0077246

SAF-RC-073
100-D/DR Burial Grounds & Remaining Sites – Other Solid Quick Turn
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 5/14/08
INITIAL/DATE

COMMENTS:

SDG K1186 SAF RC-073

Rad only Chem only X Rad & Chem

X Complete Partial

Waste Site: 118-D-3, black powder anomaly

RECEIVED
MAY 19 2008
EDMC

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
2030 Wright Avenue
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Toll Free (800) 841-5487
www.eberlineservices.com

May 8, 2008

RECEIVED MAY 2008

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

Reference: **P.O. #S00W235A00**
Eberline Services R8-04-089-7797, SDG K1186

Dear Ms. Kessner:

Enclosed is a revised data report for one solid (other solid) sample designated under SAF No. RC-073 received at Eberline Services on April 16, 2008. Results were originally reported on May 1, however Na-22 was missing from the gamma results; results for Na-22 are included herein.

Please call if you have any questions concerning this report.

Sincerely,

Melissa Mannion

Melissa C. Mannion
Senior Program Manager

MCM/njv

Enclosure: Data Package

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K1186 was composed of one solid (other solid) sample designated under SAF No. RC-073 with a Project Designation of: 100-D DR Burial Grounds & Remaining Sites – Other Solid Q.

Due to the high activity of the sample small aliquots were taken for chemistry. As a consequence of the small aliquots the MDA's for the analyses are very high.

The sample was 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 May 7, 2008.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analysis

No problems were encountered during the course of the analysis.

2.2 Tritium Analysis

The aliquot for the initial analysis was too large which led to unreliable results. The aliquot was decreased and the sample was reanalyzed. No problems were encountered during the course of the reanalysis.

2.3 Carbon-14 Analysis

The aliquot for the initial analysis was too large which led to unreliable results. The aliquot was decreased and the sample was reanalyzed. No problems were encountered during the course of the reanalysis.

2.4 Nickel-63 Analysis

No problems were encountered during the course of the analysis.

2.5 Total Strontium Analysis

No problems were encountered during the course of the analysis.

2.5 Technetium-99 Analysis

No problems were encountered during the course of the analysis.

2.6 Isotopic Plutonium Analysis

No problems were encountered during the course of the analysis.

2.7 Gamma Spectroscopy

The Cs-137 recovery was 122%, greater than the upper protocol limit of 120%. No other problems were encountered during the course of the analysis.

3.0 Case Narrative Certification Statement

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

Melissa Mannion

Melissa C. Mannion
Senior Program Manager

05/08/08

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 K1186

SDG	7797
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. S00W235A00
Case no	SDG K1186

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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Prepared by

Melissa Mannion

Reviewed by

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	05/06/08

SDG 7797
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1186

ABOUT THE DATA SUMMARY SECTION

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

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

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

PREPARATION BATCH SUMMARY

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

WORK SUMMARY

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

METHOD BLANKS

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

LAB CONTROL SAMPLES

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 05/06/08

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 K1186

SDG 7797
Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1186

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R804089-01	J16M75	118-D-3, 100D-AN-08-0	SOLID		RC-073	RC-073-039	04/09/08 13:52
R804089-02	Lab Control Sample		SOLID		RC-073		
R804089-03	Method Blank		SOLID		RC-073		
R804089-04	Duplicate (R804089-01)	118-D-3, 100D-AN-08-0	SOLID		RC-073		04/09/08 13:52
R804089-05	Lab Control Sample		SOLID		RC-073		
R804089-06	Method Blank		SOLID		RC-073		
R804089-07	Duplicate (R804089-01)	118-D-3, 100D-AN-08-0	SOLID		RC-073		04/09/08 13:52

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 05/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1186

QC SUMMARY

SDG 7797
Contact Melissa C. Mannion

Client Hanford
Contract No. S00W235A00
Case no SDG K1186

C 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
797	RC-073-039	J16M75	SOLID	100.0	57 g		04/16/08	7	R804089-01	7797-001
		Method Blank	SOLID						R804089-03	7797-003
		Method Blank	SOLID						R804089-06	7797-006
		Lab Control Sample	SOLID						R804089-02	7797-002
		Lab Control Sample	SOLID						R804089-05	7797-005
		Duplicate (R804089-01)	SOLID	100.0	57 g		04/16/08	7	R804089-04	7797-004
		Duplicate (R804089-01)	SOLID		57 g		04/16/08	7	R804089-07	7797-007

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 05/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1186

SDG 7797
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1186

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
PU	SOLID	Plutonium, Isotopic in Solids	6150-009	8.0	1			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Solids	6150-009	10.4	1			1	1	1/1		
TC	SOLID	Technetium 99 in Solids	6150-009	13.2	1			1	1	1/1		
Gas Proportional Counting												
93A	SOLID	Gross Alpha in Solids	6150-009	20.6	1			1	1	1/1		
93B	SOLID	Gross Beta in Solids	6150-009	11.0	1			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6150-009	7.0	1			1	1	1/1		X
Liquid Scintillation Counting												
C	SOLID	Carbon 14 in Solids	6150-009	10.0	1			1	1	1/1		
H	SOLID	Tritium in Solids	6150-009	10.0	1			1	1	1/1		
NI_L	SOLID	Nickel 63 in Solids	6150-009	11.2	1			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 05/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1186

SDG 7797
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1186

AB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
804089-01	J16M75			7797-001	93A/93		04/24/08	04/25/08	BW	Gross Alpha in Solids
04/09/08	118-D-3, 100D-AN-08-0		SOLID	7797-001	93B/93		04/24/08	04/25/08	BW	Gross Beta in Solids
04/16/08	RC-073-039	RC-073		7797-001	C	A1	04/30/08	05/01/08	BW	Carbon 14 in Solids
				7797-001	GAM		04/22/08	04/24/08	CSS	Gamma Scan
				7797-001	H	A1	04/30/08	05/01/08	BW	Tritium in Solids
				7797-001	NI_L		04/26/08	04/29/08	BW	Nickel 63 in Solids
				7797-001	PU		04/29/08	04/29/08	BW	Plutonium, Isotopic in Solids
				7797-001	SR		04/25/08	04/28/08	BW	Total Strontium in Solids
				7797-001	TC		04/26/08	04/28/08	BW	Technetium 99 in Solids
804089-02	Lab Control Sample			7797-002	93A/93		04/24/08	04/25/08	BW	Gross Alpha in Solids
			SOLID	7797-002	93B/93		04/24/08	04/25/08	BW	Gross Beta in Solids
		RC-073		7797-002	GAM		04/24/08	04/24/08	CSS	Gamma Scan
				7797-002	NI_L		04/26/08	04/29/08	BW	Nickel 63 in Solids
				7797-002	PU		04/29/08	04/29/08	BW	Plutonium, Isotopic in Solids
				7797-002	SR		04/25/08	04/28/08	BW	Total Strontium in Solids
				7797-002	TC		04/25/08	04/28/08	BW	Technetium 99 in Solids
804089-03	Method Blank			7797-003	93A/93		04/24/08	04/25/08	BW	Gross Alpha in Solids
			SOLID	7797-003	93B/93		04/24/08	04/25/08	BW	Gross Beta in Solids
		RC-073		7797-003	GAM		04/21/08	04/24/08	CSS	Gamma Scan
				7797-003	NI_L		04/26/08	04/29/08	BW	Nickel 63 in Solids
				7797-003	PU		04/29/08	04/29/08	BW	Plutonium, Isotopic in Solids
				7797-003	SR		04/25/08	04/28/08	BW	Total Strontium in Solids
				7797-003	TC		04/25/08	04/28/08	BW	Technetium 99 in Solids
804089-04	Duplicate (R804089-01)			7797-004	93A/93		04/24/08	04/25/08	BW	Gross Alpha in Solids
04/09/08	118-D-3, 100D-AN-08-0		SOLID	7797-004	93B/93		04/24/08	04/25/08	BW	Gross Beta in Solids
04/16/08		RC-073		7797-004	GAM		04/21/08	04/24/08	CSS	Gamma Scan
				7797-004	NI_L		04/26/08	04/29/08	BW	Nickel 63 in Solids
				7797-004	PU		04/29/08	04/29/08	BW	Plutonium, Isotopic in Solids
				7797-004	SR		04/25/08	04/28/08	BW	Total Strontium in Solids
				7797-004	TC		04/28/08	04/28/08	BW	Technetium 99 in Solids
804089-05	Lab Control Sample			7797-005	C		04/30/08	05/01/08	BW	Carbon 14 in Solids
			SOLID	7797-005	H		04/30/08	05/01/08	BW	Tritium in Solids
		RC-073								

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 05/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1186

SDG 7797
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1186

AB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
304089-06	Method Blank			7797-006	C		04/30/08	05/01/08	BW	Carbon 14 in Solids
			SOLID	7797-006	H		04/30/08	05/01/08	BW	Tritium in Solids
		RC-073								
304089-07	Duplicate (R804089-01)			7797-007	C		04/30/08	05/01/08	BW	Carbon 14 in Solids
04/09/08	118-D-3, 100D-AN-08-0		SOLID	7797-007	H		04/30/08	05/01/08	BW	Tritium in Solids
04/16/08		RC-073								

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
93A/93	RC-073	Gross Alpha in Solids	900.0_ALPHABETA_GPC	1			1	1	1	4
93B/93	RC-073	Gross Beta in Solids	900.0_ALPHABETA_GPC	1			1	1	1	4
C	RC-073	Carbon 14 in Solids	C14_COX_LSC	1			1	1	1	4
GAM	RC-073	Gamma Scan	GAMMA_GS	1			1	1	1	4
H	RC-073	Tritium in Solids	TRITIUM_COX_LSC	1			1	1	1	4
NI_L	RC-073	Nickel 63 in Solids	NI63_LSC	1			1	1	1	4
PU	RC-073	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	1			1	1	1	4
SR	RC-073	Total Strontium in Solids	SRTOT_SEP_PRECIP_GPC	1			1	1	1	4
TC	RC-073	Technetium 99 in Solids	TC99_TR_SEP_GPC	1			1	1	1	4
TOTALS				9			9	9	9	36

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 05/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1186

7797-003 Method Blank

METHOD BLANK

SDG	7797	Client/Case no	Hanford	SDG_K1186	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R804089-03	Client sample id	Method Blank		
Dept sample id	7797-003	Material/Matrix		SOLID	
		SAF No	RC-073		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-21.0	61	138	10.0	U	93A
Gross Beta	12587-47-2	12.5	66	116	15.0	U	93B
Nickel 63	13981-37-8	61.8	170	291	30.0	U	NI_L
Total Strontium	SR-RAD	-14.8	25	56.1	1.00	U	SR
Technetium 99	14133-76-7	6.68	7.5	17.2	15.0	U	TC
Plutonium 238	13981-16-3	3.57	14	34.2	1.00	U	PU
Plutonium 239/240	PU-239/240	0	7.1	27.2	1.00	U	PU
Potassium 40	13966-00-2	U		50.3		U	GAM
Cobalt 60	10198-40-0	U		0.285	0.050	U	GAM
Cesium 137	10045-97-3	U		0.568	0.100	U	GAM
Radium 226	13982-63-3	U		1.05	0.100	U	GAM
Radium 228	15262-20-1	U		3.95	0.200	U	GAM
Europium 152	14683-23-9	U		0.713	0.100	U	GAM
Europium 154	15585-10-1	U		0.835	0.100	U	GAM
Europium 155	14391-16-3	U		0.610	0.100	U	GAM
Thorium 228	14274-82-9	U		0.398		U	GAM
Thorium 232	TH-232	U		3.95		U	GAM
Uranium 235	15117-96-1	U		0.988		U	GAM
Uranium 238	U-238	U		31.0		U	GAM
Americium 241	14596-10-2	U		0.973		U	GAM
Silver 108m	14391-65-2	U		0.196		U	GAM

100-D/DR Burial Grounds & Remaining

QC-BLANK #65395

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	05/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1186

7797-006 Method Blank

METHOD BLANK

SDG	7797	Client/Case no	Hanford	SDG K1186	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R804089-06	Client sample id	Method Blank		
Dept sample id	7797-006	Material/Matrix		SOLID	
		SAF No	RC-073		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-8830	2500	4400	400	U	H
Carbon 14	14762-75-5	1490	960	1550	50.0	U	C

100-D/DR Burial Grounds & Remaining

QC-BLANK #65545

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	05/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1186

7797-002

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7797

Contact Melissa C. Mannion

Client/Case no Hanford SDG K1186

Contract No. S00W235A00

Lab sample id R804089-02

Dept sample id 7797-002

Client sample id Lab Control Sample

Material/Matrix SOLID

SAF No RC-073

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	2590	360	123	10.0		93A	2240	90	116	56-144	70-130
Gross Beta	2160	160	110	15.0		93B	2240	90	96	80-120	80-120
Nickel 63	24700	600	287	30.0		NI_L	26400	1100	94	83-117	80-120
Total Strontium	2270	110	55.2	1.00		SR	2060	82	110	80-120	80-120
Technetium 99	5540	120	27.1	15.0		TC	6000	240	92	81-119	80-120
Plutonium 238	2580	280	25.2	1.00		PU	2760	110	93	80-120	80-120
Plutonium 239/240	2860	300	25.2	1.00		PU	2900	120	99	80-120	80-120
Cobalt 60	29.9	1.8	0.665	0.050		GAM	25.6	1.0	117	83-117	80-120
Cesium 137	34.3	1.5	0.854	0.100		GAM	28.2	1.1	122	84-116	80-120

100-D/DR Burial Grounds & Remaining

QC-LCS #65394

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 05/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1186

7797-005

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7797
Contact Melissa C. Mannion

Client/Case no Hanford SDG K1186
Contract No. S00W235A00

Lab sample id R804089-05
Dept sample id 7797-005

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No RC-073

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
Tritium	223000	5500	4600	400		H	247000	9900	90	85-115	80-120
Carbon 14	609000	5900	1540	50.0		C	638000	26000	95	84-116	80-120

100-D/DR Burial Grounds & Remaining

QC-LCS #65544

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 05/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1186

7797-004 J16M75

DUPLICATE

SDG	7797			Client/Case no	Hanford SDG K1186
Contact	Melissa C. Mannion			Contract	No. S00W235A00
	DUPLICATE		ORIGINAL		
Lab sample id	R804089-04	Lab sample id	R804089-01	Client sample id	J16M75
Dept sample id	7797-004	Dept sample id	7797-001	Location/Matrix	118-D-3, 100D-AN-08-0 SOLID
		Received	04/16/08	Collected/Weight	04/09/08 13:52 57 g
% solids	100.0	% solids	100.0	Custody/SAF No	RC-073-039 RC-073

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	DER σ
Gross Alpha	27300	720	52.9	10.0		93A	29300	760	48.4		7	44	0.5
Gross Beta	232000	1400	110	15.0		93B	240000	1400	165		3	23	0.4
Nickel 63	17400	520	296	30.0		NI_L	16600	500	286		5	25	0.6
Total Strontium	53500	660	72.5	1.00		SR	53600	710	82.7		0	22	0
Technetium 99	132	15	24.2	15.0		TC	132	16	19.7		0	38	0
Plutonium 238	3640	360	35.0	1.00		PU	3310	320	33.1		9	27	1.1
Plutonium 239/240	3480	350	24.2	1.00		PU	3260	310	22.9		7	27	0.7
Potassium 40	U		20.0		U	GAM	U		26.8	U	-		0.4
Cobalt 60	4500	9.0	3.10	0.050		GAM	5310	13	4.81		17	15	3.3
Cesium 137	109000	0	7.16	0.100		GAM	127000	50	8.02	X	15	15	3.1
Radium 226	U		11.8	0.100	U	GAM	U		12.7	U	-		0.1
Radium 228	U		20.9	0.200	U	GAM	U		25.2	U	-		0.3
Europium 152	79.8	21	29.0	0.100		GAM	140	29	40.8		55	51	3.2
Europium 154	U		1260	0.100	U	GAM	U		1390	U	-		0.1
Europium 155	U		254	0.100	U	GAM	U		698	U	-		1.2
Thorium 228	U		11.5		U	GAM	U		14.6	U	-		0.3
Thorium 232	U		20.9		U	GAM	U		25.2	U	-		0.3
Uranium 235	U		22.7		U	GAM	U		31.3	U	-		0.4
Uranium 238	U		765		U	GAM	U		925	U	-		0.3
Americium 241	12300	10	8.13			GAM	17800	10	9.56		37	15	7.3
Silver 108m	U		16.0		U	GAM	U		30.7	U	-		0.8
Sodium 22	U		425		U	GAM	U		472	U	-		0.1

100-D/DR Burial Grounds & Remaining

QC-DUP#1 65396

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	05/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1186

7797-007 J16M75

DUPLICATE

SDG	7797			Client/Case no	Hanford SDG K1186
Contact	Melissa C. Mannion			Contract	No. S00W235A00
	DUPLICATE		ORIGINAL		
Lab sample id	R804089-07	Lab sample id	R804089-01	Client sample id	J16M75
Dept sample id	7797-007	Dept sample id	7797-001	Location/Matrix	118-D-3, 100D-AN-08-0 SOLID
		Received	04/16/08	Collected/Weight	04/09/08 13:52 57 g
		% solids	100.0	Custody/SAF No	RC-073-039 RC-073

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
Tritium	14800000	70000	4270	400		H	17400000	82000	4820		16	21	2.3
Carbon 14	15500000	72000	3820	50.0		C	12700000	64000	3110		20	21	2.8

100-D/DR Burial Grounds & Remaining

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	05/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1186

7797-001 J16M75

DATA SHEET

SDG	7797	Client/Case no	Hanford	SDG K1186	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R804089-01	Client sample id	J16M75		
Dept sample id	7797-001	Location/Matrix	118-D-3, 100D-AN-08-0	SOLID	
Received	04/16/08	Collected/Weight	04/09/08 13:52	57 g	
% solids	100.0	Custody/SAF No	RC-073-039	RC-073	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	29300	760	48.4	10.0		93A
Gross Beta	12587-47-2	240000	1400	165	15.0		93B
Tritium	10028-17-8	17400000	82000	4820	400		H
Carbon 14	14762-75-5	12700000	64000	3110	50.0		C
Nickel 63	13981-37-8	16600	500	286	30.0		NI_L
Total Strontium	SR-RAD	53600	710	82.7	1.00		SR
Technetium 99	14133-76-7	132	16	19.7	15.0		TC
Plutonium 238	13981-16-3	3310	320	33.1	1.00		PU
Plutonium 239/240	PU-239/240	3260	310	22.9	1.00		PU
Potassium 40	13966-00-2	U		26.8		U	GAM
Cobalt 60	10198-40-0	5310	13	4.81	0.050		GAM
Cesium 137	10045-97-3	127000	50	8.02	0.100	X	GAM
Radium 226	13982-63-3	U		12.7	0.100	U	GAM
Radium 228	15262-20-1	U		25.2	0.200	U	GAM
Europium 152	14683-23-9	140	29	40.8	0.100		GAM
Europium 154	15585-10-1	U		1390	0.100	U	GAM
Europium 155	14391-16-3	U		698	0.100	U	GAM
Thorium 228	14274-82-9	U		14.6		U	GAM
Thorium 232	TH-232	U		25.2		U	GAM
Uranium 235	15117-96-1	U		31.3		U	GAM
Uranium 238	U-238	U		925		U	GAM
Americium 241	14596-10-2	17800	10	9.56			GAM
Silver 108m	14391-65-2	U		30.7		U	GAM
Sodium 22	13966-32-0	U		472		U	GAM

100-D/DR Burial Grounds & Remaining

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	05/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1186

Test PU Matrix SOLID
SDG 7797
Contact Melissa C. Mannion

LAB METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1186

.ESULTS

AB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Plutonium 238	Plutonium 239/240
reparation batch 6150-009						
304089-01			7797-001	J16M75	3310	3260
304089-02			7797-002	Lab Control Sample	ok	ok
304089-03			7797-003	Method Blank	3.57 U	U
304089-04			7797-004	Duplicate (R804089-01)	ok	ok
ominal values and limits from method				RDLs (pCi/g)	1.00	1.00
00-D/DR Burial Grounds & Remaining						

ETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
reparation batch 6150-009			2σ prep error 8.0 % Reference Lab Notebook #6150, pg. 9													
304089-01			J16M75	33.1	0.0050			74		105			20	04/29/08	04/29	SS-036
304089-02			Lab Control Sample	25.2	0.0050			67		105				04/29/08	04/29	SS-037
304089-03			Method Blank	34.2	0.0050			66		105				04/29/08	04/29	SS-038
304089-04			Duplicate (R804089-01)	35.0	0.0050			67		106			20	04/29/08	04/29	SS-055
ominal values and limits from method				1.00	0.0050			20-105		100	100		180			

PROCEDURES	REFERENCE	PUISO_PLATE_AEA
	SPP-061	Determination of Moisture Content in Solid Samples rev 0
	SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 7
	CP-941	Plutonium in Water and Dissolved Samples by Extraction Chromatography, rev 3
	CP-008	Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD	MDA	31.9	± 9.04
FOR 4 SAMPLES	YIELD	68	± 7

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1186

Test SR Matrix SOLID
SDG 7797
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOLIDS

BETA COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1186

ESULTS

AB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Total Strontium
reparation batch 6150-009					
304089-01			7797-001	J16M75	53600
304089-02			7797-002	Lab Control Sample	ok
304089-03			7797-003	Method Blank	U
304089-04			7797-004	Duplicate (R804089-01)	ok
ominal values and limits from method				RDLs (pCi/g)	1.00
00-D/DR Burial Grounds & Remaining					

ETHOD PERFORMANCE

AB AMPLE 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
reparation batch 6150-009 2σ prep error 10.4 % Reference Lab Notebook #6150, pg. 9																
304089-01			J16M75	82.7	0.0050			96		100			16	04/25/08	04/25	GRB-225
304089-02			Lab Control Sample	55.2	0.0050			99		100				04/25/08	04/25	GRB-226
304089-03			Method Blank	56.1	0.0050			96		100				04/25/08	04/25	GRB-228
304089-04			Duplicate (R804089-01)	72.5	0.0050			98		120			16	04/25/08	04/25	GRB-229
ominal values and limits from method				1.00	0.0050			30-105		100			180			

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	CP-383	Strontium in Dissolved Solid of < 5.0g Aliquot, rev 1

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 66.6 ± 26.7
YIELD 97 ± 3

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1186

Test	TC
Matrix	SOLID
SDG	7797
Contact	Melissa C. Mannion

LAB METHOD SUMMARY

TECHNETIUM 99 IN SOLIDS

BETA COUNTING

Client	Hanford
Contract	No. S00W235A00
Contract	SDG K1186

RESULTS

AB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Technetium 99
reparation batch 6150-009					
804089-01			7797-001	J16M75	132
804089-02			7797-002	Lab Control Sample	ok
804089-03			7797-003	Method Blank	U
804089-04			7797-004	Duplicate (R804089-01)	ok
ominal values and limits from method				RDLs (pCi/g)	15.0
00-D/DR Burial Grounds & Remaining					

METHOD PERFORMANCE

AB AMPLE 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
reparation batch 6150-009			2σ prep error 13.2 % Reference Lab Notebook #6150, pg. 9													
804089-01			J16M75	19.7	0.0267			98		50			17	04/22/08	04/26	GRB-222
804089-02			Lab Control Sample	27.1	0.0200			99		50				04/22/08	04/25	GRB-207
804089-03			Method Blank	17.2	0.0200			96		120				04/22/08	04/25	GRB-204
804089-04			Duplicate (R804089-01)	24.2	0.0213			99		50			19	04/22/08	04/28	GRB-222
ominal values and limits from method				15.0	0.0200			20-105		50			180			

PROCEDURES	REFERENCE	TC99_TR_SEP_GPC
	SPP-062	Sample Aliquoting, rev 0
	CP-431	Technetium-99 Purification of Soil or Resin by Extraction Chromatography, rev 2
	CP-008	Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD FOR 4 SAMPLES				
MDA	22.0	±	8.88
YIELD	98	±	3

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	05/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1186

Test 93A Matrix SOLID
SDG 7797
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS ALPHA IN SOLIDS
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1186

ESULTS

AB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha
reparation batch 6150-009					
804089-01	93		7797-001	J16M75	29300
804089-02	93		7797-002	Lab Control Sample	ok
804089-03	93		7797-003	Method Blank	U
804089-04	93		7797-004	Duplicate (R804089-01)	ok
ominal values and limits from method				RDLs (pCi/g)	10.0
00-D/DR Burial Grounds & Remaining					

IETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
reparation batch 6150-009			2σ prep error 20.6 % Reference Lab Notebook #6150, pg. 9													
804089-01	93		J16M75	48.4	0.0050			3		100			15	04/23/08	04/24	GRB-214
804089-02	93		Lab Control Sample	123	0.0050			60		100				04/23/08	04/24	GRB-216
804089-03	93		Method Blank	138	0.0050			60		100				04/23/08	04/24	GRB-209
804089-04	93		Duplicate (R804089-01)	52.9	0.0050			2		100			15	04/23/08	04/24	GRB-210
ominal values and limits from method				10.0	0.0050			5-250		100			180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 90.6 ± 93.1
RESIDUE 31 ± 66

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1186

Test 93B Matrix SOLID
SDG 7797
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS BETA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1186

ESULTS

AB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta
reparation batch 6150-009					
804089-01	93		7797-001	J16M75	240000
804089-02	93		7797-002	Lab Control Sample	ok
804089-03	93		7797-003	Method Blank	U
804089-04	93		7797-004	Duplicate (R804089-01)	ok
ominal values and limits from method				RDLs (pCi/g)	15.0
00-D/DR Burial Grounds & Remaining					

IETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
reparation batch 6150-009			2σ prep error 11.0 % Reference Lab Notebook #6150, pg. 9													
804089-01	93		J16M75	165	0.0050			3		100			15	04/23/08	04/24	GRB-214
804089-02	93		Lab Control Sample	110	0.0050			60		100				04/23/08	04/24	GRB-216
804089-03	93		Method Blank	116	0.0050			60		100				04/23/08	04/24	GRB-209
804089-04	93		Duplicate (R804089-01)	110	0.0050			2		100			15	04/23/08	04/24	GRB-210
ominal values and limits from method				15.0	0.0050			5-250		100			180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 125 ± 53.3
RESIDUE 31 ± 66

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1186

Test GAM Matrix SOLID
SDG 7797
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1186

ESULTS

AB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60	Cesium 137	
reparation batch 6150-009							
804089-01			7797-001	J16M75	5310	127000	X
804089-02			7797-002	Lab Control Sample	ok	HIGH	
804089-03			7797-003	Method Blank	U	U	
804089-04			7797-004	Duplicate (R804089-01)	OUT	OUT	
ominal values and limits from method				RDLs (pCi/g)	0.050	0.100	
00-D/DR Burial Grounds & Remaining							

IETHOD PERFORMANCE

AB AMPLE 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
reparation batch 6150-009			2σ prep error 7.0 % Reference Lab Notebook #6150, pg. 9													
804089-01			J16M75	4.81	10.2					497			13	04/21/08	04/22	SP,07,00
804089-02			Lab Control Sample	0.665	10.0					153				04/21/08	04/24	SP,07,00
804089-03			Method Blank	68.5	10.0					903				04/21/08	04/21	SP,08,00
804089-04			Duplicate (R804089-01)	1840	10.2					806			12	04/21/08	04/21	SP,06,00
ominal values and limits from method				0.050	10.0					100			180			

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

AVERAGES ± 2 SD MDA 478 ± 1820
FOR 4 SAMPLES YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1186

Test C Matrix SOLID
SDG 7797
Contact Melissa C. Mannion

LAB METHOD SUMMARY

CARBON 14 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1186

ESULTS

AB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Carbon 14
reparation batch 6150-009					
804089-01		A1	7797-001	J16M75	12700000
804089-05			7797-005	Lab Control Sample	ok
804089-06			7797-006	Method Blank	1490 U
804089-07			7797-007	Duplicate (R804089-01)	ok

ominal values and limits from method RDLs (pCi/g) 50.0
00-D/DR Burial Grounds & Remaining

IETHOD PERFORMANCE

AB AMPLE 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
reparation batch 6150-009 2σ prep error 10.0 % Reference Lab Notebook #6150, pg. 9																
804089-01		A1	J16M75	3110	0.0012			100		7			21	04/30/08	04/30	LSC-004
804089-05			Lab Control Sample	1540	0.0010			100		51				04/30/08	04/30	LSC-004
804089-06			Method Blank	1550	0.0010			100		50				04/30/08	04/30	LSC-004
804089-07			Duplicate (R804089-01)	3820	0.0014			100		7			21	04/30/08	04/30	LSC-004
ominal values and limits from method				50.0	0.0010					10			180			

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

AVERAGES ± 2 SD MDA 2500 ± 2290
FOR 4 SAMPLES YIELD 100 ± 0

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1186

Test	H
Matrix	SOLID
SDG	7797
Contact	Melissa C. Mannion

LAB METHOD SUMMARY

TRITIUM IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client	Hanford
Contract	No. S00W235A00
Contract	SDG K1186

ESULTS

AB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Tritium
reparation batch 6150-009					
804089-01		A1	7797-001	J16M75	17400000
804089-05			7797-005	Lab Control Sample	ok
804089-06			7797-006	Method Blank	U
804089-07			7797-007	Duplicate (R804089-01)	ok

ominal values and limits from method RDLs (pCi/g) 400

00-D/DR Burial Grounds & Remaining

IETHOD PERFORMANCE

AB AMPLE 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
reparation batch 6150-009			2σ prep error 10.0 % Reference Lab Notebook #6150, pg. 9													
804089-01		A1	J16M75	4820	0.0012			100		9			21	04/30/08	04/30	LSC-004
804089-05			Lab Control Sample	4600	0.0010			100		51				04/30/08	04/30	LSC-004
804089-06			Method Blank	4400	0.0010			100		50				04/30/08	04/30	LSC-004
804089-07			Duplicate (R804089-01)	4270	0.0014			100		10			21	04/30/08	04/30	LSC-004
ominal values and limits from method				400	0.0010					25			180			

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

AVERAGES ± 2 SD	MDA	4520	± 481
FOR 4 SAMPLES	YIELD	100	± 0

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	05/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1186

Test NI L Matrix SOLID
SDG 7797
Contact Melissa C. Mannion

LAB METHOD SUMMARY

NICKEL 63 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1186

.ESULTS

AB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Nickel 63	
:eparation batch 6150-009						
304089-01			7797-001	J16M75	16600	
304089-02			7797-002	Lab Control Sample	ok	
304089-03			7797-003	Method Blank	61.8	U
304089-04			7797-004	Duplicate (R804089-01)	ok	
ominal values and limits from method				RDLs (pCi/g)	30.0	
00-D/DR Burial Grounds & Remaining						

IETHOD PERFORMANCE

AB AMPLE 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
reparation batch 6150-009			2σ prep error 11.2 % Reference Lab Notebook #6150, pg. 9													
304089-01			J16M75	286	0.0050			100		50			17	04/25/08	04/26	LSC-004
304089-02			Lab Control Sample	287	0.0050			99		50				04/25/08	04/26	LSC-004
304089-03			Method Blank	291	0.0050			99		50				04/25/08	04/26	LSC-004
304089-04			Duplicate (R804089-01)	296	0.0050			98		50			17	04/25/08	04/26	LSC-004
ominal values and limits from method				30.0	0.0050			30-105		25			180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 290 ± 9.09
YIELD 99 ± 2

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/06/08

SDG 7797
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1186

SAMPLE SUMMARY

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

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

The following notes apply to these reports:

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

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

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

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

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 05/06/08

SDG 7797
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1186

PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

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

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

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

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

  These qualifiers should be reviewed as follows:

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

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

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

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

Lab id EBRLNE
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Form DVD-RG
Version 3.06
Report date 05/06/08

SDG 7797
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1186

WORK SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

Lab id EBRLNE
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Version 3.06
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SDG 7797
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REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1186

DATA SHEET

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

The following notes apply to this report:

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

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

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

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

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

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

The following qualifiers are defined by the DVD system:

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
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Version 3.06
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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.

SDG 7797
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1186

DATA SHEET

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

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 05/06/08

SDG 7797
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1186

LAB CONTROL SAMPLE

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

The following notes apply to this report:

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 05/06/08

SDG 7797
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1186

DUPLICATE

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

The following notes apply to this report:

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

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

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

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

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

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

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

  This value reported for this limit is at most 999.

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

  1. A fixed percentage specified in the protocol.

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Protocol Hanford
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SDG 7797
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1186

DUPLICATE

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

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

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

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

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

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Contact Melissa C. Mannion

REPORT GUIDE

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Contract No. S00W235A00
Case no SDG K1186

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
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Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1186

MATRIX SPIKE

for the recovery.

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 05/06/08

SDG 7797
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1186

METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 05/06/08

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-073-039

Collector D.W.Shea	**Company Contact** D.W.Shea	**Telephone No.** 521-6014 K1186 (7797)	**Project Coordinator** KESSNER, JH
Price Code 9K	**Data Turnaround** 15 days		
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Other Solid Q	**Sampling Location** 118-D-3, black powder anomaly. 100D-AN-08-0		**SAF No.** RC-073
Ice Chest No. RCC-07-004	**Field Logbook No.** EL-1607-3	**COA** R118D32600	**Method of Shipment** Fed Ex
Shipped To EBERLINE SERVICES / LIONVILLE	**Offsite Property No.** See QPSC RSR		**Bill of Lading/Air Bill No.** see RSR

POSSIBLE SAMPLE HAZARDS/REMARKS

radioactive

Special Handling and/or Storage

Preservation	Cool 4C	None	Cool 4C	Cool 4C	None						
Type of Container	G/P	G	aG	G	G/P						
No. of Container(s)	1	1/2	1	1	1						
Volume	60ml.	60ml.	60ml.	60ml.	~~60ml.~~ 60g	MS 4/15/08					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (3) in Special Instructions.						

mwsh 4/9/08

Sample No.	Matrix *	Sample Date	Sample Time										
J16M75	OTHER SOLID	4/9/08	1352	✓	✓	✓	✓	✓					

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
DWShea DWSHEA	4/9/08 1802	Fridsen IB	4/9/08 1802
1060/IB	4/15/08 0800	mstankovich	4/15/08 0800
WCH mstankovich	4/15/08 1500	Fed Ex	
FED EX		[illegible]	04/16/08 09:00

SPECIAL INSTRUCTIONS

perform other analyses before performing TCLP extraction

(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}; ICP Metals - 6010A (Add-on) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7470 - (CV) {Mercury}; TOX - 9020; Total Cyanide - 9010

(2) Metals by ICP (TCLP) - 1311/6010 {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury (TCLP) - 1311/7470 {Mercury}

(3) Gamma Spectroscopy (TCL List); Gamma Spec - Add-on {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Silver-108 metastable, Sodium-22}; Carbon-14; Tritium - H3; Nickel-63; Strontium-89,90 -- Total Sr; Isotopic Plutonium; Gross Alpha; Gross Beta; Technetium-99; RCF GEA Shipping Screen {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

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	
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

EBERLINE SERVICES

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

AK 4/16/08

Client: W.C. HANFORD City HIGHLAND State WA

Date/Time received 04/16/08 09:00 CoC No. RC-088-007

Container I.D. No. RC-08.002 Requested TAT (Days) 15 P.O. Received Yes [ ] No [ ]

INSPECTION

1. Custody seals on shipping container intact? Yes [Y] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [Y] 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 [ ]
6. Number of samples in shipping container: 1 Sample Matrix X OILY SOIL
7. Number of containers per sample: 1 (Or see CoC ____)
8. Samples are in correct container Yes [Y] No [ ]
9. Paperwork agrees with samples? Yes [X] No [X]
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:
    ACTUAL MATRIX IS SOLID
14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date ____
15. Inspected by [signature] Date: 04/16/08 Time: 10:00

Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe	Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	wipe
J169N8	<60						

Ion Chamber Ser. No. ____ Calibration date ____

Alpha Meter Ser. No. ____ Calibration date ____

Beta/Gamma Meter Ser. No. 100482 Calibration date 09 MAY 07

LvLI
LIONVILLE LABORATORY INC.

RECEIVED
MAY 2008

13 May 2008

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

Subject: Analytical Data Package

Dear Ms. Kessner:

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

LvLI Batch #	0804L929
SDG #	K1186
SAF #	RC-073
Date Received	4/16/08
# Samples	1
Matrix	OTHER SOLID
Volatiles	X
Semivolatiles	X
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

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-073 K1186

RECEIVED MAY 2008

DATE RECEIVED: 04/16/08 LVL LOT # :0804L929

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16M75						
TOTAL CYANIDE	001	SO	08LC024	04/09/08	04/18/08	04/18/08
TOTAL CYANIDE	001 REP	SO	08LC024	04/09/08	04/18/08	04/18/08
TOTAL CYANIDE	001 MS	SO	08LC024	04/09/08	04/18/08	04/18/08
EXTRACTABLE ORGANIC	001	SO	08LE005	04/09/08	04/18/08	04/18/08
EXTRACTABLE ORGANIC	001 MS	SO	08LE005	04/09/08	04/18/08	04/18/08
EXTRACTABLE ORGANIC	001 MSD	SO	08LE005	04/09/08	04/18/08	04/18/08
TCLP	001	SO	08LT0035	04/09/08	04/29/08	04/30/08
AB QC:						
TOTAL CYANIDE	LCS L	S	08LC024	N/A	04/18/08	04/18/08
TOTAL CYANIDE	LCS L	S	08LC024	N/A	04/18/08	04/18/08
TOTAL CYANIDE	MB1	S	08LC024	N/A	04/18/08	04/18/08
EXTRACTABLE ORGANIC	MB1	W	08LE005	N/A	04/18/08	04/18/08
EXTRACTABLE ORGANIC	MB1 BS	W	08LE005	N/A	04/18/08	04/18/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-073 K1186
LVL#: 0804L929

W.O.#: 11343-606-001-9999-00
Date Received: 04-16-08

INORGANIC NARRATIVE

1. This narrative covers the analyses of 1 solid sample.

2. The sample was prepared and analyzed in accordance with the methods checked on the attached glossary.

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

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

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

5. The method blanks were within the method criteria.

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

7. The matrix spike recoveries were within the 75-125% control limits. The matrix spike duplicate for Extractable Organic Halides was within the 20% Relative Percent Difference (RPD) control limit.

8. The replicate analysis for Toal Cyanide was within the 20% RPD control limit.

9. Results for solid samples are reported on an "as-received" 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

5/13/08
Date

njp\i04-929

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 13 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	ASTM	SW846	OTHER
% Ash	__ D2216-80		
% Moisture	__ D2216-80		__ ILMO4.0 (e)
% Solids	__ D2216-80		__ ILMO4.0 (e)
% Volatile Solids	__ D2216-80		
ASTM Extraction in Water	__ D3987-81/85		
BTU	__ D240-87		
CEC		__ 9081	__ c
Chromium VI		__ 3060A/7196A	
Corrosivity ___ by coupon ___ by pH		__ 1110(mod) __ 9045C	
Cyanide, Total		✓ 9010B/9014	__ ILMO4.0 (e)
Cyanide, Reactive		__ Section 7.3/9014	
Halides, Extractable Organic		✓ ~~9020B~~ 9023 AP 5-12-08	__ EPA 600/4/84-008
Halides, Total		__ 9020B	__ EPA 600/4/84-008
EP Toxicity		__ 1310A	
Flash Point		__ 1010	
Ignitability		__ 1010	
Oil & Grease		__ 9071A	
Carbon, Total Organic		__ 9060	__ Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	__ D240-87(mod)	__ 5050	
Petroleum Hydrocarbons, Total Recoverable		__ 9071	__ EPA 418.1
pH, Soil		__ 9045C	
Sulfide, Reactive		__ Section 7.3/9030B	
Sulfide		__ 9030B(mod)	
Specific Gravity	__ D1429-76C/	__ D5057-90	
Sulfur, Total		__ 9056	
Synthetic Preparation Leach		__ 1312	
Paint Filter		__ 9095A	
Other:	**Method:**		
Other:	**Method**		

L-WI-034/B-01/01

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

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

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

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

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

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

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

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

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

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

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/01/08

CLIENT: TNUHANFORD RC-073 K1186 LVL LOT #: 0804L929

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J16M75	Cyanide, Total	0.49 u	MG/KG	0.49	1.0
		Extr. Organic Halides	65.6	MG/KG	35.4	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/01/08

CLIENT: TNUHANFORD RC-073 K1186 LVL LOT #: 0804L929

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08LC024-MB1	Cyanide, Total	0.50 u	MG/KG	0.50	1.0
BLANK1	08LE005-MB1	Extr. Organic Halides	38.1 u	MG/KG	38.1	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 05/01/08

CLIENT: TNUHANFORD RC-073 K1186 LVL LOT #: 0804L929

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV.	DILUTION FACTOR(SPK)
-001	J16M75	Cyanide, Total	4.55	0.49u	4.65	97.7	1.0
		Extr. Organic Halides	2400	65.6	2310	101.1	1.0
		Extr. Organic Halides	2160	65.6	2130	98.3	1.0
BLANK1	08LE005-MB1	Extr. Organic Halides	2540	38.1 u	2440	104.2	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 05/01/08

CLIENT: TNUHANFORD RC-073 K1186 LVL LOT #: 0804L929
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
-001	J16M75	Extr. Organic Halides	101.1	98.3	2.8

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 05/01/08

CLIENT: TNUHANFORD RC-073 K1186

LVL LOT #: 0804L929

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J16M75	Cyanide, Total	0.49u	0.46u	NC	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 05/01/08

CLIENT: TNUHANFORD RC-073 K1186 LVL LOT #: 0804L929

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCSS1	08LC024-LCS1	Cyanide, Total LCS	1.88	2.0	MG/KG	94.1
LCSS2	08LC024-LCS2	Cyanide, Total LCS	9.89	10.0	MG/KG	98.9

nville Laboratory Use Only

18041929

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

000000011

nt TNU Hanford RC-073

Final Proj. Sampling Date

ect# 11343-606-001-9999-00

ect Contact/Phone#

vville Laboratory Project Manager Charlotte Johnson

SW846 Del STD TAT 15 Days

e Rec'd 4-16-08 Date Due 5-1-08

		A	B						C						
Refrigerator #		6	3						3						
#/Type Container	Liquid														
	Solid	1gl	1gl						1gl						
Volume	Solid	60	60						60						
Preservatives		–	–												
ANALYSES REQUESTED	ORGANIC	VOA	BNA	Pest/PCB	Herb				INORG	Metal Hg	CN	(2) TCLP metals + Hg			

RIX ES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H	0625H						Metal	ICP/MS	TCLP	TEOX			MERCURY
Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum, Solids, Drum, Liquids, EP/TCLP, Leachate, Wipe, Other, Fish	001	J16M75	✓	✓	SO	4-9-08	1362	X	X						X	X	X	X			
	002	↳ TCLP of 001			L	*														X	

Lionville Laboratory Use Only

ecial instructions:

metal ① = HSL + B, Mo, S; NO TL

Special Instructions:

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

* See Lab chron

Relinquished by	Received by	Date	Time
FedEx	[illegible]	4-16-08	0945

Relinquished by	Received by	Date	Time

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-073-039	Page 1 of 1

ollector D.W.Shea	Company Contact D.W.Shea / Telephone No. 521-6014	Project Coordinator KESSNER, JH	Price Code 9K / Data Turnaround 15 days
oject Designation 100-D/DR Burial Grounds & Remaining Sites - Other Solid Q	Sampling Location 118-D-3, black powder anomaly, 100D-AN-08-0	SAF No. RC-073	
e Chest No. RCC-07-001	Field Logbook No. EL-1607-3 / COA R118D32600	Method of Shipment Fed Ex	
ipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. RSR See OPSC	Bill of Lading/Air Bill No. see RSR	

OSSIBLE SAMPLE HAZARDS/REMARKS

adioactive

pecial Handling and/or Storage

Preservation	Cool 4C	None	Cool 4C	Cool 4C	None						
Type of Container	G/P	G	aG	G	G/P						
No. of Container(s)	1	10	1	1	1						
Volume	60mL	60mL	60mL	60mL	60mL						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (3) in Special Instructions. mws 4/9/08						
Sample No. / Matrix * / Sample Date / Sample Time											
6M75 / OTHER SOLID / 4/9/08 / 1352	✓	✓	✓	✓	✓						

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
inquished By/Removed From: WSkin MWSkin	4/9/08 1802	Received By/Stored In: Fridge 1B	4/9/08 1802
inquished By/Removed From: 560/1B	4/15/08 0815	Received By/Stored In: MSTankovich	4/15/08 0815
inquished By/Removed From: WCH MStankovich	4/15/08 1800	Received By/Stored In: Fed Ex	
inquished By/Removed From: Fed Ex	4/16/08 0945	Received By/Stored In: [signature]	4/16/08 0945
nquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
nquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

perform other analyses before performing TCLP extraction

4/15/08

(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}; ICP Metals - 6010A (Add-on) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7470 - (CV) {Mercury}; TOX - 9020; Total Cyanide - 9010

(2) Metals by ICP (TCLP) - 1311/6010 {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury (TCLP) - 1311/7470 {Mercury}

(3) Gamma Spectroscopy (TCL List); Gamma Spec - Add-on {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Silver-108 metastable, Sodium-22}; Carbon-14; Tritium - H3; Nickel-63; Strontium-89,90 -- Total Sr; Isotopic Plutonium; Gross Alpha; Gross Beta; Technetium-99; RCF GEA Shipping Screen {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

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

ABORATORY SECTION	Received By	Title	Date/Time
NAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

CH-EE-011

000000012

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford
Project/SAF/SOW/Release #: RC-073

Date: 4-16-08

LvLI Batch #: 08041929

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7989 2061 6125
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 plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 1.8	°C	Cooler # RCC-07-001
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI LIONVILLE LABORATORY INC.

SR-002-B.doc

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-073 K1186

RECEIVED
MAY 2008

DATE RECEIVED: 04/16/08 LVL LOT # :0804L929

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16M75	001	SO	08LE0200	04/09/08	04/25/08	04/29/08
J16M75	001 MS	SO	08LE0200	04/09/08	04/25/08	04/30/08
J16M75	001 MSD	SO	08LE0200	04/09/08	04/25/08	04/30/08

LAB QC:

SBLKUH	MB1	S	08LE0200	N/A	04/25/08	04/28/08
SBLKUH	MB1 BS	S	08LE0200	N/A	04/25/08	04/29/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-073
LVL #: 0804L929
SDG/SAF # K1186 / RC-073

W.O. #: 11343-606-001-9999-00
Date Received: 04-16-2008

SEMIVOLATILE

One (1) solid sample was collected on 04-09-2008.

The sample and its associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3540C on 04-25-2008 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 04-28,29,30-2008.

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

1. The sample are reported on a wet weight basis due to matrix, charcoal like substance.

2. The sample was extracted with an initial volume of 10.0 grams due to matrix. Reporting limits have been adjusted to reflect this change.

3. The sample was extracted and analyzed within holding time.

4. Non-target compounds were detected in these samples.

5. Five (5) of thirty (30) surrogate recoveries were outside acceptance criteria. The surrogate recovery criteria were not met for sample 08LE0200-MB1. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

6. Four (4) of one hundred and twenty-eight (128) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

r:\group\data\2008\bna\tnu\0804-929ksol1.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 17 pages.

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

7. Two (2) of sixty-four (64) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

8. The method blank was below the reporting limit for all target compounds.

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

10. All continuing calibrations standards analyzed prior to sample extracts were within acceptance criteria.

11. Internal standard area and retention time criteria were met.

12. Manual integrations are performed according to SOP QA-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

5/8/08
Date

LIONVILLE LABORATORY INC.

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: OFM5095

Initiator: Sharon Saylor
Date: 5-1-08
Client: TMA RC073 1C1196

Batch: 08041929
Samples: Blank, ms, msd, BS
Method: SW846/MCAWW/CLP/

Parameter: 8270
Matrix: Solid
Prep Batch: OFLE0200

1. Reason for SDR

a. COC Discrepancy __ Tech Profile Error __ Client Request __ Sampler Error on C-O-C __ Transcription Error __ Wrong Test Code __ Other _____

b. General Discrepancy

__ Missing Sample/Extract* __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
__ Hold Time Exceeded __ Insufficient Sample* __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary)

① 5 surrogates out of QC range in the method blank

② low recovery of 2,4-dinitrophenol, 4,6-dinitro-2-methylphenol, in the ms, msd, & BS

2. Known or Probable Causes(s) ① possible loss during concentration of the extract on the Nevap, loss of 246 Tribromophenol due to chemical reaction rather than a problem with the extraction process. Conversion compound has been reported as a TIC

② Acidic phenols are subject to erratic chromatographic behavior especially if the GC system contaminated with high boiling material PKX5/6/08

3. Discussion and Proposed Action Other Description:

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

① narrate, no hits above reporting limits - no impact on data

5/6/08

4. Project Manager Instructions...signature/date: 5/6/08

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

5. Final Action...signature/date: KDS 5/8/08 Other Explanation:

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

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
__	X Initiator	__	__ Metals: Beegle
	X Lab General Manager: M. Taylor	__	__ Inorganic: Perrone
①	X Project Mgr: Stone/Johnson		__ GC/LC: Kiger
__	__ Data Management: Stilwell	②	X MS: Rychlak/Daley
__	__ Sample Prep: Beegle/Kiger	__	__ Log-in: Perry
		__	__ Admin: _____
		__	__ Other: _____

QA-105-A-0805

GLOSSARY

DATA QUALIFIERS

U	=	Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
J	=	Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
B	=	This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
D	=	Identifies all compounds identified in an analysis at a secondary dilution factor.
I	=	Interference.
NQ	=	Result qualitatively confirmed but not able to quantify.
A	=	Indicates that a TIC is a suspected aldol-condensation product.
N	=	Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
X	=	This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
Y	=	Additional qualifiers used as required are explained in the case narrative.

GLOSSARY

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Suffix added to sample number to indicate that results are from a diluted analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
SP, Z	=	Indicates Spiked Compound.

TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quan modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quan modifications:

MP - Missed Peak: manually added peak not found by automatic quan program.

PA - Peak Assignment: quan report was changed to reflect correct peak assignment.

RI - Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.

SP - Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.

CB - Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.

PI - Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 05/08/08 07:38

RFW Batch Number: **0804L929** Client: **TNUHANFORD RC-073 K1186** Work Order: 11343606001 Page: 1a

000000008

	Cust ID:	J16M75	J16M75	J16M75	SBLKUH	SBLKUH BS
Sample Information	RFW#:	001	001 MS	001 MSD	08LE0200-MB1	08LE0200-MB1
	Matrix:	SOLID	SOLID	SOLID	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	52 %	57 %	62 %	20 * %	64 %
	2-Fluorobiphenyl	62 %	66 %	73 %	24 * %	70 %
	Terphenyl-d14	80 %	70 %	79 %	63 %	76 %
	Phenol-d5	56 %	61 %	77 %	21 * %	72 %
	2-Fluorophenol	57 %	60 %	69 %	23 * %	69 %
	2,4,6-Tribromophenol	29 %	46 %	34 %	5 * %	48 %
Phenol		1000 U	66 %	73 %	330 U	73 %
bis(2-Chloroethyl)ether		1000 U	55 %	68 %	330 U	64 %
2-Chlorophenol		1000 U	62 %	72 %	330 U	68 %
1,3-Dichlorobenzene		1000 U	55 %	69 %	330 U	63 %
1,4-Dichlorobenzene		1000 U	58 %	70 %	330 U	61 %
1,2-Dichlorobenzene		1000 U	59 %	72 %	330 U	66 %
2-Methylphenol		1000 U	67 %	75 %	330 U	70 %
2,2'-oxybis(1-Chloropropane)		1000 U	56 %	61 %	330 U	69 %
3/4 Methylphenol		1000 U	67 %	79 %	330 U	72 %
N-Nitroso-di-n-propylamine		1000 U	63 %	71 %	330 U	73 %
Hexachloroethane		1000 U	53 %	64 %	330 U	62 %
Nitrobenzene		1000 U	56 %	63 %	330 U	61 %
Isophorone		250 J	62 %	69 %	330 U	68 %
2-Nitrophenol		1000 U	63 %	74 %	330 U	65 %
2,4-Dimethylphenol		1000 U	62 %	72 %	330 U	63 %
bis(2-Chloroethoxy)methane		1000 U	59 %	68 %	330 U	64 %
2,4-Dichlorophenol		1000 U	64 %	82 %	330 U	62 %
1,2,4-Trichlorobenzene		1000 U	61 %	74 %	330 U	62 %
Naphthalene		1000 U	62 %	71 %	330 U	65 %
4-Chloroaniline		1000 U	53 %	67 %	330 U	51 %
Hexachlorobutadiene		1000 U	66 %	82 %	330 U	67 %
4-Chloro-3-methylphenol		1000 U	68 %	79 %	330 U	64 %
2-Methylnaphthalene		1000 U	65 %	78 %	330 U	63 %
Hexachlorocyclopentadiene		1000 U	59 %	67 %	330 U	65 %
2,4,6-Trichlorophenol		1000 U	54 %	43 %	330 U	57 %
2,4,5-Trichlorophenol		2500 U	72 %	71 %	830 U	67 %

*= Outside of EPA CLP QC limits.

Cust ID:	J16M75		J16M75		J16M75		SBLKUH		SBLKUH BS	
RFW#:	001		001 MS		001 MSD		08LE0200-MB1		08LE0200-MB1	
2-Chloronaphthalene	1000	U	68	%	76	%	330	U	68	%
2-Nitroaniline	2500	U	64	%	71	%	830	U	72	%
Dimethylphthalate	1000	U	74	%	81	%	330	U	69	%
Acenaphthylene	1000	U	69	%	79	%	330	U	69	%
2,6-Dinitrotoluene	1000	U	71	%	81	%	330	U	66	%
3-Nitroaniline	2500	U	69	%	83	%	830	U	64	%
Acenaphthene	1000	U	67	%	75	%	330	U	66	%
2,4-Dinitrophenol	2500	U	10 *	%	7 *	%	830	U	5 *	%
4-Nitrophenol	2500	U	66	%	92	%	830	U	56	%
Dibenzofuran	1000	U	73	%	83	%	330	U	72	%
2,4-Dinitrotoluene	1000	U	78	%	90	%	330	U	74	%
Diethylphthalate	1000	U	73	%	80	%	330	U	71	%
4-Chlorophenyl-phenylether	1000	U	70	%	78	%	330	U	65	%
Fluorene	1000	U	73	%	83	%	330	U	71	%
4-Nitroaniline	2500	U	74	%	75	%	830	U	64	%
4,6-Dinitro-2-methylphenol	2500	U	22 *	%	22 *	%	830	U	16 *	%
N-Nitrosodiphenylamine (1)	1000	U	53	%	63	%	330	U	59	%
4-Bromophenyl-phenylether	1000	U	58	%	74	%	330	U	66	%
Hexachlorobenzene	1000	U	73	%	91	%	330	U	79	%
Pentachlorophenol	2500	U	35	%	31	%	830	U	42	%
Phenanthrene	1000	U	69	%	78	%	330	U	71	%
Anthracene	1000	U	70	%	85	%	330	U	75	%
Carbazole	1000	U	67	%	80	%	330	U	66	%
Di-n-butylphthalate	1000	U	64	%	75	%	330	U	66	%
Fluoranthene	1000	U	77	%	91	%	330	U	75	%
Pyrene	1000	U	72	%	81	%	330	U	76	%
Butylbenzylphthalate	1000	U	67	%	74	%	330	U	76	%
3,3'-Dichlorobenzidine	1000	U	60	%	77	%	330	U	62	%
Benzo(a)anthracene	1000	U	67	%	79	%	330	U	73	%
Chrysene	1000	U	71	%	82	%	330	U	75	%
bis(2-Ethylhexyl)phthalate	130	J	65	%	71	%	330	U	73	%
Di-n-octyl phthalate	1000	U	67	%	72	%	330	U	66	%
Benzo(b)fluoranthene	1000	U	81	%	75	%	330	U	72	%
Benzo(k)fluoranthene	1000	U	63	%	86	%	330	U	68	%
Benzo(a)pyrene	1000	U	67	%	78	%	330	U	70	%
Indeno(1,2,3-cd)pyrene	1000	U	67	%	73	%	330	U	72	%
Dibenz(a,h)anthracene	1000	U	64	%	76	%	330	U	70	%
Benzo(g,h,i)perylene	1000	U	67	%	73	%	330	U	72	%

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

000000009

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J16M75

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD RC-073 K1186

Matrix: (soil/water) SOLID

Lab Sample ID: 0804L929-001

Sample wt/vol: 10.0 (g/mL) G

Lab File ID: N042912

Level: (low/med) LOW

Date Received: 04/16/08

% Moisture: 100 decanted: (Y/N)__

Date Extracted: 04/25/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 04/29/08

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: _____

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	2.139	30000	JB
2.	UNKNOWN	3.282	800000	JB
3.	UNKNOWN	3.535	70000	J
4.	ALDOL CONDENSATE	4.293	3000	JAB
5.	UNKNOWN	7.955	2000	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKUH

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD RC-073 K1186

Matrix: (soil/water) SOIL

Lab Sample ID: 08LE0200-MB1

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: N042813

Level: (low/med) LOW

Date Received: 04/25/08

% Moisture: _____ decanted: (Y/N)__

Date Extracted: 04/25/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 04/28/08

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: _____

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	1.137	200	J
2.	UNKNOWN	2.218	200	J
3.	UNKNOWN	3.212	80000	J
4.	ALDOL CONDENSATE	4.276	300	JA
5.	UNKNOWN	16.910	600	J

nville Laboratory Use Only

)8041929

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

VLI

nt TNU Hanford BC-073

Final Proj. Sampling Date

ect# 11343-606-001-9999-00

ject Contact/Phone#

nville Laboratory Project Manager Charlotte Johnson

SW846 Del STD TAT 15 Days

e Rec'd 4-16-08 Date Due 5-1-08

Refrigerator #		A	B						C							
		6	3						3							
#/Type Container	Liquid															
	Solid	1gl	1gl						1gl							
Volume	Solid	60	60						60							
Preservatives		–	–													
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				(1) Metal Hg	CN	(2) TCLP metals + Hg			LEACHATE		

Lionville Laboratory Use Only

TRIX DES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H	0625H						Method	ICWTO	TCLP	TEOX TOCT	4-16-08	MERCRATZ		
Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP Leachate, Wipe, Other, Fish	001	J16M75	✓	✓	SO	4-9-08	1352	X	X						X	X	X	X				
	002	⊥ TCLP of 001			L	*														X		

ecial Instructions:

method ① = HSL + B, Mo, S; NO TL

Special Instructions:

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

* See Lab Chron

Relinquished by	Received by	Date	Time
FedEx	[illegible]	4-16-08	0945

Relinquished by	Received by	Date	Time

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

000000012

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-073-039	Page 1 of 1

ollector D.W.Shea	Company Contact D.W.Shea — Telephone No. 521-6014	Project Coordinator KESSNER, JH	Price Code 9K — Data Turnaround 15 days
olect Designation 100-D/DR Burial Grounds & Remaining Sites - Other Solid Q	Sampling Location 118-D-3, black powder anomaly, 100D-AN-08-0	SAF No. RC-073	
Chest No. RCC-07-001	Field Logbook No. EL-1607-3 — COA R118D32600	Method of Shipment Fed Ex	
ipped To EBERLINE SERVICES KLONVILLE	Offsite Property No. RSR See OPSC	Bill of Lading/Air Bill No. see RSR	

OSSIBLE SAMPLE HAZARDS/REMARKS

adioactive

pecial Handling and/or Storage

Preservation			Cool 4C	None	Cool 4C	Cool 4C	None					
Type of Container			G/P	G	aG	G	G/P					
No. of Container(s)			1	10	1	1	1					
Volume			60ml.	60ml.	60ml.	60ml.	60mL					
SAMPLE ANALYSIS			See item (1) in Special Instructions.	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (3) in Special Instructions. mus hen 4/9/08					
Sample No.	Matrix *	Sample Date	Sample Time									
6M75	OTHER SOLID	4/9/08	1352	✓	✓	✓	✓	✓				

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
WSHen DWShea	4/9/08 1802	Fred IB	4/9/08 1802
160/IB	4/15/08 0815	MSTankovich	4/15/08 0800
MSTankovich	4/15/08 1800	Fed Ex	
Fed Ex	4/16/08 0945		4/16/08 0945

SPECIAL INSTRUCTIONS

perform other analyses before performing TCLP extraction

4/15/08

(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}; ICP Metals - 6010A (Add-on) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7470 - (CV) {Mercury}; TOX - 9020; Total Cyanide - 9010

(2) Metals by ICP (TCLP) - 1311/6010 {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury (TCLP) - 1311/7470 {Mercury}

(3) Gamma Spectroscopy (TCL List); Gamma Spec - Add-on {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Silver-108 metastable, Sodium-22}; Carbon-14; Tritium - H3; Nickel-63; Strontium-89,90 -- Total Sr; Isotopic Plutonium; Gross Alpha; Gross Beta; Technetium-99; RCF GEA Shipping Screen {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

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

CH-EE-011

000000013

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford
Project/SAF/SOW/Release #: RC-073

Date: 4.16.08

LvLI Batch #: 08041929

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7989 2061 6125
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 plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 1.8	°C	Cooler # RCC-07-001
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A
Person Contacted _____		Date _____	

LvLI LIONVILLE LABORATORY INC

SR-002-B.doc

Lionville Laboratory, Inc.
VOA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-073 K1186

RECEIVED
MAY 2008

DATE RECEIVED: 04/16/08 LVL LOT # :0804L929

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16M75	001	SO	08LVK076	04/09/08	N/A	04/22/08
J16M75	001 MS	SO	08LVK076	04/09/08	N/A	04/22/08
J16M75	001 MSD	SO	08LVK076	04/09/08	N/A	04/22/08

LAB QC:

VBLKYQ	MB1	S	08LVK076	N/A	N/A	04/22/08
VBLKYQ	MB1 BS	S	08LVK076	N/A	N/A	04/22/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-073
LVL #: 0804L929
SDG/SAF # K1186/RC-073

W.O. #: 11343-606-001-9999-00
Date Received: 04-16-2008

GC/MS VOLATILE

One (1) soil sample was collected on 04-09-2008.

The sample and its associated QC samples were analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8260B for TCL volatile target compounds on 04-22-2008.

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

1. The samples was analyzed within required holding time.
2. Non-target compounds were detected in the sample.
3. All surrogate recoveries were within acceptance criteria.
4. One (1) of seventy (70) matrix spike recoveries was outside acceptance criteria.
5. All blank spike recoveries were within acceptance criteria.
6. The method blank 08LVK076 contained the common laboratory contaminant Methylene Chloride at levels less than 2X CRQL and the compound 2-Hexanone at levels less than CRQL.
7. All internal standard area and retention time criteria were met.

r:\group\data\2008\voa\tnu\0804-929ks1.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 13 pages.

LIONVILLE LABORATORY INC.

8. Manual integrations are performed according to SOP QA-125 to produce quality data with utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

5/6/02
Date

GLOSSARY

DATA QUALIFIERS

U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.

J = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

D = Identifies all compounds identified in an analysis at a secondary dilution factor.

I = Interference.

NQ = Result qualitatively confirmed but not able to quantify.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.

X = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).

Y = Additional qualifiers used as required are explained in the case narrative.

GLOSSARY

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Suffix added to sample number to indicate that results are from a diluted analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
SP, Z	=	Indicates Spiked Compound.

TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quan modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following 'flags' are used to indicate the technical reasons for quan modifications:

MP - **Missed Peak:** Manually added peak not found by automatic quan program.

PA - **Peak Assignment:** Quan report was changed to reflect correct peak assignment.

RI - **Routine Integration:** Routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the Dichlorobenzene isomers on the VOA packed column and Benzo (b) fluoranthene /Benzo (k) fluoranthene which are poorly resolve on the BNA column.

SP - **Split Peak:** The automatic integration improperly split the peak; a manual integration was performed to get the correct area.

CB - **Co-elution/ Background:** Peak was manually integrated to eliminate contribution from co-eluting compounds, background signal, or other interference.

PI - **Proper Integration:** A peak with poor or inconsistent integration (i.e., excessive tail) was properly integrated manually.

Lionville Laboratory, Inc.

Volatiles by GC/MS, HSL List

Report Date: 04/30/08 10:24

RFW Batch Number: 0804L929 Client: TNUHANFORD RC-073 K1186 Work Order: 11343606001 Page: 1a

	Cust ID:	J16M75		J16M75		J16M75		VBLKYQ		VBLKYQ BS	
Sample Information	RFW#:	001		001 MS		001 MSD		08LVK076-MB1		08LVK076-MB1	
	Matrix:	SOLID		SOLID		SOLID		SOIL		SOIL	
	D.F.:	1.11		1.04		0.943		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Toluene-d8	102	%	96	%	97	%	99	%	98	%
	Bromofluorobenzene	118	%	100	%	103	%	103	%	99	%
	1,2-Dichloroethane-d4	110	%	103	%	108	%	105	%	105	%
		fl		fl		fl		fl		fl	
Chloromethane		11	U	106	%	100	%	10	U	129	%
Bromomethane		11	U	103	%	109	%	10	U	110	%
Vinyl Chloride		11	U	91	%	94	%	10	U	97	%
Chloroethane		11	U	106	%	111	%	10	U	111	%
Methylene Chloride		10	B	84	%	90	%	6		75	%
Acetone		11	U	189	%	219	%	10	U	217	%
Carbon Disulfide		6	U	108	%	111	%	5	U	114	%
1,1-Dichloroethene		6	U	114	%	118	%	5	U	119	%
1,1-Dichloroethane		6	U	107	%	110	%	5	U	108	%
1,2-Dichloroethene (total)		6	U	99	%	102	%	5	U	101	%
Chloroform		6	U	105	%	108	%	5	U	104	%
1,2-Dichloroethane		6	U	106	%	118	%	5	U	108	%
2-Butanone		11	U	180	%	210 *	%	10	U	195	%
1,1,1-Trichloroethane		6	U	104	%	108	%	5	U	107	%
Carbon Tetrachloride		6	U	103	%	108	%	5	U	105	%
Bromodichloromethane		6	U	103	%	107	%	5	U	103	%
1,2-Dichloropropane		6	U	105	%	108	%	5	U	103	%
cis-1,3-Dichloropropene		6	U	101	%	106	%	5	U	101	%
Trichloroethene		6	U	102	%	106	%	5	U	100	%
Dibromochloromethane		6	U	98	%	105	%	5	U	101	%
1,1,2-Trichloroethane		6	U	92	%	98	%	5	U	95	%
Benzene		6	U	102	%	105	%	5	U	101	%
Trans-1,3-Dichloropropene		6	U	88	%	94	%	5	U	88	%
Bromoform		6	U	94	%	103	%	5	U	99	%
4-Methyl-2-pentanone		11	U	112	%	124	%	10	U	113	%
2-Hexanone		11	U	152	%	168	%	4	J	148	%
Tetrachloroethene		6	U	98	%	99	%	5	U	99	%
1,1,2,2-Tetrachloroethane		6	U	92	%	106	%	5	U	96	%
Toluene		6	U	98	%	100	%	5	U	100	%

*= Outside of EPA CLP QC limits.

000000007

RFW Batch Number: [illegible]

Cust ID:	J16M75		J16M75		J16M75		VBLKYQ		VBLKYQ BS	
RFW#:	001		001 MS		001 MSD		08LVK076-MB1		08LVK076-MB1	
Chlorobenzene	6	U	96	%	98	%	5	U	96	%
Ethylbenzene	6	U	98	%	100	%	5	U	99	%
Styrene	6	U	91	%	92	%	5	U	96	%
Xylenes (total)	6	U	94	%	96	%	5	U	95	%
cis-1,2-dichloroethene	6	U	97	%	101	%	5	U	100	%
trans-1,2-dichloroethene	6	U	101	%	102	%	5	U	103	%

*= Outside of EPA CLP QC limits.

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

J16M75

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOLID Lab Sample ID: 0804L929-001

Sample wt/vol: 4.50 (g/mL) G Lab File ID: k042205

Level: (low/med) LOW Date Received: 04/16/08

% Moisture: not dec. 0 Date Analyzed: 04/22/08

Column: (pack/cap) CAP Dilution Factor: 1.11

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	17.260	50	JB
2.	UNKNOWN	22.377	20	JB
3.	UNKNOWN	24.970	20	JB

FORM 1 VOA-TIC 1/87 Rev.

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKYQ

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 08LVK076-MB1

Sample wt/vol: 5.00 (g/mL) G Lab File ID: k042204

Level: (low/med) LOW Date Received: 04/22/08

% Moisture: not dec. 0 Date Analyzed: 04/22/08

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	17.278	40	J
2.	UNKNOWN	22.360	10	J
3.	UNKNOWN	24.970	10	J

FORM 1 VOA-TIC 1/87 Rev.

nville Laboratory Use Only

)8047L929

Custody Transfer Record/Lab Work Request

Page 1 of 1

VLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

nt TNU Hanford RC-073

Final Proj. Sampling Date

ect# 11343-606-001-9999-00

ect Contact/Phone#

nville Laboratory Project Manager Charlotte Johnson

SW846 Del STD TAT 15 Days

e Rec'd 4-16-08 Date Due 5-1-08

		A	B						C							
Refrigerator #		6	3						3							
#/Type Container	Liquid															
	Solid	1gl	1gl						1gl							
Volume	Solid	60	60						60							
Preservatives		—	—						—							
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/ PCB	Herb				Metal Hg	CN	(2) TCLP metals + Hg					

TRIX DES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	062444	062544						Metal	ICP/TO	TCLP	Fecal		MERCRATZ		
Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP Leachate, Wipe, Other, Fish	001	J16M75	✓	✓	SO	4-9-08	1352	X	X						X	X	X	X				
	002	↓ TCLP of 001			L	*														X		

Lionville Laboratory Use Only

ecial Instructions:

met ① = HSL + B, Mo, Si; NO TL

Special Instructions:

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

* See Lab chron

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	4-16-08	0945

Relinquished by	Received by	Date	Time

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

0000000011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-073-039	Page 1 of 1

Collector: D.W.Shea	Company Contact: D.W.Shea	Telephone No.: 521-6014	Project Coordinator: KESSNER, JH
Price Code: 9K	Data Turnaround: 15 days		
Project Designation: 100-D/DR Burial Grounds & Remaining Sites - Other Solid Q	Sampling Location: 118-D-3, black powder anomaly, 100D-AN-08-0		SAF No.: RC-073
Ice Chest No.: RCC-07-001	Field Logbook No.: EL-1607-3	COA: R118D32600	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: RSR; See OPSC		Bill of Lading/Air Bill No.: SEE RSR

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive

Special Handling and/or Storage

Preservation	Cool 4C	None	Cool 4C	Cool 4C	None						
Type of Container	G/P	G	aG	G	G/P						
No. of Container(s)	1	10	1	1	1						
Volume	60ml.	60ml.	60ml.	60ml.	60ml.						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (3) in Special Instructions.						

MWS for 4/9/08

Sample No.	Matrix *	Sample Date	Sample Time										
16M75	OTHER SOLID	4/9/08	1352	✓	✓	✓	✓	✓					

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: MWSkeen MWSkeen	4/9/08 1802	Received By/Stored In: Fridge 1B	4/9/08 1802
Relinquished By/Removed From: 060/1B	4/15/08 0815	Received By/Stored In: MSTankovich	4/15/08 0815
Relinquished By/Removed From: MSTankovich	4/15/08 1600	Received By/Stored In: Fed Ex	1600
Relinquished By/Removed From: Fed Ex	4/16/08 0945	Received By/Stored In: [illegible]	4/16/08 0945
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

perform other analyses before performing TCLP extraction

4/15/08

(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]; ICP Metals - 6010A (Add-on) [Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver]; Mercury - 7470 - (CV) [Mercury]; TOX - 9020; Total Cyanide - 9010

(2) Metals by ICP (TCLP) - 1311/6010 [Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver]; Mercury (TCLP) - 1311/7470 [Mercury]

(3) Gamma Spectroscopy (TCL List); Gamma Spec - Add-on [Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Silver-108 metastable, Sodium-22]; Carbon-14; Tritium - H3; Nickel-63; Strontium-89,90 -- Total Sr; Isotopic Plutonium; Gross Alpha; Gross Beta; Technetium-99; RCF GEA Shipping Screen [Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155]

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

Matrix *

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

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

CH-EE-011

000000012

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford
Project/SAF/SOW/Release #: RC-073

Date: 4.16.08

LvLI Batch #: 08041929

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex			Airbill # 7989 2061 6125
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 plactic bag and easily accessible?	☑ Yes	☐ No		
5. Samples received cooled or ambient?	Temp 1.8	°C		Cooler # RCC-07-001
How was the temperature taken?	☑ IR	☐ Temp. Blank		☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No		
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No		☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No		
8. Sample containers are intact?	☑ Yes	☐ No		
9. All samples on COC received?	☑ Yes	☐ No		
All samples received on COC?	☑ Yes	☐ No		
10. All sample label information matches COC?	☑ Yes	☐ No		
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No		
12. Samples received within hold times?	☑ Yes	☐ No		
Short holds taken to wet lab?	☐ Yes	☐ No		☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No		☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No		☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No		
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No		☑ N/A
Person Contacted _____		Date _____		

LvLI LIONVILLE LABORATORY INC.

SR-002-B.doc

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-073 K1186

RECEIVED MAY 2008

DATE RECEIVED: 04/16/08 LVL LOT # :0804L928

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16M75						
TCLP	001	SO	08LT0035	04/09/08	04/29/08	04/30/08
SILVER, TOTAL	001	SO	08L0174	04/09/08	04/30/08	05/01/08
SILVER, TOTAL	001 REP	SO	08L0174	04/09/08	04/30/08	05/01/08
SILVER, TOTAL	001 MS	SO	08L0174	04/09/08	04/30/08	05/01/08
ALUMINUM, TOTAL	001	SO	08L0174	04/09/08	04/30/08	05/01/08
ALUMINUM, TOTAL	001 REP	SO	08L0174	04/09/08	04/30/08	05/01/08
ALUMINUM, TOTAL	001 MS	SO	08L0174	04/09/08	04/30/08	05/01/08
ARSENIC, TOTAL	001	SO	08L0174	04/09/08	04/30/08	05/01/08
ARSENIC, TOTAL	001 REP	SO	08L0174	04/09/08	04/30/08	05/01/08
ARSENIC, TOTAL	001 MS	SO	08L0174	04/09/08	04/30/08	05/01/08
BORON, TOTAL	001	SO	08L0174	04/09/08	04/30/08	05/01/08
BORON, TOTAL	001 REP	SO	08L0174	04/09/08	04/30/08	05/01/08
BORON, TOTAL	001 MS	SO	08L0174	04/09/08	04/30/08	05/01/08
BARIUM, TOTAL	001	SO	08L0174	04/09/08	04/30/08	05/01/08
BARIUM, TOTAL	001 REP	SO	08L0174	04/09/08	04/30/08	05/01/08
BARIUM, TOTAL	001 MS	SO	08L0174	04/09/08	04/30/08	05/01/08
BERYLLIUM, TOTAL	001	SO	08L0174	04/09/08	04/30/08	05/01/08
BERYLLIUM, TOTAL	001 REP	SO	08L0174	04/09/08	04/30/08	05/01/08
BERYLLIUM, TOTAL	001 MS	SO	08L0174	04/09/08	04/30/08	05/01/08
CALCIUM, TOTAL	001	SO	08L0174	04/09/08	04/30/08	05/01/08
CALCIUM, TOTAL	001 REP	SO	08L0174	04/09/08	04/30/08	05/01/08
CALCIUM, TOTAL	001 MS	SO	08L0174	04/09/08	04/30/08	05/01/08
CADMIUM, TOTAL	001	SO	08L0174	04/09/08	04/30/08	05/01/08
CADMIUM, TOTAL	001 REP	SO	08L0174	04/09/08	04/30/08	05/01/08
CADMIUM, TOTAL	001 MS	SO	08L0174	04/09/08	04/30/08	05/01/08
COBALT, TOTAL	001	SO	08L0174	04/09/08	04/30/08	05/01/08
COBALT, TOTAL	001 REP	SO	08L0174	04/09/08	04/30/08	05/01/08
COBALT, TOTAL	001 MS	SO	08L0174	04/09/08	04/30/08	05/01/08
CHROMIUM, TOTAL	001	SO	08L0174	04/09/08	04/30/08	05/01/08
CHROMIUM, TOTAL	001 REP	SO	08L0174	04/09/08	04/30/08	05/01/08
CHROMIUM, TOTAL	001 MS	SO	08L0174	04/09/08	04/30/08	05/01/08
COPPER, TOTAL	001	SO	08L0174	04/09/08	04/30/08	05/01/08
COPPER, TOTAL	001 REP	SO	08L0174	04/09/08	04/30/08	05/01/08
COPPER, TOTAL	001 MS	SO	08L0174	04/09/08	04/30/08	05/01/08
IRON, TOTAL	001	SO	08L0174	04/09/08	04/30/08	05/01/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-073 K1186

DATE RECEIVED: 04/16/08 LVL LOT # :0804L929

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
IRON, TOTAL	001 REP	SO	08L0174	04/09/08	04/30/08	05/01/08
IRON, TOTAL	001 MS	SO	08L0174	04/09/08	04/30/08	05/01/08
MERCURY, TOTAL	001	SO	08C0072	04/09/08	04/18/08	04/18/08
MERCURY, TOTAL	001 REP	SO	08C0072	04/09/08	04/18/08	04/18/08
MERCURY, TOTAL	001 MS	SO	08C0072	04/09/08	04/18/08	04/18/08
POTASSIUM, TOTAL	001	SO	08L0174	04/09/08	04/30/08	05/01/08
POTASSIUM, TOTAL	001 REP	SO	08L0174	04/09/08	04/30/08	05/01/08
POTASSIUM, TOTAL	001 MS	SO	08L0174	04/09/08	04/30/08	05/01/08
MAGNESIUM, TOTAL	001	SO	08L0174	04/09/08	04/30/08	05/01/08
MAGNESIUM, TOTAL	001 REP	SO	08L0174	04/09/08	04/30/08	05/01/08
MAGNESIUM, TOTAL	001 MS	SO	08L0174	04/09/08	04/30/08	05/01/08
MANGANESE, TOTAL	001	SO	08L0174	04/09/08	04/30/08	05/01/08
MANGANESE, TOTAL	001 REP	SO	08L0174	04/09/08	04/30/08	05/01/08
MANGANESE, TOTAL	001 MS	SO	08L0174	04/09/08	04/30/08	05/01/08
MOLYBDENUM, TOTAL	001	SO	08L0174	04/09/08	04/30/08	05/01/08
MOLYBDENUM, TOTAL	001 REP	SO	08L0174	04/09/08	04/30/08	05/01/08
MOLYBDENUM, TOTAL	001 MS	SO	08L0174	04/09/08	04/30/08	05/01/08
SODIUM, TOTAL	001	SO	08L0174	04/09/08	04/30/08	05/01/08
SODIUM, TOTAL	001 REP	SO	08L0174	04/09/08	04/30/08	05/01/08
SODIUM, TOTAL	001 MS	SO	08L0174	04/09/08	04/30/08	05/01/08
NICKEL, TOTAL	001	SO	08L0174	04/09/08	04/30/08	05/01/08
NICKEL, TOTAL	001 REP	SO	08L0174	04/09/08	04/30/08	05/01/08
NICKEL, TOTAL	001 MS	SO	08L0174	04/09/08	04/30/08	05/01/08
LEAD, TOTAL	001	SO	08L0174	04/09/08	04/30/08	05/01/08
LEAD, TOTAL	001 REP	SO	08L0174	04/09/08	04/30/08	05/01/08
LEAD, TOTAL	001 MS	SO	08L0174	04/09/08	04/30/08	05/01/08
ANTIMONY, TOTAL	001	SO	08L0174	04/09/08	04/30/08	05/01/08
ANTIMONY, TOTAL	001 REP	SO	08L0174	04/09/08	04/30/08	05/01/08
ANTIMONY, TOTAL	001 MS	SO	08L0174	04/09/08	04/30/08	05/01/08
SELENIUM, TOTAL	001	SO	08L0174	04/09/08	04/30/08	05/01/08
SELENIUM, TOTAL	001 REP	SO	08L0174	04/09/08	04/30/08	05/01/08
SELENIUM, TOTAL	001 MS	SO	08L0174	04/09/08	04/30/08	05/01/08
SILICON, TOTAL	001	SO	08L0174	04/09/08	04/30/08	05/01/08
SILICON, TOTAL	001 REP	SO	08L0174	04/09/08	04/30/08	05/01/08
SILICON, TOTAL	001 MS	SO	08L0174	04/09/08	04/30/08	05/01/08
VANADIUM, TOTAL	001	SO	08L0174	04/09/08	04/30/08	05/01/08
VANADIUM, TOTAL	001 REP	SO	08L0174	04/09/08	04/30/08	05/01/08
VANADIUM, TOTAL	001 MS	SO	08L0174	04/09/08	04/30/08	05/01/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-073 K1186

DATE RECEIVED: 04/16/08 LVL LOT # :0804L929

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZINC, TOTAL	001	SO	08L0174	04/09/08	04/30/08	05/01/08
ZINC, TOTAL	001 REP	SO	08L0174	04/09/08	04/30/08	05/01/08
ZINC, TOTAL	001 MS	SO	08L0174	04/09/08	04/30/08	05/01/08
SILVER, TCLP LEACHAT	002	W	08L0180	04/30/08	05/02/08	05/05/08
SILVER, TCLP LEACHAT	002 REP	W	08L0180	04/30/08	05/02/08	05/05/08
SILVER, TCLP LEACHAT	002 MS	W	08L0180	04/30/08	05/02/08	05/05/08
ARSENIC, TCLP LEACHA	002	W	08L0180	04/30/08	05/02/08	05/05/08
ARSENIC, TCLP LEACHA	002 REP	W	08L0180	04/30/08	05/02/08	05/05/08
ARSENIC, TCLP LEACHA	002 MS	W	08L0180	04/30/08	05/02/08	05/05/08
BARIUM, TCLP LEACHAT	002	W	08L0180	04/30/08	05/02/08	05/05/08
BARIUM, TCLP LEACHAT	002 REP	W	08L0180	04/30/08	05/02/08	05/05/08
BARIUM, TCLP LEACHAT	002 MS	W	08L0180	04/30/08	05/02/08	05/05/08
CADMIUM, TCLP LEACHA	002	W	08L0180	04/30/08	05/02/08	05/05/08
CADMIUM, TCLP LEACHA	002 REP	W	08L0180	04/30/08	05/02/08	05/05/08
CADMIUM, TCLP LEACHA	002 MS	W	08L0180	04/30/08	05/02/08	05/05/08
CHROMIUM, TCLP LEACH	002	W	08L0180	04/30/08	05/02/08	05/05/08
CHROMIUM, TCLP LEACH	002 REP	W	08L0180	04/30/08	05/02/08	05/05/08
CHROMIUM, TCLP LEACH	002 MS	W	08L0180	04/30/08	05/02/08	05/05/08
MERCURY, TCLP LEACHA	002	W	08C0077	04/30/08	05/01/01	05/01/01
MERCURY, TCLP LEACHA	002 REP	W	08C0077	04/30/08	05/01/01	05/01/01
MERCURY, TCLP LEACHA	002 MS	W	08C0077	04/30/08	05/01/01	05/01/01
LEAD, TCLP LEACHATE	002	W	08L0180	04/30/08	05/02/08	05/05/08
LEAD, TCLP LEACHATE	002 REP	W	08L0180	04/30/08	05/02/08	05/05/08
LEAD, TCLP LEACHATE	002 MS	W	08L0180	04/30/08	05/02/08	05/05/08
SELENIUM, TCLP LEACH	002	W	08L0180	04/30/08	05/02/08	05/05/08
SELENIUM, TCLP LEACH	002 REP	W	08L0180	04/30/08	05/02/08	05/05/08
SELENIUM, TCLP LEACH	002 MS	W	08L0180	04/30/08	05/02/08	05/05/08

AB QC:

SILVER LABORATORY	LC1 BS	S	08L0174	N/A	04/30/08	04/30/08
SILVER, TOTAL	MB1	S	08L0174	N/A	04/30/08	04/30/08
ALUMINUM LABORTORY	LC1 BS	S	08L0174	N/A	04/30/08	04/30/08
ALUMINUM, TOTAL	MB1	S	08L0174	N/A	04/30/08	04/30/08
ARSENIC LABORATORY	LC1 BS	S	08L0174	N/A	04/30/08	04/30/08
ARSENIC, TOTAL	MB1	S	08L0174	N/A	04/30/08	04/30/08
BORON LABORATORY	LC1 BS	S	08L0174	N/A	04/30/08	04/30/08
BORON, TOTAL	MB1	S	08L0174	N/A	04/30/08	04/30/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-073 K1186

DATE RECEIVED: 04/16/08 LVL LOT # :0804L929

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BARIUM LABORATORY	LC1 BS	S	08L0174	N/A	04/30/08	04/30/08
BARIUM, TOTAL	MB1	S	08L0174	N/A	04/30/08	04/30/08
BERYLLIUM LABORATORY	LC1 BS	S	08L0174	N/A	04/30/08	04/30/08
BERYLLIUM, TOTAL	MB1	S	08L0174	N/A	04/30/08	04/30/08
CALCIUM LABORATORY	LC1 BS	S	08L0174	N/A	04/30/08	04/30/08
CALCIUM, TOTAL	MB1	S	08L0174	N/A	04/30/08	04/30/08
CADMIUM LABORATORY	LC1 BS	S	08L0174	N/A	04/30/08	04/30/08
CADMIUM, TOTAL	MB1	S	08L0174	N/A	04/30/08	04/30/08
COBALT LABORATORY	LC1 BS	S	08L0174	N/A	04/30/08	04/30/08
COBALT, TOTAL	MB1	S	08L0174	N/A	04/30/08	04/30/08
CHROMIUM LABORATORY	LC1 BS	S	08L0174	N/A	04/30/08	04/30/08
CHROMIUM, TOTAL	MB1	S	08L0174	N/A	04/30/08	04/30/08
COPPER LABORATORY	LC1 BS	S	08L0174	N/A	04/30/08	04/30/08
COPPER, TOTAL	MB1	S	08L0174	N/A	04/30/08	04/30/08
IRON LABORATORY	LC1 BS	S	08L0174	N/A	04/30/08	04/30/08
IRON, TOTAL	MB1	S	08L0174	N/A	04/30/08	04/30/08
MERCURY LABORATORY	LC1 BS	S	08C0072	N/A	04/18/08	04/18/08
MERCURY, TOTAL	MB1	S	08C0072	N/A	04/18/08	04/18/08
POTASSIUM LABORATORY	LC1 BS	S	08L0174	N/A	04/30/08	05/01/08
POTASSIUM, TOTAL	MB1	S	08L0174	N/A	04/30/08	05/01/08
MAGNESIUM LABORATORY	LC1 BS	S	08L0174	N/A	04/30/08	04/30/08
MAGNESIUM, TOTAL	MB1	S	08L0174	N/A	04/30/08	04/30/08
MANGANESE LABORATORY	LC1 BS	S	08L0174	N/A	04/30/08	04/30/08
MANGANESE, TOTAL	MB1	S	08L0174	N/A	04/30/08	04/30/08
MOLYBDENUM LABORATOR	LC1 BS	S	08L0174	N/A	04/30/08	04/30/08
MOLYBDENUM, TOTAL	MB1	S	08L0174	N/A	04/30/08	04/30/08
SODIUM LABORATORY	LC1 BS	S	08L0174	N/A	04/30/08	05/01/08
SODIUM, TOTAL	MB1	S	08L0174	N/A	04/30/08	05/01/08
NICKEL LABORATORY	LC1 BS	S	08L0174	N/A	04/30/08	04/30/08
NICKEL, TOTAL	MB1	S	08L0174	N/A	04/30/08	04/30/08
LEAD LABORATORY	LC1 BS	S	08L0174	N/A	04/30/08	04/30/08
LEAD, TOTAL	MB1	S	08L0174	N/A	04/30/08	04/30/08
ANTIMONY LABORATORY	LC1 BS	S	08L0174	N/A	04/30/08	04/30/08
ANTIMONY, TOTAL	MB1	S	08L0174	N/A	04/30/08	04/30/08
SELENIUM LABORATORY	LC1 BS	S	08L0174	N/A	04/30/08	04/30/08
SELENIUM, TOTAL	MB1	S	08L0174	N/A	04/30/08	04/30/08
SILICON LABORATORY	LC1 BS	S	08L0174	N/A	04/30/08	04/30/08
SILICON, TOTAL	MB1	S	08L0174	N/A	04/30/08	04/30/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-073 K1186

DATE RECEIVED: 04/16/08 LVL LOT # :0804L929

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
VANADIUM LABORATORY	LC1 BS	S	08L0174	N/A	04/30/08	04/30/08
VANADIUM, TOTAL	MB1	S	08L0174	N/A	04/30/08	04/30/08
ZINC LABORATORY	LC1 BS	S	08L0174	N/A	04/30/08	04/30/08
ZINC, TOTAL	MB1	S	08L0174	N/A	04/30/08	04/30/08
SILVER LABORATORY	LC1 BS	W	08L0180	N/A	05/02/08	05/05/08
SILVER, TCLP LEACHAT	MB1	W	08L0180	N/A	05/02/08	05/05/08
SILVER, TCLP LEACHAT	MB2	W	08L0180	N/A	05/02/08	05/05/08
SILVER, TCLP LEACHAT	MB3	W	08L0180	N/A	05/02/08	05/05/08
ARSENIC LABORATORY	LC1 BS	W	08L0180	N/A	05/02/08	05/05/08
ARSENIC, TCLP LEACHA	MB1	W	08L0180	N/A	05/02/08	05/05/08
ARSENIC, TCLP LEACHA	MB2	W	08L0180	N/A	05/02/08	05/05/08
ARSENIC, TCLP LEACHA	MB3	W	08L0180	N/A	05/02/08	05/05/08
BARIUM LABORATORY	LC1 BS	W	08L0180	N/A	05/02/08	05/05/08
BARIUM, TCLP LEACHAT	MB1	W	08L0180	N/A	05/02/08	05/05/08
BARIUM, TCLP LEACHAT	MB2	W	08L0180	N/A	05/02/08	05/05/08
BARIUM, TCLP LEACHAT	MB3	W	08L0180	N/A	05/02/08	05/05/08
CADMIUM LABORATORY	LC1 BS	W	08L0180	N/A	05/02/08	05/05/08
CADMIUM, TCLP LEACHA	MB1	W	08L0180	N/A	05/02/08	05/05/08
CADMIUM, TCLP LEACHA	MB2	W	08L0180	N/A	05/02/08	05/05/08
CADMIUM, TCLP LEACHA	MB3	W	08L0180	N/A	05/02/08	05/05/08
CHROMIUM LABORATORY	LC1 BS	W	08L0180	N/A	05/02/08	05/05/08
CHROMIUM, TCLP LEACH	MB1	W	08L0180	N/A	05/02/08	05/05/08
CHROMIUM, TCLP LEACH	MB2	W	08L0180	N/A	05/02/08	05/05/08
CHROMIUM, TCLP LEACH	MB3	W	08L0180	N/A	05/02/08	05/05/08
MERCURY LABORATORY	LC1 BS	W	08C0077	N/A	05/01/01	05/01/01
MERCURY, TOTAL	MB1	W	08C0077	N/A	05/01/01	05/01/01
MERCURY, TCLP LEACHA	MB2	W	08C0077	N/A	05/01/01	05/01/01
MERCURY, TCLP LEACHA	MB3	W	08C0077	N/A	05/01/01	05/01/01
LEAD LABORATORY	LC1 BS	W	08L0180	N/A	05/02/08	05/05/08
LEAD, TCLP LEACHATE	MB1	W	08L0180	N/A	05/02/08	05/05/08
LEAD, TCLP LEACHATE	MB2	W	08L0180	N/A	05/02/08	05/05/08
LEAD, TCLP LEACHATE	MB3	W	08L0180	N/A	05/02/08	05/05/08
SELENIUM LABORATORY	LC1 BS	W	08L0180	N/A	05/02/08	05/05/08
SELENIUM, TCLP LEACH	MB1	W	08L0180	N/A	05/02/08	05/05/08
SELENIUM, TCLP LEACH	MB2	W	08L0180	N/A	05/02/08	05/05/08
SELENIUM, TCLP LEACH	MB3	W	08L0180	N/A	05/02/08	05/05/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-073
LVL#: 0804L929
SDG/SAF#: K1186/RC-073

W.O.#: 11343-606-001-9999-00
Date Received: 04-16-08

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 1 solid sample and 1 TCLP leachate samples.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary. The solid sample for ICP metals was run and reported with a 3-fold dilution. The TCLP leachate sample was run and reported with a 6-fold dilution. The solid sample was reported on a wet weight "as received" basis.

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

4. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury) with the exception of the ICV for Sodium and Potassium in files TA0430B and TA0501A. All samples were rerun for Sodium and Potassium in files PS0501A and PS0501B.

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

6. The preparation/method blank for 1 analyte was outside method criteria. {less than the Limit of Quantitation (3-10X the LOD), MB value less than 5% of the RCRA limit, or samples read greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

   a). The MB results for Sodium were greater than the Limit of Quantitation (LOQ) {3-10x the (LOD) Limit of Detection} and sample J16M75 replicate read less than 20 times the MB concentration. However, no corrective action criteria for MBs were provided in SW846 method 6010B. The sample results were reported herein "uncorrected" for the levels found in the MB.

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

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 28 pages.

8. All laboratory control samples (LCS) were within the 80-120% control limits with the exception of the LCS for Silicon at 29.4%. Refer to the Inorganics Laboratory Control Standards Report. Associated sample results may be biased low for Silicon.

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

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

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J16M75	Aluminum	66,000	98.5
	Iron	66,000	95.8
	Antimony	300	100.5
	Calcium	66,000	98.3
	Silicon	3,300	100.9
	Zinc	300	97.0

11. The duplicate analyses for 10 analytes were outside the 20% Relative Percent Difference (RPD) control limits for the solid sample. Refer to the Inorganics Precision Report.

12. The TCLP extract from client sample J16M75 was selected for the matrix spike (MS) for this analytical batch.

13. The matrix spike for Silver was below 50% recovery (3.6%). The recovery in the TCLP Leachate was below 80-120% of the action level so standard addition was not required per Federal Register, Vol.57, No.227, Nov. 24, 1992, page 55117.

14. For the purposes of this report, the data has been reported to the Limit of Detection (LOD). Values between the LOD and the Limit of Quantitation (LOQ) are acquired in a region of less-certain quantification.

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

16. 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

5/8/02
Date

alm/m04-929

LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

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

ɔt#: 08041929

:aching Procedure: __1310 __1311 __1312 __Other:_____

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

etals Digestion Methods: __3005A ✓3010A __3015 __3020A ✓3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
luminum	✓6010B		__200.7				__99
ntimony	✓6010B	__7041 [5]	__200.7	__204.2			__99
rsenic	✓6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
arium	✓6010B		__200.7				__99
eryllium	✓6010B		__200.7				__99
ismuth	__6010B [1]		__200.7 [1]			__1620	__99
oron	✓6010B		__200.7				__99
admium	✓6010B	__7131A [5]	__200.7	__213.2			__99
alcium	✓6010B		__200.7				__99
hromium	✓6010B	__7191 [5]	__200.7	__218.2			__SS17
obalt	✓6010B		__200.7				__99
opper	✓6010B	__7211 [5]	__200.7	__220.2			__99
on	✓6010B		__200.7				__99
ead	✓6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
ithium	__6010B	__7430 [4]	__200.7			__1620	__99
lagnesium	✓6010B		__200.7				__99
langanese	✓6010B		__200.7				__99
lercury	✓7470A [3]	✓7471A [3]	__245.1 [2]	__245.5 [2]			__99
lolybdenum	✓6010B		__200.7				__99
ickel	✓6010B		__200.7				__99
otassium	✓6010B	__7610 [4]	__200.7	__258.1 [4]			__99
are Earths	__6010B [1]		__200.7 [1]			__1620	__99
elenium	✓6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
ilicon	✓6010B [1]		__200.7			__1620	__99
ilica	__6010B		__200.7			__1620	__99
ilver	✓6010B	__7761 [5]	__200.7	__272.2			__99
odium	✓6010B	__7770 [4]	__200.7	__273.1 [4]			__99
trontium	__6010B		__200.7				__99
hallium	__6010B	__7841 [5]	__200.7	__279.2	__200.9		__99
in	__6010B		__200.7				__99
itanium	__6010B		__200.7				__99
ranium	__6010B [1]		__200.7 [1]			__1620	__99
anadium	✓6010B		__200.7				__99
inc	✓6010B		__200.7				__99
irconium	__6010B [1]		__200.7 [1]			__1620	__99

ther:_____ Method:_____

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 05/07/08

CLIENT: TNUHANFORD RC-073 K1186 LVL LOT #: 0804L929

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J16M75	Silver, Total	0.25 u	MG/KG	0.25	3.0
		Aluminum, Total	18200	MG/KG	9.9	3.0
		Arsenic, Total	1.8	MG/KG	1.2	3.0
		Boron, Total	49.8	MG/KG	1.2	3.0
		Barium, Total	73.9	MG/KG	0.25	3.0
		Beryllium, Total	1.2	MG/KG	0.12	3.0
		Calcium, Total	10800	MG/KG	9.9	3.0
		Cadmium, Total	0.20	MG/KG	0.12	3.0
		Cobalt, Total	5.6	MG/KG	0.50	3.0
		Chromium, Total	56.2	MG/KG	0.50	3.0
		Copper, Total	23.6	MG/KG	0.50	3.0
		Iron, Total	34400	MG/KG	11.2	3.0
		Mercury, Total	0.01	MG/KG	0.01	1.0
		Potassium, Total	1810	MG/KG	122	3.0
		Magnesium, Total	1670	MG/KG	6.2	3.0
		Manganese, Total	225	MG/KG	0.1	3.0
		Molybdenum, Total	11.2	MG/KG	0.74	3.0
		Sodium, Total	1240	MG/KG	5.0	3.0
		Nickel, Total	34.6	MG/KG	0.50	3.0
		Lead, Total	7.3	MG/KG	0.74	3.0
		Antimony, Total	0.74 u	MG/KG	0.74	3.0
		Selenium, Total	1.5 u	MG/KG	1.5	3.0
		Silicon, Total	339	MG/KG	9.9	3.0
		Vanadium, Total	32.3	MG/KG	0.35	3.0
		Zinc, Total	125	MG/KG	1.5	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/07/08

CLIENT: TNUHANFORD RC-073 K1186 LVL LOT #: 0804L929

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J16M75	Silver, TCLP Leachate	6.0	u	UG/L	6.0	6.0
		Arsenic, TCLP Leachate	30.0	u	UG/L	30.0	6.0
		Barium, TCLP Leachate	226		UG/L	6.0	6.0
		Cadmium, TCLP Leachate	3.0	u	UG/L	3.0	6.0
		Chromium, TCLP Leachate	12.0	u	UG/L	12.0	6.0
		Mercury, TCLP Leachate	0.06	u	UG/L	0.06	1.0
		Lead, TCLP Leachate	239		UG/L	18.0	6.0
		Selenium, TCLP Leachate	36.0	u	UG/L	36.0	6.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/07/08

CLIENT: TNUHANFORD RC-073 K1186 LVL LOT #: 0804L929

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08L0174-MB1	Silver, Total	0.10	u	MG/KG	0.10	1.0
		Aluminum, Total	5.3		MG/KG	4.0	1.0
		Arsenic, Total	0.50	u	MG/KG	0.50	1.0
		Boron, Total	0.50	u	MG/KG	0.50	1.0
		Barium, Total	0.21		MG/KG	0.10	1.0
		Beryllium, Total	0.05	u	MG/KG	0.05	1.0
		Calcium, Total	18.2		MG/KG	4.0	1.0
		Cadmium, Total	0.05	u	MG/KG	0.05	1.0
		Cobalt, Total	0.20	u	MG/KG	0.20	1.0
		Chromium, Total	0.20	u	MG/KG	0.20	1.0
		Copper, Total	0.20	u	MG/KG	0.20	1.0
		Iron, Total	5.0		MG/KG	4.5	1.0
		Potassium, Total	49.3	u	MG/KG	49.3	1.0
		Magnesium, Total	8.5		MG/KG	2.5	1.0
		Manganese, Total	0.06		MG/KG	0.04	1.0
		Molybdenum, Total	0.30	u	MG/KG	0.30	1.0
		Sodium, Total	19.6		MG/KG	2.0	1.0
		Nickel, Total	0.20	u	MG/KG	0.20	1.0
		Lead, Total	0.30	u	MG/KG	0.30	1.0
		Antimony, Total	0.34		MG/KG	0.30	1.0
		Selenium, Total	0.60	u	MG/KG	0.60	1.0
		Silicon, Total	4.0	u	MG/KG	4.0	1.0
		Vanadium, Total	0.14	u	MG/KG	0.14	1.0
		Zinc, Total	0.60	u	MG/KG	0.60	1.0
BLANK1	08C0072-MB1	Mercury, Total	0.01	u	MG/KG	0.01	1.0
BLANK1	08L0180-MB1	Silver, TCLP Leachate	1.0	u	UG/L	1.0	1.0
		Arsenic, TCLP Leachate	5.0	u	UG/L	5.0	1.0
		Barium, TCLP Leachate	1.1		UG/L	1.0	1.0
		Cadmium, TCLP Leachate	0.50	u	UG/L	0.50	1.0
		Chromium, TCLP Leachate	2.0	u	UG/L	2.0	1.0
		Lead, TCLP Leachate	3.0	u	UG/L	3.0	1.0
		Selenium, TCLP Leachate	6.0	u	UG/L	6.0	1.0
BLANK2	08L0180-MB2	Silver, TCLP Leachate	6.0	u	UG/L	6.0	6.0
		Arsenic, TCLP Leachate	30.0	u	UG/L	30.0	6.0
		Barium, TCLP Leachate	6.0	u	UG/L	6.0	6.0
		Cadmium, TCLP Leachate	3.0	u	UG/L	3.0	6.0
		Chromium, TCLP Leachate	12.0	u	UG/L	12.0	6.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/07/08

CLIENT: TNUHANFORD RC-073 K1186 LVL LOT #: 0804L929

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK2	08L0180-MB2	Lead, TCLP Leachate	18.0	u	UG/L	18.0	6.0
		Selenium, TCLP Leachate	36.0	u	UG/L	36.0	6.0
BLANK3	08L0180-MB3	Silver, TCLP Leachate	6.0	u	UG/L	6.0	6.0
		Arsenic, TCLP Leachate	30.0	u	UG/L	30.0	6.0
		Barium, TCLP Leachate	6.0	u	UG/L	6.0	6.0
		Cadmium, TCLP Leachate	3.0	u	UG/L	3.0	6.0
		Chromium, TCLP Leachate	12.0	u	UG/L	12.0	6.0
		Lead, TCLP Leachate	18.0	u	UG/L	18.0	6.0
		Selenium, TCLP Leachate	36.0	u	UG/L	36.0	6.0
BLANK1	08C0077-MB1	Mercury, Total	0.06	u	UG/L	0.06	1.0
BLANK2	08C0077-MB2	Mercury, TCLP Leachate	0.06	u	UG/L	0.06	1.0
BLANK3	08C0077-MB3	Mercury, TCLP Leachate	0.06	u	UG/L	0.06	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 05/07/08

CLIENT: TNUHANFORD RC-073 K1186 LVL LOT #: 0804L929

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J16M75	Silver, Total	3.9	0.25u	4.0	97.5	3.0
		Aluminum, Total	15100	18200	159	-1900. *	3.0
		Arsenic, Total	152	1.8	159	94.4	3.0
		Boron, Total	120	49.8	79.4	88.7	3.0
		Barium, Total	215	73.9	159	88.9	3.0
		Beryllium, Total	5.0	1.2	4.0	95.0	3.0
		Calcium, Total	12000	10800	1980	59.5*	3.0
		Cadmium, Total	4.1	0.20	4.0	97.4	3.0
		Cobalt, Total	44.2	5.6	39.7	97.2	3.0
		Chromium, Total	70.0	56.2	15.9	86.8	3.0
		Copper, Total	44.6	23.6	19.9	105.5	3.0
		Iron, Total	34500	34400	79.4	141.3*	3.0
		Mercury, Total	0.18	0.01	0.17	101.8	1.0
		Potassium, Total	3510	1810	1980	85.5	3.0
		Magnesium, Total	3560	1670	1980	94.9	3.0
		Manganese, Total	261	225	39.7	91.7*	3.0
		Molybdenum, Total	83.3	11.2	79.4	90.8	3.0
		Sodium, Total	2990	1240	1980	88.0	3.0
		Nickel, Total	72.9	34.6	39.7	96.5	3.0
		Lead, Total	43.9	7.3	39.7	92.2	3.0
		Antimony, Total	25.2	0.74u	39.7	63.5	3.0
		Selenium, Total	133	1.5 u	159	83.6	3.0
		Silicon, Total	478	339	79.4	174.6*	3.0
		Vanadium, Total	69.4	32.3	39.7	93.5	3.0
		Zinc, Total	198	125	39.7	182.4	3.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 05/07/08

CLIENT: TNUHANFORD RC-073 K1186 LVL LOT #: 0804L929

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	J16M75	Silver, TCLP Leachate	180	6.0 u	5000	3.6	6.0
		Arsenic, TCLP Leachate	4920	30.0 u	5000	98.4	6.0
		Barium, TCLP Leachate	95000	226	100000	94.7	6.0
		Cadmium, TCLP Leachate	1010	3.0 u	1000	100.5	6.0
		Chromium, TCLP Leachat	4990	12.0 u	5000	99.8	6.0
		Mercury, TCLP Leachate	199	0.06u	200	99.4	50.0
		Lead, TCLP Leachate	5220	239	5000	99.7	6.0
		Selenium, TCLP Leachat	1010	36.0 u	1000	101.2	6.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 05/07/08

CLIENT: TNUHANFORD RC-073 K1186 LVL LOT #: 0804L929

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J16M75	Silver, Total	0.25u	0.28u	NC	3.0
		Aluminum, Total	18200	12600	36.3	3.0
		Arsenic, Total	1.8	1.9	5.4	3.0
		Boron, Total	49.8	36.2	31.6	3.0
		Barium, Total	73.9	46.6	45.3	3.0
		Beryllium, Total	1.2	0.85	34.1	3.0
		Calcium, Total	10800	7840	31.4	3.0
		Cadmium, Total	0.20	0.22	8.0	3.0
		Cobalt, Total	5.6	4.8	15.4	3.0
		Chromium, Total	56.2	62.1	10	3.0
		Copper, Total	23.6	22.0	7.0	3.0
		Iron, Total	34400	39700	14.3	3.0
		Mercury, Total	0.01	0.03	80.0	1.0
		Potassium, Total	1810	1300	32.9	3.0
		Magnesium, Total	1670	1310	23.9	3.0
		Manganese, Total	225	224	0.27	3.0
		Molybdenum, Total	11.2	15.3	30.9	3.0
		Sodium, Total	1240	901	31.8	3.0
		Nickel, Total	34.6	37.6	8.3	3.0
		Lead, Total	7.3	7.2	1.4	3.0
		Antimony, Total	0.74u	0.83u	NC	3.0
		Selenium, Total	1.5 u	1.7 u	NC	3.0
		Silicon, Total	339	352	3.7	3.0
		Vanadium, Total	32.3	26.6	19.4	3.0
		Zinc, Total	125	137	8.9	3.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 05/07/08

CLIENT: TNUHANFORD RC-073 K1186 LVL LOT #: 0804L929

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-002REP	J16M75	Silver, TCLP Leachate	6.0 u	6.0 u	NC	6.0
		Arsenic, TCLP Leachate	30.0 u	30.0 u	NC	6.0
		Barium, TCLP Leachate	226	241	6.6	6.0
		Cadmium, TCLP Leachate	3.0 u	3.0 u	NC	6.0
		Chromium, TCLP Leachate	12.0 u	12.0 u	NC	6.0
		Mercury, TCLP Leachate	0.06u	0.06u	NC	1.0
		Lead, TCLP Leachate	239	229	4.4	6.0
		Selenium, TCLP Leachate	36.0 u	36.0 u	NC	6.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 05/07/08

CLIENT: TNUHANFORD RC-073 K1186 LVL LOT #: 0804L929

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0174-LC1	Silver, LCS	46.3	50.0	MG/KG	92.6
		Aluminum, LCS	483	500	MG/KG	96.6
		Arsenic, LCS	909	1000	MG/KG	90.9
		Boron, LCS	455	500	MG/KG	91.1
		Barium, LCS	467	500	MG/KG	93.3
		Beryllium, LCS	23.5	25.0	MG/KG	94.0
		Calcium, LCS	2360	2500	MG/KG	94.4
		Cadmium, LCS	23.2	25.0	MG/KG	92.8
		Cobalt, LCS	233	250	MG/KG	93.1
		Chromium, LCS	47.1	50.0	MG/KG	94.2
		Copper, LCS	120	125	MG/KG	95.6
		Iron, LCS	470	500	MG/KG	94.1
		Potassium, LCS	2140	2500	MG/KG	85.6
		Magnesium, LCS	2300	2500	MG/KG	91.9
		Manganese, LCS	70.5	75.0	MG/KG	94.0
		Molybdenum, LCS	452	500	MG/KG	90.3
		Sodium, LCS	2170	2500	MG/KG	87.0
		Nickel, LCS	187	200	MG/KG	93.6
		Lead, LCS	232	250	MG/KG	92.6
		Antimony, LCS	270	300	MG/KG	90.0
		Selenium, LCS	876	1000	MG/KG	87.6
		Silicon, LCS	147	500	MG/KG	29.4
		Vanadium, LCS	229	250	MG/KG	91.6
		Zinc, LCS	93.1	100	MG/KG	93.1
LCS1	08C0072-LC1	Mercury, LCS	5.0	4.7	MG/KG	107.3
LCS1	08L0180-LC1	Silver, LCS	490	500	UG/L	98.0
		Arsenic, LCS	9340	10000	UG/L	93.4
		Barium, LCS	4890	5000	UG/L	97.9
		Cadmium, LCS	240	250	UG/L	96.0
		Chromium, LCS	487	500	UG/L	97.5
		Lead, LCS	2410	2500	UG/L	96.6
		Selenium, LCS	9280	10000	UG/L	92.8
LCS1	08C0077-LC1	Mercury, LCS	5.1	5.0	UG/L	102.0

Lionville Laboratory Incorporated Logbook #: 440

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0174
Date/Time Initiated: 4/30/08 1240
Date/Time Completed: 4/30/08 1405
Analyst(s): TEP
Matrix: Soil Water Other:
Instr. Type: AA ICP
Parameters: See Backlog

Digested Undigested (circle one)
Balance #: B20
Balance Cal Verif: Y NA
Hot Plate Temp: 95°

Method: SW (circle)
3005A
3010A
3015
3020A
7060A (As/Se)
7760A (Ag)
3050B
3051
CLP ILMO3.0
ILMO4.0

DW 200.7 (1994)
200.9
3113B
MCAWW 200.7 (1982)
200 (AA)
206.2 (As/Se)
SM 3030C (NC)
Other

TNL TEP

COC Batch #	Spike Vol(s) (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/So/TC	Texture	Color/Appearance	Artifact	Turb
0804L929-001		1.21	100mL	NA	TOT	Fine	BROWN	NA	NA
~~TCMP0PS~~ 001R		1.09							
* 001S	1.0	1.26							
0804L930-001		1.10					OILY/BLACK		
001R		1.15							
* 001S	1.0	1.11							
0804L931-001		1.16					BROWN		
002		1.47							
002R		1.29							
** 002S	1.0	1.50							
003		1.21							
0804L932-001		1.72							
001R		1.60							
001S	1.0	1.93							
002		1.05							
003		1.15							
004		1.22							
005		1.30							
08L0174-MB1		1.0				NA	Clean		
* ** LC1	1.0								

TEP 4/30/08

Spiking IDs:
MS #: 8103-004-01
02
03
6072-78-07
LCS #: 08
09
10
11

Reagent IDs:
HNO_3 E46025
HCL E45047
H_2O_2 E44206
1:1 HNO_3 9789-077-04
1:1 HCL

File ID#: IC017401, IC017402, IC017403, IC017404

LIMS Transfer: Y N Updated

Data Review By/Date: PMP, 04/30/08

* Also spiked w/ 0.5 mL Zr: 6072-076-05

** Also spiked w/ 0.5 mL Bi: 6072-076-06, Pb: 6072-076-07, Zn: 6072-076-08 TEP 4/30/08

L-SPI-3020-A-0601

Lionville Laboratory Incorporated

Logbook #: 440

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0180
Date/Time Initiated: 5/2/08 1245
Date/Time Completed: 5/2/08
Analyst(s): UA
Matrix: Soil (Water) Other:
Instr. Type: AA (ICP)
Parameters: Pb/Cr

(Digested) / Undigested (circle one)
Balance #: NA
Balance Cal Verif: Y (NA)
Hot Plate Temp: 94°

Method: SW (circle)
3005A
(3010A)
3015
3020A
7060A (As/Se)
7760A (Ag)
3050B
3051
CLP ILMO3.0
ILMO4.0

DW 200.7 (1994)
200.9
3113B
MCAWW 200.7 (1982)
200 (AA)
206.2 (As/Se)
SM 3030C (NC)
Other

TNL

COC Batch #	Spike Vol(s) (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/So/TC	Texture	Color/Appearance	Artifact	Turb
08041L929-002		100	100	<2	TC	NA	clear	NA	NA
002R									
002S	1.0								
08041L989-003									
003R									
003S	1.0								
004									
08041L991-002		50	50					limited	vol.
002R									
* 002S	1.0								
08041L976-002		100	100					NA	NA
002R									
002S	1.0								
08041L019-005							yellow/clear		
005R									
005S	1.0								
006									
007									
008									
08L0180-MB1							Clear		
MB2									
MB3									
LC1	1.0								
				Ken 5/2/08					

Spiking IDs:
MS #: 60728-77-05
78-06

LCS #: 60728-78-08
09
10
11

Reagent IDs:
HNO_3 E46025
HCL
H_2O_2
1:1 HNO_3
1:1 HCL 60728-069-03

File ID#: IC018001
LIMS Transfer: (Y) N Updated
Data Review By/Date:
PMP, 05/05/08

* spiked w/ 1.0mL of TCLP spike & 0.5mL Ba spike

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MERCURY PREPARATION

Logbook # 422

t: CRB
5/1/08
ime/Temp: 1315 | 98°
me/Temp: 1515 | 98°

Instrument ID: HG3.1
Balance #: (NA)
Pipette Calibration (Daily) Y ✓

Prep Batch: 08C0077
Worksheet: HL050101
SOP No. ME-HgCVAA, Rev. 02

pH < 2 for Liquids? ✓ Yes __ No (If no: designate affected samples in Comments column, and initiate an SDR)

NOTE: The Inital/Final Volume for water samples = 33mL, unless otherwise noted.
The Final volume for soil samples = 50mL, unless otherwise noted.

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
Blank	JI			33mL	33mL	
0.2 µg/L	A27	0.0667				
1.0	PC	0.334				
2.0	BLV	0.667				
5.0	508	1.667				
10.0	A1	3.334				
ICV	194	0.0834	2.5			
CCV	B14	0.167	5.0			
ICB/CCB	K17					
MB1	R					PBW177
LC1	A901	0.167	5.0			LCSW177
08041002-001	WK					
001R	573					
001S	ET	0.334	1.0			
08041998-004	76					
004R	154					
004S	R2	0.334	1.0			
009	AP					
014	X0					
08041023-004	CM					
08041020-006	L53					
017	71L					
08041958-004	P18					
004S	297	0.667	2.00			
005	857					
006	N60					
08041929-002	A1R					

rd:	ID	Prep Date/Time
MS	R16077-78-14B	5/1/08 1105
CV/LCS	4S6072-78-15A	I

Reviewed By/Date: [signature] 5/7/08

see book # 9368 for std traceability information

S =US Metals in soil No.3; True Value = 4.70 mg/Kg
lue #1RM-021, Lot # E021

Water Matrix Spiking Solution Concentration = 0.1 µg/ml
Water LCS Spiking Concentration: 1.0 µg/ml

CVAA-Prep1007

Page #:

000000022

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ɔorporated

MERCURY PREPARATION

Logbook # 422

alyst: RB
te: 5/1/08
rt Time/Temp:
d Time/Temp: see page 090

Instrument ID: HG3.1
Balance #: NA
Pipette Calibration (Daily) Y ✓

Prep Batch: 08C0077
Worksheet: HG050101
SOP No. ME-HgCVAA, Rev. 02

pH < 2 for Liquids? ✓ Yes __ No (If no: designate affected samples in Comments column, and initiate an SDR)

NOTE: The Inital/Final Volume for water samples = 33mL, unless otherwise noted.
The Final volume for soil samples = 50mL, unless otherwise noted.

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
08041929-002R	H5			33mL	33mL	
002S	BG	0.667	200			
08041989-003	JS					
003R	5T					
003S	95	0.667	200			
004	S					
08041991-002	HW			16.5mL		limit's vol
002R	55					
002S	TR	0.667	200			
08041976-002	3T			33mL		
002R	PT					
002S	KX	0.667	200			
08LT0032-LB1	F8					
08LT0034-LB1	I4					
TEZ 5/1/08						

5/2/08

ndard:	ID	Prep Date/Time
/MS		
CCV/LCS	See page 090	

Reviewed By/Date: [signature] 5/7/08

see book # 9368 for std traceability information

.CS =US Metals in soil No.3; True Value = 4.70 mg/Kg
ɔgue #1RM-021, Lot # E021

Water Matrix Spiking Solution Concentration = 0.1 µg/ml
Water LCS Spiking Concentration: 1.0 µg/ml

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MERCURY PREPARATION

Logbook # 422

ıalyst: TEB
ate 4/18/08
art Time/Temp: 1410 | 95°
ıd Time/Temp: 1440 | 97°

Instrument ID HG3.1|3.2
Balance #: B29 /NA
Pipette Calibration (Daily) Y ✓

Prep Batch: 08C0072
Worksheet: HG041801/02
SOP No. ME-HgCVAA, Rev. 02

pH < 2 for Liquids? __ Yes NA No (If no: designate affected samples in Comments column, and initiate an SDR)

NOTE: The Inital/Final Volume for water samples = 33mL, unless otherwise noted.
The Final volume for soil samples = 50mL, unless otherwise noted.

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
Blank	205			10mL	50mL	
0.2 µg/L	Z4	0.100				
1.0	DR	0.500				
2.0	X3	1.000				
5.0	BB	2.500				
10.0	B32	5.000				
ICV	G7	0.125	2.5			
CCV	IV	0.250	5.0			
ICB|CCB	I94					90.20
MB1	416			0.30		PBS172 100.00
LC1	537	*	*	0.30		LCSS172
0804L813-001	X5			0.33		93.75
001R	114			0.34		
001S	5H	0.500	1.0	0.33		
0804L920-001	C9			0.30		R 100.00
001R	A9			0.32		
001S	OLN	0.500	1.0	0.30		
0804L904-001	B6			0.33		91.07
002	JB			0.40		96.96
003	PA			0.38		92.75
004	194			0.34		R 95.91
005	KX			0.32		97.05
006	BG			0.38		97.65
0804L900-001	X0			0.35		100.00
001R	GTK			0.39		
001S	40	0.500	1.0	0.35		
002	3P			0.35		

Standard:	ID	Prep Date/Time
ICAL/MS	R16072-75-07B	4/18/08 1130
ICV/CCV/LCS	US 6071-75-08A	

Reviewed By/Date: [signature] 4/22/08

see book # 736Y for std traceability information

Soil LCS =US Metals in soil No.3; True Value = 4.70 mg/Kg
Catalogue #1RM-021, Lot # E021

Water Matrix Spiking Solution Concentration = 0.1 µg/ml
Water LCS Spiking Concentration: 1.0 µg/ml

ille Laboratory
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MERCURY PREPARATION

Logbook # 422

t: TLB
4/18/08
Time/Temp: see page
ime/Temp: 080

Instrument ID: HG3.1
Balance #: B29 /NA
Pipette Calibration (Daily) Y ✓

Prep Batch: 08C0072
Worksheet: HG041802
SOP No. ME-HgCVAA, Rev. 02

pH < 2 for Liquids? __ Yes NA No (If no: designate affected samples in Comments column, and initiate an SDR)

NOTE: The Inital/Final Volume for water samples = 33mL, unless otherwise noted.
The Final volume for soil samples = 50mL, unless otherwise noted.

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
0804L905-001	H			0.37	50mL	R 93.49
001R	NB			0.34		
001S	AR	0.500	1.0	0.37		
001T	RZ	0.500	1.0	0.30		
002	508			0.35		97.84
003	3T			0.35		96.53
0804L911-001	92			0.31		96.82
002	PF			0.34		88.64
0804L929-001	OF			0.30		R 100.00
001R	290			0.32		
001S	DY	0.500	1.0	0.30		
0804L930-001	CB			0.34		
001R	WO			0.33		
001S	HR	0.050	10.0	0.34		
0804L931-001	AN			0.34		
002	H3			0.33		
002R	997			0.36		
002S	BZ	0.500	1.0	0.33		
003	461			0.38		

TLB 4/18/08

Standard:	ID	Prep Date/Time
CAL/MS		
CV/CCV/LCS	see page 080	

Reviewed By/Date: [signature] 4/22/08

see book # 1368 for std traceability information

oil LCS =US Metals in soil No.3; True Value = 4.70 mg/Kg
Catalogue #1RM-021, Lot # E021

Water Matrix Spiking Solution Concentration = 0.1 µg/ml
Water LCS Spiking Concentration: 1.0 µg/ml

ME-HgCVAA-Prep1007

Page #:

nville Laboratory Use Only

)8041929

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

nt TNU Hanford RC-073

Final Proj. Sampling Date

ect# 11343-606-001-9999-00

ect Contact/Phone#

ville Laboratory Project Manager Charlotte Johnson

SW846 Del STD TAT 15 Days

e Rec'd 4-16-08 Date Due 5-1-08

		A	B						C							
Refrigerator #		6	3						3							
#/Type Container	Liquid															
	Solid	1gl	1gl						1gl							
Volume	Solid	60	60						60							
Preservatives		–	–													
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/ PCB	Herb				(1) Metal Hg	CN	(2) TCLP metals + Hg					
		Lionville Laboratory Use Only														
		062444	062544						Metal	ICP TO	TCLP	Ignitability Reactivity		MERCURY		

RIX ES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected														
Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP Leachate, Wipe, Other, Fish	001	J16M75	✓	✓	SO	4-9-08	1352	X	X					X	X	X	X		X		
	002	↳ TCLP of 001			L	**													X		

ecial Instructions:

Metal ① = HSL + B, Mo, S; NO TL

Special Instructions:

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

** See Lab chron

Relinquished by	Received by	Date	Time
FedEx	[signature]	4-16-08	0945

Relinquished by	Received by	Date	Time

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

000000026

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-073-039	Page 1 of 1

ollector D.W.Shea	Company Contact D.W.Shea	Telephone No. 521-6014	Project Coordinator KESSNER, JH
olect Designation 100-D/DR Burial Grounds & Remaining Sites - Other Solid Q	Sampling Location 118-D-3, black powder anomaly, 100D-AN-08-0		SAF No. RC-073
e Chest No. RCC-07-001	Field Logbook No. EL-1607-3	COA R118D32600	Method of Shipment Fed Ex
ipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. RSR See QPSC		Bill of Lading/Air Bill No. see RSR

Price Code: 9K

Data Turnaround: 15 days

000000027

OSSIBLE SAMPLE HAZARDS/REMARKS

idioactive

pecial Handling and/or Storage

Preservation	Cool 4C	None	Cool 4C	Cool 4C	None						
Type of Container	G/P	G	aG	G	G/P						
No. of Container(s)	1	1/2	1	1	1						
Volume	60mL	60mL	60mL	60mL	60mL						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (3) in Special Instructions.						

MWS 4/9/08

Sample No.	Matrix *	Sample Date	Sample Time										
6M75	OTHER SOLID	4/9/08	1352	✓	✓	✓	✓	✓					

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
WShea DWShea	4/9/08 1802	Fed Ex IB	4/9/08 1802
160/IB	4/15/08 0815	MLSTankovich	4/15/08 0815
MLSTankovich	4/15/08 1800	Fed Ex	
Fed Ex	4/16/08 0945		4/16/08 0945

SPECIAL INSTRUCTIONS

perform other analyses before performing TCLP extraction

4/15/08

(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}; ICP Metals - 6010A (Add-on) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7470 - (CV) {Mercury}; TOX - 9020; Total Cyanide - 9010

(2) Metals by ICP (TCLP) - 1311/6010 {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury (TCLP) - 1311/7470 {Mercury}

(3) Gamma Spectroscopy (TCL List): Gamma Spec - Add-on {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Silver-108 metastable, Sodium-22}; Carbon-14; Tritium - H3; Nickel-63; Strontium-89,90 -- Total Sr; Isotopic Plutonium; Gross Alpha; Gross Beta; Technetium-99; RCF GEA Shipping Screen {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

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

HH-EE-011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford
Project/SAF/SOW/Release #: RC-073

Date: 4-16-08

LvLI Batch #: 08041929

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7989 2061 6125
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 plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 1.8	°C	Cooler # RCC-07-001
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A
Person Contacted _____		Date _____	

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