0077259

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

COMPLETE COPY OF DATA PACKAGE TO:

Jeff DeBuigne	X9-10	KW 5/14/08 INITIAL/DATE
Kathy Wendt	H4-21	KW 5/14/08 INITIAL/DATE

RECEIVED
MAY 19 2008
EDMC

COMMENTS:

SDG K1182 SAF-RC-032

Rad only Chem only X Rad & Chem

X Complete Partial

Waste Site: **100-F-26:9 Phase 2 Verification OB/SP**

EBERLINE
SERVICES

April 21, 2008

RECEIVED
APR 2008

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

Reference: **P.O. #S00W235A00**
Eberline Services R8-04-081-7793, SDG K1182

Dear Ms. Kessner:

Enclosed is the data report for one solid (soil) sample designated under SAF No. RC-032, received at Eberline Services on April 15, 2008. The sample was 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/jag

Enclosure: Data Package

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

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K1182 was composed of one solid (soil) sample designated under SAF No. RC-032 with a Project Designation of: 100-F Remaining Sites Burial Grounds-Soil Full Protocol.

The sample was received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to WCH via e-mail on April 17, 2008.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analysis

No problems were encountered during the course of the analyses.

2.2 Gamma Spectroscopy

No problems were encountered during the course of the analyses.

3.0 Case Narrative Certification Statement

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

Melissa Mannion
Melissa C. Mannion
Senior Program Manager

04/24/08
Date

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP K1182

SDG	7793
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. S00W235A00
Case no	SDG K1182

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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J. Gutierrez
Prepared by

Melissa Mannion
Reviewed by

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	04/21/08

SDG 7793
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1182

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 04/21/08

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 K1182

SDG 7793
Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1182

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R804081-01	J16M53	100-F-26:9 Phase 2 Verif	SOLID		RC-032	RC-032-197	04/10/08 12:00
R804081-02	Lab Control Sample		SOLID		RC-032		
R804081-03	Method Blank		SOLID		RC-032		
R804081-04	Duplicate (R804081-01)	100-F-26:9 Phase 2 Verif	SOLID		RC-032		04/10/08 12:00

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 04/21/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1182

SDG 7793
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1182

C BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
793	RC-032-197	J16M53	SOLID	95.0	886 g		04/15/08	5	R804081-01	7793-001
		Method Blank	SOLID						R804081-03	7793-003
		Lab Control Sample	SOLID						R804081-02	7793-002
		Duplicate (R804081-01)	SOLID	95.0	886 g		04/15/08	5	R804081-04	7793-004

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 04/21/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1182

SDG 7793
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1182

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	6148-069	20.6	1			1	1	1/1		
93B	SOLID	Gross Beta in Solids	6148-069	11.0	1			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6148-069	7.0	1			1	1	1/1		

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 04/21/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1182

SDG 7793
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1182

AB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
304081-01	J16M53			7793-001	93A/93		04/17/08	04/17/08	BW	Gross Alpha in Solids
04/10/08	100-F-26:9 Phase 2 Verif		SOLID	7793-001	93B/93		04/17/08	04/17/08	BW	Gross Beta in Solids
04/15/08	RC-032-197	RC-032		7793-001	GAM		04/15/08	04/17/08	CSS	Gamma Scan
304081-02	Lab Control Sample			7793-002	93A/93		04/17/08	04/17/08	BW	Gross Alpha in Solids
			SOLID	7793-002	93B/93		04/17/08	04/17/08	BW	Gross Beta in Solids
		RC-032		7793-002	GAM		04/15/08	04/17/08	CSS	Gamma Scan
304081-03	Method Blank			7793-003	93A/93		04/17/08	04/17/08	BW	Gross Alpha in Solids
			SOLID	7793-003	93B/93		04/17/08	04/17/08	BW	Gross Beta in Solids
		RC-032		7793-003	GAM		04/15/08	04/17/08	CSS	Gamma Scan
304081-04	Duplicate (R804081-01)			7793-004	93A/93		04/17/08	04/17/08	BW	Gross Alpha in Solids
04/10/08	100-F-26:9 Phase 2 Verif		SOLID	7793-004	93B/93		04/17/08	04/17/08	BW	Gross Beta in Solids
04/15/08		RC-032		7793-004	GAM		04/16/08	04/17/08	CSS	Gamma Scan

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
93A/93	RC-032	Gross Alpha in Solids	900.0_ALPHABETA_GPC	1			1	1	1	4
93B/93	RC-032	Gross Beta in Solids	900.0_ALPHABETA_GPC	1			1	1	1	4
GAM	RC-032	Gamma Scan	GAMMA_GS	1			1	1	1	4
TOTALS				3			3	3	3	12

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 04/21/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1182

7793-003 Method Blank

METHOD BLANK

SDG	7793	Client/Case no	Hanford	SDG K1182
Contact	Melissa C. Mannion	Contract	No. S00W235A00	
Lab sample id	R804081-03	Client sample id	Method Blank	
Dept sample id	7793-003	Material/Matrix		SOLID
		SAF No	RC-032	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	1.56	3.0	5.27	10.0	U	93A
Gross Beta	12587-47-2	-1.10	3.0	5.28	15.0	U	93B
Potassium 40	13966-00-2	U		0.268		U	GAM
Cobalt 60	10198-40-0	U		0.013	0.050	U	GAM
Cesium 137	10045-97-3	U		0.013	0.100	U	GAM
Radium 226	13982-63-3	U		0.031	0.100	U	GAM
Radium 228	15262-20-1	U		0.063	0.200	U	GAM
Europium 152	14683-23-9	U		0.038	0.100	U	GAM
Europium 154	15585-10-1	U		0.036	0.100	U	GAM
Europium 155	14391-16-3	U		0.032	0.100	U	GAM
Thorium 228	14274-82-9	U		0.025		U	GAM
Thorium 232	TH-232	U		0.063		U	GAM
Uranium 235	15117-96-1	U		0.060		U	GAM
Uranium 238	U-238	U		1.46		U	GAM
Americium 241	14596-10-2	U		0.029		U	GAM
Silver 108m	14391-65-2	U		0.011		U	GAM
Barium 133	13981-41-4	U		0.014		U	GAM

100-F RemainSitesBurialGrnds-SoilFP

QC-BLANK #65350

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	04/21/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1182

7793-002

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7793

Contact Melissa C. Mannion

Client/Case no Hanford SDG K1182

Contract No. S00W235A00

Lab sample id R804081-02

Dept sample id 7793-002

Client sample id Lab Control Sample

Material/Matrix SOLID

SAF No RC-032

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	104	17	6.42	10.0		93A	102	4.1	102	59-141	70-130
Gross Beta	93.8	7.7	6.38	15.0		93B	93.5	3.7	100	79-121	80-120
Cobalt 60	2.07	0.061	0.025	0.050		GAM	1.89	0.076	110	86-114	80-120
Cesium 137	2.17	0.052	0.032	0.100		GAM	2.02	0.081	107	87-113	80-120

100-F RemainSitesBurialGrnds-SoilFP

QC-LCS #65349

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 04/21/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1182

7793-004 J16M53

DUPLICATE

SDG	7793			Client/Case no	Hanford SDG K1182
Contact	Melissa C. Mannion			Contract	No. S00W235A00
	DUPLICATE		ORIGINAL		
Lab sample id	R804081-04	Lab sample id	R804081-01	Client sample id	J16M53
Dept sample id	7793-004	Dept sample id	7793-001	Location/Matrix	100-F-26:9 Phase 2 Verif SOLID
		Received	04/15/08	Collected/Weight	04/10/08 12:00 886 g
% solids	95.0	% solids	95.0	Custody/SAF No	RC-032-197 RC-032

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	DER σ
Gross Alpha	14.3	7.1	5.94	10.0		93A	16.8	7.5	5.42		16	109	0.4
Gross Beta	18.2	4.5	5.75	15.0		93B	21.2	4.5	5.46		15	54	0.8
Potassium 40	8.94	1.2	0.704			GAM	9.51	0.45	0.247		6	26	0.7
Cobalt 60	U		0.068	0.050	U	GAM	U		0.024	U	-		1.2
Cesium 137	U		0.074	0.100	U	GAM	U		0.045	U	-		0.7
Radium 226	0.638	0.16	0.174	0.100		GAM	0.655	0.069	0.058		3	43	0.2
Radium 228	0.573	0.27	0.336	0.200		GAM	0.790	0.12	0.115		32	67	1.4
Europium 152	U		0.190	0.100	U	GAM	U		0.065	U	-		1.2
Europium 154	U		0.233	0.100	U	GAM	U		0.078	U	-		1.3
Europium 155	U		0.152	0.100	U	GAM	U		0.065	U	-		1.0
Thorium 228	0.798	0.095	0.093			GAM	0.720	0.033	0.031		10	25	1.2
Thorium 232	0.573	0.27	0.336			GAM	0.790	0.12	0.115		32	67	1.4
Uranium 235	U		0.303		U	GAM	U		0.108	U	-		1.2
Uranium 238	U		8.91		U	GAM	U		3.07	U	-		1.2
Americium 241	U		0.081		U	GAM	U		0.029	U	-		1.2
Silver 108m	U		0.057		U	GAM	U		0.020	U	-		1.2
Barium 133	U		0.087		U	GAM	U		0.031	U	-		1.2

100-F RemainSitesBurialGrnds-SoilFP

QC-DUP#1 65351

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	04/21/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1182

7793-001 J16M53

DATA SHEET

SDG	7793	Client/Case no	Hanford	SDG K1182	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R804081-01	Client sample id	J16M53		
Dept sample id	7793-001	Location/Matrix	100-F-26:9 Phase 2 Verif	SOLID	
Received	04/15/08	Collected/Weight	04/10/08 12:00	886 g	
% solids	95.0	Custody/SAF No	RC-032-197	RC-032	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	16.8	7.5	5.42	10.0		93A
Gross Beta	12587-47-2	21.2	4.5	5.46	15.0		93B
Potassium 40	13966-00-2	9.51	0.45	0.247			GAM
Cobalt 60	10198-40-0	U		0.024	0.050	U	GAM
Cesium 137	10045-97-3	U		0.045	0.100	U	GAM
Radium 226	13982-63-3	0.655	0.069	0.058	0.100		GAM
Radium 228	15262-20-1	0.790	0.12	0.115	0.200		GAM
Europium 152	14683-23-9	U		0.065	0.100	U	GAM
Europium 154	15585-10-1	U		0.078	0.100	U	GAM
Europium 155	14391-16-3	U		0.065	0.100	U	GAM
Thorium 228	14274-82-9	0.720	0.033	0.031			GAM
Thorium 232	TH-232	0.790	0.12	0.115			GAM
Uranium 235	15117-96-1	U		0.108		U	GAM
Uranium 238	U-238	U		3.07		U	GAM
Americium 241	14596-10-2	U		0.029		U	GAM
Silver 108m	14391-65-2	U		0.020		U	GAM
Barium 133	13981-41-4	U		0.031		U	GAM

100-F RemainSitesBurialGrnds-SoilFP

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	04/21/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1182

Test 93A Matrix SOLID
SDG 7793
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS ALPHA IN SOLIDS
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1182

.ESULTS

ıB ıMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha
:eparation batch 6148-069					
;04081-01	93		7793-001	J16M53	16.8
;04081-02	93		7793-002	Lab Control Sample	ok
;04081-03	93		7793-003	Method Blank	U
;04081-04	93		7793-004	Duplicate (R804081-01)	ok
›minal values and limits from method				RDLs (pCi/g)	10.0
)0-F RemainSitesBurialGrnds-SoilFP					

:ETHOD PERFORMANCE

ıB ıMPLE 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
:eparation batch 6148-069 2σ prep error 20.6 % Reference Lab Notebook #6148, pg. 69																
;04081-01	93		J16M53	5.42	0.100			89		100			7	04/17/08	04/17	GRB-109
;04081-02	93		Lab Control Sample	6.42	0.100			64		100				04/17/08	04/17	GRB-110
;04081-03	93		Method Blank	5.27	0.100			64		100				04/17/08	04/17	GRB-111
;04081-04	93		Duplicate (R804081-01)	5.94	0.100			88		100			7	04/17/08	04/17	GRB-112
›minal values and limits from method				10.0	0.100			5-250		100			180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 5.76 ± 1.05
RESIDUE 76 ± 28

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 04/21/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1182

Test 93B Matrix SOLID
SDG 7793
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS BETA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1182

ESULTS

AB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta
eparation batch 6148-069					
104081-01	93		7793-001	J16M53	21.2
104081-02	93		7793-002	Lab Control Sample	ok
104081-03	93		7793-003	Method Blank	U
104081-04	93		7793-004	Duplicate (R804081-01)	ok

minal values and limits from method RDLs (pCi/g) 15.0
0-F RemainSitesBurialGrnds-SoilFP

ETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
eparation batch 6148-069 2σ prep error 11.0 % Reference Lab Notebook #6148, pg. 69																
104081-01	93		J16M53	5.46	0.100			89		100			7	04/17/08	04/17	GRB-109
104081-02	93		Lab Control Sample	6.38	0.100			64		100				04/17/08	04/17	GRB-110
104081-03	93		Method Blank	5.28	0.100			64		100				04/17/08	04/17	GRB-111
104081-04	93		Duplicate (R804081-01)	5.75	0.100			88		100			7	04/17/08	04/17	GRB-112
minal values and limits from method				15.0	0.100			5-250		100			180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 5.72 ± 0.964
RESIDUE 76 ± 28

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 04/21/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1182

Test GAM Matrix SOLID
SDG 7793
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1182

.ESULTS

AB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60		Cesium 137	
reparation batch 6148-069								
304081-01			7793-001	J16M53	U		U	
304081-02			7793-002	Lab Control Sample	ok		ok	
304081-03			7793-003	Method Blank	U		U	
304081-04			7793-004	Duplicate (R804081-01)	-	U	-	U
ominal values and limits from method				RDLs (pCi/g)	0.050		0.100	
DO-F RemainSitesBurialGrnds-SoilFP								

IETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
reparation batch 6148-069			2σ prep error 7.0 %	Reference Lab Notebook #6148, pg. 69												
304081-01			J16M53	6.05	233					775			5	04/15/08	04/15	JR,01,00
304081-02			Lab Control Sample	0.025	233					776				04/15/08	04/15	JR,07,00
304081-03			Method Blank	3.55	233					775				04/15/08	04/15	JR,02,00
304081-04			Duplicate (R804081-01)	26.3	233					102			6	04/15/08	04/16	JR,01,00
ominal values and limits from method				0.050	233					100			180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 8.98 ± 23.6
YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 04/21/08

SDG 7793
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1182

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 04/21/08

SDG 7793
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1182

PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

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

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

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

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

  These qualifiers should be reviewed as follows:

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

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

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/21/08

SDG 7793
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1182

WORK SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/21/08

SDG 7793
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1182

DATA SHEET

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

The following notes apply to this report:

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

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

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

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

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

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

The following qualifiers are defined by the DVD system:

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/21/08

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 7793
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1182

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 04/21/08

SDG 7793
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1182

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 04/21/08

SDG 7793
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1182

DUPLICATE

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

The following notes apply to this report:

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

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

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

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

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

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

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

  This value reported for this limit is at most 999.

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

  1. A fixed percentage specified in the protocol.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/21/08

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 7793
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1182

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 04/21/08

SDG 7793
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1182

MATRIX SPIKE

for the recovery.

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/21/08

METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

  MDAs are underlined if greater than the printed RDL.

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-032-197	Page 1 of 1

Collector T. Welch-Koelling	**Company Contact** JR DEBUIGNE **Telephone No.** 528-6409	**Project Coordinator** KESSNER, JH	**Price Code** 8A / **Data Turnaround** 3-DAY
Project Designation 100-F Remaining Sites Burial Grounds - Soil Full Protocol	**Sampling Location** 100-F-26:9 Phase 2 Verification OB/SP K1182 (7793)	**SAF No.** RC-032	
Ice Chest No. GRP-04-001	**Field Logbook No.** EFL-1174-4 / **COA** R10F262000	**Method of Shipment** FED EX	
Shipped To EBERLINE SERVICES LIONVILLE	**Offsite Property No.** A080221	**Bill of Lading/Air Bill No.** See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
Type of Container	P	P	aG	aG	aG	aG	G/P	P		
No. of Container(s)	2	1	1	1	1	1	1	1		
Volume	125mL	125mL	60mL	120mL	120mL	120mL	500mL	125mL		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	PCBs - 8082	Semi-VOA - 8270A (TCL)	Pesticides - 8081	TPH (Total) - 418.1	See item (2) in Special Instructions.	Gross Alpha. Gross Beta		
Sample No. / Matrix * / Sample Date / Sample Time										
J16M53 / SOIL / 4-10-08 / 1200		JRD 4-9-08					X	X		OB-1
~~J16M54~~ JRD 4-10-08 / ~~SOIL~~							~~X~~	~~X~~		~~SP-6~~

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
TOM Welch Koelling	4/10/08 1205	JR DeBuigne JRD	1205 4-10-08
JR DeBuigne JRD	4-10-08 1445	1060 Ship Facility/2A	1445 4-10-08
1060/2A 4/14/08	1000	MS Stankovich 4/14/08	1000
WCH MS Stankovich 4/14/08	1500	FED EX	
FED EX			04/15/08 09:30

SPECIAL INSTRUCTIONS

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

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

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

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

WCH-EE-011

EBERLINE SERVICES

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

HK 4/15/08

Client: W.C. HANFORD City RICHLAND State WA

Date/Time received 04/15/08 09:30 CoC No. RC-032197

Container I.D. No GRP-04-001 Requested TAT (Days) 3 P.O. Received Yes [ ] No [ ]

INSPECTION

1. Custody seals on shipping container intact? Yes [X] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [X] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [X] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [X] No [ ] N/A [ ]
5. Packing material is: Wet [ ] Dry [X]
6. Number of samples in shipping container: 1 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: 04/15/08 Time: 10:30

Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe	Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	wipe
J16M53	<60						

Ion Chamber Ser. No. _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

Beta/Gamma Meter Ser. No. 100482 Calibration date 09MAY07

LIONVILLE LABORATORY INC.

13 May 2008

RECEIVED MAY 2008

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

Subject: Analytical Data Package

Dear Ms. Kessner:

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

LvLI Batch #	0804L913
SDG #	K1182
SAF #	RC-032
Date Received	4/15/08
# Samples	1
Matrix	SOIL
Volatiles	
Semivolatiles	X
Pest/PCB	X
Glycols	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	X

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

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

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

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

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K1182

RECEIVED
MAY 2008

DATE RECEIVED: 04/15/08 LVL LOT # :0804L913

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16M53						
% SOLIDS	001	S	08L%S037	04/10/08	04/16/08	04/17/08
% SOLIDS	001 REP	S	08L%S037	04/10/08	04/16/08	04/17/08
CHROMIUM VI	001	S	08LVI036	04/10/08	04/17/08	04/17/08
CHROMIUM VI	001 REP	S	08LVI036	04/10/08	04/17/08	04/17/08
CHROMIUM VI	001 MS	S	08LVI036	04/10/08	04/17/08	04/17/08
CHROMIUM VI	001 MSD	S	08LVI036	04/10/08	04/17/08	04/17/08
PETROLEUM HYDROCARBO	001	S	08LHC012	04/10/08	04/21/08	04/24/08
PETROLEUM HYDROCARBO	001 REP	S	08LHC012	04/10/08	04/21/08	04/24/08
PETROLEUM HYDROCARBO	001 MS	S	08LHC012	04/10/08	04/21/08	04/24/08
AB QC:						
CHROMIUM VI	MB1	S	08LVI036	N/A	04/17/08	04/17/08
CHROMIUM VI	MB1 BS	S	08LVI036	N/A	04/17/08	04/17/08
CHROMIUM VI	MB1 BSD	S	08LVI036	N/A	04/17/08	04/17/08
PETROLEUM HYDROCARBO	MB1	S	08LHC012	N/A	04/21/08	04/24/08
PETROLEUM HYDROCARBO	MB1 BS	S	08LHC012	N/A	04/21/08	04/24/08
PETROLEUM HYDROCARBO	MB1 BSD	S	08LHC012	N/A	04/21/08	04/24/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-074 K1182
LVL#: 0804L913

W.O.#: 11343-606-001-9999-00
Date Received: 04-15-08

INORGANIC NARRATIVE

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

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

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

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

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

5. The method blanks were within the method criteria.

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

7. The matrix spike recoveries were within the 75-125% control limits with the exception of Soluble Chromium VI that may be attributed to sample inhomogeneity.

8. The replicate analyses were within the 20% RPD control limit.

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

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

Judy Stm
Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

5/1/08
Date

njp\i04-913

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 12 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

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

Other: **Method:**

Other: **Method**

L-WI-034/B-01/01

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

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

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

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

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

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

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

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

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

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

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/25/08

CLIENT: TNUHANFORD RC-032 K1182 LVL LOT #: 0804L913

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J16M53	% Solids	93.8	%	0.01	1.0
		Chromium VI	0.43 u	MG/KG	0.43	2.0
		Petroleum Hydrocarbons	149 u	MG/KG	149	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/25/08

CLIENT: TNUHANFORD RC-032 K1182 LVL LOT #: 0804L913

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	08LVI036-MB1	Chromium VI	0.20	u	MG/KG	0.20	1.0
BLANK10	08LHC012-MB1	Petroleum Hydrocarbons	133	u	MG/KG	133	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 04/25/08

CLIENT: TNUHANFORD RC-032 K1182 LVL LOT #: 0804L913

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J16M53	Soluble Chromium VI	6.6	0.43u	4.3	163.Z	2.0
		Insoluble Chromium VI	1310	0.43u	1260	103.4	100
		Petroleum Hydrocarbons	598	24.0	595	96.5	1.0
BLANK10	08LVI036-MB1	Soluble Chromium VI	3.9	0.20u	4.0	98.0	1.0
		Insoluble Chromium VI	1230	0.20u	1200	102.5	100
BLANK10	08LHC012-MB1	Petroleum Hydrocarbons	563	133 u	560	100.5	1.0
		Petroleum Hydrocarbons	552	133 u	559	98.7	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 04/25/08

CLIENT: TNUHANFORD RC-032 K1182 LVL LOT #: 0804L913

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	08LHC012-MB1	Petroleum Hydrocarbons	100.5	98.7	1.8

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 04/25/08

CLIENT: TNUHANFORD RC-032 K1182 LVL LOT #: 0804L913

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J16M53	% Solids	93.8	97.2	3.6	1.0
		Chromium VI	0.43u	0.43u	NC	2.0
		Petroleum Hydrocarbons	149 u	142 u	NC	1.0

onville Laboratory Use Only

28041913

Custody Transfer Record/Lab Work Request

Page 1 of

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

ent TNU HANFORD SAF# RC-032

. Final Proj. Sampling Date

ject# 11343-606-001-9999-00

ject Contact/Phone#

nville Laboratory Project Manager O Johnson

SW846 Del STD TAT 3DAY

te Rec'd 4-15-08 Date Due 4-18-08

		A	B			C		DE		F					
Refrigerator #		3	3			3		3							
#/Type Container	Liquid														
	Solid	1G	1G			1G		2P		1P					
Volume		120	60			120		125		125					
Preservatives															
ANALYSES REQUESTED →	ORGANIC	VOA	BNA	Pest/PCB	Herb		TOT. TPH		INORG Metal Hg	CN	HEX CHROM				
	Lionville Laboratory Use Only		062754	0PCB			IPHC		MetD		ICR6				

TRIX DES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected													
Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP, Leachate, Wipe, Other, Fish	001	J16M53	/	/	soil	4-10-08	1200		X	X			X		X		X			

ecial Instructions:

met① = HSL + B, Mo, Si
NO TL

Special Instructions:

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

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	4/15/08	1030

Relinquished by	Received by	Date	Time

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

000000010

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-032-197	Page 1 of 1

Collector: T. Welch-Koelling	Company Contact: JR DEBUIGNE	Telephone No.: 528-6409	Project Coordinator: KESSNER, JH
Price Code: 8A	Data Turnaround: 30D+7		
Project Designation: 100-F Remaining Sites Burial Grounds - Soil Full Protocol	Sampling Location: 100-F-26:9 Phase 2 Verification OB/SP		SAF No.: RC-032
Ice Chest No.: SAWS-109	Field Logbook No.: EFL-1174-4	COA: R10F262000	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A080235		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS: NA

Special Handling and/or Storage: NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None			
Type of Container	P	P	aG	aG	aG	aG	G/P	P			
No. of Container(s)	2	1	1	1	1	1	1	1			
Volume	125mL	125mL	60mL	120mL	120mL	120mL	500mL	125mL			
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	PCBs - 8082	Semi-VOA - 8270A (TCL)	Pesticides - 8081	TPH (Total) - 418.1	See item (2) in Special Instructions.	Gross Alpha; Gross Beta			
Sample No. / Matrix * / Sample Date / Sample Time											
16M53 / SOIL / 4-10-08 / 1200	X	X	X	X		X	X				OB-1
~~16M54 JRD 4-10-08 / SOIL~~	X	X	X	X	X	X					~~SP-6~~

4-9-08

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature]	4/10/08 1205	JR DeBuigne [signature]	1205 4-10-08
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JR DeBuigne [signature]	1445 4-10-08	1060 Ship Facility/2A	1445 4-10-08
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
1060/2A 4/14/08	0930	MStankovich 4/14/08	0930
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
MStankovich	4/14/08 1500	FedEx	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
FedEx	4-15-08 1030	[signature]	4-15-08 1030
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

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

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

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

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

CH-EE-011

000000011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD
Project/SAF/SOW/Release #: RC-032

Date: 4/15/08

LvLI Batch #: 0804L 913

Sample Custodian: [signature]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7918 8400 2550
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 # SAWS-109
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A
Person Contacted _____		Date _____	

LvLI

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD RC-032 K1182

RECEIVED MAY 2008

DATE RECEIVED: 04/15/08 LVL LOT # :08041913

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16M53						
SILVER, TOTAL	001	S	08L0155	04/10/08	04/17/08	04/18/08
SILVER, TOTAL	001 REP	S	08L0155	04/10/08	04/17/08	04/18/08
SILVER, TOTAL	001 MS	S	08L0155	04/10/08	04/17/08	04/18/08
ALUMINUM, TOTAL	001	S	08L0155	04/10/08	04/17/08	04/18/08
ALUMINUM, TOTAL	001 REP	S	08L0155	04/10/08	04/17/08	04/18/08
ALUMINUM, TOTAL	001 MS	S	08L0155	04/10/08	04/17/08	04/18/08
ARSENIC, TOTAL	001	S	08L0155	04/10/08	04/17/08	04/18/08
ARSENIC, TOTAL	001 REP	S	08L0155	04/10/08	04/17/08	04/18/08
ARSENIC, TOTAL	001 MS	S	08L0155	04/10/08	04/17/08	04/18/08
BORON, TOTAL	001	S	08L0155	04/10/08	04/17/08	04/18/08
BORON, TOTAL	001 REP	S	08L0155	04/10/08	04/17/08	04/18/08
BORON, TOTAL	001 MS	S	08L0155	04/10/08	04/17/08	04/18/08
BARIUM, TOTAL	001	S	08L0155	04/10/08	04/17/08	04/18/08
BARIUM, TOTAL	001 REP	S	08L0155	04/10/08	04/17/08	04/18/08
BARIUM, TOTAL	001 MS	S	08L0155	04/10/08	04/17/08	04/18/08
BERYLLIUM, TOTAL	001	S	08L0155	04/10/08	04/17/08	04/18/08
BERYLLIUM, TOTAL	001 REP	S	08L0155	04/10/08	04/17/08	04/18/08
BERYLLIUM, TOTAL	001 MS	S	08L0155	04/10/08	04/17/08	04/18/08
CALCIUM, TOTAL	001	S	08L0155	04/10/08	04/17/08	04/18/08
CALCIUM, TOTAL	001 REP	S	08L0155	04/10/08	04/17/08	04/18/08
CALCIUM, TOTAL	001 MS	S	08L0155	04/10/08	04/17/08	04/18/08
CADMIUM, TOTAL	001	S	08L0155	04/10/08	04/17/08	04/18/08
CADMIUM, TOTAL	001 REP	S	08L0155	04/10/08	04/17/08	04/18/08
CADMIUM, TOTAL	001 MS	S	08L0155	04/10/08	04/17/08	04/18/08
COBALT, TOTAL	001	S	08L0155	04/10/08	04/17/08	04/18/08
COBALT, TOTAL	001 REP	S	08L0155	04/10/08	04/17/08	04/18/08
COBALT, TOTAL	001 MS	S	08L0155	04/10/08	04/17/08	04/18/08
CHROMIUM, TOTAL	001	S	08L0155	04/10/08	04/17/08	04/18/08
CHROMIUM, TOTAL	001 REP	S	08L0155	04/10/08	04/17/08	04/18/08
CHROMIUM, TOTAL	001 MS	S	08L0155	04/10/08	04/17/08	04/18/08
COPPER, TOTAL	001	S	08L0155	04/10/08	04/17/08	04/18/08
COPPER, TOTAL	001 REP	S	08L0155	04/10/08	04/17/08	04/18/08
COPPER, TOTAL	001 MS	S	08L0155	04/10/08	04/17/08	04/18/08
IRON, TOTAL	001	S	08L0155	04/10/08	04/17/08	04/18/08
IRON, TOTAL	001 REP	S	08L0155	04/10/08	04/17/08	04/18/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD RC-032

DATE RECEIVED: 04/15/08 LVL LOT # :0804L913

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
IRON, TOTAL	001 MS	S	08L0155	04/10/08	04/17/08	04/18/08
MERCURY, TOTAL	001	S	08C0072	04/10/08	04/18/08	04/18/08
MERCURY, TOTAL	001 REP	S	08C0072	04/10/08	04/18/08	04/18/08
MERCURY, TOTAL	001 MS	S	08C0072	04/10/08	04/18/08	04/18/08
POTASSIUM, TOTAL	001	S	08L0155	04/10/08	04/17/08	04/18/08
POTASSIUM, TOTAL	001 REP	S	08L0155	04/10/08	04/17/08	04/18/08
POTASSIUM, TOTAL	001 MS	S	08L0155	04/10/08	04/17/08	04/18/08
MAGNESIUM, TOTAL	001	S	08L0155	04/10/08	04/17/08	04/18/08
MAGNESIUM, TOTAL	001 REP	S	08L0155	04/10/08	04/17/08	04/18/08
MAGNESIUM, TOTAL	001 MS	S	08L0155	04/10/08	04/17/08	04/18/08
MANGANESE, TOTAL	001	S	08L0155	04/10/08	04/17/08	04/18/08
MANGANESE, TOTAL	001 REP	S	08L0155	04/10/08	04/17/08	04/18/08
MANGANESE, TOTAL	001 MS	S	08L0155	04/10/08	04/17/08	04/18/08
MOLYBDENUM, TOTAL	001	S	08L0155	04/10/08	04/17/08	04/18/08
MOLYBDENUM, TOTAL	001 REP	S	08L0155	04/10/08	04/17/08	04/18/08
MOLYBDENUM, TOTAL	001 MS	S	08L0155	04/10/08	04/17/08	04/18/08
SODIUM, TOTAL	001	S	08L0155	04/10/08	04/17/08	04/18/08
SODIUM, TOTAL	001 REP	S	08L0155	04/10/08	04/17/08	04/18/08
SODIUM, TOTAL	001 MS	S	08L0155	04/10/08	04/17/08	04/18/08
NICKEL, TOTAL	001	S	08L0155	04/10/08	04/17/08	04/18/08
NICKEL, TOTAL	001 REP	S	08L0155	04/10/08	04/17/08	04/18/08
NICKEL, TOTAL	001 MS	S	08L0155	04/10/08	04/17/08	04/18/08
LEAD, TOTAL	001	S	08L0155	04/10/08	04/17/08	04/18/08
LEAD, TOTAL	001 REP	S	08L0155	04/10/08	04/17/08	04/18/08
LEAD, TOTAL	001 MS	S	08L0155	04/10/08	04/17/08	04/18/08
ANTIMONY, TOTAL	001	S	08L0155	04/10/08	04/17/08	04/18/08
ANTIMONY, TOTAL	001 REP	S	08L0155	04/10/08	04/17/08	04/18/08
ANTIMONY, TOTAL	001 MS	S	08L0155	04/10/08	04/17/08	04/18/08
SELENIUM, TOTAL	001	S	08L0155	04/10/08	04/17/08	04/18/08
SELENIUM, TOTAL	001 REP	S	08L0155	04/10/08	04/17/08	04/18/08
SELENIUM, TOTAL	001 MS	S	08L0155	04/10/08	04/17/08	04/18/08
SILICON, TOTAL	001	S	08L0155	04/10/08	04/17/08	04/18/08
SILICON, TOTAL	001 REP	S	08L0155	04/10/08	04/17/08	04/18/08
SILICON, TOTAL	001 MS	S	08L0155	04/10/08	04/17/08	04/18/08
VANADIUM, TOTAL	001	S	08L0155	04/10/08	04/17/08	04/18/08
VANADIUM, TOTAL	001 REP	S	08L0155	04/10/08	04/17/08	04/18/08
VANADIUM, TOTAL	001 MS	S	08L0155	04/10/08	04/17/08	04/18/08
ZINC, TOTAL	001	S	08L0155	04/10/08	04/17/08	04/18/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD RC-032

DATE RECEIVED: 04/15/08 LVL LOT # :0804L913

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZINC, TOTAL	001 REP	S	08L0155	04/10/08	04/17/08	04/18/08
ZINC, TOTAL	001 MS	S	08L0155	04/10/08	04/17/08	04/18/08

LAB QC:

SILVER LABORATORY	LC1 BS	S	08L0155	N/A	04/17/08	04/18/08
SILVER, TOTAL	MB1	S	08L0155	N/A	04/17/08	04/18/08
ALUMINUM LABORTORY	LC1 BS	S	08L0155	N/A	04/17/08	04/18/08
ALUMINUM, TOTAL	MB1	S	08L0155	N/A	04/17/08	04/18/08
ARSENIC LABORATORY	LC1 BS	S	08L0155	N/A	04/17/08	04/18/08
ARSENIC, TOTAL	MB1	S	08L0155	N/A	04/17/08	04/18/08
BORON LABORATORY	LC1 BS	S	08L0155	N/A	04/17/08	04/18/08
BORON, TOTAL	MB1	S	08L0155	N/A	04/17/08	04/18/08
BARIUM LABORATORY	LC1 BS	S	08L0155	N/A	04/17/08	04/18/08
BARIUM, TOTAL	MB1	S	08L0155	N/A	04/17/08	04/18/08
BERYLLIUM LABORATORY	LC1 BS	S	08L0155	N/A	04/17/08	04/18/08
BERYLLIUM, TOTAL	MB1	S	08L0155	N/A	04/17/08	04/18/08
CALCIUM LABORATORY	LC1 BS	S	08L0155	N/A	04/17/08	04/18/08
CALCIUM, TOTAL	MB1	S	08L0155	N/A	04/17/08	04/18/08
CADMIUM LABORATORY	LC1 BS	S	08L0155	N/A	04/17/08	04/18/08
CADMIUM, TOTAL	MB1	S	08L0155	N/A	04/17/08	04/18/08
COBALT LABORATORY	LC1 BS	S	08L0155	N/A	04/17/08	04/18/08
COBALT, TOTAL	MB1	S	08L0155	N/A	04/17/08	04/18/08
CHROMIUM LABORATORY	LC1 BS	S	08L0155	N/A	04/17/08	04/18/08
CHROMIUM, TOTAL	MB1	S	08L0155	N/A	04/17/08	04/18/08
COPPER LABORATORY	LC1 BS	S	08L0155	N/A	04/17/08	04/18/08
COPPER, TOTAL	MB1	S	08L0155	N/A	04/17/08	04/18/08
IRON LABORATORY	LC1 BS	S	08L0155	N/A	04/17/08	04/18/08
IRON, TOTAL	MB1	S	08L0155	N/A	04/17/08	04/18/08
MERCURY LABORATORY	LC1 BS	S	08C0072	N/A	04/18/08	04/18/08
MERCURY, TOTAL	MB1	S	08C0072	N/A	04/18/08	04/18/08
POTASSIUM LABORATORY	LC1 BS	S	08L0155	N/A	04/17/08	04/18/08
POTASSIUM, TOTAL	MB1	S	08L0155	N/A	04/17/08	04/18/08
MAGNESIUM LABORATORY	LC1 BS	S	08L0155	N/A	04/17/08	04/18/08
MAGNESIUM, TOTAL	MB1	S	08L0155	N/A	04/17/08	04/18/08
MANGANESE LABORATORY	LC1 BS	S	08L0155	N/A	04/17/08	04/18/08
MANGANESE, TOTAL	MB1	S	08L0155	N/A	04/17/08	04/18/08
MOLYBDENUM LABORATOR	LC1 BS	S	08L0155	N/A	04/17/08	04/18/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD RC-032

DATE RECEIVED: 04/15/08 LVL LOT # :0804L913

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MOLYBDENUM, TOTAL	MB1	S	08L0155	N/A	04/17/08	04/18/08
SODIUM LABORATORY	LC1 BS	S	08L0155	N/A	04/17/08	04/18/08
SODIUM, TOTAL	MB1	S	08L0155	N/A	04/17/08	04/18/08
NICKEL LABORATORY	LC1 BS	S	08L0155	N/A	04/17/08	04/18/08
NICKEL, TOTAL	MB1	S	08L0155	N/A	04/17/08	04/18/08
LEAD LABORATORY	LC1 BS	S	08L0155	N/A	04/17/08	04/18/08
LEAD, TOTAL	MB1	S	08L0155	N/A	04/17/08	04/18/08
ANTIMONY LABORATORY	LC1 BS	S	08L0155	N/A	04/17/08	04/18/08
ANTIMONY, TOTAL	MB1	S	08L0155	N/A	04/17/08	04/18/08
SELENIUM LABORATORY	LC1 BS	S	08L0155	N/A	04/17/08	04/18/08
SELENIUM, TOTAL	MB1	S	08L0155	N/A	04/17/08	04/18/08
SILICON LABORATORY	LC1 BS	S	08L0155	N/A	04/17/08	04/18/08
SILICON, TOTAL	MB1	S	08L0155	N/A	04/17/08	04/18/08
VANADIUM LABORATORY	LC1 BS	S	08L0155	N/A	04/17/08	04/18/08
VANADIUM, TOTAL	MB1	S	08L0155	N/A	04/17/08	04/18/08
ZINC LABORATORY	LC1 BS	S	08L0155	N/A	04/17/08	04/18/08
ZINC, TOTAL	MB1	S	08L0155	N/A	04/17/08	04/18/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-032
LVL#: 0804L913
SDG/SAF#: K1182/RC-032

W.O.#: 11343-606-001-9999-00
Date Received: 04-15-08

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 analysis of 1 soil sample.

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

   All samples were reported with a 3-fold dilution for all ICP analytes due to sample matrix.

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

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

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

6. All preparation/method blanks (MB) were within method criteria {less than the Limit of Quantitation (3-10X the LOD), or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

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 at 19.9%. Refer to the Inorganics Laboratory Control Standards Report. Associated sample results may be biased low.

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

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 19 pages.

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
J16M53	Aluminum	66,000	97.4
	Barium	300	65.7
	Calcium	66,000	97.2
	Copper	300	88.5
	Iron	66,000	100.3
	Lead	300	96.5
	Antimony	300	98.5
	Silicon	6,300	95.7

11. The duplicate analyses for 12 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.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

4/30/08
Date

alm/m04-913

METALS METHOD GLOSSARY

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

ot#: 08041913

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
admium	✓6010B	7131A [5]	200.7	213.2			99
alcium	✓6010B		200.7				99
hromium	✓6010B	7191 [5]	200.7	218.2			SS17
obalt	✓6010B		200.7				99
opper	✓6010B	7211 [5]	200.7	220.2			99
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

Other:_____ Method:_____

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

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

3. Flame AA.

4. Graphite Furnace AA.

L-WI-033/N-04/98

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/23/08

CLIENT: TNU-HANFORD RC-032 LVL LOT #: 0804L913

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J16M53	Silver, Total	0.28 u	MG/KG	0.28	3.0
		Aluminum, Total	9350	MG/KG	11.3	3.0
		Arsenic, Total	2.5	MG/KG	1.4	3.0
		Boron, Total	61.7	MG/KG	1.4	3.0
		Barium, Total	659	MG/KG	0.28	3.0
		Beryllium, Total	0.86	MG/KG	0.14	3.0
		Calcium, Total	15200	MG/KG	11.3	3.0
		Cadmium, Total	0.16	MG/KG	0.14	3.0
		Cobalt, Total	7.6	MG/KG	0.57	3.0
		Chromium, Total	12.5	MG/KG	0.57	3.0
		Copper, Total	183	MG/KG	0.57	3.0
		Iron, Total	19000	MG/KG	12.7	3.0
		Mercury, Total	0.03	MG/KG	0.009	1.0
		Potassium, Total	819	MG/KG	11.3	3.0
		Magnesium, Total	5410	MG/KG	7.1	3.0
		Manganese, Total	254	MG/KG	0.11	3.0
		Molybdenum, Total	1.1	MG/KG	0.85	3.0
		Sodium, Total	740	MG/KG	5.7	3.0
		Nickel, Total	13.2	MG/KG	0.57	3.0
		Lead, Total	81.7	MG/KG	0.85	3.0
		Antimony, Total	0.85 u	MG/KG	0.85	3.0
		Selenium, Total	1.7 u	MG/KG	1.7	3.0
		Silicon, Total	470	MG/KG	11.3	3.0
		Vanadium, Total	49.3	MG/KG	0.40	3.0
		Zinc, Total	85.8	MG/KG	1.7	3.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/23/08

CLIENT: TNU-HANFORD RC-032 LVL LOT #: 0804L913

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08L0155-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
		Calcium, Total	5.5	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	0.20 u	MG/KG	0.20	1.0
		Iron, Total	4.5 u	MG/KG	4.5	1.0
		Potassium, Total	4.0 u	MG/KG	4.0	1.0
		Magnesium, Total	2.5 u	MG/KG	2.5	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	13.3	MG/KG	2.0	1.0
		Nickel, Total	0.20 u	MG/KG	0.20	1.0
		Lead, Total	0.30 u	MG/KG	0.30	1.0
		Antimony, Total	0.30 u	MG/KG	0.30	1.0
		Selenium, Total	0.60 u	MG/KG	0.60	1.0
		Silicon, Total	4.0 u	MG/KG	4.0	1.0
		Vanadium, Total	0.14 u	MG/KG	0.14	1.0
		Zinc, Total	0.60 u	MG/KG	0.60	1.0
BLANK1	08C0072-MB1	Mercury, Total	0.01 u	MG/KG	0.01	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 04/23/08

CLIENT: TNU-HANFORD RC-032

LVL LOT #: 0804L913

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J16M53	Silver, Total	4.1	0.28u	4.5	91.1	3.0
		Aluminum, Total	10800	9350	181	778.7*	3.0
		Arsenic, Total	166	2.5	181	90.6	3.0
		Boron, Total	154	61.7	90.3	102.1	3.0
		Barium, Total	944	659	181	157.6	3.0
		Beryllium, Total	5.1	0.86	4.5	94.2	3.0
		Calcium, Total	18700	15200	2260	154.3*	3.0
		Cadmium, Total	4.4	0.16	4.5	94.3	3.0
		Cobalt, Total	50.0	7.6	45.2	93.8	3.0
		Chromium, Total	29.3	12.5	18.1	92.8	3.0
		Copper, Total	45.2	183	22.6	-610. *	3.0
		Iron, Total	19900	19000	90.3	1073 *	3.0
		Mercury, Total	0.20	0.03	0.15	112.5	1.0
		Potassium, Total	2950	819	2260	94.3	3.0
		Magnesium, Total	8010	5410	2260	114.8	3.0
		Manganese, Total	307	254	45.2	117.3*	3.0
		Molybdenum, Total	79.6	1.1	90.3	86.9	3.0
		Sodium, Total	3080	740	2260	103.8	3.0
		Nickel, Total	55.6	13.2	45.2	93.8	3.0
		Lead, Total	106	81.7	45.2	54.0	3.0
		Antimony, Total	16.9	0.85u	45.2	37.4	3.0
		Selenium, Total	142	1.7 u	181	78.3	3.0
		Silicon, Total	846	470	90.3	416.3*	3.0
		Vanadium, Total	93.1	49.3	45.2	96.9	3.0
		Zinc, Total	135	85.8	45.2	108.4	3.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 04/23/08

CLIENT: TNU-HANFORD RC-032 LVL LOT #: 0804L913

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J16M53	Silver, Total	0.28u	0.27u	NC	3.0
		Aluminum, Total	9350	11000	16.1	3.0
		Arsenic, Total	2.5	3.5	33.3	3.0
		Boron, Total	61.7	78.7	24.2	3.0
		Barium, Total	659	980	39.1	3.0
		Beryllium, Total	0.86	1.0	14.7	3.0
		Calcium, Total	15200	19000	22.3	3.0
		Cadmium, Total	0.16	0.21	29.4	3.0
		Cobalt, Total	7.6	8.5	11.2	3.0
		Chromium, Total	12.5	14.3	13.4	3.0
		Copper, Total	183	29.0	145.3	3.0
		Iron, Total	19000	20800	9.4	3.0
		Mercury, Total	0.03	0.04	25.4	1.0
		Potassium, Total	819	850	3.8	3.0
		Magnesium, Total	5410	6610	19.8	3.0
		Manganese, Total	254	276	8.4	3.0
		Molybdenum, Total	1.1	1.5	30.8	3.0
		Sodium, Total	740	967	26.6	3.0
		Nickel, Total	13.2	15.1	13.4	3.0
		Lead, Total	81.7	103	22.8	3.0
		Antimony, Total	0.85u	0.80u	NC	3.0
		Selenium, Total	1.7 u	1.6 u	NC	3.0
		Silicon, Total	470	674	35.7	3.0
		Vanadium, Total	49.3	53.0	7.2	3.0
		Zinc, Total	85.8	130	41.0	3.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 04/23/08

CLIENT: TNU-HANFORD RC-032 LVL LOT #: 0804L913

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0155-LC1	Silver, LCS	45.9	50.0	MG/KG	91.8
		Aluminum, LCS	456	500	MG/KG	91.2
		Arsenic, LCS	860	1000	MG/KG	86.0
		Boron, LCS	445	500	MG/KG	89.0
		Barium, LCS	456	500	MG/KG	91.3
		Beryllium, LCS	22.9	25.0	MG/KG	91.6
		Calcium, LCS	2350	2500	MG/KG	94.0
		Cadmium, LCS	22.7	25.0	MG/KG	90.8
		Cobalt, LCS	231	250	MG/KG	92.3
		Chromium, LCS	45.8	50.0	MG/KG	91.6
		Copper, LCS	114	125	MG/KG	91.3
		Iron, LCS	469	500	MG/KG	93.8
		Potassium, LCS	2130	2500	MG/KG	85.1
		Magnesium, LCS	2320	2500	MG/KG	92.9
		Manganese, LCS	68.5	75.0	MG/KG	91.3
		Molybdenum, LCS	445	500	MG/KG	89.0
		Sodium, LCS	2200	2500	MG/KG	88.1
		Nickel, LCS	183	200	MG/KG	91.4
		Lead, LCS	225	250	MG/KG	90.1
		Antimony, LCS	261	300	MG/KG	87.0
		Selenium, LCS	836	1000	MG/KG	83.6
		Silicon, LCS	99.3	500	MG/KG	19.9
		Vanadium, LCS	228	250	MG/KG	91.0
		Zinc, LCS	89.9	100	MG/KG	89.9
LCS1	08C0072-LC1	Mercury, LCS	5.0	4.7	MG/KG	107.3

Lionville Laboratory Incorporated Logbook #: 440

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0155
Date/Time Initiated: 4/17/08 1345
Date/Time Completed: 4/17/08 2030
Analyst(s): MW
Matrix: (Soil) Water Other: _____
Instr. Type: AA (ICP)
Parameters: HSL+B-, Mg, Si (No Tl) (872.913)
HSL+Bi, B-, Li, Mo, P-, Si, Sr, Sn, U- (837)
(Digested) / Undigested (circle one)
Balance #: B20
Balance Cal Verif: (Y) NA
Hot Plate Temp: 91°

Method: SW (circle)

	3005A	DW	200.7 (1994)
	3010A		200.9
	3015		3113B
	3020A		
	7060A (As/Se)	MCAWW	200.7 (1982)
	7760A (Ag)		200 (AA)
			206.2 (As/Se)
	(3050B)		
	3051	SM	3030C (NC)
CLP	ILMO3.0	Other	_____
	ILMO4.0		

TMW

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
0803L837-001		1.23gm	100ml	<2	TO	coarse	black, green, yellow	granule	
002		1.13gm						/sandy/rocks	
002R		1.12gm							
002S *	1.0ml	1.14gm							
003		1.17gm						/granules	
0804L872-001		1.00gm					white, powder,	black lumps	
001R		1.04gm							
001S *	1.0ml	1.01gm							
0804L913-001		1.13gm					dark brown/rocks		
001R		1.20gm							
001S *	1.0ml	1.18gm							
08L0155-MB1		1.0gm					boiling drip		
LC1 *	1.0ml	1.0gm							

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

Reagent IDs:

HNO_3	E46025
HCL	E45047
H_2O_2	E44A06
1:1 HNO_3	9789-077-04
1:1 HCL	

File ID#: IC015501 IC015502
LIMS Transfer: (Y) N
Data Review By/Date:

Updated

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

ionville Laboratory
ncorporated

MERCURY PREPARATION

Logbook # 422

Analyst: EB
Date 4/18/08
Start Time/Temp: 1410 | 95°
End Time/Temp: 1440 | 97°

Instrument ID HG3113.2
Balance #: B29 /NA
Pipette Calibration (Daily) Y ✓

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

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

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

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
Blank	205			10mL	50mL	
0.2 µg/L	Z4	0.100				
1.0	DR	0.500				
2.0	X3	1.000				
5.0	BB	2.500				
10.0	B32	5.000				
ICV	G7	0.125	2.5			
CCV	IV	0.250	5.0			
ICB/CCB	I94					90.50
MB1	416			0.30		PBS172 100.00
LC1	537	*	*	0.30		LCSS172
0804L813-001	X5			0.33		93.75
001R	114			0.34		
001S	5H	0.500	1.0	0.33		
0804L920-001	C9			0.30		R 100.00
001R	A9			0.32		
001S	OLN	0.500	1.0	0.30		
0804L904-001	B6			0.33		91.07
002	JB			0.40		96.94
003	PA			0.38		92.75
004	194			0.34		R 95.91
005	KX			0.32		97.05
006	BG			0.38		97.65
0804L900-001	X0			0.35		100.00
001R	GTK			0.39		
001S	40	0.500	1.0	0.35		
002	3P			0.35		

Standard:	ID	Prep Date/Time
ICAL/MS	RI 6072-75-07B	4/18/08 1130
ICV/CCV/LCS	US 6072-75-08A	

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

see book # 936 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

ıville Laboratory
ɔrporated

MERCURY PREPARATION

Logbook # 422

yst: TEB
: 4/18/08
t Time/Temp:
Time/Temp: see page 080

Instrument ID H63.1
Balance #: B29 /NA
Pipette Calibration (Daily) Y ✓

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

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

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

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
0804L905-001	H			0.37	50mL	R 93.49
001R	NB			0.34		
001S	AR	0.500	1.0	0.37		
001T	RZ	0.500	1.0	0.30		
002	508			0.35		97.84
003	3T			0.35		96.53
0804L911-001	92			0.31		96.82
002	PF			0.34		88.64
0804L929-001	OF			0.30		R 100.00
001R	290			0.32		
001S	D4	0.500	1.0	0.30		
0804L930-001	CB			0.34		
001R	WO			0.33		
001S	HR	0.050	10.0	0.34		
0804L931-001	AN			0.34		
002	H3			0.33		
002R	997			0.36		
002S	BZ	0.500	1.0	0.33		
003	461			0.38		

TEB 4/18/08

Standard:	ID	Prep Date/Time
ICAL/MS		
ICV/CCV/LCS	see page 080	

Reviewed By/Date: 4/22/08

see book # 368 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 #:

nville Laboratory Use Only

28041913

Custody Transfer Record/Lab Work Request

Page 1 of

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

VLI

nt TNU HANFORD SAF# RC-032

Final Proj. Sampling Date

ect# 11343-606-001-9999-00

ect Contact/Phone#

vlle Laboratory Project Manager O Johnson

SW846 Del STD TAT 3DAY

e Rec'd 4-15-08 Date Due 4-18-08

		A	B			C		DE		F					
Refrigerator #		3	3			3		3							
#/Type Container	Liquid														
	Solid	1G	1G			1G		2P		1P					
Volume		120	60			120		125		125					
Preservatives															
ANALYSES REQUESTED →	ORGANIC	VOA	BNA	Pest/PCB	Herb		TOT. TPH	INORG	Metal Hg	CN	Hex Chrom				
	Lionville Laboratory Use Only		8270	8PCB			IPHC		MetO		ICR6				

TRIX ES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected													
Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP, Leachate, Wipe, Other, Fish	001	J16M53	—	—	soil	4-10-08	1200		X	X			X		X		X			

Special Instructions:

Met① = HSL + B, Mo, Si
NO TL

Special Instructions:

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

Relinquished by	Received by	Date	Time
D Eo	[signature]	4/15/08	1030

Relinquished by	Received by	Date	Time

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

000000017

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-032-197	Page 1 of 1
llector T. Welch-Koelling	Company Contact JR DEBUIGNE Telephone No. 528-6409	Project Coordinator KESSNER, JH	Price Code 8A Data Turnaround 3D+J
ıject Designation 100-F Remaining Sites Burial Grounds - Soil Full Protocol	Sampling Location 100-F-26:9 Phase 2 Verification OB/SP	SAF No. RC-032	
Chest No. SAWS-109	Field Logbook No. EFL-1174-4 COA R10F262000	Method of Shipment FED EX	
ipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A080235	Bill of Lading/Air Bill No. See OSPC	

000000018

OSSIBLE SAMPLE HAZARDS/REMARKS

4

pecial Handling and/or Storage

4

Preservation	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
Type of Container	P	P	aG	aG	aG	aG	G/P	P		
No. of Container(s)	2	1	1	1	1	1	1	1		
Volume	125mL	125mL	60mL	120mL	120mL	120mL	500mL	125mL		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	PCBs - 8082	Semi-VOA - 8270A (TCL)	Pesticides - 8081	TPH (Total) - 418.1	See item (2) in Special Instructions.	Gross Alpha; Gross Beta		
Sample No. / Matrix * / Sample Date / Sample Time										
6M53 / SOIL / 4-10-08 / 1200	X	X	X	X		X	X			OB-1
6M54 JRD 4-10-08 / SOIL	X	X	X	X	X	X				SP-6

4-9-08

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
nquished By/Removed From: [signature] Date/Time: 4/10/08 1205	Received By/Stored In: JR DeBuigne JR DeBuigne Date/Time: 1205 4-10-08	(1) ICP Metals - 6010 (Client List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV)	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<|
nquished By/Removed From: DeBuigne JRD Date/Time: 4-10-08 1445	Received By/Stored In: 1060 Ship Facility/2A Date/Time: 1445 4-10-08	(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133, Silver-108 metastable}	V=Vegetation X=Other
nquished By/Removed From: 60/2H 4/14/08 Date/Time: 0930	Received By/Stored In: MSTankovich 4/14/08 Date/Time: 0930		
nquished By/Removed From: MSTankovich 4/14/08 Date/Time: 1500	Received By/Stored In: FedEx Date/Time:		
nquished By/Removed From: [signature] 4-15-08 1030	Received By/Stored In: [signature] 4-15-08 1030 Date/Time:	Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.	
nquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:		

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

CH-EE-011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD
Project/SAF/SOW/Release #: RC-032

Date: 4/15/08

LvLI Batch #: 0804L 913

Sample Custodian: [signature]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7918 8400 2550
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 # SAWS-109
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD RC-032 K1182

RECEIVED
MAY 2008

DATE RECEIVED: 04/15/08 LVL LOT # :0804L913

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16M53	001	S	08LE0178	04/10/08	04/16/08	04/17/08
J16M53	001 MS	S	08LE0178	04/10/08	04/16/08	04/17/08
J16M53	001 MSD	S	08LE0178	04/10/08	04/16/08	04/17/08

LAB QC:

PBLKPE	MB1	S	08LE0178	N/A	04/16/08	04/17/08
PBLKPE	MB1 BS	S	08LE0178	N/A	04/16/08	04/17/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-032
LVL #: 0804L913
SDG/SAF # K1182 / RC-032

W.O. #: 11343-606-001-9999-00
Date Received: 04-15-2008

PCB

One (1) soil sample was collected on 04-10-2008.

The sample and its associated QC samples was extracted on 04-16-2008 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedure on 04-17-2008. 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. The sample was extracted and analyzed within required holding time
2. The sample and its associated QC samples received Copper-Sulfur and Sulfuric Acid cleanups according to Lionville Laboratory SOPs based on SW846 methods 3660A and 3665A respectively.
3. The method blank was below the reporting limits for all target compounds.
4. All surrogate recoveries were within acceptance criteria.
5. The blank spike recoveries were within acceptance criteria.
6. The matrix spike recoveries were within acceptance criteria.
7. The initial calibrations associated with this data set were within acceptance criteria.
8. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

r:\group\data\2008\pest\tnu\0804-913cs1.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 9 pages.

LvLI
LIONVILLE LABORATORY INC.

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

4/21/08
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: 04/18/08 11:07

RFW Batch Number: **0804L913** Client: **TNU-HANFORD RC-032** Work Order: 11343606001 Page: 1

500000005

	Cust ID:	J16M53	J16M53	J16M53	PBLKPE	PBLKPE BS
Sample Information	RFW#:	001	001 MS	001 MSD	08LE0178-MB1	08LE0178-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	105 %	102 %	104 %	116 %	106 %
	Decachlorobiphenyl	97 %	100 %	99 %	122 %	108 %
		fl	fl	fl	fl	fl
Aroclor-1016		14 U	87 %	90 %	13 U	90 %
Aroclor-1221		14 U	14 U	14 U	13 U	13 U
Aroclor-1232		14 U	14 U	14 U	13 U	13 U
Aroclor-1242		14 U	14 U	14 U	13 U	13 U
Aroclor-1248		14 U	14 U	14 U	13 U	13 U
Aroclor-1254		72	NR	NR	13 U	13 U
Aroclor-1260		77	102 %	118 %	13 U	99 %

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

Lionville Laboratory, Inc.

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 04/16/08 Extraction Batch No: 08LE0178 Analyst: MF Method: ****SOX3540

Test: OPCB Cleanup Date: 04/17/08 Analyst: MF Client: TNU-HANFORD RC-032

LIMS Report Date: 04/17/08 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
0804L913-	TNU-HANFORD RC-032										
001	J16M53		30.0	1.0		10		1.0	N	93.75	355.6
001 -S	J16M53		30.0	1.0	1.0	10		1.0	N	93.75	355.6
001 -T	J16M53		30.0	1.0	1.0	10		1.0	N	93.75	355.6
08LE0178-MB1	PBLKPE		30.0	1.0		10		1.0	N	100.00	333.3
08LE0178-MB1 -S	PBLKPE		30.0	1.0	1.0	10		1.0	N	100.00	333.3

Comments:
Surrogate: 250 UL OLM PSURR 89916504
Spike: 250 UL AR1660 89916602

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
		4/17/08 1400	SZ	4/17/08 14:00	GC

000000006

nville Laboratory Use Only

28041913

Custody Transfer Record/Lab Work Request

Page 1 of

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

nt TNU HANFORD SAF# RC-032

Final Proj. Sampling Date

ect# 11343-606-001-9999-00

ect Contact/Phone#

nville Laboratory Project Manager O Johnson

SW846 Del STD TAT 3DAY

e Rec'd 4-15-08 Date Due 4-18-08

		A	B			C		DE		F					
Refrigerator #		3	3			3		3							
#/Type Container	Liquid														
	Solid	1G	1G			1G		2P		1P					
Volume		120	60			120		125		125					
Preservatives															
ANALYSES REQUESTED →	ORGANIC	VOA	BNA	Pest/PCB	Herb		TOT. TPH		INORG	Metal Hg	CN	Hex Chrom			
	Lionville Laboratory Use Only		06254	0PCB			IPHC			MetO		ICP6			

RIX ES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected													
Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP Leachate, Wipe, Other, Fish	001	J16M53	—	—	soil	4-10-08	1200		x	x			x		x		x			

ecial Instructions:

Met① = HSL + B, Mo, Si
NO TL

Special Instructions:

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

Relinquished by	Received by	Date	Time
D Eo	[signature]	4/15/08	1030

Relinquished by	Received by	Date	Time

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

000000007

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-032-197 | Page 1 of 1

Collector: T. Welch-Koelling	Company Contact: JR DEBUIGNE	Telephone No.: 528-6409	Project Coordinator: KESSNER, JH
Price Code: 8A	Data Turnaround: 30D+J		
Project Designation: 100-F Remaining Sites Burial Grounds - Soil Full Protocol	Sampling Location: 100-F-26:9 Phase 2 Verification OB/SP		SAF No.: RC-032
Ice Chest No.: SAWS-109	Field Logbook No.: EFL-1174-4	COA: R10F262000	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LONVILLE	Offsite Property No.: A080235		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
Type of Container	P	P	aG	aG	aG	aG	G/P	P		
No. of Container(s)	2	1	1	1	1	1	1	1		
Volume	125mL	125mL	60mL	120mL	120mL	120mL	500mL	125mL		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	PCBs - 8082	Semi-VOA - 8270A (TCL)	Pesticides - 8081	TPH (Total) - 418.1	See item (2) in Special Instructions.	Gross Alpha; Gross Beta		
Sample No. / Matrix * / Sample Date / Sample Time										
16M53 / SOIL / 4-10-08 / 1200	X	X	X	X		X	X			OB-1
16M54 / SOIL / 4-10-08	X	X	X	X	X	X				SP-6

4-9-08

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By/Removed From: [signature] Date/Time: 4/10/08 1205	Received By/Stored In: JR DeBuigne [signature] Date/Time: 1205 4-10-08	(1) ICP Metals - 6010 (Client List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV)	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
Relinquished By/Removed From: DeBuigne [signature] Date/Time: 1445 4-10-08	Received By/Stored In: 1060 Ship Facility/2A Date/Time: 1445 4-10-08	(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133, Silver-108 metastable}	
Relinquished By/Removed From: 060/2A 4/14/08 Date/Time: 0930	Received By/Stored In: MSTankovich 4/14/08 Date/Time: 0930		
Relinquished By/Removed From: MSTankovich 4/14/08 1500	Received By/Stored In: FedEx Date/Time:		
Relinquished By/Removed From: FedEx 4-15-08 1030	Received By/Stored In: [signature] Date/Time: 4-15-08 1030	Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.	
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:		

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

CH-EE-011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD
Project/SAF/SOW/Release #: RC-032

Date: 4/15/08

LvLI Batch #: 0804C 913

Sample Custodian: [signature]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7918 8400 2550
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 # SAWS-109
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD RC-032 K1182

RECEIVED
MAY 2008

DATE RECEIVED: 04/15/08 LVL LOT # :0804L913

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16M53	001	S	08LE0177	04/10/08	04/16/08	04/18/08
J16M53	001 MS	S	08LE0177	04/10/08	04/16/08	04/18/08
J16M53	001 MSD	S	08LE0177	04/10/08	04/16/08	04/18/08

LAB QC:

SBLKTZ	MB1	S	08LE0177	N/A	04/16/08	04/18/08
SBLKTZ	MB1 BS	S	08LE0177	N/A	04/16/08	04/18/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-032
LVL #: 0804L913
SDG/SAF # K1821 RC-032

W.O. #: 11343-606-001-9999-00
Date Received: 04-15-2008

SEMIVOLATILE

One (1) soil sample was collected on 04-10-2008.

The sample and its associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3540C on 04-16-2008 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 04-18-2008.

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

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

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

4. All surrogate recoveries were within acceptance criteria.

5. Eleven (11) of one hundred and twenty-eight (128) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 08MS085) has been enclosed.

6. Three (3) of sixty-four (64) blank spike recoveries were outside acceptance criteria. They were biased high and have minimal impact on data.

7. The method blank contained the common laboratory contaminant Bis (2-Ethylhexy) phthalate at a level less than the CRQL.

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

r:\group\data\2008\bna\tnu\0804-913cs1.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 18 pages.

LvLI
LIONVILLE LABORATORY INC.

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

4/24/05
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 08MS085

Initiator: Shyann Saylor
Date: 4-22-08
Client: TNM RC032

Batch: 0804L913
Samples: MS, MSD, BS
Method: SW846/MCAWW/CLP/

Parameter: 8270
Matrix: SOLID
Prep Batch: 0816G177

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)

low spike recoveries in the MS & BS but MSD is ok RGW/08/08 TE

2. Known or Probable Causes(s) Hexachlorocyclopentadiene is subject to thermal decomposition in the inlet of the gas chromatograph, chemical reactions in acetone solution, and photochemical decomposition. Acetophenone is subject to erratic chromatographic behavior especially if the GC system is contaminated with high boiling material. Other sporadic Allok in MSD & BS (a few biased high minimal impact on the data) RGW/08/08

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: 4/22/08

✓ 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: _____ Other Explanation:

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

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

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

QA-105-A-0805

GLOSSARY

DATA QUALIFIERS

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

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

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

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

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

I = Interference.

NQ = Result qualitatively confirmed but not able to quantify.

A = Indicates that a TIC is a suspected aldol-condensation product.

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

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

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

GLOSSARY

ABBREVIATIONS

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

TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

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

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

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

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

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

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

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 04/22/08 13:43

RFW Batch Number: 0804L913 Client: TNU-HANFORD RC-032 Work Order: 11343606001 Page: 1a

	Cust ID:	J16M53	J16M53	J16M53	SBLKTZ	SBLKTZ BS
Sample Information	RFW#:	001	001 MS	001 MSD	08LE0177-MB1	08LE0177-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	75 %	52 %	74 %	67 %	87 %
	2-Fluorobiphenyl	80 %	68 %	87 %	68 %	93 %
	Terphenyl-d14	105 %	89 %	101 %	96 %	99 %
	Phenol-d5	65 %	56 %	68 %	63 %	84 %
	2-Fluorophenol	61 %	48 %	65 %	65 %	89 %
	2,4,6-Tribromophenol	46 %	57 %	74 %	63 %	78 %
		fl	fl	fl	fl	fl fl
Phenol		360 U	54 %	69 %	330 U	83 %
bis(2-Chloroethyl)ether		360 U	41 * %	62 %	330 U	78 %
2-Chlorophenol		360 U	57 %	78 %	330 U	91 %
1,3-Dichlorobenzene		360 U	38 * %	67 %	330 U	85 %
1,4-Dichlorobenzene		360 U	40 * %	68 %	330 U	86 %
1,2-Dichlorobenzene		360 U	43 * %	72 %	330 U	94 %
2-Methylphenol		360 U	60 %	76 %	330 U	89 %
2,2'-oxybis(1-Chloropropane)		360 U	42 * %	59 %	330 U	68 %
3/4 Methylphenol		360 U	58 * %	70 %	330 U	91 %
N-Nitroso-di-n-propylamine		360 U	50 %	71 %	330 U	84 %
Hexachloroethane		360 U	40 * %	66 %	330 U	84 %
Nitrobenzene		360 U	48 * %	71 %	330 U	82 %
Isophorone		360 U	58 * %	77 %	330 U	87 %
2-Nitrophenol		360 U	57 %	82 %	330 U	97 %
2,4-Dimethylphenol		360 U	58 %	67 %	330 U	94 %
bis(2-Chloroethoxy)methane		360 U	51 %	71 %	330 U	81 %
2,4-Dichlorophenol		360 U	74 %	94 %	330 U	108 %
1,2,4-Trichlorobenzene		360 U	54 * %	83 %	330 U	95 %
Naphthalene		30 J	50 %	73 %	330 U	83 %
4-Chloroaniline		360 U	47 %	56 %	330 U	83 %
Hexachlorobutadiene		360 U	62 %	101 %	330 U	115 %
4-Chloro-3-methylphenol		360 U	80 %	95 %	330 U	114 %
2-Methylnaphthalene		23 J	62 %	88 %	330 U	97 %
Hexachlorocyclopentadiene		360 U	4 * %	32 %	330 U	87 %
2,4,6-Trichlorophenol		360 U	64 %	87 %	330 U	88 %
2,4,5-Trichlorophenol		890 U	73 %	90 %	830 U	106 %

*= Outside of EPA CLP QC limits.

000000008

Cust ID:	J16M53		J16M53		J16M53		SBLKTZ		SBLKTZ BS	
RFW#:	001		001 MS		001 MSD		08LE0177-MB1		08LE0177-MB1	
2-Chloronaphthalene	360	U	66	%	83	%	330	U	91	%
2-Nitroaniline	890	U	80	%	92	%	830	U	101	%
Dimethylphthalate	360	U	83	%	100	%	330	U	110	%
Acenaphthylene	360	U	69	%	85	%	330	U	92	%
2,6-Dinitrotoluene	360	U	84	%	96	%	330	U	111 *	%
3-Nitroaniline	890	U	71	%	79	%	830	U	111	%
Acenaphthene	360	U	66	%	82	%	330	U	92	%
2,4-Dinitrophenol	890	U	35	%	46	%	830	U	71	%
4-Nitrophenol	890	U	96	%	113	%	830	U	166 *	%
Dibenzofuran	360	U	75	%	90	%	330	U	102	%
2,4-Dinitrotoluene	360	U	88	%	106	%	330	U	125	%
Diethylphthalate	360	U	85	%	100	%	330	U	112	%
4-Chlorophenyl-phenylether	360	U	79	%	96	%	330	U	107	%
Fluorene	360	U	74	%	91	%	330	U	106	%
4-Nitroaniline	37	J	68	%	81	%	830	U	129 *	%
4,6-Dinitro-2-methylphenol	890	U	55	%	72	%	830	U	90	%
N-Nitrosodiphenylamine (1)	360	U	61	%	76	%	330	U	80	%
4-Bromophenyl-phenylether	360	U	79	%	93	%	330	U	95	%
Hexachlorobenzene	360	U	89	%	110	%	330	U	118	%
Pentachlorophenol	890	U	50	%	70	%	830	U	90	%
Phenanthrene	35	J	76	%	89	%	330	U	103	%
Anthracene	360	U	76	%	86	%	330	U	105	%
Carbazole	360	U	69	%	84	%	330	U	114	%
Di-n-butylphthalate	360	U	80	%	94	%	330	U	103	%
Fluoranthene	32	J	72	%	85	%	330	U	119	%
Pyrene	59	J	76	%	86	%	330	U	90	%
Butylbenzylphthalate	360	U	85	%	99	%	330	U	98	%
3,3'-Dichlorobenzidine	360	U	51	%	73	%	330	U	104	%
Benzo(a)anthracene	21	J	73	%	81	%	330	U	99	%
Chrysene	44	J	76	%	81	%	330	U	98	%
bis(2-Ethylhexyl)phthalate	310	JB	70	%	81	%	180	J	89	%
Di-n-octyl phthalate	360	U	67	%	86	%	330	U	108	%
Benzo(b)fluoranthene	26	J	66	%	90	%	330	U	109	%
Benzo(k)fluoranthene	21	J	78	%	82	%	330	U	113	%
Benzo(a)pyrene	23	J	76	%	84	%	330	U	110	%
Indeno(1,2,3-cd)pyrene	360	U	84	%	93	%	330	U	105	%
Dibenz(a,h)anthracene	360	U	86	%	96	%	330	U	108	%
Benzo(g,h,i)perylene	27	J	85	%	93	%	330	U	102	%

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

000000009

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J16M53

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

Client: TNU-HANFORD RC-032

Matrix: (soil/water) SOIL

Lab Sample ID: 0804L913-001

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

Lab File ID: N041816

Level: (low/med) LOW

Date Received: 04/15/08

% Moisture: 6 decanted: (Y/N)__

Date Extracted: 04/16/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 04/18/08

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.	ALDOL CONDENSATE	3.306	900	JAB
2.	ALKANE	3.428	1000	JB
3.	UNKNOWN	3.977	100000	JB
4.	ALDOL CONDENSATE	5.050	600	JAB
5.	UNKNOWN	17.858	700	JB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKTZ

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

Client: TNU-HANFORD RC-032

Matrix: (soil/water) SOIL

Lab Sample ID: 08LE0177-MB1

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

Lab File ID: N041803

Level: (low/med) LOW

Date Received: 04/16/08

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

Date Extracted: 04/16/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 04/18/08

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.	ALDOL CONDENSATE	3.309	900	JA
2.	ALKANE	3.423	1000	J
3.	UNKNOWN	3.981	200000	J
4.	ALDOL CONDENSATE	5.053	700	JA
5.	UNKNOWN	17.853	300	J

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 04/16/08 Extraction Batch No: 08LE0177 Analyst: MF Method: ****

Test: O625 Cleanup Date: Analyst: Client: TNU-HANFORD RC-088

LIMS Report Date: 04/21/08 Solvent: DCM/ACETONE Adsorbent:

000000012

Sample No:	Client Name / Client ID	pH	Initial WT/VOL	Surr. Mult.	Spike Mult.	Final VOL	Final VOL	Split Mult.	GPC Y/N	% Solid	C/D FACTOR
~~L001 NT~~			~~30.0~~	~~1.0~~	~~1.0~~	~~1.0~~		~~0.5~~	N	~~96.82~~	Rec'd 04/08 MB
0804L900-	TNU-HANFORD RC-088										
001 H	J169N4		30.0	1.0		1.0		0.5	N	0.00	16.67
001 HS	J169N4		30.0	1.0	0.8	1.0		0.5	N	0.00	16.67
001 HT	J169N4		30.0	1.0	0.8	1.0		0.5	N	0.00	16.67
002 H	J169N7		30.0	1.0		2.0		0.5	N	0.00	33.33
0804L904-	VISTA ENGINEERING										
001 N	B071		30.0	1.0		1.0		0.5	N	91.07	18.30
002 N	B072		30.0	1.0		1.0		0.5	N	96.96	17.19
003 N	B073		30.0	1.0		1.0		0.5	N	92.75	17.97
004 N	B075		30.0	1.0		1.0		0.5	N	95.91	17.38
005 N	B077		30.0	1.0		1.0		0.5	N	97.05	17.17
006 N	B078		30.0	1.0		1.0		0.5	N	97.65	17.07
0804L905-	VISTA ENGINEERING										
001 N	B079		30.0	1.0		1.0		0.5	N	93.49	17.83
001 NS	B079		30.0	1.0	0.8	1.0		0.5	N	93.49	17.83
001 NT	B079		30.0	1.0	0.8	1.0		0.5	N	93.49	17.83
002 N	B080		30.0	1.0		1.0		0.5	N	97.84	17.03
003 N	B081		30.0	1.0		1.0		0.5	N	96.53	17.27
0804L911-	VISTA ENGINEERING										
001 N	B082		30.0	1.0		1.0		0.5	N	96.82	17.21
002 N	B083		30.0	1.0		1.0		0.5	N	88.64	18.80
0804L913-	TNU-HANFORD RC-032										
001 H	J16M53		30.0	1.0		1.0		0.5	N	93.75	17.78
001 HS	⊥		⊥	⊥	0.8	⊥		⊥	⊥	⊥	⊥ Rec'd 04/08 Added

Comments:
Surrogate: 500 UL ESU BNA 89916502 @100-150
Spike: 600 UL BNA LCS SPIKE 86951307

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
			M	4/21/08 1105	add 913.001 HT

SAMPLE EXTRACTION RECORD

Sheet no.: 2

Extract. Date: 04/16/08 Extraction Batch No: 08LE0177 Analyst: MF Method: ****

Test: O625 Cleanup Date: Analyst: Client: TNU-HANFORD RC-088

LIMS Report Date: 04/21/08 Solvent: DCM/ACETONE Adsorbent:

Sample No:	Client Name / Client ID	pH	Initial WT/VOL	Surr. Mult.	Spike Mult.	Final VOL	Final VOL	Split Mult.	GPC Y/N	% Solid	C/D FACTOR
0804L913-	TNU-HANFORD RC-032										
001 HT	J16M53		30.0	1.0	0.8	1.0		0.5	N	93.75	17.78
08LE0177-MB1 H			30.0	1.0		1.0		0.5	N	100.00	16.67
08LE0177-MB1 HS			30.0	1.0	0.8	1.0		0.5	N	100.00	16.67
08LE0177-MB1 N			30.0	1.0		1.0		0.5	N	100.00	16.67
08LE0177-MB1 NS			30.0	1.0	0.8	1.0		0.5	N	100.00	16.67

Comments:
Surrogate: 500 UL ESU BNA 89916502 @100-150
Spike: 600 UL BNA LCS SPIKE 86951307

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
			M	4/21/08 1605	add 913-001 HT

000000013

Lionville Laboratory, Inc.

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 04/16/08 Extraction Batch No: 08LE0177 Analyst: MF Method: **** 8043540

Test: 0625 Cleanup Date: Analyst: Client: TNU-HANFORD RC-088

LIMS Report Date: 04/17/08 Solvent: DCM/ACETONE Adsorbent:

000000014

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
0804L900-	TNU-HANFORD RC-088										
001 H	J169N4		30.0	1.0		1.0		0.5	N	0.0	16.67
001 HS	J169N4		30.0	1.0	0.8	1.0		0.5	N	0.0	16.67
001 HT	J169N4		30.0	1.0	0.8	1.0		0.5	N	0.0	16.67
002 H	J169N7		30.0	1.0		2.0		0.5	N	0.0	33.33
0804L904-	VISTA ENGINEERING										
001 N	B071		30.0	1.0		1.0		0.5	N	91.07	18.30
002 N	B072		30.0	1.0		1.0		0.5	N	96.96	17.19
003 N	B073		30.0	1.0		1.0		0.5	N	92.75	17.97
004 N	B075		30.0	1.0		1.0		0.5	N	95.91	17.38
005 N	B077		30.0	1.0		1.0		0.5	N	97.05	17.17
006 N	B078		30.0	1.0		1.0		0.5	N	97.65	17.07
0804L905-	VISTA ENGINEERING										
001 N	B079		30.0	1.0		1.0		0.5	N	93.49	17.83
001 NS	B079		30.0	1.0	0.8	1.0		0.5	N	93.49	17.83
001 NT	B079		30.0	1.0	0.8	1.0		0.5	N	93.49	17.83
002 N	B080		30.0	1.0		1.0		0.5	N	97.84	17.03
003 N	B081		30.0	1.0		1.0		0.5	N	96.53	17.27
0804L911-	VISTA ENGINEERING										
001 N	B082		30.0	1.0		1.0		0.5	N	96.82	17.21
002 N	B083		30.0	1.0		1.0		0.5	N	88.64	18.80
0804L913-	TNU-HANFORD RC-032										
001 H	J16M53		30.0	1.0		1.0		0.5	N	93.75	17.78
001 HS	J16M53		30.0	1.0	0.8	1.0		0.5	N	93.75	17.78

Comments:
Surrogate: 500 UL ESU BNA 89916502 @100-150ug/ml
Spike: 600 UL BNA LCS SPIKE 86951307

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
all	[signature]	4/17/08 1430	M	4/17/08 1530	Analysis

SAMPLE EXTRACTION RECORD

Sheet no.: 2

Extract. Date: 04/16/08 Extraction Batch No: 08LE0177 Analyst: MF Method: **** SOX3540

Test: O625 Cleanup Date: Analyst: Client: TNU-HANFORD RC-088

LIMS Report Date: 04/17/08 Solvent: DCM/ACETONE Adsorbent:

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
0804L913-	TNU-HANFORD RC-032										
001 NT	J16M53		30.0	1.0	0.8	1.0		0.5	N	93.75	17.78
08LE0177-MB1 H	SBLKTZ		30.0	1.0		1.0		0.5	N	100.00	16.67
08LE0177-MB1 HS	SBLKTZ		30.0	1.0	0.8	1.0		0.5	N	100.00	16.67
08LE0177-MB1 N	SBLKTZ		30.0	1.0		1.0		0.5	N	100.00	16.67
08LE0177-MB1 NS	SBLKTZ		30.0	1.0	0.8	1.0		0.5	N	100.00	16.67

Comments:
Surrogate: 500 UL ESU BNA 89916502 @100-150
Spike: 600 UL BNA LCS SPIKE 86951307

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
all	[signature]	4/17/08 1430	M	4/17/08 1530	Analysis

000000015

onville Laboratory Use Only

08041913

Custody Transfer Record/Lab Work Request

Page 1 of

VLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

000000016

nt TNU HANFORD SAF# RC-032

. Final Proj. Sampling Date

ject# 11343-606-001-9999-00

ject Contact/Phone#

nville Laboratory Project Manager O Johnson

SW846 Del STD TAT 3DAY

te Rec'd 4-15-08 Date Due 4-18-08

		A	B			C		DE		F					
Refrigerator #		3	3			3		3							
#/Type Container	Liquid														
	Solid	16	16			16		2P		1P					
Volume		120	60			120		125		125					
Preservatives															
ANALYSES REQUESTED	ORGANIC	VOA	BNA	Pest/PCB	Herb		TOT. TPH	INORG	Metals	CN	Hex Chrom				
	Lionville Laboratory Use Only		06254	0PCB			IPHC		MetO		ICR6				

TRIX DES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected													
Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP, Leachate, Wipe, Other, Fish	001	J16M53	/	–	soil	4-10-08	1200		x	x		x		x		x				

ecial Instructions:

MetO = HSL + B, Mo, Si
NO TL

Special Instructions:

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

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	4/15/08	1030

Relinquished by	Received by	Date	Time

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

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-032-197 | Page 1 of 1

Collector: T. Welch-Koelling	Company Contact: JR DEBUIGNE	Telephone No.: 528-6409	Project Coordinator: KESSNER, JH
Price Code: 8A	Data Turnaround: 30D+J		
Project Designation: 100-F Remaining Sites Burial Grounds - Soil Full Protocol	Sampling Location: 100-F-26:9 Phase 2 Verification OB/SP		SAF No.: RC-032
Ice Chest No.: SAWS-109	Field Logbook No.: EFL-1174-4	COA: R10F262000	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A080235		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS
NA

Special Handling and/or Storage
NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
Type of Container	P	P	aG	aG	aG	aG	G/P	P		
No. of Container(s)	2	1	1	1	1	1	1	1		
Volume	125mL	125mL	60mL	120mL	120mL	120mL	500mL	125mL		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	PCBs - 8082	Semi-VOA - 8270A (TCL)	Pesticides - 8081	TPH (Total) - 418.1	See item (2) in Special Instructions.	Gross Alpha; Gross Beta		
Sample No. / Matrix * / Sample Date / Sample Time										
16M53 / SOIL / 4-10-08 / 1200	X	X	X	X		X	X			OB-1
16M54 / SOIL / 4-10-08	X	X	X	X	X	X				SP-6

4-9-08

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature]	4/10/08 1205	JR DeBuigne [signature]	1205 4-10-08
DeBuigne [signature]	1445 4-10-08	1060 Ship Facility/2A	1445 4-10-08
1060/2A 4/14/08	0930	MSTankovich 4/14/08	0930
MSTankovich 4/14/08	1500	FedEx	
[signature]	4-15-08 1030	[signature]	4-15-08 1030

SPECIAL INSTRUCTIONS

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

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

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

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

CH-EE-011

000000017

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD
Project/SAF/SOW/Release #: RC-032

Date: 4/15/08

LvLI Batch #: 0804C 913

Sample Custodian: [signature]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7918 8400 2550
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 # SAWS-109
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