0074193

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

COMPLETE COPY OF DATA PACKAGE TO:

Randy Coffman	X9-07	KW 10/16/07 INITIAL/DATE
Jeanette Duncan	H4-21	KW 10/16/07 INITIAL/DATE

COMMENTS:

SDG K0978 SAF-RC-032

Rad only Chem only X Rad & Chem

X Complete Partial

Waste Site: **100-F-26:4 Verification**

RECEIVED
OCT 24 2007
EDMC

EBERLINE
SERVICES

RECEIVED
OCT 2007

October 12, 2007

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

Reference: **P.O. #630**
Eberline Services R7-09-159-7886, SDG K0978

Dear Ms. Kessner:

Enclosed is the data report for seven solid (soil) samples designated under SAF No. RC-032, received at Eberline Services on September 27, 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/

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 K0978 was composed of seven 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 October 5, 2007.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analysis

No problems were encountered during the course of the analyses.

2.2 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."

Melissa Mannion

Melissa C. Mannion
Senior Program Manager

10/12/7

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 K0978

SDG	7886
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. 630
Case no	SDG_K0978

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

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Melissa Mannion
Prepared by

Melissa Mannion
Reviewed by

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	10/05/07

SDG 7886
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K0978

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 10/05/07

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.

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0978

SDG 7886
Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford
Contract No. 630
Case no SDG K0978

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R709159-01	J15P19	100-F-26:4 Verification	SOLID		RC-032	RC-032-166	09/25/07 09:00
R709159-02	J15P20	100-F-26:4 Verification	SOLID		RC-032	RC-032-166	09/25/07 09:20
R709159-03	J15P21	100-F-26:4 Verification	SOLID		RC-032	RC-032-166	09/25/07 09:40
R709159-04	J15P22	100-F-26:4 Verification	SOLID		RC-032	RC-032-166	09/25/07 13:00
R709159-05	J15P23	100-F-26:4 Verification	SOLID		RC-032	RC-032-166	09/25/07 13:15
R709159-06	J15P24	100-F-26:4 Verification	SOLID		RC-032	RC-032-166	09/25/07 13:30
R709159-07	J15P25	100-F-26:4 Verification	SOLID		RC-032	RC-032-166	09/25/07 13:45
R709159-08	Lab Control Sample		SOLID		RC-032		
R709159-09	Method Blank		SOLID		RC-032		
R709159-10	Duplicate (R709159-03)	100-F-26:4 Verification	SOLID		RC-032		09/25/07 09:40

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 10/05/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0978

SDG 7886
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG K0978

QC 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
7886	RC-032-166	J15P19	SOLID	99.4	1143 g		09/27/07	2	R709159-01	7886-001
		J15P20	SOLID	99.4	978 g		09/27/07	2	R709159-02	7886-002
		J15P21	SOLID	99.5	1018 g		09/27/07	2	R709159-03	7886-003
		J15P22	SOLID	99.5	1060 g		09/27/07	2	R709159-04	7886-004
		J15P23	SOLID	99.6	984 g		09/27/07	2	R709159-05	7886-005
		J15P24	SOLID	99.4	1032 g		09/27/07	2	R709159-06	7886-006
		J15P25	SOLID	99.5	1037 g		09/27/07	2	R709159-07	7886-007
		Method Blank	SOLID						R709159-09	7886-009
		Lab Control Sample	SOLID						R709159-08	7886-008
		Duplicate (R709159-03)	SOLID	99.5	1018 g		09/27/07	2	R709159-10	7886-010

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 10/05/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0978

SDG 7886
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG K0978

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Gas Proportional Counting												
93A	SOLID	Gross Alpha in Solids	6126-176	20.0	7			1	1	1/1		
93B	SOLID	Gross Beta in Solids	6126-176	15.0	7			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6126-176	15.0	7			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 10/05/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0978

SDG 7886
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG K0978

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R709159-01	J15P19			7886-001	93A/93		10/02/07	10/03/07	BW	Gross Alpha in Solids
09/25/07	100-F-26:4 Verification		SOLID	7886-001	93B/93		10/02/07	10/03/07	BW	Gross Beta in Solids
09/27/07	RC-032-166	RC-032		7886-001	GAM		10/02/07	10/02/07	CSS	Gamma Scan
R709159-02	J15P20			7886-002	93A/93		10/02/07	10/03/07	BW	Gross Alpha in Solids
09/25/07	100-F-26:4 Verification		SOLID	7886-002	93B/93		10/02/07	10/03/07	BW	Gross Beta in Solids
09/27/07	RC-032-166	RC-032		7886-002	GAM		10/02/07	10/02/07	CSS	Gamma Scan
R709159-03	J15P21			7886-003	93A/93		10/02/07	10/03/07	BW	Gross Alpha in Solids
09/25/07	100-F-26:4 Verification		SOLID	7886-003	93B/93		10/02/07	10/03/07	BW	Gross Beta in Solids
09/27/07	RC-032-166	RC-032		7886-003	GAM		10/02/07	10/02/07	CSS	Gamma Scan
R709159-04	J15P22			7886-004	93A/93		10/02/07	10/03/07	BW	Gross Alpha in Solids
09/25/07	100-F-26:4 Verification		SOLID	7886-004	93B/93		10/02/07	10/03/07	BW	Gross Beta in Solids
09/27/07	RC-032-166	RC-032		7886-004	GAM		10/02/07	10/02/07	CSS	Gamma Scan
R709159-05	J15P23			7886-005	93A/93		10/02/07	10/03/07	BW	Gross Alpha in Solids
09/25/07	100-F-26:4 Verification		SOLID	7886-005	93B/93		10/02/07	10/03/07	BW	Gross Beta in Solids
09/27/07	RC-032-166	RC-032		7886-005	GAM		10/02/07	10/02/07	CSS	Gamma Scan
R709159-06	J15P24			7886-006	93A/93		10/02/07	10/03/07	BW	Gross Alpha in Solids
09/25/07	100-F-26:4 Verification		SOLID	7886-006	93B/93		10/02/07	10/03/07	BW	Gross Beta in Solids
09/27/07	RC-032-166	RC-032		7886-006	GAM		10/02/07	10/02/07	CSS	Gamma Scan
R709159-07	J15P25			7886-007	93A/93		10/02/07	10/03/07	BW	Gross Alpha in Solids
09/25/07	100-F-26:4 Verification		SOLID	7886-007	93B/93		10/02/07	10/03/07	BW	Gross Beta in Solids
09/27/07	RC-032-166	RC-032		7886-007	GAM		10/02/07	10/02/07	CSS	Gamma Scan
R709159-08	Lab Control Sample			7886-008	93A/93		10/02/07	10/03/07	BW	Gross Alpha in Solids
			SOLID	7886-008	93B/93		10/02/07	10/03/07	BW	Gross Beta in Solids
		RC-032		7886-008	GAM		10/02/07	10/02/07	CSS	Gamma Scan
R709159-09	Method Blank			7886-009	93A/93		10/02/07	10/03/07	BW	Gross Alpha in Solids
			SOLID	7886-009	93B/93		10/02/07	10/03/07	BW	Gross Beta in Solids
		RC-032		7886-009	GAM		10/02/07	10/02/07	CSS	Gamma Scan
R709159-10	Duplicate (R709159-03)			7886-010	93A/93		10/02/07	10/03/07	BW	Gross Alpha in Solids
09/25/07	100-F-26:4 Verification		SOLID	7886-010	93B/93		10/02/07	10/03/07	BW	Gross Beta in Solids
09/27/07		RC-032		7886-010	GAM		10/02/07	10/02/07	CSS	Gamma Scan

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 10/05/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0978

SDG 7886
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG K0978

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
93A/93	RC-032	Gross Alpha in Solids	900.0_ALPHABETA_GPC	7			1	1	1	10
93B/93	RC-032	Gross Beta in Solids	900.0_ALPHABETA_GPC	7			1	1	1	10
GAM	RC-032	Gamma Scan	GAMMA_GS	7			1	1	1	10
TOTALS				21			3	3	3	30

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 10/05/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0978

7886-009 Method Blank

METHOD BLANK

SDG	7886	Client/Case no	Hanford		SDG K0978
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R709159-09	Client sample id	Method Blank		
Dept sample id	7886-009	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	-6.83	5.7	12.6	10.0	U	93A
Gross Beta	12587-47-2	-0.446	3.1	5.56	15.0	U	93B
Potassium 40	13966-00-2	U		0.412		U	GAM
Cobalt 60	10198-40-0	U		0.017	0.050	U	GAM
Cesium 137	10045-97-3	U		0.015	0.100	U	GAM
Radium 226	13982-63-3	U		0.043	0.100	U	GAM
Radium 228	15262-20-1	U		0.073	0.200	U	GAM
Europium 152	14683-23-9	U		0.041	0.100	U	GAM
Europium 154	15585-10-1	U		0.042	0.100	U	GAM
Europium 155	14391-16-3	U		0.051	0.100	U	GAM
Thorium 228	14274-82-9	U		0.026		U	GAM
Thorium 232	TH-232	U		0.073		U	GAM
Uranium 235	15117-96-1	U		0.071		U	GAM
Uranium 238	U-238	U		1.63		U	GAM
Americium 241	14596-10-2	U		0.091		U	GAM
Silver 108m	14391-65-2	U		0.012		U	GAM
Barium 133	13981-41-4	U		0.015		U	GAM

100-F Remaining Sites Burial Grounds

QC-BLANK #62973

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/05/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0978

7886-008

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7886

Contact Melissa C. Mannion

Client/Case no Hanford SDG K0978

Contract No. 630

Lab sample id R709159-08

Dept sample id 7886-008

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	128	18	6.96	10.0		93A	111	4.4	115	57-143	70-130
Gross Beta	115	9.3	9.34	15.0		93B	114	4.6	101	74-126	80-120
Cobalt 60	0.751	0.064	0.037	0.050		GAM	0.765	0.031	98	74-126	80-120
Cesium 137	0.828	0.058	0.044	0.100		GAM	0.793	0.032	104	73-127	80-120

100-F Remaining Sites Burial Grounds

QC-LCS #62972

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 10/05/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0978

7886-010 J15P21

DUPLICATE

SDG	7886	Client/Case no	Hanford SDG K0978
Contact	Melissa C. Mannion	Contract	No. 630
DUPLICATE		ORIGINAL	
Lab sample id	R709159-10	Lab sample id	R709159-03
Dept sample id	7886-010	Dept sample id	7886-003
		Received	09/27/07
% solids	99.5	% solids	99.5
Client sample id	J15P21		
Location/Matrix	100-F-26:4 Verification SOLID		
Collected/Weight	09/25/07 09:40 1018 g		
Custody/SAF No	RC-032-166 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	5.79	6.2	9.28	10.0	U	93A	12.2	7.2	9.46		71	165	1.3
Gross Beta	18.8	4.4	5.75	15.0		93B	19.4	4.3	5.60		3	58	0.2
Potassium 40	12.4	0.82	0.268			GAM	12.3	0.76	0.244		1	35	0.1
Cobalt 60	U		0.033	0.050	U	GAM	U		0.027	U	-		0.3
Cesium 137	0.086	0.032	0.032	0.100		GAM	0.062	0.028	0.030		32	92	1.1
Radium 226	0.469	0.066	0.061	0.100		GAM	0.489	0.056	0.052		4	42	0.3
Radium 228	0.690	0.13	0.119	0.200		GAM	0.707	0.10	0.101		2	47	0.2
Europium 152	U		0.088	0.100	U	GAM	U		0.087	U	-		0
Europium 154	U		0.112	0.100	U	GAM	U		0.095	U	-		0.2
Europium 155	U		0.066	0.100	U	GAM	U		0.058	U	-		0.2
Thorium 228	0.721	0.045	0.042			GAM	0.696	0.039	0.036		4	34	0.3
Thorium 232	0.690	0.13	0.119			GAM	0.707	0.10	0.101		2	47	0.2
Uranium 235	U		0.122		U	GAM	U		0.145	U	-		0.2
Uranium 238	U		4.07		U	GAM	U		3.38	U	-		0.3
Americium 241	U		0.041		U	GAM	U		0.036	U	-		0.2
Silver 108m	U		0.022		U	GAM	U		0.019	U	-		0.2
Barium 133	U		0.037		U	GAM	U		0.031	U	-		0.2

100-F Remaining Sites Burial Grounds

QC-DUP#3 62974

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	10/05/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0978

7886-001 J15P19

DATA SHEET

SDG	7886	Client/Case no	Hanford	SDG K0978	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R709159-01	Client sample id	J15P19		
Dept sample id	7886-001	Location/Matrix	100-F-26:4 Verification	SOLID	
Received	09/27/07	Collected/Weight	09/25/07 09:00	1143 g	
% solids	99.4	Custody/SAF No	RC-032-166	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	6.98	7.3	10.1	10.0	U	93A
Gross Beta	12587-47-2	17.9	4.4	5.90	15.0		93B
Potassium 40	13966-00-2	13.7	0.70	0.359			GAM
Cobalt 60	10198-40-0	U		0.031	0.050	U	GAM
Cesium 137	10045-97-3	U		0.026	0.100	U	GAM
Radium 226	13982-63-3	0.443	0.060	0.060	0.100		GAM
Radium 228	15262-20-1	0.610	0.12	0.108	0.200		GAM
Europium 152	14683-23-9	U		0.070	0.100	U	GAM
Europium 154	15585-10-1	U		0.109	0.100	U	GAM
Europium 155	14391-16-3	U		0.088	0.100	U	GAM
Thorium 228	14274-82-9	0.580	0.038	0.038			GAM
Thorium 232	TH-232	0.610	0.12	0.108			GAM
Uranium 235	15117-96-1	U		0.131		U	GAM
Uranium 238	U-238	U		3.45		U	GAM
Americium 241	14596-10-2	U		0.192		U	GAM
Silver 108m	14391-65-2	U		0.021		U	GAM
Barium 133	13981-41-4	U		0.032		U	GAM

100-F Remaining Sites Burial Grounds

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/05/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0978

7886-002 J15P20

DATA SHEET

SDG	7886	Client/Case no	Hanford	SDG K0978	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R709159-02	Client sample id	J15P20		
Dept sample id	7886-002	Location/Matrix	100-F-26:4 Verification	SOLID	
Received	09/27/07	Collected/Weight	09/25/07 09:20	978 g	
% solids	99.4	Custody/SAF No	RC-032-166	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	6.82	7.0	10.8	10.0	U	93A
Gross Beta	12587-47-2	19.0	4.4	5.82	15.0		93B
Potassium 40	13966-00-2	13.1	0.58	0.235			GAM
Cobalt 60	10198-40-0	U		0.021	0.050	U	GAM
Cesium 137	10045-97-3	0.071	0.024	0.027	0.100		GAM
Radium 226	13982-63-3	0.518	0.043	0.038	0.100		GAM
Radium 228	15262-20-1	0.700	0.087	0.082	0.200		GAM
Europium 152	14683-23-9	0.090	0.048	0.064	0.100		GAM
Europium 154	15585-10-1	U		0.068	0.100	U	GAM
Europium 155	14391-16-3	U		0.076	0.100	U	GAM
Thorium 228	14274-82-9	0.640	0.032	0.031			GAM
Thorium 232	TH-232	0.700	0.087	0.082			GAM
Uranium 235	15117-96-1	U		0.106		U	GAM
Uranium 238	U-238	U		2.46		U	GAM
Americium 241	14596-10-2	U		0.147		U	GAM
Silver 108m	14391-65-2	U		0.016		U	GAM
Barium 133	13981-41-4	U		0.024		U	GAM

100-F Remaining Sites Burial Grounds

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/05/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0978

7886-003 J15P21

DATA SHEET

SDG	7886	Client/Case no	Hanford	SDG K0978	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R709159-03	Client sample id	J15P21		
Dept sample id	7886-003	Location/Matrix	100-F-26:4 Verification	SOLID	
Received	09/27/07	Collected/Weight	09/25/07 09:40	1018 g	
% solids	99.5	Custody/SAF No	RC-032-166	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	12.2	7.2	9.46	10.0		93A
Gross Beta	12587-47-2	19.4	4.3	5.60	15.0		93B
Potassium 40	13966-00-2	12.3	0.76	0.244			GAM
Cobalt 60	10198-40-0	U		0.027	0.050	U	GAM
Cesium 137	10045-97-3	0.062	0.028	0.030	0.100		GAM
Radium 226	13982-63-3	0.489	0.056	0.052	0.100		GAM
Radium 228	15262-20-1	0.707	0.10	0.101	0.200		GAM
Europium 152	14683-23-9	U		0.087	0.100	U	GAM
Europium 154	15585-10-1	U		0.095	0.100	U	GAM
Europium 155	14391-16-3	U		0.058	0.100	U	GAM
Thorium 228	14274-82-9	0.696	0.039	0.036			GAM
Thorium 232	TH-232	0.707	0.10	0.101			GAM
Uranium 235	15117-96-1	U		0.145		U	GAM
Uranium 238	U-238	U		3.38		U	GAM
Americium 241	14596-10-2	U		0.036		U	GAM
Silver 108m	14391-65-2	U		0.019		U	GAM
Barium 133	13981-41-4	U		0.031		U	GAM

100-F Remaining Sites Burial Grounds

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/05/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0978

7886-004 J15P22

DATA SHEET

SDG	7886	Client/Case no	Hanford	SDG_K0978	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R709159-04	Client sample id	J15P22		
Dept sample id	7886-004	Location/Matrix	100-F-26:4 Verification	SOLID	
Received	09/27/07	Collected/Weight	09/25/07 13:00	1060 g	
% solids	99.5	Custody/SAF No	RC-032-166	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	11.3	8.4	11.9	10.0	U	93A
Gross Beta	12587-47-2	20.2	6.1	9.29	15.0		93B
Potassium 40	13966-00-2	14.3	0.55	0.199			GAM
Cobalt 60	10198-40-0	U		0.022	0.050	U	GAM
Cesium 137	10045-97-3	U		0.028	0.100	U	GAM
Radium 226	13982-63-3	0.576	0.048	0.045	0.100		GAM
Radium 228	15262-20-1	0.734	0.11	0.104	0.200		GAM
Europium 152	14683-23-9	U		0.065	0.100	U	GAM
Europium 154	15585-10-1	U		0.080	0.100	U	GAM
Europium 155	14391-16-3	U		0.061	0.100	U	GAM
Thorium 228	14274-82-9	0.776	0.033	0.029			GAM
Thorium 232	TH-232	0.734	0.11	0.104			GAM
Uranium 235	15117-96-1	U		0.098		U	GAM
Uranium 238	U-238	U		2.73		U	GAM
Americium 241	14596-10-2	U		0.041		U	GAM
Silver 108m	14391-65-2	U		0.017		U	GAM
Barium 133	13981-41-4	U		0.021		U	GAM

100-F Remaining Sites Burial Grounds

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/05/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0978

7886-005 J15P23

DATA SHEET

SDG	7886	Client/Case no	Hanford	SDG K0978
Contact	Melissa C. Mannion	Contract	No. 630	
Lab sample id	R709159-05	Client sample id	J15P23	
Dept sample id	7886-005	Location/Matrix	100-F-26:4 Verification	SOLID
Received	09/27/07	Collected/Weight	09/25/07 13:15	984 g
% solids	99.6	Custody/SAF No	RC-032-166	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	-2.73	6.4	12.6	10.0	U	93A
Gross Beta	12587-47-2	17.8	5.8	8.88	15.0		93B
Potassium 40	13966-00-2	14.8	0.66	0.231			GAM
Cobalt 60	10198-40-0	U		0.027	0.050	U	GAM
Cesium 137	10045-97-3	U		0.027	0.100	U	GAM
Radium 226	13982-63-3	0.564	0.056	0.051	0.100		GAM
Radium 228	15262-20-1	0.863	0.15	0.132	0.200		GAM
Europium 152	14683-23-9	U		0.072	0.100	U	GAM
Europium 154	15585-10-1	U		0.096	0.100	U	GAM
Europium 155	14391-16-3	U		0.071	0.100	U	GAM
Thorium 228	14274-82-9	0.779	0.041	0.035			GAM
Thorium 232	TH-232	0.863	0.15	0.132			GAM
Uranium 235	15117-96-1	U		0.117		U	GAM
Uranium 238	U-238	U		3.14		U	GAM
Americium 241	14596-10-2	U		0.047		U	GAM
Silver 108m	14391-65-2	U		0.019		U	GAM
Barium 133	13981-41-4	U		0.025		U	GAM

100-F Remaining Sites Burial Grounds

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/05/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0978

7886-006 J15P24

DATA SHEET

SDG	7886	Client/Case no	Hanford	SDG K0978	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R709159-06	Client sample id	J15P24		
Dept sample id	7886-006	Location/Matrix	100-F-26:4 Verification	SOLID	
Received	09/27/07	Collected/Weight	09/25/07 13:30	1032 g	
% solids	99.4	Custody/SAF No	RC-032-166	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	8.55	7.2	10.4	10.0	U	93A
Gross Beta	12587-47-2	19.7	4.4	5.70	15.0		93B
Potassium 40	13966-00-2	14.8	0.70	0.286			GAM
Cobalt 60	10198-40-0	U		0.029	0.050	U	GAM
Cesium 137	10045-97-3	U		0.032	0.100	U	GAM
Radium 226	13982-63-3	0.599	0.060	0.056	0.100		GAM
Radium 228	15262-20-1	0.887	0.13	0.126	0.200		GAM
Europium 152	14683-23-9	U		0.078	0.100	U	GAM
Europium 154	15585-10-1	U		0.102	0.100	U	GAM
Europium 155	14391-16-3	U		0.076	0.100	U	GAM
Thorium 228	14274-82-9	0.821	0.041	0.033			GAM
Thorium 232	TH-232	0.887	0.13	0.126			GAM
Uranium 235	15117-96-1	U		0.125		U	GAM
Uranium 238	U-238	U		3.39		U	GAM
Americium 241	14596-10-2	U		0.050		U	GAM
Silver 108m	14391-65-2	U		0.020		U	GAM
Barium 133	13981-41-4	U		0.028		U	GAM

100-F Remaining Sites Burial Grounds

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/05/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0978

7886-007 J15P25

DATA SHEET

SDG	7886	Client/Case no	Hanford	SDG K0978
Contact	Melissa C. Mannion	Contract	No. 630	
Lab sample id	R709159-07	Client sample id	J15P25	
Dept sample id	7886-007	Location/Matrix	100-F-26:4 Verification	SOLID
Received	09/27/07	Collected/Weight	09/25/07 13:45	1037 g
% solids	99.5	Custody/SAF No	RC-032-166	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	13.4	7.8	9.66	10.0		93A
Gross Beta	12587-47-2	17.8	4.7	6.25	15.0		93B
Potassium 40	13966-00-2	14.4	0.85	0.255			GAM
Cobalt 60	10198-40-0	U		0.041	0.050	U	GAM
Cesium 137	10045-97-3	U		0.040	0.100	U	GAM
Radium 226	13982-63-3	0.514	0.063	0.055	0.100		GAM
Radium 228	15262-20-1	0.662	0.19	0.187	0.200		GAM
Europium 152	14683-23-9	U		0.092	0.100	U	GAM
Europium 154	15585-10-1	U		0.146	0.100	U	GAM
Europium 155	14391-16-3	U		0.120	0.100	U	GAM
Thorium 228	14274-82-9	0.846	0.081	0.080			GAM
Thorium 232	TH-232	0.662	0.19	0.187			GAM
Uranium 235	15117-96-1	U		0.178		U	GAM
Uranium 238	U-238	U		4.91		U	GAM
Americium 241	14596-10-2	U		0.281		U	GAM
Silver 108m	14391-65-2	U		0.029		U	GAM
Barium 133	13981-41-4	U		0.046		U	GAM

100-F Remaining Sites Burial Grounds

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/05/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0978

Test 93A	Matrix SOLID
SDG 7886	
Contact Melissa C. Mannion	

LAB METHOD SUMMARY

GROSS ALPHA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client Hanford	
Contract No. 630	
Contract SDG K0978	

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha	
Preparation batch 6126-176						
R709159-01	93		7886-001	J15P19	U	
R709159-02	93		7886-002	J15P20	U	
R709159-03	93		7886-003	J15P21	12.2	
R709159-04	93		7886-004	J15P22	11.3	U
R709159-05	93		7886-005	J15P23	U	
R709159-06	93		7886-006	J15P24	U	
R709159-07	93		7886-007	J15P25	13.4	
R709159-08	93		7886-008	LCS (QC ID=62972)	ok	
R709159-09	93		7886-009	BLK (QC ID=62973)	U	
R709159-10	93		7886-010	Duplicate (R709159-03)	ok	U
Nominal values and limits from method				RDLs (pCi/g)	10.0	
100-F Remaining Sites Burial Grounds						

METHOD PERFORMANCE

LAB SAMPLE 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
Preparation batch 6126-176			2σ prep error 20.0 %	Reference Lab Notebook #6126, pg. 176												
R709159-01	93		J15P19	10.1	0.100			80		100			7	10/02/07	10/02	GRB-209
R709159-02	93		J15P20	10.8	0.100			81		100			7	10/02/07	10/02	GRB-210
R709159-03	93		J15P21	9.46	0.100			54		100			7	10/02/07	10/02	GRB-211
R709159-04	93		J15P22	11.9	0.100			80		100			7	10/02/07	10/02	GRB-213
R709159-05	93		J15P23	12.6	0.100			78		100			7	10/02/07	10/02	GRB-214
R709159-06	93		J15P24	10.4	0.100			80		100			7	10/02/07	10/02	GRB-216
R709159-07	93		J15P25	9.66	0.100			79		100			7	10/02/07	10/02	GRB-105
R709159-08	93		LCS (QC ID=62972)	6.96	0.100			59		100				10/02/07	10/02	GRB-107
R709159-09	93		BLK (QC ID=62973)	12.6	0.100			59		100				10/02/07	10/02	GRB-111
R709159-10	93		Duplicate (R709159-03) (QC ID=62974)	9.28	0.100			54		100			7	10/02/07	10/02	GRB-112
Nominal values and limits from method				10.0	0.100			5-250		100			180			

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

SAMPLE DELIVERY GROUP K0978

Test 93A	Matrix SOLID
SDG 7886	
Contact Melissa C. Mannion	

LAB METHOD SUMMARY, cont.

GROSS ALPHA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client Hanford	
Contract No. 630	
Contract SDG K0978	

PROCEDURES	REFERENCE	900.0_ALPHABETA_GPC
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	SPP-125	Gross Alpha and Gross Beta in Dissolved Solids, rev 0

AVERAGES ± 2 SD	MDA	10.4	±	3.44
FOR 10 SAMPLES	RESIDUE	70	±	24

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	10/05/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0978

Test 93B Matrix SOLID
SDG 7886
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS BETA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG K0978

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta
Preparation batch 6126-176					
R709159-01	93		7886-001	J15P19	17.9
R709159-02	93		7886-002	J15P20	19.0
R709159-03	93		7886-003	J15P21	19.4
R709159-04	93		7886-004	J15P22	20.2
R709159-05	93		7886-005	J15P23	17.8
R709159-06	93		7886-006	J15P24	19.7
R709159-07	93		7886-007	J15P25	17.8
R709159-08	93		7886-008	LCS (QC ID=62972)	ok
R709159-09	93		7886-009	BLK (QC ID=62973)	U
R709159-10	93		7886-010	Duplicate (R709159-03)	ok
Nominal values and limits from method				RDLs (pCi/g)	15.0
100-F Remaining Sites Burial Grounds					

METHOD PERFORMANCE

LAB SAMPLE 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
Preparation batch 6126-176			2σ prep error 15.0 % Reference Lab Notebook #6126, pg. 176													
R709159-01	93		J15P19	5.90	0.100			80		100			7	10/02/07	10/02	GRB-209
R709159-02	93		J15P20	5.82	0.100			81		100			7	10/02/07	10/02	GRB-210
R709159-03	93		J15P21	5.60	0.100			54		100			7	10/02/07	10/02	GRB-211
R709159-04	93		J15P22	9.29	0.100			80		100			7	10/02/07	10/02	GRB-213
R709159-05	93		J15P23	8.88	0.100			78		100			7	10/02/07	10/02	GRB-214
R709159-06	93		J15P24	5.70	0.100			80		100			7	10/02/07	10/02	GRB-216
R709159-07	93		J15P25	6.25	0.100			79		100			7	10/02/07	10/02	GRB-105
R709159-08	93		LCS (QC ID=62972)	9.34	0.100			59		100				10/02/07	10/02	GRB-107
R709159-09	93		BLK (QC ID=62973)	5.56	0.100			59		100				10/02/07	10/02	GRB-111
R709159-10	93		Duplicate (R709159-03) (QC ID=62974)	5.75	0.100			54		100			7	10/02/07	10/02	GRB-112
Nominal values and limits from method				15.0	0.100			5-250		100			180			

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 10/05/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0978

Test 93B Matrix SOLID
SDG 7886
Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

GROSS BETA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG K0978

PROCEDURES	REFERENCE	900.0_ALPHABETA_GPC
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	SPP-125	Gross Alpha and Gross Beta in Dissolved Solids, rev 0

AVERAGES ± 2 SD	MDA	6.81	±	3.29
FOR 10 SAMPLES	RESIDUE	70	±	24

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 10/05/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0978

Test GAM Matrix SOLID	Client Hanford
SDG 7886	Contract No. 630
Contact Melissa C. Mannion	Contract SDG K0978

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60	Cesium 137
Preparation batch 6126-176						
R709159-01			7886-001	J15P19	U	U
R709159-02			7886-002	J15P20	U	0.071
R709159-03			7886-003	J15P21	U	0.062
R709159-04			7886-004	J15P22	U	U
R709159-05			7886-005	J15P23	U	U
R709159-06			7886-006	J15P24	U	U
R709159-07			7886-007	J15P25	U	U
R709159-08			7886-008	LCS (QC ID=62972)	ok	ok
R709159-09			7886-009	BLK (QC ID=62973)	U	U
R709159-10			7886-010	Duplicate (R709159-03)	- U	ok
Nominal values and limits from method				RDLs (pCi/g)	0.050	0.100

100-F Remaining Sites Burial Grounds

METHOD PERFORMANCE

LAB SAMPLE 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
Preparation batch 6126-176			2σ prep error 15.0 % Reference Lab Notebook #6126, pg. 176													
R709159-01			J15P19	5.92	852					150			7	10/01/07	10/02	MB,05,00
R709159-02			J15P20	4.90	722					150			7	10/01/07	10/02	MB,08,00
R709159-03			J15P21	6.09	720					150			7	10/01/07	10/02	MB,06,00
R709159-04			J15P22	3.69	751					151			7	10/01/07	10/02	MB,07,00
R709159-05			J15P23	4.36	725					113			7	10/01/07	10/02	MB,07,00
R709159-06			J15P24	4.21	742					101			7	10/01/07	10/02	MB,07,00
R709159-07			J15P25	8.10	748					101			7	10/01/07	10/02	MB,05,00
R709159-08			LCS (QC ID=62972)	0.037	720					115				10/01/07	10/02	MB,05,00
R709159-09			BLK (QC ID=62973)	3.95	720					115				10/01/07	10/02	MB,08,00
R709159-10			Duplicate (R709159-03) (QC ID=62974)	6.76	720					114			7	10/01/07	10/02	MB,06,00
Nominal values and limits from method				0.050	720					100			180			

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

SAMPLE DELIVERY GROUP K0978

Test	GAM
Matrix	SOLID
SDG	7886
Contact	Melissa C. Mannion

LAB METHOD SUMMARY, cont.

GAMMA SCAN

GAMMA SPECTROSCOPY

Client	Hanford
Contract	No. 630
Contract	SDG K0978

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

AVERAGES ± 2 SD	MDA	4.80	±	4.36
FOR 10 SAMPLES	YIELD		±	

Lab id	EBRLNE
Protocol	Hanford
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SDG 7886
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K0978

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 10/05/07

SDG 7886
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K0978

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 10/05/07

SDG 7886
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K0978

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.

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REPORT GUIDE

Client Hanford
Contract No. 630
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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).

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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.

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Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG K0978

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.

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Contract No. 630
Case no SDG_K0978

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.

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Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/05/07

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Contract No. 630
Case no SDG K0978

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.

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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.

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REPORT GUIDE

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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

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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.

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'

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-032-166	Page 3 of 4

Collector T. Welch-Koelling	**Company Contact** R.T. Coffman	**Telephone No.** 528-6409	**Project Coordinator** KESSNER, JH
Price Code 8B	**Data Turnaround** 7 DAY		
Project Designation 100-F Remaining Sites Burial Grounds - Soil Full Protocol	**Sampling Location** 100-F-26:4 Verification K0978 (7886)	**SAF No.** RC-032	
Ice Chest No. GRP-03-014	**Field Logbook No.** EFL-1174-3	**COA** R10F262000	**Method of Shipment** FED EX
Shipped To EBERLINE SERVICES LIONVILLE	**Offsite Property No.** A070442	**Bill of Lading/Air Bill No.** See OSRC	

POSSIBLE SAMPLE HAZARDS/REMARKS
NA

Special Handling and/or Storage
NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	None					
Type of Container	P	P	aG	aG	P	P					
No. of Container(s)	2	1	1	1	1	1					
Volume	125mL	125mL	60mL	250mL	500mL	125mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions	Chromium Hex - 7196	PCBs - 8082	TPH (Total) - 418.1	See item (2) in Special Instructions	Gross Alpha; Gross Beta					
Sample No. / Matrix * / Sample Date / Sample Time											
J15P19 / SOIL / 09-25-07 / 0900					X	X					10
J15P20 / SOIL / 0920					X	X					BCL1
J15P21 / SOIL / 0940					X	X					BCL2
J15P22 / SOIL / 1300					X	X					BCL3
J15P23 / SOIL / 1315					X	X					BCL4

9-18-07

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
T. Welch-Koelling	9-25-07 1430	JR DeDuigne	9-25-07 1430
JR DeDuigne	9-26-07 0530	3728/2B	9-26-07 0530
3728/2B	9-26-07 0900	RM Singleton	9-26-07 0905
RM Singleton	9-26-07 1500 WCH	FEDEX	
FED EX		Rex Kelentay	9/27/07 9:30

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 9/26/07.

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

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-032-166	Page 4 of 4

Collector T. Welch-Koelling	**Company Contact** R.T. Coffman	**Telephone No.** 528-6409	**Project Coordinator** KESSNER, JH
Price Code 4B	**Data Turnaround** 7 DAY		
Project Designation 100-F Remaining Sites Burial Grounds - Soil Full Protocol	**Sampling Location** 100-F-26:4 Verification K0978 (7886)	**SAF No.** RC-032	
Ice Chest No. GRP-03-014	**Field Logbook No.** EFL-1174-3	**COA** R10F262000	**Method of Shipment** FED EX
Shipped To EBERLINE SERVICES, LIONVILLE	**Offsite Property No.** A070442	**Bill of Lading/Air Bill No.** See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	None					
Type of Container	P	P	aG	aG	P	P					
No. of Container(s)	2	1	1	1	1	1					
Volume	125mL	125mL	60mL	250mL	500mL	125mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions	Chromium Hex - 7196	PCBs - 8082	TPH (Total) - 418.1	See item (2) in Special Instructions	Gross Alpha: Gross Beta					
Sample No. / Matrix * / Sample Date / Sample Time		9-18-07									
J15P24 / SOIL / 09-25-07 / 1330					X	X					BCL5
J15P25 / SOIL / 09-25-07 / 1345					X	X					BCL6
~~J15P26 / SOIL~~											EB

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
T. Welch-Koelling	09-25-07 1430	JR DeBuigne	1430 9-26-07
JR DeBuigne	0530 9-26-07	3728/2B	0530 9-26-07
3728/2B	9-26-07 0900		9-26-07 0900
	9-26-07 1500	FED EX	
FED EX			9/27/07 9:30

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 9/26/07.

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

K0978

EBERLINE

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

7856

Client: WC HANFORD City RICHLAND State WA

Date/Time received 9/27/07 09:30 CoC No. RC-032-166

Container I.D. No. GRP-03-014 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 [ ] N/A ✓
6. Number of samples in shipping container: 7 Sample Matrix SOIL
7. Number of containers per sample: 2 (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 JK Date: 9/27/07 Time: 10:40

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 _____

LIONVILLE LABORATORY INC.

4 October 2007

RECEIVED OCT 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 #	0709L979
SDG #	K0978
SAF #	RC-032
Date Received	9/27/07
# Samples	8
Matrix	SOIL
Volatiles	
Semivolatiles	
Pest/PCB	X
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.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0978

RECEIVED 2007

DATE RECEIVED: 09/27/07 LVL LOT # 0709L979

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J15P19	001	S	07LE0549	09/25/07	09/28/07	09/29/07
J15P19	001 MS	S	07LE0549	09/25/07	09/28/07	09/29/07
J15P19	001 MSD	S	07LE0549	09/25/07	09/28/07	09/29/07
J15P20	002	S	07LE0549	09/25/07	09/28/07	09/29/07
J15P21	003	S	07LE0549	09/25/07	09/28/07	09/29/07
J15P22	004	S	07LE0549	09/25/07	09/28/07	09/29/07
J15P23	005	S	07LE0549	09/25/07	09/28/07	10/01/07
J15P24	006	S	07LE0549	09/25/07	09/28/07	10/01/07
J15P25	007	S	07LE0549	09/25/07	09/28/07	10/01/07

LAB QC:

PBLKGX	MB1	S	07LE0549	N/A	09/28/07	09/29/07
PBLKGX	MB1 BS	S	07LE0549	N/A	09/28/07	09/29/07

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-032
LVL #: 0709L979
SDG/SAF # K0978 / RC-032

W.O. #: 11343-606-001-9999-00
Date Received: 09-27-2007

PCB

Seven (7) soil samples were collected on 09-25-2007.

The samples and their associated QC samples were extracted on 09-28-2007 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedure on 09-29-2007. The extraction procedure was based on method 3550B and the extracts were analyzed based on method 8082.

All soil samples are reported on a dry weight basis unless requested by the client, required by the method, or noted otherwise. The following is a summary of the QC results accompanying the sample results. Lionville Laboratory Inc (LvLI) certifies that all test results meet the requirements of NELAC except as noted below:

1. All results presented in this report are derived from a sample that met LvLI's sample acceptance policy with the exception of a discrepancy, which was documented on the Sample Receipt Checklist.

2. The samples were extracted and analyzed within required holding time.

3. The samples and their associated QC samples received Copper-Sulfur and Sulfuric Acid cleanups according to Lionville Laboratory SOPs based on SW846 methods 3660A and 3665A respectively.

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

5. One (1) of twenty-two (22) surrogate recoveries was outside acceptance criteria. However, the surrogate recovery acceptance criteria were met (i.e. no more than one outlier per sample).

6. The blank spike recoveries were within acceptance criteria.

7. All matrix spike recoveries were within acceptance criteria.

r:\group\data\pest\tnu hanford\0709-979ks2.pcb.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 11 pages.

LvLI
LIONVILLE LABORATORY INC.

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

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

10. LvLI is NELAP accredited by the State of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

10/3/07
Date

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

GLOSSARY OF DATA

DATA QUALIFIERS

U	=	Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
J	=	Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
B	=	This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
I	=	Interference.
.I	=	Indicates an interference on one analytical column only. Result is reported from remaining analytical column.

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
NS	=	Not Spiked.
SP	=	Indicates Spiked Compound.
P	=	This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
D	=	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
C	=	This flag applies to a compound that has been confirmed by GC/MS.
NPM	=	No pattern match for multi-component target analytes.

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 10/01/07 13:41

RFW Batch Number: 0709L979 Client: TNUHANFORD RC-032 K0978 Work Order: 11343606001 Page: 1

000000005

	Cust ID:	J15P19	J15P19	J15P19	J15P20	J15P21	J15P22
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	94 %	109 %	106 %	135 * %	104 %	104 %
	Decachlorobiphenyl	84 %	96 %	94 %	122 %	91 %	95 %
		fl	fl	fl	fl	fl	fl
Aroclor-1016		13 U	103 %	101 %	13 U	13 U	13 U
Aroclor-1221		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1232		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1242		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1248		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1254		13 U	13 U	13 U	16	11 J	13 U
Aroclor-1260		13 U	105 %	103 %	8.1 J	13 U	13 U

	Cust ID:	J15P23	J15P24	J15P25	PBLKGX	PBLKGX BS
Sample Information	RFW#:	005	006	007	07LE0549-MB1	07LE0549-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	87 %	94 %	91 %	114 %	114 %
	Decachlorobiphenyl	69 %	87 %	78 %	101 %	100 %
		fl	fl	fl	fl	fl
Aroclor-1016		13 U	13 U	13 U	13 U	106 %
Aroclor-1221		13 U	13 U	13 U	13 U	13 U
Aroclor-1232		13 U	13 U	13 U	13 U	13 U
Aroclor-1242		13 U	13 U	13 U	13 U	13 U
Aroclor-1248		13 U	13 U	13 U	13 U	13 U
Aroclor-1254		13 U	13 U	13 U	13 U	13 U
Aroclor-1260		13 U	13 U	13 U	13 U	107 %

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

Livile Laboratory Use Only

07091979

Custody Transfer Record/Lab Work Request

Page 1 of 1

See SRC

VLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

nt TNU Hanford BC-032

Final Proj. Sampling Date

ect# 11343-606-001-9999-00

ect Contact/Phone#

vlle Laboratory Project Manager Arlette Johnson

SW846 Del STD TAT 3 days

Rec'd 9-27-07 Date Due 9-30-07

		A	BC	D	E
Refrigerator #		3	3	3	3
#/Type Container	Liquid				
	Solid	1gl	2gl	1gl	1gl
Volume	Solid	60	125	125	250
Preservatives		1	1	1	1
ANALYSES REQUESTED		ORGANIC		INORG	
		VOA / BNA / ~~Pest~~/PCB / Herb	Metal + Hg / CN	Cr+6	TPH 418.1
		Lionville Laboratory Use Only			
		OPCB	Metal	ICR6	TPHC

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	OPCB	Metal	ICR6	TPHC
001	J15P19			S	9-25-07	0900	X	X	X	X
002	J15P20					0920	X	X	X	X
003	J15P21					0940	X	X	X	X
004	J15P22					1300	X	X	X	X
005	J15P23					1315	X	X	X	X
006	J15P24					1330	X	X	X	X
007	J15P25					1345	X	X	X	X
008	J15P26					1000		X		

Special Instructions:

Met ① = HSL + B, Mo, Si (NO TL)

Special Instructions:

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

Relinquished by	Received by	Date	Time
FEx	D Smith	9-27-07	0945

Relinquished by	Received by	Date	Time

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

000000006

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-032-166	Page 3 of 4

Collector: T. Welch-Koelling	Company Contact: R.T. Coffman	Telephone No.: 528-6409	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 7 DAY		
Project Designation: 100-F Remaining Sites Burial Grounds - Soil Full Protocol	Sampling Location: 100-F-26:4 Verification	SAF No.: RC-032	
Ice Chest No.: EBC-99-027	Field Logbook No.: EFL-1174-3	COA: R10F262000	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A070453	Bill of Lading/Air Bill No.: See OSRC	

3 of 9/27/07

000000007

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	None					
Type of Container	P	P	aG	aG	P	P					
No. of Container(s)	2	1	1	1	1	1					
Volume	125mL	125mL	60mL	250mL	500mL	125mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	PCBs - 8082	TPH (Total) - 418.1	See item (2) in Special Instructions	Gross Alpha; Gross Beta					

Sample No.	Matrix *	Sample Date	Sample Time										
115P19	SOIL	09-25-07	0900	X	X	X	X						10
115P20	SOIL		0920	X	X	X	X						BCL1
115P21	SOIL		0940	X	X	X	X						BCL2
115P22	SOIL		1300	X	X	X	X						BCL3
115P23	SOIL		1315	X	X	X	X						BCL4

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
T. Welch-Koelling	9-25-07 1430	JR DeBrigue JR DeBrigue	1430 9-25-07
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JR DeBrigue JR DeBrigue	0530 9-26-07	3728/2B	0530 9-26-07
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
3728/2B	9-26-07 0900	KM Singleton	9-26-07 0900
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
KM Singleton	9-26-07 1500 WCH	FED EX	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[illegible]	9-27-07 0945	[illegible]	9-27-07 0945
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 9/26/07.

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

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-032-166	Page 4 of 4

Collector: T. Welch-Koelling	Company Contact: R.T. Coffman	Telephone No.: 528-6409	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 1 DAY 3 of 9/27/07		
Project Designation: 100-F Remaining Sites Burial Grounds - Soil Full Protocol	Sampling Location: 100-F-26:4 Verification		SAF No.: RC-032
Ice Chest No.: ERC-99-027	Field Logbook No.: EFL-1174-3	COA: R10F262000	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A070453		Bill of Lading/Air Bill No.: EL 05PC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	None					
Type of Container	P	P	aG	aG	P	P					
No. of Container(s)	2	1	1	1	1	1					
Volume	125mL	125mL	60mL	250mL	500mL	125mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	PCBs - 8082	TPH (Total) - 418.1	See item (2) in Special Instructions	Gross Alpha; Gross Beta					

Sample No.	Matrix *	Sample Date	Sample Time										
J15P24	SOIL	09-25-07	1330	X	X	X	X						BCL5
J15P25	SOIL		1345	X	X	X	X						BCL6
J15P26	SOIL		1000	X									EB

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
T. Welch-Koelling	9-25-07 1430	J.R. DeDivigne	9-25-07 1430
J.R. DeDivigne	9-26-07 0530	3728/2B	9-26-07 0530
3728/2B	9-26-07 0900	[illegible]	9-26-07 0910
[illegible]	9-26-07 1500	FED EX	
[illegible]	9-27-07 0945	[illegible]	9-27-07 0945

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 9/26/07.

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

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford

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

Date: 9-27-07

LvLI Batch #: 07091979

Sample Custodian: DJ Smith

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier: FedEx		Airbill # 7908 3725 6
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 1.7	°C	Cooler # ERe-99-02
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

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 09/28/07 Extraction Batch No: 07LE0549 Analyst: MF Method: SONC3550

Test: OPCB Cleanup Date: 09/28/07 Analyst: MF Client: TNU-HANFORD RC-032

LIMS Report Date: 09/28/07 Solvent: DCM/ACETONE,HEXANE Adsorbent: H2SO4

Sample No:	Client Name Client ID	pH	Initial WT/VOL	Surr. Mult.	Spike Mult.	Final VOL	Final VOL	Split Mult.	GPC Y/N	% Solids	C/D FACTOR
0709L979-	TNU-HANFORD RC-032										
001	J15P19		30.0	1.0		10		1.0	N	99.79	334.0
001 -S	J15P19		30.0	1.0	1.0	10		1.0	N	99.79	334.0
001 -T	J15P19		30.0	1.0	1.0	10		1.0	N	99.79	334.0
002	J15P20		30.0	1.0		10		1.0	N	99.89	333.7
003	J15P21		30.0	1.0		10		1.0	N	99.64	334.5
004	J15P22		30.0	1.0		10		1.0	N	99.72	334.3
005	J15P23		30.0	1.0		10		1.0	N	99.81	334.0
006	J15P24		30.0	1.0		10		1.0	N	99.67	334.4
007	J15P25		30.0	1.0		10		1.0	N	99.40	335.3
07LE0549-MB1	PBLKGX		30.0	1.0		10		1.0	N	100.00	333.3
07LE0549-MB1 -S	PBLKGX		30.0	1.0	1.0	10		1.0	N	100.00	333.3

Comments:
Surrogate: 250 UL OLM PSURR 89916109
Spike: 250 UL AR1660 89915609

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
[illegible]	[illegible]	9/28/07 1500	CL	9/28/07	GC

000000010

The following peaks were manually integrated:

ar 1	LVLI#: 01091999-002 1	RT: 17.077	Reason : PI MP SP CB OTHER :
	LVLI#:	RT: 17.482	Reason : PI MP SP CB OTHER :
	LVLI#:	RT:	Reason : PI MP SP CB OTHER :
	LVLI#:	RT:	Reason : PI MP SP CB OTHER :
	LVLI#:	RT:	Reason : PI MP SP CB OTHER :
	LVLI#:	RT:	Reason : PI MP SP CB OTHER :
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	LVLI#:	RT:	Reason : PI MP SP CB OTHER :
	LVLI#:	RT:	Reason : PI MP SP CB OTHER :
	LVLI#:	RT:	Reason : PI MP SP CB OTHER :

PI – Proper Integration MP – Missing peak SP – Split Peak CB – Coelution / Background

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0978

RECEIVED
OCT 2007

DATE RECEIVED: 09/27/07 LVL LOT # :0709L979

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J15P19						
% SOLIDS	001	S	07L%S121	09/25/07	09/27/07	09/28/07
CHROMIUM VI	001	S	07LVI082	09/25/07	09/28/07	09/28/07
PETROLEUM HYDROCARBO	001	S	07LHC035	09/25/07	09/28/07	09/28/07
J15P20						
% SOLIDS	002	S	07L%S121	09/25/07	09/27/07	09/28/07
CHROMIUM VI	002	S	07LVI082	09/25/07	09/28/07	09/28/07
PETROLEUM HYDROCARBO	002	S	07LHC035	09/25/07	09/28/07	09/28/07
J15P21						
% SOLIDS	003	S	07L%S121	09/25/07	09/27/07	09/28/07
CHROMIUM VI	003	S	07LVI082	09/25/07	09/28/07	09/28/07
PETROLEUM HYDROCARBO	003	S	07LHC035	09/25/07	09/28/07	09/28/07
J15P22						
% SOLIDS	004	S	07L%S121	09/25/07	09/27/07	09/28/07
CHROMIUM VI	004	S	07LVI082	09/25/07	09/28/07	09/28/07
PETROLEUM HYDROCARBO	004	S	07LHC035	09/25/07	09/28/07	09/28/07
J15P23						
% SOLIDS	005	S	07L%S121	09/25/07	09/27/07	09/28/07
CHROMIUM VI	005	S	07LVI082	09/25/07	09/28/07	09/28/07
PETROLEUM HYDROCARBO	005	S	07LHC035	09/25/07	09/28/07	09/28/07
J15P24						
% SOLIDS	006	S	07L%S121	09/25/07	09/27/07	09/28/07
CHROMIUM VI	006	S	07LVI082	09/25/07	09/28/07	09/28/07
PETROLEUM HYDROCARBO	006	S	07LHC035	09/25/07	09/28/07	09/28/07
J15P25						
% SOLIDS	007	S	07L%S121	09/25/07	09/27/07	09/28/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0978

DATE RECEIVED: 09/27/07 LVL LOT # :0709L979

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM VI	007	S	07LVI082	09/25/07	09/28/07	09/28/07
CHROMIUM VI	007 REP	S	07LVI082	09/25/07	09/28/07	09/28/07
CHROMIUM VI	007 MS	S	07LVI082	09/25/07	09/28/07	09/28/07
CHROMIUM VI	007 MSD	S	07LVI082	09/25/07	09/28/07	09/28/07
PETROLEUM HYDROCARBO	007	S	07LHC035	09/25/07	09/28/07	09/28/07
PETROLEUM HYDROCARBO	007 REP	S	07LHC035	09/25/07	09/28/07	09/28/07
PETROLEUM HYDROCARBO	007 MS	S	07LHC035	09/25/07	09/28/07	09/28/07
J15P26						
% SOLIDS	008	S	07L%S121	09/25/07	09/27/07	09/28/07
% SOLIDS	008 REP	S	07L%S121	09/25/07	09/27/07	09/28/07

LAB QC:

CHROMIUM VI	MB1	S	07LVI082	N/A	09/28/07	09/28/07
CHROMIUM VI	MB1 BS	S	07LVI082	N/A	09/28/07	09/28/07
CHROMIUM VI	MB1 BSD	S	07LVI082	N/A	09/28/07	09/28/07
PETROLEUM HYDROCARBO	MB1	S	07LHC035	N/A	09/28/07	09/28/07
PETROLEUM HYDROCARBO	MB1 BS	S	07LHC035	N/A	09/28/07	09/28/07
PETROLEUM HYDROCARBO	MB1 BSD	S	07LHC035	N/A	09/28/07	09/28/07

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-032 K0978
LVL#: 0709L979

W.O.#: 11343-606-001-9999-00
Date Received: 09-27-07

INORGANIC NARRATIVE

1. This narrative covers the analyses of 8 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 blanks were within the method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS for Petroleum Hydrocarbons (PHC) were within the 20% Relative Percent Difference (RPD) control limit.

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

8. The replicate analyses for Percent Solids, Chromium VI and PHC were within the 20% Relative Percent Difference (RPD) control limit.

9. Results for soil 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

10/3/07
Date

njp\i09-979

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 14 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 (mod.)	✓ EPA 418.1 (mod.)
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 09/28/07

CLIENT: TNU-HANFORD RC-032 LVL LOT #: 0709L979

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J15P19	% Solids	99.8		%	0.01	1.0
		Chromium VI	0.20	u	MG/KG	0.20	1.0
		Petroleum Hydrocarbons	133	u	MG/KG	133	1.0
-002	J15P20	% Solids	99.9		%	0.01	1.0
		Chromium VI	6.2		MG/KG	0.20	1.0
		Petroleum Hydrocarbons	133	u	MG/KG	133	1.0
-003	J15P21	% Solids	99.6		%	0.01	1.0
		Chromium VI	0.20	u	MG/KG	0.20	1.0
		Petroleum Hydrocarbons	134	u	MG/KG	134	1.0
-004	J15P22	% Solids	99.7		%	0.01	1.0
		Chromium VI	0.24		MG/KG	0.20	1.0
		Petroleum Hydrocarbons	133	u	MG/KG	133	1.0
-005	J15P23	% Solids	99.8		%	0.01	1.0
		Chromium VI	0.20	u	MG/KG	0.20	1.0
		Petroleum Hydrocarbons	141		MG/KG	132	1.0
-006	J15P24	% Solids	99.7		%	0.01	1.0
		Chromium VI	0.20		MG/KG	0.20	1.0
		Petroleum Hydrocarbons	133	u	MG/KG	133	1.0
-007	J15P25	% Solids	99.4		%	0.01	1.0
		Chromium VI	0.24		MG/KG	0.20	1.0
		Petroleum Hydrocarbons	138		MG/KG	134	1.0
-008	J15P26	% Solids	100		%	0.01	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 09/28/07

CLIENT: TNU-HANFORD RC-032 LVL LOT #: 0709L979

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	07LVI082-MB1	Chromium VI	0.20 u	MG/KG	0.20	1.0
BLANK10	07LHC035-MB1	Petroleum Hydrocarbons	133 u	MG/KG	133	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 09/28/07

CLIENT: TNU-HANFORD RC-032 LVL LOT #: 0709L979

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-007	J15P25	Soluble Chromium VI	4.4	0.24	4.0	103.9	1.0
		Insoluble Chromium VI	1310	0.24	1370	95.6	100
		Petroleum Hydrocarbons	695	138	563	98.9	1.0
BLANK10	07LVI082-MB1	Soluble Chromium VI	4.1	0.20u	4.0	102.7	1.0
		Insoluble Chromium VI	1180	0.20u	1170	101.0	100
BLANK10	07LHC035-MB1	Petroleum Hydrocarbons	558	133 u	560	99.6	1.0
		Petroleum Hydrocarbons	558	133 u	559	99.9	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 09/28/07

CLIENT: TNU-HANFORD RC-032 LVL LOT #: 0709L979

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	07LHC035-MB1	Petroleum Hydrocarbons	99.6	99.9	0.25

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 09/28/07

CLIENT: TNU-HANFORD RC-032 LVL LOT #: 0709L979

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT		REPLICATE		RPD	DILUTION FACTOR(REP)
-007REP	J15P25	Chromium VI	0.24		0.26		8.8	1.0
		Petroleum Hydrocarbons	134	u	134	u	NC	1.0
-008REP	J15P26	% Solids	100		100		0.00	1.0

nville Laboratory Use Only

07091979

Custody Transfer Record/Lab Work Request

Page 1 of 1

See SRC

VLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

nt TNU Hanford BC-032

Final Proj. Sampling Date

ect# 11343-606-001-9999-00

ect Contact/Phone#

nville Laboratory Project Manager Arlette Johnson

SW846 Del STD TAT 3 days

e Rec'd 9-27-07 Date Due 9-30-07

		A						BC		D		E			
Refrigerator #		3						3		3		3			
#/Type Container	Liquid														
	Solid	1gl						2gl		1gl		1gl			
Volume	Solid	60						125		125		250			
Preservatives		—						—		—		—			
ANALYSES REQUESTED		ORGANIC						INORG							
		VOA	BNA	~~Pest/~~ PCB	Herb			Metal + Hg	CN	Cr6		TPH 418.1			
		Lionville Laboratory Use Only													
				OPCB				MetD		ICP6		TPHC			

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	OPCB	MetD	ICP6	TPHC
001	J15P19			S	9-25-07	0900	X	X	X	X
002	J15P20					0920	X	X	X	X
003	J15P21					0940	X	X	X	X
004	J15P22					1300	X	X	X	X
005	J15P23					1315	X	X	X	X
006	J15P24					1330	X	X	X	X
007	J15P25					1345	X	X	X	X
008	J15P26					1000		X		

cial Instructions:

MetD = HSL + B, Mo, Si (NO TL)

Special Instructions:

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

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	9-27-07	0945

Relinquished by	Received by	Date	Time

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

000000011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-032-166	Page 2 of 4

Collector: T. Welch-Koelling	Company Contact: R.T. Coffman	Telephone No.: 528-6409	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 7 DAY 3 OS 9/27/07		
Project Designation: 100-F Remaining Sites Burial Grounds - Soil Full Protocol	Sampling Location: 100-F-26:4 Verification		SAF No.: RC-032
Ice Chest No.: EBC-99-027	Field Logbook No.: EFL-1174-3	COA: R10F262000	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A070453		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	None					
Type of Container	P	P	aG	aG	P	P					
No. of Container(s)	2	1	1	1	1						
Volume	125mL	125mL	60mL	250mL	500mL	125mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions	Chromium Hex - 7196	PCBs - 8082	TPH (Total) - 418.1	See item (2) in Special Instructions	Gross Alpha; Gross Beta					

Sample No.	Matrix *	Sample Date	Sample Time										
J15P19	SOIL	09-25-07	0900	X	X	X	X						10
J15P20	SOIL		0920	X	X	X	X						BCL1
J15P21	SOIL		0940	X	X	X	X						BCL2
J15P22	SOIL		1300	X	X	X	X						BCL3
J15P23	SOIL		1315	X	X	X	X						BCL4

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
T Welch-Koelling	9-25-07 1430	JR DeBruyne	9-25-07 1430
JR DeBruyne	9-26-07 0530	3728/2B	9-26-07 0530
3728/2B	9-26-07 0900	KR Singleton	9-26-07 0900
KR Singleton	9-26-07 1500	FED EX	WCH
[illegible]	9-27-07 0945	[illegible]	9-27-07 0945
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 # 26. 3728 Custodian removed samples for shipping on 9/26/07.

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

VCH-EE-011

000000012

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-032-166	Page 4 of 4

Collector: T. Welch-Koelling	Company Contact: R.T. Coffman	Telephone No.: 528-6409	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 1 DAY 3 of 9/27/07		
Project Designation: 100-F Remaining Sites Burial Grounds - Soil Full Protocol	Sampling Location: 100-F-26:4 Verification		SAF No.: RC-032
Ice Chest No.: EBC-99-027	Field Logbook No.: EFL-1174-3	COA: R10F262000	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A070453		Bill of Lading/Air Bill No.: Ex 05PC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	None					
Type of Container	P	P	aG	aG	P	P					
No. of Container(s)	2	1	1	1	1	1					
Volume	125mL	125mL	60mL	250mL	500mL	125mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	PCBs - 8082	TPH (Total) - 418.1	See item (2) in Special Instructions	Gross Alpha; Gross Beta					

Sample No.	Matrix *	Sample Date	Sample Time										
I15P24	SOIL	09-25-07	1330	X	X	X	X						BCL5
I15P25	SOIL		1345	X	X	X	X						BCL6
I15P26	SOIL		1000	X									EB

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
T. Welch-Koelling	9-25-07 1430	JR DeBruigne	9-25-07 1430
JR DeBruigne	9-26-07 0530	3728/2B	9-26-07 0530
3728/2B	9-26-07 0900	KMS	9-26-07 0900
KMS	9-26-07 1500	FED EX	
FED EX	9-27-07 0945		9-27-07 0945

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 9/26/07.

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

/CH-EE-011

000000013

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford

Date: 9.27.07

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

LvLI Batch #: 07091979

Sample Custodian: D Smith

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier: FedEx		Airbill # 7908 3725 6
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 1.7	°C	Cooler # ERe-99-027
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 K0978

RECEIVED OCT 2007

DATE RECEIVED: 09/27/07 LVL LOT # :0709L979

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J15P19						
SILVER, TOTAL	001	S	07L0494	09/25/07	09/28/07	09/28/07
SILVER, TOTAL	001 REP	S	07L0494	09/25/07	09/28/07	09/28/07
SILVER, TOTAL	001 MS	S	07L0494	09/25/07	09/28/07	09/28/07
ALUMINUM, TOTAL	001	S	07L0494	09/25/07	09/28/07	09/28/07
ALUMINUM, TOTAL	001 REP	S	07L0494	09/25/07	09/28/07	09/28/07
ALUMINUM, TOTAL	001 MS	S	07L0494	09/25/07	09/28/07	09/28/07
ARSENIC, TOTAL	001	S	07L0494	09/25/07	09/28/07	09/28/07
ARSENIC, TOTAL	001 REP	S	07L0494	09/25/07	09/28/07	09/28/07
ARSENIC, TOTAL	001 MS	S	07L0494	09/25/07	09/28/07	09/28/07
BORON, TOTAL	001	S	07L0494	09/25/07	09/28/07	09/28/07
BORON, TOTAL	001 REP	S	07L0494	09/25/07	09/28/07	09/28/07
BORON, TOTAL	001 MS	S	07L0494	09/25/07	09/28/07	09/28/07
BARIUM, TOTAL	001	S	07L0494	09/25/07	09/28/07	09/28/07
BARIUM, TOTAL	001 REP	S	07L0494	09/25/07	09/28/07	09/28/07
BARIUM, TOTAL	001 MS	S	07L0494	09/25/07	09/28/07	09/28/07
BERYLLIUM, TOTAL	001	S	07L0494	09/25/07	09/28/07	09/28/07
BERYLLIUM, TOTAL	001 REP	S	07L0494	09/25/07	09/28/07	09/28/07
BERYLLIUM, TOTAL	001 MS	S	07L0494	09/25/07	09/28/07	09/28/07
CALCIUM, TOTAL	001	S	07L0494	09/25/07	09/28/07	09/28/07
CALCIUM, TOTAL	001 REP	S	07L0494	09/25/07	09/28/07	09/28/07
CALCIUM, TOTAL	001 MS	S	07L0494	09/25/07	09/28/07	09/28/07
CADMIUM, TOTAL	001	S	07L0494	09/25/07	09/28/07	09/28/07
CADMIUM, TOTAL	001 REP	S	07L0494	09/25/07	09/28/07	09/28/07
CADMIUM, TOTAL	001 MS	S	07L0494	09/25/07	09/28/07	09/28/07
COBALT, TOTAL	001	S	07L0494	09/25/07	09/28/07	09/28/07
COBALT, TOTAL	001 REP	S	07L0494	09/25/07	09/28/07	09/28/07
COBALT, TOTAL	001 MS	S	07L0494	09/25/07	09/28/07	09/28/07
CHROMIUM, TOTAL	001	S	07L0494	09/25/07	09/28/07	09/28/07
CHROMIUM, TOTAL	001 REP	S	07L0494	09/25/07	09/28/07	09/28/07
CHROMIUM, TOTAL	001 MS	S	07L0494	09/25/07	09/28/07	09/28/07
COPPER, TOTAL	001	S	07L0494	09/25/07	09/28/07	09/28/07
COPPER, TOTAL	001 REP	S	07L0494	09/25/07	09/28/07	09/28/07
COPPER, TOTAL	001 MS	S	07L0494	09/25/07	09/28/07	09/28/07
IRON, TOTAL	001	S	07L0494	09/25/07	09/28/07	09/28/07
IRON, TOTAL	001 REP	S	07L0494	09/25/07	09/28/07	09/28/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0978

DATE RECEIVED: 09/27/07 LVL LOT # :0709L979

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
IRON, TOTAL	001 MS	S	07L0494	09/25/07	09/28/07	09/28/07
MERCURY, TOTAL	001	S	07C0183	09/25/07	09/28/07	09/28/07
MERCURY, TOTAL	001 REP	S	07C0183	09/25/07	09/28/07	09/28/07
MERCURY, TOTAL	001 MS	S	07C0183	09/25/07	09/28/07	09/28/07
POTASSIUM, TOTAL	001	S	07L0494	09/25/07	09/28/07	09/28/07
POTASSIUM, TOTAL	001 REP	S	07L0494	09/25/07	09/28/07	09/28/07
POTASSIUM, TOTAL	001 MS	S	07L0494	09/25/07	09/28/07	09/28/07
MAGNESIUM, TOTAL	001	S	07L0494	09/25/07	09/28/07	09/28/07
MAGNESIUM, TOTAL	001 REP	S	07L0494	09/25/07	09/28/07	09/28/07
MAGNESIUM, TOTAL	001 MS	S	07L0494	09/25/07	09/28/07	09/28/07
MANGANESE, TOTAL	001	S	07L0494	09/25/07	09/28/07	09/28/07
MANGANESE, TOTAL	001 REP	S	07L0494	09/25/07	09/28/07	09/28/07
MANGANESE, TOTAL	001 MS	S	07L0494	09/25/07	09/28/07	09/28/07
MOLYBDENUM, TOTAL	001	S	07L0494	09/25/07	09/28/07	09/28/07
MOLYBDENUM, TOTAL	001 REP	S	07L0494	09/25/07	09/28/07	09/28/07
MOLYBDENUM, TOTAL	001 MS	S	07L0494	09/25/07	09/28/07	09/28/07
SODIUM, TOTAL	001	S	07L0494	09/25/07	09/28/07	09/28/07
SODIUM, TOTAL	001 REP	S	07L0494	09/25/07	09/28/07	09/28/07
SODIUM, TOTAL	001 MS	S	07L0494	09/25/07	09/28/07	09/28/07
NICKEL, TOTAL	001	S	07L0494	09/25/07	09/28/07	09/28/07
NICKEL, TOTAL	001 REP	S	07L0494	09/25/07	09/28/07	09/28/07
NICKEL, TOTAL	001 MS	S	07L0494	09/25/07	09/28/07	09/28/07
LEAD, TOTAL	001	S	07L0494	09/25/07	09/28/07	09/28/07
LEAD, TOTAL	001 REP	S	07L0494	09/25/07	09/28/07	09/28/07
LEAD, TOTAL	001 MS	S	07L0494	09/25/07	09/28/07	09/28/07
ANTIMONY, TOTAL	001	S	07L0494	09/25/07	09/28/07	09/28/07
ANTIMONY, TOTAL	001 REP	S	07L0494	09/25/07	09/28/07	09/28/07
ANTIMONY, TOTAL	001 MS	S	07L0494	09/25/07	09/28/07	09/28/07
SELENIUM, TOTAL	001	S	07L0494	09/25/07	09/28/07	09/28/07
SELENIUM, TOTAL	001 REP	S	07L0494	09/25/07	09/28/07	09/28/07
SELENIUM, TOTAL	001 MS	S	07L0494	09/25/07	09/28/07	09/28/07
SILICON, TOTAL	001	S	07L0494	09/25/07	09/28/07	09/28/07
SILICON, TOTAL	001 REP	S	07L0494	09/25/07	09/28/07	09/28/07
SILICON, TOTAL	001 MS	S	07L0494	09/25/07	09/28/07	09/28/07
VANADIUM, TOTAL	001	S	07L0494	09/25/07	09/28/07	09/28/07
VANADIUM, TOTAL	001 REP	S	07L0494	09/25/07	09/28/07	09/28/07
VANADIUM, TOTAL	001 MS	S	07L0494	09/25/07	09/28/07	09/28/07
ZINC, TOTAL	001	S	07L0494	09/25/07	09/28/07	09/28/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0978

DATE RECEIVED: 09/27/07 LVL LOT # :0709L979

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZINC, TOTAL	001 REP	S	07L0494	09/25/07	09/28/07	09/28/07
ZINC, TOTAL	001 MS	S	07L0494	09/25/07	09/28/07	09/28/07
J15P20						
SILVER, TOTAL	002	S	07L0494	09/25/07	09/28/07	09/28/07
ALUMINUM, TOTAL	002	S	07L0494	09/25/07	09/28/07	09/28/07
ARSENIC, TOTAL	002	S	07L0494	09/25/07	09/28/07	09/28/07
BORON, TOTAL	002	S	07L0494	09/25/07	09/28/07	09/28/07
BARIUM, TOTAL	002	S	07L0494	09/25/07	09/28/07	09/28/07
BERYLLIUM, TOTAL	002	S	07L0494	09/25/07	09/28/07	09/28/07
CALCIUM, TOTAL	002	S	07L0494	09/25/07	09/28/07	09/28/07
CADMIUM, TOTAL	002	S	07L0494	09/25/07	09/28/07	09/28/07
COBALT, TOTAL	002	S	07L0494	09/25/07	09/28/07	09/28/07
CHROMIUM, TOTAL	002	S	07L0494	09/25/07	09/28/07	09/28/07
COPPER, TOTAL	002	S	07L0494	09/25/07	09/28/07	09/28/07
IRON, TOTAL	002	S	07L0494	09/25/07	09/28/07	09/28/07
MERCURY, TOTAL	002	S	07C0183	09/25/07	09/28/07	09/28/07
POTASSIUM, TOTAL	002	S	07L0494	09/25/07	09/28/07	09/28/07
MAGNESIUM, TOTAL	002	S	07L0494	09/25/07	09/28/07	09/28/07
MANGANESE, TOTAL	002	S	07L0494	09/25/07	09/28/07	09/28/07
MOLYBDENUM, TOTAL	002	S	07L0494	09/25/07	09/28/07	09/28/07
SODIUM, TOTAL	002	S	07L0494	09/25/07	09/28/07	09/28/07
NICKEL, TOTAL	002	S	07L0494	09/25/07	09/28/07	09/28/07
LEAD, TOTAL	002	S	07L0494	09/25/07	09/28/07	09/28/07
ANTIMONY, TOTAL	002	S	07L0494	09/25/07	09/28/07	09/28/07
SELENIUM, TOTAL	002	S	07L0494	09/25/07	09/28/07	09/28/07
SILICON, TOTAL	002	S	07L0494	09/25/07	09/28/07	09/28/07
VANADIUM, TOTAL	002	S	07L0494	09/25/07	09/28/07	09/28/07
ZINC, TOTAL	002	S	07L0494	09/25/07	09/28/07	09/28/07
J15P21						
SILVER, TOTAL	003	S	07L0494	09/25/07	09/28/07	09/28/07
ALUMINUM, TOTAL	003	S	07L0494	09/25/07	09/28/07	09/28/07
ARSENIC, TOTAL	003	S	07L0494	09/25/07	09/28/07	09/28/07
BORON, TOTAL	003	S	07L0494	09/25/07	09/28/07	09/28/07
BARIUM, TOTAL	003	S	07L0494	09/25/07	09/28/07	09/28/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0978

DATE RECEIVED: 09/27/07 LVL LOT # :0709L979

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BERYLLIUM, TOTAL	003	S	07L0494	09/25/07	09/28/07	09/28/07
CALCIUM, TOTAL	003	S	07L0494	09/25/07	09/28/07	09/28/07
CADMIUM, TOTAL	003	S	07L0494	09/25/07	09/28/07	09/28/07
COBALT, TOTAL	003	S	07L0494	09/25/07	09/28/07	09/28/07
CHROMIUM, TOTAL	003	S	07L0494	09/25/07	09/28/07	09/28/07
COPPER, TOTAL	003	S	07L0494	09/25/07	09/28/07	09/28/07
IRON, TOTAL	003	S	07L0494	09/25/07	09/28/07	09/28/07
MERCURY, TOTAL	003	S	07C0183	09/25/07	09/28/07	09/28/07
POTASSIUM, TOTAL	003	S	07L0494	09/25/07	09/28/07	09/28/07
MAGNESIUM, TOTAL	003	S	07L0494	09/25/07	09/28/07	09/28/07
MANGANESE, TOTAL	003	S	07L0494	09/25/07	09/28/07	09/28/07
MOLYBDENUM, TOTAL	003	S	07L0494	09/25/07	09/28/07	09/28/07
SODIUM, TOTAL	003	S	07L0494	09/25/07	09/28/07	09/28/07
NICKEL, TOTAL	003	S	07L0494	09/25/07	09/28/07	09/28/07
LEAD, TOTAL	003	S	07L0494	09/25/07	09/28/07	09/28/07
ANTIMONY, TOTAL	003	S	07L0494	09/25/07	09/28/07	09/28/07
SELENIUM, TOTAL	003	S	07L0494	09/25/07	09/28/07	09/28/07
SILICON, TOTAL	003	S	07L0494	09/25/07	09/28/07	09/28/07
VANADIUM, TOTAL	003	S	07L0494	09/25/07	09/28/07	09/28/07
ZINC, TOTAL	003	S	07L0494	09/25/07	09/28/07	09/28/07
J15P22						
SILVER, TOTAL	004	S	07L0494	09/25/07	09/28/07	09/28/07
ALUMINUM, TOTAL	004	S	07L0494	09/25/07	09/28/07	09/28/07
ARSENIC, TOTAL	004	S	07L0494	09/25/07	09/28/07	09/28/07
BORON, TOTAL	004	S	07L0494	09/25/07	09/28/07	09/28/07
BARIUM, TOTAL	004	S	07L0494	09/25/07	09/28/07	09/28/07
BERYLLIUM, TOTAL	004	S	07L0494	09/25/07	09/28/07	09/28/07
CALCIUM, TOTAL	004	S	07L0494	09/25/07	09/28/07	09/28/07
CADMIUM, TOTAL	004	S	07L0494	09/25/07	09/28/07	09/28/07
COBALT, TOTAL	004	S	07L0494	09/25/07	09/28/07	09/28/07
CHROMIUM, TOTAL	004	S	07L0494	09/25/07	09/28/07	09/28/07
COPPER, TOTAL	004	S	07L0494	09/25/07	09/28/07	09/28/07
IRON, TOTAL	004	S	07L0494	09/25/07	09/28/07	09/28/07
MERCURY, TOTAL	004	S	07C0183	09/25/07	09/28/07	09/28/07
POTASSIUM, TOTAL	004	S	07L0494	09/25/07	09/28/07	09/28/07
MAGNESIUM, TOTAL	004	S	07L0494	09/25/07	09/28/07	09/28/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0978

DATE RECEIVED: 09/27/07 LVL LOT # :0709L979

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MANGANESE, TOTAL	004	S	07L0494	09/25/07	09/28/07	09/28/07
MOLYBDENUM, TOTAL	004	S	07L0494	09/25/07	09/28/07	09/28/07
SODIUM, TOTAL	004	S	07L0494	09/25/07	09/28/07	09/28/07
NICKEL, TOTAL	004	S	07L0494	09/25/07	09/28/07	09/28/07
LEAD, TOTAL	004	S	07L0494	09/25/07	09/28/07	09/28/07
ANTIMONY, TOTAL	004	S	07L0494	09/25/07	09/28/07	09/28/07
SELENIUM, TOTAL	004	S	07L0494	09/25/07	09/28/07	09/28/07
SILICON, TOTAL	004	S	07L0494	09/25/07	09/28/07	09/28/07
VANADIUM, TOTAL	004	S	07L0494	09/25/07	09/28/07	09/28/07
ZINC, TOTAL	004	S	07L0494	09/25/07	09/28/07	09/28/07
J15P23						
SILVER, TOTAL	005	S	07L0494	09/25/07	09/28/07	09/28/07
ALUMINUM, TOTAL	005	S	07L0494	09/25/07	09/28/07	09/28/07
ARSENIC, TOTAL	005	S	07L0494	09/25/07	09/28/07	09/28/07
BORON, TOTAL	005	S	07L0494	09/25/07	09/28/07	09/29/07
BARIUM, TOTAL	005	S	07L0494	09/25/07	09/28/07	09/28/07
BERYLLIUM, TOTAL	005	S	07L0494	09/25/07	09/28/07	09/28/07
CALCIUM, TOTAL	005	S	07L0494	09/25/07	09/28/07	09/28/07
CADMIUM, TOTAL	005	S	07L0494	09/25/07	09/28/07	09/28/07
COBALT, TOTAL	005	S	07L0494	09/25/07	09/28/07	09/28/07
CHROMIUM, TOTAL	005	S	07L0494	09/25/07	09/28/07	09/28/07
COPPER, TOTAL	005	S	07L0494	09/25/07	09/28/07	09/28/07
IRON, TOTAL	005	S	07L0494	09/25/07	09/28/07	09/28/07
MERCURY, TOTAL	005	S	07C0183	09/25/07	09/28/07	09/28/07
POTASSIUM, TOTAL	005	S	07L0494	09/25/07	09/28/07	09/28/07
MAGNESIUM, TOTAL	005	S	07L0494	09/25/07	09/28/07	09/28/07
MANGANESE, TOTAL	005	S	07L0494	09/25/07	09/28/07	09/28/07
MOLYBDENUM, TOTAL	005	S	07L0494	09/25/07	09/28/07	09/28/07
SODIUM, TOTAL	005	S	07L0494	09/25/07	09/28/07	09/28/07
NICKEL, TOTAL	005	S	07L0494	09/25/07	09/28/07	09/28/07
LEAD, TOTAL	005	S	07L0494	09/25/07	09/28/07	09/28/07
ANTIMONY, TOTAL	005	S	07L0494	09/25/07	09/28/07	09/28/07
SELENIUM, TOTAL	005	S	07L0494	09/25/07	09/28/07	09/28/07
SILICON, TOTAL	005	S	07L0494	09/25/07	09/28/07	09/28/07
VANADIUM, TOTAL	005	S	07L0494	09/25/07	09/28/07	09/28/07
ZINC, TOTAL	005	S	07L0494	09/25/07	09/28/07	09/28/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0978

DATE RECEIVED: 09/27/07 LVL LOT # :0709L979

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J15P24						
SILVER, TOTAL	006	S	07L0494	09/25/07	09/28/07	09/28/07
ALUMINUM, TOTAL	006	S	07L0494	09/25/07	09/28/07	09/28/07
ARSENIC, TOTAL	006	S	07L0494	09/25/07	09/28/07	09/28/07
BORON, TOTAL	006	S	07L0494	09/25/07	09/28/07	09/29/07
BARIUM, TOTAL	006	S	07L0494	09/25/07	09/28/07	09/28/07
BERYLLIUM, TOTAL	006	S	07L0494	09/25/07	09/28/07	09/28/07
CALCIUM, TOTAL	006	S	07L0494	09/25/07	09/28/07	09/28/07
CADMIUM, TOTAL	006	S	07L0494	09/25/07	09/28/07	09/28/07
COBALT, TOTAL	006	S	07L0494	09/25/07	09/28/07	09/28/07
CHROMIUM, TOTAL	006	S	07L0494	09/25/07	09/28/07	09/28/07
COPPER, TOTAL	006	S	07L0494	09/25/07	09/28/07	09/28/07
IRON, TOTAL	006	S	07L0494	09/25/07	09/28/07	09/28/07
MERCURY, TOTAL	006	S	07C0183	09/25/07	09/28/07	09/28/07
POTASSIUM, TOTAL	006	S	07L0494	09/25/07	09/28/07	09/28/07
MAGNESIUM, TOTAL	006	S	07L0494	09/25/07	09/28/07	09/28/07
MANGANESE, TOTAL	006	S	07L0494	09/25/07	09/28/07	09/28/07
MOLYBDENUM, TOTAL	006	S	07L0494	09/25/07	09/28/07	09/28/07
SODIUM, TOTAL	006	S	07L0494	09/25/07	09/28/07	09/28/07
NICKEL, TOTAL	006	S	07L0494	09/25/07	09/28/07	09/28/07
LEAD, TOTAL	006	S	07L0494	09/25/07	09/28/07	09/28/07
ANTIMONY, TOTAL	006	S	07L0494	09/25/07	09/28/07	09/28/07
SELENIUM, TOTAL	006	S	07L0494	09/25/07	09/28/07	09/28/07
SILICON, TOTAL	006	S	07L0494	09/25/07	09/28/07	09/28/07
VANADIUM, TOTAL	006	S	07L0494	09/25/07	09/28/07	09/28/07
ZINC, TOTAL	006	S	07L0494	09/25/07	09/28/07	09/28/07
J15P25						
SILVER, TOTAL	007	S	07L0494	09/25/07	09/28/07	09/28/07
ALUMINUM, TOTAL	007	S	07L0494	09/25/07	09/28/07	09/28/07
ARSENIC, TOTAL	007	S	07L0494	09/25/07	09/28/07	09/28/07
BORON, TOTAL	007	S	07L0494	09/25/07	09/28/07	09/29/07
BARIUM, TOTAL	007	S	07L0494	09/25/07	09/28/07	09/28/07
BERYLLIUM, TOTAL	007	S	07L0494	09/25/07	09/28/07	09/28/07
CALCIUM, TOTAL	007	S	07L0494	09/25/07	09/28/07	09/28/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0978

DATE RECEIVED: 09/27/07 LVL LOT # :0709L979

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CADMIUM, TOTAL	007	S	07L0494	09/25/07	09/28/07	09/28/07
COBALT, TOTAL	007	S	07L0494	09/25/07	09/28/07	09/28/07
CHROMIUM, TOTAL	007	S	07L0494	09/25/07	09/28/07	09/28/07
COPPER, TOTAL	007	S	07L0494	09/25/07	09/28/07	09/28/07
IRON, TOTAL	007	S	07L0494	09/25/07	09/28/07	09/28/07
MERCURY, TOTAL	007	S	07C0183	09/25/07	09/28/07	09/28/07
POTASSIUM, TOTAL	007	S	07L0494	09/25/07	09/28/07	09/28/07
MAGNESIUM, TOTAL	007	S	07L0494	09/25/07	09/28/07	09/28/07
MANGANESE, TOTAL	007	S	07L0494	09/25/07	09/28/07	09/28/07
MOLYBDENUM, TOTAL	007	S	07L0494	09/25/07	09/28/07	09/28/07
SODIUM, TOTAL	007	S	07L0494	09/25/07	09/28/07	09/28/07
NICKEL, TOTAL	007	S	07L0494	09/25/07	09/28/07	09/28/07
LEAD, TOTAL	007	S	07L0494	09/25/07	09/28/07	09/28/07
ANTIMONY, TOTAL	007	S	07L0494	09/25/07	09/28/07	09/28/07
SELENIUM, TOTAL	007	S	07L0494	09/25/07	09/28/07	09/28/07
SILICON, TOTAL	007	S	07L0494	09/25/07	09/28/07	09/28/07
VANADIUM, TOTAL	007	S	07L0494	09/25/07	09/28/07	09/28/07
ZINC, TOTAL	007	S	07L0494	09/25/07	09/28/07	09/28/07
J15P26						
SILVER, TOTAL	008	S	07L0494	09/25/07	09/28/07	09/28/07
ALUMINUM, TOTAL	008	S	07L0494	09/25/07	09/28/07	09/28/07
ARSENIC, TOTAL	008	S	07L0494	09/25/07	09/28/07	09/28/07
BORON, TOTAL	008	S	07L0494	09/25/07	09/28/07	09/28/07
BARIUM, TOTAL	008	S	07L0494	09/25/07	09/28/07	09/28/07
BERYLLIUM, TOTAL	008	S	07L0494	09/25/07	09/28/07	09/28/07
CALCIUM, TOTAL	008	S	07L0494	09/25/07	09/28/07	09/28/07
CADMIUM, TOTAL	008	S	07L0494	09/25/07	09/28/07	09/28/07
COBALT, TOTAL	008	S	07L0494	09/25/07	09/28/07	09/28/07
CHROMIUM, TOTAL	008	S	07L0494	09/25/07	09/28/07	09/28/07
COPPER, TOTAL	008	S	07L0494	09/25/07	09/28/07	09/28/07
IRON, TOTAL	008	S	07L0494	09/25/07	09/28/07	09/28/07
MERCURY, TOTAL	008	S	07C0183	09/25/07	09/28/07	09/28/07
POTASSIUM, TOTAL	008	S	07L0494	09/25/07	09/28/07	09/28/07
MAGNESIUM, TOTAL	008	S	07L0494	09/25/07	09/28/07	09/28/07
MANGANESE, TOTAL	008	S	07L0494	09/25/07	09/28/07	09/28/07
MOLYBDENUM, TOTAL	008	S	07L0494	09/25/07	09/28/07	09/28/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0978

DATE RECEIVED: 09/27/07 LVL LOT # :0709L979

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SODIUM, TOTAL	008	S	07L0494	09/25/07	09/28/07	09/28/07
NICKEL, TOTAL	008	S	07L0494	09/25/07	09/28/07	09/28/07
LEAD, TOTAL	008	S	07L0494	09/25/07	09/28/07	09/28/07
ANTIMONY, TOTAL	008	S	07L0494	09/25/07	09/28/07	09/28/07
SELENIUM, TOTAL	008	S	07L0494	09/25/07	09/28/07	09/28/07
SILICON, TOTAL	008	S	07L0494	09/25/07	09/28/07	09/28/07
VANADIUM, TOTAL	008	S	07L0494	09/25/07	09/28/07	09/28/07
ZINC, TOTAL	008	S	07L0494	09/25/07	09/28/07	09/28/07

LAB QC:

SILVER LABORATORY	LC1 BS	S	07L0494	N/A	09/28/07	09/28/07
SILVER, TOTAL	MB1	S	07L0494	N/A	09/28/07	09/28/07
ALUMINUM LABORTORY	LC1 BS	S	07L0494	N/A	09/28/07	09/28/07
ALUMINUM, TOTAL	MB1	S	07L0494	N/A	09/28/07	09/28/07
ARSENIC LABORATORY	LC1 BS	S	07L0494	N/A	09/28/07	09/28/07
ARSENIC, TOTAL	MB1	S	07L0494	N/A	09/28/07	09/28/07
BORON LABORATORY	LC1 BS	S	07L0494	N/A	09/28/07	09/28/07
BORON, TOTAL	MB1	S	07L0494	N/A	09/28/07	09/28/07
BARIUM LABORATORY	LC1 BS	S	07L0494	N/A	09/28/07	09/28/07
BARIUM, TOTAL	MB1	S	07L0494	N/A	09/28/07	09/28/07
BERYLLIUM LABORATORY	LC1 BS	S	07L0494	N/A	09/28/07	09/28/07
BERYLLIUM, TOTAL	MB1	S	07L0494	N/A	09/28/07	09/28/07
CALCIUM LABORATORY	LC1 BS	S	07L0494	N/A	09/28/07	09/28/07
CALCIUM, TOTAL	MB1	S	07L0494	N/A	09/28/07	09/28/07
CADMIUM LABORATORY	LC1 BS	S	07L0494	N/A	09/28/07	09/28/07
CADMIUM, TOTAL	MB1	S	07L0494	N/A	09/28/07	09/28/07
COBALT LABORATORY	LC1 BS	S	07L0494	N/A	09/28/07	09/28/07
COBALT, TOTAL	MB1	S	07L0494	N/A	09/28/07	09/28/07
CHROMIUM LABORATORY	LC1 BS	S	07L0494	N/A	09/28/07	09/28/07
CHROMIUM, TOTAL	MB1	S	07L0494	N/A	09/28/07	09/28/07
COPPER LABORATORY	LC1 BS	S	07L0494	N/A	09/28/07	09/28/07
COPPER, TOTAL	MB1	S	07L0494	N/A	09/28/07	09/28/07
IRON LABORATORY	LC1 BS	S	07L0494	N/A	09/28/07	09/28/07
IRON, TOTAL	MB1	S	07L0494	N/A	09/28/07	09/28/07
MERCURY LABORATORY	LC1 BS	S	07C0183	N/A	09/28/07	09/28/07
MERCURY, TOTAL	MB1	S	07C0183	N/A	09/28/07	09/28/07
POTASSIUM LABORATORY	LC1 BS	S	07L0494	N/A	09/28/07	09/28/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0978

DATE RECEIVED: 09/27/07 LVL LOT # :0709L979

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
POTASSIUM, TOTAL	MB1	S	07L0494	N/A	09/28/07	09/28/07
MAGNESIUM LABORATORY	LC1 BS	S	07L0494	N/A	09/28/07	09/28/07
MAGNESIUM, TOTAL	MB1	S	07L0494	N/A	09/28/07	09/28/07
MANGANESE LABORATORY	LC1 BS	S	07L0494	N/A	09/28/07	09/28/07
MANGANESE, TOTAL	MB1	S	07L0494	N/A	09/28/07	09/28/07
MOLYBDENUM LABORATOR	LC1 BS	S	07L0494	N/A	09/28/07	09/28/07
MOLYBDENUM, TOTAL	MB1	S	07L0494	N/A	09/28/07	09/28/07
SODIUM LABORATORY	LC1 BS	S	07L0494	N/A	09/28/07	09/28/07
SODIUM, TOTAL	MB1	S	07L0494	N/A	09/28/07	09/28/07
NICKEL LABORATORY	LC1 BS	S	07L0494	N/A	09/28/07	09/28/07
NICKEL, TOTAL	MB1	S	07L0494	N/A	09/28/07	09/28/07
LEAD LABORATORY	LC1 BS	S	07L0494	N/A	09/28/07	09/28/07
LEAD, TOTAL	MB1	S	07L0494	N/A	09/28/07	09/28/07
ANTIMONY LABORATORY	LC1 BS	S	07L0494	N/A	09/28/07	09/28/07
ANTIMONY, TOTAL	MB1	S	07L0494	N/A	09/28/07	09/28/07
SELENIUM LABORATORY	LC1 BS	S	07L0494	N/A	09/28/07	09/28/07
SELENIUM, TOTAL	MB1	S	07L0494	N/A	09/28/07	09/28/07
SILICON LABORATORY	LC1 BS	S	07L0494	N/A	09/28/07	09/28/07
SILICON, TOTAL	MB1	S	07L0494	N/A	09/28/07	09/28/07
VANADIUM LABORATORY	LC1 BS	S	07L0494	N/A	09/28/07	09/28/07
VANADIUM, TOTAL	MB1	S	07L0494	N/A	09/28/07	09/28/07
ZINC LABORATORY	LC1 BS	S	07L0494	N/A	09/28/07	09/28/07
ZINC, TOTAL	MB1	S	07L0494	N/A	09/28/07	09/28/07

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-032
LVL#: 0709L979
SDG/SAF#: K0978/RC-032

W.O.#: 11343-606-001-9999-00
Date Received: 09-27-07

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 analyses of 8 soil samples.

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

   All samples were ran with a 3-fold dilution 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) with the exception of CCV3 for Boron. All associated samples were reran in file TA0929A

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

6. The preparation/method blank for 1 analyte was outside method criteria. {less than the Practical Quantitation Limit (3X the IDL) or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

   a). The MB results for Sodium was greater than the Practical Quantitation Limit (PQL) {3 x the (IDL) Instrument Detection Level} and sample J15P23 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.

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 29 pages.

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

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 4 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
J15P19	Aluminum	66,000	100.8
	Iron	66,000	92.9
	Manganese	3,000	99.7
	Silicon	6,300	90.0

11. The duplicate analyses for 9 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

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

13. 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

9/30/07
Date

tlb/m09-979

LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

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

Lot#: 07091979

Leaching Procedure: __1310 __1311 __1312 __Other:_____

CLP 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 [2]	__245.5 [2]			__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-W1-033/M-03/01

000000012

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 10/02/07

CLIENT: TNUHANFORD RC-032 K0978 LVL LOT #: 0709L979

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J15P19	Silver, Total	0.26 u	MG/KG	0.26	3.0
		Aluminum, Total	3090	MG/KG	4.8	3.0
		Arsenic, Total	1.7	MG/KG	1.2	3.0
		Boron, Total	1.0 u	MG/KG	1.0	3.0
		Barium, Total	32.4	MG/KG	0.06	3.0
		Beryllium, Total	0.13	MG/KG	0.03	3.0
		Calcium, Total	3950	MG/KG	2.1	3.0
		Cadmium, Total	0.14 u	MG/KG	0.14	3.0
		Cobalt, Total	3.5	MG/KG	0.23	3.0
		Chromium, Total	5.1	MG/KG	0.29	3.0
		Copper, Total	9.7	MG/KG	0.26	3.0
		Iron, Total	8070	MG/KG	6.9	3.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Potassium, Total	464	MG/KG	9.3	3.0
		Magnesium, Total	2270	MG/KG	2.3	3.0
		Manganese, Total	156	MG/KG	0.20	3.0
		Molybdenum, Total	0.58	MG/KG	0.46	3.0
		Sodium, Total	126	MG/KG	2.0	3.0
		Nickel, Total	10.7	MG/KG	0.78	3.0
		Lead, Total	2.4	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	2520	MG/KG	2.5	3.0
		Vanadium, Total	18.2	MG/KG	0.23	3.0
		Zinc, Total	19.5	MG/KG	0.12	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 10/02/07

CLIENT: TNUHANFORD RC-032 K0978 LVL LOT #: 0709L979

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J15P20	Silver, Total	0.26 u	MG/KG	0.26	3.0
		Aluminum, Total	5210	MG/KG	4.7	3.0
		Arsenic, Total	2.4	MG/KG	1.2	3.0
		Boron, Total	3.8	MG/KG	1.0	3.0
		Barium, Total	75.3	MG/KG	0.06	3.0
		Beryllium, Total	0.23	MG/KG	0.03	3.0
		Calcium, Total	5780	MG/KG	2.0	3.0
		Cadmium, Total	0.14 u	MG/KG	0.14	3.0
		Cobalt, Total	5.7	MG/KG	0.23	3.0
		Chromium, Total	8.9	MG/KG	0.29	3.0
		Copper, Total	12.6	MG/KG	0.26	3.0
		Iron, Total	15100	MG/KG	6.8	3.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	925	MG/KG	9.1	3.0
		Magnesium, Total	3450	MG/KG	2.3	3.0
		Manganese, Total	271	MG/KG	0.20	3.0
		Molybdenum, Total	0.46 u	MG/KG	0.46	3.0
		Sodium, Total	233	MG/KG	2.0	3.0
		Nickel, Total	9.1	MG/KG	0.77	3.0
		Lead, Total	10.5	MG/KG	0.94	3.0
		Antimony, Total	0.63 u	MG/KG	0.63	3.0
		Selenium, Total	1.2 u	MG/KG	1.2	3.0
		Silicon, Total	3430	MG/KG	2.5	3.0
		Vanadium, Total	35.8	MG/KG	0.23	3.0
		Zinc, Total	65.8	MG/KG	0.11	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 10/02/07

CLIENT: TNUHANFORD RC-032 K0978 LVL LOT #: 0709L979

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	J15P21	Silver, Total	0.25 u	MG/KG	0.25	3.0
		Aluminum, Total	4910	MG/KG	4.6	3.0
		Arsenic, Total	2.3	MG/KG	1.1	3.0
		Boron, Total	3.9	MG/KG	0.99	3.0
		Barium, Total	79.0	MG/KG	0.06	3.0
		Beryllium, Total	0.22	MG/KG	0.03	3.0
		Calcium, Total	7650	MG/KG	2.0	3.0
		Cadmium, Total	0.14 u	MG/KG	0.14	3.0
		Cobalt, Total	5.3	MG/KG	0.22	3.0
		Chromium, Total	7.5	MG/KG	0.28	3.0
		Copper, Total	12.0	MG/KG	0.25	3.0
		Iron, Total	14300	MG/KG	6.6	3.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	1010	MG/KG	8.8	3.0
		Magnesium, Total	3380	MG/KG	2.2	3.0
		Manganese, Total	263	MG/KG	0.19	3.0
		Molybdenum, Total	0.72	MG/KG	0.44	3.0
		Sodium, Total	227	MG/KG	1.9	3.0
		Nickel, Total	7.9	MG/KG	0.75	3.0
		Lead, Total	13.8	MG/KG	0.91	3.0
		Antimony, Total	0.61 u	MG/KG	0.61	3.0
		Selenium, Total	1.2 u	MG/KG	1.2	3.0
		Silicon, Total	3550	MG/KG	2.4	3.0
		Vanadium, Total	31.6	MG/KG	0.22	3.0
		Zinc, Total	41.4	MG/KG	0.11	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 10/02/07

CLIENT: TNUHANFORD RC-032 K0978 LVL LOT #: 0709L979

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	J15P22	Silver, Total	0.25 u	MG/KG	0.25	3.0
		Aluminum, Total	5790	MG/KG	4.7	3.0
		Arsenic, Total	1.7	MG/KG	1.2	3.0
		Boron, Total	10.3	MG/KG	1.0	3.0
		Barium, Total	105	MG/KG	0.06	3.0
		Beryllium, Total	0.24	MG/KG	0.03	3.0
		Calcium, Total	5450	MG/KG	2.0	3.0
		Cadmium, Total	0.17	MG/KG	0.14	3.0
		Cobalt, Total	4.9	MG/KG	0.22	3.0
		Chromium, Total	8.0	MG/KG	0.28	3.0
		Copper, Total	12.9	MG/KG	0.25	3.0
		Iron, Total	13500	MG/KG	6.7	3.0
		Mercury, Total	0.15	MG/KG	0.01	1.0
		Potassium, Total	768	MG/KG	9.0	3.0
		Magnesium, Total	3560	MG/KG	2.3	3.0
		Manganese, Total	253	MG/KG	0.20	3.0
		Molybdenum, Total	0.51	MG/KG	0.45	3.0
		Sodium, Total	196	MG/KG	2.0	3.0
		Nickel, Total	9.1	MG/KG	0.76	3.0
		Lead, Total	6.5	MG/KG	0.93	3.0
		Antimony, Total	0.62 u	MG/KG	0.62	3.0
		Selenium, Total	1.2 u	MG/KG	1.2	3.0
		Silicon, Total	2610	MG/KG	2.4	3.0
		Vanadium, Total	30.8	MG/KG	0.22	3.0
		Zinc, Total	29.5	MG/KG	0.11	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 10/02/07

CLIENT: TNUHANFORD RC-032 K0978 LVL LOT #: 0709L979

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	J15P23	Silver, Total	0.26 u	MG/KG	0.26	3.0
		Aluminum, Total	7590	MG/KG	4.8	3.0
		Arsenic, Total	2.8	MG/KG	1.2	3.0
		Boron, Total	32.3	MG/KG	1.1	3.0
		Barium, Total	260	MG/KG	0.06	3.0
		Beryllium, Total	0.42	MG/KG	0.03	3.0
		Calcium, Total	8120	MG/KG	2.1	3.0
		Cadmium, Total	0.20	MG/KG	0.15	3.0
		Cobalt, Total	5.9	MG/KG	0.23	3.0
		Chromium, Total	8.1	MG/KG	0.29	3.0
		Copper, Total	17.3	MG/KG	0.26	3.0
		Iron, Total	13700	MG/KG	7.0	3.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Potassium, Total	832	MG/KG	9.3	3.0
		Magnesium, Total	3870	MG/KG	2.4	3.0
		Manganese, Total	259	MG/KG	0.20	3.0
		Molybdenum, Total	0.68	MG/KG	0.47	3.0
		Sodium, Total	408	MG/KG	2.0	3.0
		Nickel, Total	9.4	MG/KG	0.79	3.0
		Lead, Total	20.0	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	3430	MG/KG	2.5	3.0
		Vanadium, Total	38.5	MG/KG	0.23	3.0
		Zinc, Total	35.3	MG/KG	0.12	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 10/02/07

CLIENT: TNUHANFORD RC-032 K0978 LVL LOT #: 0709L979

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-006	J15P24	Silver, Total	0.27 u	MG/KG	0.27	3.0
		Aluminum, Total	6360	MG/KG	4.9	3.0
		Arsenic, Total	2.3	MG/KG	1.2	3.0
		Boron, Total	19.7	MG/KG	1.1	3.0
		Barium, Total	209	MG/KG	0.06	3.0
		Beryllium, Total	0.33	MG/KG	0.03	3.0
		Calcium, Total	6740	MG/KG	2.1	3.0
		Cadmium, Total	0.15 u	MG/KG	0.15	3.0
		Cobalt, Total	5.1	MG/KG	0.24	3.0
		Chromium, Total	7.0	MG/KG	0.30	3.0
		Copper, Total	14.5	MG/KG	0.27	3.0
		Iron, Total	12300	MG/KG	7.1	3.0
		Mercury, Total	0.02	MG/KG	0.02	1.0
		Potassium, Total	797	MG/KG	9.5	3.0
		Magnesium, Total	3370	MG/KG	2.4	3.0
		Manganese, Total	229	MG/KG	0.21	3.0
		Molybdenum, Total	0.85	MG/KG	0.48	3.0
		Sodium, Total	309	MG/KG	2.1	3.0
		Nickel, Total	8.8	MG/KG	0.80	3.0
		Lead, Total	5.5	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	3050	MG/KG	2.6	3.0
		Vanadium, Total	30.3	MG/KG	0.24	3.0
		Zinc, Total	27.9	MG/KG	0.12	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 10/02/07

CLIENT: TNUHANFORD RC-032 K0978 LVL LOT #: 0709L979

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-007	J15P25	Silver, Total	0.26 u	MG/KG	0.26	3.0
		Aluminum, Total	5240	MG/KG	4.8	3.0
		Arsenic, Total	1.9	MG/KG	1.2	3.0
		Boron, Total	13.4	MG/KG	1.0	3.0
		Barium, Total	172	MG/KG	0.06	3.0
		Beryllium, Total	0.26	MG/KG	0.03	3.0
		Calcium, Total	6450	MG/KG	2.1	3.0
		Cadmium, Total	0.15 u	MG/KG	0.15	3.0
		Cobalt, Total	4.4	MG/KG	0.23	3.0
		Chromium, Total	5.8	MG/KG	0.29	3.0
		Copper, Total	15.7	MG/KG	0.26	3.0
		Iron, Total	9950	MG/KG	6.9	3.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	636	MG/KG	9.3	3.0
		Magnesium, Total	2900	MG/KG	2.3	3.0
		Manganese, Total	201	MG/KG	0.20	3.0
		Molybdenum, Total	0.46 u	MG/KG	0.46	3.0
		Sodium, Total	265	MG/KG	2.0	3.0
		Nickel, Total	7.1	MG/KG	0.78	3.0
		Lead, Total	6.3	MG/KG	0.96	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	3360	MG/KG	2.5	3.0
		Vanadium, Total	28.0	MG/KG	0.23	3.0
		Zinc, Total	24.6	MG/KG	0.12	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 10/02/07

CLIENT: TNUHANFORD RC-032 K097B LVL LOT #: 0709L979

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-008	J15P26	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Aluminum, Total	49.1	MG/KG	1.6	1.0
		Arsenic, Total	0.39 u	MG/KG	0.39	1.0
		Boron, Total	0.34 u	MG/KG	0.34	1.0
		Barium, Total	1.7	MG/KG	0.02	1.0
		Beryllium, Total	0.03	MG/KG	0.01	1.0
		Calcium, Total	24.4	MG/KG	0.68	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	0.12	MG/KG	0.08	1.0
		Chromium, Total	0.12	MG/KG	0.1	1.0
		Copper, Total	0.18	MG/KG	0.09	1.0
		Iron, Total	336	MG/KG	2.3	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	24.3	MG/KG	3.0	1.0
		Magnesium, Total	9.6	MG/KG	0.77	1.0
		Manganese, Total	5.5	MG/KG	0.07	1.0
		Molybdenum, Total	0.20	MG/KG	0.15	1.0
		Sodium, Total	16.3	MG/KG	0.67	1.0
		Nickel, Total	0.26 u	MG/KG	0.26	1.0
		Lead, Total	0.48	MG/KG	0.31	1.0
		Antimony, Total	0.21 u	MG/KG	0.21	1.0
		Selenium, Total	0.41 u	MG/KG	0.41	1.0
		Silicon, Total	67.2	MG/KG	0.82	1.0
		Vanadium, Total	0.15	MG/KG	0.08	1.0
		Zinc, Total	1.1	MG/KG	0.04	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 10/02/07

CLIENT: TNUHANFORD RC-032 K0978 LVL LOT #: 0709L979

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	07L0494-MB1	Silver, Total	0.09	MG/KG	0.08	1.0
		Aluminum, Total	3.3	MG/KG	1.6	1.0
		Arsenic, Total	0.38 u	MG/KG	0.38	1.0
		Boron, Total	0.34 u	MG/KG	0.34	1.0
		Barium, Total	0.16	MG/KG	0.02	1.0
		Beryllium, Total	0.009u	MG/KG	0.009	1.0
		Calcium, Total	15.2	MG/KG	0.66	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	0.07 u	MG/KG	0.07	1.0
		Chromium, Total	0.11	MG/KG	0.09	1.0
		Copper, Total	0.25	MG/KG	0.08	1.0
		Iron, Total	2.8	MG/KG	2.2	1.0
		Potassium, Total	8.3	MG/KG	3.0	1.0
		Magnesium, Total	3.2	MG/KG	0.76	1.0
		Manganese, Total	0.07 u	MG/KG	0.07	1.0
		Molybdenum, Total	0.15 u	MG/KG	0.15	1.0
		Sodium, Total	17.0	MG/KG	0.65	1.0
		Nickel, Total	0.25 u	MG/KG	0.25	1.0
		Lead, Total	0.31 u	MG/KG	0.31	1.0
		Antimony, Total	0.21 u	MG/KG	0.21	1.0
		Selenium, Total	0.40 u	MG/KG	0.40	1.0
		Silicon, Total	7.2	MG/KG	0.80	1.0
		Vanadium, Total	0.07 u	MG/KG	0.07	1.0
		Zinc, Total	0.95	MG/KG	0.04	1.0
BLANK1	07C0183-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 10/02/07

CLIENT: TNUHANFORD RC-032 K0978 LVL LOT #: 0709L979

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J15P19	Silver, Total	4.5	0.26u	4.8	93.8	3.0
		Aluminum, Total	3960	3090	193	454.8*	3.0
		Arsenic, Total	174	1.7	193	89.6	3.0
		Boron, Total	90.1	1.0 u	96.4	93.5	3.0
		Barium, Total	219	32.4	193	96.7	3.0
		Beryllium, Total	4.6	0.13	4.8	93.1	3.0
		Calcium, Total	6320	3950	2410	98.4	3.0
		Cadmium, Total	4.4	0.14u	4.8	91.7	3.0
		Cobalt, Total	48.3	3.5	48.2	92.9	3.0
		Chromium, Total	22.7	5.1	19.3	91.2	3.0
		Copper, Total	34.8	9.7	24.1	104.1	3.0
		Iron, Total	10200	8070	96.4	2178 *	3.0
		Mercury, Total	0.18	0.02u	0.17	107.8	1.0
		Potassium, Total	2540	464	2410	86.2	3.0
		Magnesium, Total	4970	2270	2410	112.1	3.0
		Manganese, Total	227	156	48.2	147.7	3.0
		Molybdenum, Total	83.4	0.58	96.4	85.9	3.0
		Sodium, Total	2310	126	2410	90.4	3.0
		Nickel, Total	51.1	10.7	48.2	83.8	3.0
		Lead, Total	45.7	2.4	48.2	89.8	3.0
		Antimony, Total	39.5	0.64u	48.2	82.0	3.0
		Selenium, Total	152	1.2 u	193	79.0	3.0
		Silicon, Total	2510	2520	96.4	-5.4*	3.0
		Vanadium, Total	66.6	18.2	48.2	100.4	3.0
		Zinc, Total	68.9	19.5	48.2	102.5	3.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 10/02/07

CLIENT: TNUHANFORD RC-032 K0978 LVL LOT #: 0709L979

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J15P19	Silver, Total	0.26u	0.26u	NC	3.0
		Aluminum, Total	3090	3770	20.1	3.0
		Arsenic, Total	1.7	1.3	26.7	3.0
		Boron, Total	1.0 u	1.0 u	NC	3.0
		Barium, Total	32.4	46.9	36.6	3.0
		Beryllium, Total	0.13	0.16	20.1	3.0
		Calcium, Total	3950	4040	2.4	3.0
		Cadmium, Total	0.14u	0.14u	NC	3.0
		Cobalt, Total	3.5	4.0	13.3	3.0
		Chromium, Total	5.1	5.5	7.5	3.0
		Copper, Total	9.7	11.4	16.1	3.0
		Iron, Total	8070	10400	25.1	3.0
		Mercury, Total	0.02u	0.02u	NC	1.0
		Potassium, Total	464	546	16.1	3.0
		Magnesium, Total	2270	2720	18.0	3.0
		Manganese, Total	156	187	18.4	3.0
		Molybdenum, Total	0.58	0.55	6.7	3.0
		Sodium, Total	126	147	15.5	3.0
		Nickel, Total	10.7	7.4	36.5	3.0
		Lead, Total	2.4	3.7	42.6	3.0
		Antimony, Total	0.64u	0.64u	NC	3.0
		Selenium, Total	1.2 u	1.2 u	NC	3.0
		Silicon, Total	2520	2400	4.9	3.0
		Vanadium, Total	18.2	24.1	27.9	3.0
		Zinc, Total	19.5	24.8	23.9	3.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 10/02/07

CLIENT: TNUHANFORD RC-032 K0978 LVL LOT #: 0709L979

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	07L0494-LC1	Silver, LCS	45.8	50.0	MG/KG	91.6
		Aluminum, LCS	465	500	MG/KG	92.9
		Arsenic, LCS	888	1000	MG/KG	88.8
		Boron, LCS	448	500	MG/KG	89.7
		Barium, LCS	460	500	MG/KG	92.1
		Beryllium, LCS	23.0	25.0	MG/KG	92.0
		Calcium, LCS	2320	2500	MG/KG	93.0
		Cadmium, LCS	22.7	25.0	MG/KG	90.8
		Cobalt, LCS	231	250	MG/KG	92.4
		Chromium, LCS	46.2	50.0	MG/KG	92.4
		Copper, LCS	116	125	MG/KG	92.8
		Iron, LCS	467	500	MG/KG	93.4
		Potassium, LCS	2170	2500	MG/KG	86.9
		Magnesium, LCS	2290	2500	MG/KG	91.6
		Manganese, LCS	71.0	75.0	MG/KG	94.7
		Molybdenum, LCS	448	500	MG/KG	89.6
		Sodium, LCS	2250	2500	MG/KG	90.1
		Nickel, LCS	182	200	MG/KG	91.0
		Lead, LCS	228	250	MG/KG	91.4
		Antimony, LCS	267	300	MG/KG	88.9
		Selenium, LCS	857	1000	MG/KG	85.7
		Silicon, LCS	442	500	MG/KG	88.5
		Vanadium, LCS	233	250	MG/KG	93.2
		Zinc, LCS	91.6	100	MG/KG	91.6
LCS1	07C0183-LC1	Mercury, LCS	2.8	2.8	MG/KG	98.6

nville Laboratory Use Only

07091979

Custody Transfer Record/Lab Work Request

Page 1 of 1

See SRC

VLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

000000026

nt TNU Hanford BC-032

Final Proj. Sampling Date

ect# 11343-606-001-9999-00

ect Contact/Phone#

ville Laboratory Project Manager Orlette Johnson

SW846 Del STD TAT 3 days

e Rec'd 9-27-07 Date Due 9-30-07

		A						BC		D		E			
Refrigerator #				3					3		3		3		
#/Type Container	Liquid														
	Solid			1gl					2gl		1gl		1gl		
Volume	Solid			60					125		125		250		
Preservatives				1					1		1		1		
ANALYSES REQUESTED →		VOA	BNA	~~Pest~~ PCB	Herb			ORGANIC Cr	INORG Metal + Hg	CN	Crtc		TPH 418.1		

RIX
ES:
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	Lionville Laboratory Use Only													
									OPCB				Met①		ICP6		IPHC			
001	J15P19			S	9-25-07	0900			X				X		X		X			
002	J15P20					0920			X				X		X		X			
003	J15P21					0940			X				X		X		X			
004	J15P22					1300			X				X		X		X			
005	J15P23					1315			X				X		X		X			
006	J15P24					1330			X				X		X		X			
007	J15P25					1345			X				X		X		X			
008	J15P26					1000							X							

cial Instructions:

Met① = HSL + B, Mg, Si (NO TL)

Special Instructions:

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

elinquished by	Received by	Date	Time
FedEx	[signature]	9-27-07	0945

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-032-166	Page 3 of 4

Collector: T. Welch-Koelling	Company Contact: R.T. Coffman	Telephone No.: 528-6409	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 7 DAY 3 OK 9/27/07		
Project Designation: 100-F Remaining Sites Burial Grounds - Soil Full Protocol	Sampling Location: 100-F-26:4 Verification	SAF No.: RC-032	
Ice Chest No.: ERC-99-027	Field Logbook No.: EFL-1174-3	COA: R10F262000	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A070453	Bill of Lading/Air Bill No.: See OSRC	

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	None					
Type of Container	P	P	aG	aG	P	P					
No. of Container(s)	2	1	1	1	1						
Volume	125mL	125mL	60mL	250mL	500mL	125mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	PCBs - 8082	TPH (Total) - 418.1	See item (2) in Special Instructions	Gross Alpha; Gross Beta					

Sample No.	Matrix *	Sample Date	Sample Time										
J15P19	SOIL	09-25-07	0900	X	X	X	X						10
J15P20	SOIL		0920	X	X	X	X						BCL1
J15P21	SOIL		0940	X	X	X	X						BCL2
J15P22	SOIL		1300	X	X	X	X						BCL3
J15P23	SOIL		1315	X	X	X	X						BCL4

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature]	9-25-07 1430	JRDeBruyne [signature]	9-25-07 1430
JRDeBruyne [signature]	9-26-07 0530	3728/2B	9-26-07 0530
3728/2B	9-26-07 0900	[signature]	9-26-07 0900
[signature]	9-26-07 1500 WCH	FED EX	
[signature]	9-27-07 0945	[signature]	9-27-07 0945

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 9/26/07.

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

000000027

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-032-166	Page 4 of 4

Collector: T. Welch-Koelling	Company Contact: R.T. Coffman	Telephone No.: 528-6409	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 1 DAY 3 of 9/27/07		
Project Designation: 100-F Remaining Sites Burial Grounds - Soil Full Protocol	Sampling Location: 100-F-26:4 Verification		SAF No.: RC-032
Ice Chest No.: ERC-99-027	Field Logbook No.: EFL-1174-3	COA: R10F262000	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A070453		Bill of Lading/Air Bill No.: Ex 05PC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	None					
Type of Container	P	P	aG	aG	P	P					
No. of Container(s)	2	1	1	1	1	1					
Volume	125mL	125mL	60mL	250mL	500mL	125mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	PCBs - 8082	TPH (Total) - 418.1	See item (2) in Special Instructions	Gross Alpha; Gross Beta					

Sample No.	Matrix *	Sample Date	Sample Time										
J15P24	SOIL	09-25-07	1330	X	X	X	X						BCL5
J15P25	SOIL		1345	X	X	X	X						BCL6
J15P26	SOIL		1000	X									EB

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
T. Welch-Koelling	9-25-07 1430	JR DeDivigne	9-25-07 1430
JR DeDivigne	9-26-07 0530	3728/2B	9-26-07 0530
3728/2B	9-26-07 0900	[illegible]	9-26-07 0910
[illegible]	9-26-07 1500	FED EX	
FED EX	9-27-07 0945	[illegible]	9-27-07 0945

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 9/26/07.

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

VCH-EE-011

000000028

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford

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

Date: 9.27.07

LvLI Batch #: 07091979

Sample Custodian: D Smith

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier: FedEx		Airbill # 7908 3725 6
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 1.7	°C	Cooler # ERe.99.027
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