0078357

SAF-RC-074
100-D/DR Burial Grounds & Remaining Sites – Soil Quick Turn
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 7/1/08
INITIAL/DATE

COMMENTS:

SDG K1231 SAF RC-074

Rad only Chem only X Rad & Chem

X Complete Partial

Waste Sites: Post remediation at 100-D-31:2

RECEIVED
JUL 07 2008
EDMC

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
2030 Wright Avenue
Richmond, California 94804-3849
Phone (510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
www.eberlineservices.com

June 10, 2008

RECEIVED
JUN 2008

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

Reference: **P.O. #33677**
Eberline Services R8-05-184-7822, SDG K1231

Dear Ms. Kessner:

Enclosed is the data report for two solid (soil) samples designated under SAF No. RC-074 received at Eberline Services on May 23, 2008. The samples were analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

Melissa Mannion

Melissa C. Mannion
Senior Program Manager

MCM/njv

Enclosure: Data Package

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K1231 was composed of two solid (soil) samples designated under SAF No. RC-074 with a Project Designation of: 100-D/DR Burial Grounds & Remaining Sites-Soil Quick Turn.

The samples were received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to WCH via e-mail on June 10, 2008.

2.0 ANALYSIS NOTES

2.1 Gross Alpha/Gross Beta Analysis

No problems were encountered during the course of the analyses.

2.2 Carbon-14 Analysis

No problems were encountered during the course of the analyses.

2.3 Gamma Spectroscopy

The relative percent difference in the original and duplicate Th-228 results was 23%, greater than the protocol control limit of 21%; the DER was 3.4. No other problems were encountered during the course of the analyses.

3.0 Case Narrative Certification Statement

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

Melissa Mannion — 06/10/08

Melissa C. Mannion
Senior Program Manager

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 K1231

SDG	7822
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. S00W235A00
Case no	SDG_K1231

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	06/10/08

SDG 7822
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1231

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 06/10/08

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 K1231

SDG 7822
Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1231

AB AMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
105184-01	J16W65	Post remedtn 100-D-31:2	SOLID		RC-074	RC-074-073	05/21/08 10:17
105184-02	J16W67	Post remedtn 100-D-31:2	SOLID		RC-074	RC-074-073	05/21/08 14:20
105184-03	Lab Control Sample		SOLID		RC-074		
105184-04	Method Blank		SOLID		RC-074		
105184-05	Duplicate (R805184-01)	Post remedtn 100-D-31:2	SOLID		RC-074		05/21/08 10:17

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 06/10/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1231

SDG 7822
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1231

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
2	RC-074-073	J16W65	SOLID	95.7	777 g		05/23/08	2	R805184-01	7822-001
		J16W67	SOLID	95.4	714 g		05/23/08	2	R805184-02	7822-002
		Method Blank	SOLID						R805184-04	7822-004
		Lab Control Sample	SOLID						R805184-03	7822-003
		Duplicate (R805184-01)	SOLID	95.7	777 g		05/23/08	2	R805184-05	7822-005

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 06/10/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1231

SDG 7822
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1231

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Gas Proportional Counting												
93A	SOLID	Gross Alpha in Solids	6148-153	20.6	2			1	1	1/1		
93B	SOLID	Gross Beta in Solids	6148-153	11.0	2			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6148-153	7.0	2			1	1	1/1		
Liquid Scintillation Counting												
C	SOLID	Carbon 14 in Solids	6148-153	10.0	2			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 06/10/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1231

SDG 7822
:ontact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1231

SAMPLE ›LLECTED :ECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
›184-01	J16W65			7822-001	93A/93		06/04/08	06/05/08	BW	Gross Alpha in Solids
›5/21/08	Post remedtn 100-D-31:2		SOLID	7822-001	93B/93		06/04/08	06/05/08	BW	Gross Beta in Solids
›5/23/08	RC-074-073	RC-074		7822-001	C		06/03/08	06/09/08	BW	Carbon 14 in Solids
				7822-001	GAM		05/29/08	06/03/08	CSS	Gamma Scan
›184-02	J16W67			7822-002	93A/93		06/05/08	06/05/08	BW	Gross Alpha in Solids
›5/21/08	Post remedtn 100-D-31:2		SOLID	7822-002	93B/93		06/05/08	06/05/08	BW	Gross Beta in Solids
›5/23/08	RC-074-073	RC-074		7822-002	C		06/03/08	06/09/08	BW	Carbon 14 in Solids
				7822-002	GAM		05/29/08	06/03/08	CSS	Gamma Scan
›184-03	Lab Control Sample			7822-003	93A/93		06/04/08	06/05/08	BW	Gross Alpha in Solids
			SOLID	7822-003	93B/93		06/04/08	06/05/08	BW	Gross Beta in Solids
		RC-074		7822-003	C		06/03/08	06/09/08	BW	Carbon 14 in Solids
				7822-003	GAM		05/29/08	06/03/08	CSS	Gamma Scan
›184-04	Method Blank			7822-004	93A/93		06/04/08	06/05/08	BW	Gross Alpha in Solids
			SOLID	7822-004	93B/93		06/04/08	06/05/08	BW	Gross Beta in Solids
		RC-074		7822-004	C		06/03/08	06/09/08	BW	Carbon 14 in Solids
				7822-004	GAM		05/29/08	06/03/08	CSS	Gamma Scan
›184-05	Duplicate (R805184-01)			7822-005	93A/93		06/04/08	06/05/08	BW	Gross Alpha in Solids
›5/21/08	Post remedtn 100-D-31:2		SOLID	7822-005	93B/93		06/04/08	06/05/08	BW	Gross Beta in Solids
›5/23/08		RC-074		7822-005	C		06/03/08	06/09/08	BW	Carbon 14 in Solids
				7822-005	GAM		05/29/08	06/03/08	CSS	Gamma Scan

COUNTS OF TESTS BY SAMPLE TYPE

:ST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
:A/93	RC-074	Gross Alpha in Solids	900.0_ALPHABETA_GPC	2			1	1	1	5
:B/93	RC-074	Gross Beta in Solids	900.0_ALPHABETA_GPC	2			1	1	1	5
	RC-074	Carbon 14 in Solids	C14_COX_LSC	2			1	1	1	5
:M	RC-074	Gamma Scan	GAMMA_GS	2			1	1	1	5
›TALS				8			4	4	4	20

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 06/10/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1231

7822-004 Method Blank

METHOD BLANK

SDG	7822	Client/Case no	Hanford	SDG_K1231	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R805184-04	Client sample id	Method Blank		
Dept sample id	7822-004	Material/Matrix		SOLID	
		SAF No	RC-074		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-1.58	2.0	6.10	10.0	U	93A
Gross Beta	12587-47-2	0.332	3.2	5.51	15.0	U	93B
Carbon 14	14762-75-5	-2.43	2.9	4.96	50.0	U	C
Potassium 40	13966-00-2	U		0.450		U	GAM
Cobalt 60	10198-40-0	U		0.027	0.050	U	GAM
Cesium 137	10045-97-3	U		0.040	0.100	U	GAM
Radium 226	13982-63-3	U		0.044	0.100	U	GAM
Radium 228	15262-20-1	U		0.103	0.200	U	GAM
Europium 152	14683-23-9	U		0.061	0.100	U	GAM
Europium 154	15585-10-1	U		0.076	0.100	U	GAM
Europium 155	14391-16-3	U		0.054	0.100	U	GAM
Thorium 228	14274-82-9	U		0.035		U	GAM
Thorium 232	TH-232	U		0.103		U	GAM
Uranium 235	15117-96-1	U		0.087		U	GAM
Uranium 238	U-238	U		2.75		U	GAM
Americium 241	14596-10-2	U		0.090		U	GAM
Silver 108m	14391-65-2	U		0.019		U	GAM

100D/DR BurialGrnd&RemainSite-SoilQT

QC-BLANK #65842

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/10/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1231

7822-003

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7822

Contact Melissa C. Mannion

Client/Case no Hanford SDG K1231

Contract No. S00W235A00

Lab sample id R805184-03

Dept sample id 7822-003

Client sample id Lab Control Sample

Material/Matrix SOLID

SAF No RC-074

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	107	17	5.45	10.0		93A	102	4.1	105	59-141	70-130
Gross Beta	100	8.8	8.99	15.0		93B	93.2	3.7	107	77-123	80-120
Carbon 14	1970	19	4.72	50.0		C	2130	85	92	85-115	80-120
Cobalt 60	1.61	0.068	0.038	0.050		GAM	1.69	0.068	95	87-113	80-120
Cesium 137	1.89	0.071	0.050	0.100		GAM	1.83	0.073	103	86-114	80-120

100D/DR BurialGrnd&RemainSite-SoilQT

QC-LCS #65841

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 06/10/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1231

7822-005 J16W65

DUPLICATE

SDG	7822			Client/Case no	Hanford SDG K1231
Contact	Melissa C. Mannion			Contract	No. S00W235A00
	DUPLICATE		ORIGINAL		
Lab sample id	R805184-05	Lab sample id	R805184-01	Client sample id	J16W65
Dept sample id	7822-005	Dept sample id	7822-001	Location/Matrix	Post remedtn 100-D-31:2 SOLID
		Received	05/23/08	Collected/Weight	05/21/08 10:17 777 g
% solids	95.7	% solids	95.7	Custody/SAF No	RC-074-073 RC-074

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	15.8	6.9	5.76	10.0		93A	19.3	7.4	6.53		20	97	0.6
Gross Beta	20.3	4.8	6.29	15.0		93B	19.1	4.3	5.73		6	54	0.3
Carbon 14	0	2.3	3.88	50.0	U	C	-2.38	2.2	3.93	U	-		1.5
Potassium 40	8.31	0.39	0.176			GAM	8.80	0.56	0.287		6	19	0.9
Cobalt 60	U		0.020	0.050	U	GAM	U		0.033	U	-		0.7
Cesium 137	U		0.024	0.100	U	GAM	U		0.028	U	-		0.2
Radium 226	0.376	0.038	0.037	0.100		GAM	0.402	0.066	0.057		7	33	0.6
Radium 228	0.487	0.090	0.089	0.200		GAM	0.522	0.12	0.119		7	47	0.4
Europium 152	U		0.046	0.100	U	GAM	U		0.068	U	-		0.5
Europium 154	U		0.065	0.100	U	GAM	U		0.096	U	-		0.5
Europium 155	U		0.048	0.100	U	GAM	U		0.057	U	-		0.2
Thorium 228	0.586	0.035	0.035			GAM	0.464	0.035	0.034		23	21	3.4
Thorium 232	0.487	0.090	0.089			GAM	0.522	0.12	0.119		7	47	0.4
Uranium 235	U		0.077		U	GAM	U		0.110	U	-		0.5
Uranium 238	U		2.37		U	GAM	U		3.57	U	-		0.6
Americium 241	U		0.083		U	GAM	U		0.035	U	-		1.1
Silver 108m	U		0.015		U	GAM	U		0.020	U	-		0.4

.00D/DR BurialGrnd&RemainSite-SoilQT

)C-DUP#1 65843

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	06/10/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1231

7822-001 J16W65

DATA SHEET

SDG	7822	Client/Case no	Hanford	SDG_K1231
Contact	Melissa C. Mannion	Contract	No. S00W235A00	
Lab sample id	R805184-01	Client sample id	J16W65	
Dept sample id	7822-001	Location/Matrix	Post remedtn 100-D-31:2	SOLID
Received	05/23/08	Collected/Weight	05/21/08 10:17	777 g
% solids	95.7	Custody/SAF No	RC-074-073	RC-074

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	19.3	7.4	6.53	10.0		93A
Gross Beta	12587-47-2	19.1	4.3	5.73	15.0		93B
Carbon 14	14762-75-5	-2.38	2.2	3.93	50.0	U	C
Potassium 40	13966-00-2	8.80	0.56	0.287			GAM
Cobalt 60	10198-40-0	U		0.033	0.050	U	GAM
Cesium 137	10045-97-3	U		0.028	0.100	U	GAM
Radium 226	13982-63-3	0.402	0.066	0.057	0.100		GAM
Radium 228	15262-20-1	0.522	0.12	0.119	0.200		GAM
Europium 152	14683-23-9	U		0.068	0.100	U	GAM
Europium 154	15585-10-1	U		0.096	0.100	U	GAM
Europium 155	14391-16-3	U		0.057	0.100	U	GAM
Thorium 228	14274-82-9	0.464	0.035	0.034			GAM
Thorium 232	TH-232	0.522	0.12	0.119			GAM
Uranium 235	15117-96-1	U		0.110		U	GAM
Uranium 238	U-238	U		3.57		U	GAM
Americium 241	14596-10-2	U		0.035		U	GAM
Silver 108m	14391-65-2	U		0.020		U	GAM

100D/DR BurialGrnd&RemainSite-SoilQT

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/10/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1231

7822-002 J16W67

DATA SHEET

SDG	7822	Client/Case no	Hanford	SDG K1231	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R805184-02	Client sample id	J16W67		
Dept sample id	7822-002	Location/Matrix	Post remedtn 100-D-31:2	SOLID	
Received	05/23/08	Collected/Weight	05/21/08 14:20	714 g	
% solids	95.4	Custody/SAF No	RC-074-073	RC-074	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	20.9	8.7	7.23	10.0		93A
Gross Beta	12587-47-2	16.7	4.4	5.92	15.0		93B
Carbon 14	14762-75-5	0.429	2.2	3.72	50.0	U	C
Potassium 40	13966-00-2	9.48	0.48	0.182			GAM
Cobalt 60	10198-40-0	U		0.023	0.050	U	GAM
Cesium 137	10045-97-3	U		0.024	0.100	U	GAM
Radium 226	13982-63-3	0.336	0.045	0.046	0.100		GAM
Radium 228	15262-20-1	0.530	0.093	0.088	0.200		GAM
Europium 152	14683-23-9	U		0.068	0.100	U	GAM
Europium 154	15585-10-1	U		0.072	0.100	U	GAM
Europium 155	14391-16-3	U		0.071	0.100	U	GAM
Thorium 228	14274-82-9	0.479	0.034	0.034			GAM
Thorium 232	TH-232	0.530	0.093	0.088			GAM
Uranium 235	15117-96-1	U		0.115		U	GAM
Uranium 238	U-238	U		2.61		U	GAM
Americium 241	14596-10-2	U		0.069		U	GAM
Silver 108m	14391-65-2	U		0.018		U	GAM

100D/DR BurialGrnd&RemainSite-SoilQT

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/10/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1231

Test 93A Matrix SOLID
SDG 7822
:ontact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS ALPHA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1231

SULTS

'LE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha
aration batch 6148-153					
;184-01	93		7822-001	J16W65	19.3
;184-02	93		7822-002	J16W67	20.9
;184-03	93		7822-003	Lab Control Sample	ok
;184-04	93		7822-004	Method Blank	U
;184-05	93		7822-005	Duplicate (R805184-01)	ok

nal values and limits from method RDLs (pCi/g) 10.0
)/DR BurialGrnd&RemainSite-SoilQT

THOD PERFORMANCE

'LE 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
aration batch 6148-153			2σ prep error 20.6 % Reference Lab Notebook #6148, pg. 153													
;184-01	93		J16W65	6.53	0.100			60		100			14	06/02/08	06/04	GRB-211
;184-02	93		J16W67	7.23	0.100			86		100			15	06/02/08	06/05	GRB-209
;184-03	93		Lab Control Sample	5.45	0.100			62		100				06/02/08	06/04	GRB-107
;184-04	93		Method Blank	6.10	0.100			62		100				06/02/08	06/04	GRB-109
;184-05	93		Duplicate (R805184-01)	5.76	0.100			59		100			14	06/02/08	06/04	GRB-110
nal values and limits from method				10.0	0.100			5-250		100			180			

:OCEDURES 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 MDA 6.21 ± 1.39
FOR 5 SAMPLES RESIDUE 66 ± 23

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 06/10/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1231

Test 93B Matrix SOLID
SDG 7822
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS BETA IN SOLIDS
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1231

SULTS

PLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta
paration batch 6148-153					
5184-01	93		7822-001	J16W65	19.1
5184-02	93		7822-002	J16W67	16.7
5184-03	93		7822-003	Lab Control Sample	ok
5184-04	93		7822-004	Method Blank	U
5184-05	93		7822-005	Duplicate (R805184-01)	ok
nal values and limits from method				RDLs (pCi/g)	15.0
)/DR BurialGrnd&RemainSite-SoilQT					

THOD PERFORMANCE

PLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
paration batch 6148-153			2σ prep error 11.0 % Reference Lab Notebook #6148, pg. 153													
184-01	93		J16W65	5.73	0.100			60		100			14	06/02/08	06/04	GRB-211
184-02	93		J16W67	5.92	0.100			86		100			15	06/02/08	06/05	GRB-209
184-03	93		Lab Control Sample	8.99	0.100			62		100				06/02/08	06/04	GRB-107
184-04	93		Method Blank	5.51	0.100			62		100				06/02/08	06/04	GRB-109
184-05	93		Duplicate (R805184-01)	6.29	0.100			59		100			14	06/02/08	06/04	GRB-110
nal values and limits from method				15.0	0.100			5-250		100			180			

OCEDURES	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 5 SAMPLES
MDA 6.49 ± 2.86
RESIDUE 66 ± 23

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 06/10/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1231

Test GAM Matrix SOLID
SDG 7822
:ontact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1231

SULTS

›LE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60		Cesium 137	
›aration batch 6148-153								
;184-01			7822-001	J16W65	U		U	
;184-02			7822-002	J16W67	U		U	
;184-03			7822-003	Lab Control Sample	ok		ok	
;184-04			7822-004	Method Blank	U		U	
;184-05			7822-005	Duplicate (R805184-01)	-	U	-	U
.nal values and limits from method				RDLs (pCi/g)	0.050		0.100	
›/DR BurialGrnd&RemainSite-SoilQT								

THOD PERFORMANCE

›LE 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
›aration batch 6148-153			2σ prep error 7.0 %	Reference Lab Notebook #6148, pg. 153												
;184-01			J16W65	6.75	257					371			8	05/28/08	05/29	JR,07,00
;184-02			J16W67	6.04	259					370			8	05/28/08	05/29	JR,02,00
;184-03			Lab Control Sample	0.038	256					371				05/28/08	05/29	JR,04,00
;184-04			Method Blank	5.78	256					371				05/28/08	05/29	JR,05,00
;184-05			Duplicate (R805184-01)	4.11	257					1064			8	05/28/08	05/29	JR,05,00
.nal values and limits from method				0.050	256					100			180			

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

AVERAGES ± 2 SD MDA 4.54 ± 5.40
FOR 5 SAMPLES YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 06/10/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1231

Test C Matrix SOLID
SDG 7822
:ontact Melissa C. Mannion

LAB METHOD SUMMARY

CARBON 14 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1231

SULTS

'LE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Carbon 14	
aration batch 6148-153						
184-01			7822-001	J16W65	U	
184-02			7822-002	J16W67	U	
184-03			7822-003	Lab Control Sample	ok	
184-04			7822-004	Method Blank	U	
184-05			7822-005	Duplicate (R805184-01)	-	U

nal values and limits from method RDLs (pCi/g) 50.0
)/DR BurialGrnd&RemainSite-SoilQT

THOD PERFORMANCE

'LE 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
aration batch 6148-153			2σ prep error 10.0 % Reference Lab Notebook #6148, pg. 153													
184-01			J16W65	3.93	0.373			100		50			13	06/02/08	06/03	LSC-006
184-02			J16W67	3.72	0.387			100		50			13	06/02/08	06/03	LSC-006
184-03			Lab Control Sample	4.72	0.300			100		50				06/02/08	06/03	LSC-006
184-04			Method Blank	4.96	0.300			100		50				06/02/08	06/03	LSC-006
184-05			Duplicate (R805184-01)	3.88	0.372			100		50			13	06/02/08	06/03	LSC-006
nal values and limits from method				50.0	0.300					10			180			

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

AVERAGES ± 2 SD MDA 4.24 ± 1.12
FOR 5 SAMPLES YIELD 100 ± 0

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 06/10/08

SDG 7822
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1231

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 06/10/08

SDG 7822
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1231

PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

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

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

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

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

  These qualifiers should be reviewed as follows:

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

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

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

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

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Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/10/08

SDG 7822
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1231

WORK SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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SDG 7822
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1231

DATA SHEET

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

The following notes apply to this report:

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

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

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

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

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

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

The following qualifiers are defined by the DVD system:

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
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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 7822
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG_K1231

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 06/10/08

SDG 7822
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1231

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 06/10/08

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.

DUPLICATE

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

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

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

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

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

SDG 7822
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1231

MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/10/08

MATRIX SPIKE

for the recovery.

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

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

METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

  MDAs are underlined if greater than the printed RDL.

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-074-073	Page 1 of 1
Collector: D.W. Shea/Sub-contractor SEC D. Rios	Company Contact: D.W.Shea; Telephone No.: 521-6014	Project Coordinator: KESSNER, JH	Price Code: 8K; Data Turnaround: 15 days
Project Designation: 100-D/DR Burial Grounds & Remaining Sites - Soil Quick Tu	Sampling Location: post remediation at 100-D-31:2 K1231 (7822)	SAF No.: RC-074	
Ice Chest No.	Field Logbook No.: EL-1607-3; COA: R00D312600	Method of Shipment: Fed Ex	
Shipped To: SBERLINE SERVICES / LIONVILLE	Offsite Property No.: See OPSC A080259	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	Cool 4C	None	None	None					
Type of Container	G/P	aG	aG	G/P	G/P	G/P					
No. of Container(s)	1	1	1	1	1 DWS 5/21/08	1					
Volume	60mL	60mL	60mL	500mL	5g	60mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions.	Gross Alpha; Gross Beta	Carbon-14; ~~Tritium-3H~~ DWS 5/21/08					

Sample No.	Matrix *	Sample Date	Sample Time										
J16W65	SOIL	5-21-08	1017				✓	✓	✓				
~~J16W66~~	~~SOIL~~		~~5-21-08 DWS~~										
J16W67	SOIL	5-21-08	1420				✓	✓	✓				

CHAIN OF POSSESSION — 5-21-08 DWS — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
J.D. Rios	~~1525~~ 5-21-08 1431	DWShea DWSHEA	5/21/08 1431
DWShea DWSHEA	5/21/08 1708	Fridge 3A	5/21/08 1708
Fridge 3A	5-22-08 0745	JRDeBruijne JRDB	5-22-08 0745
JRDeBruijne JRDB	5-22-08 0820	Fed Ex	
Fed Ex		Fed Ex	05/23/08 10:15

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc} and Hgvia CVAA

(2) Gamma Spec - Add-on {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, ~~Silver-108 metastable, Sodium-22~~} DWShea 5/20/08

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

RTC

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

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

WCH-EE-011

EBERLINE

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Client: W.C. HANFORD City RICHLAND State WA

Date/Time received 05/23/08 10:15 CoC No. RC-074-073

Container I.D. No. ERC-01-061 Requested TAT (Days) 15 P.O. Received Yes [ ] No [X]

INSPECTION

1. Custody seals on shipping container intact? Yes [X] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [X] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [X] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [X] No [ ] N/A [ ]
5. Packing material is: Wet [ ] Dry [X]
6. Number of samples in shipping container: 2 Sample Matrix S
7. Number of containers per sample: 2 (Or see CoC _____)
8. Samples are in correct container Yes [X] No [ ]
9. Paperwork agrees with samples? Yes [X] No [ ]
10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [X]
11. Samples are: In good condition [X] Leaking [ ] Broken Container [ ] Missing [ ]
12. Samples are: Preserved [ ] Not preserved [ ] pH _____ Preservative _____
13. Describe any anomalies:
14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
15. Inspected by [signature] Date: 05/23/08 Time: 11:00

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

Ion Chamber Ser. No. _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

Beta/Gamma Meter Ser. No. 113722 Calibration date 13 SEP 08

LvLI
LIONVILLE LABORATORY INC.

RECEIVED
JUN 2008

1 July 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 #	0805L185
SDG #	K1231
SAF #	RC-074
Date Received	5/23/08
# Samples	2
Matrix	SOIL
Volatiles	
Semivolatiles	X
Pest/PCB	X
Glycols	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	

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

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

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

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

RECEIVED
JUN 2008

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-074 K1231

DATE RECEIVED: 05/23/08 LVL LOT # :0805L185

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16W65						
SILVER, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/05/08
SILVER, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/05/08
SILVER, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/05/08
ALUMINUM, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/03/08
ALUMINUM, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/03/08
ALUMINUM, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/03/08
ARSENIC, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/05/08
ARSENIC, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/05/08
ARSENIC, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/05/08
BORON, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/05/08
BORON, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/05/08
BORON, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/05/08
BARIUM, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/05/08
BARIUM, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/05/08
BARIUM, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/05/08
BERYLLIUM, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/05/08
BERYLLIUM, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/05/08
BERYLLIUM, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/05/08
BISMUTH, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/05/08
BISMUTH, TOTAL REP	001 REP	S	08L0216	05/21/08	05/30/08	06/05/08
BISMUTH, TOTAL SPIKE	001 MS	S	08L0216	05/21/08	05/30/08	06/05/08
CALCIUM, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/03/08
CALCIUM, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/03/08
CALCIUM, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/03/08
CADMIUM, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/05/08
CADMIUM, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/05/08
CADMIUM, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/05/08
COBALT, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/05/08
COBALT, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/05/08
COBALT, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/05/08
CHROMIUM, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/05/08
CHROMIUM, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/05/08
CHROMIUM, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/05/08
COPPER, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/03/08
COPPER, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/03/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-074 K1231

DATE RECEIVED: 05/23/08 LVL LOT # :0805L185

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/03/08
IRON, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/03/08
IRON, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/03/08
IRON, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/03/08
MERCURY, TOTAL	001	S	08C0096	05/21/08	06/03/08	06/04/08
MERCURY, TOTAL	001 REP	S	08C0096	05/21/08	06/03/08	06/04/08
MERCURY, TOTAL	001 MS	S	08C0096	05/21/08	06/03/08	06/04/08
POTASSIUM, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/03/08
POTASSIUM, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/03/08
POTASSIUM, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/03/08
LITHIUM, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/05/08
LITHIUM, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/05/08
LITHIUM, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/05/08
MAGNESIUM, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/03/08
MAGNESIUM, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/03/08
MAGNESIUM, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/03/08
MANGANESE, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/05/08
MANGANESE, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/05/08
MANGANESE, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/05/08
MOLYBDENUM, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/05/08
MOLYBDENUM, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/05/08
MOLYBDENUM, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/05/08
SODIUM, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/03/08
SODIUM, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/03/08
SODIUM, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/03/08
NICKEL, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/05/08
NICKEL, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/05/08
NICKEL, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/05/08
PHOSPHORUS, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/03/08
PHOSPHORUS, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/03/08
PHOSPHORUS, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/03/08
LEAD, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/05/08
LEAD, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/05/08
LEAD, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/05/08
ANTIMONY, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/05/08
ANTIMONY, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/05/08
ANTIMONY, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/05/08
SELENIUM, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/05/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-074 K1231

DATE RECEIVED: 05/23/08 LVL LOT # :0805L185

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/05/08
SELENIUM, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/05/08
SILICON, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/03/08
SILICON, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/03/08
SILICON, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/03/08
TIN, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/05/08
TIN, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/05/08
TIN, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/05/08
STRONTIUM, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/05/08
STRONTIUM, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/05/08
STRONTIUM, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/05/08
THALLIUM, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/05/08
THALLIUM, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/05/08
THALLIUM, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/05/08
URANIUM, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/05/08
URANIUM, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/05/08
URANIUM, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/05/08
VANADIUM, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/05/08
VANADIUM, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/05/08
VANADIUM, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/05/08
ZINC, TOTAL	001	S	08L0216	05/21/08	05/30/08	06/03/08
ZINC, TOTAL	001 REP	S	08L0216	05/21/08	05/30/08	06/03/08
ZINC, TOTAL	001 MS	S	08L0216	05/21/08	05/30/08	06/03/08
J16W67						
SILVER, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/05/08
ALUMINUM, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/03/08
ARSENIC, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/05/08
BORON, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/05/08
BARIUM, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/05/08
BERYLLIUM, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/05/08
BISMUTH, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/05/08
CALCIUM, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/03/08
CADMIUM, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/05/08
COBALT, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/05/08
CHROMIUM, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/05/08
COPPER, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/03/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-074 K1231

DATE RECEIVED: 05/23/08 LVL LOT # :0805L185

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
IRON, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/03/08
MERCURY, TOTAL	002	S	08C0096	05/21/08	06/03/08	06/04/08
POTASSIUM, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/03/08
LITHIUM, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/05/08
MAGNESIUM, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/03/08
MANGANESE, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/05/08
MOLYBDENUM, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/05/08
SODIUM, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/03/08
NICKEL, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/05/08
PHOSPHORUS, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/03/08
LEAD, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/05/08
ANTIMONY, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/05/08
SELENIUM, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/05/08
SILICON, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/03/08
TIN, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/05/08
STRONTIUM, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/05/08
THALLIUM, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/05/08
URANIUM, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/05/08
VANADIUM, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/05/08
ZINC, TOTAL	002	S	08L0216	05/21/08	05/30/08	06/03/08

LAB QC:

SILVER LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/01/08
SILVER, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/01/08
ALUMINUM LABORTORY	LC1 BS	S	08L0216	N/A	05/30/08	06/03/08
ALUMINUM, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/03/08
ARSENIC LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/01/08
ARSENIC, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/01/08
BORON LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/01/08
BORON, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/01/08
BARIUM LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/01/08
BARIUM, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/01/08
BERYLLIUM LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/01/08
BERYLLIUM, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/01/08
BISMUTH, LCS	LC1 BS	S	08L0216	N/A	05/30/08	06/01/08
BISMUTH, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/01/08
CALCIUM LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/03/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-074 K1231

DATE RECEIVED: 05/23/08 LVL LOT # :0805L185

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CALCIUM, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/03/08
CADMIUM LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/01/08
CADMIUM, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/01/08
COBALT LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/01/08
COBALT, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/01/08
CHROMIUM LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/01/08
CHROMIUM, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/01/08
COPPER LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/03/08
COPPER, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/03/08
IRON LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/03/08
IRON, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/03/08
MERCURY LABORATORY	LC1 BS	S	08C0096	N/A	06/03/08	06/04/08
MERCURY, TOTAL	MB1	S	08C0096	N/A	06/03/08	06/04/08
POTASSIUM LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/03/08
POTASSIUM, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/03/08
LITHIUM LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/01/08
LITHIUM, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/01/08
MAGNESIUM LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/03/08
MAGNESIUM, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/03/08
MANGANESE LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/01/08
MANGANESE, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/01/08
MOLYBDENUM LABORATOR	LC1 BS	S	08L0216	N/A	05/30/08	06/01/08
MOLYBDENUM, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/01/08
SODIUM LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/03/08
SODIUM, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/03/08
NICKEL LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/01/08
NICKEL, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/01/08
PHOSPHORUS LCS	LC1 BS	S	08L0216	N/A	05/30/08	06/03/08
PHOSPHORUS, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/03/08
LEAD LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/01/08
LEAD, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/01/08
ANTIMONY LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/01/08
ANTIMONY, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/01/08
SELENIUM LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/01/08
SELENIUM, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/01/08
SILICON LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/03/08
SILICON, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/03/08
TIN LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/01/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-074 K1231

DATE RECEIVED: 05/23/08 LVL LOT # :0805L185

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
TIN, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/01/08
STRONTIUM LCS STANDA	LC1 BS	S	08L0216	N/A	05/30/08	06/01/08
STRONTIUM, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/01/08
THALLIUM LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/01/08
THALLIUM, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/01/08
URANIUM LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/01/08
URANIUM, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/01/08
VANADIUM LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/01/08
VANADIUM, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/01/08
ZINC LABORATORY	LC1 BS	S	08L0216	N/A	05/30/08	06/03/08
ZINC, TOTAL	MB1	S	08L0216	N/A	05/30/08	06/03/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-074
LVL#: 0805L185
SDG/SAF#: K1231/RC-074

W.O.#: 11343-606-001-9999-00
Date Received: 05-23-08

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 2 soil samples.

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

   The samples were reported for Aluminum, Copper, Iron, Magnesium, Phosphorous, Silicon, Zinc, and Calcium on a different instrument.

   The samples were reported with a 3-fold dilution for ICP metals due to sample matrix.

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

4. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury) with the exception of Sodium in file TA0601A and Sodium and Potassium in file TA0605B. The samples were reported for Sodium and Potassium along with Copper, Aluminum, Iron, Phosphorous, Silicon, Zinc, and Calcium from file PS0603A. All results contained in this report are surrounded by in control ICV and CCVs.

5. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the LOQ) with the exception of Zinc in file TA0601A. The samples were reported for Zinc from file PS0603A. All results contained in this report are surrounded by in control ICB and CCBs.

6. The preparation/method blank 08L0216 for 1 analyte was outside method criteria. {less than the Limit of Quantitation (3-10X the LOD), samples greater than 20X MB value}. Refer to

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 23 pages.

the Inorganics Method Blank Data Summary.

a). The MB result for Sodium was greater than the Limit of Quantitation (LOQ) {3-10x the (LOD) Limit of Detection} and the samples 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.

8. All laboratory control samples (LCS) were within the 80-120% control with the exception of Silicon (37.7%). Associated samples may be biased low. Refer to the Inorganics Laboratory Control Standards Report.

9. The matrix spike (MS) recoveries for 8 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

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

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J16W65	Barium	300	91.0
	Manganese	3,000	113.6
	Antimony	300	98.4
	Calcium	126,000	94.6
	Iron	126,000	85.0
	Magnesium	126,000	97.3
	Phosphorous	6,000	90.8
	Silicon	6,000	92.9

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

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

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.

Judy Stone

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

6/10/08
Date

alm/m05-185

LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

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

,ot#: 0805L185

,eaching Procedure: __1310 __1311 __1312 __Other:_____

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

Metals 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
:adm ium	✓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
ron	✓6010B		__200.7				__99
,ead	✓6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
,ithium	✓6010B	__7430 [4]	__200.7			__1620	__99
;agnesium	✓6010B		__200.7				__99
;anganese	✓6010B		__200.7				__99
;ercury	__7470A [3]	✓7471A [3]	__245.1 [2]	__245.5 [2]			__99
;olybdenum	✓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: Phosphorous

Method: 6010 B

L-WI-013/M-03/01
000000010

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.

B = Indicates that the parameter was between the Instrument Detection Limit (IDL) and the Contract Required Detection Limit (CRDL)

Q QUALIFIERS

E = The reported value is estimated because of the presence of interference.

M = Duplicate injection precision not met.

N = Spiked sample recovery not within control limits.

S = The reported value was determined by the Method of Standard Additions (MSA).

W = Post Digestion spike for Furnace AA analysis is out of control limits (85 -115 %), while sample absorbance is less than 50% of spike absorbance.

* = Duplicate analysis not within control limits.

+ = Correlation coefficient for the MSA is less than 0.995.

ABBREVIATIONS

PB = Method or Preparation Blank.
S = Matrix Spike.
T = Matrix Spike Duplicate.
R or D = Sample Replicate

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.

RFW 21-21L-033/O-01/97

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/09/08

CLIENT: TNUHANFORD RC-074 K1231

LVL LOT #: 0805L185

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J16W65	Silver, Total	0.25 u	MG/KG	0.25	3.0
		Aluminum, Total	5570	MG/KG	10.2	3.0
		Arsenic, Total	2.5	MG/KG	1.3	3.0
		Boron, Total	13.9	MG/KG	1.3	3.0
		Barium, Total	206	MG/KG	0.25	3.0
		Beryllium, Total	0.34	MG/KG	0.13	3.0
		Bismuth, Total	1.5 u	MG/KG	1.5	3.0
		Calcium, Total	10100	MG/KG	10.2	3.0
		Cadmium, Total	0.13 u	MG/KG	0.13	3.0
		Cobalt, Total	9.9	MG/KG	0.51	3.0
		Chromium, Total	6.4	MG/KG	0.51	3.0
		Copper, Total	16.8	MG/KG	0.58	3.0
		Iron, Total	25300	MG/KG	11.4	3.0
		Mercury, Total	0.04	MG/KG	0.009	1.0
		Potassium, Total	972	MG/KG	125	3.0
		Lithium, Total	5.0	MG/KG	0.10	3.0
		Magnesium, Total	4560	MG/KG	9.4	3.0
		Manganese, Total	345	MG/KG	0.10	3.0
		Molybdenum, Total	0.96	MG/KG	0.76	3.0
		Sodium, Total	440	MG/KG	5.1	3.0
		Nickel, Total	10.4	MG/KG	0.51	3.0
		Phosphorus, Total	1270	MG/KG	12.7	3.0
		Lead, Total	6.5	MG/KG	0.76	3.0
		Antimony, Total	0.76 u	MG/KG	0.76	3.0
		Selenium, Total	1.5 u	MG/KG	1.5	3.0
		Silicon, Total	774	MG/KG	16.9	3.0
		Tin, Total	1.5 u	MG/KG	1.5	3.0
		Strontium, Total	65.6	MG/KG	0.08	3.0
		Thallium, Total	1.5 u	MG/KG	1.5	3.0
		Uranium, Total	5.1 u	MG/KG	5.1	3.0
		Vanadium, Total	66.2	MG/KG	0.36	3.0
		Zinc, Total	52.2	MG/KG	1.5	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/09/08

CLIENT: TNUHANFORD RC-074 K1231 LVL LOT #: 0805L185

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J16W67	Silver, Total	0.25 u	MG/KG	0.25	3.0
		Aluminum, Total	5750	MG/KG	10.0	3.0
		Arsenic, Total	2.4	MG/KG	1.3	3.0
		Boron, Total	1.8	MG/KG	1.3	3.0
		Barium, Total	65.6	MG/KG	0.25	3.0
		Beryllium, Total	0.29	MG/KG	0.13	3.0
		Bismuth, Total	1.5 u	MG/KG	1.5	3.0
		Calcium, Total	7080	MG/KG	10.0	3.0
		Cadmium, Total	0.13 u	MG/KG	0.13	3.0
		Cobalt, Total	8.3	MG/KG	0.50	3.0
		Chromium, Total	8.0	MG/KG	0.50	3.0
		Copper, Total	15.4	MG/KG	0.58	3.0
		Iron, Total	23100	MG/KG	11.3	3.0
		Mercury, Total	0.009u	MG/KG	0.009	1.0
		Potassium, Total	1170	MG/KG	123	3.0
		Lithium, Total	5.5	MG/KG	0.10	3.0
		Magnesium, Total	4320	MG/KG	9.2	3.0
		Manganese, Total	624	MG/KG	0.10	3.0
		Molybdenum, Total	0.75 u	MG/KG	0.75	3.0
		Sodium, Total	213	MG/KG	5.0	3.0
		Nickel, Total	9.7	MG/KG	0.50	3.0
		Phosphorus, Total	1100	MG/KG	12.5	3.0
		Lead, Total	4.1	MG/KG	0.75	3.0
		Antimony, Total	24.7	MG/KG	0.75	3.0
		Selenium, Total	1.5 u	MG/KG	1.5	3.0
		Silicon, Total	593	MG/KG	16.7	3.0
		Tin, Total	1.5 u	MG/KG	1.5	3.0
		Strontium, Total	28.0	MG/KG	0.08	3.0
		Thallium, Total	1.5 u	MG/KG	1.5	3.0
		Uranium, Total	5.0 u	MG/KG	5.0	3.0
		Vanadium, Total	58.6	MG/KG	0.35	3.0
		Zinc, Total	46.5	MG/KG	1.5	3.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 06/09/08

CLIENT: TNUHANFORD RC-074 K1231 LVL LOT #: 0805L185

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08L0216-MB1	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Aluminum, Total	4.0 u	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	0.10 u	MG/KG	0.10	1.0
		Beryllium, Total	0.05 u	MG/KG	0.05	1.0
		Bismuth, Total	0.60 u	MG/KG	0.60	1.0
		Calcium, Total	6.5	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	0.24	MG/KG	0.23	1.0
		Iron, Total	6.0	MG/KG	4.5	1.0
		Potassium, Total	49.3 u	MG/KG	49.3	1.0
		Lithium, Total	0.14	MG/KG	0.04	1.0
		Magnesium, Total	3.7 u	MG/KG	3.7	1.0
		Manganese, Total	0.04 u	MG/KG	0.04	1.0
		Molybdenum, Total	0.30 u	MG/KG	0.30	1.0
		Sodium, Total	25.9	MG/KG	2.0	1.0
		Nickel, Total	0.20 u	MG/KG	0.20	1.0
		Phosphorus, Total	5.0 u	MG/KG	5.0	1.0
		Lead, Total	0.30 u	MG/KG	0.30	1.0
		Antimony, Total	0.30 u	MG/KG	0.30	1.0
		Selenium, Total	0.60 u	MG/KG	0.60	1.0
		Silicon, Total	6.7 u	MG/KG	6.7	1.0
		Tin, Total	1.1	MG/KG	0.60	1.0
		Strontium, Total	0.06	MG/KG	0.03	1.0
		Thallium, Total	0.60 u	MG/KG	0.60	1.0
		Uranium, Total	2.0 u	MG/KG	2.0	1.0
		Vanadium, Total	0.14 u	MG/KG	0.14	1.0
		Zinc, Total	0.61	MG/KG	0.60	1.0
BLANK1	08C0096-MB1	Mercury, Total	0.01 u	MG/KG	0.01	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 06/09/08

CLIENT: TNUHANFORD RC-074 K1231 LVL LOT #: 0805L185

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J16W65	Silver, Total	3.8	0.25u	4.2	90.5	3.0
		Aluminum, Total	5730	5570	169	95.2*	3.0
		Arsenic, Total	161	2.5	169	93.3	3.0
		Boron, Total	89.5	13.9	84.7	89.3	3.0
		Barium, Total	311	206	169	62.0	3.0
		Beryllium, Total	4.3	0.34	4.2	94.4	3.0
		Bismuth, Total	402	1.5 u	424	94.9	3.0
		Calcium, Total	10800	10100	2120	35.8*	3.0
		Cadmium, Total	4.0	0.13u	4.2	95.2	3.0
		Cobalt, Total	48.5	9.9	42.3	91.3	3.0
		Chromium, Total	22.7	6.4	16.9	96.4	3.0
		Copper, Total	35.8	16.8	21.2	89.6	3.0
		Iron, Total	22000	25300	84.7	-3800. *	3.0
		Mercury, Total	0.21	0.04	0.15	110.5	1.0
		Potassium, Total	2780	972	2120	85.5	3.0
		Lithium, Total	86.7	5.0	84.7	96.5	3.0
		Magnesium, Total	6040	4560	2120	69.9	3.0
		Manganese, Total	345	345	42.3	0.2*	3.0
		Molybdenum, Total	77.6	0.96	84.7	90.5	3.0
		Sodium, Total	2430	440	2120	94.1	3.0
		Nickel, Total	51.6	10.4	42.3	97.4	3.0
		Phosphorus, Total	1510	1270	424	58.6	3.0
		Lead, Total	46.0	6.5	42.3	93.4	3.0
		Antimony, Total	22.8	0.76u	42.3	53.9	3.0
		Selenium, Total	138	1.5 u	169	81.6	3.0
		Silicon, Total	1110	774	84.7	400.0*	3.0
		Tin, Total	79.0	1.5 u	84.7	93.3	3.0
		Strontium, Total	138	65.6	84.7	85.5	3.0
		Thallium, Total	157	1.5 u	169	92.4	3.0
		Uranium, Total	400	5.1 u	424	94.5	3.0
		Vanadium, Total	101	66.2	42.3	82.0	3.0
		Zinc, Total	87.3	52.2	42.3	83.0	3.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 06/09/08

CLIENT: TNUHANFORD RC-074 K1231 LVL LOT #: 0805L185

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J16W65	Silver, Total	0.25u	0.26u	NC	3.0
		Aluminum, Total	5570	5720	2.8	3.0
		Arsenic, Total	2.5	4.2	50.7	3.0
		Boron, Total	13.9	10.5	27.9	3.0
		Barium, Total	206	167	20.9	3.0
		Beryllium, Total	0.34	0.36	7.5	3.0
		Bismuth, Total	1.5 u	1.5 u	NC	3.0
		Calcium, Total	10100	15500	42.6	3.0
		Cadmium, Total	0.13u	0.13u	NC	3.0
		Cobalt, Total	9.9	8.7	12.9	3.0
		Chromium, Total	6.4	7.0	9.0	3.0
		Copper, Total	16.8	17.8	5.8	3.0
		Iron, Total	25300	24400	3.7	3.0
		Mercury, Total	0.04	0.05	16.5	1.0
		Potassium, Total	972	946	2.7	3.0
		Lithium, Total	5.0	5.0	0.00	3.0
		Magnesium, Total	4560	4550	0.19	3.0
		Manganese, Total	345	334	3.3	3.0
		Molybdenum, Total	0.96	0.77u	NC	3.0
		Sodium, Total	440	397	10.3	3.0
		Nickel, Total	10.4	10.3	0.97	3.0
		Phosphorus, Total	1270	1180	6.9	3.0
		Lead, Total	6.5	5.5	16.7	3.0
		Antimony, Total	0.76u	0.77u	NC	3.0
		Selenium, Total	1.5 u	1.5 u	NC	3.0
		Silicon, Total	774	1080	33.3	3.0
		Tin, Total	1.5 u	1.5 u	NC	3.0
		Strontium, Total	65.6	63.3	3.6	3.0
		Thallium, Total	1.5 u	1.5 u	NC	3.0
		Uranium, Total	5.1 u	5.2 u	NC	3.0
		Vanadium, Total	66.2	64.7	2.3	3.0
		Zinc, Total	52.2	64.8	21.5	3.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 06/09/08

CLIENT: TNUHANFORD RC-074 K1231 LVL LOT #: 0805L185

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0216-LC1	Silver, LCS	48.4	50.0	MG/KG	96.8
		Aluminum, LCS	447	500	MG/KG	89.3
		Arsenic, LCS	898	1000	MG/KG	89.8
		Boron, LCS	456	500	MG/KG	91.2
		Barium, LCS	481	500	MG/KG	96.1
		Beryllium, LCS	23.7	25.0	MG/KG	94.8
		Bismuth, LCS	473	500	MG/KG	94.5
		Calcium, LCS	2180	2500	MG/KG	87.3
		Cadmium, LCS	23.2	25.0	MG/KG	92.8
		Cobalt, LCS	236	250	MG/KG	94.5
		Chromium, LCS	48.1	50.0	MG/KG	96.2
		Copper, LCS	112	125	MG/KG	89.4
		Iron, LCS	452	500	MG/KG	90.3
		Potassium, LCS	2220	2500	MG/KG	88.8
		Lithium, LCS	509	500	MG/KG	101.8
		Magnesium, LCS	2150	2500	MG/KG	85.9
		Manganese, LCS	73.0	75.0	MG/KG	97.3
		Molybdenum, LCS	473	500	MG/KG	94.5
		Sodium, LCS	2290	2500	MG/KG	91.4
		Nickel, LCS	191	200	MG/KG	95.3
		Phosphorus, LCS	437	500	MG/KG	87.4
		Lead, LCS	234	250	MG/KG	93.5
		Antimony, LCS	278	300	MG/KG	92.7
		Selenium, LCS	862	1000	MG/KG	86.2
		Silicon, LCS	189	500	MG/KG	37.7
		Tin, LCS	484	500	MG/KG	96.7
		Strontium, LCS	485	500	MG/KG	97.0
		Thallium, LCS	926	1000	MG/KG	92.6
		Uranium, LCS	478	500	MG/KG	95.7
		Vanadium, LCS	240	250	MG/KG	95.9
		Zinc, LCS	84.6	100	MG/KG	84.6
LCS1	08C0096-LC1	Mercury, LCS	4.8	4.7	MG/KG	102.7

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0216
Date/Time Initiated: 5/30/08 1345
Date/Time Completed: 5/30/08 1915
Analyst(s): MW
Matrix: Soil Water Other: soils/solids/oils
Instr. Type: AA (ICP)
Parameters: See backlog

Digested / Undigested (circle one)
Balance #: B20
Balance Cal Verif: (Y) NA
Hot Plate Temp: 90°

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

BJC/TNU

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
0805L207-001		1.10gm	100ml	<2	TO	N/A	cloudy amber liquid	N/A	FAB
001R		1.11gm							
001S	1.0ml	1.14gm							
002		1.10gm							
003		1.20gm							
0805L177-001 002		1.28gm					amber oil		
(A) 001R 002R		1.21gm							
001S 002S	1.0ml (W)	1.32gm							
002 001		1.15gm							
003		1.15gm							
004		1.19gm							
0805L180-001		1.07gm				sticky	black goo (like resin)		
001R		1.04gm							
001S	1.0ml	1.08gm							
0805L185-001		1.23gm				coarse	brown soil	rocks	
001R		1.21gm							
001S	1.0ml *	1.23gm							
002		1.25gm							
08L0216-MB1		1.0gm					boiling chips	N/A	
LC1	1.0ml *(B)	1.0gm							

MW 5/30/08

Spiking IDs:
MS #: 8100-04-01
02
03
6072-78-07
LCS #: 08
09
10
11

Reagent IDs:
HNO_3 E46025
HCL G05039
H_2O_2 E44A06
1:1 HNO_3 9789-079-07
1:1 HCL

File ID#: IC021601, IC021603, IC021603 updated
LIMS Transfer: (Y) N
Data Review By/Date: RDRP, 06/01/08

(A) and 0.5ml 6072-076-05 (Zr)
* and 0.5ml 6072-076-06 (Bi)
0.5ml 6072-076-07 (P-)
0.5ml 6072-078-01 (U-)

(B) samples numbered backwards JW 5/30/07

Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 455

Analyst: TCB
Date 6/3/08
Start Time/Temp: 1620 / 92°
End Time/Temp: 1650 / 97°

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

Prep Batch: 08C0096
Worksheet: HG060401
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	11A			10mL	50mL	
0.2 µg/L	857	0.100				
1.0	N2	0.500				
2.0	JC	1.000				
5.0	503	2.500				
10.0	A9	5.000				
ICV	6T	0.125	2.5			
CCV	N4	0.250	5.0			
ICB/CCB	AB/UT					9.50L
MB1	818			0.30		PBS196 100.0
LC1	508	*	*	0.32		LCSS196 ↓
0805L185-001	H5			0.34		95.9
001R	500			0.40		↓
001S	205	0.500	1.0	0.34		↓
002	A901			0.35		95.8
0805L194-001	551			0.36		R 92.0
0805L174-001	HR			0.31		100.0
001S	2B	0.050	10.0	0.31		↓
001T	P18	0.050	10.0	0.32		↓
002	76			0.30		↓
0805L166-001	JI			0.38		91.7
002	R2			0.31		97.9
002R	871			0.34		↓
002S	92	0.500	1.0	0.31		↓
0805L178-001	816			0.33		R 96.7
001R	I4			0.38		↓
001S	H	0.500	1.0	0.33		↓

Standard:	ID	Prep Date/Time
ICAL/MS	RI 6072-78-14B	6/3/08 1135
ICV/CCV/LCS	US 6072-78-15A	↓

Reviewed By/Date: [signature] 6/5/08

see book # 9368 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

ME-HgCVAA-Prep1007

Page #:

000000019

Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 455

Analyst: TLD
Date 6/2/08
Start Time/Temp:
End Time/Temp: See page 022

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

Prep Batch: 08C0096
Worksheet: HG060401
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.
0805L178 - 002	PF			0.32	50mL	R 98.42
003	HH			0.32		97.17
004	X5			0.31		97.6
005	B14			0.33		96.4
006	BB			0.35		96.75
007	PA			0.32		92.01
008	514			0.38		94.47
009	BLV			0.36		96.07
0805L206 - 001	5H			0.31		100.00

TLD 6/3/08

Standard:	ID	Prep Date/Time
ICAL/MS		
ICV/CCV/LCS	See page 022	

Reviewed By/Date: [signature] 6/3/08

see book # 9368 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

Lionville Laboratory Use Only

08051185

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU HANFORD SAF# RC-074

Est. Final Proj. Sampling Date:

Project#: 11343-6006-001-9999

Project Contact/Phone#:

Lionville Laboratory Project Manager: O Johnson

QC: SW8446 Del: STD TAT: 15 Day

Date Rec'd: 05-23-08 Date Due: 06-07-08

		A	B	C
Refrigerator #				
#/Type Container	Liquid / Solid	1G	1G	1G
Volume		60	60	60
Preservatives		—	—	—

ANALYSES REQUESTED →

	ORGANIC				INORG	
	VOA	BNA	~~Pest/~~ PCB	Herb	Metal	CN
Lionville Laboratory Use Only		062574	OPCB 060811	5/23/08	* See Below	

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	062574	OPCB 060811	Herb	Metal	
001	J16W65			SOIL	5-21-08	1017	X	X		X	
002	1 67			1	1	1420	X	X		X	

Special Instructions:

Metals = HSL + Bi, Bo, Li, Mo, P-, Si, SR, Sn, U-

Special Instructions:

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

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	5/23/08	0925

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-074-073	Page 1 of 1

Collector: SEC D.W. Shea/Sub-contractor: D. Rios	Company Contact: D.W.Shea Telephone No.: 521-6014	Project Coordinator: KESSNER, JH	Price Code: 8K Data Turnaround: 15 days
Project Designation: 100-D/DR Burial Grounds & Remaining Sites - Soil Quick Tu	Sampling Location: post remediation at 100-D-31:2	SAF No.: RC-074	
Ice Chest No.: AFS-04-122	Field Logbook No.: EL-1607-3 COA: R00D312600	Method of Shipment: Fed Ex	
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: See OPSC A080285	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	Cool 4C	None	None	None					
Type of Container	G/P	aG	aG	G/P	G/P	G/P					
No. of Container(s)	1	1	1	1	~~1~~ 0 DWSHEA 5/21/08	1					
Volume	60mL	60mL	60mL	500mL	5g	60mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions.	Gross Alpha; Gross Beta	Carbon-14; ~~Tritium-H3~~ DWShea 5/21/08					
Sample No.	Matrix *	Sample Date	Sample Time								
J16W65	SOIL	5-21-08	1017	✓	✓	✓					
~~J16W66~~	~~SOIL~~		~~1020~~								
J16W67	SOIL	5-21-08	1420	✓	✓	✓					

CHAIN OF POSSESSION — 5-21-08 Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature]	5-21-08 1431	DWShea DWSHEA	5/21/08 1431
DWShea DWSHEA	5/21/08 1708	Fridge 3A	5/21/08 1708
Fridge 3A	5-22-08 0745	JRDeguine JRDeg	5-22-08 0745
JRDeguine JRDeg	5-22-08 0820	Fed Ex	
Fed Ex	5/23/08 0925	[signature]	5-23-08 0925
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc} and Hgvia CVAA

(2) Gamma Spec - Add-on {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, ~~Silver-108 metastable, Sodium-22~~} DWShea 5/21/08

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

RK [signature]

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

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

WCH-EF-011

000000022

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD
Project/SAR/SOW/Release #: RC-074

Date: 5/23/08

LvLI Batch #: 0805L185

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7984 4704 0181
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 2-2	°C	Cooler # AFS-04-122
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

RECEIVED
JUN 2008

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-074 K1231

DATE RECEIVED: 05/23/08 LVL LOT # :0805L185

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16W65	001	S	08LE0271	05/21/08	06/02/08	06/12/08
J16W67	002	S	08LE0271	05/21/08	06/02/08	06/12/08
J16W67	002 MS	S	08LE0271	05/21/08	06/02/08	06/12/08
J16W67	002 MSD	S	08LE0271	05/21/08	06/02/08	06/12/08
LAB QC:						
PBLKRF	MB1	S	08LE0271	N/A	06/02/08	06/12/08
PBLKRF	MB1 BS	S	08LE0271	N/A	06/02/08	06/12/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-074
LVL #: 0805L185
SDG/SAF # K1231 / RC-074

W.O. #: 11343-606-001-9999-00
Date Received: 05-23-2008

PCB

Two (2) soil samples were collected on 05-21-2008.

The samples and their associated QC samples were extracted on 06-02-2008 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedure on 06-12-2008. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8082.

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

1. Samples were extracted and analyzed within required holding time.
2. The method blank was below the reporting limits for all target compounds.
3. All surrogate recoveries were within acceptance criteria.
4. All blank spike recoveries were within acceptance criteria.
5. All matrix spike recoveries were within acceptance criteria.
6. The initial calibrations associated with this data set were within acceptance criteria.
7. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
8. 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.

k:\group\data\pest\tnu\0805-185ksol2.pcb.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 10 pages.

LIONVILLE LABORATORY INC.

9. 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

6/17/08
Date

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 06/13/08 13:57

RFW Batch Number: **0805L185** Client: **TNUHANFORD RC-074 K1231** Work Order: 11343606001 Page: 1

000000005

	Cust ID:	J16W65		J16W67		J16W67		J16W67		PBLKRF		PBLKRF BS	
Sample Information	RFW#:	001		002		002 MS		002 MSD		08LE0271-MB1		08LE0271-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate:	Tetrachloro-m-xylene	107	%	96	%	108	%	102	%	94	%	112	%
	Decachlorobiphenyl	137	%	108	%	116	%	110	%	96	%	116	%
			fl		fl		fl		fl		fl		fl
Aroclor-1016		14	U	14	U	113	%	100	%	13	U	109	%
Aroclor-1221		14	U	14	U	14	U	14	U	13	U	13	U
Aroclor-1232		14	U	14	U	14	U	14	U	13	U	13	U
Aroclor-1242		14	U	14	U	14	U	14	U	13	U	13	U
Aroclor-1248		14	U	14	U	14	U	14	U	13	U	13	U
Aroclor-1254		14	U	14	U	14	U	14	U	13	U	13	U
Aroclor-1260		14	U	14	U	116	%	114	%	13	U	115	%

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

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 06/02/08 Extraction Batch No: 08LE0271 Analyst: MF Method: ****3540

Test: OPCB Cleanup Date: 06/06/08 Analyst: MF Client: VISTA ENGINEERING

LIMS Report Date: 06/10/08 Solvent: DCM/ACETONE,HEXANE Adsorbent: H2SO4

Sample No:	Client Name / Client ID	pH	Initial WT/VOL	Surr. Mult.	Spike Mult.	Final VOL	Final VOL	Split Mult.	GPC Y/N	% Solids	C/D FACTOR
0805L168-	VISTA ENGINEERING										
001	B145		30.0	1.0		10		1.0	N	96.91	344.0
002	B146		30.0	1.0		10		1.0	N	93.24	357.5
003	B147		30.0	1.0		10		1.0	N	91.76	363.3
004	B149		30.0	1.0		10		1.0	N	96.37	345.9
005	B150		30.0	1.0		10		1.0	N	95.21	350.1
0805L185-	TNUHANFORD RC-074 K1231										
001	J16W65		30.0	1.0		10		1.0	N	95.97	347.3
002	J16W67		30.0	1.0		10		1.0	N	95.82	347.9
002 -S	J16W67		30.0	1.0	1.0	10		1.0	N	95.82	347.9
002 -T	J16W67		30.0	1.0	1.0	10		1.0	N	95.82	347.9
0805L194-	VISTA ENGINEERING										
001	B148		30.0	1.0		10		1.0	N	92.00	362.3
08LE0271-MB1	PBLKRF		30.0	1.0		10		1.0	N	100.00	333.3
08LE0271-MB1 -S	PBLKRF		30.0	1.0	1.0	10		1.0	N	100.00	333.3

Comments:
Surrogate: 250 UL OLM PSURR 89916407
Spike: 250 UL AR1660 89916604

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
		6/10/08 1530			Reason for 0805L194

000000006

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 06/02/08 Extraction Batch No: 08LE0271 Analyst: MF Method: **** SOX3540

Test: OPCB Cleanup Date: 06/06/08 Analyst: MF Client: VISTA ENGINEERING

LIMS Report Date: 06/10/08 Solvent: DCM/ACETONE,HEXANE Adsorbent: H2SO4

Sample No:	Client Name / Client ID	pH	Initial WT/VOL	Surr. Mult.	Spike Mult.	Final VOL	Final VOL	Split Mult.	GPC Y/N	% Solids	C/D FACTOR
0805L168-	VISTA ENGINEERING										
001	B145		30.0	1.0		10		1.0	N	96.91	344.0
002	B146		30.0	1.0		10		1.0	N	93.24	357.5
003	B147		30.0	1.0		10		1.0	N	91.76	363.3
004	B149		30.0	1.0		10		1.0	N	96.37	345.9
005	B150		30.0	1.0		10		1.0	N	95.21	350.1
0805L185-	TNUHANFORD RC-074 K1231										
001	J16W65		30.0	1.0		10		1.0	N	95.97	347.3
002	J16W67		30.0	1.0		10		1.0	N	95.82	347.9
002 -S	J16W67		30.0	1.0	1.0	10		1.0	N	95.82	347.9
002 -T	J16W67		30.0	1.0	1.0	10		1.0	N	95.82	347.9
08LE0271-MB1	PBLKRF		30.0	1.0		10		1.0	N	100.00	333.3
08LE0271-MB1 -S	PBLKRF		30.0	1.0	1.0	10		1.0	N	100.00	333.3

Comments:
Surrogate: 250 UL OLM PSURR 89916407
Spike: 250 UL AR1660 89916604

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
all	[signature]	6/6/08 1250	SZ	6/10/08 13:10	GC

000000007

Lionville Laboratory Use Only

08052185

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TMC HANFORD SAFE RC-074

Est. Final Proj. Sampling Date:

Project#: 11343-6066-001-9999

Project Contact/Phone#:

Lionville Laboratory Project Manager: O Johnson

QC: SW846 Del: STD TAT: 15 Day

Date Rec'd: 05-23-08 Date Due: 06-07-08

		A	B	C
Refrigerator #				
#/Type Container	Liquid / Solid	1G	1G	1G
Volume		60	60	60
Preservatives		—	—	—

ANALYSES REQUESTED →

ORGANIC				INORG	
VOA	BNA	Pest/PCB	Herb	Metal	CN

EDD

Lionville Laboratory Use Only: 062574 OPCB 060811 5/23/08 3 + See Bottle

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected												
001	J16W65			SOIL	5-21-08	1017		X	X				X					4
002	1 67			1	1	1420		X	X				X					

Special Instructions:

Metals = HSL + Bi, Bo, Li, Mo, P-, Si, SR, Sn, U-

Special Instructions:

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

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	5/23/08	0925

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-074-073	Page 1 of 1

Collector: D.W. Shea/Sub-contractor SEC D. Rios	Company Contact: D.W.Shea	Telephone No.: 521-6014	Project Coordinator: KESSNER, JH
Price Code: 8K	Data Turnaround: 15 days		
Project Designation: 100-D/DR Burial Grounds & Remaining Sites - Soil Quick Tu	Sampling Location: post remediation at 100-D-31:2		SAF No.: RC-074
Ice Chest No.: AFS-04-122	Field Logbook No.: EL-1607-3	COA: R00D312600	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: See OPSC A080285		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	Cool 4C	None	None	None					
Type of Container	G/P	aG	aG	G/P	G/P	G/P					
No. of Container(s)	1	1	1	1	~~1~~ 0 DWSHEA 5/28/08	1					
Volume	60mL	60mL	60mL	500mL	5g	60mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions.	Gross Alpha: Gross Beta	Carbon-14: ~~Iodine-129~~ DWShea 5/28/08					
Sample No.	Matrix *	Sample Date	Sample Time								
J16W65	SOIL	5-21-08	1017	✓	✓	✓					
~~J16W66~~	~~SOIL~~		~~1020~~								
J16W67	SOIL	5-21-08	1420	✓	✓	✓					

CHAIN OF POSSESSION — 5-21-08 — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature]	~~1025~~ 5-21-08 1431	DWShea DWSHEA	5/21/08 1431
DWShea DWSHEA	5/21/08 1708	Fridge 3A	5/21/08 1708
Fridge 3A	5-22-08 0745	JRDeguine JRDeguine	0745 5-22-08
JRDeguine JRDeguine	0820 5-22-08	Fed Ex	
Fed Ex	5/23/08 0925	[signature]	5-23-08 0925
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selepium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc} and Hgum CVAA
(2) Gamma Spec - Add-on {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, ~~Silver-108 metastable, Sodium-22~~} DWShea 5/28/08

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

RC

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

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

WCH-EE-011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

Project/SAP/SOW/Release #: RC-074

Date: 5/23/08

LvLI Batch #: 0805L185

Sample Custodian: [signature]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7984 4704 0181
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 2-2	°C	Cooler # AFS-04-122
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

RECEIVED
JUN 2008

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-074 K1231

DATE RECEIVED: 05/23/08 LVL LOT # :0805L185

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16W65	001	S	08LE0264	05/21/08	05/29/08	06/04/08
J16W65	001 MS	S	08LE0264	05/21/08	05/29/08	06/04/08
J16W65	001 MSD	S	08LE0264	05/21/08	05/29/08	06/04/08
J16W67	002	S	08LE0264	05/21/08	05/29/08	06/04/08

LAB QC:

SBLKVG	MB1	S	08LE0264	N/A	05/29/08	05/31/08
SBLKVG	MB1 BS	S	08LE0264	N/A	05/29/08	05/31/08
SBLKVG	MB1 BSD	S	08LE0264	N/A	05/29/08	05/31/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-074
LVL #: 0805L185
SDG/SAF # K1231/RC-074

W.O. #: 11343-606-001-9999-00
Date Received: 05-23-2008

SEMIVOLATILE

Two (2) soil samples were collected on 05-21-2008.

The samples and their associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3540C on 05-29-2008 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 05-31-2008 and 06-04-2008.

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. Samples were extracted and analyzed within required holding time.

2. Non-target compounds were detected in the samples.

3. Samples J16W65, J16W65 MS, J16W65 MSD and J16W67 required a 2-fold dilution due to matrix, extracts were dark. The analysis of non-diluted extracts to achieve lower detection limits contributes to increased instrument down time and loss of gas chromatograph columns.

4. All obtainable surrogate recoveries were within acceptance criteria.

5. Nine (9) 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.

6. Seventeen (17) of one hundred and twenty-eight (128) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

r:\group\data\2008\bna\tnu\0805-185ks2.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 ~~15~~ 17 pages.
17 6-2008

LvLI
LIONVILLE LABORATORY INC.

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

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

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

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

11. 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").

12. 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.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

6/20/08
Date

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 00MS15C

Initiator: Robert Carden
Date: 6/5/08
Client: TMI Hanford
RCOM

Batch: 08052185
Samples: 001MS, BS
Method: SW846/MCAWW/CLP/

Parameter: 8270H
Matrix: Soil
Prep Batch: 08WE0264

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)

Several spike recoveries are outside QC acceptance criteria in MS/BS. MSD OK. All surrogate recoveries within criteria.

2. Known or Probable Causes(s) Acidic phenols are subject to erratic chromatographic especially if the GC system is contaminated with high boiling material. Other specific

3. Discussion and Proposed Action Other Description: Narrate

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

4. Project Manager Instructions...signature/date: 6/20/08

✓ 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: 6/20/08 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 for diposition.

Route
__ Lab Manager: Daniels
1 Project Mgr (circle): Johnson / Stone
__ Sample Prep (circle): Ford
__ Log-in: King

Route
__ Metals: Welsh / _____
__ Inorganic: Perrone / _____
__ GC/LC: Carey / _____
__ MS VOA: Rubino / _____
2 MS BNA: Carden / _____
__ Other: _____

QA-139-A-0208

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

RFW Batch Number: 0805L185 Client: TNUHANFORD RC-074 K1231 Work Order: 11343606001 Report Date: 06/08/08 13:21 Page: 1a

	Cust ID:	J16W65	J16W65	J16W65	J16W67	SBLKVG	SBLKVG BS
Sample Information	RFW#:	001	001 MS	001 MSD	002	08LE0264-MB1	08LE0264-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	2.00	2.00	2.00	2.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	72 %	51 %	67 %	76 %	51 %	46 %
	2-Fluorobiphenyl	70 %	57 %	71 %	74 %	52 %	58 %
	Terphenyl-d14	90 %	60 %	70 %	104 %	75 %	75 %
	Phenol-d5	69 %	55 %	62 %	65 %	49 %	57 %
	2-Fluorophenol	65 %	54 %	58 %	70 %	52 %	58 %
	2,4,6-Tribromophenol	24 %	34 %	37 %	46 %	35 %	48 %
		fl	fl	fl	fl	fl	fl
Phenol		690 U	54 %	64 %	700 U	330 U	54 %
bis(2-Chloroethyl)ether		690 U	51 %	50 %	700 U	330 U	47 * %
2-Chlorophenol		690 U	54 %	59 %	700 U	330 U	55 %
1,3-Dichlorobenzene		690 U	46 * %	52 %	700 U	330 U	57 %
1,4-Dichlorobenzene		690 U	49 * %	52 %	700 U	330 U	56 %
1,2-Dichlorobenzene		690 U	48 * %	58 %	700 U	330 U	58 %
2-Methylphenol		690 U	59 * %	64 %	700 U	330 U	52 * %
2,2'-oxybis(1-Chloropropane)		690 U	52 %	58 %	700 U	330 U	44 * %
3/4 Methylphenol		690 U	56 * %	62 %	700 U	330 U	52 * %
N-Nitroso-di-n-propylamine		690 U	58 %	66 %	700 U	330 U	55 %
Hexachloroethane		690 U	45 * %	52 %	700 U	330 U	49 * %
Nitrobenzene		690 U	50 %	63 %	700 U	330 U	44 * %
Isophorone		380 J	46 * %	72 %	700 U	330 U	51 * %
2-Nitrophenol		690 U	50 %	64 %	700 U	330 U	49 * %
2,4-Dimethylphenol		690 U	56 %	68 %	700 U	330 U	41 * %
bis(2-Chloroethoxy)methane		690 U	54 %	62 %	700 U	330 U	45 %
2,4-Dichlorophenol		690 U	61 %	68 %	700 U	330 U	52 %
1,2,4-Trichlorobenzene		690 U	47 * %	61 %	700 U	330 U	48 * %
Naphthalene		690 U	52 %	64 %	700 U	330 U	47 %
4-Chloroaniline		690 U	44 %	55 %	700 U	330 U	45 %
Hexachlorobutadiene		690 U	56 %	65 %	700 U	330 U	49 %
4-Chloro-3-methylphenol		690 U	71 %	69 %	700 U	330 U	50 * %
2-Methylnaphthalene		690 U	57 * %	64 %	700 U	330 U	51 * %
Hexachlorocyclopentadiene		690 U	24 %	49 %	700 U	330 U	49 %
2,4,6-Trichlorophenol		690 U	43 %	48 %	700 U	330 U	57 %
2,4,5-Trichlorophenol		1700 U	60 %	65 %	1700 U	830 U	62 %

*= Outside of EPA CLP QC limits.

000000008

Cust ID:	J16W65		J16W65		J16W65		J16W67		SBLKVG		SBLKVG BS	
RFW#:	001		001 MS		001 MSD		002		08LE0264-MB1		08LE0264-MB1	
2-Chloronaphthalene	690	U	58	%	68	%	700	U	330	U	60	%
2-Nitroaniline	1700	U	64	%	70	%	1700	U	830	U	60	%
Dimethylphthalate	690	U	64	%	73	%	700	U	330	U	64	%
Acenaphthylene	690	U	62	%	70	%	700	U	330	U	64	%
2,6-Dinitrotoluene	690	U	68	%	73	%	700	U	330	U	64	%
3-Nitroaniline	1700	U	67	%	63	%	1700	U	830	U	64	%
Acenaphthene	690	U	59	%	69	%	700	U	330	U	64	%
2,4-Dinitrophenol	1700	U	53	%	46	%	1700	U	830	U	27	%
4-Nitrophenol	1700	U	42	%	62	%	1700	U	830	U	58	%
Dibenzofuran	690	U	63	%	75	%	700	U	330	U	61	%
2,4-Dinitrotoluene	690	U	70	%	81	%	700	U	330	U	68	%
Diethylphthalate	690	U	68	%	73	%	700	U	330	U	66	%
4-Chlorophenyl-phenylether	690	U	60	%	69	%	700	U	330	U	56	%
Fluorene	690	U	67	%	73	%	700	U	330	U	61	%
4-Nitroaniline	1700	U	66	%	71	%	1700	U	830	U	64	%
4,6-Dinitro-2-methylphenol	1700	U	64	%	72	%	1700	U	830	U	38 *	%
N-Nitrosodiphenylamine (1)	690	U	56	%	59	%	700	U	330	U	49 *	%
4-Bromophenyl-phenylether	690	U	61	%	60	%	700	U	330	U	51	%
Hexachlorobenzene	690	U	63	%	73	%	700	U	330	U	62	%
Pentachlorophenol	1700	U	40	%	44	%	1700	U	830	U	43	%
Phenanthrene	690	U	63	%	73	%	700	U	330	U	63	%
Anthracene	690	U	68	%	71	%	700	U	330	U	66	%
Carbazole	690	U	72	%	74	%	700	U	330	U	63	%
Di-n-butylphthalate	690	U	70	%	78	%	700	U	330	U	69	%
Fluoranthene	690	U	74	%	77	%	700	U	330	U	67	%
Pyrene	690	U	62	%	66	%	700	U	330	U	67	%
Butylbenzylphthalate	690	U	73	%	74	%	700	U	330	U	77	%
3,3'-Dichlorobenzidine	690	U	49	%	55	%	700	U	330	U	64	%
Benzo(a)anthracene	690	U	63	%	69	%	700	U	330	U	68	%
Chrysene	690	U	69	%	73	%	700	U	330	U	67	%
bis(2-Ethylhexyl)phthalate	59	J	68	%	79	%	700	U	330	U	80	%
Di-n-octyl phthalate	690	U	67	%	75	%	700	U	330	U	72	%
Benzo(b)fluoranthene	690	U	71	%	72	%	700	U	330	U	60	%
Benzo(k)fluoranthene	690	U	65	%	70	%	700	U	330	U	62	%
Benzo(a)pyrene	690	U	66	%	68	%	700	U	330	U	60	%
Indeno(1,2,3-cd)pyrene	690	U	73	%	69	%	700	U	330	U	59 *	%
Dibenz(a,h)anthracene	690	U	68	%	71	%	700	U	330	U	63	%
Benzo(g,h,i)perylene	690	U	72	%	71	%	700	U	330	U	59	%

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

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000000010

Cust ID: **SBLKVG BSD**

Sample Information

RFW#:	08LE0264-MB1
Matrix:	SOIL
D.F.:	1.00
Units:	ug/Kg

Surrogate Recovery	Nitrobenzene-d5	58	%
	2-Fluorobiphenyl	74	%
	Terphenyl-d14	93	%
	Phenol-d5	65	%
	2-Fluorophenol	69	%
	2,4,6-Tribromophenol	44	%

Phenol	63		%
bis(2-Chloroethyl)ether	57		%
2-Chlorophenol	69		%
1,3-Dichlorobenzene	68		%
1,4-Dichlorobenzene	69		%
1,2-Dichlorobenzene	72		%
2-Methylphenol	62		%
2,2'-oxybis(1-Chloropropane)	53		%
3/4 Methylphenol	64		%
N-Nitroso-di-n-propylamine	64		%
Hexachloroethane	59		%
Nitrobenzene	54		%
Isophorone	62		%
2-Nitrophenol	59		%
2,4-Dimethylphenol	51		%
bis(2-Chloroethoxy)methane	54		%
2,4-Dichlorophenol	63		%
1,2,4-Trichlorobenzene	59	*	%
Naphthalene	57		%
4-Chloroaniline	54		%
Hexachlorobutadiene	61		%
4-Chloro-3-methylphenol	59	*	%
2-Methylnaphthalene	62		%
Hexachlorocyclopentadiene	68		%
2,4,6-Trichlorophenol	57		%
2,4,5-Trichlorophenol	73		%

*= Outside of EPA CLP QC limits.

Cust ID: **SBLKVG BSD**

RFW#: **08LE0264-MB1**

2-Chloronaphthalene	75	%
2-Nitroaniline	79	%
Dimethylphthalate	79	%
Acenaphthylene	81	%
2,6-Dinitrotoluene	84	%
3-Nitroaniline	85	%
Acenaphthene	79	%
2,4-Dinitrophenol	35	%
4-Nitrophenol	81	%
Dibenzofuran	77	%
2,4-Dinitrotoluene	87	%
Diethylphthalate	84	%
4-Chlorophenyl-phenylether	71	%
Fluorene	77	%
4-Nitroaniline	84	%
4,6-Dinitro-2-methylphenol	51	%
N-Nitrosodiphenylamine (1)	61	%
4-Bromophenyl-phenylether	63	%
Hexachlorobenzene	78	%
Pentachlorophenol	60	%
Phenanthrene	79	%
Anthracene	80	%
Carbazole	81	%
Di-n-butylphthalate	89	%
Fluoranthene	86	%
Pyrene	88	%
Butylbenzylphthalate	100	%
3,3'-Dichlorobenzidine	82	%
Benzo(a)anthracene	87	%
Chrysene	86	%
bis(2-Ethylhexyl)phthalate	104	%
Di-n-octyl phthalate	95	%
Benzo(b)fluoranthene	81	%
Benzo(k)fluoranthene	81	%
Benzo(a)pyrene	80	%
Indeno(1,2,3-cd)pyrene	80	%
Dibenz(a,h)anthracene	84	%
Benzo(g,h,i)perylene	80	%

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

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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J16W65

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

Client: TNUHANFORD RC-074 K1231

Matrix: (soil/water) SOIL

Lab Sample ID: 0805L185-001

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

Lab File ID: N060404

Level: (low/med) LOW

Date Received: 05/23/08

% Moisture: 4 decanted: (Y/N)__

Date Extracted: 05/29/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 06/04/08

Injection Volume: 2.0(uL)

Dilution Factor: 2.00

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.	ALDOL CONDENSATE	5.722	2000	JA
2.	UNKNOWN	6.724	60000	JB
3.	ALDOL CONDENSATE	7.710	200000	JAB
4.	ALDOL CONDENSATE	8.834	800	JAB
5.	UNKNOWN	21.579	800	JB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J16W67

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

Client: TNUHANFORD RC-074 K1231

Matrix: (soil/water) SOIL

Lab Sample ID: 0805L185-002

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

Lab File ID: N060403

Level: (low/med) LOW

Date Received: 05/23/08

% Moisture: 4 decanted: (Y/N)__

Date Extracted: 05/29/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 06/04/08

Injection Volume: 2.0(uL)

Dilution Factor: 2.00

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	3.472	800	J
2.	ALDOL CONDENSATE	7.177	3000	JAB
3.	ALDOL CONDENSATE	7.735	200000	JAB
4.	ALDOL CONDENSATE	8.946	900	JAB
5.	UNKNOWN	37.967	500	J

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKVG

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

Client: TNUHANFORD RC-074 K1231

Matrix: (soil/water) SOIL

Lab Sample ID: 08LE0264-MB1

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

Lab File ID: C053104

Level: (low/med) LOW

Date Received: 05/29/08

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

Date Extracted: 05/29/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/31/08

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	4.485	100	J
2.	ALDOL CONDENSATE	4.907	2000	JA
3.	ALDOL CONDENSATE	5.536	80000	JA
4.	ALDOL CONDENSATE	6.949	700	JA
5.	UNKNOWN	20.050	400	J

Lionville Laboratory Use Only

08051185

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU HANFORD SAF# RC-074

Est. Final Proj. Sampling Date:

Project#: 11343-606-001-9999

Project Contact/Phone#:

Lionville Laboratory Project Manager: O Johnson

QC: SW846 Del: STD TAT: 15 Day

Date Rec'd: 05-23-08 Date Due: 06-07-08

		A	B	C
Refrigerator #				
#/Type Container	Liquid / Solid	1G	1G	1G
Volume		60	60	60
Preservatives		—	—	—

ANALYSES REQUESTED →

	ORGANIC							INORG	
	VOA	BNA	Pest/PCB	Herb				Metal	CN
Lionville Laboratory Use Only		06254	OPCB 06681	5/23/08				*See Back	

EDD

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected														
001	J16W65			SOIL	5-21-08	1017		X	X					X						
002	1 67			1	1	1420		X	X					X						

Special Instructions:

Metals = HSL + Bi, Bo, Li, Mo, P-, Si, SR, Sn, U-

Special Instructions:

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

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	5/23/08	0920

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-074-073	Page 1 of 1

Collector: SEC D.W. Shea/Sub-contractor D. Rios	Company Contact: D.W.Shea	Telephone No.: 521-6014	Project Coordinator: KESSNER, JH
Price Code: 8K	Data Turnaround: 15 days		
Project Designation: 100-D/DR Burial Grounds & Remaining Sites - Soil Quick Tu	Sampling Location: post remediation at 100-D-31:2		SAF No.: RC-074
Ice Chest No.: AFS-04-122	Field Logbook No.: EL-1607-3	COA: R00D312600	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: See OPSC A080285		Bill of Lading/Air Bill No.: See OSPC

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POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	Cool 4C	None	None	None					
Type of Container	G/P	aG	aG	G/P	G/P	G/P					
No. of Container(s)	1	1	1	1	~~1~~ 0 DWSHEA 5/21/08	1					
Volume	60mL	60mL	60mL	500mL	5g	60mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions.	Gross Alpha; Gross Beta	Carbon-14; ~~Tritium-H3~~ DWShea 5/21/08					
Sample No.	Matrix *	Sample Date	Sample Time								
J16W65	SOIL	5-21-08	1017	✓	✓	✓					
~~J16W66~~	~~SOIL~~		~~5-21-08 1020~~								
J16W67	SOIL	5-21-08	1420	✓	✓	✓					

CHAIN OF POSSESSION — 5-21-08 Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature]	5-21-08 1431	DWShea DWSHEA	5/21/08 1431
DWShea DWSHEA	5/21/08 1708	Fridge 3A	5/21/08 1708
Fridge 3A	5-22-08 0745	JRDeguigne JRDeguigne	5-22-08 0745
JRDeguigne JRDeguigne	5-22-08 0820	Fed Ex	
Fed Ex	5/23/08 0925	[signature]	5-23-08 0925
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selepium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc} and Hgvia CVAA
(2) Gamma Spec - Add-on {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, ~~Silver-108m/metastable, Sodium-22~~} DWShea 5/21/08

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

RK [signature]

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

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

WCH-EE-011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

Project SAP/SOW/Release #: RC-074

Date: 5/23/08

LvLI Batch #: 0805L185

Sample Custodian: [signature]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7984 4704 0181
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 2-2	°C	Cooler # AFS-04-122
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