Europium 155	14391-16-3	U		44	50	U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	TH-232	U		56		U	GAM
Uranium 235	15117-96-1	U		56		U	GAM
Uranium 238	U-238	U		1700		U	GAM
Americium 241	14596-10-2	U		100		U	GAM
Ruthenium 106	13967-48-1	U		110		U	GAM
Antimony 125	14234-35-6	U		31		U	GAM
Beryllium 7	13966-02-4	U		140		U	GAM
Cesium 134	13967-70-9	U		14		U	GAM

100&300Area Component RCBRA Water Sa

6/5/06

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/21/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0205

7372-006 J112C3

DATA SHEET

SDG	7372	Client/Case no	Hanford	SDG K0205	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R602010-06	Client sample id	J112C3		
Dept sample id	7372-006	Location/Matrix	Cr 6, Vertical Tube	WATER	
Received	02/03/06	Collected/Volume	02/01/06 15:30	3.5 L	
		Custody/SAF No	RC-048-280	RC-048	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	39.3	140	230	400	U	H
Total Strontium	SR-RAD	-0.053	0.27	0.51	2.0	U	SR
Radium 228	15262-20-1	0.516	0.87	2.0	3.0	U	AC
Thorium 228	14274-82-9	0	0.055	0.21		U J	TH
Thorium 230	14269-63-7	0.027	0.11	0.21	1.0	U	TH
Thorium 232	TH-232	0	0.055	0.21	1.0	U J	TH
Uranium 233/234	U-233/234	0.311	0.13	0.13	1.0		U
Uranium 235	15117-96-1	0.079	0.079	0.15	1.0	U	U
Uranium 238	U-238	0.360	0.16	0.13	1.0		U
Radium 226	13982-63-3	0.908	0.52	0.74	2.0		RA
Potassium 40	13966-00-2	U		270		U	GAM
Cobalt 60	10198-40-0	U		16	25	U	GAM
Cesium 137	10045-97-3	U		15	15	U	GAM
Radium 226	13982-63-3	U		27		U	GAM
Radium 228	15262-20-1	U		62		U	GAM
Europium 152	14683-23-9	U		36	50	U	GAM
Europium 154	15585-10-1	U		44	50	U	GAM
Europium 155	14391-16-3	U		47	50	U	GAM
Thorium 228	14274-82-9	U		21		U	GAM
Thorium 232	TH-232	U		62		U	GAM
Uranium 235	15117-96-1	U		64		U	GAM
Uranium 238	U-238	U		1800		U	GAM
Americium 241	14596-10-2	U		100		U	GAM
Ruthenium 106	13967-48-1	U		110		U	GAM
Antimony 125	14234-35-6	U		33		U	GAM
Beryllium 7	13966-02-4	U		140		U	GAM
Cesium 134	13967-70-9	U		17		U	GAM

100&300Area Component RCBRA Water Sa

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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 K0205

7372-007 J112F6

DATA SHEET

SDG	7372	Client/Case no	Hanford SDG K0205
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R602010-07	Client sample id	J112F6
Dept sample id	7372-007	Location/Matrix	Cr 7, Surface Water WATER
Received	02/03/06	Collected/Volume	02/01/06 16:00 3.5 L
		Custody/SAF No	RC-048-282 RC-048

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	68.8	140	230	400	U	H
Total Strontium	SR-RAD	-0.334	0.36	0.71	2.0	U	SR
Radium 228	15262-20-1	-0.038	0.65	1.8	3.0	U	AC
Thorium 228	14274-82-9	-0.045	0.18	0.50		UJ	TH
Thorium 230	14269-63-7	-0.045	0.090	0.35	1.0	U	TH
Thorium 232	TH-232	0	0.090	0.35	1.0	UJ	TH
Uranium 233/234	U-233/234	0.173	0.10	0.13	1.0		U
Uranium 235	15117-96-1	0.021	0.042	0.16	1.0	U	U
Uranium 238	U-238	0.173	0.10	0.13	1.0		U
Radium 226	13982-63-3	0.128	0.35	0.65	2.0	U	RA
Potassium 40	13966-00-2	U		230		U	GAM
Cobalt 60	10198-40-0	U		17	25	U	GAM
Cesium 137	10045-97-3	U		15	15	U	GAM
Radium 226	13982-63-3	U		27		U	GAM
Radium 228	15262-20-1	U		58		U	GAM
Europium 152	14683-23-9	U		39	50	U	GAM
Europium 154	15585-10-1	U		51	50	U	GAM
Europium 155	14391-16-3	U		37	50	U	GAM
Thorium 228	14274-82-9	U		21		U	GAM
Thorium 232	TH-232	U		58		U	GAM
Uranium 235	15117-96-1	U		55		U	GAM
Uranium 238	U-238	U		1700		U	GAM
Americium 241	14596-10-2	U		50		U	GAM
Ruthenium 106	13967-48-1	U		130		U	GAM
Antimony 125	14234-35-6	U		39		U	GAM
Beryllium 7	13966-02-4	U		150		U	GAM
Cesium 134	13967-70-9	U		20		U	GAM

100&300Area Component RCBRA Water Sa

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Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
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E B E R L I N E S E R V I C E S / R I C H M O N D

SAMPLE DELIVERY GROUP K0205

7372-011 J11247

D A T A S H E E T

SDG	7372	Client/Case no	Hanford	SDG K0205	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R602010-11	Client sample id	J11247		
Dept sample id	7372-011	Location/Matrix	Cr 7, Pore Water	WATER	
Received	02/03/06	Collected/Volume	02/01/06 16:15	3.5 L	
		Custody/SAF No	RC-048-260	RC-048	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	-43.4	140	240	400	U	H
Total Strontium	SR-RAD	-0.009	0.19	0.40	2.0	U	SR
Radium 228	15262-20-1	-0.377	0.54	1.6	3.0	U	AC
Thorium 228	14274-82-9	0.095	0.13	0.24		U J	TH
Thorium 230	14269-63-7	-0.063	0.063	0.24	1.0	U	TH
Thorium 232	TH-232	0	0.063	0.24	1.0	U J	TH
Uranium 233/234	U-233/234	0.157	0.14	0.17	1.0	U	U
Uranium 235	15117-96-1	0.027	0.054	0.21	1.0	U	U
Uranium 238	U-238	0.270	0.14	0.17	1.0		U
Radium 226	13982-63-3	-0.092	0.30	0.67	2.0	U	RA
Potassium 40	13966-00-2	U		340		U	GAM
Cobalt 60	10198-40-0	U		15	25	U	GAM
Cesium 137	10045-97-3	U		14	15	U	GAM
Radium 226	13982-63-3	U		26		U	GAM
Radium 228	15262-20-1	U		60		U	GAM
Europium 152	14683-23-9	U		32	50	U	GAM
Europium 154	15585-10-1	U		39	50	U	GAM
Europium 155	14391-16-3	U		33	50	U	GAM
Thorium 228	14274-82-9	U		18		U	GAM
Thorium 232	TH-232	U		60		U	GAM
Uranium 235	15117-96-1	U		45		U	GAM
Uranium 238	U-238	U		1600		U	GAM
Americium 241	14596-10-2	U		58		U	GAM
Ruthenium 106	13967-48-1	U		110		U	GAM
Antimony 125	14234-35-6	U		29		U	GAM
Beryllium 7	13966-02-4	U		120		U	GAM
Cesium 134	13967-70-9	U		17		U	GAM

100&300Area Component RCBRA Water Sa

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Lab id	EBRLNE
Protocol	Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0205

7372-002 J11238

DATA SHEET

SDG	7372	Client/Case no	Hanford SDG K0205
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R602010-02	Client sample id	J11238
Dept sample id	7372-002	Location/Matrix	Cr 3, Surface Water WATER
Received	01/31/06	Collected/Volume	01/29/06 13:30 3.5 L
		Custody/SAF No	RC-048-251 RC-048

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	0	130	230	400	U	H
Carbon 14	14762-75-5	4.67	73	120	200	U	C
Total Strontium	SR-RAD	0.065	0.32	0.65	2.0	U	SR
Radium 228	15262-20-1	0.102	1.1	1.6	3.0	U	AC
Thorium 228	14274-82-9	0.065	0.13	0.31		U J	TH
Thorium 230	14269-63-7	-0.065	0.065	0.25	1.0	U	TH
Thorium 232	TH-232	0	0.065	0.25	1.0	U J	TH
Uranium 233/234	U-233/234	0.197	0.12	0.15	1.0		U
Uranium 235	15117-96-1	0	0.048	0.18	1.0	U	U
Uranium 238	U-238	0.217	0.12	0.15	1.0		U
Radium 226	13982-63-3	0.133	0.38	0.69	2.0	U	RA
Potassium 40	13966-00-2	U		53		U	GAM
Cobalt 60	10198-40-0	U		5.2	25	U	GAM
Cesium 137	10045-97-3	U		5.3	15	U	GAM
Radium 226	13982-63-3	U		9.8		U	GAM
Radium 228	15262-20-1	U		20		U	GAM
Europium 152	14683-23-9	U		17	50	U	GAM
Europium 154	15585-10-1	U		14	50	U	GAM
Europium 155	14391-16-3	U		19	50	U	GAM
Thorium 228	14274-82-9	U		8.6		U	GAM
Thorium 232	TH-232	U		20		U	GAM
Uranium 235	15117-96-1	U		26		U	GAM
Uranium 238	U-238	U		600		U	GAM
Americium 241	14596-10-2	U		28		U	GAM
Beryllium 7	13966-02-4	U		57		U	GAM
Ruthenium 106	13967-48-1	U		49		U	GAM
Antimony 125	14234-35-6	U		14		U	GAM
Cesium 134	13967-70-9	U		6.4		U	GAM

100&300Area Component RCBRA Water Sa

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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 K0205

7372-001 J11232

DATA SHEET

SDG	7372	Client/Case no	Hanford	SDG K0205	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R602010-01	Client sample id	J11232		
Dept sample id	7372-001	Location/Matrix	Cr 4, Pore Water	WATER	
Received	01/31/06	Collected/Volume	01/29/06 14:15	3.5 L	
		Custody/SAF No	RC-048-244	RC-048	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	17.2	140	230	400	U	H
Carbon 14	14762-75-5	-19.8	73	120	200	U	C
Total Strontium	SR-RAD	-0.014	0.34	0.62	2.0	U	SR
Radium 228	15262-20-1	-0.620	0.65	1.9	3.0	U	AC
Thorium 228	14274-82-9	0.031	0.12	0.24		U J	TH
Thorium 230	14269-63-7	-0.093	0.063	0.24	1.0	U	TH
Thorium 232	TH-232	0	0.062	0.24	1.0	U J	TH
Uranium 233/234	U-233/234	0.243	0.12	0.12	1.0		U
Uranium 235	15117-96-1	0	0.037	0.14	1.0	U	U
Uranium 238	U-238	0.243	0.12	0.12	1.0		U
Radium 226	13982-63-3	-0.022	0.36	0.64	2.0	U	RA
Potassium 40	13966-00-2	U		260		U	GAM
Cobalt 60	10198-40-0	U		12	25	U	GAM
Cesium 137	10045-97-3	U		14	15	U	GAM
Radium 226	13982-63-3	U		25		U	GAM
Radium 228	15262-20-1	U		62		U	GAM
Europium 152	14683-23-9	U		34	50	U	GAM
Europium 154	15585-10-1	U		47	50	U	GAM
Europium 155	14391-16-3	U		43	50	U	GAM
Thorium 228	14274-82-9	U		35		U	GAM
Thorium 232	TH-232	U		62		U	GAM
Uranium 235	15117-96-1	U		61		U	GAM
Uranium 238	U-238	U		1700		U	GAM
Americium 241	14596-10-2	U		100		U	GAM
Ruthenium 106	13967-48-1	U		130		U	GAM
Antimony 125	14234-35-6	U		33		U	GAM
Beryllium 7	13966-02-4	U		150		U	GAM
Cesium 134	13967-70-9	U		14		U	GAM

100&300Area Component RCBRA Water Sa

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

SAMPLE DELIVERY GROUP K0205

7372-003 J11239

DATA SHEET

SDG	7372	Client/Case no	Hanford	SDG K0205	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R602010-03	Client sample id	J11239		
Dept sample id	7372-003	Location/Matrix	Cr 4, Surface Water	WATER	
Received	01/31/06	Collected/Volume	01/29/06 15:30	3.5 L	
		Custody/SAF No	RC-048-252	RC-048	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	-42.8	130	230	400	U	H
Carbon 14	14762-75-5	-18.0	74	120	200	U	C
Total Strontium	SR-RAD	-0.033	0.34	0.68	2.0	U	SR
Radium 228	15262-20-1	0.118	0.64	1.7	3.0	U	AC
Thorium 228	14274-82-9	0.028	0.11	0.21		U J	TH
Thorium 230	14269-63-7	-0.055	0.055	0.21	1.0	U	TH
Thorium 232	TH-232	0	0.055	0.21	1.0	U J	TH
Uranium 233/234	U-233/234	0.246	0.11	0.086	1.0		U
Uranium 235	15117-96-1	0	0.027	0.10	1.0	U	U
Uranium 238	U-238	0.202	0.090	0.086	1.0		U
Radium 226	13982-63-3	0.078	0.38	0.71	2.0	U	RA
Potassium 40	13966-00-2	U		380		U	GAM
Cobalt 60	10198-40-0	U		14	25	U	GAM
Cesium 137	10045-97-3	U		13	15	U	GAM
Radium 226	13982-63-3	U		31		U	GAM
Radium 228	15262-20-1	U		63		U	GAM
Europium 152	14683-23-9	U		37	50	U	GAM
Europium 154	15585-10-1	U		36	50	U	GAM
Europium 155	14391-16-3	U		46	50	U	GAM
Thorium 228	14274-82-9	U		21		U	GAM
Thorium 232	TH-232	U		63		U	GAM
Uranium 235	15117-96-1	U		53		U	GAM
Uranium 238	U-238	U		1600		U	GAM
Americium 241	14596-10-2	U		110		U	GAM
Ruthenium 106	13967-48-1	U		110		U	GAM
Antimony 125	14234-35-6	U		30		U	GAM
Beryllium 7	13966-02-4	U		140		U	GAM
Cesium 134	13967-70-9	U		22		U	GAM

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Lab id	EBRLNE
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0205

7372-005 J11279

DATA SHEET

SDG	7372	Client/Case no	Hanford	SDG K0205	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R602010-05	Client sample id	J11279		
Dept sample id	7372-005	Location/Matrix	Cr 5, Surface Water	WATER	
Received	01/31/06	Collected/Volume	01/29/06 16:00	3.5 L	
		Custody/SAF No	RC-048-276	RC-048	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	-22.2	130	230	400	U	H
Total Strontium	SR-RAD	-0.054	0.26	0.53	2.0	U	SR
Radium 228	15262-20-1	-0.339	0.72	1.9	3.0	U	AC
Thorium 228	14274-82-9	-0.051	0.10	0.32		U J	TH
Thorium 230	14269-63-7	0.179	0.15	0.20	1.0	U	TH
Thorium 232	TH-232	0.026	0.051	0.20	1.0	U J	TH
Uranium 233/234	U-233/234	0.190	0.13	0.16	1.0		U
Uranium 235	15117-96-1	0	0.051	0.20	1.0	U	U
Uranium 238	U-238	0.316	0.17	0.16	1.0		U
Radium 226	13982-63-3	0.214	0.47	0.82	2.0	U	RA
Potassium 40	13966-00-2	U		120		U	GAM
Cobalt 60	10198-40-0	U		11	25	U	GAM
Cesium 137	10045-97-3	U		11	15	U	GAM
Radium 226	13982-63-3	U		20		U	GAM
Radium 228	15262-20-1	U		43		U	GAM
Europium 152	14683-23-9	U		34	50	U	GAM
Europium 154	15585-10-1	U		30	50	U	GAM
Europium 155	14391-16-3	U		38	50	U	GAM
Thorium 228	14274-82-9	U		17		U	GAM
Thorium 232	TH-232	U		43		U	GAM
Uranium 235	15117-96-1	U		54		U	GAM
Uranium 238	U-238	U		1300		U	GAM
Americium 241	14596-10-2	U		59		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Antimony 125	14234-35-6	U		29		U	GAM
Beryllium 7	13966-02-4	U		120		U	GAM
Cesium 134	13967-70-9	U		13		U	GAM

100&300Area Component RCBRA Water Sa

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

SAMPLE DELIVERY GROUP K0205

7372-004 J11245

DATA SHEET

SDG	7372	Client/Case no	Hanford SDG K0205
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R602010-04	Client sample id	J11245
Dept sample id	7372-004	Location/Matrix	Cr 5, Pore Water WATER
Received	01/31/06	Collected/Volume	01/29/06 16:30 3.5 L
		Custody/SAF No	RC-048-258 RC-048

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	34.1	140	230	400	U	H
Total Strontium	SR-RAD	0.220	0.34	0.64	2.0	U	SR
Radium 228	15262-20-1	-0.060	0.60	1.7	3.0	U	AC
Thorium 228	14274-82-9	0	0.10	0.24		U J	TH
Thorium 230	14269-63-7	0	0.10	0.19	1.0	U	TH
Thorium 232	TH-232	0	0.050	0.19	1.0	U J	TH
Uranium 233/234	U-233/234	0.099	0.080	0.15	1.0	U	U
Uranium 235	15117-96-1	0	0.048	0.18	1.0	U	U
Uranium 238	U-238	0.079	0.079	0.15	1.0	U	U
Radium 226	13982-63-3	0.215	0.41	0.71	2.0	U	RA
Potassium 40	13966-00-2	U		180		U	GAM
Cobalt 60	10198-40-0	U		8.4	25	U	GAM
Cesium 137	10045-97-3	U		7.4	15	U	GAM
Radium 226	13982-63-3	U		15		U	GAM
Radium 228	15262-20-1	U		32		U	GAM
Europium 152	14683-23-9	U		17	50	U	GAM
Europium 154	15585-10-1	U		21	50	U	GAM
Europium 155	14391-16-3	U		20	50	U	GAM
Thorium 228	14274-82-9	U		9.6		U	GAM
Thorium 232	TH-232	U		32		U	GAM
Uranium 235	15117-96-1	U		24		U	GAM
Uranium 238	U-238	U		820		U	GAM
Americium 241	14596-10-2	U		32		U	GAM
Ruthenium 106	13967-48-1	U		54		U	GAM
Antimony 125	14234-35-6	U		16		U	GAM
Beryllium 7	13966-02-4	U		62		U	GAM
Cesium 134	13967-70-9	U		8.7		U	GAM

100&300Area Component RCBRA Water Sa

K 6/5/06

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K0205 was composed of twelve water samples designated under SAF No. RC-048 with a Project Designation of: 100 Area and 300 Area Component of the RCBRA Water Sa.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to WCH via e-mail on March 21, 2006.

2.0 ANALYSIS NOTES

2.1 Tritium Analysis

No problems were encountered during the course of the analyses.

2.2 Carbon-14 Analysis

No problems were encountered during the course of the analyses.

2.3 Total Strontium Analysis

No problems were encountered during the course of the analyses.

2.4 Radium-226 Analysis

No problems were encountered during the course of the analyses.

2.5 Radium-228 Analysis

No other problems were encountered during the course of the analyses.

2.6 Isotopic Thorium Analysis

No problems were encountered during the course of the analyses.

2.7 Isotopic Uranium Analysis

No problems were encountered during the course of the analyses.

2.8 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 — 3/22/06

Melissa C. Mannion
Senior Program Manager

000025

Date

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-048-244	Page 1 of 2

Collector: TILLER, B — JAMES BERNHARD	Company Contact: JOAN KESSNER — Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 7N — Data Turnaround: 45 Days
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 4, PORE WATER — K0205 (7372)	SAF No.: RC-048	Air Quality ☐
Ice Chest No.: ERC-03-105	Field Logbook No.: EL-1597 — COA: BESRAS6520	Method of Shipment: FED EX	
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A060238	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

~~COOL 4C~~ 1-30-06 RZS

None

000026

Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	~~125mL~~ 60 1-29-06	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3 CARBON 14	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

Sample No.	Matrix *	Sample Date	Sample Time										
J11232	WATER	1-29-06	1415	X	X	X	X	X	X				

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: JAMES BERNHARD	Date/Time: 1-29-06 2000	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 1-29-06 2000
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 01-30-06 0710	Received By/Stored In: RZ Steffler R.J. Steffler	Date/Time: 0710 1-30-06
Relinquished By/Removed From: RZ Steffler R.J. Steffler	Date/Time: 1500 WCH 1-30-06	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: FED EX	Date/Time:	Received By/Stored In: Alex Klemmel	Date/Time: 1/31/06 10:00
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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-048-251	Page 1 of 2
Collector TILLER, B JAMES BERNHARD	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 7N Air Quality ☐
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location Cr 3, SURFACE WATER KD205 (7372)		SAF No. RC-048	Data Turnaround 45 Days
Ice Chest No. ERC-03-105	Field Logbook No. EL-1597	COA BESRAS6520	Method of Shipment FED EX	
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A060238		Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

~~COOL 4C~~ RZS 1-30-06
None

Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	~~125mL~~ 60 BH 1-29-06	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3 CARBON-14	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

000027

Sample No.	Matrix *	Sample Date	Sample Time										
J11238	WATER	1-29-06	1330	X	X	X	X	X	X				

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From JAMES BERNHARD	Date/Time 1-29-06 2000	Received By/Stored In EAS LOCKED STORAGE	Date/Time 1-29-06 2000
Relinquished By/Removed From EAS LOCKED STORAGE	Date/Time 0710 01-30-06	Received By/Stored In RZ Steffler RZ Steffler	Date/Time 0710 1-30-06
Relinquished By/Removed From RZ Steffler RZ Steffler	Date/Time 1500 1-30-06	Received By/Stored In Fed Ex	Date/Time
Relinquished By/Removed From FEDEX	Date/Time	Received By/Stored In Alex Kelmbul	Date/Time 1/31/06 10:00
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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-048-252	Page 1 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 4, SURFACE WATER K0205 (7372)		SAF No.: RC-048
Ice Chest No.: ERC-03-105	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A060238		Bill of Lading/Air Bill No.: SEE OSPC

Price Code: 7N

Air Quality ☐

Data Turnaround: 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

~~COOL 4C~~ RZS 1-30-06

None

000028

Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	~~125mL~~ 60 BH 1-29-06	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3 CARBON-14	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

Sample No.	Matrix *	Sample Date	Sample Time										
J11239	WATER	1-29-06	1530	X	X	X	X	X	X				

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: JAMES BERNHARD	Date/Time: 1-29-06 2000	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 1-29-06 2000
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 01-30-06 0710	Received By/Stored In: RZ Steffler R.J. Steffler	Date/Time: 0710 1-30-06
Relinquished By/Removed From: RZ Steffler R.J. Steffler	Date/Time: 1500 1-30-06	Received By/Stored In: Fed EX	Date/Time:
Relinquished By/Removed From: FEDEX	Date/Time:	Received By/Stored In: Alex Kelvin	Date/Time: 1/31/06 10:00
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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-048-258	Page 1 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 5, PORE WATER K0205 (7372)	SAF No.: RC-048	
Ice Chest No.: ERC-03-105	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES, LIONVILLE	Offsite Property No.: A060238	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

~~COOL 4C~~ RZS 1-30-06

None

000029

SAMPLE ANALYSIS												
Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1 RZS 1-30-06	1	1	1	1	1	1	1	1	1
Volume	~~125mL~~ 60 ml	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226, Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

Sample No.	Matrix *	Sample Date	Sample Time									
J11245	WATER	1-29-06	1630	X	X	X	X	X	X			

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: JAMES BERNHARD	1-29-06 2000	EAS LOCKED STORAGE	1/29/06 2000
Relinquished By/Removed From: EAS LOCKED STORAGE	01-30-06 0710	RZ Steffler	1-30-06 0710
Relinquished By/Removed From: RZ Steffler	1-30-06 1500	Fed Ex	
Relinquished By/Removed From: FEDEX		Alex Kelly	1/31/06 10:00
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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-048-276	Page 1 of 2

Collector TILLER, B ~~JAMES BERNHARD~~	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 7N Air Quality ☐	Data Turnaround 45 Days
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location Cr 5, SURFACE WATER K0205 (7372)		SAF No. RC-048		
Ice Chest No. ERC-03-105	Field Logbook No. EL-1597	COA BESRAS6520	Method of Shipment FED EX		
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A060238		Bill of Lading/Air Bill No. SEE OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

~~COOL 4C~~ RZS 1-30-06

None

000030

Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 – Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

Sample No.	Matrix *	Sample Date	Sample Time										
J11279	WATER	1/29/06	1600	X	X	X	X	X	X				

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JAMES BERNHARD	1-29-06 2000 BH 1-29-06 ~~1600~~	EAS LOCKED STORAGE	1-29-06 2000 BH 1-29-06 ~~1600~~
EAS LOCKED STORAGE	01-30-06 0710	RZ Stiffler R.Z. Stiffler	1-30-06 0710
RZ Stiffler R.Z. Stiffler	1-30-06 WCH 1500	Fed Ex	
FEDEX		Alex Kennedy	1/31/06 10:00

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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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-048-280	Page 1 of 2

Collector TILLER, B JAMES BERNHARD	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location Cr 6, VERTICAL TUBE K0205 (7372)		SAF No. RC-048
Ice Chest No. ERC-96-030	Field Logbook No. EL-1597	COA BESRAS6520	Method of Shipment FED EX
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A060243		Bill of Lading/Air Bill No. SEE OSPC

Price Code 7N

Air Quality ☐

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL

000031

SAMPLE ANALYSIS				Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
Sample No.	Matrix *	Sample Date	Sample Time										
J112C3	WATER	02-01-06	1530	X	X	X	X	X	X				

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JAMES BERNHARD	2030 02-01-06	EAS LOCKED STORAGE	2030 02-01-06
EAS LOCKED STORAGE	1200 02-02-06		1200 02-02-06
	1600 02/02/06	Fed Ex	
FEDEX			2/3/06 10:00

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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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-048-282	Page 1 of 2

Collector: TILLER, B Bernhard	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 7, SURFACE WATER K0205 (7372)	SAF No.: RC-048	
Ice Chest No.: ERC-96-030	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A060243	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

000032

Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium-226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

Sample No.	Matrix *	Sample Date	Sample Time										
J112F6	WATER	2-1-06	1600	X	X	X	X	X	X				

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: JAMES BERNHARD	Date/Time: 2130 2-1-06	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 2130 2-1-06
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 1200 02-02-06	Received By/Stored In: David St. John WCH	Date/Time: 1200 02-02-06
Relinquished By/Removed From: David St. John WCH	Date/Time: 1400 02/02/06	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: FED EX	Date/Time: 2/3/06	Received By/Stored In: Alex Kelly	Date/Time: 2/3/06 10:00
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}
(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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-048-285	Page 1 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 10, SURFACE WATER K0205 (7372)		SAF No.: RC-048
Ice Chest No.	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.		Bill of Lading/Air Bill No.: SEE OSPC

Price Code 7N

Air Quality ☐

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

000033

Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 – Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

Sample No.	Matrix *	Sample Date	Sample Time										
J112F9	WATER	02-01-06	1830	X	X	X	X	X	X				

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: JAMES BERNHARD	Date/Time: 2130 2-1-06	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 2130 2-1-06
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 1200 02-02-06	Received By/Stored In: David St. John WCH	Date/Time: 1200 02-02-06
Relinquished By/Removed From: David St. John WCH	Date/Time: 1400 02/02/06	Received By/Stored In: Fed EX	Date/Time:
Relinquished By/Removed From: Alex Kelen	Date/Time: 2/3/06 FED EX	Received By/Stored In: Alex Kelen	Date/Time: 2/3/06 10:00
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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-048-290	Page 1 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr-6 PORE WATER FULL QC K0205 (7372)	SAF No.: RC-048	
Ice Chest No.: ERC-96-030	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A060243	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

000034

Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	3	2	3
Volume	125mL	1000mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 – Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

Sample No.	Matrix *	Sample Date	Sample Time										
J112X3	WATER	02-01-06	1445	X	X	X	X	X	X				

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JAMES BERNHARD	02/01/06 2030	EAS LOCKED STORAGE	02/01/06 2030
EAS LOCKED STORAGE	02/02/06 1200	David Stoddard	02-02-06 1200
David Stoddard	02/02/06 1600	Fed Ex	
FED EX		Alex Kelleul	2/6/06 1000

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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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-048-296	Page 1 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr-6, SURFACE WATER FULL QC KD205 (7372)	SAF No.: RC-048	
Ice Chest No.: ERC-99-030	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A060243	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

COOL 4C

000035

Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	3	2	3
Volume	125mL	1000mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL

SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
J112X9	X	X	X	X	X	X				

Sample No.	Matrix *	Sample Date	Sample Time
J112X9	WATER	02-01-06	1430

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JAMES BERNHARD	02-01-06 2030	EAS LOCKED STORAGE	02-01-06 2030
EAS LOCKED STORAGE	02-02-06 1200	[illegible]	02-02-06 1200
[illegible]	02/02/06 1400	Fed Ex	
FED EX		[illegible]	2/3/06 10:00

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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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-048-260	Page 1 of 2

Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 7, PORE WATER K0205 (7372)	SAF No.: RC-048	
Ice Chest No.: ERL-01-030	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES/ LIONVILLE	Offsite Property No.: A060243	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	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	~~125mL~~ 60 mL	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

Sample No.	Matrix *	Sample Date	Sample Time										
J11247	WATER	2-1-06	1615	X	X	X	X	X	X				

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: JAMES BERNHARD	2-1-06 2130	EAS LOCKED STORAGE	2-1-06 2130
Relinquished By/Removed From: EAS LOCKED STORAGE	02-02-06 1200	[illegible]	02-02-06 1200
Relinquished By/Removed From: [illegible]	02/02/06 1400	Fed EX	
Relinquished By/Removed From: FED EX		[illegible]	2/3/06 10:00
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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-048-263	Page 1 of 2
Collector: TILLER, B JAMES BERNHARD	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 7N; Data Turnaround: 45 Days
Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location: Cr 10, PORE WATER KD205 (7372)		SAF No.: RC-048	Air Quality ☐
Ice Chest No.: GRC-99-030	Field Logbook No.: EL-1597	COA: BESRAS6520	Method of Shipment: FED EX	
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A066243		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	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	~~125mL~~ 60 [illegible]	500mL	1000mL	500mL	1000mL	500mL	250mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

000037

Sample No.	Matrix *	Sample Date	Sample Time										
J11250	WATER	02-01-06	1900	X	X	X	X	X	X				

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: JAMES BERNHARD	Date/Time: 2030 02-01-06	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 2030 02-01-06
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 1200 02-02-06	Received By/Stored In: [illegible] WCH	Date/Time: 1200 02-02-06
Relinquished By/Removed From: [illegible] WCH	Date/Time: 1400 02/02/06	Received By/Stored In: Fed EX	Date/Time:
Relinquished By/Removed From: FED EX	Date/Time:	Received By/Stored In: Alex Kelley	Date/Time: 2/3/06 10:00
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, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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	Water	DATA PACKAGE:	K0205	
VALIDATOR:	TCI	LAB:	EB	DATE:	6/3/02
			SDG:	K0205	

ANALYSES PERFORMED

Gross Alpha/Beta	Strontium-90	Technetium-99	Alpha Spectroscopy	Gamma Spectroscopy
Total Uranium	Radium-226 + 228	Tritium	C-14	

SAMPLES/MATRIX

J112X3	J112X9	J112F9	J11250	J112CJ	J112F6
J11247	J11238	J11232	J11239	J11279	J11245
					Water

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 229 or 232 LCS - Jall

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: one analyte over

Appendix 6

Additional Documentation Requested by Client

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0205

7372-014 Method Blank

METHOD BLANK

SDG	7372	Client/Case no	Hanford SDG K0205
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R602010-14	Client sample id	Method Blank
Dept sample id	7372-014	Material/Matrix	WATER
		SAF No	RC-048

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	-254	1300	2300	400	U	H
Carbon 14	14762-75-5	-9.44	37	62	200	U	C
Total Strontium	SR-RAD	0.145	0.27	0.52	2.0	U	SR
Radium 228	15262-20-1	0.191	0.54	1.5	3.0	U	AC
Thorium 228	14274-82-9	0.032	0.20	0.36		U	TH
Thorium 230	14269-63-7	-0.129	0.066	0.31	1.0	U	TH
Thorium 232	TH-232	0	0.064	0.25	1.0	U	TH
Uranium 233/234	U-233/234	0	0.037	0.14	1.0	U	U
Uranium 235	15117-96-1	0	0.044	0.17	1.0	U	U
Uranium 238	U-238	0	0.037	0.14	1.0	U	U
Radium 226	13982-63-3	-0.236	0.34	0.74	2.0	U	RA
Potassium 40	13966-00-2	U		100		U	GAM
Cobalt 60	10198-40-0	U		10	25	U	GAM
Cesium 137	10045-97-3	U		10	15	U	GAM
Radium 226	13982-63-3	U		22		U	GAM
Radium 228	15262-20-1	U		44		U	GAM
Europium 152	14683-23-9	U		34	50	U	GAM
Europium 154	15585-10-1	U		35	50	U	GAM
Europium 155	14391-16-3	U		37	50	U	GAM
Thorium 228	14274-82-9	U		17		U	GAM
Thorium 232	TH-232	U		44		U	GAM
Uranium 235	15117-96-1	U		51		U	GAM
Uranium 238	U-238	U		1200		U	GAM
Americium 241	14596-10-2	U		56		U	GAM
Ruthenium 106	13967-48-1	U		95		U	GAM
Antimony 125	14234-35-6	U		26		U	GAM
Beryllium 7	13966-02-4	U		84		U	GAM
Cesium 134	13967-70-9	U		13		U	GAM

100&300Area Component RCBRA Water Sa

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/21/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0205

7372-013

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7372

Contact Melissa C. Mannion

Client/Case no Hanford SDG K0205

Contract No. 630

Lab sample id R602010-13

Dept sample id 7372-013

Client sample id Lab Control Sample

Material/Matrix WATER

SAF No RC-048

ANALYTE	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	21100	2000	2300	400		H	22200	890	95	79-121	80-120
Carbon 14	9340	320	150	200		C	9570	380	98	83-117	80-120
Total Strontium	21.6	1.1	0.46	2.0		SR	19.7	0.79	110	81-119	80-120
Radium 228	17.1	2.1	1.5	3.0		AC	16.7	0.67	102	79-121	80-120
Thorium 230	21.1	2.1	0.17	1.0		TH	22.2	0.89	95	83-117	80-120
Uranium 233/234	17.9	1.4	0.69	1.0		U	19.3	0.77	93	86-114	80-120
Uranium 235	16.2	1.4	0.12	1.0		U	15.7	0.63	103	83-117	80-120
Uranium 238	18.7	1.5	0.66	1.0		U	21.0	0.84	89	86-114	80-120
Radium 226	46.4	2.5	0.75	2.0		RA	50.3	2.0	92	88-112	80-120
Cobalt 60	433	43	34	25		GAM	486	19	89	75-125	80-120
Cesium 137	521	41	31	15		GAM	494	20	106	73-127	80-120

100&300Area Component RCBRA Water Sa

QC-LCS #56041

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 03/21/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0205

7372-015 J11232

DUPLICATE

SDG	7372			Client/Case no	Hanford SDG K0205
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R602010-15	Lab sample id	R602010-01	Client sample id	J11232
Dept sample id	7372-015	Dept sample id	7372-001	Location/Matrix	Cr 4, Pore Water WATER
		Received	01/31/06	Collected/Volume	01/29/06 14:15 3.5 L
				Custody/SAF No	RC-048-244 RC-048

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI-FIERS	RPD %	3σ TOT	DER σ
Carbon 14	-37.5	72	120	200	U	C	-19.8	73	120	U	-		0.3
Radium 228	-0.386	0.62	1.6	3.0	U	AC	-0.620	0.65	1.9	U	-		0.5
Radium 226	0.079	0.41	0.78	2.0	U	RA	-0.022	0.36	0.64	U	-		0.4
Potassium 40	U		110		U	GAM	U		260	U	-		1.1
Cobalt 60	U		11	25	U	GAM	U		12	U	-		0.1
Cesium 137	U		12	15	U	GAM	U		14	U	-		0.2
Radium 226	U		21		U	GAM	U		25	U	-		0.2
Radium 228	U		47		U	GAM	U		62	U	-		0.4
Europium 152	U		32	50	U	GAM	U		34	U	-		0.1
Europium 154	U		32	50	U	GAM	U		47	U	-		0.5
Europium 155	U		37	50	U	GAM	U		43	U	-		0.2
Thorium 228	U		18		U	GAM	U		35	U	-		0.9
Thorium 232	U		47		U	GAM	U		62	U	-		0.4
Uranium 235	U		53		U	GAM	U		61	U	-		0.2
Uranium 238	U		1300		U	GAM	U		1700	U	-		0.4
Americium 241	U		59		U	GAM	U		100	U	-		0.7
Ruthenium 106	U		98		U	GAM	U		130	U	-		0.4
Antimony 125	U		27		U	GAM	U		33	U	-		0.3
Beryllium 7	U		120		U	GAM	U		150	U	-		0.3
Cesium 134	U		15		U	GAM	U		14	U	-		0.1

100&300Area Component RCBRA Water Sa

QC-DUP#1 56043

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	03/21/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0205

7372-017 J112X3

DUPLICATE

SDG	7372			Client/Case no	Hanford SDG K0205
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R602010-17	Lab sample id	R602010-09	Client sample id	J112X3
Dept sample id	7372-017	Dept sample id	7372-009	Location/Matrix	Cr 6, Pore Water Full QC WATER
		Received	02/03/06	Collected/Volume	02/01/06 14:45 5.0 L
				Custody/SAF No	RC-048-290 RC-048

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI-FIERS	RPD %	3σ TOT	DER σ
Total Strontium	0.101	0.26	0.50	2.0	U	SR	0.013	0.24	0.50	U	-		0.5
Thorium 228	0.063	0.13	0.24		U	TH	0.026	0.10	0.25	U	-		0.5
Thorium 230	-0.031	0.12	0.24	1.0	U	TH	-0.026	0.10	0.20	U	-		0.1
Thorium 232	0.031	0.062	0.24	1.0	U	TH	0	0.052	0.20	U	-		0.8
Uranium 233/234	0.203	0.14	0.26	1.0	U	U	0.167	0.13	0.16		19	155	0.4
Uranium 235	0	0.082	0.31	1.0	U	U	0	0.051	0.19	U	-		0
Uranium 238	0.339	0.21	0.26	1.0		U	0.146	0.13	0.16	U	80	153	1.6

100&300Area Component RCBRA Water Sa

QC-DUP#9 56264

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	03/21/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0205

7372-018 J112X3

DUPLICATE

SDG	7372			Client/Case no	Hanford SDG K0205
Contact	Melissa C. Mannion			Contract	No. 630
DUPLICATE		ORIGINAL			
Lab sample id	R602010-18	Lab sample id	R602010-09	Client sample id	J112X3
Dept sample id	7372-018	Dept sample id	7372-009	Location/Matrix	Cr 6, Pore Water Full QC WATER
		Received	02/03/06	Collected/Volume	02/01/06 14:45 5.0 L
				Custody/SAF No	RC-048-290 RC-048

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI-FIERS	RPD %	3σ TOT	DER σ
Tritium	2.92	140	240	400	U	H	54.1	140	230	U	-		0.5

100&300Area Component RCBRA Water Sa

QC-DUP#9 56373

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	03/21/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0205

7372-020 J11238

MATRIX SPIKE

SDG	7372	Client/Case no	Hanford SDG K0205
Contact	Melissa C. Mannion	Contract	No. 630
MATRIX SPIKE		ORIGINAL	
Lab sample id	R602010-20	Lab sample id	R602010-02
Dept sample id	7372-020	Dept sample id	7372-002
		Received	01/31/06
Client sample id	J11238		
Location/Matrix	Cr 3, Surface Water WATER		
Collected/Volume	01/29/06 13:30 3.5 L		
Custody/SAF No	RC-048-251 RC-048		

ANALYTE	SPIKE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	ORIGINAL pCi/L	2σ ERR (COUNT)	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Carbon 14	38100	1300	450	200	X	C	38300	1500	4.67	73	99	83-117	60-140

100&300Area Component RCBRA Water Sa

QC-MS #2 56375

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-MS
Version	3.06
Report date	03/21/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0205

7372-019 J112X9

MATRIX SPIKE

SDG 7372		Client/Case no Hanford	SDG K0205
Contact Melissa C. Mannion		Contract No. 630	
MATRIX SPIKE	ORIGINAL		
Lab sample id R602010-19	Lab sample id R602010-10	Client sample id J112X9	
Dept sample id 7372-019	Dept sample id 7372-010	Location/Matrix Cr 6, Pore Water Full QC	WATER
	Received 02/03/06	Collected/Volume 02/01/06 14:30	5.0 L
		Custody/SAF No RC-048-296	RC-048

ANALYTE	SPIKE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	ORIGINAL pCi/L	2σ ERR (COUNT)	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	22400	730	340	400	X	H	22400	900	-8.64	140	100	83-117	60-140

100&300Area Component RCBRA Water Sa

QC-MS#10 56374

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-MS
Version 3.06
Report date 03/21/06