0068475

SAF-RC-005
100-NR-1 TSD Sites
R. A. Verification Sampling - Soil
FINAL VALIDATION PACKAGE

COMPLETE COPY OF VALIDATION PACKAGE TO:

Jeanette Duncan (2) H9-02 MJP 01/31/06
INITIAL/DATE

COMMENTS:

SDG K0118 **SAF-RC-005**

Waste Site: 116-N-1

RECEIVED
FEB 07 2006
EDMC

Date: 10 January 2006
To: Washington Closure Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 100-NR-1 TSD Sites RA Verification Sampling–Soil–Waste Site 116-N-1
Subject: Radiochemistry - Data Package No. K0118

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0118 prepared by Eberline Services (EB). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Date
J10FC0	11/8/05	Soil	C	See note 1
J10FC1	11/8/05	Soil	C	See note 1
J10F90	11/8/05	Soil	C	See note 1
J10F91	11/8/05	Soil	C	See note 1
J10F92	11/8/05	Soil	C	See note 1
J10F93	11/8/05	Soil	C	See note 1
J10F94	11/8/05	Soil	C	See note 1
J10F95	11/8/05	Soil	C	See note 1
J10F96	11/8/05	Soil	C	See note 1
J10F97	11/8/05	Soil	C	See note 1
J10F98	11/8/05	Soil	C	See note 1
J10F99	11/8/05	Soil	C	See note 1
J10FB0	11/9/05	Soil	C	See note 1
J10FB1	11/8/05	Soil	C	See note 1
J10FB2	11/8/05	Soil	C	See note 1
J10FB4	11/8/05	Soil	C	See note 1
J10FB5	11/8/05	Soil	C	See note 1
J10FB6	11/8/05	Soil	C	See note 1
J10FB7	11/8/05	Soil	C	See note 1
J10FB8	11/8/05	Soil	C	See note 1
J10FB9	11/9/05	Soil	C	See note 1
J10FC2	11/8/05	Soil	C	See note 1
J10FC3	11/8/05	Soil	C	See note 1

1 – Nickel-63, total strontium, alpha spectroscopy and gamma spectroscopy.

Data validation was conducted in accordance with the Washington Closure Hanford Incorporated (WCH) validation statement of work and the Sampling & Analysis Plan for the 100-NR-1 Treatment, Storage and Disposal Units During Remediation and Closeout (DOE/RL-2000-7, Rev. 1, February 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

Two equipment blanks (J10FC1 & J10FC3) were submitted for analysis. Potassium-40, radium-226, radium-228, thorium-228 amd thorium-232 were detected in both equipment blanks.

· Accuracy

Accuracy is evaluated from laboratory control sample (LCS) or blank spike sample (BSS) batch samples and spiked samples from the analytical batch. Measured activities are compared to the known added amounts. The acceptable LCS or BSS

and matrix spike (MS) recovery range is 70-130% (80-120% for gamma spectroscopy). 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 a matrix spike analysis, all nickel-63 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 30%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All duplicate results were acceptable.

Field Duplicates

Two sets of field duplicate samples (J10FC0/J10F94 and J10FC2/J10FB4) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. In sample duplicate pair J10FC0/J10F94, the RPDs for potassium-40 (67%), radium-226 (52%), radium-228 (76%), thorium-228 (57%) and thorium-232 (76%) were outside QC limits. Under the WCH statement of work, no qualification is required. All other field duplicate results were acceptable.

- **Detection Levels**

Reported analytical detection levels for undetected analytes are compared against the remaining waste sites RQLs to ensure that laboratory detection levels meet the required criteria. Forty-one analytes exceeded the RQL. Under the WCH statement of work, no qualification is required.

- **Completeness**

Data package No. K0118 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 analysis, all nickel-63 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.

Forty-one analytes exceeded the RQL. Under the WCH statement of work, no qualification is required.

REFERENCES

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

DOE/RL-2000-7, Rev. 1, *Sampling & Analysis Plan for the100-NR-1 Treatment, Storage and Disposal Units During Remediation and Closeout*, February 2005.

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: K0118	REVIEWER: TLI	Project: 116-N-1	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Nickel-63	J	All	No MS analysis

* - 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

RADIOCHEMISTRY ANALYSIS, SOIL MATRIX, (PCi/G)

Project: WASHINGTON CLOSURE HANFORD																							
Laboratory: EB	SDG: K0118																						
Sample Number		J10FC0		J10FC1		J10F90		J10F91		J10F92		J10F93		J10F94		J10F95		J10F96					
Remarks		Duplicate		E. Blank																			
Sample Date		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05					
Radiochemistry	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q		
Nickel-63	30	-2.15	UJ	0.554	UJ	0.840	UJ	-0.181	UJ	-0.520	UJ	0.699	UJ	-0.794	UJ	0.078	UJ	-1.07	UJ				
Total Strontium	1	0.590		0.017	U	0.110	U	-0.036	U	-0.018	U	0.638		0.493		0.141	U	0.002	U				
Plutonium-238		-0.023	U	0.013	U	0	U	0	U	0	U	0	U	0.033	U	-0.019	U	-0.013	U				
Plutonium-239/240	1	0	U	0	U	0.034	U	0	U	0.025	U	0.037	U	0	U	0.019	U	0	U				
Americium-241	1	0.063	U	0.062	U	0.031	U	-0.035	U	0.96	U	0.025	U	0.185	U	0.071	U	0.037	U				
Potassium-40		28.8		4.48		11.1		6.17		11.8		28.0		14.3		9.34		13.9					
Cobalt 60	0.05	U	U	U	U	0.514		U	U	U	U	U	U*	U	U*	U	U	U	U				
Cesium 137	0.1	0.096		U	U	0.479		U	U	U	U	U	U	0.154		U	U	U	U				
Radium-226		1.14		0.181		0.480		0.294		0.501		1.08		0.667		0.513		0.685					
Radium-228		1.70		0.257		0.814		0.410		U	U	1.43		0.749		0.743		0.914					
Europium 152		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U				
Europium 154	0.1	U	U*	U	U	U	U*	U	U	U	U*	U	U*	U	U*	U	U	U	U*				
Europium 155	0.1	U	U*	U	U	U	U*	U	U	U	U*	U	U*	U	U*	U	U*	U	U*				
Thorium-228		1.48		0.205		0.643		0.566		0.754		1.42		0.824		0.796		0.796					
Thorium-232		1.70		0.257		0.814		0.410		U	U	1.43		0.749		0.743		0.914					
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				

010000

* - RQL exceeded

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

Project: WASHINGTON CLOSURE HANFORD																					
Laboratory: EB	SDG: K0118																				
Sample Number		J10F97		J10F98		J10F99		J10FB0		J10FB1		J10FB2		J10FB3		J10FB4		J10FB5			
Remarks																					
Sample Date		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05			
Radiochemistry	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Nickel-63	30	0.120	UJ	0.853	UJ	-0.696	UJ	1.47	UJ	0.463	UJ	0.439	UJ	0.611	UJ	0.116	UJ	2.57	UJ		
Total Strontium	1	0.034	U	0.093	U	0.104	U	0.014	U	0.135	U	0.095	U	0.106	U	0.009	U	-0.027	U		
Plutonium-238		0	U	-0.022	U	0	U	0	U	0	U	-0.026	U	0	U	0.051	U	0	U		
Plutonium-239/240	1	0	U	0.045	U	0.018	U	0.074	U	0.047	U	0	U	0	U	0	U	0	U		
Americium-241	1	-0.049	U	0.050	U	0.025	U	0.060	U	0.090	U	0.060	U	0.017	U	0.056	U	-0.034	U		
Potassium-40		8.59		23.0		15.4		10.2		17.7		7.01		8.36		12.9		23.0			
Cobalt 60	0.05	U	U	0.118		U	U*	0.111		U	U	U	U	U	U	U	U	0.055			
Cesium 137	0.1	0.072		0.196		0.406		0.195		0.377		0.064		0.105		U	U	0.349			
Radium-226		0.320		0.920		0.617		0.407		0.624		0.285		0.333		0.399		0.922			
Radium-228		0.576		1.39		0.976		0.715		0.934		0.348		U	U	0.503		1.26			
Europium 152		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
Europium 154	0.1	U	U*	U	U*	U	U*	U	U*	U	U*	U	U	U	U*	U	U*	U	U*		
Europium 155	0.1	U	U*	U	U*	U	U*	U	U	U	U*	U	U	U	U*	U	U	U	U*		
Thorium-228		0.612		1.21		1.02		0.585		0.934		0.531		0.601		0.684		1.12			
Thorium-232		0.576		1.39		0.976		0.715		0.934		0.348		U	U	0.503		1.26			
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		

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.

Project: WASHINGTON CLOSURE HANFORD																					
Laboratory: EB	SDG: K0118																				
Sample Number		J10FB6		J10FB7		J10FB8		J10FB9		J10FC2		J10FC3									
Remarks										Duplicate		E. Blank									
Sample Date		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05									
Radiochemistry	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Nickel-63	30	1.16	UJ	2.84	UJ	1.13	UJ	1.68	UJ	0.475	UJ	2.20	UJ								
Total Strontium	1	0.149	U	0.065	U	0.067	U	0.151	U	-0.031	U	0.059	U								
Plutonium-238		-0.024	U	0	U	0	U	0.054	U	-0.027	U	0	U								
Plutonium-239/240	1	0	U	0.023	U	0	U	0.036	U	0	U	0	U								
Americium-241	1	3.99		0.071	U	-0.045	U	-0.081	U	-0.073	U	-0.048	U								
Potassium-40		9.59		25.3		13.5		9.00		15.4		8.91									
Cobalt 60	0.05	U	U*	0.077		0.164		0.198		U	U	U	U								
Cesium 137	0.1	0.828		0.686		0.831		0.427		U	U	U	U								
Radium-226		0.356		0.950		0.688		0.442		0.517		0.298									
Radium-228		0.485		1.40		0.847		0.522		0.735		0.370									
Europium 152		U	U	U	U	U	U	U	U	U	U	U	U								
Europium 154	0.1	U	U*	U	U*	U	U*	U	U*	U	U*	U	U								
Europium 155	0.1	U	U	U	U*	U	U*	U	U*	U	U*	U	U*								
Thorium-228		0.612		1.28		0.904		0.896		0.608		0.346									
Thorium-232		0.485		1.40		0.847		0.522		0.735		0.370									
Uranium-235(gea)		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								
Americium-241(gea)		U	U	U	U	U	U	U	U	U	U	U	U								

000012

* - 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 K0118

7342-001 J10FC0

DATA SHEET

SDG	7342	Client/Case no	Hanford SDG K0118
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511204-01	Client sample id	J10FC0
Dept sample id	7342-001	Location/Matrix	116-N-1 Crib Shallow Zon SOLID
Received	11/17/05	Collected/Weight	11/08/05 13:40 1311 g
% solids	91.7	Custody/SAF No	RC-005-001 RC-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	-2.15	2.2	3.8	30	U J	NI_L
Total Strontium	SR-RAD	0.590	0.15	0.19	1.0		SR
Plutonium 238	13981-16-3	-0.023	0.023	0.11	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.023	0.088	1.0	U	PU
Americium 241	14596-10-2	0.063	0.13	0.24	1.0	U	AM
Potassium 40	13966-00-2	28.8	1.4	0.40			GAM
Cobalt 60	10198-40-0	U		0.045	0.050	U	GAM
Cesium 137	10045-97-3	0.096	0.032	0.044	0.10		GAM
Radium 226	13982-63-3	1.14	0.092	0.082	0.10		GAM
Radium 228	15262-20-1	1.70	0.19	0.18	0.20		GAM
Europium 152	14683-23-9	U		0.11	0.10	U	GAM
Europium 154	15585-10-1	U		0.15	0.10	U	GAM
Europium 155	14391-16-3	U		0.16	0.10	U	GAM
Thorium 228	14274-82-9	1.48	0.063	0.061			GAM
Thorium 232	TH-232	1.70	0.19	0.18			GAM
Uranium 235	15117-96-1	U		0.21		U	GAM
Uranium 238	U-238	U		5.1		U	GAM
Americium 241	14596-10-2	U		0.48		U	GAM

100-NR-1 TSD Sites R.A. Ver. Smplg.

1/10/06

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	12/09/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0118

7342-002

J10FC1

DATA SHEET

SDG	7342	Client/Case no	Hanford SDG K0118
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511204-02	Client sample id	J10FC1
Dept sample id	7342-002	Location/Matrix	116-N-1 Crib Shallow Zon SOLID
Received	11/17/05	Collected/Weight	11/08/05 13:40 1567 g
% solids	100.0	Custody/SAF No	RC-005-001 RC-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	0.554	2.0	3.3	30	U J	NI_L
Total Strontium	SR-RAD	0.017	0.12	0.25	1.0	U	SR
Plutonium 238	13981-16-3	0.013	0.051	0.097	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.025	0.097	1.0	U	PU
Americium 241	14596-10-2	0.062	0.12	0.48	1.0	U	AM
Potassium 40	13966-00-2	4.48	0.52	0.22			GAM
Cobalt 60	10198-40-0	U		0.029	0.050	U	GAM
Cesium 137	10045-97-3	U		0.025	0.10	U	GAM
Radium 226	13982-63-3	0.181	0.050	0.047	0.10		GAM
Radium 228	15262-20-1	0.257	0.070	0.063	0.20		GAM
Europium 152	14683-23-9	U		0.060	0.10	U	GAM
Europium 154	15585-10-1	U		0.088	0.10	U	GAM
Europium 155	14391-16-3	U		0.064	0.10	U	GAM
Thorium 228	14274-82-9	0.205	0.042	0.046			GAM
Thorium 232	TH-232	0.257	0.070	0.063			GAM
Uranium 235	15117-96-1	U		0.095		U	GAM
Uranium 238	U-238	U		3.4		U	GAM
Americium 241	14596-10-2	U		0.088		U	GAM

100-NR-1 TSD Sites R.A. Ver. Smplg.

1/10/06

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	12/09/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0118

7342-003

J10F90

DATA SHEET

SDG	7342	Client/Case no	Hanford SDG K0118
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511204-03	Client sample id	J10F90
Dept sample id	7342-003	Location/Matrix	116-N-1 Crib Shallow Zon SOLID
Received	11/17/05	Collected/Weight	11/08/05 12:40 1571 g
% solids	92.9	Custody/SAF No	RC-005-001 RC-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	0.840	2.5	4.1	30	U J	NI_L
Total Strontium	SR-RAD	0.110	0.13	0.25	1.0	U	SR
Plutonium 238	13981-16-3	0	0.069	0.26	1.0	U	PU
Plutonium 239/240	PU-239/240	0.034	0.069	0.26	1.0	U	PU
Americium 241	14596-10-2	0.031	0.062	0.24	1.0	U	AM
Potassium 40	13966-00-2	11.1	0.63	0.31			GAM
Cobalt 60	10198-40-0	0.514	0.051	0.038	0.050		GAM
Cesium 137	10045-97-3	0.479	0.045	0.043	0.10		GAM
Radium 226	13982-63-3	0.480	0.070	0.075	0.10		GAM
Radium 228	15262-20-1	0.814	0.16	0.16	0.20		GAM
Europium 152	14683-23-9	U		0.087	0.10	U	GAM
Europium 154	15585-10-1	U		0.11	0.10	U	GAM
Europium 155	14391-16-3	U		0.12	0.10	U	GAM
Thorium 228	14274-82-9	0.643	0.041	0.044			GAM
Thorium 232	TH-232	0.814	0.16	0.16			GAM
Uranium 235	15117-96-1	U		0.15		U	GAM
Uranium 238	U-238	U		4.2		U	GAM
Americium 241	14596-10-2	U		0.30		U	GAM

100-NR-1 TSD Sites R.A. Ver. Smplg.

JR 1/10/06

Lab id	EBRLNE
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0118

7342-004

J10F91

DATA SHEET

SDG	7342	Client/Case no	Hanford SDG K0118
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511204-04	Client sample id	J10F91
Dept sample id	7342-004	Location/Matrix	116-N-1 Crib Shallow Zon SOLID
Received	11/17/05	Collected/Weight	11/08/05 13:00 1801 g
% solids	96.4	Custody/SAF No	RC-005-001 RC-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	-0.181	1.8	3.0	30	U J	NI_L
Total Strontium	SR-RAD	-0.036	0.13	0.28	1.0	U	SR
Plutonium 238	13981-16-3	0	0.10	0.39	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.10	0.39	1.0	U	PU
Americium 241	14596-10-2	-0.035	0.069	0.27	1.0	U	AM
Potassium 40	13966-00-2	6.17	0.39	0.20			GAM
Cobalt 60	10198-40-0	U		0.023	0.050	U	GAM
Cesium 137	10045-97-3	U		0.035	0.10	U	GAM
Radium 226	13982-63-3	0.294	0.049	0.044	0.10		GAM
Radium 228	15262-20-1	0.410	0.10	0.089	0.20		GAM
Europium 152	14683-23-9	U		0.092	0.10	U	GAM
Europium 154	15585-10-1	U		0.074	0.10	U	GAM
Europium 155	14391-16-3	U		0.086	0.10	U	GAM
Thorium 228	14274-82-9	0.566	0.055	0.048			GAM
Thorium 232	TH-232	0.410	0.10	0.089			GAM
Uranium 235	15117-96-1	U		0.11		U	GAM
Uranium 238	U-238	U		2.7		U	GAM
Americium 241	14596-10-2	U		0.12		U	GAM

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0118

7342-005

J10F92

DATA SHEET

SDG	7342	Client/Case no	Hanford SDG_K0118
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511204-05	Client sample id	J10F92
Dept sample id	7342-005	Location/Matrix	116-N-1 Crib Shallow Zon SOLID
Received	11/17/05	Collected/Weight	11/08/05 13:15 1236 g
% solids	93.4	Custody/SAF No	RC-005-001 RC-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	-0.520	1.9	3.3	30	U J	NI_L
Total Strontium	SR-RAD	-0.018	0.10	0.22	1.0	U	SR
Plutonium 238	13981-16-3	0	0.051	0.19	1.0	U	PU
Plutonium 239/240	PU-239/240	0.025	0.051	0.19	1.0	U	PU
Americium 241	14596-10-2	0.096	0.13	0.25	1.0	U	AM
Potassium 40	13966-00-2	11.8	0.63	0.40			GAM
Cobalt 60	10198-40-0	U		0.047	0.050	U	GAM
Cesium 137	10045-97-3	U		0.040	0.10	U	GAM
Radium 226	13982-63-3	0.501	0.070	0.067	0.10		GAM
Radium 228	15262-20-1	U		0.22	0.20	U	GAM
Europium 152	14683-23-9	U		0.14	0.10	U	GAM
Europium 154	15585-10-1	U		0.15	0.10	U	GAM
Europium 155	14391-16-3	U		0.082	0.10	U	GAM
Thorium 228	14274-82-9	0.754	0.062	0.055			GAM
Thorium 232	TH-232	U		0.22		U	GAM
Uranium 235	15117-96-1	U		0.14		U	GAM
Uranium 238	U-238	U		5.3		U	GAM
Americium 241	14596-10-2	U		0.050		U	GAM

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0118

7342-006

J10F93

DATA SHEET

SDG	7342	Client/Case no	Hanford SDG K0118
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511204-06	Client sample id	J10F93
Dept sample id	7342-006	Location/Matrix	116-N-1 Crib Shallow Zon SOLID
Received	11/17/05	Collected/Weight	11/08/05 13:25 1242 g
% solids	92.6	Custody/SAF No	RC-005-001 RC-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	0.699	2.0	3.4	30	U J	NI_L
Total Strontium	SR-RAD	0.638	0.17	0.22	1.0		SR
Plutonium 238	13981-16-3	0	0.074	0.28	1.0	U	PU
Plutonium 239/240	PU-239/240	0.037	0.074	0.28	1.0	U	PU
Americium 241	14596-10-2	0.025	0.099	0.19	1.0	U	AM
Potassium 40	13966-00-2	28.0	1.5	0.39			GAM
Cobalt 60	10198-40-0	U		0.13	0.050	U	GAM
Cesium 137	10045-97-3	U		0.064	0.10	U	GAM
Radium 226	13982-63-3	1.08	0.10	0.092	0.10		GAM
Radium 228	15262-20-1	1.43	0.20	0.19	0.20		GAM
Europium 152	14683-23-9	U		0.12	0.10	U	GAM
Europium 154	15585-10-1	U		0.15	0.10	U	GAM
Europium 155	14391-16-3	U		0.25	0.10	U	GAM
Thorium 228	14274-82-9	1.42	0.064	0.060			GAM
Thorium 232	TH-232	1.43	0.20	0.19			GAM
Uranium 235	15117-96-1	U		0.21		U	GAM
Uranium 238	U-238	U		5.4		U	GAM
Americium 241	14596-10-2	U		0.49		U	GAM

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0118

7342-007

J10F94

DATA SHEET

SDG	7342	Client/Case no	Hanford SDG K0118
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511204-07	Client sample id	J10F94
Dept sample id	7342-007	Location/Matrix	116-N-1 Crib Shallow Zon SOLID
Received	11/17/05	Collected/Weight	11/08/05 13:40 1278 g
% solids	91.7	Custody/SAF No	RC-005-001 RC-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	-0.794	2.1	3.7	30	UJ	NI_L
Total Strontium	SR-RAD	0.493	0.16	0.22	1.0		SR
Plutonium 238	13981-16-3	0.033	0.066	0.25	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.066	0.25	1.0	U	PU
Americium 241	14596-10-2	0.185	0.25	0.47	1.0	U	AM
Potassium 40	13966-00-2	14.3	0.92	0.43			GAM
Cobalt 60	10198-40-0	U		0.051	0.050	U	GAM
Cesium 137	10045-97-3	0.154	0.035	0.040	0.10		GAM
Radium 226	13982-63-3	0.667	0.088	0.086	0.10		GAM
Radium 228	15262-20-1	0.749	0.18	0.20	0.20		GAM
Europium 152	14683-23-9	U		0.099	0.10	U	GAM
Europium 154	15585-10-1	U		0.17	0.10	U	GAM
Europium 155	14391-16-3	U		0.11	0.10	U	GAM
Thorium 228	14274-82-9	0.824	0.053	0.051			GAM
Thorium 232	TH-232	0.749	0.18	0.20			GAM
Uranium 235	15117-96-1	U		0.16		U	GAM
Uranium 238	U-238	U		5.4		U	GAM
Americium 241	14596-10-2	U		0.16		U	GAM

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0118

7342-008

J10F95

DATA SHEET

SDG	7342	Client/Case no	Hanford SDG K0118
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511204-08	Client sample id	J10F95
Dept sample id	7342-008	Location/Matrix	116-N-1 Crib Shallow Zon SOLID
Received	11/17/05	Collected/Weight	11/08/05 14:00 1314 g
% solids	92.7	Custody/SAF No	RC-005-001 RC-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	0.078	1.9	3.3	30	U J	NI_L
Total Strontium	SR-RAD	0.141	0.14	0.25	1.0	U	SR
Plutonium 238	13981-16-3	-0.019	0.039	0.15	1.0	U	PU
Plutonium 239/240	PU-239/240	0.019	0.039	0.15	1.0	U	PU
Americium 241	14596-10-2	0.071	0.14	0.27	1.0	U	AM
Potassium 40	13966-00-2	9.34	0.52	0.25			GAM
Cobalt 60	10198-40-0	U		0.032	0.050	U	GAM
Cesium 137	10045-97-3	U		0.033	0.10	U	GAM
Radium 226	13982-63-3	0.513	0.078	0.064	0.10		GAM
Radium 228	15262-20-1	0.743	0.16	0.13	0.20		GAM
Europium 152	14683-23-9	U		0.12	0.10	U	GAM
Europium 154	15585-10-1	U		0.10	0.10	U	GAM
Europium 155	14391-16-3	U		0.11	0.10	U	GAM
Thorium 228	14274-82-9	0.796	0.067	0.062			GAM
Thorium 232	TH-232	0.743	0.16	0.13			GAM
Uranium 235	15117-96-1	U		0.15		U	GAM
Uranium 238	U-238	U		3.7		U	GAM
Americium 241	14596-10-2	U		0.16		U	GAM

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

SAMPLE DELIVERY GROUP K0118

7342-009

J10F96

DATA SHEET

SDG	7342	Client/Case no	Hanford SDG K0118
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511204-09	Client sample id	J10F96
Dept sample id	7342-009	Location/Matrix	116-N-1 Crib Shallow Zon SOLID
Received	11/17/05	Collected/Weight	11/08/05 14:15 1189 g
% solids	92.9	Custody/SAF No	RC-005-001 RC-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	-1.07	2.0	3.4	30	U J	NI_L
Total Strontium	SR-RAD	0.002	0.12	0.25	1.0	U	SR
Plutonium 238	13981-16-3	-0.013	0.026	0.099	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.026	0.099	1.0	U	PU
Americium 241	14596-10-2	0.037	0.075	0.29	1.0	U	AM
Potassium 40	13966-00-2	13.9	0.77	0.39			GAM
Cobalt 60	10198-40-0	U		0.035	0.050	U	GAM
Cesium 137	10045-97-3	U		0.033	0.10	U	GAM
Radium 226	13982-63-3	0.685	0.072	0.066	0.10		GAM
Radium 228	15262-20-1	0.914	0.13	0.13	0.20		GAM
Europium 152	14683-23-9	U		0.084	0.10	U	GAM
Europium 154	15585-10-1	U		0.12	0.10	U	GAM
Europium 155	14391-16-3	U		0.13	0.10	U	GAM
Thorium 228	14274-82-9	0.796	0.045	0.043			GAM
Thorium 232	TH-232	0.914	0.13	0.13			GAM
Uranium 235	15117-96-1	U		0.16		U	GAM
Uranium 238	U-238	U		4.5		U	GAM
Americium 241	14596-10-2	U		0.34		U	GAM

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SAMPLE DELIVERY GROUP K0118

7342-010

J10F97

DATA SHEET

SDG	7342	Client/Case no	Hanford SDG K0118
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511204-10	Client sample id	J10F97
Dept sample id	7342-010	Location/Matrix	116-N-1 Crib Shallow Zon SOLID
Received	11/17/05	Collected/Weight	11/08/05 14:30 1892 g
% solids	96.3	Custody/SAF No	RC-005-001 RC-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	0.120	2.0	3.3	30	U J	NI_L
Total Strontium	SR-RAD	0.034	0.12	0.24	1.0	U	SR
Plutonium 238	13981-16-3	0	0.025	0.096	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.025	0.096	1.0	U	PU
Americium 241	14596-10-2	-0.049	0.050	0.19	1.0	U	AM
Potassium 40	13966-00-2	8.59	0.52	0.32			GAM
Cobalt 60	10198-40-0	U		0.046	0.050	U	GAM
Cesium 137	10045-97-3	0.072	0.025	0.031	0.10		GAM
Radium 226	13982-63-3	0.320	0.056	0.057	0.10		GAM
Radium 228	15262-20-1	0.576	0.13	0.14	0.20		GAM
Europium 152	14683-23-9	U		0.11	0.10	U	GAM
Europium 154	15585-10-1	U		0.12	0.10	U	GAM
Europium 155	14391-16-3	U		0.067	0.10	U	GAM
Thorium 228	14274-82-9	0.612	0.048	0.043			GAM
Thorium 232	TH-232	0.576	0.13	0.14			GAM
Uranium 235	15117-96-1	U		0.11		U	GAM
Uranium 238	U-238	U		4.3		U	GAM
Americium 241	14596-10-2	U		0.040		U	GAM

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0118

7342-011

J10F98

DATA SHEET

SDG	7342	Client/Case no	Hanford SDG K0118
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511204-11	Client sample id	J10F98
Dept sample id	7342-011	Location/Matrix	116-N-1 Crib Shallow Zon SOLID
Received	11/17/05	Collected/Weight	11/08/05 14:50 1564 g
% solids	91.8	Custody/SAF No	RC-005-001 RC-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	0.853	2.1	3.6	30	UJ	NI_L
Total Strontium	SR-RAD	0.093	0.11	0.20	1.0	U	SR
Plutonium 238	13981-16-3	-0.022	0.045	0.17	1.0	U	PU
Plutonium 239/240	PU-239/240	0.045	0.045	0.17	1.0	U	PU
Americium 241	14596-10-2	0.050	0.10	0.38	1.0	U	AM
Potassium 40	13966-00-2	23.0	1.4	0.49			GAM
Cobalt 60	10198-40-0	0.118	0.048	0.049	0.050		GAM
Cesium 137	10045-97-3	0.196	0.051	0.051	0.10		GAM
Radium 226	13982-63-3	0.920	0.10	0.090	0.10		GAM
Radium 228	15262-20-1	1.39	0.20	0.18	0.20		GAM
Europium 152	14683-23-9	U		0.12	0.10	U	GAM
Europium 154	15585-10-1	U		0.15	0.10	U	GAM
Europium 155	14391-16-3	U		0.17	0.10	U	GAM
Thorium 228	14274-82-9	1.21	0.064	0.064			GAM
Thorium 232	TH-232	1.39	0.20	0.18			GAM
Uranium 235	15117-96-1	U		0.21		U	GAM
Uranium 238	U-238	U		5.0		U	GAM
Americium 241	14596-10-2	U		0.47		U	GAM

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0118

7342-012

J10F99

DATA SHEET

SDG	7342	Client/Case no	Hanford SDG K0118
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511204-12	Client sample id	J10F99
Dept sample id	7342-012	Location/Matrix	116-N-1 Crib Shallow Zon SOLID
Received	11/17/05	Collected/Weight	11/08/05 15:15 1456 g
% solids	89.0	Custody/SAF No	RC-005-001 RC-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	-0.696	1.9	3.2	30	U J	NI_L
Total Strontium	SR-RAD	0.104	0.11	0.21	1.0	U	SR
Plutonium 238	13981-16-3	0	0.036	0.14	1.0	U	PU
Plutonium 239/240	PU-239/240	0.018	0.036	0.14	1.0	U	PU
Americium 241	14596-10-2	0.025	0.098	0.19	1.0	U	AM
Potassium 40	13966-00-2	15.4	1.1	0.52			GAM
Cobalt 60	10198-40-0	U		0.073	0.050	U	GAM
Cesium 137	10045-97-3	0.406	0.068	0.073	0.10		GAM
Radium 226	13982-63-3	0.617	0.11	0.11	0.10		GAM
Radium 228	15262-20-1	0.976	0.24	0.25	0.20		GAM
Europium 152	14683-23-9	U		0.12	0.10	U	GAM
Europium 154	15585-10-1	U		0.19	0.10	U	GAM
Europium 155	14391-16-3	U		0.13	0.10	U	GAM
Thorium 228	14274-82-9	1.02	0.099	0.098			GAM
Thorium 232	TH-232	0.976	0.24	0.25			GAM
Uranium 235	15117-96-1	U		0.18		U	GAM
Uranium 238	U-238	U		6.6		U	GAM
Americium 241	14596-10-2	U		0.19		U	GAM

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Lab id	EBRLNE
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0118

7343-001 J10FB0

DATA SHEET

SDG	7343	Client/Case no	Hanford SDG_K0118
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511205-01	Client sample id	J10FB0
Dept sample id	7343-001	Location/Matrix	116-N-1 Trench Shallow Z SOLID
Received	11/17/05	Collected/Weight	11/09/05 08:40 1689 g
% solids	95.0	Custody/SAF No	RC-005 -002 RC-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	1.47	1.6	2.6	30	U J	NI_L
Total Strontium	SR-RAD	0.014	0.25	0.65	1.0	U	SR
Plutonium 238	13981-16-3	0	0.049	0.19	1.0	U	PU
Plutonium 239/240	PU-239/240	0.074	0.098	0.19	1.0	U	PU
Americium 241	14596-10-2	0.060	0.12	0.23	1.0	U	AM
Potassium 40	13966-00-2	10.2	0.76	0.33			GAM
Cobalt 60	10198-40-0	0.111	0.042	0.045	0.050		GAM
Cesium 137	10045-97-3	0.195	0.044	0.046	0.10		GAM
Radium 226	13982-63-3	0.407	0.066	0.064	0.10		GAM
Radium 228	15262-20-1	0.715	0.21	0.20	0.20		GAM
Europium 152	14683-23-9	U		0.088	0.10	U	GAM
Europium 154	15585-10-1	U		0.12	0.10	U	GAM
Europium 155	14391-16-3	U		0.094	0.10	U	GAM
Thorium 228	14274-82-9	0.585	0.063	0.067			GAM
Thorium 232	TH-232	0.715	0.21	0.20			GAM
Uranium 235	15117-96-1	U		0.13		U	GAM
Uranium 238	U-238	U		4.5		U	GAM
Americium 241	14596-10-2	U		0.12		U	GAM
Silver 108m	14391-65-2	U		0.027		U	GAM

100-NR-1 TSD Sites R.A. Ver. Smplg.

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Lab id	EBRLNE
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0118

7343-002 J10FB1

DATA SHEET

SDG	7343	Client/Case no	Hanford SDG_K0118
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511205-02	Client sample id	J10FB1
Dept sample id	7343-002	Location/Matrix	116-N-1 Trench Shallow Z SOLID
Received	11/17/05	Collected/Weight	11/08/05 09:00 1757 g
% solids	95.6	Custody/SAF No	RC-005 -002 RC-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	0.463	1.8	3.0	30	UJ	NI_L
Total Strontium	SR-RAD	0.135	0.14	0.26	1.0	U	SR
Plutonium 238	13981-16-3	0	0.047	0.18	1.0	U	PU
Plutonium 239/240	PU-239/240	0.047	0.047	0.18	1.0	U	PU
Americium 241	14596-10-2	0.090	0.14	0.17	1.0	U	AM
Potassium 40	13966-00-2	17.7	1.3	0.36			GAM
Cobalt 60	10198-40-0	U		0.041	0.050	U	GAM
Cesium 137	10045-97-3	0.377	0.035	0.032	0.10		GAM
Radium 226	13982-63-3	0.624	0.079	0.070	0.10		GAM
Radium 228	15262-20-1	0.934	0.17	0.17	0.20		GAM
Europium 152	14683-23-9	U		0.10	0.10	U	GAM
Europium 154	15585-10-1	U		0.13	0.10	U	GAM
Europium 155	14391-16-3	U		0.14	0.10	U	GAM
Thorium 228	14274-82-9	0.934	0.054	0.052			GAM
Thorium 232	TH-232	0.934	0.17	0.17			GAM
Uranium 235	15117-96-1	U		0.18		U	GAM
Uranium 238	U-238	U		4.3		U	GAM
Americium 241	14596-10-2	U		0.40		U	GAM
Silver 108m	14391-65-2	U		0.029		U	GAM

100-NR-1 TSD Sites R.A. Ver. Smplg.

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

SAMPLE DELIVERY GROUP K0118

7343-003 J10FB2

DATA SHEET

SDG	7343	Client/Case no	Hanford SDG_K0118
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511205-03	Client sample id	J10FB2
Dept sample id	7343-003	Location/Matrix	116-N-1 Trench Shallow Z SOLID
Received	11/17/05	Collected/Weight	11/08/05 09:20 1849 g
% solids	96.3	Custody/SAF No	RC-005 -002 RC-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	0.439	2.1	3.7	30	U J	NI_L
Total Strontium	SR-RAD	0.095	0.13	0.24	1.0	U	SR
Plutonium 238	13981-16-3	-0.026	0.051	0.20	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.051	0.20	1.0	U	PU
Americium 241	14596-10-2	0.060	0.12	0.46	1.0	U	AM
Potassium 40	13966-00-2	7.01	0.46	0.21			GAM
Cobalt 60	10198-40-0	U		0.027	0.050	U	GAM
Cesium 137	10045-97-3	0.064	0.027	0.027	0.10		GAM
Radium 226	13982-63-3	0.285	0.046	0.041	0.10		GAM
Radium 228	15262-20-1	0.348	0.099	0.10	0.20		GAM
Europium 152	14683-23-9	U		0.078	0.10	U	GAM
Europium 154	15585-10-1	U		0.084	0.10	U	GAM
Europium 155	14391-16-3	U		0.092	0.10	U	GAM
Thorium 228	14274-82-9	0.531	0.049	0.045			GAM
Thorium 232	TH-232	0.348	0.099	0.10			GAM
Uranium 235	15117-96-1	U		0.12		U	GAM
Uranium 238	U-238	U		2.9		U	GAM
Americium 241	14596-10-2	U		0.12		U	GAM
Silver 108m	14391-65-2	U		0.018		U	GAM

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Protocol	Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0118

7343-004 J10FB3

DATA SHEET

SDG	7343	Client/Case no	Hanford	SDG K0118	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R511205-04	Client sample id	J10FB3		
Dept sample id	7343-004	Location/Matrix	116-N-1 Trench Shallow Z	SOLID	
Received	11/17/05	Collected/Weight	11/08/05 09:35	1664 g	
% solids	95.2	Custody/SAF No	RC-005 -002	RC-005	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	0.611	2.1	3.6	30	U J	NI_L
Total Strontium	SR-RAD	0.106	0.13	0.24	1.0	U	SR
Plutonium 238	13981-16-3	0	0.047	0.18	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.047	0.18	1.0	U	PU
Americium 241	14596-10-2	0.017	0.10	0.16	1.0	U	AM
Potassium 40	13966-00-2	8.36	0.56	0.33			GAM
Cobalt 60	10198-40-0	U		0.041	0.050	U	GAM
Cesium 137	10045-97-3	0.105	0.027	0.031	0.10		GAM
Radium 226	13982-63-3	0.333	0.064	0.062	0.10		GAM
Radium 228	15262-20-1	U		0.19	0.20	U	GAM
Europium 152	14683-23-9	U		0.12	0.10	U	GAM
Europium 154	15585-10-1	U		0.14	0.10	U	GAM
Europium 155	14391-16-3	U		0.074	0.10	U	GAM
Thorium 228	14274-82-9	0.601	0.063	0.053			GAM
Thorium 232	TH-232	U		0.19		U	GAM
Uranium 235	15117-96-1	U		0.12		U	GAM
Uranium 238	U-238	U		4.3		U	GAM
Americium 241	14596-10-2	U		0.043		U	GAM
Silver 108m	14391-65-2	U		0.025		U	GAM

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Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
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SAMPLE DELIVERY GROUP K0118

7343-005

J10FB4

DATA SHEET

SDG	7343	Client/Case no	Hanford SDG K0118
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511205-05	Client sample id	J10FB4
Dept sample id	7343-005	Location/Matrix	116-N-1 Trench Shallow Z SOLID
Received	11/17/05	Collected/Weight	11/08/05 10:45 1453 g
% solids	98.7	Custody/SAF No	RC-005 -002 RC-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	0.116	1.3	2.3	30	U J	NI_L
Total Strontium	SR-RAD	0.009	0.13	0.26	1.0	U	SR
Plutonium 238	13981-16-3	0.051	0.051	0.19	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.051	0.19	1.0	U	PU
Americium 241	14596-10-2	0.056	0.11	0.22	1.0	U	AM
Potassium 40	13966-00-2	12.9	0.59	0.35			GAM
Cobalt 60	10198-40-0	U		0.042	0.050	U	GAM
Cesium 137	10045-97-3	U		0.037	0.10	U	GAM
Radium 226	13982-63-3	0.399	0.060	0.060	0.10		GAM
Radium 228	15262-20-1	0.503	0.16	0.17	0.20		GAM
Europium 152	14683-23-9	U		0.12	0.10	U	GAM
Europium 154	15585-10-1	U		0.14	0.10	U	GAM
Europium 155	14391-16-3	U		0.072	0.10	U	GAM
Thorium 228	14274-82-9	0.684	0.051	0.046			GAM
Thorium 232	TH-232	0.503	0.16	0.17			GAM
Uranium 235	15117-96-1	U		0.12		U	GAM
Uranium 238	U-238	U		4.8		U	GAM
Americium 241	14596-10-2	U		0.044		U	GAM
Silver 108m	14391-65-2	U		0.025		U	GAM

100-NR-1 TSD Sites R.A. Ver. Smplg.

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

SAMPLE DELIVERY GROUP K0118

7343-006 J10FB5

DATA SHEET

SDG	7343	Client/Case no	Hanford SDG K0118
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511205-06	Client sample id	J10FB5
Dept sample id	7343-006	Location/Matrix	116-N-1 Trench Shallow Z SOLID
Received	11/17/05	Collected/Weight	11/08/05 10:25 1880 g
% solids	94.9	Custody/SAF No	RC-005 -002 RC-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	2.57	1.9	3.0	30	U J	NI_L
Total Strontium	SR-RAD	-0.027	0.16	0.30	1.0	U	SR
Plutonium 238	13981-16-3	0	0.053	0.20	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.053	0.20	1.0	U	PU
Americium 241	14596-10-2	-0.034	0.068	0.26	1.0	U	AM
Potassium 40	13966-00-2	23.0	1.2	0.28			GAM
Cobalt 60	10198-40-0	0.055	0.034	0.037	0.050		GAM
Cesium 137	10045-97-3	0.349	0.040	0.040	0.10		GAM
Radium 226	13982-63-3	0.922	0.077	0.064	0.10		GAM
Radium 228	15262-20-1	1.26	0.16	0.15	0.20		GAM
Europium 152	14683-23-9	U		0.090	0.10	U	GAM
Europium 154	15585-10-1	U		0.11	0.10	U	GAM
Europium 155	14391-16-3	U		0.13	0.10	U	GAM
Thorium 228	14274-82-9	1.12	0.049	0.047			GAM
Thorium 232	TH-232	1.26	0.16	0.15			GAM
Uranium 235	15117-96-1	U		0.16		U	GAM
Uranium 238	U-238	U		3.7		U	GAM
Americium 241	14596-10-2	U		0.37		U	GAM
Silver 108m	14391-65-2	U		0.026		U	GAM

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

SAMPLE DELIVERY GROUP K0118

7343-007 J10FB6

DATA SHEET

SDG	7343	Client/Case no	Hanford SDG K0118
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511205-07	Client sample id	J10FB6
Dept sample id	7343-007	Location/Matrix	116-N-1 Trench Shallow Z SOLID
Received	11/17/05	Collected/Weight	11/08/05 10:00 1785 g
% solids	94.4	Custody/SAF No	RC-005 -002 RC-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	1.16	2.2	3.8	30	UJ	NI_L
Total Strontium	SR-RAD	0.149	0.14	0.25	1.0	U	SR
Plutonium 238	13981-16-3	-0.024	0.048	0.18	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.048	0.18	1.0	U	PU
Americium 241	14596-10-2	3.99	1.0	0.39	1.0		AM
Potassium 40	13966-00-2	9.59	0.49	0.30			GAM
Cobalt 60	10198-40-0	U		0.085	0.050	U	GAM
Cesium 137	10045-97-3	0.828	0.049	0.041	0.10		GAM
Radium 226	13982-63-3	0.356	0.052	0.054	0.10		GAM
Radium 228	15262-20-1	0.485	0.13	0.14	0.20		GAM
Europium 152	14683-23-9	U		0.12	0.10	U	GAM
Europium 154	15585-10-1	U		0.12	0.10	U	GAM
Europium 155	14391-16-3	U		0.072	0.10	U	GAM
Thorium 228	14274-82-9	0.612	0.057	0.051			GAM
Thorium 232	TH-232	0.485	0.13	0.14			GAM
Uranium 235	15117-96-1	U		0.12		U	GAM
Uranium 238	U-238	U		4.5		U	GAM
Americium 241	14596-10-2	U		0.042		U	GAM
Silver 108m	14391-65-2	U		0.029		U	GAM

100-NR-1 TSD Sites R.A. Ver. Smplg.

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Lab id	EBRLNE
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0118

7343-008 J10FB7

DATA SHEET

SDG	7343	Client/Case no	Hanford SDG_K0118
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511205-08	Client sample id	J10FB7
Dept sample id	7343-008	Location/Matrix	116-N-1 Trench Shallow Z SOLID
Received	11/17/05	Collected/Weight	11/08/05 08:20 1779 g
% solids	94.3	Custody/SAF No	RC-005 -002 RC-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	2.84	2.3	3.7	30	U J	NI_L
Total Strontium	SR-RAD	0.065	0.13	0.25	1.0	U	SR
Plutonium 238	13981-16-3	0	0.045	0.17	1.0	U	PU
Plutonium 239/240	PU-239/240	0.023	0.045	0.17	1.0	U	PU
Americium 241	14596-10-2	0.071	0.14	0.54	1.0	U	AM
Potassium 40	13966-00-2	25.3	1.6	0.50			GAM
Cobalt 60	10198-40-0	0.077	0.036	0.044	0.050		GAM
Cesium 137	10045-97-3	0.686	0.067	0.063	0.10		GAM
Radium 226	13982-63-3	0.950	0.12	0.11	0.10		GAM
Radium 228	15262-20-1	1.40	0.22	0.20	0.20		GAM
Europium 152	14683-23-9	U		0.13	0.10	U	GAM
Europium 154	15585-10-1	U		0.17	0.10	U	GAM
Europium 155	14391-16-3	U		0.18	0.10	U	GAM
Thorium 228	14274-82-9	1.28	0.069	0.066			GAM
Thorium 232	TH-232	1.40	0.22	0.20			GAM
Uranium 235	15117-96-1	U		0.23		U	GAM
Uranium 238	U-238	U		5.6		U	GAM
Americium 241	14596-10-2	U		0.52		U	GAM
Silver 108m	14391-65-2	U		0.036		U	GAM

100-NR-1 TSD Sites R.A. Ver. Smplg.

JR 1/10/06

Lab id	EBRLNE
Protocol	Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0118

7343-009 J10FB8

DATA SHEET

SDG	7343	Client/Case no	Hanford SDG_K0118
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511205-09	Client sample id	J10FB8
Dept sample id	7343-009	Location/Matrix	116-N-1 Trench Shallow Z SOLID
Received	11/17/05	Collected/Weight	11/08/05 08:40 1387 g
% solids	92.1	Custody/SAF No	RC-005 -002 RC-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	1.13	1.4	2.3	30	UJ	NI_L
Total Strontium	SR-RAD	0.067	0.14	0.27	1.0	U	SR
Plutonium 238	13981-16-3	0	0.037	0.14	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.037	0.14	1.0	U	PU
Americium 241	14596-10-2	-0.045	0.091	0.35	1.0	U	AM
Potassium 40	13966-00-2	13.5	0.98	0.48			GAM
Cobalt 60	10198-40-0	0.164	0.067	0.064	0.050		GAM
Cesium 137	10045-97-3	0.831	0.076	0.064	0.10		GAM
Radium 226	13982-63-3	0.688	0.092	0.088	0.10		GAM
Radium 228	15262-20-1	0.847	0.21	0.23	0.20		GAM
Europium 152	14683-23-9	U		0.12	0.10	U	GAM
Europium 154	15585-10-1	U		0.16	0.10	U	GAM
Europium 155	14391-16-3	U		0.13	0.10	U	GAM
Thorium 228	14274-82-9	0.904	0.060	0.061			GAM
Thorium 232	TH-232	0.847	0.21	0.23			GAM
Uranium 235	15117-96-1	U		0.18		U	GAM
Uranium 238	U-238	U		5.9		U	GAM
Americium 241	14596-10-2	U		0.18		U	GAM
Silver 108m	14391-65-2	U		0.040		U	GAM

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Lab id	EBRLNE
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0118

7343-010 J10FB9

DATA SHEET

SDG	7343	Client/Case no	Hanford SDG_K0118
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511205-10	Client sample id	J10FB9
Dept sample id	7343-010	Location/Matrix	116-N-1 Trench Shallow Z SOLID
Received	11/17/05	Collected/Weight	11/09/05 09:10 1462 g
% solids	93.1	Custody/SAF No	RC-005 -002 RC-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	1.68	1.6	2.7	30	U J	NI_L
Total Strontium	SR-RAD	0.151	0.14	0.25	1.0	U	SR
Plutonium 238	13981-16-3	0.054	0.072	0.14	1.0	U	PU
Plutonium 239/240	PU-239/240	0.036	0.036	0.14	1.0	U	PU
Americium 241	14596-10-2	-0.081	0.16	0.62	1.0	U	AM
Potassium 40	13966-00-2	9.00	0.76	0.47			GAM
Cobalt 60	10198-40-0	0.198	0.061	0.046	0.050		GAM
Cesium 137	10045-97-3	0.427	0.067	0.053	0.10		GAM
Radium 226	13982-63-3	0.442	0.084	0.075	0.10		GAM
Radium 228	15262-20-1	0.522	0.20	0.20	0.20		GAM
Europium 152	14683-23-9	U		0.15	0.10	U	GAM
Europium 154	15585-10-1	U		0.13	0.10	U	GAM
Europium 155	14391-16-3	U		0.14	0.10	U	GAM
Thorium 228	14274-82-9	0.896	0.083	0.074			GAM
Thorium 232	TH-232	0.522	0.20	0.20			GAM
Uranium 235	15117-96-1	U		0.18		U	GAM
Uranium 238	U-238	U		4.7		U	GAM
Americium 241	14596-10-2	U		0.19		U	GAM
Silver 108m	14391-65-2	U		0.031		U	GAM

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

SAMPLE DELIVERY GROUP K0118

7343-011 J10FC2

DATA SHEET

SDG	7343	Client/Case no	Hanford SDG K0118
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511205-11	Client sample id	J10FC2
Dept sample id	7343-011	Location/Matrix	116-N-1 Trench Shallow Z SOLID
Received	11/17/05	Collected/Weight	11/08/05 10:45 1448 g
% solids	98.6	Custody/SAF No	RC-005 -002 RC-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	0.475	1.8	3.1	30	U J	NI_L
Total Strontium	SR-RAD	-0.031	0.13	0.28	1.0	U	SR
Plutonium 238	13981-16-3	-0.027	0.054	0.21	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.054	0.21	1.0	U	PU
Americium 241	14596-10-2	-0.073	0.15	0.56	1.0	U	AM
Potassium 40	13966-00-2	15.4	0.87	0.37			GAM
Cobalt 60	10198-40-0	U		0.045	0.050	U	GAM
Cesium 137	10045-97-3	U		0.042	0.10	U	GAM
Radium 226	13982-63-3	0.517	0.081	0.078	0.10		GAM
Radium 228	15262-20-1	0.735	0.19	0.18	0.20		GAM
Europium 152	14683-23-9	U		0.098	0.10	U	GAM
Europium 154	15585-10-1	U		0.16	0.10	U	GAM
Europium 155	14391-16-3	U		0.14	0.10	U	GAM
Thorium 228	14274-82-9	0.608	0.048	0.049			GAM
Thorium 232	TH-232	0.735	0.19	0.18			GAM
Uranium 235	15117-96-1	U		0.18		U	GAM
Uranium 238	U-238	U		4.8		U	GAM
Americium 241	14596-10-2	U		0.36		U	GAM
Silver 108m	14391-65-2	U		0.025		U	GAM

100-NR-1 TSD Sites R.A. Ver. Smplg.

JR 1/10/06

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	12/13/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0118

7343-012 J10FC3

DATA SHEET

SDG	7343	Client/Case no	Hanford SDG_K0118
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511205-12	Client sample id	J10FC3
Dept sample id	7343-012	Location/Matrix	116-N-1 Trench Shallow Z SOLID
Received	11/17/05	Collected/Weight	11/08/05 10:45 1619 g
% solids	100.0	Custody/SAF No	RC-005 -002 RC-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	2.20	1.5	2.3	30	U J	NI_L
Total Strontium	SR-RAD	0.059	0.15	0.29	1.0	U	SR
Plutonium 238	13981-16-3	0	0.058	0.22	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.058	0.22	1.0	U	PU
Americium 241	14596-10-2	-0.048	0.097	0.37	1.0	U	AM
Potassium 40	13966-00-2	8.91	1.2	0.32			GAM
Cobalt 60	10198-40-0	U		0.033	0.050	U	GAM
Cesium 137	10045-97-3	U		0.030	0.10	U	GAM
Radium 226	13982-63-3	0.298	0.073	0.066	0.10		GAM
Radium 228	15262-20-1	0.370	0.13	0.14	0.20		GAM
Europium 152	14683-23-9	U		0.087	0.10	U	GAM
Europium 154	15585-10-1	U		0.10	0.10	U	GAM
Europium 155	14391-16-3	U		0.13	0.10	U	GAM
Thorium 228	14274-82-9	0.346	0.043	0.050			GAM
Thorium 232	TH-232	0.370	0.13	0.14			GAM
Uranium 235	15117-96-1	U		0.16		U	GAM
Uranium 238	U-238	U		3.6		U	GAM
Americium 241	14596-10-2	U		0.35		U	GAM
Silver 108m	14391-65-2	U		0.025		U	GAM

100-NR-1 TSD Sites R.A. Ver. Smplg.

1/10/06

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	12/13/05

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K0118 was composed of twelve solid (soil) samples designated under SAF No. RC-005 with a Project Designation of: 100-NR-1 TSD Sites R.A. Verification Sampling - Soil.

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 December 9, 2005.

2.0 ANALYSIS NOTES

2.1 Nickel-63 Analysis

No problems were encountered during the course of the analyses.

2.2 Total Strontium Analysis

No problems were encountered during the course of the analyses.

2.3 Isotopic Plutonium Analysis

No problems were encountered during the course of the analyses.

2.4 Americium-241 Analysis

Curium-244 was detected in sample J10FB6. No problems were encountered during the course of the analyses.

2.5 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."

Mel Mann
Melissa C. Mannion
Senior Program Manager

12/13/5
Date

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K0118 was composed of twelve solid (soil) samples designated under SAF No. RC-005 with a Project Designation of: 100-NR-1 TSD Sites R.A. Verification Sampling - Soil.

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 December 9, 2005.

2.0 ANALYSIS NOTES

2.1 Nickel-63 Analysis

No problems were encountered during the course of the analyses.

2.2 Total Strontium Analysis

No problems were encountered during the course of the analyses.

2.3 Isotopic Plutonium Analysis

No problems were encountered during the course of the analyses.

2.4 Americium-241 Analysis

No problems were encountered during the course of the analyses.

2.5 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

Melissa C. Mannion
Senior Program Manager

12/12/5

Date

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-005-001	Page 3 of 3

Collector: R.B. Kerkow	Company Contact: Joan Kessner; Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 8L; Data Turnaround: 21 Days
Project Designation: 100-NR-1 TSD Sites R. A. Verification Sampling - Soil	Sampling Location: 116-N-1 Crib Shallow Zone K0118 (7342)	SAF No.: RC-005	Air Quality ☐
Ice Chest No.: ERC-03-105	Field Logbook No.: EL-1524-4; COA: R1301N2F00	Method of Shipment: Fed EX	
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A060098	Bill of Lading/Air Bill No.: See OSP C	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Raioligical contamination

< DOT Limits

Special Handling and/or Storage

None

000040

Preservation			Cool 4C	Cool 4C	None							
Type of Container			G	G/P	G/P							
No. of Container(s)			1	1	1							
Volume			60mL	125mL	1L							
SAMPLE ANALYSIS			Mercury - 7471 - (CV) Date 11/16/05	NO2/NO3 - 353.2	See item (1) in Special Instructions.					TIE TO RLF		
Sample No.	Matrix *	Sample Date	Sample Time									
J10FC0	SOIL	11-08-05	1340	X	X	X				J10887		SZC-05
J10FC1	SOIL	11-08-05	1340	X	X	X				↓		SZC-05

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By/Removed From: RB Kerkow/RB Kerkow	Received By/Stored In: REF IC, 3728. RBK	11/16/05 1530
Relinquished By/Removed From: 3728 Ref IC	Received By/Stored In: D St Jean	11/16/05 1200
Relinquished By/Removed From: D St Jean	Received By/Stored In: Fed EX	11/16/05 1200
Relinquished By/Removed From: FED EX	Received By/Stored In:	11/17/05 9:20
Relinquished By/Removed From:	Received By/Stored In:	
Relinquished By/Removed From:	Received By/Stored In:	

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Isotopic Plutonium {Plutonium-239/240}; Strontium-89,90 -- Total Sr; Nickel-63; ~~Tritium-3H~~ 11/7/05

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-005-001	Page 1 of 3

Collector: R.B. Kerkow	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 100-NR-1 TSD Sites R. A. Verification Sampling - Soil	Sampling Location: 116-N-1 Crib Shallow Zone K0118 (7342)	SAF No.: RC-005	
Ice Chest No.: ERC-03-105	Field Logbook No.: EL-1524-4	COA: R1301N2F00	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A060098	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Raioligical contamination

< DOT LIMITS

Special Handling and/or Storage

None

000041

Preservation				Cool 4C	Cool 4C	None						
Type of Container				G	G/P	G/P						
No. of Container(s)					1	1						
Volume				60mL	125mL	1L						
SAMPLE ANALYSIS				Mercury - 7471 - (CV) DJS 11/16/05	NO2/NO3 - 353.2	See item (1) in Special Instructions.					TIE TO REF	
Sample No.	Matrix *	Sample Date	Sample Time									
J10F90	SOIL	11-08-05	1240	X	X	X					J10887	SZC-01
J10F91	SOIL	11-08-05	1300	X	X	X					↓	SZC-02
J10F92	SOIL	11-08-05	1315	X	X	X						SZC-03
J10F93	SOIL	11-08-05	1325	X	X	X						SZC-04
J10F94	SOIL	11-08-05	1340	X	X	X						SZC-05

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: RB Kerkow/RB Kerk	11/11/05 1530	Received By/Stored In: RCF IC, 3728 RBK	11/11/05 1530
Relinquished By/Removed From: 3728 Ref IC	11/16/05 1200	Received By/Stored In: D Stephens	11/16/05 1200
Relinquished By/Removed From: D Stephens	11/16/05 1200	Received By/Stored In: Fed Ex	
Relinquished By/Removed From: FED EX	11/17/05	Received By/Stored In: MFM	11/17/05 9:30
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Isotopic Plutonium {Plutonium-239/240}; Strontium-89,90 -- Total Sr; Nickel-63; ~~Tritium - H3~~ RK 4/7/05

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-005-001	Page 2 of 3

Collector: R.B. Kerkow	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8L	Data Turnaround: 21 Days	Air Quality: ☐	
Project Designation: 100-NR-1 TSD Sites R. A. Verification Sampling - Soil	Sampling Location: 116-N-1 Crib Shallow Zone K0118 (7342	SAF No.: RC-005	
Ice Chest No.: ERC-03-105	Field Logbook No.: EL-1524-4	COA: R1301N2F00	Method of Shipment: Fed EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A060098		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Raioligical contamination

< DOT Limits

Special Handling and/or Storage

None

000042

Preservation	Cool 4C	Cool 4C	None								
Type of Container	G	G/P	G/P								
No. of Container(s)	1	1	1								
Volume	60mL	125mL	1L								
SAMPLE ANALYSIS	Mercury - 7471 - (CV) DAS 11/14/05	NO2/NO3 - 353.2	See item (1) in Special Instructions.						TIG TO REF		
Sample No. / Matrix * / Sample Date / Sample Time											
J10F95 / SOIL / 11-08-05 / 1400	X	X	X						J10887		SZC-06
J10F96 / SOIL / 11-08-05 / 1415	X	X	X								SZC-07
J10F97 / SOIL / 11-08-05 / 1430	X	X	X								SZC-08
J10F98 / SOIL / 11-08-05 / 1450	X	X	X								SZC-09
J10F99 / SOIL / 11-08-05 / 1515	X	X	X								SZC-10

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RBKERKOW/RBKerkow	1530 11/11/05	REF IC, 3728, RBK	1530 11/11/05
3728 Ref IC	11/16/05 1200	D St Julian WCH	11/16/05 1200
D St Julian WCH	11/16/05 1200	Fed EX	
FED EX	11/17/05	MFW	11/17/05 9:30

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Isotopic Plutonium {Plutonium-239/240}; Strontium-89,90 -- Total Sr; Nickel-63; ~~Tritium-H3~~ RK 11/7/05

Matrix *
S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
Wl=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)

K119

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-005-002	Page 1 of 3

Collector: R.B. Kerkow	Company Contact: Joan Kessner; Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 8L; Data Turnaround: 21 Days
Project Designation: 100-NR-1 TSD Sites R. A. Verification Sampling - Soil	Sampling Location: 116-N-1 Trench Shallow Zone K0119 (7343)	SAF No.: RC-005	Air Quality ☐
Ice Chest No.: ERC-03-105	Field Logbook No.: EL-1524-4; COA: R1301N2F00	Method of Shipment: Fed EX	
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A060098	Bill of Lading/Air Bill No.: See OSPC	

~~POSSIBLE SAMPLE~~ HAZARDS/REMARKS

Potential Raioligical contamination

< DOT Limits

Special Handling and/or Storage

None

000043

Preservation	Cool 4C	Cool 4C	None								
Type of Container	G	G/P	G/P								
No. of Container(s)	1	1	1								
Volume	60mL	125mL	1L								
SAMPLE ANALYSIS	Mercury - 7471 - (CV) DAS 11/16/05	NO2/NO3 - 353.2	See item (1) in Special Instructions.						TIE TO RUF		

Sample No.	Matrix *	Sample Date	Sample Time										
J10FB0	SOIL	11-09-05	0840	X	X	X					J032V5		SET-01
J10FB1	SOIL	11-08-05	0900	X	X	X					↓		SET-02
J10FB2	SOIL	11-08-05	0920	X	X	X					↓		SET-03
J10FB3	SOIL	11-08-05	0935	X	X	X					↓		SET-04
J10FB4	SOIL	11-08-05	1045	X	X	X					↓		SET-05

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By/Removed From: RB KERKOW / RB Kerkow	Received By/Stored In: REF IC 3728 RBK	11/11/05 1530
Relinquished By/Removed From: 3728 Ref IC	Received By/Stored In: [illegible]	11/16/05 1200
Relinquished By/Removed From: D Studing with [illegible]	Received By/Stored In: Fed Ex	11/16/05 1200
Relinquished By/Removed From: FED EX	Received By/Stored In: [illegible]	11/17/05 9:30
Relinquished By/Removed From	Received By/Stored In	
Relinquished By/Removed From	Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Isotopic Plutonium (Plutonium-239/240); Strontium-89,90 -- Total Sr; Nickel-63; ~~Tritium-H3~~ [illegible] 11/7/05

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-005-002 | Page 2 of 3

Collector: R.B. Kerkow	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 100-NR-1 TSD Sites R. A. Verification Sampling - Soil	Sampling Location: 116-N-1 Trench Shallow Zone K0119 (7343)	SAF No.: RC-005	
Ice Chest No.: ERC-03-105	Field Logbook No.: EL-1524-4	COA: R1301N2F00	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A060098		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Raioligical contamination

< DOT Limits

Special Handling and/or Storage

None

000044

Preservation	Cool 4C	Cool 4C	None									
Type of Container	G	G/P	G/P									
No. of Container(s)	1	1	1									
Volume	60mL	125mL	1L									
SAMPLE ANALYSIS	Mercury 7471 - (CV)	NO2/NO3 - 353.2	See item (1) in Special Instructions.							TIE TO RCF		
	DAS 11/16/05											
Sample No. / Matrix * / Sample Date / Sample Time												
J10FB5 / SOIL / 11-08-05 / 1025	X	X	X							J032V5		SZT-06
J10FB6 / SOIL / 11-08-05 / 1000	X	X	X									SZT-07
J10FB7 / SOIL / 11-08-05 / 0820	X	X	X									SZT-08
J10FB8 / SOIL / 11-08-05 / 0840	X	X	X									SZT-09
J10FB9 / SOIL / 11-09-05 / 0910	X	X	X									SZT-10

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RB Kerkow / RB Kerkow	1530 11/16/05	REF IC, 3728, RBK	1530 11/16/05
3728 Ref IC	11/16/05 1200	D Stirling / David Stirling	11/16/05 1200
D Stirling / D Stirling	11/16/05 1200	Fed Ex	
Fed Ex	11/17/05	MFW	11/17/05 9:30

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Isotopic Plutonium {Plutonium-239/240}; Strontium-89,90 -- Total Sr; Nickel-63; ~~Tritium-H3~~ RK 11/7/05

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-005-002	Page 1 of 1

Collector R.B. Kerkow	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH
Price Code 8L	Data Turnaround 21 Days	Air Quality ☐	
Project Designation 100-NR-1 TSD Sites R. A. Verification Sampling - Soil	Sampling Location 116-N-1 Trench Shallow Zone K0119 (7343)	SAF No. RC-005	
Ice Chest No. ERC-03-105	Field Logbook No. EL-1524-4	COA R1301N2F00	Method of Shipment Fed Ex
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A060098		Bill of Lading/Air Bill No. See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Raioligical contamination

< DOT Limits

Special Handling and/or Storage

None

000045

Preservation	Cool 4C	Cool 4C	None									
Type of Container	G	G/P	G/P									
No. of Container(s)	1	1	1									
Volume	60mL	125mL	1L									
SAMPLE ANALYSIS	Mercury - 7471 - (CV) DAS 11/16/05	NO2/NO3 - 353.2	See item (1) in Special Instructions.							TIE TO RCF		
Sample No. / Matrix * / Sample Date / Sample Time												
J10FC2 / SOIL / 11-08-05 / 1045	X	X	X							J032V5		SZT-05
J10FC3 / SOIL / 11-08-05 / 1045	X	X	X							↓		SZT-05

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From RB Kerkow / RB Kerkow	11/11/05 1530	Received By/Stored In REF IC 3729 RBK	11/11/05 1530
Relinquished By/Removed From 3728 REF IC	11/16/05 1200	Received By/Stored In D Stoblein	11/16/05 1200
Relinquished By/Removed From D Stoblein WCH	11/16/05 1200	Received By/Stored In Fed Ex	
Relinquished By/Removed From FED EX	11/17/05	Received By/Stored In FW	11/17/05 9:30
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Isotopic Plutonium {Plutonium-239/240}; Strontium-89,90 -- Total Sr; Nickel-63; ~~Tritium-113~~ RK 11/7/05

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

APPENDIX A

RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100 NR 1			DATA PACKAGE: K0118		
VALIDATOR: TLR		LAB: FEB		DATE: 1/7/06	
			SDG: K0118		

ANALYSES PERFORMED				
Gross Alpha/Beta	Strontium-90	Technetium-99	Alpha Spectroscopy	Gamma Spectroscopy
Total Uranium	Radium-22	Tritium	Pt-239	

SAMPLES/MATRIX						
J10FC0	J10FC1	J10F90	J10F91	J10F91	J10F92	J10F93
J10F94	J10F95	J10F96	J10F97	J10F98	J10F99	J10FB0
J10FB1	J10FB2	J10FB3	J10FB4	J10FB6	J10FB7	J10FB8
J10FB9	J10FC2	J10FC3				
						Soil

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

FB K-40 pg 226/228 th 222/232

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

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

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

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

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

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

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

Comments:

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

Chemical carrier added? ..... Yes No N/A

Chemical recovery acceptable? ..... Yes No N/A

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

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

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

Comments: _____

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

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

Tracer recovery acceptable? ..... Yes No N/A

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

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

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

Comments: _____

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

Matrix spike analyzed? ..... Yes No N/A

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

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

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

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

Comments: no MS – J call n1-63

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 full~~ QC 1/14/2

Co/94 – K40 Ra 226/228 Th 222/232 am

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: 41

Appendix 6

Additional Documentation Requested by Client

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0118

7343-014 Method Blank

METHOD BLANK

SDG	7343	Client/Case no	Hanford SDG_K0118
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511205-14	Client sample id	Method Blank
Dept sample id	7343-014	Material/Matrix	SOLID
		SAF No	RC-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	1.17	1.7	2.7	30	U	NI_L
Total Strontium	SR-RAD	0.045	0.13	0.26	1.0	U	SR
Plutonium 238	13981-16-3	0	0.033	0.13	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.033	0.13	1.0	U	PU
Americium 241	14596-10-2	0.051	0.10	0.39	1.0	U	AM
Potassium 40	13966-00-2	U		0.31		U	GAM
Cobalt 60	10198-40-0	U		0.018	0.050	U	GAM
Cesium 137	10045-97-3	U		0.018	0.10	U	GAM
Radium 226	13982-63-3	U		0.032	0.10	U	GAM
Radium 228	15262-20-1	U		0.088	0.20	U	GAM
Europium 152	14683-23-9	U		0.044	0.10	U	GAM
Europium 154	15585-10-1	U		0.068	0.10	U	GAM
Europium 155	14391-16-3	U		0.058	0.10	U	GAM
Thorium 228	14274-82-9	U		0.041		U	GAM
Thorium 232	TH-232	U		0.088		U	GAM
Uranium 235	15117-96-1	U		0.076		U	GAM
Uranium 238	U-238	U		2.0		U	GAM
Americium 241	14596-10-2	U		0.14		U	GAM
Silver 108m	14391-65-2	U		0.014		U	GAM

100-NR-1 TSD Sites R.A. Ver. Smplg.

QC-BLANK #55217

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	12/13/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0118

7343-013

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7343

Contact Melissa C. Mannion

Client/Case no Hanford SDG K0118

Contract No. 630

Lab sample id R511205-13

Dept sample id 7343-013

Client sample id Lab Control Sample

Material/Matrix SOLID

SAF No RC-005

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Nickel 63	211	7.9	4.0	30		NI_L	224	9.0	94	84-116	80-120
Total Strontium	11.1	0.63	0.27	1.0		SR	9.89	0.40	112	80-120	80-120
Plutonium 238	22.5	1.8	0.13	1.0		PU	23.8	0.95	95	85-115	80-120
Plutonium 239/240	26.8	2.1	0.13	1.0		PU	26.4	1.1	102	85-115	80-120
Americium 241	22.1	2.8	0.33	1.0		AM	20.4	0.82	108	77-123	80-120
Cobalt 60	0.652	0.028	0.014	0.050		GAM	0.639	0.026	102	75-125	80-120
Cesium 137	0.674	0.024	0.017	0.10		GAM	0.639	0.026	106	75-125	80-120

100-NR-1 TSD Sites R.A. Ver. Smplg.

QC-LCS #55216

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 12/13/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0118

7343-015 J10FC2

DUPLICATE

SDG	7343			Client/Case no	Hanford SDG K0118
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R511205-15	Lab sample id	R511205-11	Client sample id	J10FC2
Dept sample id	7343-015	Dept sample id	7343-011	Location/Matrix	116-N-1 Trench Shallow Z SOLID
		Received	11/17/05	Collected/Weight	11/08/05 10:45 1448 g
% solids	98.6	% solids	98.6	Custody/SAF No	RC-005 -002 RC-005

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	DER σ
Nickel 63	0.455	1.9	3.3	30	U	NI_L	0.475	1.8	3.1	U	-		0
Total Strontium	0.034	0.14	0.28	1.0	U	SR	-0.031	0.13	0.28	U	-		0.7
Plutonium 238	-0.018	0.036	0.14	1.0	U	PU	-0.027	0.054	0.21	U	-		0.3
Plutonium 239/240	0.018	0.036	0.14	1.0	U	PU	0	0.054	0.21	U	-		0.6
Americium 241	0.110	0.22	0.84	1.0	U	AM	-0.073	0.15	0.56	U	-		1.4
Potassium 40	13.0	0.75	0.44			GAM	15.4	0.87	0.37		17	34	1.5
Cobalt 60	U		0.053	0.050	U	GAM	U		0.045	U	-		0.2
Cesium 137	U		0.048	0.10	U	GAM	U		0.042	U	-		0.2
Radium 226	0.370	0.073	0.077	0.10		GAM	0.517	0.081	0.078		33	49	2.0
Radium 228	0.541	0.17	0.20	0.20		GAM	0.735	0.19	0.18		30	68	1.3
Europium 152	U		0.15	0.10	U	GAM	U		0.098	U	-		0.6
Europium 154	U		0.18	0.10	U	GAM	U		0.16	U	-		0.2
Europium 155	U		0.090	0.10	U	GAM	U		0.14	U	-		0.6
Thorium 228	0.728	0.074	0.063			GAM	0.608	0.048	0.049		18	38	1.4
Thorium 232	0.541	0.17	0.20			GAM	0.735	0.19	0.18		30	68	1.3
Uranium 235	U		0.15		U	GAM	U		0.18	U	-		0.3
Uranium 238	U		6.1		U	GAM	U		4.8	U	-		0.3
Americium 241	U		0.055		U	GAM	U		0.36	U	-		1.7
Silver 108m	U		0.032		U	GAM	U		0.025	U	-		0.3

100-NR-1 TSD Sites R.A. Ver. Smplg.

QC-DUP#11 55218

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	12/13/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0118

7342-014

Method Blank

METHOD BLANK

SDG	7342	Client/Case no	Hanford		SDG_K0118
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R511204-14	Client sample id	Method Blank		
Dept sample id	7342-014	Material/Matrix			SOLID
		SAF No	RC-005		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	-0.713	1.7	3.0	30	U	NI_L
Total Strontium	SR-RAD	-0.066	0.10	0.23	1.0	U	SR
Plutonium 238	13981-16-3	0.020	0.039	0.15	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.039	0.15	1.0	U	PU
Americium 241	14596-10-2	0.128	0.17	0.33	1.0	U	AM
Potassium 40	13966-00-2	U		0.14		U	GAM
Cobalt 60	10198-40-0	U		0.010	0.050	U	GAM
Cesium 137	10045-97-3	U		0.011	0.10	U	GAM
Radium 226	13982-63-3	U		0.023	0.10	U	GAM
Radium 228	15262-20-1	U		0.038	0.20	U	GAM
Europium 152	14683-23-9	U		0.031	0.10	U	GAM
Europium 154	15585-10-1	U		0.035	0.10	U	GAM
Europium 155	14391-16-3	U		0.037	0.10	U	GAM
Thorium 228	14274-82-9	U		0.018		U	GAM
Thorium 232	TH-232	U		0.038		U	GAM
Uranium 235	15117-96-1	U		0.044		U	GAM
Uranium 238	U-238	U		1.4		U	GAM
Americium 241	14596-10-2	U		0.051		U	GAM

100-NR-1 TSD Sites R.A. Ver. Smplg.

QC-BLANK 55202

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	12/09/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0118

7342-013

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7342
Contact Melissa C. Mannion

Client/Case no Hanford SDG K0118
Contract No. 630

Lab sample id R511204-13
Dept sample id 7342-013

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No RC-005

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Nickel 63	211	5.8	3.1	30		NI_L	270	11	78	86-114	80-120
Total Strontium	11.2	0.56	0.21	1.0		SR	10.9	0.44	103	82-118	80-120
Plutonium 238	25.7	2.1	0.15	1.0		PU	26.2	1.0	98	85-115	80-120
Plutonium 239/240	29.1	2.4	0.15	1.0		PU	29.0	1.2	100	84-116	80-120
Americium 241	23.2	3.1	0.38	1.0		AM	22.4	0.90	104	77-123	80-120
Cobalt 60	0.597	0.075	0.025	0.050		GAM	0.675	0.027	88	73-127	80-120
Cesium 137	0.607	0.043	0.033	0.10		GAM	0.693	0.028	88	77-123	80-120

100-NR-1 TSD Sites R.A. Ver. Smplg.

QC-LCS 55201

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 12/09/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0118

7342-015

J10F90

DUPLICATE

SDG	7342			Client/Case no	Hanford SDG K0118
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R511204-15	Lab sample id	R511204-03	Client sample id	J10F90
Dept sample id	7342-015	Dept sample id	7342-003	Location/Matrix	116-N-1 Crib Shallow Zon SOLID
		Received	11/17/05	Collected/Weight	11/08/05 12:40 1571 g
% solids	92.9	% solids	92.9	Custody/SAF No	RC-005-001 RC-005

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	DER σ
Nickel 63	0.228	2.2	3.8	30	U	NI_L	0.840	2.5	4.1	U	-		0.4
Total Strontium	0.111	0.11	0.19	1.0	U	SR	0.110	0.13	0.25	U	-		0
Plutonium 238	0.022	0.045	0.17	1.0	U	PU	0	0.069	0.26	U	-		0.5
Plutonium 239/240	0.067	0.089	0.17	1.0	U	PU	0.034	0.069	0.26	U	-		0.6
Americium 241	0.029	0.12	0.22	1.0	U	AM	0.031	0.062	0.24	U	-		0
Potassium 40	11.0	0.70	0.28			GAM	11.1	0.63	0.31		1	34	0.1
Cobalt 60	0.502	0.064	0.053	0.050		GAM	0.514	0.051	0.038		2	40	0.2
Cesium 137	0.500	0.054	0.052	0.10		GAM	0.479	0.045	0.043		4	38	0.3
Radium 226	0.546	0.078	0.075	0.10		GAM	0.480	0.070	0.075		13	44	0.9
Radium 228	0.780	0.21	0.21	0.20		GAM	0.814	0.16	0.16		4	59	0.2
Europium 152	U		0.096	0.10	U	GAM	U		0.087	U	-		0.1
Europium 154	U		0.12	0.10	U	GAM	U		0.11	U	-		0.1
Europium 155	U		0.14	0.10	U	GAM	U		0.12	U	-		0.2
Thorium 228	0.638	0.047	0.049			GAM	0.643	0.041	0.044		1	35	0.1
Thorium 232	0.780	0.21	0.21			GAM	0.814	0.16	0.16		4	59	0.2
Uranium 235	U		0.17		U	GAM	U		0.15	U	-		0.2
Uranium 238	U		5.1		U	GAM	U		4.2	U	-		0.3
Americium 241	U		0.35		U	GAM	U		0.30	U	-		0.2

100-NR-1 TSD Sites R.A. Ver. Smplg.

QC-DUP#3 55203

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	12/09/05

Date: 10 January 2006
To: Washington Closure Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 100-NR-1 TSD Sites RA Verification Sampling–Soil–Waste Site 116-N-1
Subject: Inorganics - Data Package No. K0118

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0118 prepared by Lionville Laboratory Inc. (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Date
J10F90	11/8/05	Soil	C	See note 1
J10F91	11/8/05	Soil	C	See note 1
J10F92	11/8/05	Soil	C	See note 1
J10F93	11/8/05	Soil	C	See note 1
J10F94	11/8/05	Soil	C	See note 1
J10F95	11/8/05	Soil	C	See note 1
J10F96	11/8/05	Soil	C	See note 1
J10F97	11/8/05	Soil	C	See note 1
J10F98	11/8/05	Soil	C	See note 1
J10F99	11/8/05	Soil	C	See note 1
J10FB0	11/9/05	Soil	C	See note 1
J10FB1	11/8/05	Soil	C	See note 1
J10FB2	11/8/05	Soil	C	See note 1
J10FB4	11/8/05	Soil	C	See note 1
J10FB5	11/8/05	Soil	C	See note 1
J10FB6	11/8/05	Soil	C	See note 1
J10FB7	11/8/05	Soil	C	See note 1
J10FB8	11/8/05	Soil	C	See note 1
J10FB9	11/9/05	Soil	C	See note 1
J10FC0	11/8/05	Soil	C	See note 1
J10FC1	11/8/05	Soil	C	See note 1
J10FC2	11/8/05	Soil	C	See note 1
J10FC3	11/8/05	Soil	C	See note 1

1 - Mercury (7471A).

Data validation was conducted in accordance with the Washington Closure Hanford Incorporated (WCH) validation statement of work and the Sampling & Analysis Plan for the 100-NR-1 Treatment, Storage and Disposal Units During Remediation and Closeout (DOE/RL-2000-7, Rev. 1, February 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.

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.

All preparation blank results were acceptable.

Field (Equipment) Blank

Two field blanks (J10FC1 &J10FC3) were submitted for analysis. No analytes were detected in the field blanks.

- **Accuracy**

Matrix Spike and Laboratory Control Sample

Matrix spike (MS) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data . The matrix spike is used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 70% to 130%. Samples with a recovery of less than 30% and a sample result below the IDL are rejected and flagged "UR". Samples with a recovery of 30% to 69% and a sample result less than the IDL are qualified "UJ". Samples with a recovery of greater than 130% or less than 70% and a sample result greater than the IDL are qualified as estimates and flagged "J". Finally, for samples with a recovery greater than 130% 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 30%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All laboratory duplicate results were acceptable.

Field Duplicate

Two sets of field duplicate samples (J10FC0/J10F94 and J10FC2/J10FB4) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the remaining waste sites RQLs to ensure that laboratory detection levels meet the required criteria. All analytes met the RQL.

- **Completeness**

Data package No. K0118 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

None found.

REFERENCES

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

DOE/RL-2000-7, Rev. 1, *Sampling & Analysis Plan for the100-NR-1 Treatment, Storage and Disposal Units During Remediation and Closeout*, February 2005.

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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

METAL DATA QUALIFICATION SUMMARY*

SDG: K0118	REVIEWER: TLI	PROJECT: 116-N-1	PAGE 1 OF 1
COMMENTS: No qualifiers assigned			

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

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

Project: WASHINGTON CLOSURE HANFORD																			
Lab: LLI	SDG: K0093																		
Sample Numb		J10F90		J10F91		J10F92		J10F93		J10F94		J10F95		J10F96		J10F97		J10F98	
Remarks																			
Sample Date		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05	
Metals	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Mercury	0.2	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.01	U	0.02	U	0.02	U
Sample Numb		J10F99		J10FB0		J10FB1		J10FB2		J10FB3		J10FB4		J10FB5		J10FB6		J10FB7	
Remarks																			
Sample Date		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05	
Metals	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Mercury	0.2	0.02	U	0.02	U	0.01	U	0.02	U	0.02	U	0.01	U	0.02	U	0.02	U	0.02	U
Sample Numb		J10FB8		J10FB9		J10FC0		J10FC1		J10FC2		J10FC3							
Remarks						Duplicate		E. Blank		Duplicate		E. Blank							
Sample Date		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05							
Metals	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Mercury	0.2	0.02	U	0.02	U	0.02	U	0.01	U	0.02	U	0.01	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 11/28/05

CLIENT: TNUHANFORD RC-005 K0118 LVL LOT #: 0511L751

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J10F90	Mercury, Total	0.02 u	MG/KG	0.02	1.0
-002	J10F91	Mercury, Total	0.02 u	MG/KG	0.02	1.0
-003	J10F92	Mercury, Total	0.02 u	MG/KG	0.02	1.0
-004	J10F93	Mercury, Total	0.02 u	MG/KG	0.02	1.0
-005	J10F94	Mercury, Total	0.02 u	MG/KG	0.02	1.0
-006	J10F95	Mercury, Total	0.02 u	MG/KG	0.02	1.0
-007	J10F96	Mercury, Total	0.01 u	MG/KG	0.01	1.0
-008	J10F97	Mercury, Total	0.01 u	MG/KG	0.01	1.0
-009	J10F98	Mercury, Total	0.02 u	MG/KG	0.02	1.0
-010	J10F99	Mercury, Total	0.02 u	MG/KG	0.02	1.0

JR
11/10/06

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 11/28/05

CLIENT: TNU-HANFORD RC-005 LVL LOT #: 0511L750

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J10FB0	Mercury, Total	0.02 u	MG/KG	0.02	1.0
-002	J10FB1	Mercury, Total	0.01 u	MG/KG	0.01	1.0
-003	J10FB2	Mercury, Total	0.02 u	MG/KG	0.02	1.0
-004	J10FB3	Mercury, Total	0.02 u	MG/KG	0.02	1.0
-005	J10FB4	Mercury, Total	0.01 u	MG/KG	0.01	1.0
-006	J10FB5	Mercury, Total	0.02 u	MG/KG	0.02	1.0
-007	J10FB6	Mercury, Total	0.02 u	MG/KG	0.02	1.0
-008	J10FB7	Mercury, Total	0.02 u	MG/KG	0.02	1.0
-009	J10FB8	Mercury, Total	0.02 u	MG/KG	0.02	1.0
-010	J10FB9	Mercury, Total	0.02 u	MG/KG	0.02	1.0
-011	J10FC0	Mercury, Total	0.02 u	MG/KG	0.02	1.0
-012	J10FC1	Mercury, Total	0.01 u	MG/KG	0.01	1.0
-013	J10FC2	Mercury, Total	0.02 u	MG/KG	0.02	1.0
-014	J10FC3	Mercury, Total	0.01 u	MG/KG	0.01	1.0

11/10/06

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-005
LVL#: 0511L751
SDG/SAF#: K0118/RC-005

W.O.#: 11343-606-001-9999-00
Date Received: 11-17-05

METALS CASE NARRATIVE

1. This narrative covers the analyses of 10 soil samples.

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

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

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

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

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

7. The preparation/method blank (MB) was 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. The laboratory control sample (LCS) was within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.

9. The matrix spike (MS) recovery was within the 75-125% control limits. Refer to the Inorganics Accuracy Report.

10. The duplicate analysis was within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

11. 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.

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 15 pages.

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

12. 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.

13. 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

12/8/05
Date

jjw/m11-751

LvLI
LIONVILLE LABORATORY INC.

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-005
LVL#: 0511L750
SDG/SAF#: /RC-005

W.O.#: 11343-606-001-9999-00
Date Received: 11-17-05

METALS CASE NARRATIVE

1. This narrative covers the analyses of 14 soil samples.

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

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

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

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

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

7. The preparation/method blank (MB) was 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. The laboratory control sample (LCS) was within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.

9. The matrix spike (MS) recovery was within the 75-125% control limits. Refer to the Inorganics Accuracy Report.

10. The duplicate analysis was within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

11. 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.

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 17 pages.

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

12. 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.

13. 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

12/8/05
Date

jjw/m11-750

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-005-001	Page 1 of 3

Collector: R.B. Kerkow	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 100-NR-1 TSD Sites R. A. Verification Sampling - Soil	Sampling Location: 116-N-1 Crib Shallow Zone	SAF No.: RC-005	
Ice Chest No.: ERC-96-069	Field Logbook No.: EL-1524-4	COA: R1301N2F00	Method of Shipment: Fed EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A060117		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Raioligical contamination

< DOT Limits

Special Handling and/or Storage

~~None~~ Cool 4°C DAS 11/16/05

6100019

Preservation	Cool 4C	Cool 4C	None								
Type of Container	G	G/P	G/P								
No. of Container(s)	1	1	1								
Volume	60mL	125mL	1L								
SAMPLE ANALYSIS	Mercury - 7471 - (CV)	NO2/NO3 - 353.2	See item (1) in Special Instructions. DAS 11/16/05						TIE TO REF		
Sample No. / Matrix * / Sample Date / Sample Time											
J10F90 / SOIL / 11-08-05 / 1240	X	X	X						J10887		SZC-01
J10F91 / SOIL / 11-08-05 / 1300	X	X	X								SZC-02
J10F92 / SOIL / 11-08-05 / 1315	X	X	X								SZC-03
~~J10F93 / SOIL / 11-08-05 / 1325~~	X	X	X								SZC-04
J10F94 / SOIL / 11-08-05 / 1340	X	X	X								SZC-05

Thanks Carol Mustard

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RB Kerkow / RB Kerkow	11/11/05 1530	RCF IC, 3728 RSK	11/11/05 1530
3728 Ref IC	11/16/05 1200	[illegible]	11/16/05 1200
DS Dawson / [illegible]	11/16/05 1200	Fed Ex	
Fed Ex	11.17.05 0915	[illegible]	11.17.05 0915

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Isotopic Plutonium {Plutonium-239/240}; Strontium-89,90 -- Total Sr; Nickel-63; ~~Tritium - H3~~ RL 4/7/05

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-005-001	Page 2 of 3

Collector: R.B. Kerkow	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 100-NR-1 TSD Sites R. A. Verification Sampling - Soil	Sampling Location: 116-N-1 Crib Shallow Zone	SAF No.: RC-005	
Ice Chest No.: ERC-96-069	Field Logbook No.: EL-1524-4	COA: R1301N2F00	Method of Shipment: FedEx
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A060117		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radiological contamination

< DOT Limits

Special Handling and/or Storage

~~None~~ Cool 4°C DAS 11/16/05

00000020

SAMPLE ANALYSIS													
Preservation				Cool 4C	Cool 4C	None							
Type of Container				G	G/P	G/P							
No. of Container(s)				1	1	1							
Volume				60mL	125mL	1L							
				Mercury - 7471 - (CV)	NO2/NO3 - 353.2	See item (1) in Special Instructions. DAS 11/16/05					TIE TO RLF		
Sample No.	Matrix *	Sample Date	Sample Time										
J10F95	SOIL	11-08-05	1400	X	X	X							SZC-06
J10F96	SOIL	11-08-05	1415	X	X	X					J10887		SZC-07
J10F97	SOIL	11-08-05	1430	X	X	X							SZC-08
~~J10F98~~	~~SOIL~~	~~11-08-05~~	~~1450~~	~~X~~	~~X~~	~~X~~							~~SZC-09~~
J10F99	SOIL	11-08-05	1515	X	X	X							SZC-10

Typo Does Copier Malfunction

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RBKerkow/RBKerkow	1530 11/11/05	REFIC, 3728, RBK	1530 11/11/05
3728 RefIC	11/16/05 1200	D Stopkin	11/16/05 1200
D Stopkin	11/16/05 1200	FedEx	
FedEx	11.17.05/0915	N Y Smith	11.17.05/0915

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Isotopic Plutonium {Plutonium-239/240}; Strontium-89,90 – Total Sr; Nickel-63; ~~Tritium-H3~~ RK 11/7/05

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-005-002	Page 1 of 1

Collector: R.B. Kerkow	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-NR-1 TSD Sites R. A. Verification Sampling - Soil	Sampling Location: 116-N-1 Trench Shallow Zone		SAF No.: RC-005
Ice Chest No.: ERC-96-069	Field Logbook No.: EL-1524-4	COA: R1301N2F00	Method of Shipment: Fed EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: 4060117		Bill of Lading/Air Bill No.: See OSDC

Price Code: 8L

Data Turnaround: 21 Days

Air Quality: ☐

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radiological contamination

< DOT Limits

Special Handling and/or Storage

~~None~~

Cool 4°C RAS 11/16/05

Preservation	Cool 4C	Cool 4C	None									
Type of Container	G	G/P	G/P									
No. of Container(s)	1	1	1									
Volume	60mL	125mL	1L									
SAMPLE ANALYSIS	Mercury - 7471 - (CV)	NO2/NO3 - 353.2	See item (1) in Special Instructions. RAS 11/16/05							TIE TO RLE		

Sample No.	Matrix *	Sample Date	Sample Time										
J10FB0	SOIL	11-09-05	0840	X	X	X							SZT-01
J10FB1	SOIL	11-08-05	0900	X	X	X					J03ZV5		SZT-02
J10FB2	SOIL	11-08-05	0920	X	X	X							SZT-03
~~J10FB3~~	~~SOIL~~	~~11-08-05~~	~~0935~~	~~X~~	~~X~~	~~X~~							~~SZT-04~~
J10FB4	SOIL	11-08-05	1045	X	X	X							SZT-05

Ignore Isotopic Analysis for.

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From: RB Kerkow / RB Kerkow — Date/Time: 11/11/05 1530	Received By/Stored In: Ref IC 3728 RBK — Date/Time: 11/11/05 1530	
Relinquished By/Removed From: 3728 Ref IC — Date/Time: 11/16/05 1200	Received By/Stored In: B St Jean — Date/Time: 11/16/05 1200	
Relinquished By/Removed From: B St Jean — Date/Time: 11/16/05 1200	Received By/Stored In: Fed EX	
Relinquished By/Removed From: Fed EX — Date/Time: 11-17-05 / 0915	Received By/Stored In: W Smith — Date/Time: 11-17-05 / 0915	
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) Americium-241; Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Isotopic Plutonium {Plutonium-239/240}; Strontium-89,90 -- Total Sr; Nickel-63; ~~Tritium-3H~~ RK 11/7/05

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)

000000021

000000013

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-005-002	Page 2 of 2

Collector: R.B. Kerkow	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8L	Data Turnaround: 21 Days	Air Quality: ☐	
Project Designation: 100-NR-1 TSD Sites R. A. Verification Sampling - Soil	Sampling Location: 116-N-1 Trench Shallow Zone	SAF No.: RC-005	
Ice Chest No.: ERC-96-069	Field Logbook No.: EL-1524-4	COA: R1301N2F00	Method of Shipment: Fed EX
Shipped To: EBERLINE SERVICES, LIONVILLE	Offsite Property No.: ~~A060017~~ A060117 PAS 11/16/05		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Raioligical contamination

< DOT Limits

Special Handling and/or Storage

~~None~~ Cool 4°C PAS 11/16/05

Preservation	Cool 4C	Cool 4C	None								
Type of Container	G	G/P	G/P								
No. of Container(s)	1	1	1								
Volume	60mL	125mL	L								
SAMPLE ANALYSIS	Mercury - 7471 - (CV)	NO2/NO3 - 353.2	See item (1) in Special Instructions. PAS 11/16/05						TIE TO RCP		
Sample No. / Matrix * / Sample Date / Sample Time											
J10FB5 / SOIL / 11-08-05 / 1025	X	X	X						J032Y5		SZT-06
J10FB6 / SOIL / 11-08-05 / 1000	X	X	X								SZT-07
J10FB7 / SOIL / 11-08-05 / 0820	X	X	X								SZT-08
~~J10FB8 / SOIL / 11-08-05 / 0840~~	~~X~~	~~X~~	~~X~~								~~SZT-09~~
J10FB9 / SOIL / 11-09-05 / 0910	X	X	X								SZT-10

Ignore line 1 copy mistake

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RB Kerkow / RB Kerkow	1530 11/16/05	REFIC 3728, RDK	1530 11/16/05
Ref IC 3728	11/16/05 1200	D St John	11/16/05 1200
D St John	11/16/05 1200	Fed EX	
Fed EX	11-17-05 0915	W Smith	11-17-05 0915

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Isotopic Plutonium (Plutonium-239/240); Strontium-89,90 -- Total Sr; Nickel-63; ~~Tritium-H3~~ MC 11/7/05

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; 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)

0000022

0000000014

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-005-001	Page 2 of 2

Collector: R.B. Kerkow	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 100-NR-1 TSD Sites R. A. Verification Sampling - Soil	Sampling Location: 116-N-1 Crib Shallow Zone	SAF No.: RC-005	
Ice Chest No.: ERC-96-069	Field Logbook No.: EL-1524-4	COA: R1301N2F00	Method of Shipment: Fed EX
Shipped To: EBERLINE SERVICES / KONVILLE	Offsite Property No.: A060117		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Raioligical contamination

< DOT Limits

Special Handling and/or Storage

~~None~~

Cool 4°C 11/16/05 DAS

Preservation	Cool 4C	Cool 4C	None								
Type of Container	G	G/P	G/P								
No. of Container(s)	1	1	1								
Volume	60mL	125mL	1L								
SAMPLE ANALYSIS	Mercury - 7471 - (CV)	NO2/NO3 - 353.2	See item (1) in Special Instructions. DAS 11/16/05						TIE TO RLF		

Sample No.	Matrix *	Sample Date	Sample Time									
J10FC0	SOIL	11-08-05	1340	X	X	X					J10887	SZC-05
J10FC1	SOIL	11-08-05	1340	X	X	X					↓	SZC-05

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RB Kerkow / RB Kerkow	11/16/05 1530	REF IC, 3728, RBK	11/16/05 1530
3728 Ref IC	11/16/05 1200	D St John / David St John	11/16/05 1200
D St John / David St John	11/16/05 1200	Fed Ex	
Fed Ex	11-17-05 0915	[illegible]	11-17-05 0915

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Isotopic Plutonium (Plutonium-239/240); Strontium-89,90 -- Total Sr; Nickel-63; ~~Tritium-H3~~ 11/7/05

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)

00000023

0000000015

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-005-002	Page 3 of 3

Collector: R.B. Kerkow	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8L	Data Turnaround: 21 Days	Air Quality: ☐	
Project Designation: 100-NR-1 TSD Sites R. A. Verification Sampling - Soil	Sampling Location: 116-N-1 Trench Shallow Zone		SAF No.: RC-005
Ice Chest No.: ERC-96-069	Field Logbook No.: EL-1524-4	COA: R1301N2F00	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES/ LIONVILLE	Offsite Property No.: A060117		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radiological contamination

< DOT Limits

Special Handling and/or Storage

~~None~~ Cool 4°C DAS 11/16/05

Preservation	Cool 4C	Cool 4C	None								
Type of Container	G	G/P	G/P								
No. of Container(s)	1	1	1								
Volume	60mL	125mL	1L								
SAMPLE ANALYSIS	Mercury - 7471 - (CV)	NO2/NO3 - 353.2	See item (1) in Special Instructions. DAS 11/16/05							TIE TO RCF	

Sample No.	Matrix *	Sample Date	Sample Time										
J10FC2	SOIL	11-08-05	1045	X	X	X					J032V5		SZT-05
J10FC3	SOIL	11-08-05	1045	X	X	X					↓		SZT-05

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: RBKerkow / RBKerkow	11/11/05 1530	Received By/Stored In: RBK IC 3727 RBK	11/11/05 1530
Relinquished By/Removed From: 3728 Rad IC	11/16/05 1200	Received By/Stored In: [illegible]	11/16/05 1200
Relinquished By/Removed From: [illegible]	11/16/05 1200	Received By/Stored In: Fed EX	
Relinquished By/Removed From: Fed EX	11.17.05 0915	Received By/Stored In: [illegible]	11.17.05 0915
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Isotopic Plutonium (Plutonium-239/240); Strontium-89,90 -- Total Sr; Nickel-63; ~~Tritium-3H~~ RK 11/7/05

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: 100-NR-1			DATA PACKAGE: K0118		
VALIDATOR: TLP		LAB: LLF		DATE: 1/7/06	
			SDG: K0118		

ANALYSES PERFORMED					
SW-846/ICP	SW-846/GFAA	SW-846/Hg	SW-846 Cyanide		

SAMPLES/MATRIX					
J10F90	J10F91	J10F92	J10F93	J10F94	J10F95
J10F96	J10F97	J10F98	J10F99	J10FB0	J10FB1
J10FB2	J10FB3	J10FB4	J10FB5	J10FB6	J10FB7
J10FB8	J10FC0	J10FC1	J10FC2	J10FC3	
					soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

Comments:

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

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

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

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

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

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

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

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

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

Comments:

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

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

ICB and CCB checks performed for all applicable analyses? (Levels D, E) ..... Yes No N/A

ICB and CCB results acceptable? (Levels D, E) ..... Yes No N/A

Laboratory blanks analyzed? ..... Yes No N/A

Laboratory blank results acceptable? ..... Yes No N/A

Field blanks analyzed? (Levels C, D, E) ..... Yes No N/A

Field blank results acceptable? (Levels C, D, E) ..... Yes No N/A

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

Comments: no FB

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

Rresults 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 11/28/05

CLIENT: TNUHANFORD RC-005 K0118 LVL LOT #: 0511L751

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	05C0274-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 11/28/05

CLIENT: TNUHANFORD RC-005 K0118

LVL LOT #: 0511L751

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J10P90	Mercury, Total	0.18	0.02u	0.17	107.1	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 11/28/05

CLIENT: TNUHANFORD RC-005 K0118 LVL LOT #: 0511L751

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J10F90	Mercury, Total	0.02u	0.02u	NC	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 11/28/05

CLIENT: TNUHANFORD RC-005 K0118

LVL LOT #: 0511L751

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	05C0274-LC1	Mercury, LCS	6.7	6.2	MG/KG	108.3

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/28/05

CLIENT: TNU-HANFORD RC-005 LVL LOT #: 0511L750

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	05C0275-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 11/28/05

CLIENT: TNU-HANFORD RC-005 LVL LOT #: 0511L750

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J10FB0	Mercury, Total	0.18	0.02u	0.16	106.1	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 11/28/05

CLIENT: TNU-HANFORD RC-005 LVL LOT #: 0511L750

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J10FB0	Mercury, Total	0.02u	0.02u	NC	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 11/28/05

CLIENT: TNU-HANFORD RC-005 LVL LOT #: 0511L750

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	05C0275-LC1	Mercury, LCS	6.6	6.2	MG/KG	106.3

Date: 10 January 2006
To: Washington Closure Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 100-NR-1 TSD Sites RA Verification Sampling–Soil–Waste Site 116-N-1
Subject: Wet Chemistry - Data Package No. K0118

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0118 prepared by Lionville Laboratory Inc. (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Date
J10F90	11/8/05	Soil	C	See note 1
J10F91	11/8/05	Soil	C	See note 1
J10F92	11/8/05	Soil	C	See note 1
J10F93	11/8/05	Soil	C	See note 1
J10F94	11/8/05	Soil	C	See note 1
J10F95	11/8/05	Soil	C	See note 1
J10F96	11/8/05	Soil	C	See note 1
J10F97	11/8/05	Soil	C	See note 1
J10F98	11/8/05	Soil	C	See note 1
J10F99	11/8/05	Soil	C	See note 1
J10FB0	11/9/05	Soil	C	See note 1
J10FB1	11/8/05	Soil	C	See note 1
J10FB2	11/8/05	Soil	C	See note 1
J10FB4	11/8/05	Soil	C	See note 1
J10FB5	11/8/05	Soil	C	See note 1
J10FB6	11/8/05	Soil	C	See note 1
J10FB7	11/8/05	Soil	C	See note 1
J10FB8	11/8/05	Soil	C	See note 1
J10FB9	11/9/05	Soil	C	See note 1
J10FC0	11/8/05	Soil	C	See note 1
J10FC1	11/8/05	Soil	C	See note 1
J10FC2	11/8/05	Soil	C	See note 1
J10FC3	11/8/05	Soil	C	See note 1

1 – Nitrate/nitrite by 353.2.

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the Sampling & Analysis Plan for the 100-NR-1 Treatment, Storage and Disposal Units During Remediation and Closeout (DOE/RL-2000-7, Rev. 1, February 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 nitrate/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".

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

Two field blanks (J10FC1 &J10FC3) were submitted for analysis. No analytes were detected in the field blanks.

- **Accuracy**

Matrix Spike and Laboratory Control Sample

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

Finally, for samples with a recovery greater than 130% 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 30%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All laboratory duplicate results were acceptable.

Field Duplicate

Two sets of field duplicate samples (J10FC0/J10F94 and J10FC2/J10FB4) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the required quantitation limits (RQLs) to ensure that laboratory detection levels meet the required criteria. All analytes met the RQL.

- **Completeness**

Data package K0118 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

None found.

REFERENCES

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

DOE/RL-2000-7, Rev. 1, *Sampling & Analysis Plan for the100-NR-1 Treatment, Storage and Disposal Units During Remediation and Closeout*, February 2005.

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: K0118	REVIEWER: TLI	PROJECT: 116-N-1	PAGE 1 OF 1
COMMENTS: No qualifiers assigned			

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

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

Project: WASHINGTON CLOSURE HANFORD																			
Lab: LLI	SDG: K0118																		
Sample Number		J10F90		J10F91		J10F92		J10F93		J10F94		J10F95		J10F96		J10F97		J10F98	
Remarks																			
Sample Date		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05	
Wet chemistry	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Nitrate/nitrite	0.75	27.1		0.68		5.6		7.8		7.1		7.3		17.4		3.0		10.9	
Sample Number		J10F99		J10FB0		J10FB1		J10FB2		J10FB3		J10FB4		J10FB5		J10FB6		J10FB7	
Remarks																			
Sample Date		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05	
Wet chemistry	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Nitrate/nitrite	0.75	6.4		1.6		0.34		1.8		0.50		1.4		0.89		17.2		1.1	
Sample Number		J10FB8		J10FB9		J10FC0		J10FC1		J10FC2		J10FC3							
Remarks						Duplicate		E. Blank		Duplicate		E. Blank							
Sample Date		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05		11/8/05							
Wet chemistry	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Nitrate/nitrite	0.75	5.7		2.2		6.6		0.20	U	1.7		0.20	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.

000010

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 11/21/05

CLIENT: TNU-HANFORD RC-005
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0511L751

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J10F90	% Solids	92.2	%	0.01	1.0
		Nitrate Nitrite	27.1	MG/KG	1.1	5.0
-002	J10F91	% Solids	96.1	%	0.01	1.0
		Nitrate Nitrite	0.68	MG/KG	0.20	1.0
-003	J10F92	% Solids	93.5	%	0.01	1.0
		Nitrate Nitrite	5.6	MG/KG	0.21	1.0
-004	J10F93	% Solids	93.2	%	0.01	1.0
		Nitrate Nitrite	7.8	MG/KG	0.21	1.0
-005	J10F94	% Solids	91.5	%	0.01	1.0
		Nitrate Nitrite	7.1	MG/KG	0.21	1.0
-006	J10F95	% Solids	93.0	%	0.01	1.0
		Nitrate Nitrite	7.3	MG/KG	0.21	1.0
-007	J10F96	% Solids	92.8	%	0.01	1.0
		Nitrate Nitrite	17.4	MG/KG	0.42	2.0
-008	J10F97	% Solids	96.1	%	0.01	1.0
		Nitrate Nitrite	3.0	MG/KG	0.20	1.0
-009	J10F98	% Solids	90.5	%	0.01	1.0
		Nitrate Nitrite	10.9	MG/KG	0.22	1.0
-010	J10F99	% Solids	85.1	%	0.01	1.0
		Nitrate Nitrite	6.4	MG/KG	0.23	1.0

1/10/06

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 11/21/05

CLIENT: TNU-HANFORD RC-005
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0511L750

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J10FB0	% Solids	94.4	%	0.01	1.0
		Nitrate Nitrite	1.6	MG/KG	0.21	1.0
-002	J10FB1	% Solids	95.9	%	0.01	1.0
		Nitrate Nitrite	0.34	MG/KG	0.20	1.0
-003	J10FB2	% Solids	96.0	%	0.01	1.0
		Nitrate Nitrite	1.8	MG/KG	0.21	1.0
-004	J10FB3	% Solids	95.6	%	0.01	1.0
		Nitrate Nitrite	0.50	MG/KG	0.20	1.0
-005	J10FB4	% Solids	99.0	%	0.01	1.0
		Nitrate Nitrite	1.4	MG/KG	0.20	1.0
-006	J10FB5	% Solids	94.7	%	0.01	1.0
		Nitrate Nitrite	0.89	MG/KG	0.21	1.0
-007	J10FB6	% Solids	92.8	%	0.01	1.0
		Nitrate Nitrite	17.2	MG/KG	0.43	2.0
-008	J10FB7	% Solids	92.2	%	0.01	1.0
		Nitrate Nitrite	1.1	MG/KG	0.22	1.0
-009	J10FB8	% Solids	92.2	%	0.01	1.0
		Nitrate Nitrite	5.7	MG/KG	0.21	1.0
-010	J10FB9	% Solids	90.6	%	0.01	1.0
		Nitrate Nitrite	2.2	MG/KG	0.22	1.0
-011	J10FC0	% Solids	92.2	%	0.01	1.0
		Nitrate Nitrite	6.6	MG/KG	0.22	1.0
-012	J10FC1	% Solids	99.9	%	0.01	1.0
		Nitrate Nitrite	0.20 u	MG/KG	0.20	1.0
-013	J10FC2	% Solids	98.8	%	0.01	1.0
		Nitrate Nitrite	1.7	MG/KG	0.20	1.0
-014	J10FC3	% Solids	99.8	%	0.01	1.0

1/10/06

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 11/21/05

CLIENT: TNU-HANFORD RC-005
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0511L750

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-014	J10PC3	Nitrate Nitrite	0.20 u	MG/KG	0.20	1.0

1/10/06

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-005 / K0118
LVL#: 0511L751

W.O.#: 11343-606-001-9999-00
Date Received: 11-17-05

INORGANIC NARRATIVE

1. This narrative covers the analyses of 10 soil samples.

2. The samples were prepared and analyzed in accordance with the methods indicated 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.

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

5. The method blank for Nitrate Nitrite was within the method criteria.

6. The Laboratory Control Sample (LCS) for Nitrate Nitrite was within the laboratory control limits.

7. The matrix spike recovery for Nitrate Nitrite was within the 75-125% control limits.

8. The replicate analyses for Percent Solids and Nitrate Nitrite were within the 20% Relative Percent Difference (RPD) control limit.

9. Results for solid samples are reported on a dry weight basis.

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 package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

Date 12/9/05

njp\11-751

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 13 pages.

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

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-005
LVL#: 0511L750

W.O.#: 11343-606-001-9999-00
Date Received: 11-17-05

INORGANIC NARRATIVE

1. This narrative covers the analyses of 14 soil samples.

2. The samples were prepared and analyzed in accordance with the methods indicated 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.

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

5. The method blank for Nitrate Nitrite was within the method criteria.

6. The Laboratory Control Sample (LCS) for Nitrate Nitrite was within the laboratory control limits.

7. The matrix spike recovery for Nitrate Nitrite was within the 75-125% control limits.

8. The replicate analyses for Percent Solids and Nitrate Nitrite were within the 20% Relative Percent Difference (RPD) control limit.

9. Results for solid samples are reported on a dry weight basis.

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 package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

Date 12/9/05

njp\i11-750

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 17 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-005-001	Page 1 of 2

Collector: R.B. Kerkow	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8L	Data Turnaround: 21 Days	Air Quality: ☐	
Project Designation: 100-NR-1 TSD Sites R. A. Verification Sampling - Soil	Sampling Location: 116-N-1 Crib Shallow Zone	SAF No.: RC-005	
Ice Chest No.: ERC-96-069	Field Logbook No.: EL-1524-4	COA: R1301N2F00	Method of Shipment: Fed EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A060117		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Raioligical contamination

< DOT Limits

Special Handling and/or Storage

~~None~~ Cool 4°C DAS 11/16/05

Preservation	Cool 4C	Cool 4C	None									
Type of Container	G	G/P	G/P									
No. of Container(s)	1	1	1									
Volume	60mL	125mL	1L									
SAMPLE ANALYSIS	Mercury - 7471 - (CV)	NO2/NO3 - 353.2	See item (1) in Special Instructions. DAS 11/16/05							TIE TO REF		

Sample No.	Matrix *	Sample Date	Sample Time										
J10F90	SOIL	11-08-05	1240	X	X	X							SZC-01
J10F91	SOIL	11-08-05	1300	X	X	X					J10887		SZC-02
J10F92	SOIL	11-08-05	1315	X	X	X							SZC-03
~~J10F93~~	~~SOIL~~	~~11-08-05~~	~~1325~~	~~X~~	~~X~~	~~X~~							~~SZC-04~~
J10F94	SOIL	11-08-05	1340	X	X	X							SZC-05

Tyvek Limits cooler material

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RB Kerkow / RB Kerkow	1530 11/11/05	RCF IC, 3728 RBK	1530 11/11/05
3728 Ref IC	11/16/05 1200	[illegible]	11/16/05 1200
DS Burwell [illegible]	11/16/05 1200	Fed Ex	
Fed Ex	11-17-05 0915	[illegible]	11-17-05 0915
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) Americium-241; Gamma Spectroscopy (TCL List) [Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155]; Gamma Spec - Add-on [Americium-241]; Isotopic Plutonium [Plutonium-239/240]; Strontium-89,90 -- Total Sr; Nickel-63; ~~Tritium - H3~~ RK 4/7/05

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-005-001 | Page 2 of 3

Collector: R.B. Kerkow	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 100-NR-1 TSD Sites R. A. Verification Sampling - Soil	Sampling Location: 116-N-1 Crib Shallow Zone	SAF No.: RC-005	
Ice Chest No.: ERC-96-069	Field Logbook No.: EL-1524-4	COA: R1301N2F00	Method of Shipment: FedEx
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A060117		Bill of Lading/Air Bill No.: See OBPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Raioligical contamination

< DOT Limits

Special Handling and/or Storage

~~None~~ Cool 4°C DAS 11/16/05

Preservation	Cool 4C	Cool 4C	None									
Type of Container	G	G/P	G/P									
No. of Container(s)	1	1	1									
Volume	60mL	125mL	1L									
SAMPLE ANALYSIS	Mercury - 7471 - (CV)	NO2/NO3 - 353.2	See item (1) in Special Instructions. DAS 11/16/05							TIF TO REF		

Sample No.	Matrix *	Sample Date	Sample Time										
J10F95	SOIL	11-08-05	1400	X	X	X							SZC-06
J10F96	SOIL	11-08-05	1415	X	X	X					J10887		SZC-07
J10F97	SOIL	11-08-05	1430	X	X	X							SZC-08
~~J10F98~~	~~SOIL~~	~~11-08-05~~	~~1450~~	~~X~~	~~X~~	~~X~~							~~SZC-09~~
J10F99	SOIL	11-08-05	1515	X	X	X							SZC-10

Tests Lines Copied matrix

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RBKERKOW/RBKerkow	1530 11/11/05	REFIC, 3728, RBIC	1530 11/11/05
3728 RefIC	11/16/05 1200	[illegible]	11/16/05 1200
[illegible]	11/16/05 1200	FedEx	
FedEx	11-17-05 0915	[illegible] Smith	11-17-05 0915

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Isotopic Plutonium {Plutonium-239/240}; Strontium-89,90 -- Total Sr; Nickel-63; ~~Tritium-H3~~ RAC 11/7/05

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-005-002

Collector: R.B. Kerkow	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 100-NR-1 TSD Sites R. A. Verification Sampling - Soil	Sampling Location: 116-N-1 Trench Shallow Zone	SAF No.: RC-005	
Ice Chest No.: ERC-96-069	Field Logbook No.: EL-1524-4	COA: R1301N2F00	Method of Shipment: Fed EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A060117		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Raioligical contamination

< DOT Limits

Special Handling and/or Storage

~~None~~ Cool 4°C PAS 11/16/05

00000019

Preservation	Cool 4C	Cool 4C	None								
Type of Container	G	G/P	G/P								
No. of Container(s)	1	1	1								
Volume	60mL	125mL	1L								
SAMPLE ANALYSIS	Mercury - 7471 - (CV)	NO2/NO3 - 353.2	See item (1) in Special Instructions. PAS 11/16/05								

Sample No.	Matrix *	Sample Date	Sample Time										
J10FB0	SOIL	11-09-05	0840	X	X	X					J032V5		SZT-01
J10FB1	SOIL	11-08-05	0900	X	X	X							SZT-02
J10FB2	SOIL	11-08-05	0920	X	X	X							SZT-03
~~J10FB3~~	~~SOIL~~	~~11-08-05~~	~~0935~~	~~X~~	~~X~~	~~X~~							~~SZT-04~~
J10FB4	SOIL	11-08-05	1045	X	X	X							SZT-05

TIE TO RLF

Ignore Copies

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RB KERKOW / RB Kerkow	11/11/05 1530	REF IC 3728 RBK	11/11/05 1530
3728 Ref IC	11/16/05 1200	[illegible]	11/16/05 1200
[illegible]	11/16/05 1200	Fed EX	
Fed EX	11.17.05 0915	[illegible]	11.17.05 0915

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Isotopic Plutonium (Plutonium-239/240); Strontium-89,90 -- Total Sr; Nickel-63; ~~Tritium-H3~~ 11/7/05

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-005-002	Page 2 of 3

Collector: R.B. Kerkow	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8L	Data Turnaround: 21 Days	Air Quality: ☐	
Project Designation: 100-NR-1 TSD Sites R. A. Verification Sampling - Soil	Sampling Location: 116-N-1 Trench Shallow Zone	SAF No.: RC-005	
Ice Chest No.: ERC-96-069	Field Logbook No.: EL-1524-4	COA: R1301N2F00	Method of Shipment: Fed EX
Shipped To: EBERLINE SERVICES, LIONVILLE	Offsite Property No.: ~~4060017~~ 4060117 DAS 11/16/05		Bill of Lading/Air Bill No.: see OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Raioligical contamination

< DOT Limits

Special Handling and/or Storage

~~None~~ cool 4°C DAS 11/16/05

Preservation	Cool 4C	Cool 4C	None								
Type of Container	G	G/P	G/P								
No. of Container(s)	1	1	1								
Volume	60mL	125mL	1L								
SAMPLE ANALYSIS	Mercury - 7471 - (CV)	NO2/NO3 - 353.2	See item (1) in Special Instructions. DAS 11/16/05						TIE TO RCP		

020000020

Sample No.	Matrix *	Sample Date	Sample Time										
J10FB5	SOIL	11-08-05	1025	X	X	X					J037V5		~~SZT-06~~
J10FB6	SOIL	11-08-05	1000	X	X	X							~~SZT-07~~
J10FB7	SOIL	11-08-05	0820	X	X	X							~~SZT-08~~
~~J10FB8~~	~~SOIL~~	~~11-08-05~~	~~0840~~	~~X~~	~~X~~	~~X~~							~~SZT-09~~
J10FB9	SOIL	11-09-05	0910	X	X	X							~~SZT-10~~

Ignore lines for Mail Fraction

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RB Kerkow / RB Kerkow	1530 11/16/05	REF IC 3728, LBK	1530 11/16/05
Ref IC 3728	11/16/05 1200	D St John	11/16/05 1200
D St John	11/16/05 1200	Fed Ex	
Fed Ex	11-17-05 0915	W. Smith	11-17-05 0915

SPECIAL INSTRUCTIONS

(1). Americium-241; Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Isotopic Plutonium (Plutonium-239/240); Strontium-89,90 – Total Sr; Nickel-63; ~~Tritium - H3~~ DAS 11/7/05

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-005-001	Page 3 of 3

Collector: R.B. Kerkow	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8L	Data Turnaround: 21 Days	Air Quality: ☐	
Project Designation: 100-NR-1 TSD Sites R. A. Verification Sampling - Soil	Sampling Location: 116-N-1 Crib Shallow Zone	SAF No.: RC-005	
Ice Chest No.: ERC-96-069	Field Logbook No.: EL-1524-4	COA: R1301N2F00	Method of Shipment: Fed EX
Shipped To: EBERLINE SERVICES / MONVILLE	Offsite Property No.: A060117		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Raioligical contamination

< DOT Limits

Special Handling and/or Storage

~~None~~

Cool 4°C 11/16/05 DAS

Preservation	Cool 4C	Cool 4C	None
Type of Container	G	G/P	G/P
No. of Container(s)	1	1	1
Volume	60mL	125mL	1L

T10021

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Mercury - 7471 - (CV)	NO2/NO3 - 353.2	See item (1) in Special Instructions. DAS 11/16/05					TIE TO RLK		
J10FC0	SOIL	11-08-05	1340	X	X	X					J10887		SZC-05
J10FC1	SOIL	11-08-05	1340	X	X	X					↓		SZC-05

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RB Kerkow / R.B. Kerkow	11/16/05 1530	REF IC, 3728 RBK	11/16/05 1530
3728 Ref IC	11/16/05 1200	B Studer	11/16/05 1200
B Studer WCH	11/16/05 1200	Fed Ex	
Fed Ex	11-17-05 1015	[illegible]	11-17-05 1015

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Isotopic Plutonium (Plutonium-239/240); Strontium-89,90 -- Total Sr; Nickel-63; ~~Tritium-3H~~ ~~ea~~ 11/7/05

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-005-002	Page 2 of 3

Collector: R.B. Kerkow	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8L	Data Turnaround: 21 Days	Air Quality: ☐	
Project Designation: 100-NR-1 TSD Sites R. A. Verification Sampling - Soil	Sampling Location: 116-N-1 Trench Shallow Zone		SAF No.: RC-005
Ice Chest No.: ERC-96-069	Field Logbook No.: EL-1524-4	COA: R1301N2P00	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES V LIONVILLE	Offsite Property No.: A060117		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Raioligical contamination

< DOT Limits

Special Handling and/or Storage

~~None~~ Cool 4°C DAS 11/16/05

SAMPLE ANALYSIS	Mercury - 7471 - (CV)	NO2/NO3 - 353.2	See item (1) in Special Instructions. DAS 11/16/05							
Preservation	Cool 4C	Cool 4C	None							
Type of Container	G	G/P	G/P							
No. of Container(s)	1	1	1							
Volume	60mL	125mL	1L							

Sample No.	Matrix *	Sample Date	Sample Time	Mercury - 7471 - (CV)	NO2/NO3 - 353.2	See item (1) in Special Instructions.					T16 To RLP		
J10FC2	SOIL	11-08-05	1045	X	X	X					J032V5		SZT-05
J10FC3	SOIL	11-08-05	1045	X	X	X					↓		SZT-05

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: RB Kerkow / RB Kerkow	11/16/05 1530	Received By/Stored In: RBK IC 3727 RBK	11/16/05 1530
Relinquished By/Removed From: 3728 Red IC	11/16/05 1200	Received By/Stored In: [signature]	11/16/05 1200
Relinquished By/Removed From: [signature]	11/16/05 1200	Received By/Stored In: Fed Ex	
Relinquished By/Removed From: Fed Ex	11.17.05 0915	Received By/Stored In: [signature]	11.17.05 0915
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Isotopic Plutonium (Plutonium-239/240); Strontium-89,90 – Total Sr; Nickel-63; ~~Tritium - H3~~ RK 11/7/05

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)

Appendix 5

Data Validation Supporting Documentation

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100 NR1			DATA PACKAGE: K-0118		
VALIDATOR: TCI		LAB: LLT		DATE: 1/7/06	
			SDG: K0118		

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

SAMPLES/MATRIX					
J10F90	J10F91	J10F92	J10F93	J10F94	J10F95
J10F96	J10F97	J10F98	J10F99	J10FB0	J10FB1
J10FB2	J10FB3	J10FB4	J10FB5	J10FB6	J10FB7
J10FB8	J10FC0	J10FC1	J10FC2	J10FC3	
					Soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

Comments:

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

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

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

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 PAS

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:

6. HOLDING TIMES (all levels)

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

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

Comments:

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 11/21/05

CLIENT: TNU-HANFORD RC-005

LVL LOT #: 0511L751

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	05LN3A61-MB1	Nitrate Nitrite	0.20 u	MG/KG	0.20	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 11/21/05

CLIENT: TNU-HANFORD RC-005

LVL LOT #: 0511L751

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-005	J10F94	Nitrate Nitrite	19.6	7.1	10.7	116.0	2.0
BLANK10	05LN3A61-MB1	Nitrate Nitrite	5.1	0.20u	5.0	101.6	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 11/21/05

CLIENT: TNU-HANFORD RC-005 LVL LOT #: 0511L751

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-005REP	J10F94	Nitrate Nitrite	7.1	7.1	0.13	1.0
-009REP	J10F98	% Solids	90.5	91.3	0.81	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/21/05

CLIENT: TNU-HANFORD RC-005
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0511L750

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	05LN3A61-MB1	Nitrate Nitrite	0.20 u	MG/KG	0.20	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 11/21/05

CLIENT: TNU-HANFORD RC-005

LVL LOT #: 0511L750

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-014	J10FC3	Nitrate Nitrite	5.1	0.20u	4.9	103.8	1.0
BLANK10	05LN3A61-MB1	Nitrate Nitrite	5.1	0.20u	5.0	101.6	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 11/21/05

CLIENT: TNU-HANFORD RC-005

LVL LOT #: 0511L750

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-003REP	J10FB2	% Solids	96.0	96.2	0.27	1.0
-014REP	J10FC3	Nitrate Nitrite	0.20u	0.20u	NC	1.0