0073813

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 8/28/07 INITIAL/DATE
Jeanette Duncan	H4-21	KW 8/28/07 INITIAL/DATE

COMMENTS:

SDG K0916 SAF-RC-032

Rad only Chem only X Rad & Chem

X Complete Partial

Waste Site: 100-F-26:14 Shallow Zone Verification

RECEIVED
SEP 04 2007
EDMC

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SERVICES

RECEIVED
2007

August 22, 2007

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

Reference: **P.O. #630**
Eberline Services R7-08-086-7847, SDG K0916

Dear Ms. Kessner:

Enclosed is the data report for five solid (soil) samples designated under SAF No. RC-032 received at Eberline Services on August 14, 2007. The samples were analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

Melissa Mannion

Melissa C. Mannion
Senior Program Manager

MCM/njv

Enclosure: Data Package

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

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K0916 was composed of five 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 document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to WCH via e-mail on August 21, 2007.

2.0 ANALYSIS NOTES

2.1 Nickel-63 Analysis

No problems were encountered during the course of the analyses.

2.2 Total Strontium Analysis

No problems were encountered during the course of the analyses.

2.3 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."

Melin Mannion

Melissa C. Mannion
Senior Program Manager

08/22/7

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 K0916

SDG	7847
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. 630
Case no	SDG_K0916

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	08/21/07

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.

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 K0916

SDG 7847
Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford
Contract No. 630
Case no SDG K0916

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R708086-01	J15BV6	100-F-26:14 Shallow Zone	SOLID		RC-032	RC-032-140	08/09/07 07:15
R708086-02	J15BV7	100-F-26:14 Shallow Zone	SOLID		RC-032	RC-032-140	08/09/07 07:30
R708086-03	J15BV8	100-F-26:14 Shallow Zone	SOLID		RC-032	RC-032-140	08/09/07 07:45
R708086-04	J15BV9	100-F-26:14 Shallow Zone	SOLID		RC-032	RC-032-140	08/09/07 07:45
R708086-05	J15BW0	100-F-26:14 Shallow Zone	SOLID		RC-032	RC-032-140	08/09/07 08:00
R708086-06	Lab Control Sample		SOLID		RC-032		
R708086-07	Method Blank		SOLID		RC-032		
R708086-08	Duplicate (R708086-01)	100-F-26:14 Shallow Zone	SOLID		RC-032		08/09/07 07:15

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 08/21/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0916

SDG 7847
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG K0916

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
7847	RC-032-140	J15BV6	SOLID	99.3	1061 g		08/14/07	5	R708086-01	7847-001
		J15BV7	SOLID	99.1	1113 g		08/14/07	5	R708086-02	7847-002
		J15BV8	SOLID	99.4	1068 g		08/14/07	5	R708086-03	7847-003
		J15BV9	SOLID	99.5	994 g		08/14/07	5	R708086-04	7847-004
		J15BW0	SOLID	99.5	1117 g		08/14/07	5	R708086-05	7847-005
		Method Blank	SOLID						R708086-07	7847-007
		Lab Control Sample	SOLID						R708086-06	7847-006
		Duplicate (R708086-01)	SOLID	99.3	1061 g		08/14/07	5	R708086-08	7847-008

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 08/21/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0916

SDG 7847
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG K0916

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Beta Counting												
SR	SOLID	Total Strontium in Solids	6121-060	10.0	5			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6121-060	15.0	5			1	1	1/1		
Liquid Scintillation Counting												
NI_L	SOLID	Nickel 63 in Solids	6121-060	10.0	5			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 08/21/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0916

SDG 7847
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG K0916

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R708086-01	J15BV6			7847-001	GAM		08/15/07	08/16/07	CSS	Gamma Scan
08/09/07	100-F-26:14 Shallow Zone		SOLID	7847-001	NI_L		08/20/07	08/21/07	BW	Nickel 63 in Solids
08/14/07	RC-032-140	RC-032		7847-001	SR		08/16/07	08/20/07	BW	Total Strontium in Solids
R708086-02	J15BV7			7847-002	GAM		08/15/07	08/16/07	CSS	Gamma Scan
08/09/07	100-F-26:14 Shallow Zone		SOLID	7847-002	NI_L		08/20/07	08/21/07	BW	Nickel 63 in Solids
08/14/07	RC-032-140	RC-032		7847-002	SR		08/16/07	08/20/07	BW	Total Strontium in Solids
R708086-03	J15BV8			7847-003	GAM		08/15/07	08/16/07	CSS	Gamma Scan
08/09/07	100-F-26:14 Shallow Zone		SOLID	7847-003	NI_L		08/20/07	08/21/07	BW	Nickel 63 in Solids
08/14/07	RC-032-140	RC-032		7847-003	SR		08/16/07	08/20/07	BW	Total Strontium in Solids
R708086-04	J15BV9			7847-004	GAM		08/15/07	08/16/07	CSS	Gamma Scan
08/09/07	100-F-26:14 Shallow Zone		SOLID	7847-004	NI_L		08/20/07	08/21/07	BW	Nickel 63 in Solids
08/14/07	RC-032-140	RC-032		7847-004	SR		08/16/07	08/20/07	BW	Total Strontium in Solids
R708086-05	J15BW0			7847-005	GAM		08/15/07	08/16/07	CSS	Gamma Scan
08/09/07	100-F-26:14 Shallow Zone		SOLID	7847-005	NI_L		08/20/07	08/21/07	BW	Nickel 63 in Solids
08/14/07	RC-032-140	RC-032		7847-005	SR		08/16/07	08/20/07	BW	Total Strontium in Solids
R708086-06	Lab Control Sample			7847-006	GAM		08/15/07	08/16/07	CSS	Gamma Scan
			SOLID	7847-006	NI_L		08/20/07	08/21/07	BW	Nickel 63 in Solids
		RC-032		7847-006	SR		08/16/07	08/20/07	BW	Total Strontium in Solids
R708086-07	Method Blank			7847-007	GAM		08/15/07	08/16/07	CSS	Gamma Scan
			SOLID	7847-007	NI_L		08/20/07	08/21/07	BW	Nickel 63 in Solids
		RC-032		7847-007	SR		08/16/07	08/20/07	BW	Total Strontium in Solids
R708086-08	Duplicate (R708086-01)			7847-008	GAM		08/15/07	08/16/07	CSS	Gamma Scan
08/09/07	100-F-26:14 Shallow Zone		SOLID	7847-008	NI_L		08/20/07	08/21/07	BW	Nickel 63 in Solids
08/14/07		RC-032		7847-008	SR		08/16/07	08/20/07	BW	Total Strontium in Solids

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 08/21/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0916

SDG 7847
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG K0916

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
GAM	RC-032	Gamma Scan	GAMMA_GS	5			1	1	1	8
NI_L	RC-032	Nickel 63 in Solids	NI63_LSC	5			1	1	1	8
SR	RC-032	Total Strontium in Solids	SRTOT_SEP_PRECIP_GPC	5			1	1	1	8
TOTALS				15			3	3	3	24

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 08/21/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0916

7847-007 Method Blank

METHOD BLANK

SDG	7847	Client/Case no	Hanford	SDG_K0916	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R708086-07	Client sample id	Method Blank		
Dept sample id	7847-007	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
Nickel 63	13981-37-8	0.700	1.8	2.94	30.0	U	NI_L
Total Strontium	SR-RAD	-0.108	0.15	0.326	1.00	U	SR
Potassium 40	13966-00-2	U		0.511		U	GAM
Cobalt 60	10198-40-0	U		0.020	0.050	U	GAM
Cesium 137	10045-97-3	U		0.019	0.100	U	GAM
Radium 226	13982-63-3	U		0.043	0.100	U	GAM
Radium 228	15262-20-1	U		0.097	0.200	U	GAM
Europium 152	14683-23-9	U		0.052	0.100	U	GAM
Europium 154	15585-10-1	U		0.058	0.100	U	GAM
Europium 155	14391-16-3	U		0.039	0.100	U	GAM
Thorium 228	14274-82-9	U		0.030		U	GAM
Thorium 232	TH-232	U		0.097		U	GAM
Uranium 235	15117-96-1	U		0.073		U	GAM
Uranium 238	U-238	U		2.52		U	GAM
Americium 241	14596-10-2	U		0.021		U	GAM
Silver 108m	14391-65-2	U		0.016		U	GAM
Barium 133	13981-41-4	U		0.021		U	GAM

100-F Remaining Sites Burial Grounds

QC-BLANK 62435

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/21/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0916

7847-006

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7847

Contact Melissa C. Mannion

Client/Case no Hanford SDG K0916

Contract No. 630

Lab sample id R708086-06

Dept sample id 7847-006

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
Nickel 63	264	6.3	2.96	30.0		NI_L	266	11	99	83-117	80-120
Total Strontium	11.9	0.58	0.218	1.00		SR	10.4	0.42	114	80-120	80-120
Cobalt 60	0.799	0.063	0.026	0.050		GAM	0.769	0.031	104	73-127	80-120
Cesium 137	0.766	0.062	0.048	0.100		GAM	0.786	0.031	97	74-126	80-120

100-F Remaining Sites Burial Grounds

QC-LCS 62434

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 08/21/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0916

7847-008 J15BV6

DUPLICATE

SDG	7847			Client/Case no	Hanford SDG K0916
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R708086-08	Lab sample id	R708086-01	Client sample id	J15BV6
Dept sample id	7847-008	Dept sample id	7847-001	Location/Matrix	100-F-26:14 Shallow Zone SOLID
		Received	08/14/07	Collected/Weight	08/09/07 07:15 1061 g
% solids	99.3	% solids	99.3	Custody/SAF No	RC-032-140 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
Nickel 63	1.55	2.0	3.35	30.0	U	NI_L	0.128	2.1	3.60	U	-		1.0
Total Strontium	-0.078	0.11	0.255	1.00	U	SR	-0.005	0.096	0.200	U	-		1.0
Potassium 40	15.2	0.87	0.400			GAM	14.4	0.78	0.332		5	34	0.5
Cobalt 60	U		0.045	0.050	U	GAM	U		0.043	U	-		0.1
Cesium 137	0.126	0.047	0.046	0.100		GAM	0.118	0.030	0.035		7	76	0.3
Radium 226	0.391	0.068	0.070	0.100		GAM	0.413	0.072	0.074		5	49	0.3
Radium 228	0.751	0.14	0.138	0.200		GAM	0.753	0.16	0.146		0	53	0
Europium 152	0.110	0.059	0.086	0.100		GAM	0.113	0.058	0.086		3	116	0.1
Europium 154	U		0.131	0.100	U	GAM	U		0.124	U	-		0.1
Europium 155	U		0.110	0.100	U	GAM	U		0.103	U	-		0.1
Thorium 228	0.586	0.047	0.050			GAM	0.619	0.045	0.046		5	36	0.5
Thorium 232	0.751	0.14	0.138			GAM	0.753	0.16	0.146		0	53	0
Uranium 235	U		0.162		U	GAM	U		0.149	U	-		0.1
Uranium 238	U		4.65		U	GAM	U		4.01	U	-		0.2
Americium 241	U		0.295		U	GAM	U		0.277	U	-		0.1
Silver 108m	U		0.026		U	GAM	U		0.026	U	-		0
Barium 133	U		0.041		U	GAM	U		0.041	U	-		0

100-F Remaining Sites Burial Grounds

QC-DUP#1 62436

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	08/21/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0916

7847-001 J15BV6

DATA SHEET

SDG	7847	Client/Case no	Hanford	SDG K0916	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R708086-01	Client sample id	J15BV6		
Dept sample id	7847-001	Location/Matrix	100-F-26:14 Shallow Zone	SOLID	
Received	08/14/07	Collected/Weight	08/09/07 07:15	1061 g	
% solids	99.3	Custody/SAF No	RC-032-140	RC-032	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	0.128	2.1	3.60	30.0	U	NI_L
Total Strontium	SR-RAD	-0.005	0.096	0.200	1.00	U	SR
Potassium 40	13966-00-2	14.4	0.78	0.332			GAM
Cobalt 60	10198-40-0	U		0.043	0.050	U	GAM
Cesium 137	10045-97-3	0.118	0.030	0.035	0.100		GAM
Radium 226	13982-63-3	0.413	0.072	0.074	0.100		GAM
Radium 228	15262-20-1	0.753	0.16	0.146	0.200		GAM
Europium 152	14683-23-9	0.113	0.058	0.086	0.100		GAM
Europium 154	15585-10-1	U		0.124	0.100	U	GAM
Europium 155	14391-16-3	U		0.103	0.100	U	GAM
Thorium 228	14274-82-9	0.619	0.045	0.046			GAM
Thorium 232	TH-232	0.753	0.16	0.146			GAM
Uranium 235	15117-96-1	U		0.149		U	GAM
Uranium 238	U-238	U		4.01		U	GAM
Americium 241	14596-10-2	U		0.277		U	GAM
Silver 108m	14391-65-2	U		0.026		U	GAM
Barium 133	13981-41-4	U		0.041		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	08/21/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0916

7847-002 J15BV7

DATA SHEET

SDG	7847	Client/Case no	Hanford	SDG_K0916	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R708086-02	Client sample id	J15BV7		
Dept sample id	7847-002	Location/Matrix	100-F-26:14 Shallow Zone	SOLID	
Received	08/14/07	Collected/Weight	08/09/07 07:30	1113 g	
% solids	99.1	Custody/SAF No	RC-032-140	RC-032	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	3.24	2.2	3.50	30.0	U	NI_L
Total Strontium	SR-RAD	0.148	0.15	0.263	1.00	U	SR
Potassium 40	13966-00-2	13.3	0.83	0.360			GAM
Cobalt 60	10198-40-0	0.055	0.042	0.043	0.050		GAM
Cesium 137	10045-97-3	0.263	0.045	0.044	0.100		GAM
Radium 226	13982-63-3	0.433	0.079	0.085	0.100		GAM
Radium 228	15262-20-1	0.590	0.17	0.176	0.200		GAM
Europium 152	14683-23-9	0.525	0.090	0.105	0.100		GAM
Europium 154	15585-10-1	U		0.135	0.100	U	GAM
Europium 155	14391-16-3	U		0.117	0.100	U	GAM
Thorium 228	14274-82-9	0.645	0.049	0.054			GAM
Thorium 232	TH-232	0.590	0.17	0.176			GAM
Uranium 235	15117-96-1	U		0.169		U	GAM
Uranium 238	U-238	U		4.53		U	GAM
Americium 241	14596-10-2	U		0.307		U	GAM
Silver 108m	14391-65-2	U		0.030		U	GAM
Barium 133	13981-41-4	U		0.044		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	08/21/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0916

7847-003 J15BV8

DATA SHEET

SDG	7847	Client/Case no	Hanford	SDG_K0916
Contact	Melissa C. Mannion	Contract	No. 630	
Lab sample id	R708086-03	Client sample id	J15BV8	
Dept sample id	7847-003	Location/Matrix	100-F-26:14 Shallow Zone	SOLID
Received	08/14/07	Collected/Weight	08/09/07 07:45	1068 g
% solids	99.4	Custody/SAF No	RC-032-140	RC-032

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	-0.310	2.2	3.73	30.0	U	NI_L
Total Strontium	SR-RAD	-0.097	0.14	0.302	1.00	U	SR
Potassium 40	13966-00-2	13.4	0.74	0.245			GAM
Cobalt 60	10198-40-0	U		0.022	0.050	U	GAM
Cesium 137	10045-97-3	0.076	0.024	0.027	0.100		GAM
Radium 226	13982-63-3	0.484	0.049	0.043	0.100		GAM
Radium 228	15262-20-1	0.609	0.11	0.108	0.200		GAM
Europium 152	14683-23-9	U		0.062	0.100	U	GAM
Europium 154	15585-10-1	U		0.075	0.100	U	GAM
Europium 155	14391-16-3	U		0.083	0.100	U	GAM
Thorium 228	14274-82-9	0.599	0.034	0.034			GAM
Thorium 232	TH-232	0.609	0.11	0.108			GAM
Uranium 235	15117-96-1	U		0.162		U	GAM
Uranium 238	U-238	U		2.80		U	GAM
Americium 241	14596-10-2	U		0.145		U	GAM
Silver 108m	14391-65-2	U		0.017		U	GAM
Barium 133	13981-41-4	U		0.029		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	08/21/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0916

7847-004 J15BV9

DATA SHEET

SDG	7847	Client/Case no	Hanford	SDG K0916	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R708086-04	Client sample id	J15BV9		
Dept sample id	7847-004	Location/Matrix	100-F-26:14 Shallow Zone	SOLID	
Received	08/14/07	Collected/Weight	08/09/07 07:45	994 g	
% solids	99.5	Custody/SAF No	RC-032-140	RC-032	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	-0.286	2.0	3.44	30.0	U	NI_L
Total Strontium	SR-RAD	0.019	0.11	0.220	1.00	U	SR
Potassium 40	13966-00-2	13.4	0.79	0.369			GAM
Cobalt 60	10198-40-0	U		0.036	0.050	U	GAM
Cesium 137	10045-97-3	0.085	0.030	0.035	0.100		GAM
Radium 226	13982-63-3	0.416	0.056	0.054	0.100		GAM
Radium 228	15262-20-1	0.660	0.13	0.128	0.200		GAM
Europium 152	14683-23-9	U		0.102	0.100	U	GAM
Europium 154	15585-10-1	U		0.127	0.100	U	GAM
Europium 155	14391-16-3	U		0.094	0.100	U	GAM
Thorium 228	14274-82-9	0.779	0.060	0.056			GAM
Thorium 232	TH-232	0.660	0.13	0.128			GAM
Uranium 235	15117-96-1	U		0.148		U	GAM
Uranium 238	U-238	U		4.36		U	GAM
Americium 241	14596-10-2	U		0.120		U	GAM
Silver 108m	14391-65-2	U		0.027		U	GAM
Barium 133	13981-41-4	U		0.055		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	08/21/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0916

7847-005 J15BW0

DATA SHEET

SDG	7847	Client/Case no	Hanford	SDG K0916	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R708086-05	Client sample id	J15BW0		
Dept sample id	7847-005	Location/Matrix	100-F-26:14 Shallow Zone	SOLID	
Received	08/14/07	Collected/Weight	08/09/07 08:00	1117 g	
% solids	99.5	Custody/SAF No	RC-032-140	RC-032	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Nickel 63	13981-37-8	1.45	2.0	3.38	30.0	U	NI_L
Total Strontium	SR-RAD	0.006	0.14	0.269	1.00	U	SR
Potassium 40	13966-00-2	14.6	0.60	0.199			GAM
Cobalt 60	10198-40-0	0.089	0.037	0.031	0.050		GAM
Cesium 137	10045-97-3	0.061	0.026	0.030	0.100		GAM
Radium 226	13982-63-3	0.414	0.045	0.043	0.100		GAM
Radium 228	15262-20-1	0.708	0.10	0.092	0.200		GAM
Europium 152	14683-23-9	U		0.058	0.100	U	GAM
Europium 154	15585-10-1	U		0.077	0.100	U	GAM
Europium 155	14391-16-3	U		0.064	0.100	U	GAM
Thorium 228	14274-82-9	0.646	0.033	0.028			GAM
Thorium 232	TH-232	0.708	0.10	0.092			GAM
Uranium 235	15117-96-1	U		0.105		U	GAM
Uranium 238	U-238	U		2.90		U	GAM
Americium 241	14596-10-2	U		0.043		U	GAM
Silver 108m	14391-65-2	U		0.018		U	GAM
Barium 133	13981-41-4	U		0.027		U	GAM

100-F Remaining Sites Burial Grounds

Lab id	EBRLNE
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0916

Test SR Matrix SOLID
SDG 7847
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOLIDS

BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG K0916

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Total Strontium	
Preparation batch 6121-060						
R708086-01			7847-001	J15BV6	U	
R708086-02			7847-002	J15BV7	U	
R708086-03			7847-003	J15BV8	U	
R708086-04			7847-004	J15BV9	U	
R708086-05			7847-005	J15BW0	U	
R708086-06			7847-006	LCS (QC ID=62434)	ok	
R708086-07			7847-007	BLK (QC ID=62435)	U	
R708086-08			7847-008	Duplicate (R708086-01)	-	U

Nominal values and limits from method RDLs (pCi/g) 1.00
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 6121-060 2σ prep error 10.0 % Reference Lab Notebook #6121, pg. 60																
R708086-01			J15BV6	0.200	1.00			97		100			7	08/16/07	08/16	GRB-223
R708086-02			J15BV7	0.263	1.00			93		100			7	08/16/07	08/16	GRB-224
R708086-03			J15BV8	0.302	1.00			89		100			7	08/16/07	08/16	GRB-225
R708086-04			J15BV9	0.220	1.00			90		100			7	08/16/07	08/16	GRB-224
R708086-05			J15BW0	0.269	1.00			97		100			7	08/16/07	08/16	GRB-227
R708086-06			LCS (QC ID=62434)	0.218	1.00			93		100				08/16/07	08/16	GRB-221
R708086-07			BLK (QC ID=62435)	0.326	1.00			94		100				08/16/07	08/16	GRB-227
R708086-08			Duplicate (R708086-01) (QC ID=62436)	0.255	1.00			98		100			7	08/16/07	08/16	GRB-217
Nominal values and limits from method				1.00	1.00			30-105		100			180			

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/21/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0916

Test SR	Matrix SOLID
SDG 7847	
Contact Melissa C. Mannion	

LAB METHOD SUMMARY, cont.

TOTAL STRONTIUM IN SOLIDS

BETA COUNTING

Client Hanford	
Contract No. 630	
Contract SDG K0916	

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	SPP-061	Determination of Moisture Content in Solid Samples rev 0
	SPP-060	Soil Preparation, rev 0
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	CP-383	Strontium in Dissolved Solid of < 5.0g Aliquot, rev 1

AVERAGES ± 2 SD	MDA	0.257	±	0.087
FOR 8 SAMPLES	YIELD	94	±	7

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 K0916

Test GAM Matrix SOLID
SDG 7847
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG K0916

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60	Cesium 137
Preparation batch 6121-060						
R708086-01			7847-001	J15BV6	U	0.118
R708086-02			7847-002	J15BV7	0.055	0.263
R708086-03			7847-003	J15BV8	U	0.076
R708086-04			7847-004	J15BV9	U	0.085
R708086-05			7847-005	J15BW0	0.089	0.061
R708086-06			7847-006	LCS (QC ID=62434)	ok	ok
R708086-07			7847-007	BLK (QC ID=62435)	U	U
R708086-08			7847-008	Duplicate (R708086-01)	- 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 6121-060			2σ prep error 15.0 % Reference Lab Notebook #6121, pg. 60													
R708086-01			J15BV6	6.98	809					116			6	08/15/07	08/15	MB,05,00
R708086-02			J15BV7	7.48	833					102			6	08/15/07	08/15	MB,05,00
R708086-03			J15BV8	4.94	834					107			6	08/15/07	08/15	MB,08,00
R708086-04			J15BV9	7.76	728					107			6	08/15/07	08/15	MB,02,00
R708086-05			J15BW0	5.25	860					107			6	08/15/07	08/15	MB,07,00
R708086-06			LCS (QC ID=62434)	0.026	728					109				08/15/07	08/15	MB,05,00
R708086-07			BLK (QC ID=62435)	4.28	728					107				08/15/07	08/15	MB,06,00
R708086-08			Duplicate (R708086-01) (QC ID=62436)	7.51	809					109			6	08/15/07	08/15	MB,05,00
Nominal values and limits from method				0.050	728					100			180			

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

AVERAGES ± 2 SD MDA 5.53 ± 5.19
FOR 8 SAMPLES YIELD ____ ± ____

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0916

Test	NI L Matrix SOLID
SDG	7847
Contact	Melissa C. Mannion

LAB METHOD SUMMARY

NICKEL 63 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client	Hanford
Contract	No. 630
Contract	SDG K0916

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Nickel 63	
Preparation batch 6121-060						
R708086-01			7847-001	J15BV6	U	
R708086-02			7847-002	J15BV7	U	
R708086-03			7847-003	J15BV8	U	
R708086-04			7847-004	J15BV9	U	
R708086-05			7847-005	J15BW0	U	
R708086-06			7847-006	LCS (QC ID=62434)	ok	
R708086-07			7847-007	BLK (QC ID=62435)	U	
R708086-08			7847-008	Duplicate (R708086-01)	-	U
Nominal values and limits from method				RDLs (pCi/g)	30.0	
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	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6121-060			2σ prep error 10.0 % Reference Lab Notebook #6121, pg. 60													
R708086-01			J15BV6	3.60	0.500			78		50			11	08/18/07	08/20	LSC-004
R708086-02			J15BV7	3.50	0.500			79		50			11	08/18/07	08/20	LSC-004
R708086-03			J15BV8	3.73	0.500			75		50			11	08/18/07	08/20	LSC-004
R708086-04			J15BV9	3.44	0.500			80		50			11	08/18/07	08/20	LSC-004
R708086-05			J15BW0	3.38	0.500			82		50			11	08/18/07	08/20	LSC-004
R708086-06			LCS (QC ID=62434)	2.96	0.500			95		50				08/18/07	08/20	LSC-004
R708086-07			BLK (QC ID=62435)	2.94	0.500			94		50				08/18/07	08/20	LSC-004
R708086-08			Duplicate (R708086-01) (QC ID=62436)	3.35	0.500			83		50			11	08/18/07	08/20	LSC-004
Nominal values and limits from method				30.0	0.500			30-105		25			180			

Lab id	EBRLNE
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0916

Test	NI L Matrix SOLID
SDG	7847
Contact	Melissa C. Mannion

LAB METHOD SUMMARY, cont.

NICKEL 63 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client	Hanford
Contract	No. 630
Contract	SDG K0916

PROCEDURES	REFERENCE	NI63_LSC
	SPP-061	Determination of Moisture Content in Solid Samples rev 0
	SPP-060	Soil Preparation, rev 0
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	CP-280	Nickel-63 Purification, rev 3

AVERAGES ± 2 SD	MDA	3.36	±	0.564
FOR 8 SAMPLES	YIELD	83	±	15

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-LMS
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SDG 7847
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K0916

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.

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Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
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SDG 7847
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K0916

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.

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REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K0916

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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Client Hanford
Contract No. 630
Case no SDG_K0916

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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GUIDE, cont.

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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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REPORT GUIDE

Client Hanford
Contract No. 630
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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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Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K0916

DUPLICATE

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

The following notes apply to this report:

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

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

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

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

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

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

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

  This value reported for this limit is at most 999.

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

  1. A fixed percentage specified in the protocol.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/21/07

DUPLICATE

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

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

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

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

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

SDG 7847
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K0916

MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/21/07

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-032-140	Page 1 of 1

Collector: TONI 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-26:14 Shallow Zone/Verification K0916 (7847)		SAF No.: RC-032
Ice Chest No.: ERC-01-037	Field Logbook No.: EFL-1174-3	COA: R10F262000	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A070319		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	None	None							
Type of Container	P	P	P	~~GP~~ P JRD 7-18-07							
No. of Container(s)	1	1	1	1							
Volume	250mL	125mL	500mL	~~60mL~~ JRD 7-18-07 125 mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	Nickel-63; Strontium-89,90 -- Total Sr							

Sample No.	Matrix *	Sample Date	Sample Time										
J15BV6	SOIL	8-9-07	0715										A1
J15BV7	SOIL	8-9-07	0730										A2
J15BV8	SOIL	8-9-07	0745										A3
J15BV9	SOIL	8-9-07	0745										A3D
J15BW0	SOIL	8-9-07	0800										A4

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
TONI WELCH-KOELLING	8-9-07 10:00	JR DeRuiyne JRDeRuiyne	8-9-07 1000
JR DeRuiyne JRDeRuiyne	8-9-07 1330	3728/34	8-9-07 1330
3728/34	8-13-07 0900	KM Singleton	8-13-07 0900
KM Singleton	8-13-07 ECH 1500	FED EX	
FED EX		Thu	08/14/07 9:00

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 # 34. 3728 Custodian removed samples for shipping on 8/13/07.

Matrix *

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

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

WCH-EE-011

EBERLINE

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

HK 8/14/07

Client: W.C. HANFORD City RICHLAND State WA

Date/Time received 08/14/07 9:50 CoC No. RC-032-140

Container I.D. No. ERC-01-037 Requested TAT (Days) 7 P.O. Received Yes [ ] No [ ]

INSPECTION

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

14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
15. Inspected by [signature] Date 08/14/07 Time: 10:45

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

Ion Chamber Ser. No. _____ Calibration date _____
Alpha Meter Ser. No. _____ Calibration date _____
Beta/Gamma Meter Ser. No. _____ Calibration date _____

LIONVILLE LABORATORY INC.

24 August 2007

RECEIVED

Joan Kessner
WC-Hanford
3190 Washington Way
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 #	0708L750
SDG #	K0916
SAF #	RC-032
Date Received	8/14/07
# Samples	5
Matrix	SOIL
Volatiles	
Semivolatiles	
Pest/PCB	
Glycols	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	X

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

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

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

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

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0916

RECEIVED

DATE RECEIVED: 08/14/07 LVL LOT # :0708[illegible]750

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J15BV6						
% SOLIDS	001	S	07L%S097	08/09/07	08/15/07	08/16/07
% SOLIDS	001 REP	S	07L%S097	08/09/07	08/15/07	08/16/07
CHROMIUM VI	001	S	07LVI065	08/09/07	08/15/07	08/15/07
J15BV7						
% SOLIDS	002	S	07L%S097	08/09/07	08/15/07	08/16/07
CHROMIUM VI	002	S	07LVI065	08/09/07	08/15/07	08/15/07
J15BV8						
% SOLIDS	003	S	07L%S097	08/09/07	08/15/07	08/16/07
CHROMIUM VI	003	S	07LVI065	08/09/07	08/15/07	08/15/07
J15BV9						
% SOLIDS	004	S	07L%S097	08/09/07	08/15/07	08/16/07
CHROMIUM VI	004	S	07LVI065	08/09/07	08/15/07	08/15/07
J15BW0						
% SOLIDS	005	S	07L%S097	08/09/07	08/15/07	08/16/07
CHROMIUM VI	005	S	07LVI065	08/09/07	08/15/07	08/15/07
CHROMIUM VI	005 REP	S	07LVI065	08/09/07	08/15/07	08/15/07
CHROMIUM VI	005 MS	S	07LVI065	08/09/07	08/15/07	08/15/07
CHROMIUM VI	005 MSD	S	07LVI065	08/09/07	08/15/07	08/15/07

LAB QC:

CHROMIUM VI	MB1	S	07LVI065	N/A	08/15/07	08/15/07
CHROMIUM VI	MB1 BS	S	07LVI065	N/A	08/15/07	08/15/07
CHROMIUM VI	MB1 BSD	S	07LVI065	N/A	08/15/07	08/15/07

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-032 K0916
LVL#: 0708L750

W.O.#: 11343-606-001-9999-00
Date Received: 08-14-07

INORGANIC NARRATIVE

1. This narrative covers the analyses of 5 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 and holds over 20 additional state accreditations. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager. LvLI certifies that all test results meet the requirements of NELAC with any exception noted in the following statements.

3. Sample holding times as required by the method and/or contract were met.

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

5. The method blank for Chromium VI was within the method criteria .

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

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

8. The replicate analyses for Percent Solids was within the 20% Relative Percent Difference (RPD) control limit however replicate analysis for Chromium VI was outside the control limit that may be attributed to sample inhomogeneity.

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

8/23/07
Date

njp\i08-750

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

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

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

Other: **Method:**

Other: **Method**

L-WI-034/B-01/01

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 08/17/07

CLIENT: TNU-HANFORD RC-032 LVL LOT #: 0708L750

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J15BV6	% Solids	99.5	%	0.01	1.0
		Chromium VI	0.32	MG/KG	0.20	1.0
-002	J15BV7	% Solids	99.7	%	0.01	1.0
		Chromium VI	0.25	MG/KG	0.20	1.0
-003	J15BV8	% Solids	99.6	%	0.01	1.0
		Chromium VI	0.28	MG/KG	0.20	1.0
-004	J15BV9	% Solids	99.8	%	0.01	1.0
		Chromium VI	0.50	MG/KG	0.20	1.0
-005	J15BW0	% Solids	99.8	%	0.01	1.0
		Chromium VI	0.36	MG/KG	0.20	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 08/17/07

CLIENT: TNU-HANFORD RC-032

LVL LOT #: 0708L750

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	07LVI065-MB1	Chromium VI	0.20 u	MG/KG	0.20	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 08/17/07

CLIENT: TNU-HANFORD RC-032

LVL LOT #: 0708L750

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-005	J15BW0	Soluble Chromium VI	4.5	0.36	4.0	102.0	1.0
		Insoluble Chromium VI	1140	0.36	1170	97.1	100
BLANK10	07LVI065-MB1	Soluble Chromium VI	4.0	0.20u	4.0	101.1	1.0
		Insoluble Chromium VI	1200	0.20u	1170	103.2	100

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 08/17/07

CLIENT: TNU-HANFORD RC-032

LVL LOT #: 0708L750

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J15BV6	% Solids	99.5	99.6	0.14	1.0
-005REP	J15BW0	Chromium VI	0.36	0.28	27.8	1.0

Lionville Laboratory Use Only

07081750

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

See SRC

LVLI

Client TNU-HANFORD SAF# RC-032

Est. Final Proj. Sampling Date

Project# 11343-1006-001-9999-00

Project Contact/Phone#

Lionville Laboratory Project Manager O. Johnson

QC SW846 Del. Std TAT 3 Day

Date Rec'd 8/14/07 Date Due 8/17/07

Refrigerator #									A 2		B 2					
#/Type Container	Liquid / Solid								1P		1P					
Volume									250		125					
Preservatives									—		—					
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal HG	CN	9216					
		Lionville Laboratory Use Only														
									METO		ICR6					

MATRIX CODES:
S- Soil
SE- Sediment
SO- Solid
SL- Sludge
W- Water
O- Oil
A- Air
DS- Drum Solids
DL- Drum Liquids
L- EP/TCLP Leachate
WI- Wipe
X- Other
F- Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	METO		ICR6
001	15BV6			Soil	8-14-07	07:15	X		X
002	V7					07:30	X		X
003	V8					07:45	X		X
004	V9					07:45	X		X
005	W0					08:00	X		X

Special Instructions: Run Matrix QC

METO = HSL + B, Mo, Si (No Tl)

Special Instructions:
1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	8/14/7	0950

Relinquished by	Received by	Date	Time

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

000000009

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-032-140	Page 1 of 1

Collector: TONI WELCH-KOELLING	Company Contact: R.T. Coffman	Telephone No.: 528-6409	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 3 DAY (Aug 14-17 2007)		
Project Designation: 100-F Remaining Sites Burial Grounds - Soil Full Protocol	Sampling Location: 100-F-26:14 Shallow Zone/Verification		SAF No.: RC-032
Ice Chest No.: AFS-04-006	Field Logbook No.: EFL-1174-3	COA: R10F262000	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A070393		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	None	None							
Type of Container	P	P	P	G/P							
No. of Container(s)	1	1	1	1							
Volume	250mL	125mL	500mL	60mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	Nickel-63; Strontium-89,90 -- Total Sr							

Sample No.	Matrix *	Sample Date	Sample Time										
J15BV6	SOIL	8-9-07	07:15	✓	✓								A1
J15BV7	SOIL	8-9-07	07:30	✓	✓								A2
J15BV8	SOIL	8-9-07	07:45	✓	✓								A3
J15BV9	SOIL	8-9-07	07:45	✓	✓								A3 D
J15BW0	SOIL	8-9-07	08:00	✓	✓								A4

7-18-07

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
TONI WELCH-KOELLING	8-9-07 10:00	JR DeBruijn	8-9-07 1000
JR DeBruijn	8-9-07 1330	3728	8-9-07 1330
3728.3A	8-13-07 0900	KM Singleton	8-13-07 0900
KM Singleton	8-13-07 1300	FED EX	
FED EX	8-14-07 0915		8-14-07 0915

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 # 3A. 3728 Custodian removed samples for shipping on 8/13/07.

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

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

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

Date: 8/14/07

LvLI Batch #: 0708L750

Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier: Fed Ex		Airbill #
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 4.9°	°C	Cooler # AFS-04-006
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: OJ

Date:

Original COC is not checked for analysis

LvLI

000000011

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0916

DATE RECEIVED: 08/14/07 LVL LOT # :0708L950

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J15BV6						
SILVER, TOTAL	001	S	07L0411	08/09/07	08/21/07	08/21/07
SILVER, TOTAL	001 REP	S	07L0411	08/09/07	08/21/07	08/21/07
SILVER, TOTAL	001 MS	S	07L0411	08/09/07	08/21/07	08/21/07
ALUMINUM, TOTAL	001	S	07L0411	08/09/07	08/21/07	08/21/07
ALUMINUM, TOTAL	001 REP	S	07L0411	08/09/07	08/21/07	08/21/07
ALUMINUM, TOTAL	001 MS	S	07L0411	08/09/07	08/21/07	08/21/07
ARSENIC, TOTAL	001	S	07L0411	08/09/07	08/21/07	08/21/07
ARSENIC, TOTAL	001 REP	S	07L0411	08/09/07	08/21/07	08/21/07
ARSENIC, TOTAL	001 MS	S	07L0411	08/09/07	08/21/07	08/21/07
BORON, TOTAL	001	S	07L0411	08/09/07	08/21/07	08/21/07
BORON, TOTAL	001 REP	S	07L0411	08/09/07	08/21/07	08/21/07
BORON, TOTAL	001 MS	S	07L0411	08/09/07	08/21/07	08/21/07
BARIUM, TOTAL	001	S	07L0411	08/09/07	08/21/07	08/21/07
BARIUM, TOTAL	001 REP	S	07L0411	08/09/07	08/21/07	08/21/07
BARIUM, TOTAL	001 MS	S	07L0411	08/09/07	08/21/07	08/21/07
BERYLLIUM, TOTAL	001	S	07L0411	08/09/07	08/21/07	08/21/07
BERYLLIUM, TOTAL	001 REP	S	07L0411	08/09/07	08/21/07	08/21/07
BERYLLIUM, TOTAL	001 MS	S	07L0411	08/09/07	08/21/07	08/21/07
CALCIUM, TOTAL	001	S	07L0411	08/09/07	08/21/07	08/21/07
CALCIUM, TOTAL	001 REP	S	07L0411	08/09/07	08/21/07	08/21/07
CALCIUM, TOTAL	001 MS	S	07L0411	08/09/07	08/21/07	08/21/07
CADMIUM, TOTAL	001	S	07L0411	08/09/07	08/21/07	08/21/07
CADMIUM, TOTAL	001 REP	S	07L0411	08/09/07	08/21/07	08/21/07
CADMIUM, TOTAL	001 MS	S	07L0411	08/09/07	08/21/07	08/21/07
COBALT, TOTAL	001	S	07L0411	08/09/07	08/21/07	08/21/07
COBALT, TOTAL	001 REP	S	07L0411	08/09/07	08/21/07	08/21/07
COBALT, TOTAL	001 MS	S	07L0411	08/09/07	08/21/07	08/21/07
CHROMIUM, TOTAL	001	S	07L0411	08/09/07	08/21/07	08/21/07
CHROMIUM, TOTAL	001 REP	S	07L0411	08/09/07	08/21/07	08/21/07
CHROMIUM, TOTAL	001 MS	S	07L0411	08/09/07	08/21/07	08/21/07
COPPER, TOTAL	001	S	07L0411	08/09/07	08/21/07	08/21/07
COPPER, TOTAL	001 REP	S	07L0411	08/09/07	08/21/07	08/21/07
COPPER, TOTAL	001 MS	S	07L0411	08/09/07	08/21/07	08/21/07
IRON, TOTAL	001	S	07L0411	08/09/07	08/21/07	08/21/07
IRON, TOTAL	001 REP	S	07L0411	08/09/07	08/21/07	08/21/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0916

DATE RECEIVED: 08/14/07 LVL LOT # :0708L750

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
IRON, TOTAL	001 MS	S	07L0411	08/09/07	08/21/07	08/21/07
MERCURY, TOTAL	001	S	07C0155	08/09/07	08/16/07	08/16/07
MERCURY, TOTAL	001 REP	S	07C0155	08/09/07	08/16/07	08/16/07
MERCURY, TOTAL	001 MS	S	07C0155	08/09/07	08/16/07	08/16/07
POTASSIUM, TOTAL	001	S	07L0411	08/09/07	08/21/07	08/21/07
POTASSIUM, TOTAL	001 REP	S	07L0411	08/09/07	08/21/07	08/21/07
POTASSIUM, TOTAL	001 MS	S	07L0411	08/09/07	08/21/07	08/21/07
MAGNESIUM, TOTAL	001	S	07L0411	08/09/07	08/21/07	08/21/07
MAGNESIUM, TOTAL	001 REP	S	07L0411	08/09/07	08/21/07	08/21/07
MAGNESIUM, TOTAL	001 MS	S	07L0411	08/09/07	08/21/07	08/21/07
MANGANESE, TOTAL	001	S	07L0411	08/09/07	08/21/07	08/21/07
MANGANESE, TOTAL	001 REP	S	07L0411	08/09/07	08/21/07	08/21/07
MANGANESE, TOTAL	001 MS	S	07L0411	08/09/07	08/21/07	08/21/07
MOLYBDENUM, TOTAL	001	S	07L0411	08/09/07	08/21/07	08/21/07
MOLYBDENUM, TOTAL	001 REP	S	07L0411	08/09/07	08/21/07	08/21/07
MOLYBDENUM, TOTAL	001 MS	S	07L0411	08/09/07	08/21/07	08/21/07
SODIUM, TOTAL	001	S	07L0411	08/09/07	08/21/07	08/21/07
SODIUM, TOTAL	001 REP	S	07L0411	08/09/07	08/21/07	08/21/07
SODIUM, TOTAL	001 MS	S	07L0411	08/09/07	08/21/07	08/21/07
NICKEL, TOTAL	001	S	07L0411	08/09/07	08/21/07	08/21/07
NICKEL, TOTAL	001 REP	S	07L0411	08/09/07	08/21/07	08/21/07
NICKEL, TOTAL	001 MS	S	07L0411	08/09/07	08/21/07	08/21/07
LEAD, TOTAL	001	S	07L0411	08/09/07	08/21/07	08/21/07
LEAD, TOTAL	001 REP	S	07L0411	08/09/07	08/21/07	08/21/07
LEAD, TOTAL	001 MS	S	07L0411	08/09/07	08/21/07	08/21/07
ANTIMONY, TOTAL	001	S	07L0411	08/09/07	08/21/07	08/21/07
ANTIMONY, TOTAL	001 REP	S	07L0411	08/09/07	08/21/07	08/21/07
ANTIMONY, TOTAL	001 MS	S	07L0411	08/09/07	08/21/07	08/21/07
SELENIUM, TOTAL	001	S	07L0411	08/09/07	08/21/07	08/21/07
SELENIUM, TOTAL	001 REP	S	07L0411	08/09/07	08/21/07	08/21/07
SELENIUM, TOTAL	001 MS	S	07L0411	08/09/07	08/21/07	08/21/07
SILICON, TOTAL	001	S	07L0411	08/09/07	08/21/07	08/21/07
SILICON, TOTAL	001 REP	S	07L0411	08/09/07	08/21/07	08/21/07
SILICON, TOTAL	001 MS	S	07L0411	08/09/07	08/21/07	08/21/07
VANADIUM, TOTAL	001	S	07L0411	08/09/07	08/21/07	08/21/07
VANADIUM, TOTAL	001 REP	S	07L0411	08/09/07	08/21/07	08/21/07
VANADIUM, TOTAL	001 MS	S	07L0411	08/09/07	08/21/07	08/21/07
ZINC, TOTAL	001	S	07L0411	08/09/07	08/21/07	08/21/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0916

DATE RECEIVED: 08/14/07 LVL LOT # :0708L750

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZINC, TOTAL	001 REP	S	07L0411	08/09/07	08/21/07	08/21/07
ZINC, TOTAL	001 MS	S	07L0411	08/09/07	08/21/07	08/21/07
J15BV7						
SILVER, TOTAL	002	S	07L0411	08/09/07	08/21/07	08/21/07
ALUMINUM, TOTAL	002	S	07L0411	08/09/07	08/21/07	08/21/07
ARSENIC, TOTAL	002	S	07L0411	08/09/07	08/21/07	08/21/07
BORON, TOTAL	002	S	07L0411	08/09/07	08/21/07	08/21/07
BARIUM, TOTAL	002	S	07L0411	08/09/07	08/21/07	08/21/07
BERYLLIUM, TOTAL	002	S	07L0411	08/09/07	08/21/07	08/21/07
CALCIUM, TOTAL	002	S	07L0411	08/09/07	08/21/07	08/21/07
CADMIUM, TOTAL	002	S	07L0411	08/09/07	08/21/07	08/21/07
COBALT, TOTAL	002	S	07L0411	08/09/07	08/21/07	08/21/07
CHROMIUM, TOTAL	002	S	07L0411	08/09/07	08/21/07	08/21/07
COPPER, TOTAL	002	S	07L0411	08/09/07	08/21/07	08/21/07
IRON, TOTAL	002	S	07L0411	08/09/07	08/21/07	08/21/07
MERCURY, TOTAL	002	S	07C0155	08/09/07	08/16/07	08/16/07
POTASSIUM, TOTAL	002	S	07L0411	08/09/07	08/21/07	08/21/07
MAGNESIUM, TOTAL	002	S	07L0411	08/09/07	08/21/07	08/21/07
MANGANESE, TOTAL	002	S	07L0411	08/09/07	08/21/07	08/21/07
MOLYBDENUM, TOTAL	002	S	07L0411	08/09/07	08/21/07	08/21/07
SODIUM, TOTAL	002	S	07L0411	08/09/07	08/21/07	08/21/07
NICKEL, TOTAL	002	S	07L0411	08/09/07	08/21/07	08/21/07
LEAD, TOTAL	002	S	07L0411	08/09/07	08/21/07	08/21/07
ANTIMONY, TOTAL	002	S	07L0411	08/09/07	08/21/07	08/21/07
SELENIUM, TOTAL	002	S	07L0411	08/09/07	08/21/07	08/21/07
SILICON, TOTAL	002	S	07L0411	08/09/07	08/21/07	08/21/07
VANADIUM, TOTAL	002	S	07L0411	08/09/07	08/21/07	08/21/07
ZINC, TOTAL	002	S	07L0411	08/09/07	08/21/07	08/21/07
J15BV8						
SILVER, TOTAL	003	S	07L0411	08/09/07	08/21/07	08/21/07
ALUMINUM, TOTAL	003	S	07L0411	08/09/07	08/21/07	08/21/07
ARSENIC, TOTAL	003	S	07L0411	08/09/07	08/21/07	08/21/07
BORON, TOTAL	003	S	07L0411	08/09/07	08/21/07	08/21/07
BARIUM, TOTAL	003	S	07L0411	08/09/07	08/21/07	08/21/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0916

DATE RECEIVED: 08/14/07 LVL LOT # :0708L750

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BERYLLIUM, TOTAL	003	S	07L0411	08/09/07	08/21/07	08/21/07
CALCIUM, TOTAL	003	S	07L0411	08/09/07	08/21/07	08/21/07
CADMIUM, TOTAL	003	S	07L0411	08/09/07	08/21/07	08/21/07
COBALT, TOTAL	003	S	07L0411	08/09/07	08/21/07	08/21/07
CHROMIUM, TOTAL	003	S	07L0411	08/09/07	08/21/07	08/21/07
COPPER, TOTAL	003	S	07L0411	08/09/07	08/21/07	08/21/07
IRON, TOTAL	003	S	07L0411	08/09/07	08/21/07	08/21/07
MERCURY, TOTAL	003	S	07C0155	08/09/07	08/16/07	08/16/07
POTASSIUM, TOTAL	003	S	07L0411	08/09/07	08/21/07	08/21/07
MAGNESIUM, TOTAL	003	S	07L0411	08/09/07	08/21/07	08/21/07
MANGANESE, TOTAL	003	S	07L0411	08/09/07	08/21/07	08/21/07
MOLYBDENUM, TOTAL	003	S	07L0411	08/09/07	08/21/07	08/21/07
SODIUM, TOTAL	003	S	07L0411	08/09/07	08/21/07	08/21/07
NICKEL, TOTAL	003	S	07L0411	08/09/07	08/21/07	08/21/07
LEAD, TOTAL	003	S	07L0411	08/09/07	08/21/07	08/21/07
ANTIMONY, TOTAL	003	S	07L0411	08/09/07	08/21/07	08/21/07
SELENIUM, TOTAL	003	S	07L0411	08/09/07	08/21/07	08/21/07
SILICON, TOTAL	003	S	07L0411	08/09/07	08/21/07	08/21/07
VANADIUM, TOTAL	003	S	07L0411	08/09/07	08/21/07	08/21/07
ZINC, TOTAL	003	S	07L0411	08/09/07	08/21/07	08/21/07
J15BV9						
SILVER, TOTAL	004	S	07L0411	08/09/07	08/21/07	08/21/07
ALUMINUM, TOTAL	004	S	07L0411	08/09/07	08/21/07	08/21/07
ARSENIC, TOTAL	004	S	07L0411	08/09/07	08/21/07	08/21/07
BORON, TOTAL	004	S	07L0411	08/09/07	08/21/07	08/21/07
BARIUM, TOTAL	004	S	07L0411	08/09/07	08/21/07	08/21/07
BERYLLIUM, TOTAL	004	S	07L0411	08/09/07	08/21/07	08/21/07
CALCIUM, TOTAL	004	S	07L0411	08/09/07	08/21/07	08/21/07
CADMIUM, TOTAL	004	S	07L0411	08/09/07	08/21/07	08/21/07
COBALT, TOTAL	004	S	07L0411	08/09/07	08/21/07	08/21/07
CHROMIUM, TOTAL	004	S	07L0411	08/09/07	08/21/07	08/21/07
COPPER, TOTAL	004	S	07L0411	08/09/07	08/21/07	08/21/07
IRON, TOTAL	004	S	07L0411	08/09/07	08/21/07	08/21/07
MERCURY, TOTAL	004	S	07C0155	08/09/07	08/16/07	08/16/07
POTASSIUM, TOTAL	004	S	07L0411	08/09/07	08/21/07	08/21/07
MAGNESIUM, TOTAL	004	S	07L0411	08/09/07	08/21/07	08/21/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0916

DATE RECEIVED: 08/14/07 LVL LOT # :0708L750

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MANGANESE, TOTAL	004	S	07L0411	08/09/07	08/21/07	08/21/07
MOLYBDENUM, TOTAL	004	S	07L0411	08/09/07	08/21/07	08/21/07
SODIUM, TOTAL	004	S	07L0411	08/09/07	08/21/07	08/21/07
NICKEL, TOTAL	004	S	07L0411	08/09/07	08/21/07	08/21/07
LEAD, TOTAL	004	S	07L0411	08/09/07	08/21/07	08/21/07
ANTIMONY, TOTAL	004	S	07L0411	08/09/07	08/21/07	08/21/07
SELENIUM, TOTAL	004	S	07L0411	08/09/07	08/21/07	08/21/07
SILICON, TOTAL	004	S	07L0411	08/09/07	08/21/07	08/21/07
VANADIUM, TOTAL	004	S	07L0411	08/09/07	08/21/07	08/21/07
ZINC, TOTAL	004	S	07L0411	08/09/07	08/21/07	08/21/07
J15BW0						
SILVER, TOTAL	005	S	07L0411	08/09/07	08/21/07	08/21/07
ALUMINUM, TOTAL	005	S	07L0411	08/09/07	08/21/07	08/21/07
ARSENIC, TOTAL	005	S	07L0411	08/09/07	08/21/07	08/21/07
BORON, TOTAL	005	S	07L0411	08/09/07	08/21/07	08/21/07
BARIUM, TOTAL	005	S	07L0411	08/09/07	08/21/07	08/21/07
BERYLLIUM, TOTAL	005	S	07L0411	08/09/07	08/21/07	08/21/07
CALCIUM, TOTAL	005	S	07L0411	08/09/07	08/21/07	08/21/07
CADMIUM, TOTAL	005	S	07L0411	08/09/07	08/21/07	08/21/07
COBALT, TOTAL	005	S	07L0411	08/09/07	08/21/07	08/21/07
CHROMIUM, TOTAL	005	S	07L0411	08/09/07	08/21/07	08/21/07
COPPER, TOTAL	005	S	07L0411	08/09/07	08/21/07	08/21/07
IRON, TOTAL	005	S	07L0411	08/09/07	08/21/07	08/21/07
MERCURY, TOTAL	005	S	07C0155	08/09/07	08/16/07	08/16/07
POTASSIUM, TOTAL	005	S	07L0411	08/09/07	08/21/07	08/21/07
MAGNESIUM, TOTAL	005	S	07L0411	08/09/07	08/21/07	08/21/07
MANGANESE, TOTAL	005	S	07L0411	08/09/07	08/21/07	08/21/07
MOLYBDENUM, TOTAL	005	S	07L0411	08/09/07	08/21/07	08/21/07
SODIUM, TOTAL	005	S	07L0411	08/09/07	08/21/07	08/21/07
NICKEL, TOTAL	005	S	07L0411	08/09/07	08/21/07	08/21/07
LEAD, TOTAL	005	S	07L0411	08/09/07	08/21/07	08/21/07
ANTIMONY, TOTAL	005	S	07L0411	08/09/07	08/21/07	08/21/07
SELENIUM, TOTAL	005	S	07L0411	08/09/07	08/21/07	08/21/07
SILICON, TOTAL	005	S	07L0411	08/09/07	08/21/07	08/21/07
VANADIUM, TOTAL	005	S	07L0411	08/09/07	08/21/07	08/21/07
ZINC, TOTAL	005	S	07L0411	08/09/07	08/21/07	08/21/07

LAB QC:

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0916

DATE RECEIVED: 08/14/07 LVL LOT # :0708L750

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SILVER LABORATORY	LC1 BS	S	07L0411	N/A	08/21/07	08/21/07
SILVER, TOTAL	MB1	S	07L0411	N/A	08/21/07	08/21/07
ALUMINUM LABORTORY	LC1 BS	S	07L0411	N/A	08/21/07	08/21/07
ALUMINUM, TOTAL	MB1	S	07L0411	N/A	08/21/07	08/21/07
ARSENIC LABORATORY	LC1 BS	S	07L0411	N/A	08/21/07	08/21/07
ARSENIC, TOTAL	MB1	S	07L0411	N/A	08/21/07	08/21/07
BORON LABORATORY	LC1 BS	S	07L0411	N/A	08/21/07	08/21/07
BORON, TOTAL	MB1	S	07L0411	N/A	08/21/07	08/21/07
BARIUM LABORATORY	LC1 BS	S	07L0411	N/A	08/21/07	08/21/07
BARIUM, TOTAL	MB1	S	07L0411	N/A	08/21/07	08/21/07
BERYLLIUM LABORATORY	LC1 BS	S	07L0411	N/A	08/21/07	08/21/07
BERYLLIUM, TOTAL	MB1	S	07L0411	N/A	08/21/07	08/21/07
CALCIUM LABORATORY	LC1 BS	S	07L0411	N/A	08/21/07	08/21/07
CALCIUM, TOTAL	MB1	S	07L0411	N/A	08/21/07	08/21/07
CADMIUM LABORATORY	LC1 BS	S	07L0411	N/A	08/21/07	08/21/07
CADMIUM, TOTAL	MB1	S	07L0411	N/A	08/21/07	08/21/07
COBALT LABORATORY	LC1 BS	S	07L0411	N/A	08/21/07	08/21/07
COBALT, TOTAL	MB1	S	07L0411	N/A	08/21/07	08/21/07
CHROMIUM LABORATORY	LC1 BS	S	07L0411	N/A	08/21/07	08/21/07
CHROMIUM, TOTAL	MB1	S	07L0411	N/A	08/21/07	08/21/07
COPPER LABORATORY	LC1 BS	S	07L0411	N/A	08/21/07	08/21/07
COPPER, TOTAL	MB1	S	07L0411	N/A	08/21/07	08/21/07
IRON LABORATORY	LC1 BS	S	07L0411	N/A	08/21/07	08/21/07
IRON, TOTAL	MB1	S	07L0411	N/A	08/21/07	08/21/07
MERCURY LABORATORY	LC1 BS	S	07C0155	N/A	08/16/07	08/16/07
MERCURY, TOTAL	MB1	S	07C0155	N/A	08/16/07	08/16/07
POTASSIUM LABORATORY	LC1 BS	S	07L0411	N/A	08/21/07	08/21/07
POTASSIUM, TOTAL	MB1	S	07L0411	N/A	08/21/07	08/21/07
MAGNESIUM LABORATORY	LC1 BS	S	07L0411	N/A	08/21/07	08/21/07
MAGNESIUM, TOTAL	MB1	S	07L0411	N/A	08/21/07	08/21/07
MANGANESE LABORATORY	LC1 BS	S	07L0411	N/A	08/21/07	08/21/07
MANGANESE, TOTAL	MB1	S	07L0411	N/A	08/21/07	08/21/07
MOLYBDENUM LABORATOR	LC1 BS	S	07L0411	N/A	08/21/07	08/21/07
MOLYBDENUM, TOTAL	MB1	S	07L0411	N/A	08/21/07	08/21/07
SODIUM LABORATORY	LC1 BS	S	07L0411	N/A	08/21/07	08/21/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K0916

DATE RECEIVED: 08/14/07 LVL LOT # :0708L750

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SODIUM, TOTAL	MB1	S	07L0411	N/A	08/21/07	08/21/07
NICKEL LABORATORY	LC1 BS	S	07L0411	N/A	08/21/07	08/21/07
NICKEL, TOTAL	MB1	S	07L0411	N/A	08/21/07	08/21/07
LEAD LABORATORY	LC1 BS	S	07L0411	N/A	08/21/07	08/21/07
LEAD, TOTAL	MB1	S	07L0411	N/A	08/21/07	08/21/07
ANTIMONY LABORATORY	LC1 BS	S	07L0411	N/A	08/21/07	08/21/07
ANTIMONY, TOTAL	MB1	S	07L0411	N/A	08/21/07	08/21/07
SELENIUM LABORATORY	LC1 BS	S	07L0411	N/A	08/21/07	08/21/07
SELENIUM, TOTAL	MB1	S	07L0411	N/A	08/21/07	08/21/07
SILICON LABORATORY	LC1 BS	S	07L0411	N/A	08/21/07	08/21/07
SILICON, TOTAL	MB1	S	07L0411	N/A	08/21/07	08/21/07
VANADIUM LABORATORY	LC1 BS	S	07L0411	N/A	08/21/07	08/21/07
VANADIUM, TOTAL	MB1	S	07L0411	N/A	08/21/07	08/21/07
ZINC LABORATORY	LC1 BS	S	07L0411	N/A	08/21/07	08/21/07
ZINC, TOTAL	MB1	S	07L0411	N/A	08/21/07	08/21/07

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-032
LVL#: 0708L750
SDG/SAF#: K0916/RC-032

W.O.#: 11343-606-001-9999-00
Date Received: 08-14-07

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 5 solid samples.

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

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

4. Please refer to the Sample Receipt Check List for sample discrepancies in LvLI's sample acceptance policy.

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

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

7. 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 result for Sodium was greater than the Practical Quantitation Limit (PQL) {3 x the (IDL) Instrument Detection Level} and samples J15BV7, J15BV9, and J15BW0 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 23 pages.

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

9. All laboratory control samples (LCS) were within the 80-120% control limits with the exception of Silicon at 78.8%. Refer to the Inorganics Laboratory Control Standards Report. Associated sample results may be biased low.

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

11. 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
J15BV6	Aluminum	66,000	101.2
	Iron	66,000	98.9
	Antimony	300	105.5
	Silicon	6,300	99.2
	Vanadium	3,000	102.6

12. The duplicate analyses for 6 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

13. 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.

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

15. 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

8/24/07
Date

ljw/m08-750

LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

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

Lot#: 0708L750

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

Metals Digestion Methods: __3005A __3010A __3015 __3020A X3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	X6010B		__200.7				__99
Antimony	X6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	X6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	X6010B		__200.7				__99
Beryllium	X6010B		__200.7				__99
Bismuth	__6010B [1]		__200.7 [1]			__1620	__99
Boron	X6010B		__200.7				__99
Cadmium	X6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	X6010B		__200.7				__99
Chromium	X6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	X6010B		__200.7				__99
Copper	X6010B	__7211 [5]	__200.7	__220.2			__99
Iron	X6010B		__200.7				__99
Lead	X6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	__6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	X6010B		__200.7				__99
Manganese	X6010B		__200.7				__99
Mercury	__7470A [3]	X7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	X6010B		__200.7				__99
Nickel	X6010B		__200.7				__99
Potassium	X6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	X6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	X6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	X6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	X6010B	__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	X6010B		__200.7				__99
Zinc	X6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

Other:_____ Method:_____

L-WI-033/M-03/01

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 08/22/07

CLIENT: TNUHANFORD RC-032 K0916 LVL LOT #: 0708L750

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J15BV6	Silver, Total	0.27 u	MG/KG	0.27	3.0
		Aluminum, Total	5740	MG/KG	4.9	3.0
		Arsenic, Total	2.0	MG/KG	1.2	3.0
		Boron, Total	1.1 u	MG/KG	1.1	3.0
		Barium, Total	55.8	MG/KG	0.06	3.0
		Beryllium, Total	0.20	MG/KG	0.03	3.0
		Calcium, Total	6260	MG/KG	2.1	3.0
		Cadmium, Total	0.15 u	MG/KG	0.15	3.0
		Cobalt, Total	6.0	MG/KG	0.24	3.0
		Chromium, Total	9.1	MG/KG	0.30	3.0
		Copper, Total	12.5	MG/KG	0.27	3.0
		Iron, Total	15400	MG/KG	7.1	3.0
		Mercury, Total	0.02	MG/KG	0.02	1.0
		Potassium, Total	912	MG/KG	9.5	3.0
		Magnesium, Total	3670	MG/KG	2.4	3.0
		Manganese, Total	251	MG/KG	0.21	3.0
		Molybdenum, Total	0.47 u	MG/KG	0.47	3.0
		Sodium, Total	211	MG/KG	2.1	3.0
		Nickel, Total	9.8	MG/KG	0.80	3.0
		Lead, Total	5.9	MG/KG	0.98	3.0
		Antimony, Total	0.65 u	MG/KG	0.65	3.0
		Selenium, Total	1.3 u	MG/KG	1.3	3.0
		Silicon, Total	578	MG/KG	2.5	3.0
		Vanadium, Total	39.7	MG/KG	0.24	3.0
		Zinc, Total	35.3	MG/KG	0.12	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 08/22/07

CLIENT: TNUHANFORD RC-032 K0916 LVL LOT #: 0708L750

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J15BV7	Silver, Total	0.26 u	MG/KG	0.26	3.0
		Aluminum, Total	5850	MG/KG	4.8	3.0
		Arsenic, Total	3.1	MG/KG	1.2	3.0
		Boron, Total	1.6	MG/KG	1.0	3.0
		Barium, Total	58.5	MG/KG	0.06	3.0
		Beryllium, Total	0.20	MG/KG	0.03	3.0
		Calcium, Total	4230	MG/KG	2.0	3.0
		Cadmium, Total	0.14 u	MG/KG	0.14	3.0
		Cobalt, Total	6.6	MG/KG	0.23	3.0
		Chromium, Total	9.5	MG/KG	0.29	3.0
		Copper, Total	12.5	MG/KG	0.26	3.0
		Iron, Total	16700	MG/KG	6.8	3.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	1060	MG/KG	9.2	3.0
		Magnesium, Total	3820	MG/KG	2.3	3.0
		Manganese, Total	291	MG/KG	0.20	3.0
		Molybdenum, Total	0.46 u	MG/KG	0.46	3.0
		Sodium, Total	170	MG/KG	2.0	3.0
		Nickel, Total	10.0	MG/KG	0.77	3.0
		Lead, Total	4.8	MG/KG	0.95	3.0
		Antimony, Total	0.69	MG/KG	0.63	3.0
		Selenium, Total	1.2 u	MG/KG	1.2	3.0
		Silicon, Total	880	MG/KG	2.5	3.0
		Vanadium, Total	40.2	MG/KG	0.23	3.0
		Zinc, Total	35.9	MG/KG	0.11	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 08/22/07

CLIENT: TNUHANFORD RC-032 K0916 LVL LOT #: 0708L750

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	J15BV8	Silver, Total	0.27 u	MG/KG	0.27	3.0
		Aluminum, Total	6920	MG/KG	5.0	3.0
		Arsenic, Total	1.8	MG/KG	1.2	3.0
		Boron, Total	31.6	MG/KG	1.1	3.0
		Barium, Total	216	MG/KG	0.06	3.0
		Beryllium, Total	0.33	MG/KG	0.03	3.0
		Calcium, Total	7630	MG/KG	2.1	3.0
		Cadmium, Total	0.15 u	MG/KG	0.15	3.0
		Cobalt, Total	6.0	MG/KG	0.24	3.0
		Chromium, Total	8.0	MG/KG	0.30	3.0
		Copper, Total	13.2	MG/KG	0.27	3.0
		Iron, Total	13000	MG/KG	7.1	3.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	815	MG/KG	9.5	3.0
		Magnesium, Total	3820	MG/KG	2.4	3.0
		Manganese, Total	228	MG/KG	0.21	3.0
		Molybdenum, Total	0.51	MG/KG	0.48	3.0
		Sodium, Total	481	MG/KG	2.1	3.0
		Nickel, Total	9.5	MG/KG	0.81	3.0
		Lead, Total	4.1	MG/KG	0.98	3.0
		Antimony, Total	0.83	MG/KG	0.66	3.0
		Selenium, Total	1.3 u	MG/KG	1.3	3.0
		Silicon, Total	1610	MG/KG	2.6	3.0
		Vanadium, Total	34.2	MG/KG	0.24	3.0
		Zinc, Total	29.1	MG/KG	0.12	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 08/22/07

CLIENT: TNUHANFORD RC-032 K0916 LVL LOT #: 0708L750

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	J15BV9	Silver, Total	0.26 u	MG/KG	0.26	3.0
		Aluminum, Total	2430	MG/KG	4.8	3.0
		Arsenic, Total	1.2 u	MG/KG	1.2	3.0
		Boron, Total	1.0 u	MG/KG	1.0	3.0
		Barium, Total	32.6	MG/KG	0.06	3.0
		Beryllium, Total	0.08	MG/KG	0.03	3.0
		Calcium, Total	1690	MG/KG	2.1	3.0
		Cadmium, Total	0.14 u	MG/KG	0.14	3.0
		Cobalt, Total	2.7	MG/KG	0.23	3.0
		Chromium, Total	4.2	MG/KG	0.29	3.0
		Copper, Total	5.4	MG/KG	0.26	3.0
		Iron, Total	6500	MG/KG	6.9	3.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	364	MG/KG	9.3	3.0
		Magnesium, Total	1720	MG/KG	2.3	3.0
		Manganese, Total	118	MG/KG	0.20	3.0
		Molybdenum, Total	0.46 u	MG/KG	0.46	3.0
		Sodium, Total	90.6	MG/KG	2.0	3.0
		Nickel, Total	4.2	MG/KG	0.78	3.0
		Lead, Total	1.9	MG/KG	0.95	3.0
		Antimony, Total	0.79	MG/KG	0.64	3.0
		Selenium, Total	1.2 u	MG/KG	1.2	3.0
		Silicon, Total	923	MG/KG	2.5	3.0
		Vanadium, Total	15.8	MG/KG	0.23	3.0
		Zinc, Total	16.6	MG/KG	0.12	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 08/22/07

CLIENT: TNUHANFORD RC-032 K0916 LVL LOT #: 0708L750

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	J15BW0	Silver, Total	0.26 u	MG/KG	0.26	3.0
		Aluminum, Total	4310	MG/KG	4.8	3.0
		Arsenic, Total	2.4	MG/KG	1.2	3.0
		Boron, Total	1.3	MG/KG	1.0	3.0
		Barium, Total	49.0	MG/KG	0.06	3.0
		Beryllium, Total	0.16	MG/KG	0.03	3.0
		Calcium, Total	3000	MG/KG	2.0	3.0
		Cadmium, Total	0.14 u	MG/KG	0.14	3.0
		Cobalt, Total	5.0	MG/KG	0.23	3.0
		Chromium, Total	6.9	MG/KG	0.29	3.0
		Copper, Total	11.1	MG/KG	0.26	3.0
		Iron, Total	11000	MG/KG	6.8	3.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	700	MG/KG	9.2	3.0
		Magnesium, Total	3000	MG/KG	2.3	3.0
		Manganese, Total	200	MG/KG	0.20	3.0
		Molybdenum, Total	0.46 u	MG/KG	0.46	3.0
		Sodium, Total	130	MG/KG	2.0	3.0
		Nickel, Total	8.1	MG/KG	0.77	3.0
		Lead, Total	2.6	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	932	MG/KG	2.5	3.0
		Vanadium, Total	25.1	MG/KG	0.23	3.0
		Zinc, Total	27.7	MG/KG	0.11	3.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 08/22/07

CLIENT: TNUHANFORD RC-032 K0916 LVL LOT #: 0708L750

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	07L0411-MB1	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Aluminum, Total	2.9	MG/KG	1.6	1.0
		Arsenic, Total	0.40 u	MG/KG	0.40	1.0
		Boron, Total	0.35 u	MG/KG	0.35	1.0
		Barium, Total	0.11	MG/KG	0.02	1.0
		Beryllium, Total	0.01 u	MG/KG	0.01	1.0
		Calcium, Total	10.7	MG/KG	0.69	1.0
		Cadmium, Total	0.05	MG/KG	0.05	1.0
		Cobalt, Total	0.14	MG/KG	0.08	1.0
		Chromium, Total	0.10	MG/KG	0.1	1.0
		Copper, Total	0.09 u	MG/KG	0.09	1.0
		Iron, Total	3.9	MG/KG	2.3	1.0
		Potassium, Total	5.7	MG/KG	3.1	1.0
		Magnesium, Total	2.8	MG/KG	0.79	1.0
		Manganese, Total	0.07 u	MG/KG	0.07	1.0
		Molybdenum, Total	0.16 u	MG/KG	0.16	1.0
		Sodium, Total	9.0	MG/KG	0.68	1.0
		Nickel, Total	0.26 u	MG/KG	0.26	1.0
		Lead, Total	0.32 u	MG/KG	0.32	1.0
		Antimony, Total	0.21 u	MG/KG	0.21	1.0
		Selenium, Total	0.42 u	MG/KG	0.42	1.0
		Silicon, Total	8.4	MG/KG	0.84	1.0
		Vanadium, Total	0.08	MG/KG	0.08	1.0
		Zinc, Total	0.79	MG/KG	0.04	1.0
BLANK1	07C0155-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 08/22/07

CLIENT: TNUHANFORD RC-032 K0916

LVL LOT #: 0708L750

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J15BV6	Silver, Total	4.6	0.27u	4.9	93.9	3.0
		Aluminum, Total	5620	5740	197	-60. *	3.0
		Arsenic, Total	187	2.0	197	93.8	3.0
		Boron, Total	94.1	1.1 u	98.5	95.5	3.0
		Barium, Total	244	55.8	197	95.3	3.0
		Beryllium, Total	4.9	0.20	4.9	95.8	3.0
		Calcium, Total	8810	6260	2460	103.5	3.0
		Cadmium, Total	4.8	0.15u	4.9	98.0	3.0
		Cobalt, Total	52.7	6.0	49.3	94.7	3.0
		Chromium, Total	27.5	9.1	19.7	93.4	3.0
		Copper, Total	38.5	12.5	24.6	105.7	3.0
		Iron, Total	13600	15400	98.5	-1800. *	3.0
		Mercury, Total	0.20	0.02	0.16	112.1	1.0
		Potassium, Total	3140	912	2460	90.3	3.0
		Magnesium, Total	5830	3670	2460	87.7	3.0
		Manganese, Total	288	251	49.3	75.3*	3.0
		Molybdenum, Total	89.6	0.47u	98.5	91.0	3.0
		Sodium, Total	2500	211	2460	93.0	3.0
		Nickel, Total	56.7	9.8	49.3	95.1	3.0
		Lead, Total	51.6	5.9	49.3	92.7	3.0
		Antimony, Total	34.3	0.65u	49.3	69.6	3.0
		Selenium, Total	159	1.3 u	197	80.8	3.0
		Silicon, Total	1110	578	98.5	540.3*	3.0
		Vanadium, Total	75.1	39.7	49.3	71.8	3.0
		Zinc, Total	79.6	35.3	49.3	89.9	3.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 08/22/07

CLIENT: TNUHANFORD RC-032 K0916 LVL LOT #: 0708L750

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J15BV6	Silver, Total	0.27u	0.27u	NC	3.0
		Aluminum, Total	5740	4960	14.5	3.0
		Arsenic, Total	2.0	2.4	18.2	3.0
		Boron, Total	1.1 u	1.1 u	NC	3.0
		Barium, Total	55.8	46.6	18.0	3.0
		Beryllium, Total	0.20	0.19	9.1	3.0
		Calcium, Total	6260	5830	7.2	3.0
		Cadmium, Total	0.15u	0.15u	NC	3.0
		Cobalt, Total	6.0	5.3	12.4	3.0
		Chromium, Total	9.1	7.5	19.3	3.0
		Copper, Total	12.5	11.9	4.9	3.0
		Iron, Total	15400	12600	20.2	3.0
		Mercury, Total	0.02	0.10	133.3	1.0
		Potassium, Total	912	849	7.2	3.0
		Magnesium, Total	3670	3380	8.2	3.0
		Manganese, Total	251	234	7.2	3.0
		Molybdenum, Total	0.47u	0.47u	NC	3.0
		Sodium, Total	211	165	24.3	3.0
		Nickel, Total	9.8	8.8	10.8	3.0
		Lead, Total	5.9	3.9	40.8	3.0
		Antimony, Total	0.65u	0.65u	NC	3.0
		Selenium, Total	1.3 u	1.3 u	NC	3.0
		Silicon, Total	578	1130	64.8	3.0
		Vanadium, Total	39.7	28.5	32.8	3.0
		Zinc, Total	35.3	31.5	11.4	3.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 08/22/07

CLIENT: TNUHANFORD RC-032 K0916 LVL LOT #: 0708L750

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	07L0411-LC1	Silver, LCS	44.1	48.6	MG/KG	90.7
		Aluminum, LCS	447	486	MG/KG	92.1
		Arsenic, LCS	869	971	MG/KG	89.5
		Boron, LCS	433	486	MG/KG	89.1
		Barium, LCS	438	486	MG/KG	90.2
		Beryllium, LCS	22.6	24.3	MG/KG	93.0
		Calcium, LCS	2270	2430	MG/KG	93.5
		Cadmium, LCS	22.5	24.3	MG/KG	92.6
		Cobalt, LCS	226	243	MG/KG	92.9
		Chromium, LCS	45.2	48.6	MG/KG	93.0
		Copper, LCS	111	121	MG/KG	91.4
		Iron, LCS	454	486	MG/KG	93.6
		Potassium, LCS	2160	2430	MG/KG	89.2
		Magnesium, LCS	2180	2430	MG/KG	89.9
		Manganese, LCS	68.6	72.8	MG/KG	94.2
		Molybdenum, LCS	432	486	MG/KG	88.9
		Sodium, LCS	2120	2430	MG/KG	87.5
		Nickel, LCS	179	194	MG/KG	92.3
		Lead, LCS	225	243	MG/KG	92.8
		Antimony, LCS	260	291	MG/KG	89.2
		Selenium, LCS	827	971	MG/KG	85.2
		Silicon, LCS	382	486	MG/KG	78.8
		Vanadium, LCS	222	243	MG/KG	91.2
		Zinc, LCS	90.2	97.1	MG/KG	92.9
LCS1	07C0155-LC1	Mercury, LCS	2.6	2.8	MG/KG	91.1

Lionville Laboratory Use Only

07081750

Custody Transfer Record/Lab Work Request

Page 1 of 1

See SRC

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

VLI

0000000021

Client TNU-HANFORD SAF# RC-032

Est. Final Proj. Sampling Date

Project# 11343-0006-001-9999-00

Project Contact/Phone#

Lionville Laboratory Project Manager O Johnson

QC SW846 Del Std TAT 3 Day

Date Rec'd 8/14/07 Date Due 8/17/07

Refrigerator #									A 2		B 2						
#/Type Container	Liquid																
	Solid								1P		1P						
Volume									250		125						
Preservatives									—		—						
ANALYSES REQUESTED →		ORGANIC							INORG								
		VOA	BNA	Pest/PCB	Herb				Metal Hg	CN	QR6						
		Lionville Laboratory Use Only															
									METO		ICR6						

MATRIX CODES:
S- Soil
SE- Sediment
SO- Solid
SL- Sludge
W- Water
O- Oil
A- Air
DS- Drum Solids
DL- Drum Liquids
L- EP/TCLP Leachate
WI- Wipe
X- Other
F- Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	METO	ICR6
001	15BV6			Soil	8-9-07	07:15	X	X
002	V7					07:30	X	X
003	V8					07:45	X	X
004	V9					07:45	X	X
005	W0					08:00	X	X

Special Instructions: Run Matrix QC

METO = HSL + B, Mo, Si (NoTL)

Special Instructions:

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

Relinquished by	Received by	Date	Time
Fed Ex	[illegible]	8/14/7	0950

Relinquished by	Received by	Date	Time

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-032-140	Page 1 of 1

Collector: TONI WELCH-KOELLING	Company Contact: R.T. Coffman	Telephone No.: 528-6409	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 3 DAY (Aug 14-17 07)		
Project Designation: 100-F Remaining Sites Burial Grounds - Soil Full Protocol	Sampling Location: 100-F-26:14 Shallow Zone/Verification		SAF No.: RC-032
Ice Chest No.: AFS-04-006	Field Logbook No.: EFL-1174-3	COA: R10F262000	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A070395		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	None	None							
Type of Container	P	P	P	G/P							
No. of Container(s)	1	1	1	1							
Volume	250mL	125mL	500mL	60mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	Nickel-63; Strontium-89,90 -- Total Sr							

Sample No.	Matrix *	Sample Date	Sample Time										
J15BV6	SOIL	8-9-07	07:15	✓	✓								A1
J15BV7	SOIL	8-9-07	07:30	✓	✓								A2
J15BV8	SOIL	8-9-07	07:45	✓	✓								A3
J15BV9	SOIL	8-9-07	07:45	✓	✓								A3 D
J15BW0	SOIL	8-9-07	08:00	✓	✓								A4

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Toni Welch-Koelling	8-9-07 1000	JRDeBrigue JRDeBrigue	8-9-07 1000
JRDeBrigue JRDeBrigue	8-9-07 1330	3728	8-9-07 1330
3728.3A	8-13-07 0900	KMSimpleton	8-13-07 0900
KMSimpleton	8-13-07 1500 WCH	FED EX	
Fed Ex	8-14-07 0915	[illegible]	8-14-07 0915

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# 3A. 3728 Custodian removed samples for shipping on 8/13/07.

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

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

WCH-EE-011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

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

Date: 8/14/07

LvLI Batch #: 0708L750

Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier: Fed Ex		Airbill #
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 4.9°	°C	Cooler # AFS-04-006
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: OJ		Date:	

Original COC is not checked for analysis

LvLI