0074046

SAF-RC-032
100-F Remaining Sites Burial Grounds - Soil Full Protocol
FINAL DATA PACKAGE

RECEIVED
OCT 05 2007
EDMC

COMPLETE COPY OF DATA PACKAGE TO:

Randy Coffman	X9-07	KW 9/25/07 INITIAL/DATE
Jeanette Duncan	H4-21	KW 9/25/07 INITIAL/DATE

COMMENTS:

SDG K0947 **SAF-RC-032**

Rad only Chem only X Rad & Chem

X Complete Partial

Waste Site: **100-F-26:12 BCL Soil/Verification**

EBERLINE
SERVICES

RECEIVED
SEP 2007

September 18, 2007

Ms. Joan Kessner
Washington Closure Hanford
2620 Fermi Avenue
MSIN H4-21
Richland, WA 99352

Reference: **P.O. #630**
Eberline Services R7-09-044-7868, SDG K0947

Dear Ms. Kessner:

Enclosed is the data report for ten solid (soil) samples designated under SAF No. RC-032 received at Eberline Services on September 7, 2007. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa Mannion

Melissa C. Mannion
Senior Program Manager

MCM/njv

Enclosure: Data Package

Analytical Services
2030 Wright Avenue
P.O. Box 4040
Richmond, California 94804-0040
(510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
www.eberlineservices.com

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K0947 was composed of ten solid (soil) samples designated under SAF No. RC-032 with a Project Designation of: 100-F Remaining Sites Burial Grounds – Soil Full Protocol.

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 September 16, and 18, 2007.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

No problems were encountered during the course of the analyses.

2.2 Tritium Analysis

No problems were encountered during the course of the analyses.

2.3 Carbon-14 Analysis

The QC LCS recovery for the initial analysis was unacceptable; the samples were realiquoted with new QC samples and reanalyzed. No problems were encountered during the course of the reanalyses, all QC results were acceptable.

2.4 Nickel-63 Analysis

No problems were encountered during the course of the analyses.

2.5 Total Strontium Analysis

No problems were encountered during the course of the analyses.

2.6 Gamma Spectroscopy

No problems were encountered during the course of the analyses.

3.0 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."

Meli Mann

Melissa C. Mannion
Senior Program Manager

09/18/7

Date

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP K0947

SDG	7868
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. 630
Case no	SDG_K0947

S U M M A R Y D A T A S E C T I O N

T A B L E O F C O N T E N T S

About this section	1
Sample Summaries	3
Prep Batch Summary	5
Work Summary	6
Method Blanks	10
Lab Control Samples	12
Duplicates	14
Data Sheets	16
Method Summaries	26
Report Guides	40
End of Section	54

Prepared by

Melissa Mannion

Reviewed by

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	09/18/07

SDG 7868
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_K0947

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/18/07

SDG 7868
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG K0947

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

SDG 7868
Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford
Contract No. 630
Case no SDG K0947

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
709044-01	J15H73	100-F-26:12BCLsoil/Verif	SOLID		RC-032	RC-032-154	09/05/07 08:00
709044-02	J15H74	100-F-26:12BCLsoil/Verif	SOLID		RC-032	RC-032-154	09/05/07 08:30
709044-03	J15H75	100-F-26:12BCLsoil/Verif	SOLID		RC-032	RC-032-154	09/05/07 09:00
709044-04	J15H76	100-F-26:12BCLsoil/Verif	SOLID		RC-032	RC-032-154	09/05/07 09:30
709044-05	J15H77	100-F-26:12BCLsoil/Verif	SOLID		RC-032	RC-032-154	09/05/07 09:30
709044-06	J15H78	100-F-26:12BCLsoil/Verif	SOLID		RC-032	RC-032-154	09/05/07 12:15
709044-07	J15H79	100-F-26:12BCLsoil/Verif	SOLID		RC-032	RC-032-154	09/05/07 12:30
709044-08	J15H80	100-F-26:12BCLsoil/Verif	SOLID		RC-032	RC-032-154	09/05/07 12:45
709044-09	J15H81	100-F-26:12BCLsoil/Verif	SOLID		RC-032	RC-032-154	09/05/07 13:00
709044-10	J15H82	100-F-26:12BCLsoil/Verif	SOLID		RC-032	RC-032-154	09/05/07 13:15
709044-11	Lab Control Sample		SOLID		RC-032		
709044-12	Method Blank		SOLID		RC-032		
709044-13	Duplicate (R709044-05)	100-F-26:12BCLsoil/Verif	SOLID		RC-032		09/05/07 09:30
709044-14	Lab Control Sample		SOLID		RC-032		
709044-15	Method Blank		SOLID		RC-032		
709044-16	Duplicate (R709044-05)	100-F-26:12BCLsoil/Verif	SOLID		RC-032		09/05/07 09:30

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

SDG 7868
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG K0947

BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
8	RC-032-154	J15H73	SOLID	99.2	1542 g		09/07/07	2	R709044-01	7868-001
		J15H74	SOLID	98.9	1538 g		09/07/07	2	R709044-02	7868-002
		J15H75	SOLID	99.5	1562 g		09/07/07	2	R709044-03	7868-003
		J15H76	SOLID	98.9	1605 g		09/07/07	2	R709044-04	7868-004
		J15H77	SOLID	98.9	1594 g		09/07/07	2	R709044-05	7868-005
		J15H78	SOLID	99.7	1720 g		09/07/07	2	R709044-06	7868-006
		J15H79	SOLID	99.4	1598 g		09/07/07	2	R709044-07	7868-007
		J15H80	SOLID	99.6	1655 g		09/07/07	2	R709044-08	7868-008
		J15H81	SOLID	99.8	1660 g		09/07/07	2	R709044-09	7868-009
		J15H82	SOLID	99.7	1603 g		09/07/07	2	R709044-10	7868-010
		Method Blank	SOLID						R709044-12	7868-012
		Method Blank	SOLID						R709044-15	7868-015
		Lab Control Sample	SOLID						R709044-11	7868-011
		Lab Control Sample	SOLID						R709044-14	7868-014
		Duplicate (R709044-05)	SOLID	98.9	1594 g		09/07/07	2	R709044-13	7868-013
		Duplicate (R709044-05)	SOLID	98.9	1594 g		09/07/07	2	R709044-16	7868-016

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

SDG 7868
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG K0947

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Beta Counting												
SR	SOLID	Total Strontium in Solids	6116-182	10.0	10			1	1	1/1		
Gas Proportional Counting												
93A	SOLID	Gross Alpha in Solids	6116-182	20.0	10			1	1	1/1		
93B	SOLID	Gross Beta in Solids	6116-182	15.0	10			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6116-182	15.0	10			1	1	1/1		
Liquid Scintillation Counting												
C	SOLID	Carbon 14 in Solids	6116-182	10.0	10			1	1	1/1		
H	SOLID	Tritium in Solids	6116-182	10.0	10			1	1	1/1		
NI_L	SOLID	Nickel 63 in Solids	6116-182	10.0	10			1	1	1/1		

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

SDG 7868
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG K0947

SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
9044-01	J15H73			7868-001	93A/93		09/12/07	09/14/07	BW	Gross Alpha in Solids
09/05/07	100-F-26:12BCLsoil/Verif		SOLID	7868-001	93B/93		09/12/07	09/14/07	BW	Gross Beta in Solids
09/07/07	RC-032-154	RC-032		7868-001	C	A1	09/16/07	09/17/07	BW	Carbon 14 in Solids
				7868-001	GAM		09/12/07	09/14/07	CSS	Gamma Scan
				7868-001	H		09/11/07	09/14/07	BW	Tritium in Solids
				7868-001	NI_L		09/13/07	09/14/07	BW	Nickel 63 in Solids
				7868-001	SR		09/11/07	09/14/07	BW	Total Strontium in Solids
9044-02	J15H74			7868-002	93A/93		09/12/07	09/14/07	BW	Gross Alpha in Solids
09/05/07	100-F-26:12BCLsoil/Verif		SOLID	7868-002	93B/93		09/12/07	09/14/07	BW	Gross Beta in Solids
09/07/07	RC-032-154	RC-032		7868-002	C	A1	09/16/07	09/17/07	BW	Carbon 14 in Solids
				7868-002	GAM		09/12/07	09/14/07	CSS	Gamma Scan
				7868-002	H		09/11/07	09/14/07	BW	Tritium in Solids
				7868-002	NI_L		09/13/07	09/14/07	BW	Nickel 63 in Solids
				7868-002	SR		09/11/07	09/14/07	BW	Total Strontium in Solids
9044-03	J15H75			7868-003	93A/93		09/12/07	09/14/07	BW	Gross Alpha in Solids
09/05/07	100-F-26:12BCLsoil/Verif		SOLID	7868-003	93B/93		09/12/07	09/14/07	BW	Gross Beta in Solids
09/07/07	RC-032-154	RC-032		7868-003	C	A1	09/16/07	09/17/07	BW	Carbon 14 in Solids
				7868-003	GAM		09/12/07	09/14/07	CSS	Gamma Scan
				7868-003	H		09/11/07	09/14/07	BW	Tritium in Solids
				7868-003	NI_L		09/13/07	09/14/07	BW	Nickel 63 in Solids
				7868-003	SR		09/11/07	09/14/07	BW	Total Strontium in Solids
)9044-04	J15H76			7868-004	93A/93		09/12/07	09/14/07	BW	Gross Alpha in Solids
09/05/07	100-F-26:12BCLsoil/Verif		SOLID	7868-004	93B/93		09/12/07	09/14/07	BW	Gross Beta in Solids
09/07/07	RC-032-154	RC-032		7868-004	C	A1	09/16/07	09/17/07	BW	Carbon 14 in Solids
				7868-004	GAM		09/12/07	09/14/07	CSS	Gamma Scan
				7868-004	H		09/11/07	09/14/07	BW	Tritium in Solids
				7868-004	NI_L		09/13/07	09/14/07	BW	Nickel 63 in Solids
				7868-004	SR		09/11/07	09/14/07	BW	Total Strontium in Solids
)9044-05	J15H77			7868-005	93A/93		09/14/07	09/14/07	BW	Gross Alpha in Solids
09/05/07	100-F-26:12BCLsoil/Verif		SOLID	7868-005	93B/93		09/14/07	09/14/07	BW	Gross Beta in Solids
09/07/07	RC-032-154	RC-032		7868-005	C	A1	09/16/07	09/17/07	BW	Carbon 14 in Solids
				7868-005	GAM		09/13/07	09/14/07	CSS	Gamma Scan
				7868-005	H		09/11/07	09/14/07	BW	Tritium in Solids
				7868-005	NI_L		09/13/07	09/14/07	BW	Nickel 63 in Solids
				7868-005	SR		09/11/07	09/14/07	BW	Total Strontium in Solids

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

SDG 7868
:ontact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG K0947

SAMPLE))LLECTED))ECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
)044-06	J15H78			7868-006	93A/93		09/12/07	09/14/07	BW	Gross Alpha in Solids
)9/05/07	100-F-26:12BCL		soil/Verif SOLID	7868-006	93B/93		09/12/07	09/14/07	BW	Gross Beta in Solids
)9/07/07	RC-032-154	RC-032		7868-006	C	A1	09/16/07	09/17/07	BW	Carbon 14 in Solids
				7868-006	GAM		09/12/07	09/14/07	CSS	Gamma Scan
				7868-006	H		09/11/07	09/14/07	BW	Tritium in Solids
				7868-006	NI_L		09/13/07	09/14/07	BW	Nickel 63 in Solids
				7868-006	SR		09/11/07	09/14/07	BW	Total Strontium in Solids
9044-07	J15H79			7868-007	93A/93		09/12/07	09/14/07	BW	Gross Alpha in Solids
09/05/07	100-F-26:12BCL		soil/Verif SOLID	7868-007	93B/93		09/12/07	09/14/07	BW	Gross Beta in Solids
09/07/07	RC-032-154	RC-032		7868-007	C	A1	09/16/07	09/17/07	BW	Carbon 14 in Solids
				7868-007	GAM		09/12/07	09/14/07	CSS	Gamma Scan
				7868-007	H		09/11/07	09/14/07	BW	Tritium in Solids
				7868-007	NI_L		09/13/07	09/14/07	BW	Nickel 63 in Solids
				7868-007	SR		09/11/07	09/14/07	BW	Total Strontium in Solids
9044-08	J15H80			7868-008	93A/93		09/12/07	09/14/07	BW	Gross Alpha in Solids
09/05/07	100-F-26:12BCL		soil/Verif SOLID	7868-008	93B/93		09/12/07	09/14/07	BW	Gross Beta in Solids
09/07/07	RC-032-154	RC-032		7868-008	C	A1	09/16/07	09/17/07	BW	Carbon 14 in Solids
				7868-008	GAM		09/12/07	09/14/07	CSS	Gamma Scan
				7868-008	H		09/11/07	09/14/07	BW	Tritium in Solids
				7868-008	NI_L		09/13/07	09/14/07	BW	Nickel 63 in Solids
				7868-008	SR		09/11/07	09/14/07	BW	Total Strontium in Solids
)9044-09	J15H81			7868-009	93A/93		09/12/07	09/14/07	BW	Gross Alpha in Solids
09/05/07	100-F-26:12BCL		soil/Verif SOLID	7868-009	93B/93		09/12/07	09/14/07	BW	Gross Beta in Solids
09/07/07	RC-032-154	RC-032		7868-009	C	A1	09/16/07	09/17/07	BW	Carbon 14 in Solids
				7868-009	GAM		09/13/07	09/14/07	CSS	Gamma Scan
				7868-009	H		09/11/07	09/14/07	BW	Tritium in Solids
				7868-009	NI_L		09/13/07	09/14/07	BW	Nickel 63 in Solids
				7868-009	SR		09/11/07	09/14/07	BW	Total Strontium in Solids
09044-10	J15H82			7868-010	93A/93		09/12/07	09/14/07	BW	Gross Alpha in Solids
09/05/07	100-F-26:12BCL		soil/Verif SOLID	7868-010	93B/93		09/12/07	09/14/07	BW	Gross Beta in Solids
09/07/07	RC-032-154	RC-032		7868-010	C	A1	09/16/07	09/17/07	BW	Carbon 14 in Solids
				7868-010	GAM		09/12/07	09/14/07	CSS	Gamma Scan
				7868-010	H		09/11/07	09/14/07	BW	Tritium in Solids
				7868-010	NI_L		09/13/07	09/14/07	BW	Nickel 63 in Solids
				7868-010	SR		09/11/07	09/14/07	BW	Total Strontium in Solids

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

SDG 7868
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG K0947

SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
9044-11	Lab Control Sample			7868-011	93A/93		09/12/07	09/14/07	BW	Gross Alpha in Solids
			SOLID	7868-011	93B/93		09/12/07	09/14/07	BW	Gross Beta in Solids
		RC-032		7868-011	GAM		09/12/07	09/14/07	CSS	Gamma Scan
				7868-011	H		09/12/07	09/14/07	BW	Tritium in Solids
				7868-011	NI_L		09/13/07	09/14/07	BW	Nickel 63 in Solids
				7868-011	SR		09/11/07	09/14/07	BW	Total Strontium in Solids
9044-12	Method Blank			7868-012	93A/93		09/12/07	09/14/07	BW	Gross Alpha in Solids
			SOLID	7868-012	93B/93		09/12/07	09/14/07	BW	Gross Beta in Solids
		RC-032		7868-012	GAM		09/12/07	09/14/07	CSS	Gamma Scan
				7868-012	H		09/11/07	09/14/07	BW	Tritium in Solids
				7868-012	NI_L		09/13/07	09/14/07	BW	Nickel 63 in Solids
				7868-012	SR		09/11/07	09/14/07	BW	Total Strontium in Solids
9044-13	Duplicate (R709044-05)			7868-013	93A/93		09/12/07	09/14/07	BW	Gross Alpha in Solids
09/05/07	100-F-26:12BCLsoil/Verif		SOLID	7868-013	93B/93		09/12/07	09/14/07	BW	Gross Beta in Solids
09/07/07		RC-032		7868-013	GAM		09/13/07	09/14/07	CSS	Gamma Scan
				7868-013	H		09/11/07	09/14/07	BW	Tritium in Solids
				7868-013	NI_L		09/13/07	09/14/07	BW	Nickel 63 in Solids
				7868-013	SR		09/11/07	09/14/07	BW	Total Strontium in Solids
9044-14	Lab Control Sample			7868-014	C		09/17/07	09/17/07	BW	Carbon 14 in Solids
			SOLID							
		RC-032								
9044-15	Method Blank			7868-015	C		09/16/07	09/17/07	BW	Carbon 14 in Solids
			SOLID							
		RC-032								
9044-16	Duplicate (R709044-05)			7868-016	C		09/16/07	09/17/07	BW	Carbon 14 in Solids
09/05/07	100-F-26:12BCLsoil/Verif		SOLID							
09/07/07		RC-032								

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

SAMPLE DELIVERY GROUP K0947

SDG 7868
:ontact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG K0947

COUNTS OF TESTS BY SAMPLE TYPE

:ST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
3A/93	RC-032	Gross Alpha in Solids	900.0_ALPHABETA_GPC	10			1	1	1	13
3B/93	RC-032	Gross Beta in Solids	900.0_ALPHABETA_GPC	10			1	1	1	13
	RC-032	Carbon 14 in Solids	C14_COX_LSC	10			1	1	1	13
AM	RC-032	Gamma Scan	GAMMA_GS	10			1	1	1	13
	RC-032	Tritium in Solids	TRITIUM_COX_LSC	10			1	1	1	13
I_L	RC-032	Nickel 63 in Solids	NI63_LSC	10			1	1	1	13
R	RC-032	Total Strontium in Solids	SRTOT_SEP_PRECIP_GPC	10			1	1	1	13
OTALS				70			7	7	7	91

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

7868-012 Method Blank

METHOD BLANK

SDG	7868	Client/Case no	Hanford	SDG_K0947	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R709044-12	Client sample id	Method Blank		
Dept sample id	7868-012	Material/Matrix		SOLID	
		SAF No	RC-032		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-2.60	3.5	8.44	10.0	U	93A
Gross Beta	12587-47-2	4.25	3.9	6.26	15.0	U	93B
Tritium	10028-17-8	0.481	1.4	2.42	400	U	H
Nickel 63	13981-37-8	0.399	1.7	2.79	30.0	U	NI_L
Total Strontium	SR-RAD	-0.037	0.13	0.271	1.00	U	SR
Potassium 40	13966-00-2	U		0.314		U	GAM
Cobalt 60	10198-40-0	U		0.012	0.050	U	GAM
Cesium 137	10045-97-3	U		0.013	0.100	U	GAM
Radium 226	13982-63-3	U		0.024	0.100	U	GAM
Radium 228	15262-20-1	U		0.057	0.200	U	GAM
Europium 152	14683-23-9	U		0.035	0.100	U	GAM
Europium 154	15585-10-1	U		0.038	0.100	U	GAM
Europium 155	14391-16-3	U		0.037	0.100	U	GAM
Thorium 228	14274-82-9	U		0.022		U	GAM
Thorium 232	TH-232	U		0.057		U	GAM
Uranium 235	15117-96-1	U		0.053		U	GAM
Uranium 238	U-238	U		1.48		U	GAM
Americium 241	14596-10-2	U		0.073		U	GAM
Silver 108m	14391-65-2	U		0.010		U	GAM
Barium 133	13981-41-4	U		0.014		U	GAM

100-F Remain.SitesBurialGrnds-SoilFP

QC-BLANK #62736

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

7868-015 Method Blank

METHOD BLANK

SDG	7868	Client/Case no	Hanford	SDG_K0947	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R709044-15	Client sample id	Method Blank		
Dept sample id	7868-015	Material/Matrix		SOLID	
		SAF No	RC-032		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	-0.376	1.2	1.96	50.0	U	C

100-F Remain.SitesBurialGrnds-SoilFP

QC-BLANK #62804

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

7868-011

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7868
Contact Melissa C. Mannion

Client/Case no Hanford SDG K0947
Contract No. 630

Lab sample id R709044-11
Dept sample id 7868-011

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No RC-032

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
Gross Alpha	107	17	7.22	10.0		93A	111	4.4	96	63-137	70-130
Gross Beta	122	9.5	9.44	15.0		93B	114	4.6	107	72-128	80-120
Tritium	569	12	4.39	400		H	640	26	89	85-115	80-120
Nickel 63	249	6.3	2.81	30.0		NI_L	266	11	94	84-116	80-120
Total Strontium	10.4	0.62	0.278	1.00		SR	10.4	0.42	100	82-118	80-120
Cobalt 60	0.688	0.043	0.010	0.050		GAM	0.674	0.027	102	74-126	80-120
Cesium 137	0.751	0.039	0.022	0.100		GAM	0.694	0.028	108	74-126	80-120

100-F Remain.SitesBurialGrnds-SoilFP

QC-LCS #62735

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

7868-014

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7868

Contact Melissa C. Mannion

Client/Case no Hanford SDG K0947

Contract No. 630

Lab sample id R709044-14

Dept sample id 7868-014

Client sample id Lab Control Sample

Material/Matrix SOLID

SAF No RC-032

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Carbon 14	1640	33	6.37	50.0		C	1600	64	102	83-117	80-120

100-F Remain.SitesBurialGrnds-SoilFP

QC-LCS #62803

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

7868-013 J15H77

DUPLICATE

SDG	7868			Client/Case no	Hanford SDG K0947
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R709044-13	Lab sample id	R709044-05	Client sample id	J15H77
Dept sample id	7868-013	Dept sample id	7868-005	Location/Matrix	100-F-26:12BCLsoil/Verif SOLID
		Received	09/07/07	Collected/Weight	09/05/07 09:30 1594 g
% solids	98.9	% solids	98.9	Custody/SAF No	RC-032-154 RC-032

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
Gross Alpha	12.4	6.4	6.78	10.0		93A	15.4	6.8	6.76		22	109	0.6
Gross Beta	19.2	4.5	5.70	15.0		93B	18.0	4.6	6.15		6	61	0.3
Tritium	-0.297	1.3	2.13	400	U	H	-0.368	1.3	2.14	U	-		0.1
Nickel 63	-1.07	1.7	3.06	30.0	U	NI_L	-0.080	1.8	3.07	U	-		0.8
Total Strontium	-0.024	0.14	0.279	1.00	U	SR	0.009	0.17	0.324	U	-		0.3
Potassium 40	14.9	0.81	0.379			GAM	14.5	0.81	0.396		3	34	0.2
Cobalt 60	U		0.035	0.050	U	GAM	U		0.034	U	-		0
Cesium 137	U		0.034	0.100	U	GAM	U		0.032	U	-		0.1
Radium 226	0.575	0.066	0.059	0.100		GAM	0.592	0.071	0.062		3	40	0.2
Radium 228	0.750	0.15	0.143	0.200		GAM	0.744	0.15	0.149		1	53	0
Europium 152	U		0.081	0.100	U	GAM	U		0.111	U	-		0.4
Europium 154	U		0.116	0.100	U	GAM	U		0.127	U	-		0.1
Europium 155	U		0.102	0.100	U	GAM	U		0.111	U	-		0.1
Thorium 228	0.922	0.068	0.066			GAM	0.714	0.048	0.049		25	36	2.1
Thorium 232	0.750	0.15	0.143			GAM	0.744	0.15	0.149		1	53	0
Uranium 235	U		0.157		U	GAM	U		0.168	U	-		0.1
Uranium 238	U		4.53		U	GAM	U		4.60	U	-		0
Americium 241	U		0.262		U	GAM	U		0.322	U	-		0.3
Silver 108m	U		0.023		U	GAM	U		0.025	U	-		0.1
Barium 133	U		0.033		U	GAM	U		0.040	U	-		0.3

100-F Remain.SitesBurialGrnds-SoilFP

QC-DUP#5 62737

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

7868-016 J15H77

DUPLICATE

SDG	7868			Client/Case no	Hanford SDG K0947
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R709044-16	Lab sample id	R709044-05	Client sample id	J15H77
Dept sample id	7868-016	Dept sample id	7868-005	Location/Matrix	100-F-26:12BCLsoil/Verif SOLID
		Received	09/07/07	Collected/Weight	09/05/07 09:30 1594 g
% solids	98.9	% solids	98.9	Custody/SAF No	RC-032-154 RC-032

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	DER σ
Carbon 14	0.757	1.1	1.77	50.0	U	C	-0.563	1.0	1.76	U	-		1.8

100-F Remain.SitesBurialGrnds-SoilFP

QC-DUP#5 62805

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

7868-001 **J15H73**

DATA SHEET

SDG	7868	Client/Case no	Hanford	SDG_K0947	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R709044-01	Client sample id	J15H73		
Dept sample id	7868-001	Location/Matrix	100-F-26:12BCLsoil/Verif	SOLID	
Received	09/07/07	Collected/Weight	09/05/07 08:00	1542 g	
% solids	99.2	Custody/SAF No	RC-032-154	RC-032	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	7.34	5.7	7.59	10.0	U	93A
Gross Beta	12587-47-2	13.9	4.4	6.18	15.0		93B
Tritium	10028-17-8	1.05	1.3	2.11	400	U	H
Carbon 14	14762-75-5	1.02	1.1	1.84	50.0	U	C
Nickel 63	13981-37-8	0.201	1.8	3.10	30.0	U	NI_L
Total Strontium	SR-RAD	0.125	0.15	0.268	1.00	U	SR
Potassium 40	13966-00-2	14.8	0.60	0.218			GAM
Cobalt 60	10198-40-0	U		0.025	0.050	U	GAM
Cesium 137	10045-97-3	U		0.023	0.100	U	GAM
Radium 226	13982-63-3	0.505	0.050	0.048	0.100		GAM
Radium 228	15262-20-1	0.697	0.14	0.127	0.200		GAM
Europium 152	14683-23-9	U		0.065	0.100	U	GAM
Europium 154	15585-10-1	U		0.083	0.100	U	GAM
Europium 155	14391-16-3	U		0.058	0.100	U	GAM
Thorium 228	14274-82-9	0.682	0.034	0.030			GAM
Thorium 232	TH-232	0.697	0.14	0.127			GAM
Uranium 235	15117-96-1	U		0.104		U	GAM
Uranium 238	U-238	U		2.86		U	GAM
Americium 241	14596-10-2	U		0.042		U	GAM
Silver 108m	14391-65-2	U		0.017		U	GAM
Barium 133	13981-41-4	U		0.024		U	GAM

100-F Remain.SitesBurialGrnds-SoilFP

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

7868-002 J15H74

DATA SHEET

SDG	7868	Client/Case no	Hanford	SDG K0947	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R709044-02	Client sample id	J15H74		
Dept sample id	7868-002	Location/Matrix	100-F-26:12BCLsoil/Verif	SOLID	
Received	09/07/07	Collected/Weight	09/05/07 08:30	1538 g	
% solids	98.9	Custody/SAF No	RC-032-154	RC-032	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	18.7	7.4	6.79	10.0		93A
Gross Beta	12587-47-2	17.0	4.4	5.70	15.0		93B
Tritium	10028-17-8	-0.864	1.2	2.04	400	U	H
Carbon 14	14762-75-5	14.3	1.4	1.80	50.0		C
Nickel 63	13981-37-8	0.481	1.8	3.09	30.0	U	NI_L
Total Strontium	SR-RAD	-0.013	0.12	0.257	1.00	U	SR
Potassium 40	13966-00-2	13.0	0.73	0.299			GAM
Cobalt 60	10198-40-0	U		0.030	0.050	U	GAM
Cesium 137	10045-97-3	U		0.031	0.100	U	GAM
Radium 226	13982-63-3	0.471	0.056	0.050	0.100		GAM
Radium 228	15262-20-1	0.701	0.13	0.122	0.200		GAM
Europium 152	14683-23-9	U		0.075	0.100	U	GAM
Europium 154	15585-10-1	U		0.110	0.100	U	GAM
Europium 155	14391-16-3	U		0.072	0.100	U	GAM
Thorium 228	14274-82-9	0.685	0.038	0.037			GAM
Thorium 232	TH-232	0.701	0.13	0.122			GAM
Uranium 235	15117-96-1	U		0.120		U	GAM
Uranium 238	U-238	U		3.66		U	GAM
Americium 241	14596-10-2	U		0.040		U	GAM
Silver 108m	14391-65-2	U		0.022		U	GAM
Barium 133	13981-41-4	U		0.033		U	GAM

100-F Remain.SitesBurialGrnds-SoilFP

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

7868-003 J15H75

DATA SHEET

SDG	7868	Client/Case no	Hanford	SDG_K0947	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R709044-03	Client sample id	J15H75		
Dept sample id	7868-003	Location/Matrix	100-F-26:12BCLsoil/Verif	SOLID	
Received	09/07/07	Collected/Weight	09/05/07 09:00	1562 g	
% solids	99.5	Custody/SAF No	RC-032-154	RC-032	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	7.50	5.4	6.87	10.0		93A
Gross Beta	12587-47-2	13.7	4.4	6.31	15.0		93B
Tritium	10028-17-8	0.698	1.3	2.10	400	U	H
Carbon 14	14762-75-5	0.546	1.0	1.71	50.0	U	C
Nickel 63	13981-37-8	-0.240	1.8	3.08	30.0	U	NI_L
Total Strontium	SR-RAD	0.005	0.12	0.248	1.00	U	SR
Potassium 40	13966-00-2	14.6	0.85	0.426			GAM
Cobalt 60	10198-40-0	U		0.036	0.050	U	GAM
Cesium 137	10045-97-3	U		0.032	0.100	U	GAM
Radium 226	13982-63-3	0.404	0.063	0.065	0.100		GAM
Radium 228	15262-20-1	0.544	0.15	0.167	0.200		GAM
Europium 152	14683-23-9	U		0.089	0.100	U	GAM
Europium 154	15585-10-1	U		0.132	0.100	U	GAM
Europium 155	14391-16-3	U		0.099	0.100	U	GAM
Thorium 228	14274-82-9	0.559	0.045	0.046			GAM
Thorium 232	TH-232	0.544	0.15	0.167			GAM
Uranium 235	15117-96-1	U		0.153		U	GAM
Uranium 238	U-238	U		4.37		U	GAM
Americium 241	14596-10-2	U		0.298		U	GAM
Silver 108m	14391-65-2	U		0.025		U	GAM
Barium 133	13981-41-4	U		0.035		U	GAM

100-F Remain.SitesBurialGrnds-SoilFP

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

7868-004 J15H76

DATA SHEET

SDG	7868	Client/Case no	Hanford SDG_K0947
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R709044-04	Client sample id	J15H76
Dept sample id	7868-004	Location/Matrix	100-F-26:12BCLsoil/Verif SOLID
Received	09/07/07	Collected/Weight	09/05/07 09:30 1605 g
% solids	98.9	Custody/SAF No	RC-032-154 RC-032

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	6.06	6.1	8.86	10.0	U	93A
Gross Beta	12587-47-2	23.7	4.6	5.66	15.0		93B
Tritium	10028-17-8	-0.106	1.3	2.15	400	U	H
Carbon 14	14762-75-5	-0.151	1.1	1.84	50.0	U	C
Nickel 63	13981-37-8	-0.722	1.8	3.09	30.0	U	NI_L
Total Strontium	SR-RAD	-0.058	0.12	0.259	1.00	U	SR
Potassium 40	13966-00-2	14.4	0.61	0.220			GAM
Cobalt 60	10198-40-0	U		0.024	0.050	U	GAM
Cesium 137	10045-97-3	U		0.025	0.100	U	GAM
Radium 226	13982-63-3	0.542	0.050	0.043	0.100		GAM
Radium 228	15262-20-1	0.794	0.11	0.104	0.200		GAM
Europium 152	14683-23-9	U		0.068	0.100	U	GAM
Europium 154	15585-10-1	U		0.087	0.100	U	GAM
Europium 155	14391-16-3	U		0.073	0.100	U	GAM
Thorium 228	14274-82-9	0.752	0.039	0.035			GAM
Thorium 232	TH-232	0.794	0.11	0.104			GAM
Uranium 235	15117-96-1	U		0.111		U	GAM
Uranium 238	U-238	U		3.11		U	GAM
Americium 241	14596-10-2	U		0.044		U	GAM
Silver 108m	14391-65-2	U		0.018		U	GAM
Barium 133	13981-41-4	U		0.026		U	GAM

100-F Remain.SitesBurialGrnds-SoilFP

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

7868-005 **J15H77**

DATA SHEET

SDG	7868	Client/Case no	Hanford	SDG K0947	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R709044-05	Client sample id	J15H77		
Dept sample id	7868-005	Location/Matrix	100-F-26:12BCLsoil/Verif	SOLID	
Received	09/07/07	Collected/Weight	09/05/07 09:30	1594 g	
% solids	98.9	Custody/SAF No	RC-032-154	RC-032	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	15.4	6.8	6.76	10.0		93A
Gross Beta	12587-47-2	18.0	4.6	6.15	15.0		93B
Tritium	10028-17-8	-0.368	1.3	2.14	400	U	H
Carbon 14	14762-75-5	-0.563	1.0	1.76	50.0	U	C
Nickel 63	13981-37-8	-0.080	1.8	3.07	30.0	U	NI_L
Total Strontium	SR-RAD	0.009	0.17	0.324	1.00	U	SR
Potassium 40	13966-00-2	14.5	0.81	0.396			GAM
Cobalt 60	10198-40-0	U		0.034	0.050	U	GAM
Cesium 137	10045-97-3	U		0.032	0.100	U	GAM
Radium 226	13982-63-3	0.592	0.071	0.062	0.100		GAM
Radium 228	15262-20-1	0.744	0.15	0.149	0.200		GAM
Europium 152	14683-23-9	U		0.111	0.100	U	GAM
Europium 154	15585-10-1	U		0.127	0.100	U	GAM
Europium 155	14391-16-3	U		0.111	0.100	U	GAM
Thorium 228	14274-82-9	0.714	0.048	0.049			GAM
Thorium 232	TH-232	0.744	0.15	0.149			GAM
Uranium 235	15117-96-1	U		0.168		U	GAM
Uranium 238	U-238	U		4.60		U	GAM
Americium 241	14596-10-2	U		0.322		U	GAM
Silver 108m	14391-65-2	U		0.025		U	GAM
Barium 133	13981-41-4	U		0.040		U	GAM

100-F Remain.SitesBurialGrnds-SoilFP

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

7868-006 J15H78

DATA SHEET

SDG	7868	Client/Case no	Hanford SDG K0947
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R709044-06	Client sample id	J15H78
Dept sample id	7868-006	Location/Matrix	100-F-26:12BCLsoil/Verif SOLID
Received	09/07/07	Collected/Weight	09/05/07 12:15 1720 g
% solids	99.7	Custody/SAF No	RC-032-154 RC-032

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	6.95	5.2	6.65	10.0		93A
Gross Beta	12587-47-2	17.8	4.6	6.14	15.0		93B
Tritium	10028-17-8	1.11	1.8	3.57	400	U	H
Carbon 14	14762-75-5	0.063	1.0	1.72	50.0	U	C
Nickel 63	13981-37-8	0.236	1.8	3.03	30.0	U	NI_L
Total Strontium	SR-RAD	0.046	0.13	0.258	1.00	U	SR
Potassium 40	13966-00-2	14.1	0.71	0.256			GAM
Cobalt 60	10198-40-0	U		0.029	0.050	U	GAM
Cesium 137	10045-97-3	U		0.027	0.100	U	GAM
Radium 226	13982-63-3	0.406	0.053	0.049	0.100		GAM
Radium 228	15262-20-1	0.644	0.12	0.118	0.200		GAM
Europium 152	14683-23-9	U		0.070	0.100	U	GAM
Europium 154	15585-10-1	U		0.102	0.100	U	GAM
Europium 155	14391-16-3	U		0.067	0.100	U	GAM
Thorium 228	14274-82-9	0.558	0.034	0.034			GAM
Thorium 232	TH-232	0.644	0.12	0.118			GAM
Uranium 235	15117-96-1	U		0.111		U	GAM
Uranium 238	U-238	U		3.42		U	GAM
Americium 241	14596-10-2	U		0.037		U	GAM
Silver 108m	14391-65-2	U		0.020		U	GAM
Barium 133	13981-41-4	U		0.030		U	GAM

100-F Remain.SitesBurialGrnds-SoilFP

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

7868-007 J15H79

DATA SHEET

SDG	7868	Client/Case no	Hanford SDG_K0947
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R709044-07	Client sample id	J15H79
Dept sample id	7868-007	Location/Matrix	100-F-26:12BCLsoil/Verif SOLID
Received	09/07/07	Collected/Weight	09/05/07 12:30 1598 g
% solids	99.4	Custody/SAF No	RC-032-154 RC-032

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	9.14	5.5	6.81	10.0		93A
Gross Beta	12587-47-2	17.4	4.1	5.54	15.0		93B
Tritium	10028-17-8	0.423	1.8	3.64	400	U	H
Carbon 14	14762-75-5	-0.155	1.1	1.89	50.0	U	C
Nickel 63	13981-37-8	0.447	1.9	3.14	30.0	U	NI_L
Total Strontium	SR-RAD	-0.073	0.14	0.283	1.00	U	SR
Potassium 40	13966-00-2	15.2	0.60	0.217			GAM
Cobalt 60	10198-40-0	U		0.025	0.050	U	GAM
Cesium 137	10045-97-3	U		0.022	0.100	U	GAM
Radium 226	13982-63-3	0.476	0.049	0.045	0.100		GAM
Radium 228	15262-20-1	0.716	0.11	0.104	0.200		GAM
Europium 152	14683-23-9	U		0.062	0.100	U	GAM
Europium 154	15585-10-1	U		0.084	0.100	U	GAM
Europium 155	14391-16-3	U		0.055	0.100	U	GAM
Thorium 228	14274-82-9	0.675	0.032	0.028			GAM
Thorium 232	TH-232	0.716	0.11	0.104			GAM
Uranium 235	15117-96-1	U		0.100		U	GAM
Uranium 238	U-238	U		2.89		U	GAM
Americium 241	14596-10-2	U		0.040		U	GAM
Silver 108m	14391-65-2	U		0.017		U	GAM
Barium 133	13981-41-4	U		0.022		U	GAM

100-F Remain.SitesBurialGrnds-SoilFP

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

7868-008 **J15H80**

DATA SHEET

SDG	7868	Client/Case no	Hanford	SDG K0947	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R709044-08	Client sample id	J15H80		
Dept sample id	7868-008	Location/Matrix	100-F-26:12BCLsoil/Verif	SOLID	
Received	09/07/07	Collected/Weight	09/05/07 12:45	1655 g	
% solids	99.6	Custody/SAF No	RC-032-154	RC-032	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	6.15	5.8	8.40	10.0	U	93A
Gross Beta	12587-47-2	18.5	5.9	9.06	15.0		93B
Tritium	10028-17-8	-0.821	1.7	3.75	400	U	H
Carbon 14	14762-75-5	0.091	0.99	1.66	50.0	U	C
Nickel 63	13981-37-8	-0.318	1.8	3.07	30.0	U	NI_L
Total Strontium	SR-RAD	-0.002	0.12	0.253	1.00	U	SR
Potassium 40	13966-00-2	13.9	0.52	0.218			GAM
Cobalt 60	10198-40-0	U		0.021	0.050	U	GAM
Cesium 137	10045-97-3	U		0.022	0.100	U	GAM
Radium 226	13982-63-3	0.433	0.043	0.042	0.100		GAM
Radium 228	15262-20-1	0.630	0.092	0.089	0.200		GAM
Europium 152	14683-23-9	U		0.059	0.100	U	GAM
Europium 154	15585-10-1	U		0.073	0.100	U	GAM
Europium 155	14391-16-3	U		0.077	0.100	U	GAM
Thorium 228	14274-82-9	0.591	0.028	0.027			GAM
Thorium 232	TH-232	0.630	0.092	0.089			GAM
Uranium 235	15117-96-1	U		0.103		U	GAM
Uranium 238	U-238	U		2.46		U	GAM
Americium 241	14596-10-2	U		0.144		U	GAM
Silver 108m	14391-65-2	U		0.015		U	GAM
Barium 133	13981-41-4	U		0.025		U	GAM

100-F Remain.SitesBurialGrnds-SoilFP

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

7868-009 J15H81

DATA SHEET

SDG	7868	Client/Case no	Hanford	SDG_K0947	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R709044-09	Client sample id	J15H81		
Dept sample id	7868-009	Location/Matrix	100-F-26:12BCLsoil/Verif	SOLID	
Received	09/07/07	Collected/Weight	09/05/07 13:00	1660 g	
% solids	99.8	Custody/SAF No	RC-032-154	RC-032	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	2.64	6.3	10.6	10.0	U	93A
Gross Beta	12587-47-2	18.2	5.7	8.66	15.0		93B
Tritium	10028-17-8	0.925	1.8	3.61	400	U	H
Carbon 14	14762-75-5	0.129	1.0	1.77	50.0	U	C
Nickel 63	13981-37-8	-0.041	1.9	3.20	30.0	U	NI_L
Total Strontium	SR-RAD	-0.013	0.13	0.259	1.00	U	SR
Potassium 40	13966-00-2	13.1	0.73	0.312			GAM
Cobalt 60	10198-40-0	U		0.031	0.050	U	GAM
Cesium 137	10045-97-3	U		0.027	0.100	U	GAM
Radium 226	13982-63-3	0.432	0.057	0.052	0.100		GAM
Radium 228	15262-20-1	0.710	0.13	0.120	0.200		GAM
Europium 152	14683-23-9	U		0.075	0.100	U	GAM
Europium 154	15585-10-1	U		0.102	0.100	U	GAM
Europium 155	14391-16-3	U		0.071	0.100	U	GAM
Thorium 228	14274-82-9	0.607	0.036	0.035			GAM
Thorium 232	TH-232	0.710	0.13	0.120			GAM
Uranium 235	15117-96-1	U		0.115		U	GAM
Uranium 238	U-238	U		3.54		U	GAM
Americium 241	14596-10-2	U		0.038		U	GAM
Silver 108m	14391-65-2	U		0.021		U	GAM
Barium 133	13981-41-4	U		0.032		U	GAM

100-F Remain.SitesBurialGrnds-SoilFP

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

7868-010 J15H82

DATA SHEET

SDG	7868	Client/Case no	Hanford	SDG_K0947	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R709044-10	Client sample id	J15H82		
Dept sample id	7868-010	Location/Matrix	100-F-26:12BCLsoil/Verif	SOLID	
Received	09/07/07	Collected/Weight	09/05/07 13:15	1603 g	
% solids	99.7	Custody/SAF No	RC-032-154	RC-032	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	5.13	5.1	7.52	10.0	U	93A
Gross Beta	12587-47-2	16.8	4.1	5.44	15.0		93B
Tritium	10028-17-8	-0.241	1.7	3.70	400	U	H
Carbon 14	14762-75-5	1.06	1.0	1.70	50.0	U	C
Nickel 63	13981-37-8	1.47	1.9	3.06	30.0	U	NI_L
Total Strontium	SR-RAD	-0.035	0.12	0.258	1.00	U	SR
Potassium 40	13966-00-2	14.2	0.74	0.269			GAM
Cobalt 60	10198-40-0	U		0.034	0.050	U	GAM
Cesium 137	10045-97-3	U		0.032	0.100	U	GAM
Radium 226	13982-63-3	0.469	0.065	0.061	0.100		GAM
Radium 228	15262-20-1	0.839	0.13	0.118	0.200		GAM
Europium 152	14683-23-9	U		0.078	0.100	U	GAM
Europium 154	15585-10-1	U		0.112	0.100	U	GAM
Europium 155	14391-16-3	U		0.073	0.100	U	GAM
Thorium 228	14274-82-9	0.724	0.039	0.037			GAM
Thorium 232	TH-232	0.839	0.13	0.118			GAM
Uranium 235	15117-96-1	U		0.119		U	GAM
Uranium 238	U-238	U		3.61		U	GAM
Americium 241	14596-10-2	U		0.041		U	GAM
Silver 108m	14391-65-2	U		0.024		U	GAM
Barium 133	13981-41-4	U		0.034		U	GAM

100-F Remain.SitesBurialGrnds-SoilFP

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

Test SR Matrix SOLID
SDG 7868
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOLIDS

BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG K0947

SULTS

PLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Total Strontium
paration batch 6116-182					
9044-01			7868-001	J15H73	U
9044-02			7868-002	J15H74	U
9044-03			7868-003	J15H75	U
9044-04			7868-004	J15H76	U
9044-05			7868-005	J15H77	U
9044-06			7868-006	J15H78	U
9044-07			7868-007	J15H79	U
9044-08			7868-008	J15H80	U
9044-09			7868-009	J15H81	U
9044-10			7868-010	J15H82	U
9044-11			7868-011	Lab Control Sample	ok
9044-12			7868-012	Method Blank	U
9044-13			7868-013	Duplicate (R709044-05)	- U

inal values and limits from method RDLs (pCi/g) 1.00
-F Remain.SitesBurialGrnds-SoilFP

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

Test SR Matrix SOLID
SDG 7868
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOLIDS

BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG K0947

THOD PERFORMANCE

PLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
paration batch 6116-182			2σ prep error 10.0 % Reference Lab Notebook #6115, pg. 182													
9044-01			J15H73	0.268	1.00			95		100			6	09/11/07	09/11	GRB-201
9044-02			J15H74	0.257	1.00			93		100			6	09/11/07	09/11	GRB-202
9044-03			J15H75	0.248	1.00			97		100			6	09/11/07	09/11	GRB-203
9044-04			J15H76	0.259	1.00			97		100			6	09/11/07	09/11	GRB-204
9044-05			J15H77	0.324	1.00			96		100			6	09/11/07	09/11	GRB-225
9044-06			J15H78	0.258	1.00			96		100			6	09/11/07	09/11	GRB-217
9044-07			J15H79	0.283	1.00			95		100			6	09/11/07	09/11	GRB-219
9044-08			J15H80	0.253	1.00			96		100			6	09/11/07	09/11	GRB-220
9044-09			J15H81	0.259	1.00			96		100			6	09/11/07	09/11	GRB-221
9044-10			J15H82	0.258	1.00			94		100			6	09/11/07	09/11	GRB-222
9044-11			Lab Control Sample	0.278	1.00			87		100				09/11/07	09/11	GRB-223
9044-12			Method Blank	0.271	1.00			88		100				09/11/07	09/11	GRB-224
9044-13			Duplicate (R709044-05)	0.279	1.00			96		100			6	09/11/07	09/11	GRB-225
inal values and limits from method				1.00	1.00			30-105		100			180			

ROCEDURES REFERENCE SRTOT_SEP_PRECIP_GPC
SPP-070 Soil Dissolution, < 1.0g Aliquot, rev 7
CP-383 Strontium in Dissolved Solid of < 5.0g Aliquot, rev 1

AVERAGES ± 2 SD FOR 13 SAMPLES
MDA 0.269 ± 0.040
YIELD 94 ± 6

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

Test 93A Matrix SOLID
SDG 7868
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS ALPHA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG K0947

:SULTS

PLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha
paration batch 6116-182					
9044-01	93		7868-001	J15H73	U
9044-02	93		7868-002	J15H74	18.7
9044-03	93		7868-003	J15H75	7.50
9044-04	93		7868-004	J15H76	U
9044-05	93		7868-005	J15H77	15.4
9044-06	93		7868-006	J15H78	6.95
9044-07	93		7868-007	J15H79	9.14
9044-08	93		7868-008	J15H80	U
9044-09	93		7868-009	J15H81	U
9044-10	93		7868-010	J15H82	U
9044-11	93		7868-011	Lab Control Sample	ok
9044-12	93		7868-012	Method Blank	U
9044-13	93		7868-013	Duplicate (R709044-05)	ok

inal values and limits from method RDLs (pCi/g) 10.0
-F Remain.SitesBurialGrnds-SoilFP

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

Test 93A Matrix SOLID
SDG 7868
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS ALPHA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG K0947

ITHOD PERFORMANCE

PLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
paration batch 6116-182			2σ prep error 20.0 % Reference Lab Notebook #6115, pg. 182													
9044-01	93		J15H73	7.59	0.100			43		100			7	09/11/07	09/12	GRB-108
9044-02	93		J15H74	6.79	0.100			45		100			7	09/11/07	09/12	GRB-109
9044-03	93		J15H75	6.87	0.100			42		100			7	09/11/07	09/12	GRB-110
9044-04	93		J15H76	8.86	0.100			43		100			7	09/11/07	09/12	GRB-112
9044-05	93		J15H77	6.76	0.100			45		100			9	09/11/07	09/14	GRB-105
9044-06	93		J15H78	6.65	0.100			42		100			7	09/11/07	09/12	GRB-105
9044-07	93		J15H79	6.81	0.100			42		100			7	09/11/07	09/12	GRB-211
9044-08	93		J15H80	8.40	0.100			43		100			7	09/11/07	09/12	GRB-213
9044-09	93		J15H81	10.6	0.100			43		100			7	09/11/07	09/12	GRB-214
9044-10	93		J15H82	7.52	0.100			44		100			7	09/11/07	09/12	GRB-216
9044-11	93		Lab Control Sample	7.22	0.100			61		100				09/11/07	09/12	GRB-107
9044-12	93		Method Blank	8.44	0.100			61		100				09/11/07	09/12	GRB-108
9044-13	93		Duplicate (R709044-05)	6.78	0.100			45		100			7	09/11/07	09/12	GRB-109
inal values and limits from method				10.0	0.100			5-250		100			180			

ROCEDURES	REFERENCE	900.0_ALPHABETA_GPC
	SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 7
	SPP-125	Gross Alpha and Gross Beta in Dissolved Solids, rev 0

AVERAGES ± 2 SD FOR 13 SAMPLES
MDA 7.64 ± 2.32
RESIDUE 46 ± 13

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

Test 93B Matrix SOLID
SDG 7868
:ontact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS BETA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG K0947

SULTS

PLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta
paration batch 6116-182					
9044-01	93		7868-001	J15H73	13.9
9044-02	93		7868-002	J15H74	17.0
9044-03	93		7868-003	J15H75	13.7
9044-04	93		7868-004	J15H76	23.7
9044-05	93		7868-005	J15H77	18.0
9044-06	93		7868-006	J15H78	17.8
9044-07	93		7868-007	J15H79	17.4
9044-08	93		7868-008	J15H80	18.5
9044-09	93		7868-009	J15H81	18.2
9044-10	93		7868-010	J15H82	16.8
9044-11	93		7868-011	Lab Control Sample	ok
9044-12	93		7868-012	Method Blank	U
9044-13	93		7868-013	Duplicate (R709044-05)	ok

inal values and limits from method RDLs (pCi/g) 15.0
-F Remain.SitesBurialGrnds-SoilFP

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

Test 93B Matrix SOLID
SDG 7868
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS BETA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG K0947

:THOD PERFORMANCE

PLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
paration batch 6116-182			2σ prep error 15.0 % Reference Lab Notebook #6115, pg. 182													
9044-01	93		J15H73	6.18	0.100			43		100			7	09/11/07	09/12	GRB-108
9044-02	93		J15H74	5.70	0.100			45		100			7	09/11/07	09/12	GRB-109
9044-03	93		J15H75	6.31	0.100			42		100			7	09/11/07	09/12	GRB-110
9044-04	93		J15H76	5.66	0.100			43		100			7	09/11/07	09/12	GRB-112
9044-05	93		J15H77	6.15	0.100			45		100			9	09/11/07	09/14	GRB-105
9044-06	93		J15H78	6.14	0.100			42		100			7	09/11/07	09/12	GRB-105
9044-07	93		J15H79	5.54	0.100			42		100			7	09/11/07	09/12	GRB-211
9044-08	93		J15H80	9.06	0.100			43		100			7	09/11/07	09/12	GRB-213
9044-09	93		J15H81	8.66	0.100			43		100			7	09/11/07	09/12	GRB-214
9044-10	93		J15H82	5.44	0.100			44		100			7	09/11/07	09/12	GRB-216
9044-11	93		Lab Control Sample	9.44	0.100			61		100				09/11/07	09/12	GRB-107
9044-12	93		Method Blank	6.26	0.100			61		100				09/11/07	09/12	GRB-108
9044-13	93		Duplicate (R709044-05)	5.70	0.100			45		100			7	09/11/07	09/12	GRB-109
inal values and limits from method				15.0	0.100			5-250		100			180			

ROCEDURES REFERENCE 900.0_ALPHABETA_GPC
SPP-070 Soil Dissolution, < 1.0g Aliquot, rev 7
SPP-125 Gross Alpha and Gross Beta in Dissolved Solids, rev 0

AVERAGES ± 2 SD FOR 13 SAMPLES
MDA 6.63 ± 2.83
RESIDUE 46 ± 13

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

Test GAM Matrix SOLID
SDG 7868
:ontact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG K0947

SULTS

PLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60		Cesium 137	
paration batch 6116-182								
9044-01			7868-001	J15H73	U		U	
9044-02			7868-002	J15H74	U		U	
9044-03			7868-003	J15H75	U		U	
9044-04			7868-004	J15H76	U		U	
9044-05			7868-005	J15H77	U		U	
9044-06			7868-006	J15H78	U		U	
9044-07			7868-007	J15H79	U		U	
9044-08			7868-008	J15H80	U		U	
9044-09			7868-009	J15H81	U		U	
9044-10			7868-010	J15H82	U		U	
9044-11			7868-011	Lab Control Sample	ok		ok	
9044-12			7868-012	Method Blank	U		U	
9044-13			7868-013	Duplicate (R709044-05)	-	U	-	U
inal values and limits from method				RDLs (pCi/g)	0.050		0.100	
-F Remain.SitesBurialGrnds-SoilFP								

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

Test GAM Matrix SOLID
SDG 7868
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG K0947

;THOD PERFORMANCE

PLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
paration batch 6116-182			2σ prep error 15.0 % Reference Lab Notebook #6115, pg. 182													
9044-01			J15H73	5.89	840					116			7	09/10/07	09/12	MB,07,00
9044-02			J15H74	6.12	823					115			7	09/10/07	09/12	MB,06,00
9044-03			J15H75	7.86	825					108			7	09/10/07	09/12	MB,05,00
9044-04			J15H76	6.08	843					109			7	09/10/07	09/12	MB,07,00
9044-05			J15H77	8.35	831					113			8	09/10/07	09/13	MB,05,00
9044-06			J15H78	5.81	849					120			7	09/10/07	09/12	MB,06,00
9044-07			J15H79	5.65	838					120			7	09/10/07	09/12	MB,07,00
9044-08			J15H80	4.58	866					120			7	09/10/07	09/12	MB,08,00
9044-09			J15H81	5.89	843					113			8	09/10/07	09/13	MB,06,00
9044-10			J15H82	6.38	854					103			7	09/10/07	09/12	MB,06,00
9044-11			Lab Control Sample	0.010	823					103				09/10/07	09/12	MB,07,00
9044-12			Method Blank	3.45	823					103				09/10/07	09/12	MB,08,00
9044-13			Duplicate (R709044-05)	6.95	831					123			8	09/10/07	09/13	MB,05,00
inal values and limits from method				0.050	823					100			180			

ROCEDURES REFERENCE GAMMA_GS
SPP-100 Ge(Li) Preparation for Commercial Samples, rev 7

AVERAGES ± 2 SD FOR 13 SAMPLES
MDA 5.62 ± 4.19
YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

Test C Matrix SOLID
SDG 7868
Contact Melissa C. Mannion

LAB METHOD SUMMARY

CARBON 14 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG K0947

ISULTS

PLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Carbon 14	
paration batch 6116-182						
9044-01		A1	7868-001	J15H73	U	
9044-02		A1	7868-002	J15H74	14.3	
9044-03		A1	7868-003	J15H75	U	
9044-04		A1	7868-004	J15H76	U	
9044-05		A1	7868-005	J15H77	U	
9044-06		A1	7868-006	J15H78	U	
9044-07		A1	7868-007	J15H79	U	
9044-08		A1	7868-008	J15H80	U	
9044-09		A1	7868-009	J15H81	U	
9044-10		A1	7868-010	J15H82	U	
9044-14			7868-014	Lab Control Sample	ok	
9044-15			7868-015	Method Blank	U	
9044-16			7868-016	Duplicate (R709044-05)	-	U

inal values and limits from method RDLs (pCi/g) 50.0
-F Remain.SitesBurialGrnds-SoilFP

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

Test C Matrix SOLID
SDG 7868
Contact Melissa C. Mannion

LAB METHOD SUMMARY

CARBON 14 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG K0947

ITHOD PERFORMANCE

PLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
paration batch 6116-182			2σ prep error 10.0 % Reference Lab Notebook #6115, pg. 182													
9044-01		A1	J15H73	1.84	0.423			100		100			11	09/16/07	09/16	LSC-005
9044-02		A1	J15H74	1.80	0.427			100		100			11	09/16/07	09/16	LSC-005
9044-03		A1	J15H75	1.71	0.453			100		100			11	09/16/07	09/16	LSC-005
9044-04		A1	J15H76	1.84	0.426			100		100			11	09/16/07	09/16	LSC-005
9044-05		A1	J15H77	1.76	0.436			100		100			11	09/16/07	09/16	LSC-005
9044-06		A1	J15H78	1.72	0.462			100		100			11	09/16/07	09/16	LSC-005
9044-07		A1	J15H79	1.89	0.410			100		100			11	09/16/07	09/16	LSC-005
9044-08		A1	J15H80	1.66	0.463			100		100			11	09/16/07	09/16	LSC-005
9044-09		A1	J15H81	1.77	0.460			100		100			11	09/16/07	09/16	LSC-005
9044-10		A1	J15H82	1.70	0.444			100		100			11	09/16/07	09/16	LSC-005
9044-14			Lab Control Sample	6.37	0.400			100		10				09/16/07	09/17	LSC-005
9044-15			Method Blank	1.96	0.400			100		100				09/16/07	09/16	LSC-005
9044-16			Duplicate (R709044-05)	1.77	0.436			100		100			11	09/16/07	09/16	LSC-005
inal values and limits from method				50.0	0.400					10			180			

PROCEDURES REFERENCE C14_COX_LSC
CP-251 Tritium/Carbon-14 Oxidation, rev 8

AVERAGES ± 2 SD FOR 13 SAMPLES
MDA 2.14 ± 2.55
YIELD 100 ± 0

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

Test H Matrix SOLID
SDG 7868
:ontact Melissa C. Mannion

LAB METHOD SUMMARY

TRITIUM IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG K0947

SULTS

?LE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Tritium	
›aration batch 6116-182						
›044-01			7868-001	J15H73	U	
›044-02			7868-002	J15H74	U	
›044-03			7868-003	J15H75	U	
›044-04			7868-004	J15H76	U	
›044-05			7868-005	J15H77	U	
9044-06			7868-006	J15H78	U	
9044-07			7868-007	J15H79	U	
9044-08			7868-008	J15H80	U	
9044-09			7868-009	J15H81	U	
9044-10			7868-010	J15H82	U	
9044-11			7868-011	Lab Control Sample	ok	
9044-12			7868-012	Method Blank	U	
9044-13			7868-013	Duplicate (R709044-05)	-	U

ıinal values and limits from method RDLs (pCi/g) 400
-F Remain.SitesBurialGrnds-SoilFP

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

Test H Matrix SOLID
SDG 7868
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TRITIUM IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG K0947

THOD PERFORMANCE

PLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
paration batch 6116-182			2σ prep error 10.0 % Reference Lab Notebook #6115, pg. 182													
9044-01			J15H73	2.11	0.462			100		150			6	09/10/07	09/11	LSC-004
9044-02			J15H74	2.04	0.477			100		150			6	09/10/07	09/11	LSC-004
9044-03			J15H75	2.10	0.468			100		150			6	09/10/07	09/11	LSC-004
9044-04			J15H76	2.15	0.455			100		150			6	09/10/07	09/11	LSC-004
9044-05			J15H77	2.14	0.452			100		150			6	09/10/07	09/11	LSC-004
9044-06			J15H78	3.57	0.480			100		50			6	09/10/07	09/11	LSC-004
9044-07			J15H79	3.64	0.473			100		50			6	09/10/07	09/11	LSC-004
9044-08			J15H80	3.75	0.460			100		50			6	09/10/07	09/11	LSC-004
9044-09			J15H81	3.61	0.474			100		50			6	09/10/07	09/11	LSC-004
9044-10			J15H82	3.70	0.469			100		50			6	09/10/07	09/11	LSC-004
9044-11			Lab Control Sample	4.39	0.400			100		50				09/10/07	09/12	LSC-004
9044-12			Method Blank	2.42	0.400			100		150				09/10/07	09/11	LSC-004
9044-13			Duplicate (R709044-05)	2.13	0.466			100		150			6	09/10/07	09/11	LSC-004
inal values and limits from method				400	0.400					25			180			

ROCEDURES REFERENCE TRITIUM_COX_LSC
CP-251 Tritium/Carbon-14 Oxidation, rev 8

AVERAGES ± 2 SD FOR 13 SAMPLES
MDA 2.90 ± 1.74
YIELD 100 ± 0

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

Test NI L Matrix SOLID
SDG 7868
Contact Melissa C. Mannion

LAB METHOD SUMMARY

NICKEL 63 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG K0947

SULTS

PLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Nickel 63	
paration batch 6116-182						
9044-01			7868-001	J15H73	U	
9044-02			7868-002	J15H74	U	
9044-03			7868-003	J15H75	U	
9044-04			7868-004	J15H76	U	
9044-05			7868-005	J15H77	U	
9044-06			7868-006	J15H78	U	
9044-07			7868-007	J15H79	U	
9044-08			7868-008	J15H80	U	
9044-09			7868-009	J15H81	U	
9044-10			7868-010	J15H82	U	
9044-11			7868-011	Lab Control Sample	ok	
9044-12			7868-012	Method Blank	U	
9044-13			7868-013	Duplicate (R709044-05)	-	U

inal values and limits from method RDLs (pCi/g) 30.0
-F Remain.SitesBurialGrnds-SoilFP

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0947

Test NI L Matrix SOLID
SDG 7868
Contact Melissa C. Mannion

LAB METHOD SUMMARY

NICKEL 63 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG K0947

;THOD PERFORMANCE

PLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
paration batch 6116-182			2σ prep error 10.0 % Reference Lab Notebook #6115, pg. 182													
9044-01			J15H73	3.10	0.500			90		50			8	09/13/07	09/13	LSC-007
9044-02			J15H74	3.09	0.500			90		50			8	09/13/07	09/13	LSC-007
9044-03			J15H75	3.08	0.500			89		50			8	09/13/07	09/13	LSC-007
9044-04			J15H76	3.09	0.500			89		50			8	09/13/07	09/13	LSC-007
9044-05			J15H77	3.07	0.500			88		50			8	09/13/07	09/13	LSC-007
9044-06			J15H78	3.03	0.500			90		50			8	09/13/07	09/13	LSC-007
9044-07			J15H79	3.14	0.500			87		50			8	09/13/07	09/13	LSC-007
9044-08			J15H80	3.07	0.500			90		50			8	09/13/07	09/13	LSC-007
9044-09			J15H81	3.20	0.500			87		50			8	09/13/07	09/13	LSC-007
9044-10			J15H82	3.06	0.500			89		50			8	09/13/07	09/13	LSC-007
9044-11			Lab Control Sample	2.81	0.500			97		50				09/13/07	09/13	LSC-007
9044-12			Method Blank	2.79	0.500			99		50				09/13/07	09/13	LSC-007
9044-13			Duplicate (R709044-05)	3.06	0.500			89		50			8	09/13/07	09/13	LSC-007
inal values and limits from method				30.0	0.500			30-105		25			180			

ROCEDURES	REFERENCE	NI63_LSC
	CP-070	Soil Dissolution, < 1.0g Aliquot, rev 7
	CP-280	Nickel-63 Purification, rev 3

AVERAGES ± 2 SD FOR 13 SAMPLES
MDA 3.05 ± 0.233
YIELD 90 ± 7

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/18/07

SDG 7868
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K0947

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

* LAB SAMPLE ID is the lab's primary identification for a sample.

* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.

* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.

* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

  QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/18/07

SDG 7868
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K0947

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

* The preparation batches are shown in the same order as the Method Summary Reports are printed.

* Only analyses of planchets relevant to the SDG are included.

* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.

* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

  These qualifiers should be reviewed as follows:

  X Some data has been manually entered or modified. Transcription errors are possible.

  P One or more results are 'preliminary'. The data is not ready for final reporting.

  2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

  Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/18/07

SDG 7868
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K0947

WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.

* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.

* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.

* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.

* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/18/07

SDG 7868
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_K0947

DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.

* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

  The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

* ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.

* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.

* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/18/07

DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H Similar to 'L' except the recovery was high.

P The RESULT is 'preliminary'.

X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

* An MDA is underlined if it is bigger than its RDL.

SDG 7868
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG K0947

DATA SHEET

* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.

* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.

* When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/18/07

SDG 7868
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K0947

LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.

* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

  An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The error of RESULT, including that introduced by rounding the result prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits for the recovery.

* The recovery is underlined if it is outside either of these ranges.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/18/07

SDG 7868
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_K0947

DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.

  If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

  For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

  If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

  This value reported for this limit is at most 999.

* The second limit for the RPD is the larger of:

  1. A fixed percentage specified in the protocol.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/18/07

DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

* The RPD is underlined if it is greater than either limit.

* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

  Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

SDG 7868
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_K0947

MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

  An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The errors of the two RESULTs, including those introduced by rounding them prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/18/07

SDG 7868
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG K0947

MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/18/07

SDG 7868
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_K0947

METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

  There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

  The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

  The J and X flags are as on the data sheet.

* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.

* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/18/07

METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.

* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

  MDAs are underlined if greater than the printed RDL.

* Aliquots are underlined if less than the nominal value specified for the method.

* Prepareation factors are underlined if greater than the nominal value specified for the method.

* Dilution factors are underlined if greater than the nominal value specified for the method.

* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.

* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.

* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

METHOD SUMMARY

* Count times are underlined if less than the nominal value specified for the method.

* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.

* Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.

* Days Held are underlined if greater than the holding time specified in the protocol.

* Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1÷3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-032-154	Page 1 of 3

Collector T. Welch-Koelling	Company Contact R.T. Coffman	Telephone No. 528-6409	Project Coordinator KESSNER, JH	Price Code 8B	Data Turnaround 7DAY
Project Designation 100-F Remaining Sites Burial Grounds - Soil Full Protocol	Sampling Location 100-F-26:12 BCL Soil/Verification K0947 (7868)		SAF No. RC-032		
Ice Chest No. EBC-02-505	Field Logbook No. EFL-1174-3	COA R10F262000	Method of Shipment FED EX		
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A070432		Bill of Lading/Air Bill No. See OSTC		

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	None	None	None	None				
Type of Container	P	P	P	P	P	P				
No. of Container(s)	1	1	1	1	1	1				
Volume	250mL	125mL	500mL	125mL	125mL	125mL				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	Carbon-14; Tritium - H3	Nickel-63; Strontium-89,90 -- Total Sr	Gross Alpha; Gross Beta				

Sample No.	Matrix *	Sample Date	Sample Time										
J15H73	SOIL	9-5-07	0800			X	X	X	X				A1
J15H74	SOIL		0830			X	X	X	X				A2
J15H75	SOIL		0900			X	X	X	X				A3
J15H76	SOIL		0930			X	X	X	X				A4
J15H77	SOIL		0930			X	X	X	X				A4D

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature]	9/5/07 1400	JR DeBruin [signature]	1400 9-5-07
JR DeBruin [signature]	9-5-07 1530	3728/2B	1530 9-5-07
3728/2B	9-6-07 0900	KM Singleton [signature]	9-6-07 0900
KM Singleton [signature]	9-6-07 1500	FED EX	
FED EX		[signature]	09/07/07 09:30

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Client List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133, Silver-108 metastable}

Sampler unavailable to relinquish samples from 3728 Ref # 2B 3728 Custodian removed samples for shipping on 9 16 07

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

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-032-154	Page 2 of 3

Collector T. Welch-Koelling	Company Contact R.T. Coffman	Telephone No. 528-6409	Project Coordinator KESSNER, JH
Price Code 8B	Data Turnaround 7DAY		
Project Designation 100-F Remaining Sites Burial Grounds - Soil Full Protocol	Sampling Location 100-F-26:12 BCL Soil/Verification K0947 (7868)	SAF No. RC-032	
Ice Chest No. EBC-02-505	Field Logbook No. EFL-1174-3	COA R10F262000	Method of Shipment FED EX
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A070432		Bill of Lading/Air Bill No. See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	None	None	None	None					
Type of Container	P	P	P	P	P	P					
No. of Container(s)	1	1	1	1	1	1					
Volume	250mL	125mL	500mL	125mL	125mL	125mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	Carbon-14; Tritium - H3	Nickel-63; Strontium-89,90 -- Total Sr	Gross Alpha; Gross Beta					
Sample No. / Matrix * / Sample Date / Sample Time											
J15H78 / SOIL / 9-5-07 / 1215			X	X	X	X					B5
J15H79 / SOIL / 1230			X	X	X	X					B6
J15H80 / SOIL / 1245			X	X	X	X					B7
J15H81 / SOIL / 1300			X	X	X	X					B8
J15H82 / SOIL / 1315			X	X	X	X					C9

9-10-07

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time 9-6-07 1400	Received By/Stored In JR DeBrigue	Date/Time 1400 9-5-07
Relinquished By/Removed From JR DeBrigue	Date/Time 1530 9-5-07	Received By/Stored In 3728/2B	Date/Time 1530 9-5-07
Relinquished By/Removed From 3728/2B	Date/Time 9-6-07 0900	Received By/Stored In KM Singleton	Date/Time 9-6-07 0900
Relinquished By/Removed From KM Singleton	Date/Time 9-6-07 WCH 1500	Received By/Stored In FED EX	Date/Time
Relinquished By/Removed From FEDEX	Date/Time	Received By/Stored In	Date/Time 09/07/07 09:30
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Client List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133, Silver-108 metastable}

Sampler unavailable to relinquish samples from 3728 Ref # 2B 3728 Custodian removed samples for shipping on 9/6/07

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

WCH-EE-011

EBERLINE SERVICES

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

JK 9/7/07

Client: W.C. HANFORD City RICHLAND State WA

Date/Time received 09/07/07 09:30 CoC No. RC-032-154

Container I.D. No. ERC-02-505 Requested TAT (Days) 7 P.O. Received Yes [ ] No [ ]

INSPECTION

1. Custody seals on shipping container intact? Yes [✓] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [✓] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [✓] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [✓] No [ ] N/A [ ]
5. Packing material is: Wet [ ] Dry [x]
6. Number of samples in shipping container: 10 Sample Matrix S
7. Number of containers per sample: 4 (Or see CoC _____)
8. Samples are in correct container Yes [✓] No [ ]
9. Paperwork agrees with samples? Yes [✓] No [ ]
10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [✓]
11. Samples are: In good condition [ ] Leaking [✓] Broken Container [ ] Missing [ ]
12. Samples are: Preserved [ ] Not preserved [ ] pH _____ Preservative _____
13. Describe any anomalies:
14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
15. Inspected by [signature] Date: 09/07/07 Time: 10:45

Customer Sample No.	cpm	mR/hr	Wipe	Customer Sample No.	cpm	mR/hr	wipe

Ion Chamber Ser. No. _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

Beta/Gamma Meter Ser. No. _____ Calibration date _____

LvLI
LIONVILLE LABORATORY INC.

21 September 2007

RECEIVED SEP 2007

Joan Kessner
WC-Hanford
2620 Fermi Avenue
MSIN H9-03
Richland, WA 99354

Subject: Analytical Data Package

Dear Ms. Kessner:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0709L877
SDG #	K0947
SAF #	RC-032
Date Received	9/07/07
# Samples	10
Matrix	SOIL
Volatiles	
Semivolatiles	
Pest/PCB	
Glycols	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	X

The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

r:\group\pm\orlette\tnu-hanford\data\b_ltrs.doc

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

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0947

RECEIVED SEP 2007

DATE RECEIVED: 09/07/07 LVL LOT # :0709L077

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J15H73						
SILVER, TOTAL	001	S	07L0446	09/05/07	09/07/07	09/07/07
SILVER, TOTAL	001 REP	S	07L0446	09/05/07	09/07/07	09/07/07
SILVER, TOTAL	001 MS	S	07L0446	09/05/07	09/07/07	09/07/07
ALUMINUM, TOTAL	001	S	07L0446	09/05/07	09/07/07	09/07/07
ALUMINUM, TOTAL	001 REP	S	07L0446	09/05/07	09/07/07	09/07/07
ALUMINUM, TOTAL	001 MS	S	07L0446	09/05/07	09/07/07	09/07/07
ARSENIC, TOTAL	001	S	07L0446	09/05/07	09/07/07	09/07/07
ARSENIC, TOTAL	001 REP	S	07L0446	09/05/07	09/07/07	09/07/07
ARSENIC, TOTAL	001 MS	S	07L0446	09/05/07	09/07/07	09/07/07
BORON, TOTAL	001	S	07L0446	09/05/07	09/07/07	09/07/07
BORON, TOTAL	001 REP	S	07L0446	09/05/07	09/07/07	09/07/07
BORON, TOTAL	001 MS	S	07L0446	09/05/07	09/07/07	09/07/07
BARIUM, TOTAL	001	S	07L0446	09/05/07	09/07/07	09/07/07
BARIUM, TOTAL	001 REP	S	07L0446	09/05/07	09/07/07	09/07/07
BARIUM, TOTAL	001 MS	S	07L0446	09/05/07	09/07/07	09/07/07
BERYLLIUM, TOTAL	001	S	07L0446	09/05/07	09/07/07	09/07/07
BERYLLIUM, TOTAL	001 REP	S	07L0446	09/05/07	09/07/07	09/07/07
BERYLLIUM, TOTAL	001 MS	S	07L0446	09/05/07	09/07/07	09/07/07
CALCIUM, TOTAL	001	S	07L0446	09/05/07	09/07/07	09/07/07
CALCIUM, TOTAL	001 REP	S	07L0446	09/05/07	09/07/07	09/07/07
CALCIUM, TOTAL	001 MS	S	07L0446	09/05/07	09/07/07	09/07/07
CADMIUM, TOTAL	001	S	07L0446	09/05/07	09/07/07	09/07/07
CADMIUM, TOTAL	001 REP	S	07L0446	09/05/07	09/07/07	09/07/07
CADMIUM, TOTAL	001 MS	S	07L0446	09/05/07	09/07/07	09/07/07
COBALT, TOTAL	001	S	07L0446	09/05/07	09/07/07	09/07/07
COBALT, TOTAL	001 REP	S	07L0446	09/05/07	09/07/07	09/07/07
COBALT, TOTAL	001 MS	S	07L0446	09/05/07	09/07/07	09/07/07
CHROMIUM, TOTAL	001	S	07L0446	09/05/07	09/07/07	09/07/07
CHROMIUM, TOTAL	001 REP	S	07L0446	09/05/07	09/07/07	09/07/07
CHROMIUM, TOTAL	001 MS	S	07L0446	09/05/07	09/07/07	09/07/07
COPPER, TOTAL	001	S	07L0446	09/05/07	09/07/07	09/07/07
COPPER, TOTAL	001 REP	S	07L0446	09/05/07	09/07/07	09/07/07
COPPER, TOTAL	001 MS	S	07L0446	09/05/07	09/07/07	09/07/07
IRON, TOTAL	001	S	07L0446	09/05/07	09/07/07	09/07/07
IRON, TOTAL	001 REP	S	07L0446	09/05/07	09/07/07	09/07/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0947

DATE RECEIVED: 09/07/07 LVL LOT # :0709L877

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
IRON, TOTAL	001 MS	S	07L0446	09/05/07	09/07/07	09/07/07
MERCURY, TOTAL	001	S	07C0173	09/05/07	09/11/07	09/12/07
MERCURY, TOTAL	001 REP	S	07C0173	09/05/07	09/11/07	09/12/07
MERCURY, TOTAL	001 MS	S	07C0173	09/05/07	09/11/07	09/12/07
POTASSIUM, TOTAL	001	S	07L0446	09/05/07	09/07/07	09/07/07
POTASSIUM, TOTAL	001 REP	S	07L0446	09/05/07	09/07/07	09/07/07
POTASSIUM, TOTAL	001 MS	S	07L0446	09/05/07	09/07/07	09/07/07
MAGNESIUM, TOTAL	001	S	07L0446	09/05/07	09/07/07	09/07/07
MAGNESIUM, TOTAL	001 REP	S	07L0446	09/05/07	09/07/07	09/07/07
MAGNESIUM, TOTAL	001 MS	S	07L0446	09/05/07	09/07/07	09/07/07
MANGANESE, TOTAL	001	S	07L0446	09/05/07	09/07/07	09/07/07
MANGANESE, TOTAL	001 REP	S	07L0446	09/05/07	09/07/07	09/07/07
MANGANESE, TOTAL	001 MS	S	07L0446	09/05/07	09/07/07	09/07/07
MOLYBDENUM, TOTAL	001	S	07L0446	09/05/07	09/07/07	09/07/07
MOLYBDENUM, TOTAL	001 REP	S	07L0446	09/05/07	09/07/07	09/07/07
MOLYBDENUM, TOTAL	001 MS	S	07L0446	09/05/07	09/07/07	09/07/07
SODIUM, TOTAL	001	S	07L0446	09/05/07	09/07/07	09/07/07
SODIUM, TOTAL	001 REP	S	07L0446	09/05/07	09/07/07	09/07/07
SODIUM, TOTAL	001 MS	S	07L0446	09/05/07	09/07/07	09/07/07
NICKEL, TOTAL	001	S	07L0446	09/05/07	09/07/07	09/07/07
NICKEL, TOTAL	001 REP	S	07L0446	09/05/07	09/07/07	09/07/07
NICKEL, TOTAL	001 MS	S	07L0446	09/05/07	09/07/07	09/07/07
LEAD, TOTAL	001	S	07L0446	09/05/07	09/07/07	09/07/07
LEAD, TOTAL	001 REP	S	07L0446	09/05/07	09/07/07	09/07/07
LEAD, TOTAL	001 MS	S	07L0446	09/05/07	09/07/07	09/07/07
ANTIMONY, TOTAL	001	S	07L0446	09/05/07	09/07/07	09/07/07
ANTIMONY, TOTAL	001 REP	S	07L0446	09/05/07	09/07/07	09/07/07
ANTIMONY, TOTAL	001 MS	S	07L0446	09/05/07	09/07/07	09/07/07
SELENIUM, TOTAL	001	S	07L0446	09/05/07	09/07/07	09/07/07
SELENIUM, TOTAL	001 REP	S	07L0446	09/05/07	09/07/07	09/07/07
SELENIUM, TOTAL	001 MS	S	07L0446	09/05/07	09/07/07	09/07/07
SILICON, TOTAL	001	S	07L0446	09/05/07	09/07/07	09/07/07
SILICON, TOTAL	001 REP	S	07L0446	09/05/07	09/07/07	09/07/07
SILICON, TOTAL	001 MS	S	07L0446	09/05/07	09/07/07	09/07/07
VANADIUM, TOTAL	001	S	07L0446	09/05/07	09/07/07	09/07/07
VANADIUM, TOTAL	001 REP	S	07L0446	09/05/07	09/07/07	09/07/07
VANADIUM, TOTAL	001 MS	S	07L0446	09/05/07	09/07/07	09/07/07
ZINC, TOTAL	001	S	07L0446	09/05/07	09/07/07	09/07/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0947

DATE RECEIVED: 09/07/07 LVL LOT # :0709L877

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZINC, TOTAL	001 REP	S	07L0446	09/05/07	09/07/07	09/07/07
ZINC, TOTAL	001 MS	S	07L0446	09/05/07	09/07/07	09/07/07
J15H74						
SILVER, TOTAL	002	S	07L0446	09/05/07	09/07/07	09/07/07
ALUMINUM, TOTAL	002	S	07L0446	09/05/07	09/07/07	09/07/07
ARSENIC, TOTAL	002	S	07L0446	09/05/07	09/07/07	09/07/07
BORON, TOTAL	002	S	07L0446	09/05/07	09/07/07	09/07/07
BARIUM, TOTAL	002	S	07L0446	09/05/07	09/07/07	09/07/07
BERYLLIUM, TOTAL	002	S	07L0446	09/05/07	09/07/07	09/07/07
CALCIUM, TOTAL	002	S	07L0446	09/05/07	09/07/07	09/07/07
CADMIUM, TOTAL	002	S	07L0446	09/05/07	09/07/07	09/07/07
COBALT, TOTAL	002	S	07L0446	09/05/07	09/07/07	09/07/07
CHROMIUM, TOTAL	002	S	07L0446	09/05/07	09/07/07	09/07/07
COPPER, TOTAL	002	S	07L0446	09/05/07	09/07/07	09/07/07
IRON, TOTAL	002	S	07L0446	09/05/07	09/07/07	09/07/07
MERCURY, TOTAL	002	S	07C0173	09/05/07	09/11/07	09/12/07
POTASSIUM, TOTAL	002	S	07L0446	09/05/07	09/07/07	09/07/07
MAGNESIUM, TOTAL	002	S	07L0446	09/05/07	09/07/07	09/07/07
MANGANESE, TOTAL	002	S	07L0446	09/05/07	09/07/07	09/07/07
MOLYBDENUM, TOTAL	002	S	07L0446	09/05/07	09/07/07	09/07/07
SODIUM, TOTAL	002	S	07L0446	09/05/07	09/07/07	09/07/07
NICKEL, TOTAL	002	S	07L0446	09/05/07	09/07/07	09/07/07
LEAD, TOTAL	002	S	07L0446	09/05/07	09/07/07	09/07/07
ANTIMONY, TOTAL	002	S	07L0446	09/05/07	09/07/07	09/07/07
SELENIUM, TOTAL	002	S	07L0446	09/05/07	09/07/07	09/07/07
SILICON, TOTAL	002	S	07L0446	09/05/07	09/07/07	09/07/07
VANADIUM, TOTAL	002	S	07L0446	09/05/07	09/07/07	09/07/07
ZINC, TOTAL	002	S	07L0446	09/05/07	09/07/07	09/07/07
J15H75						
SILVER, TOTAL	003	S	07L0446	09/05/07	09/07/07	09/07/07
ALUMINUM, TOTAL	003	S	07L0446	09/05/07	09/07/07	09/07/07
ARSENIC, TOTAL	003	S	07L0446	09/05/07	09/07/07	09/07/07
BORON, TOTAL	003	S	07L0446	09/05/07	09/07/07	09/07/07
BARIUM, TOTAL	003	S	07L0446	09/05/07	09/07/07	09/07/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0947

DATE RECEIVED: 09/07/07 LVL LOT # :0709L877

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BERYLLIUM, TOTAL	003	S	07L0446	09/05/07	09/07/07	09/07/07
CALCIUM, TOTAL	003	S	07L0446	09/05/07	09/07/07	09/07/07
CADMIUM, TOTAL	003	S	07L0446	09/05/07	09/07/07	09/07/07
COBALT, TOTAL	003	S	07L0446	09/05/07	09/07/07	09/07/07
CHROMIUM, TOTAL	003	S	07L0446	09/05/07	09/07/07	09/07/07
COPPER, TOTAL	003	S	07L0446	09/05/07	09/07/07	09/07/07
IRON, TOTAL	003	S	07L0446	09/05/07	09/07/07	09/07/07
MERCURY, TOTAL	003	S	07C0173	09/05/07	09/11/07	09/12/07
POTASSIUM, TOTAL	003	S	07L0446	09/05/07	09/07/07	09/07/07
MAGNESIUM, TOTAL	003	S	07L0446	09/05/07	09/07/07	09/07/07
MANGANESE, TOTAL	003	S	07L0446	09/05/07	09/07/07	09/07/07
MOLYBDENUM, TOTAL	003	S	07L0446	09/05/07	09/07/07	09/07/07
SODIUM, TOTAL	003	S	07L0446	09/05/07	09/07/07	09/07/07
NICKEL, TOTAL	003	S	07L0446	09/05/07	09/07/07	09/07/07
LEAD, TOTAL	003	S	07L0446	09/05/07	09/07/07	09/07/07
ANTIMONY, TOTAL	003	S	07L0446	09/05/07	09/07/07	09/07/07
SELENIUM, TOTAL	003	S	07L0446	09/05/07	09/07/07	09/07/07
SILICON, TOTAL	003	S	07L0446	09/05/07	09/07/07	09/07/07
VANADIUM, TOTAL	003	S	07L0446	09/05/07	09/07/07	09/07/07
ZINC, TOTAL	003	S	07L0446	09/05/07	09/07/07	09/07/07
J15H76						
SILVER, TOTAL	004	S	07L0446	09/05/07	09/07/07	09/07/07
ALUMINUM, TOTAL	004	S	07L0446	09/05/07	09/07/07	09/07/07
ARSENIC, TOTAL	004	S	07L0446	09/05/07	09/07/07	09/07/07
BORON, TOTAL	004	S	07L0446	09/05/07	09/07/07	09/07/07
BARIUM, TOTAL	004	S	07L0446	09/05/07	09/07/07	09/07/07
BERYLLIUM, TOTAL	004	S	07L0446	09/05/07	09/07/07	09/07/07
CALCIUM, TOTAL	004	S	07L0446	09/05/07	09/07/07	09/07/07
CADMIUM, TOTAL	004	S	07L0446	09/05/07	09/07/07	09/07/07
COBALT, TOTAL	004	S	07L0446	09/05/07	09/07/07	09/07/07
CHROMIUM, TOTAL	004	S	07L0446	09/05/07	09/07/07	09/07/07
COPPER, TOTAL	004	S	07L0446	09/05/07	09/07/07	09/07/07
IRON, TOTAL	004	S	07L0446	09/05/07	09/07/07	09/07/07
MERCURY, TOTAL	004	S	07C0173	09/05/07	09/11/07	09/12/07
POTASSIUM, TOTAL	004	S	07L0446	09/05/07	09/07/07	09/07/07
MAGNESIUM, TOTAL	004	S	07L0446	09/05/07	09/07/07	09/07/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0947

DATE RECEIVED: 09/07/07 LVL LOT # :0709L877

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MANGANESE, TOTAL	004	S	07L0446	09/05/07	09/07/07	09/07/07
MOLYBDENUM, TOTAL	004	S	07L0446	09/05/07	09/07/07	09/07/07
SODIUM, TOTAL	004	S	07L0446	09/05/07	09/07/07	09/07/07
NICKEL, TOTAL	004	S	07L0446	09/05/07	09/07/07	09/07/07
LEAD, TOTAL	004	S	07L0446	09/05/07	09/07/07	09/07/07
ANTIMONY, TOTAL	004	S	07L0446	09/05/07	09/07/07	09/07/07
SELENIUM, TOTAL	004	S	07L0446	09/05/07	09/07/07	09/07/07
SILICON, TOTAL	004	S	07L0446	09/05/07	09/07/07	09/07/07
VANADIUM, TOTAL	004	S	07L0446	09/05/07	09/07/07	09/07/07
ZINC, TOTAL	004	S	07L0446	09/05/07	09/07/07	09/07/07
J15H77						
SILVER, TOTAL	005	S	07L0446	09/05/07	09/07/07	09/07/07
ALUMINUM, TOTAL	005	S	07L0446	09/05/07	09/07/07	09/07/07
ARSENIC, TOTAL	005	S	07L0446	09/05/07	09/07/07	09/07/07
BORON, TOTAL	005	S	07L0446	09/05/07	09/07/07	09/07/07
BARIUM, TOTAL	005	S	07L0446	09/05/07	09/07/07	09/07/07
BERYLLIUM, TOTAL	005	S	07L0446	09/05/07	09/07/07	09/07/07
CALCIUM, TOTAL	005	S	07L0446	09/05/07	09/07/07	09/07/07
CADMIUM, TOTAL	005	S	07L0446	09/05/07	09/07/07	09/07/07
COBALT, TOTAL	005	S	07L0446	09/05/07	09/07/07	09/07/07
CHROMIUM, TOTAL	005	S	07L0446	09/05/07	09/07/07	09/07/07
COPPER, TOTAL	005	S	07L0446	09/05/07	09/07/07	09/07/07
IRON, TOTAL	005	S	07L0446	09/05/07	09/07/07	09/07/07
MERCURY, TOTAL	005	S	07C0173	09/05/07	09/11/07	09/12/07
POTASSIUM, TOTAL	005	S	07L0446	09/05/07	09/07/07	09/07/07
MAGNESIUM, TOTAL	005	S	07L0446	09/05/07	09/07/07	09/07/07
MANGANESE, TOTAL	005	S	07L0446	09/05/07	09/07/07	09/07/07
MOLYBDENUM, TOTAL	005	S	07L0446	09/05/07	09/07/07	09/07/07
SODIUM, TOTAL	005	S	07L0446	09/05/07	09/07/07	09/07/07
NICKEL, TOTAL	005	S	07L0446	09/05/07	09/07/07	09/07/07
LEAD, TOTAL	005	S	07L0446	09/05/07	09/07/07	09/07/07
ANTIMONY, TOTAL	005	S	07L0446	09/05/07	09/07/07	09/07/07
SELENIUM, TOTAL	005	S	07L0446	09/05/07	09/07/07	09/07/07
SILICON, TOTAL	005	S	07L0446	09/05/07	09/07/07	09/07/07
VANADIUM, TOTAL	005	S	07L0446	09/05/07	09/07/07	09/07/07
ZINC, TOTAL	005	S	07L0446	09/05/07	09/07/07	09/07/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0947

DATE RECEIVED: 09/07/07 LVL LOT # :0709L877

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J15H78						
SILVER, TOTAL	006	S	07L0446	09/05/07	09/07/07	09/07/07
ALUMINUM, TOTAL	006	S	07L0446	09/05/07	09/07/07	09/07/07
ARSENIC, TOTAL	006	S	07L0446	09/05/07	09/07/07	09/07/07
BORON, TOTAL	006	S	07L0446	09/05/07	09/07/07	09/07/07
BARIUM, TOTAL	006	S	07L0446	09/05/07	09/07/07	09/07/07
BERYLLIUM, TOTAL	006	S	07L0446	09/05/07	09/07/07	09/07/07
CALCIUM, TOTAL	006	S	07L0446	09/05/07	09/07/07	09/07/07
CADMIUM, TOTAL	006	S	07L0446	09/05/07	09/07/07	09/07/07
COBALT, TOTAL	006	S	07L0446	09/05/07	09/07/07	09/07/07
CHROMIUM, TOTAL	006	S	07L0446	09/05/07	09/07/07	09/07/07
COPPER, TOTAL	006	S	07L0446	09/05/07	09/07/07	09/07/07
IRON, TOTAL	006	S	07L0446	09/05/07	09/07/07	09/07/07
MERCURY, TOTAL	006	S	07C0173	09/05/07	09/11/07	09/12/07
POTASSIUM, TOTAL	006	S	07L0446	09/05/07	09/07/07	09/07/07
MAGNESIUM, TOTAL	006	S	07L0446	09/05/07	09/07/07	09/07/07
MANGANESE, TOTAL	006	S	07L0446	09/05/07	09/07/07	09/07/07
MOLYBDENUM, TOTAL	006	S	07L0446	09/05/07	09/07/07	09/07/07
SODIUM, TOTAL	006	S	07L0446	09/05/07	09/07/07	09/07/07
NICKEL, TOTAL	006	S	07L0446	09/05/07	09/07/07	09/07/07
LEAD, TOTAL	006	S	07L0446	09/05/07	09/07/07	09/07/07
ANTIMONY, TOTAL	006	S	07L0446	09/05/07	09/07/07	09/07/07
SELENIUM, TOTAL	006	S	07L0446	09/05/07	09/07/07	09/07/07
SILICON, TOTAL	006	S	07L0446	09/05/07	09/07/07	09/07/07
VANADIUM, TOTAL	006	S	07L0446	09/05/07	09/07/07	09/07/07
ZINC, TOTAL	006	S	07L0446	09/05/07	09/07/07	09/07/07
J15H79						
SILVER, TOTAL	007	S	07L0446	09/05/07	09/07/07	09/07/07
ALUMINUM, TOTAL	007	S	07L0446	09/05/07	09/07/07	09/07/07
ARSENIC, TOTAL	007	S	07L0446	09/05/07	09/07/07	09/07/07
BORON, TOTAL	007	S	07L0446	09/05/07	09/07/07	09/07/07
BARIUM, TOTAL	007	S	07L0446	09/05/07	09/07/07	09/07/07
BERYLLIUM, TOTAL	007	S	07L0446	09/05/07	09/07/07	09/07/07
CALCIUM, TOTAL	007	S	07L0446	09/05/07	09/07/07	09/07/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0947

DATE RECEIVED: 09/07/07 LVL LOT # :0709L877

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CADMIUM, TOTAL	007	S	07L0446	09/05/07	09/07/07	09/07/07
COBALT, TOTAL	007	S	07L0446	09/05/07	09/07/07	09/07/07
CHROMIUM, TOTAL	007	S	07L0446	09/05/07	09/07/07	09/07/07
COPPER, TOTAL	007	S	07L0446	09/05/07	09/07/07	09/07/07
IRON, TOTAL	007	S	07L0446	09/05/07	09/07/07	09/07/07
MERCURY, TOTAL	007	S	07C0173	09/05/07	09/11/07	09/12/07
POTASSIUM, TOTAL	007	S	07L0446	09/05/07	09/07/07	09/07/07
MAGNESIUM, TOTAL	007	S	07L0446	09/05/07	09/07/07	09/07/07
MANGANESE, TOTAL	007	S	07L0446	09/05/07	09/07/07	09/07/07
MOLYBDENUM, TOTAL	007	S	07L0446	09/05/07	09/07/07	09/07/07
SODIUM, TOTAL	007	S	07L0446	09/05/07	09/07/07	09/07/07
NICKEL, TOTAL	007	S	07L0446	09/05/07	09/07/07	09/07/07
LEAD, TOTAL	007	S	07L0446	09/05/07	09/07/07	09/07/07
ANTIMONY, TOTAL	007	S	07L0446	09/05/07	09/07/07	09/07/07
SELENIUM, TOTAL	007	S	07L0446	09/05/07	09/07/07	09/07/07
SILICON, TOTAL	007	S	07L0446	09/05/07	09/07/07	09/07/07
VANADIUM, TOTAL	007	S	07L0446	09/05/07	09/07/07	09/07/07
ZINC, TOTAL	007	S	07L0446	09/05/07	09/07/07	09/07/07
J15H80						
SILVER, TOTAL	008	S	07L0446	09/05/07	09/07/07	09/07/07
ALUMINUM, TOTAL	008	S	07L0446	09/05/07	09/07/07	09/07/07
ARSENIC, TOTAL	008	S	07L0446	09/05/07	09/07/07	09/07/07
BORON, TOTAL	008	S	07L0446	09/05/07	09/07/07	09/07/07
BARIUM, TOTAL	008	S	07L0446	09/05/07	09/07/07	09/07/07
BERYLLIUM, TOTAL	008	S	07L0446	09/05/07	09/07/07	09/07/07
CALCIUM, TOTAL	008	S	07L0446	09/05/07	09/07/07	09/07/07
CADMIUM, TOTAL	008	S	07L0446	09/05/07	09/07/07	09/07/07
COBALT, TOTAL	008	S	07L0446	09/05/07	09/07/07	09/07/07
CHROMIUM, TOTAL	008	S	07L0446	09/05/07	09/07/07	09/07/07
COPPER, TOTAL	008	S	07L0446	09/05/07	09/07/07	09/07/07
IRON, TOTAL	008	S	07L0446	09/05/07	09/07/07	09/07/07
MERCURY, TOTAL	008	S	07C0173	09/05/07	09/11/07	09/12/07
POTASSIUM, TOTAL	008	S	07L0446	09/05/07	09/07/07	09/07/07
MAGNESIUM, TOTAL	008	S	07L0446	09/05/07	09/07/07	09/07/07
MANGANESE, TOTAL	008	S	07L0446	09/05/07	09/07/07	09/07/07
MOLYBDENUM, TOTAL	008	S	07L0446	09/05/07	09/07/07	09/07/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0947

DATE RECEIVED: 09/07/07 LVL LOT # :0709L877

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SODIUM, TOTAL	008	S	07L0446	09/05/07	09/07/07	09/07/07
NICKEL, TOTAL	008	S	07L0446	09/05/07	09/07/07	09/07/07
LEAD, TOTAL	008	S	07L0446	09/05/07	09/07/07	09/07/07
ANTIMONY, TOTAL	008	S	07L0446	09/05/07	09/07/07	09/07/07
SELENIUM, TOTAL	008	S	07L0446	09/05/07	09/07/07	09/07/07
SILICON, TOTAL	008	S	07L0446	09/05/07	09/07/07	09/07/07
VANADIUM, TOTAL	008	S	07L0446	09/05/07	09/07/07	09/07/07
ZINC, TOTAL	008	S	07L0446	09/05/07	09/07/07	09/07/07
J15H81						
SILVER, TOTAL	009	S	07L0446	09/05/07	09/07/07	09/07/07
ALUMINUM, TOTAL	009	S	07L0446	09/05/07	09/07/07	09/07/07
ARSENIC, TOTAL	009	S	07L0446	09/05/07	09/07/07	09/07/07
BORON, TOTAL	009	S	07L0446	09/05/07	09/07/07	09/07/07
BARIUM, TOTAL	009	S	07L0446	09/05/07	09/07/07	09/07/07
BERYLLIUM, TOTAL	009	S	07L0446	09/05/07	09/07/07	09/07/07
CALCIUM, TOTAL	009	S	07L0446	09/05/07	09/07/07	09/07/07
CADMIUM, TOTAL	009	S	07L0446	09/05/07	09/07/07	09/07/07
COBALT, TOTAL	009	S	07L0446	09/05/07	09/07/07	09/07/07
CHROMIUM, TOTAL	009	S	07L0446	09/05/07	09/07/07	09/07/07
COPPER, TOTAL	009	S	07L0446	09/05/07	09/07/07	09/07/07
IRON, TOTAL	009	S	07L0446	09/05/07	09/07/07	09/07/07
MERCURY, TOTAL	009	S	07C0173	09/05/07	09/11/07	09/12/07
POTASSIUM, TOTAL	009	S	07L0446	09/05/07	09/07/07	09/07/07
MAGNESIUM, TOTAL	009	S	07L0446	09/05/07	09/07/07	09/07/07
MANGANESE, TOTAL	009	S	07L0446	09/05/07	09/07/07	09/07/07
MOLYBDENUM, TOTAL	009	S	07L0446	09/05/07	09/07/07	09/07/07
SODIUM, TOTAL	009	S	07L0446	09/05/07	09/07/07	09/07/07
NICKEL, TOTAL	009	S	07L0446	09/05/07	09/07/07	09/07/07
LEAD, TOTAL	009	S	07L0446	09/05/07	09/07/07	09/07/07
ANTIMONY, TOTAL	009	S	07L0446	09/05/07	09/07/07	09/07/07
SELENIUM, TOTAL	009	S	07L0446	09/05/07	09/07/07	09/07/07
SILICON, TOTAL	009	S	07L0446	09/05/07	09/07/07	09/07/07
VANADIUM, TOTAL	009	S	07L0446	09/05/07	09/07/07	09/07/07
ZINC, TOTAL	009	S	07L0446	09/05/07	09/07/07	09/07/07
J15H82						
SILVER, TOTAL	010	S	07L0446	09/05/07	09/07/07	09/07/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0947

DATE RECEIVED: 09/07/07 LVL LOT # :0709L877

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	010	S	07L0446	09/05/07	09/07/07	09/07/07
ARSENIC, TOTAL	010	S	07L0446	09/05/07	09/07/07	09/07/07
BORON, TOTAL	010	S	07L0446	09/05/07	09/07/07	09/07/07
BARIUM, TOTAL	010	S	07L0446	09/05/07	09/07/07	09/07/07
BERYLLIUM, TOTAL	010	S	07L0446	09/05/07	09/07/07	09/07/07
CALCIUM, TOTAL	010	S	07L0446	09/05/07	09/07/07	09/07/07
CADMIUM, TOTAL	010	S	07L0446	09/05/07	09/07/07	09/07/07
COBALT, TOTAL	010	S	07L0446	09/05/07	09/07/07	09/07/07
CHROMIUM, TOTAL	010	S	07L0446	09/05/07	09/07/07	09/07/07
COPPER, TOTAL	010	S	07L0446	09/05/07	09/07/07	09/07/07
IRON, TOTAL	010	S	07L0446	09/05/07	09/07/07	09/07/07
MERCURY, TOTAL	010	S	07C0173	09/05/07	09/11/07	09/12/07
POTASSIUM, TOTAL	010	S	07L0446	09/05/07	09/07/07	09/07/07
MAGNESIUM, TOTAL	010	S	07L0446	09/05/07	09/07/07	09/07/07
MANGANESE, TOTAL	010	S	07L0446	09/05/07	09/07/07	09/07/07
MOLYBDENUM, TOTAL	010	S	07L0446	09/05/07	09/07/07	09/07/07
SODIUM, TOTAL	010	S	07L0446	09/05/07	09/07/07	09/07/07
NICKEL, TOTAL	010	S	07L0446	09/05/07	09/07/07	09/07/07
LEAD, TOTAL	010	S	07L0446	09/05/07	09/07/07	09/07/07
ANTIMONY, TOTAL	010	S	07L0446	09/05/07	09/07/07	09/07/07
SELENIUM, TOTAL	010	S	07L0446	09/05/07	09/07/07	09/07/07
SILICON, TOTAL	010	S	07L0446	09/05/07	09/07/07	09/07/07
VANADIUM, TOTAL	010	S	07L0446	09/05/07	09/07/07	09/07/07
ZINC, TOTAL	010	S	07L0446	09/05/07	09/07/07	09/07/07

LAB QC:

SILVER LABORATORY	LC1 BS	S	07L0446	N/A	09/07/07	09/07/07
SILVER, TOTAL	MB1	S	07L0446	N/A	09/07/07	09/07/07
ALUMINUM LABORTORY	LC1 BS	S	07L0446	N/A	09/07/07	09/07/07
ALUMINUM, TOTAL	MB1	S	07L0446	N/A	09/07/07	09/07/07
ARSENIC LABORATORY	LC1 BS	S	07L0446	N/A	09/07/07	09/07/07
ARSENIC, TOTAL	MB1	S	07L0446	N/A	09/07/07	09/07/07
BORON LABORATORY	LC1 BS	S	07L0446	N/A	09/07/07	09/07/07
BORON, TOTAL	MB1	S	07L0446	N/A	09/07/07	09/07/07
BARIUM LABORATORY	LC1 BS	S	07L0446	N/A	09/07/07	09/07/07
BARIUM, TOTAL	MB1	S	07L0446	N/A	09/07/07	09/07/07
BERYLLIUM LABORATORY	LC1 BS	S	07L0446	N/A	09/07/07	09/07/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0947

DATE RECEIVED: 09/07/07 LVL LOT # :0709L877

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BERYLLIUM, TOTAL	MB1	S	07L0446	N/A	09/07/07	09/07/07
CALCIUM LABORATORY	LC1 BS	S	07L0446	N/A	09/07/07	09/07/07
CALCIUM, TOTAL	MB1	S	07L0446	N/A	09/07/07	09/07/07
CADMIUM LABORATORY	LC1 BS	S	07L0446	N/A	09/07/07	09/07/07
CADMIUM, TOTAL	MB1	S	07L0446	N/A	09/07/07	09/07/07
COBALT LABORATORY	LC1 BS	S	07L0446	N/A	09/07/07	09/07/07
COBALT, TOTAL	MB1	S	07L0446	N/A	09/07/07	09/07/07
CHROMIUM LABORATORY	LC1 BS	S	07L0446	N/A	09/07/07	09/07/07
CHROMIUM, TOTAL	MB1	S	07L0446	N/A	09/07/07	09/07/07
COPPER LABORATORY	LC1 BS	S	07L0446	N/A	09/07/07	09/07/07
COPPER, TOTAL	MB1	S	07L0446	N/A	09/07/07	09/07/07
IRON LABORATORY	LC1 BS	S	07L0446	N/A	09/07/07	09/07/07
IRON, TOTAL	MB1	S	07L0446	N/A	09/07/07	09/07/07
MERCURY LABORATORY	LC1 BS	S	07C0173	N/A	09/11/07	09/12/07
MERCURY, TOTAL	MB1	S	07C0173	N/A	09/11/07	09/12/07
POTASSIUM LABORATORY	LC1 BS	S	07L0446	N/A	09/07/07	09/07/07
POTASSIUM, TOTAL	MB1	S	07L0446	N/A	09/07/07	09/07/07
MAGNESIUM LABORATORY	LC1 BS	S	07L0446	N/A	09/07/07	09/07/07
MAGNESIUM, TOTAL	MB1	S	07L0446	N/A	09/07/07	09/07/07
MANGANESE LABORATORY	LC1 BS	S	07L0446	N/A	09/07/07	09/07/07
MANGANESE, TOTAL	MB1	S	07L0446	N/A	09/07/07	09/07/07
MOLYBDENUM LABORATOR	LC1 BS	S	07L0446	N/A	09/07/07	09/07/07
MOLYBDENUM, TOTAL	MB1	S	07L0446	N/A	09/07/07	09/07/07
SODIUM LABORATORY	LC1 BS	S	07L0446	N/A	09/07/07	09/07/07
SODIUM, TOTAL	MB1	S	07L0446	N/A	09/07/07	09/07/07
NICKEL LABORATORY	LC1 BS	S	07L0446	N/A	09/07/07	09/07/07
NICKEL, TOTAL	MB1	S	07L0446	N/A	09/07/07	09/07/07
LEAD LABORATORY	LC1 BS	S	07L0446	N/A	09/07/07	09/07/07
LEAD, TOTAL	MB1	S	07L0446	N/A	09/07/07	09/07/07
ANTIMONY LABORATORY	LC1 BS	S	07L0446	N/A	09/07/07	09/07/07
ANTIMONY, TOTAL	MB1	S	07L0446	N/A	09/07/07	09/07/07
SELENIUM LABORATORY	LC1 BS	S	07L0446	N/A	09/07/07	09/07/07
SELENIUM, TOTAL	MB1	S	07L0446	N/A	09/07/07	09/07/07
SILICON LABORATORY	LC1 BS	S	07L0446	N/A	09/07/07	09/07/07
SILICON, TOTAL	MB1	S	07L0446	N/A	09/07/07	09/07/07
VANADIUM LABORATORY	LC1 BS	S	07L0446	N/A	09/07/07	09/07/07
VANADIUM, TOTAL	MB1	S	07L0446	N/A	09/07/07	09/07/07
ZINC LABORATORY	LC1 BS	S	07L0446	N/A	09/07/07	09/07/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0947

DATE RECEIVED: 09/07/07 LVL LOT # :0709L877

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZINC, TOTAL	MB1	S	07L0446	N/A	09/07/07	09/07/07

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-032
LVL#: 0709L877
SDG/SAF#: K0947/RC-032

W.O.#: 11343-606-001-9999-00
Date Received: 09-07-07

METALS CASE NARRATIVE

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

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

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

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary. The samples were reported with 3-fold dilutions for ICP metals due to sample matrix.

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

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

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

6. The preparation/method blanks for 2 analytes were outside method criteria. {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

   a). The MB results for Sodium and Zinc were greater than the Practical Quantitation Limit (PQL) {3 x the (IDL) Instrument Detection Level} and all samples except J15H76 and J15H77 for Sodium, and all samples for Zinc read less than 20 times the MB concentration. However, no corrective action criteria for MBs were provided in SW846 method 6010B. The sample results were reported herein "uncorrected" for the levels found in the MB.

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

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 33 pages.

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

9. The matrix spike (MS) recoveries for 6 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

10. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A PDS was prepared at meaningful concentration level for the following analytes:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J15H73	Aluminum	66,000	103.4
	Calcium	66,000	87.2
	Iron	66,000	99.1
	Manganese	3,000	97.3
	Antimony	300	98.7
	Silicon	6,300	87.6

11. The duplicate analyses for 1 analytes was outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

12. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

9/14/07
Date

jjw/m09-877

LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within th

Lot#: 07096877

Leaching Procedure: __1310 __1311 __1312 __Other:_____

TCLP Metals __ Digestion and __ Analysis Methods: __ILM03.0 __ILM04.0

Metals Digestion Methods: __3005A __3010A __3015 __3020A X 3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	X 6010B		__200.7				__99
Antimony	X 6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	X 6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	X 6010B		__200.7				__99
Beryllium	X 6010B		__200.7				__99
Bismuth	__6010B [1]		__200.7 [1]			__1620	__99
Boron	X 6010B		__200.7				__99
Cadmium	X 6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	X 6010B		__200.7				__99
Chromium	X 6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	X 6010B		__200.7				__99
Copper	X 6010B	__7211 [5]	__200.7	__220.2			__99
Iron	X 6010B		__200.7				__99
Lead	X 6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	__6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	X 6010B		__200.7				__99
Manganese	X 6010B		__200.7				__99
Mercury	__7470A [3]	X 7471A [3]	__245.1 [3]	__245.5 [3]			__99
Molybdenum	X 6010B		__200.7				__99
Nickel	X 6010B		__200.7				__99
Potassium	X 6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	X 6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	X 6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	X 6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	X 6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	__6010B		__200.7				__99
Thallium	__6010B	__7841 [5]	__200.7	__279.2	__200.9		__99
Tin	__6010B		__200.7				__99
Titanium	__6010B		__200.7				__99
Uranium	__6010B [1]		__200.7 [1]			__1620	__99
Vanadium	X 6010B		__200.7				__99
Zinc	X 6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

Other:_____ Method:_____

L-WI-033/M-03/01
000000014

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LCS = Laboratory Control Sample.
NC = Not calculated.

ANALYTICAL METAL METHODS

1. Not included in the method element list.

2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, approximately 0.3 grams of sample is taken to a final volume of 50 mL (including all reagents).

3. Flame AA.

4. Graphite Furnace AA.

L-WI-033/N-04/98

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/12/07

CLIENT: TNUHANFORD RC-032 K0947 LVL LOT #: 0709L877

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J15H73	Silver, Total	0.26 u	MG/KG	0.26	3.0
		Aluminum, Total	4640	MG/KG	4.9	3.0
		Arsenic, Total	1.5	MG/KG	1.2	3.0
		Boron, Total	1.1 u	MG/KG	1.1	3.0
		Barium, Total	47.6	MG/KG	0.06	3.0
		Beryllium, Total	0.24	MG/KG	0.03	3.0
		Calcium, Total	5870	MG/KG	2.1	3.0
		Cadmium, Total	0.15 u	MG/KG	0.15	3.0
		Cobalt, Total	4.6	MG/KG	0.23	3.0
		Chromium, Total	7.2	MG/KG	0.29	3.0
		Copper, Total	11.2	MG/KG	0.26	3.0
		Iron, Total	11000	MG/KG	7.0	3.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Potassium, Total	849	MG/KG	9.4	3.0
		Magnesium, Total	3250	MG/KG	2.4	3.0
		Manganese, Total	221	MG/KG	0.21	3.0
		Molybdenum, Total	0.74	MG/KG	0.47	3.0
		Sodium, Total	171	MG/KG	2.1	3.0
		Nickel, Total	9.3	MG/KG	0.79	3.0
		Lead, Total	2.7	MG/KG	0.97	3.0
		Antimony, Total	0.65 u	MG/KG	0.65	3.0
		Selenium, Total	1.3 u	MG/KG	1.3	3.0
		Silicon, Total	2790	MG/KG	2.5	3.0
		Vanadium, Total	24.4	MG/KG	0.23	3.0
		Zinc, Total	26.6	MG/KG	0.12	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/12/07

CLIENT: TNUHANFORD RC-032 K0947 LVL LOT #: 0709L877

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J15H74	Silver, Total	0.26 u	MG/KG	0.26	3.0
		Aluminum, Total	4850	MG/KG	4.8	3.0
		Arsenic, Total	2.1	MG/KG	1.2	3.0
		Boron, Total	1.5	MG/KG	1.0	3.0
		Barium, Total	46.9	MG/KG	0.06	3.0
		Beryllium, Total	0.26	MG/KG	0.03	3.0
		Calcium, Total	4450	MG/KG	2.1	3.0
		Cadmium, Total	0.14 u	MG/KG	0.14	3.0
		Cobalt, Total	5.1	MG/KG	0.23	3.0
		Chromium, Total	6.8	MG/KG	0.29	3.0
		Copper, Total	11.5	MG/KG	0.26	3.0
		Iron, Total	13600	MG/KG	6.9	3.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	806	MG/KG	9.3	3.0
		Magnesium, Total	3290	MG/KG	2.3	3.0
		Manganese, Total	230	MG/KG	0.20	3.0
		Molybdenum, Total	0.46 u	MG/KG	0.46	3.0
		Sodium, Total	182	MG/KG	2.0	3.0
		Nickel, Total	8.0	MG/KG	0.78	3.0
		Lead, Total*	2.6	MG/KG	0.95	3.0
		Antimony, Total	0.64 u	MG/KG	0.64	3.0
		Selenium, Total	1.2 u	MG/KG	1.2	3.0
		Silicon, Total	1700	MG/KG	2.5	3.0
		Vanadium, Total	31.6	MG/KG	0.23	3.0
		Zinc, Total	29.3	MG/KG	0.12	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/12/07

CLIENT: TNUHANFORD RC-032 K0947 LVL LOT #: 0709L877

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	J15H75	Silver, Total	0.27 u	MG/KG	0.27	3.0
		Aluminum, Total	3100	MG/KG	5.0	3.0
		Arsenic, Total	1.2 u	MG/KG	1.2	3.0
		Boron, Total	1.1 u	MG/KG	1.1	3.0
		Barium, Total	37.1	MG/KG	0.06	3.0
		Beryllium, Total	0.17	MG/KG	0.03	3.0
		Calcium, Total	3860	MG/KG	2.1	3.0
		Cadmium, Total	0.15 u	MG/KG	0.15	3.0
		Cobalt, Total	3.1	MG/KG	0.24	3.0
		Chromium, Total	4.9	MG/KG	0.30	3.0
		Copper, Total	8.6	MG/KG	0.27	3.0
		Iron, Total	7220	MG/KG	7.1	3.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	442	MG/KG	9.6	3.0
		Magnesium, Total	2230	MG/KG	2.4	3.0
		Manganese, Total	164	MG/KG	0.21	3.0
		Molybdenum, Total	0.50	MG/KG	0.48	3.0
		Sodium, Total	115	MG/KG	2.1	3.0
		Nickel, Total	5.9	MG/KG	0.81	3.0
		Lead, Total	1.8	MG/KG	0.99	3.0
		Antimony, Total	0.66 u	MG/KG	0.66	3.0
		Selenium, Total	1.3 u	MG/KG	1.3	3.0
		Silicon, Total	1470	MG/KG	2.6	3.0
		Vanadium, Total	16.9	MG/KG	0.24	3.0
		Zinc, Total	20.7	MG/KG	0.12	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/12/07

CLIENT: TNUHANFORD RC-032 K0947 LVL LOT #: 0709L877

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	J15H76	Silver, Total	0.27 u	MG/KG	0.27	3.0
		Aluminum, Total	5550	MG/KG	5.0	3.0
		Arsenic, Total	2.4	MG/KG	1.2	3.0
		Boron, Total	1.3	MG/KG	1.1	3.0
		Barium, Total	54.3	MG/KG	0.06	3.0
		Beryllium, Total	0.30	MG/KG	0.03	3.0
		Calcium, Total	4270	MG/KG	2.1	3.0
		Cadmium, Total	0.15 u	MG/KG	0.15	3.0
		Cobalt, Total	5.0	MG/KG	0.24	3.0
		Chromium, Total	8.1	MG/KG	0.30	3.0
		Copper, Total	12.5	MG/KG	0.27	3.0
		Iron, Total	12400	MG/KG	7.2	3.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	866	MG/KG	9.6	3.0
		Magnesium, Total	3440	MG/KG	2.4	3.0
		Manganese, Total	241	MG/KG	0.21	3.0
		Molybdenum, Total	0.48 u	MG/KG	0.48	3.0
		Sodium, Total	217	MG/KG	2.1	3.0
		Nickel, Total	9.2	MG/KG	0.81	3.0
		Lead, Total	8.8	MG/KG	0.99	3.0
		Antimony, Total	0.66 u	MG/KG	0.66	3.0
		Selenium, Total	1.3 u	MG/KG	1.3	3.0
		Silicon, Total	1340	MG/KG	2.6	3.0
		Vanadium, Total	27.7	MG/KG	0.24	3.0
		Zinc, Total	28.9	MG/KG	0.12	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/12/07

CLIENT: TNUHANFORD RC-032 K0947 LVL LOT #: 0709L877

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	J15H77	Silver, Total	0.27 u	MG/KG	0.27	3.0
		Aluminum, Total	6460	MG/KG	4.9	3.0
		Arsenic, Total	4.1	MG/KG	1.2	3.0
		Boron, Total	2.3	MG/KG	1.1	3.0
		Barium, Total	68.0	MG/KG	0.06	3.0
		Beryllium, Total	0.33	MG/KG	0.03	3.0
		Calcium, Total	4670	MG/KG	2.1	3.0
		Cadmium, Total	0.15 u	MG/KG	0.15	3.0
		Cobalt, Total	5.4	MG/KG	0.24	3.0
		Chromium, Total	9.6	MG/KG	0.30	3.0
		Copper, Total	12.7	MG/KG	0.27	3.0
		Iron, Total	15300	MG/KG	7.1	3.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	1060	MG/KG	9.5	3.0
		Magnesium, Total	3970	MG/KG	2.4	3.0
		Manganese, Total	264	MG/KG	0.21	3.0
		Molybdenum, Total	0.78	MG/KG	0.48	3.0
		Sodium, Total	242	MG/KG	2.1	3.0
		Nickel, Total	11.0	MG/KG	0.80	3.0
		Lead, Total	10.2	MG/KG	0.98	3.0
		Antimony, Total	0.66 u	MG/KG	0.66	3.0
		Selenium, Total	1.3 u	MG/KG	1.3	3.0
		Silicon, Total	1390	MG/KG	2.6	3.0
		Vanadium, Total	33.7	MG/KG	0.24	3.0
		Zinc, Total	32.9	MG/KG	0.12	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/12/07

CLIENT: TNUHANFORD RC-032 K0947 LVL LOT #: 0709L877

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-006	J15H78	Silver, Total	0.26 u	MG/KG	0.26	3.0
		Aluminum, Total	4300	MG/KG	4.9	3.0
		Arsenic, Total	1.2	MG/KG	1.2	3.0
		Boron, Total	1.1 u	MG/KG	1.1	3.0
		Barium, Total	41.2	MG/KG	0.06	3.0
		Beryllium, Total	0.25	MG/KG	0.03	3.0
		Calcium, Total	4340	MG/KG	2.1	3.0
		Cadmium, Total	0.15 u	MG/KG	0.15	3.0
		Cobalt, Total	4.1	MG/KG	0.23	3.0
		Chromium, Total	6.6	MG/KG	0.29	3.0
		Copper, Total	10.5	MG/KG	0.26	3.0
		Iron, Total	10300	MG/KG	7.0	3.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	677	MG/KG	9.4	3.0
		Magnesium, Total	3020	MG/KG	2.4	3.0
		Manganese, Total	190	MG/KG	0.20	3.0
		Molybdenum, Total	0.50	MG/KG	0.47	3.0
		Sodium, Total	144	MG/KG	2.0	3.0
		Nickel, Total	7.4	MG/KG	0.79	3.0
		Lead, Total	2.5	MG/KG	0.96	3.0
		Antimony, Total	0.64 u	MG/KG	0.64	3.0
		Selenium, Total	1.3	MG/KG	1.3	3.0
		Silicon, Total	1840	MG/KG	2.5	3.0
		Vanadium, Total	24.7	MG/KG	0.23	3.0
		Zinc, Total	24.7	MG/KG	0.12	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/12/07

CLIENT: TNUHANFORD RC-032 K0947 LVL LOT #: 0709L877

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-007	J15H79	Silver, Total	0.26 u	MG/KG	0.26	3.0
		Aluminum, Total	5060	MG/KG	4.8	3.0
		Arsenic, Total	1.4	MG/KG	1.2	3.0
		Boron, Total	1.0 u	MG/KG	1.0	3.0
		Barium, Total	46.2	MG/KG	0.06	3.0
		Beryllium, Total	0.29	MG/KG	0.03	3.0
		Calcium, Total	4800	MG/KG	2.1	3.0
		Cadmium, Total	0.14 u	MG/KG	0.14	3.0
		Cobalt, Total	4.7	MG/KG	0.23	3.0
		Chromium, Total	7.8	MG/KG	0.29	3.0
		Copper, Total	12.5	MG/KG	0.26	3.0
		Iron, Total	12400	MG/KG	6.9	3.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Potassium, Total	843	MG/KG	9.3	3.0
		Magnesium, Total	3380	MG/KG	2.3	3.0
		Manganese, Total	226	MG/KG	0.20	3.0
		Molybdenum, Total	0.46 u	MG/KG	0.46	3.0
		Sodium, Total	156	MG/KG	2.0	3.0
		Nickel, Total	9.0	MG/KG	0.78	3.0
		Lead, Total	3.0	MG/KG	0.95	3.0
		Antimony, Total	0.64 u	MG/KG	0.64	3.0
		Selenium, Total	1.2 u	MG/KG	1.2	3.0
		Silicon, Total	1670	MG/KG	2.5	3.0
		Vanadium, Total	30.7	MG/KG	0.23	3.0
		Zinc, Total	31.1	MG/KG	0.12	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/12/07

CLIENT: TNUHANFORD RC-032 K0947 LVL LOT #: 0709L877

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-008	J15H80	Silver, Total	0.26 u	MG/KG	0.26	3.0
		Aluminum, Total	5040	MG/KG	4.9	3.0
		Arsenic, Total	1.3	MG/KG	1.2	3.0
		Boron, Total	1.3	MG/KG	1.1	3.0
		Barium, Total	45.6	MG/KG	0.06	3.0
		Beryllium, Total	0.29	MG/KG	0.03	3.0
		Calcium, Total	4880	MG/KG	2.1	3.0
		Cadmium, Total	0.15	MG/KG	0.15	3.0
		Cobalt, Total	4.2	MG/KG	0.23	3.0
		Chromium, Total	7.7	MG/KG	0.29	3.0
		Copper, Total	11.6	MG/KG	0.26	3.0
		Iron, Total	11800	MG/KG	7.0	3.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	850	MG/KG	9.4	3.0
		Magnesium, Total	3330	MG/KG	2.4	3.0
		Manganese, Total	221	MG/KG	0.20	3.0
		Molybdenum, Total	0.59	MG/KG	0.47	3.0
		Sodium, Total	172	MG/KG	2.0	3.0
		Nickel, Total	8.2	MG/KG	0.79	3.0
		Lead, Total	2.5	MG/KG	0.97	3.0
		Antimony, Total	0.64 u	MG/KG	0.64	3.0
		Selenium, Total	1.3 u	MG/KG	1.3	3.0
		Silicon, Total	2080	MG/KG	2.5	3.0
		Vanadium, Total	27.7	MG/KG	0.23	3.0
		Zinc, Total	27.9	MG/KG	0.12	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/12/07

CLIENT: TNUHANFORD RC-032 K0947 LVL LOT #: 0709L877

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-009	J15H81	Silver, Total	0.27 u	MG/KG	0.27	3.0
		Aluminum, Total	3680	MG/KG	4.9	3.0
		Arsenic, Total	1.2 u	MG/KG	1.2	3.0
		Boron, Total	1.1 u	MG/KG	1.1	3.0
		Barium, Total	36.4	MG/KG	0.06	3.0
		Beryllium, Total	0.23	MG/KG	0.03	3.0
		Calcium, Total	3700	MG/KG	2.1	3.0
		Cadmium, Total	0.15 u	MG/KG	0.15	3.0
		Cobalt, Total	3.4	MG/KG	0.24	3.0
		Chromium, Total	5.1	MG/KG	0.30	3.0
		Copper, Total	9.6	MG/KG	0.27	3.0
		Iron, Total	8080	MG/KG	7.1	3.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Potassium, Total	638	MG/KG	9.5	3.0
		Magnesium, Total	2440	MG/KG	2.4	3.0
		Manganese, Total	172	MG/KG	0.21	3.0
		Molybdenum, Total	0.48 u	MG/KG	0.48	3.0
		Sodium, Total	132	MG/KG	2.1	3.0
		Nickel, Total	7.1	MG/KG	0.80	3.0
		Lead, Total	3.6	MG/KG	0.98	3.0
		Antimony, Total	0.65 u	MG/KG	0.65	3.0
		Selenium, Total	1.3 u	MG/KG	1.3	3.0
		Silicon, Total	2060	MG/KG	2.6	3.0
		Vanadium, Total	16.7	MG/KG	0.24	3.0
		Zinc, Total	25.1	MG/KG	0.12	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/12/07

CLIENT: TNUHANFORD RC-032 K0947 LVL LOT #: 0709L877

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-010	J15H82	Silver, Total	0.26 u	MG/KG	0.26	3.0
		Aluminum, Total	5360	MG/KG	4.8	3.0
		Arsenic, Total	3.0	MG/KG	1.2	3.0
		Boron, Total	1.2	MG/KG	1.0	3.0
		Barium, Total	56.3	MG/KG	0.06	3.0
		Beryllium, Total	0.28	MG/KG	0.03	3.0
		Calcium, Total	3630	MG/KG	2.1	3.0
		Cadmium, Total	0.18	MG/KG	0.15	3.0
		Cobalt, Total	4.3	MG/KG	0.23	3.0
		Chromium, Total	7.7	MG/KG	0.29	3.0
		Copper, Total	12.3	MG/KG	0.26	3.0
		Iron, Total	11700	MG/KG	6.9	3.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Potassium, Total	898	MG/KG	9.3	3.0
		Magnesium, Total	3160	MG/KG	2.4	3.0
		Manganese, Total	209	MG/KG	0.20	3.0
		Molybdenum, Total	0.47 u	MG/KG	0.47	3.0
		Sodium, Total	187	MG/KG	2.0	3.0
		Nickel, Total	8.7	MG/KG	0.78	3.0
		Lead, Total	7.9	MG/KG	0.96	3.0
		Antimony, Total	0.64 u	MG/KG	0.64	3.0
		Selenium, Total	1.3 u	MG/KG	1.3	3.0
		Silicon, Total	1910	MG/KG	2.5	3.0
		Vanadium, Total	27.1	MG/KG	0.23	3.0
		Zinc, Total	26.3	MG/KG	0.12	3.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 09/12/07

CLIENT: TNUHANFORD RC-032 K0947 LVL LOT #: 0709L877

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	07L0446-MB1	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Aluminum, Total	1.7 u	MG/KG	1.7	1.0
		Arsenic, Total	0.41 u	MG/KG	0.41	1.0
		Boron, Total	0.36 u	MG/KG	0.36	1.0
		Barium, Total	0.02	MG/KG	0.02	1.0
		Beryllium, Total	0.01 u	MG/KG	0.01	1.0
		Calcium, Total	12.1	MG/KG	0.71	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	0.08 u	MG/KG	0.08	1.0
		Chromium, Total	0.10 u	MG/KG	0.10	1.0
		Copper, Total	0.09 u	MG/KG	0.09	1.0
		Iron, Total	4.3	MG/KG	2.4	1.0
		Potassium, Total	3.2 u	MG/KG	3.2	1.0
		Magnesium, Total	1.7	MG/KG	0.81	1.0
		Manganese, Total	0.07 u	MG/KG	0.07	1.0
		Molybdenum, Total	0.16 u	MG/KG	0.16	1.0
		Sodium, Total	10.3	MG/KG	0.70	1.0
		Nickel, Total	0.27 u	MG/KG	0.27	1.0
		Lead, Total	0.33 u	MG/KG	0.33	1.0
		Antimony, Total	0.22 u	MG/KG	0.22	1.0
		Selenium, Total	0.43 u	MG/KG	0.43	1.0
		Silicon, Total	2.4	MG/KG	0.86	1.0
		Vanadium, Total	0.08 u	MG/KG	0.08	1.0
		Zinc, Total	1.7	MG/KG	0.04	1.0
BLANK1	07C0173-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 09/12/07

CLIENT: TNUHANFORD RC-032 K0947 LVL LOT #: 0709L877

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J15H73	Silver, Total	4.5	0.26u	4.9	91.8	3.0
		Aluminum, Total	6360	4640	196	877.1*	3.0
		Arsenic, Total	178	1.5	196	89.9	3.0
		Boron, Total	90.4	1.1 u	97.9	92.3	3.0
		Barium, Total	227	47.6	196	91.8	3.0
		Beryllium, Total	4.8	0.24	4.9	93.1	3.0
		Calcium, Total	7070	5870	2450	48.8	3.0
		Cadmium, Total	4.5	0.15u	4.9	91.8	3.0
		Cobalt, Total	50.1	4.6	48.9	93.0	3.0
		Chromium, Total	27.2	7.2	19.6	102.0	3.0
		Copper, Total	35.0	11.2	24.5	97.1	3.0
		Iron, Total	15200	11000	97.9	4244 *	3.0
		Mercury, Total	0.19	0.02u	0.16	119.1	1.0
		Potassium, Total	3130	849	2450	93.3	3.0
		Magnesium, Total	5950	3250	2450	110.3	3.0
		Manganese, Total	293	221	48.9	146.6*	3.0
		Molybdenum, Total	85.3	0.74	97.9	86.4	3.0
		Sodium, Total	2530	171	2450	96.4	3.0
		Nickel, Total	54.1	9.3	48.9	91.6	3.0
		Lead, Total	47.8	2.7	48.9	92.2	3.0
		Antimony, Total	33.6	0.65u	48.9	68.7	3.0
		Selenium, Total	155	1.3 u	196	79.1	3.0
		Silicon, Total	1440	2790	97.9	-1400. *	3.0
		Vanadium, Total	79.9	24.4	48.9	113.5	3.0
		Zinc, Total	77.3	26.6	48.9	103.7	3.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 09/12/07

CLIENT: TNUHANFORD RC-032 K0947 LVL LOT #: 0709L877

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-001REP	J15H73	Silver, Total	0.26u	0.26u	NC	3.0
		Aluminum, Total	4640	5220	11.8	3.0
		Arsenic, Total	1.5	1.5	0.00	3.0
		Boron, Total	1.1 u	1.1 u	NC	3.0
		Barium, Total	47.6	48.6	2.1	3.0
		Beryllium, Total	0.24	0.27	13.8	3.0
		Calcium, Total	5870	4780	20.6	3.0
		Cadmium, Total	0.15u	0.15u	NC	3.0
		Cobalt, Total	4.6	5.2	12.2	3.0
		Chromium, Total	7.2	7.3	1.4	3.0
		Copper, Total	11.2	12.4	10.2	3.0
		Iron, Total	11000	13300	18.2	3.0
		Mercury, Total	0.02u	0.02u	NC	1.0
		Potassium, Total	849	892	4.9	3.0
		Magnesium, Total	3250	3430	5.5	3.0
		Manganese, Total	221	252	13.1	3.0
		Molybdenum, Total	0.74	0.66	11.3	3.0
		Sodium, Total	171	186	8.5	3.0
		Nickel, Total	9.3	8.9	4.4	3.0
		Lead, Total	2.7	3.0	10.5	3.0
		Antimony, Total	0.65u	0.65u	NC	3.0
		Selenium, Total	1.3 u	1.3 u	NC	3.0
		Silicon, Total	2790	2430	13.8	3.0
		Vanadium, Total	24.4	29.5	18.9	3.0
		Zinc, Total	26.6	29.4	10	3.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 09/12/07

CLIENT: TNUHANFORD RC-032 K0947 LVL LOT #: 0709L877

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	07L0446-LC1	Silver, LCS	46.6	50.0	MG/KG	93.2
		Aluminum, LCS	480	500	MG/KG	96.1
		Arsenic, LCS	877	1000	MG/KG	87.7
		Boron, LCS	450	500	MG/KG	90.1
		Barium, LCS	479	500	MG/KG	95.7
		Beryllium, LCS	22.4	25.0	MG/KG	89.6
		Calcium, LCS	2200	2500	MG/KG	88.0
		Cadmium, LCS	21.8	25.0	MG/KG	87.2
		Cobalt, LCS	226	250	MG/KG	90.5
		Chromium, LCS	45.1	50.0	MG/KG	90.2
		Copper, LCS	123	125	MG/KG	98.2
		Iron, LCS	457	500	MG/KG	91.4
		Potassium, LCS	2380	2500	MG/KG	95.3
		Magnesium, LCS	2230	2500	MG/KG	89.1
		Manganese, LCS	69.6	75.0	MG/KG	92.8
		Molybdenum, LCS	442	500	MG/KG	88.4
		Sodium, LCS	2420	2500	MG/KG	96.9
		Nickel, LCS	180	200	MG/KG	89.8
		Lead, LCS	224	250	MG/KG	89.4
		Antimony, LCS	270	300	MG/KG	89.9
		Selenium, LCS	844	1000	MG/KG	84.4
		Silicon, LCS	439	500	MG/KG	87.9
		Vanadium, LCS	230	250	MG/KG	92.0
		Zinc, LCS	90.7	100	MG/KG	90.7
LCS1	07C0173-LC1	Mercury, LCS	2.7	2.8	MG/KG	95.2

nville Laboratory Use Only

7091877

Custody Transfer Record/Lab Work Request

Page 1 of 1

See SRC

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVL LIONVILLE LABORATORY INC.

000000030

nt INU HANFORD SAF# RC-032

Final Proj. Sampling Date

ject# 11343-606-001-9999-00

ject Contact/Phone#

nville Laboratory Project Manager O Johnson

SW846 Del SED TAT 3 day

e Rec'd 9-7-07 Date Due 9-10-07

		A		B								
Refrigerator #		3		3								
#/Type Container	Liquid											
	Solid	1P		1P								
Volume		250		125								
Preservatives		—		—								
ANALYSES REQUESTED →	ORGANIC: VOA	BNA	Pest/PCB	Herb				INORG: Metal	CN	Hex Chrom		
Lionville Laboratory Use Only								Metal		TCRG		

TRIX IES: Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP Leachate, Wipe, Other, Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Metal	TCRG
001	J15H73			Soil	9-5-07	0800	X	X
002	J15H74					0830	X	X
003	J15H75					0900	X	X
004	J15H76					0930	X	X
005	J15H77					0930	X	X
006	J15H78					1215	X	X
007	J15H79					1230	X	X
008	J15H80					1245	X	X
009	J15H81					1300	X	X
010	J15H82					1315	X	X

ecial Instructions:

Met ① = HSL + B, Mo, Si (NOTL)

Special Instructions:

1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[signature]	[signature]	9-7-07	0955

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		"COMPOSITE WASTE"	

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-032-154	Page 1 of 3

Collector T. Welch-Koelling	Company Contact R.T. Coffman	Telephone No. 528-6409	Project Coordinator KESSNER, JH	Price Code 8D	Data Turnaround 3DAY
Project Designation 100-F Remaining Sites Burial Grounds - Soil Full Protocol	Sampling Location 100-F-26:12 BCL Soil/Verification		SAF No. RC-032		
Ice Chest No. ERC-99-065	Field Logbook No. EFL-1174-3	COA R10F262000	Method of Shipment FED EX		
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A070408		Bill of Lading/Air Bill No. EL 05PC		

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

	A	B								
Preservation	None	Cool 4C	None	None	None	None				
Type of Container	P	P	P	P	P	P				
No. of Container(s)	1	1	1	1	1	1				
Volume	250mL	125mL	500mL	125mL	125mL	125mL				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	Carbon-14; Tritium - H3	Nickel-63; Strontium-89,90 – Total Sr	Gross Alpha; Gross Beta				

Sample No.	Matrix *	Sample Date	Sample Time										
J15H73	SOIL	9-5-07	0800	X	X								A1
J15H74	SOIL		0830	X	X								A2
J15H75	SOIL		0900	X	X								A3
J15H76	SOIL		0930	X	X								A4
J15H77	SOIL		0930	X	X								A4D

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature]	1400 9/5/07	JR DeBrigue [signature]	1400 9-5-07
JR DeBrigue [signature]	9-5-07 1530	3728/2B	1530 9-5-07
3728/2B 9-6-07	0900	KM Stapleton [signature] 9-6-07	0900
KM Stapleton [signature] 9-6-07	1500	FED EX	
FED EX 9-7-07	0955	[signature] 9-7-07	0955
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Client List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133, Silver-108 metastable}

Sampler unavailable to relinquish samples from 3728 Ref # 2B
3728 Custodian removed samples for shipping on 9/6/07.

Matrix *

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

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

WCH-EE-011

000000031

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-032-154	Page 2 of 3

Collector: T. Welch-Koelling	Company Contact: R.T. Coffman	Telephone No.: 528-6409	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 3 DAY		
Project Designation: 100-F Remaining Sites Burial Grounds - Soil Full Protocol	Sampling Location: 100-F-26:12 BCL Soil/Verification		SAF No.: RC-032
Ice Chest No.: EBC-99-065	Field Logbook No.: EFL-1174-3	COA: R10F262000	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A070408		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	None	None	None	None					
Type of Container	P	P	P	P	P	P					
No. of Container(s)	1	1	1	1	1	1					
Volume	250mL	125mL	500mL	125mL	125mL	125mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	Carbon-14; Tritium - H3	Nickel-63; Strontium-89,90 – Total Sr	Gross Alpha; Gross Beta					

Sample No.	Matrix *	Sample Date	Sample Time										
15H78	SOIL	9-5-07	1215	X	X								B5
15H79	SOIL		1230	X	X								B6
15H80	SOIL		1245	X	X								B7
15H81	SOIL		1300	X	X								B8
15H82	SOIL		1315	X	X								C9

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
T. Welch-Koelling	9-5-07 1200	JR DeBrigger	9-5-07 1400
JR DeBrigger	9-5-07 1530	3728/25	9-5-07 1530
3728/25	9-6-07 0900	KM Singleton	9-6-07 0900
KM Singleton	9-6-07 1500	FED EX	
FED EX	9-7-07 0955	Kurt Neumann	9-7-07 0955

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Client List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV)
(2) Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133, Silver-108 metastable)

Sampler unavailable to relinquish samples from 3728 Ref # 25. 3728 Custodian removed samples for shipping on 9 16 07.

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

/CH-EE-011

000000032

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

Project/SAP/SOW/Release #: RC-032

Date: 9/7/07

LvLI Batch #: 0709L877

Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7924 1256 6403
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	Comments:
4. All expected paperwork received (coc & other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 2-2°	°C	Cooler # ERC-99-065
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0947

RECEIVED SEP 2007

DATE RECEIVED: 09/07/07 LVL LOT # : 0709L877

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J15H73						
% SOLIDS	001	S	07L%S110	09/05/07	09/07/07	09/09/07
CHROMIUM VI	001	S	07LVI073	09/05/07	09/09/07	09/09/07
CHROMIUM VI	001 REP	S	07LVI073	09/05/07	09/09/07	09/09/07
CHROMIUM VI	001 MS	S	07LVI073	09/05/07	09/09/07	09/09/07
CHROMIUM VI	001 MSD	S	07LVI073	09/05/07	09/09/07	09/09/07
J15H74						
% SOLIDS	002	S	07L%S110	09/05/07	09/07/07	09/09/07
CHROMIUM VI	002	S	07LVI073	09/05/07	09/09/07	09/09/07
J15H75						
% SOLIDS	003	S	07L%S110	09/05/07	09/07/07	09/09/07
CHROMIUM VI	003	S	07LVI073	09/05/07	09/09/07	09/09/07
J15H76						
% SOLIDS	004	S	07L%S110	09/05/07	09/07/07	09/09/07
CHROMIUM VI	004	S	07LVI073	09/05/07	09/09/07	09/09/07
J15H77						
% SOLIDS	005	S	07L%S110	09/05/07	09/07/07	09/09/07
CHROMIUM VI	005	S	07LVI073	09/05/07	09/09/07	09/09/07
J15H78						
% SOLIDS	006	S	07L%S110	09/05/07	09/07/07	09/09/07
CHROMIUM VI	006	S	07LVI073	09/05/07	09/09/07	09/09/07
J15H79						
% SOLIDS	007	S	07L%S110	09/05/07	09/07/07	09/09/07
CHROMIUM VI	007	S	07LVI073	09/05/07	09/09/07	09/09/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0947

DATE RECEIVED: 09/07/07 LVL LOT # :0709L877

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J15H80						
% SOLIDS	008	S	07L%S110	09/05/07	09/07/07	09/09/07
CHROMIUM VI	008	S	07LVI073	09/05/07	09/09/07	09/09/07
J15H81						
% SOLIDS	009	S	07L%S110	09/05/07	09/07/07	09/09/07
CHROMIUM VI	009	S	07LVI073	09/05/07	09/09/07	09/09/07
J15H82						
% SOLIDS	010	S	07L%S110	09/05/07	09/07/07	09/09/07
% SOLIDS	010 REP	S	07L%S110	09/05/07	09/07/07	09/09/07
CHROMIUM VI	010	S	07LVI073	09/05/07	09/09/07	09/09/07
LAB QC:						
CHROMIUM VI	MB1	S	07LVI073	N/A	09/09/07	09/09/07
CHROMIUM VI	MB1 BS	S	07LVI073	N/A	09/09/07	09/09/07
CHROMIUM VI	MB1 BSD	S	07LVI073	N/A	09/09/07	09/09/07

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-032 K0947
LVL#: 0709L877

W.O.#: 11343-606-001-9999-00
Date Received: 09-07-07

INORGANIC NARRATIVE

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

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

   LvLI is NELAP accredited by the State of Pennsylvania. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager. LvLI certifies that all test results meet the requirements of NELAC with any exception noted in the following statements.

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 Chromium VI was within the method criteria.

6. The Laboratory Control Samples (LCS) for Chromium VI were within the laboratory control limits.

7. The matrix spike recoveries for Chromium VI were within the 75-125% control limits.

8. The replicate analyses for Percent Solids and Chromium VI 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

9/13/07
Date

njp\i09-877

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.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	ASTM	SW846	OTHER
% Ash	__ D2216-80		
% Moisture	__ D2216-80		__ ILMO4.0 (e)
% Solids	✓ D2216-80		__ ILMO4.0 (e)
% Volatile Solids	__ D2216-80		
ASTM Extraction in Water	__ D3987-81/85		
BTU	__ D240-87		
CEC		__ 9081	__ c
Chromium VI		✓ 3060A/7196A	
Corrosivity ___ by coupon ___ by pH		__ 1110(mod) __ 9045C	
Cyanide, Total		__ 9010B	__ ILMO4.0 (e)
Cyanide, Reactive		__ Section 7.3/9014	
Halides, Extractable Organic		__ 9020B	__ EPA 600/4/84-008
Halides, Total		__ 9020B	__ EPA 600/4/84-008
EP Toxicity		__ 1310A	
Flash Point		__ 1010	
Ignitability		__ 1010	
Oil & Grease		__ 9071A	
Carbon, Total Organic		__ 9060	__ Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	__ D240-87(mod)	__ 5050	
Petroleum Hydrocarbons, Total Recoverable		__ 9071	__ EPA 418.1
pH, Soil		__ 9045C	
Sulfide, Reactive		__ Section 7.3/9030B	
Sulfide		__ 9030B(mod)	
Specific Gravity	__ D1429-76C/	__ D5057-90	
Sulfur, Total		__ 9056	
Synthetic Preparation Leach		__ 1312	
Paint Filter		__ 9095A	

Other: **Method:**

Other: **Method**

L-WI-034/B-01/01

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/10/07

CLIENT: TNU-HANFORD RC-032 K0947 LVL LOT #: 0709L877

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J15H73	% Solids	99.2		%	0.01	1.0
		Chromium VI	0.33		MG/KG	0.20	1.0
-002	J15H74	% Solids	98.8		%	0.01	1.0
		Chromium VI	0.22		MG/KG	0.20	1.0
-003	J15H75	% Solids	99.5		%	0.01	1.0
		Chromium VI	0.31		MG/KG	0.20	1.0
-004	J15H76	% Solids	98.1		%	0.01	1.0
		Chromium VI	2.0	u	MG/KG	2.0	10.0
-005	J15H77	% Solids	98.7		%	0.01	1.0
		Chromium VI	20.3	u	MG/KG	20.3	100
-006	J15H78	% Solids	99.7		%	0.01	1.0
		Chromium VI	0.22		MG/KG	0.20	1.0
-007	J15H79	% Solids	99.7		%	0.01	1.0
		Chromium VI	0.29		MG/KG	0.20	1.0
-008	J15H80	% Solids	99.6		%	0.01	1.0
		Chromium VI	0.20	u	MG/KG	0.20	1.0
-009	J15H81	% Solids	99.9		%	0.01	1.0
		Chromium VI	0.31		MG/KG	0.20	1.0
-010	J15H82	% Solids	99.2		%	0.01	1.0
		Chromium VI	0.29		MG/KG	0.20	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 09/10/07

CLIENT: TNU-HANFORD RC-032 K0947 LVL LOT #: 0709L877

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	07LVI073-MB1	Chromium VI	0.20 u	MG/KG	0.20	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 09/10/07

CLIENT: TNU-HANFORD RC-032 K0947 LVL LOT #: 0709L877

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J15H73	Soluble Chromium VI	3.9	0.33	4.0	88.6	1.0
		Insoluble Chromium VI	1190	0.33	1210	98.3	100
BLANK10	07LVI073-MB1	Soluble Chromium VI	4.0	0.20u	4.0	100	1.0
		Insoluble Chromium VI	1220	0.20u	1230	98.9	100

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 09/10/07

CLIENT: TNU-HANFORD RC-032 K0947 LVL LOT #: 0709L877

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J15H73	Chromium VI	0.33	0.30	10.4	1.0
-010REP	J15H82	% Solids	99.2	99.6	0.45	1.0

nville Laboratory Use Only

7091877

Custody Transfer Record/Lab Work Request

Page 1 of 1

See SRC

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

nt TNU HANFORD SAF# RC-032

Final Proj. Sampling Date

ect# 11343-606-001-9999-00

ect Contact/Phone#

nville Laboratory Project Manager O Johnson

SW846 Del STD TAT 3 day

Rec'd 9-7-07 Date Due 9-10-07

		A		B									
Refrigerator #		3		3									
#/Type Container	Liquid / Solid	1P		1P									
Volume		250		125									
Preservatives		—		—									
ANALYSES REQUESTED →	ORGANIC: VOA	BNA	Pest/PCB	Herb				INORG: Metal	CN	Hg+Cr6			
	Lionville Laboratory Use Only							Met①		ICP6			

Matrix Codes: Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP, Leachate, Wipe, Other, Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Met①	ICP6
001	J15H73			Soil	9-5-07	0800	X	X
002	J15H74					0830	X	X
003	J15H75					0900	X	X
004	J15H76					0930	X	X
005	J15H77					0930	X	X
006	J15H78					1215	X	X
007	J15H79					1230	X	X
008	J15H80					1245	X	X
009	J15H81					1300	X	X
010	J15H82					1315	X	X

ecial Instructions:

Met① = HSL + B, Mo, Si (NOTL)

Special Instructions:

1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	9-7-07	0955

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		"COMPOSITE WASTE"	

000000010

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-032-154	Page 1 of 3

Collector: T. Welch-Koelling	Company Contact: R.T. Coffman	Telephone No.: 528-6409	Project Coordinator: KESSNER, JH
Price Code: 8D	Data Turnaround: 3DAY		
Project Designation: 100-F Remaining Sites Burial Grounds - Soil Full Protocol	Sampling Location: 100-F-26:12 BCL Soil/Verification		SAF No.: RC-032
Ice Chest No.: EBC-99-065	Field Logbook No.: EFL-1174-3	COA: R10F262000	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A070408		Bill of Lading/Air Bill No.: EL 05PC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	A None	B Cool 4C	None	None	None	None					
Type of Container	P	P	P	P	P	P					
No. of Container(s)	1	1	1	1	1	1					
Volume	250mL	125mL	500mL	125mL	125mL	125mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	Carbon-14; Tritium - H3	Nickel-63; Strontium-89,90 – Total Sr	Gross Alpha; Gross Beta					

Sample No.	Matrix *	Sample Date	Sample Time										
J15H73	SOIL	9-5-07	0800	X	X								A1
J15H74	SOIL		0830	X	X								A2
J15H75	SOIL		0900	X	X								A3
J15H76	SOIL		0930	X	X								A4
J15H77	SOIL		0930	X	X								A4 D

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature]	1400 9/5/07	JR DeBrigne [signature]	1400 9-5-07
JR DeBrigne [signature]	1530 9-5-07	3728/2B	1530 9-5-07
3728/2B 9-6-07	0900	KM Sorbo [signature] 9-6-07	0900
KM Sorbo [signature] 9-6-07	1000 1500	FED EX	
FED EX 9-7-07	0955	[signature] 9-7-07	0955

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Client List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on (Barium-133, Silver-108 metastable)

Samples unavailable to relinquish samples from 3728 Ref # 2B
3728 Custodian removed samples for shipping on 9/6/07

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

NCH-EE-011

000000011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-032-154	Page 2 of 3

Collector: T. Welch-Koelling	Company Contact: R.T. Coffman — Telephone No.: 528-6409	Project Coordinator: KESSNER, JH	Price Code: 8B — Data Turnaround: 3 DAY
Project Designation: 100-F Remaining Sites Burial Grounds - Soil Full Protocol	Sampling Location: 100-F-26:12 BCL Soil/Verification	SAF No.: RC-032	
Ice Chest No.: EBC-99-065	Field Logbook No.: EFL-1174-3 — COA: R10F262000	Method of Shipment: FED EX	
Shipped To: EBERLINE SERVICES, LIONVILLE	Offsite Property No.: A070408	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	None	None	None	None					
Type of Container	P	P	P	P	P	P					
No. of Container(s)	1	1	1	1	1	1					
Volume	250mL	125mL	500mL	125mL	125mL	125mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	Carbon-14; Tritium - H3	Nickel-63; Strontium-89,90 – Total Sr	Gross Alpha; Gross Beta					

Sample No.	Matrix *	Sample Date	Sample Time										
J15H78	SOIL	9-5-07	1215	X	X								B5
J15H79	SOIL		1230	X	X								B6
J15H80	SOIL		1245	X	X								B7
J15H81	SOIL		1300	X	X								B8
J15H82	SOIL		1315	X	X								C9

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
T. Welch-Koelling	9-5-07 1200	JR DeBrigge	9-5-07 1400
JR DeBrigge	9-5-07 1530	3728/28	9-5-07 1530
3728/28	9-6-07 0900	K.M. Singleton	9-6-07 0900
K.M. Singleton	9-6-07 1500	FED EX	
FED EX	9-7-07 0955	Jack Neumann	9-7-07 0955

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Client List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV)
(2) Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133, Silver-108 metastable)

Sampler unavailable to relinquish samples from 3728 Ref # 28. 3728 Custodian removed samples for shipping on 9/6/07.

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

NCH-EE-011

000000012

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

Date: 9/7/07

Project/SAF/SOW/Release #: RC-032

LvLI Batch #: 0709L877

Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7924 1256 6403
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	Comments:
4. All expected paperwork received (coc & other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 2-2°	°C	Cooler # ERC-99-065
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI