0076846

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

COMPLETE COPY OF DATA PACKAGE TO:

Jeff DeBuigne	X9-07	KW 4/1/08 INITIAL/DATE
Kathy Wendt	H4-21	KW 4/1/08 INITIAL/DATE

COMMENTS:

SDG K1138 SAF-RC-032

Rad only Chem only X Rad & Chem

X Complete Partial

Waste Site: **128-F-2 Verification phase 2**

RECEIVED
APR 10 2008
EDMC

EBERLINE
SERVICES

RECEIVED
MAR 2008

March 12, 2008

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

Reference: **P.O. #630**
Eberline Services R8-03-028-7780, SDG K1138

Dear Ms. Kessner:

Enclosed is the data report for one solid (soil) sample designated under SAF No. RC-032, received at Eberline Services on March 7, 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/njv

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 K1138 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 March 10, 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

03/12/08

Date

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP K1138

SDG	7780
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. 630
Case no	SDG K1138

SUMMARY DATA SECTION

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Prepared by

Melissa Mannion

Reviewed by

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	03/12/08

SDG 7780
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_K1138

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 03/12/08

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 K1138

LAB SAMPLE SUMMARY

SDG 7780
ontact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG K1138

B MPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
03028-01	J16DF5	128-F-2 Verif. phase 2	SOLID		RC-032	RC-032-195	03/05/08 12:00
03028-02	Lab Control Sample		SOLID		RC-032		
03028-03	Method Blank		SOLID		RC-032		
03028-04	Duplicate (R803028-01)	128-F-2 Verif. phase 2	SOLID		RC-032		03/05/08 12:00

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 03/12/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1138

SDG 7780
:ontact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG K1138

ATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
	RC-032-195	J16DF5	SOLID	93.4	933 g		03/07/08	2	R803028-01	7780-001
		Method Blank	SOLID						R803028-03	7780-003
		Lab Control Sample	SOLID						R803028-02	7780-002
		Duplicate (R803028-01)	SOLID	93.4	933 g		03/07/08	2	R803028-04	7780-004

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 03/12/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1138

SDG 7780
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG K1138

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	6148-034	20.0	1			1	1	1/1		
93B	SOLID	Gross Beta in Solids	6148-034	15.0	1			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6148-034	15.0	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 03/12/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1138

SDG 7780
:ontact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG K1138

SAMPLE :LLECTED :ECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
028-01	J16DF5			7780-001	93A/93		03/10/08	03/10/08	BW	Gross Alpha in Solids
3/05/08	128-F-2 Verif. phase 2		SOLID	7780-001	93B/93		03/10/08	03/10/08	BW	Gross Beta in Solids
3/07/08	RC-032-195	RC-032		7780-001	GAM		03/08/08	03/10/08	CSS	Gamma Scan
028-02	Lab Control Sample			7780-002	93A/93		03/10/08	03/10/08	BW	Gross Alpha in Solids
			SOLID	7780-002	93B/93		03/10/08	03/10/08	BW	Gross Beta in Solids
		RC-032		7780-002	GAM		03/08/08	03/10/08	CSS	Gamma Scan
028-03	Method Blank			7780-003	93A/93		03/10/08	03/10/08	BW	Gross Alpha in Solids
			SOLID	7780-003	93B/93		03/10/08	03/10/08	BW	Gross Beta in Solids
		RC-032		7780-003	GAM		03/08/08	03/10/08	CSS	Gamma Scan
028-04	Duplicate (R803028-01)			7780-004	93A/93		03/10/08	03/10/08	BW	Gross Alpha in Solids
3/05/08	128-F-2 Verif. phase 2		SOLID	7780-004	93B/93		03/10/08	03/10/08	BW	Gross Beta in Solids
3/07/08		RC-032		7780-004	GAM		03/08/08	03/10/08	CSS	Gamma Scan

COUNTS OF TESTS BY SAMPLE TYPE

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 03/12/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1138

7780-003 Method Blank

METHOD BLANK

SDG	7780	Client/Case no	Hanford	SDG K1138	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R803028-03	Client sample id	Method Blank		
Dept sample id	7780-003	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	-0.894	2.9	6.96	10.0	U	93A
Gross Beta	12587-47-2	-2.40	4.9	8.85	15.0	U	93B
Potassium 40	13966-00-2	U		1.63		U	GAM
Cobalt 60	10198-40-0	U		0.063	0.050	U	GAM
Cesium 137	10045-97-3	U		0.064	0.100	U	GAM
Radium 226	13982-63-3	U		0.149	0.100	U	GAM
Radium 228	15262-20-1	U		0.281	0.200	U	GAM
Europium 152	14683-23-9	U		0.167	0.100	U	GAM
Europium 154	15585-10-1	U		0.174	0.100	U	GAM
Europium 155	14391-16-3	U		0.122	0.100	U	GAM
Thorium 228	14274-82-9	U		0.096		U	GAM
Thorium 232	TH-232	U		0.281		U	GAM
Uranium 235	15117-96-1	U		0.199		U	GAM
Uranium 238	U-238	U		7.87		U	GAM
Americium 241	14596-10-2	U		0.112		U	GAM
Silver 108m	14391-65-2	U		0.048		U	GAM
Barium 133	13981-41-4	U		0.069		U	GAM

100-F RemainSitesBurialGrnds-SoilFP

QC-BLANK #65003

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/12/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1138

7780-002

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7780

Contact Melissa C. Mannion

Client/Case no Hanford SDG K1138

Contract No. 630

Lab sample id R803028-02

Dept sample id 7780-002

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	106	16	6.73	10.0		93A	102	4.1	104	60-140	70-130
Gross Beta	93.3	7.2	5.64	15.0		93B	93.8	3.8	99	74-126	80-120
Cobalt 60	1.44	0.10	0.047	0.050		GAM	1.41	0.056	102	74-126	80-120
Cesium 137	1.54	0.097	0.071	0.100		GAM	1.49	0.060	103	74-126	80-120

100-F RemainSitesBurialGrnds-SoilFP

QC-LCS #65002

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 03/12/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1138

7780-004 J16DF5

DUPLICATE

SDG	7780			Client/Case no	Hanford SDG K1138
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R803028-04	Lab sample id	R803028-01	Client sample id	J16DF5
Dept sample id	7780-004	Dept sample id	7780-001	Location/Matrix	128-F-2 Verif. phase 2 SOLID
		Received	03/07/08	Collected/Weight	03/05/08 12:00 933 g
% solids	93.4	% solids	93.4	Custody/SAF No	RC-032-195 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	4.41	2.4	2.70	10.0		93A	6.32	2.7	2.73		36	110	1.0
Gross Beta	-0.389	4.7	8.26	15.0	U	93B	1.98	3.3	5.47	U	-		0.8
Potassium 40	14.9	1.7	0.712			GAM	14.0	1.3	0.860		6	39	0.5
Cobalt 60	U		0.101	0.050	U	GAM	U		0.086	U	-		0.2
Cesium 137	U		0.084	0.100	U	GAM	U		0.068	U	-		0.3
Radium 226	0.396	0.17	0.183	0.100		GAM	0.358	0.13	0.139		10	91	0.3
Radium 228	0.726	0.31	0.275	0.200		GAM	0.562	0.29	0.307		25	104	0.7
Europium 152	U		0.220	0.100	U	GAM	U		0.173	U	-		0.3
Europium 154	U		0.290	0.100	U	GAM	U		0.253	U	-		0.2
Europium 155	U		0.203	0.100	U	GAM	U		0.149	U	-		0.4
Thorium 228	0.492	0.099	0.107			GAM	0.640	0.12	0.128		26	52	1.5
Thorium 232	0.726	0.31	0.275			GAM	0.562	0.29	0.307		25	104	0.7
Uranium 235	U		0.358		U	GAM	U		0.254	U	-		0.5
Uranium 238	U		12.4		U	GAM	U		10.1	U	-		0.3
Americium 241	U		0.096		U	GAM	U		0.073	U	-		0.4
Silver 108m	U		0.065		U	GAM	U		0.055	U	-		0.2
Barium 133	U		0.110		U	GAM	U		0.077	U	-		0.5

100-F RemainSitesBurialGrnds-SoilFP

QC-DUP#1 65004

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	03/12/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1138

7780-001 J16DF5

DATA SHEET

SDG	7780	Client/Case no	Hanford	SDG K1138	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R803028-01	Client sample id	J16DF5		
Dept sample id	7780-001	Location/Matrix	128-F-2 Verif. phase 2	SOLID	
Received	03/07/08	Collected/Weight	03/05/08 12:00	933 g	
% solids	93.4	Custody/SAF No	RC-032-195	RC-032	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	6.32	2.7	2.73	10.0		93A
Gross Beta	12587-47-2	1.98	3.3	5.47	15.0	U	93B
Potassium 40	13966-00-2	14.0	1.3	0.860			GAM
Cobalt 60	10198-40-0	U		0.086	0.050	U	GAM
Cesium 137	10045-97-3	U		0.068	0.100	U	GAM
Radium 226	13982-63-3	0.358	0.13	0.139	0.100		GAM
Radium 228	15262-20-1	0.562	0.29	0.307	0.200		GAM
Europium 152	14683-23-9	U		0.173	0.100	U	GAM
Europium 154	15585-10-1	U		0.253	0.100	U	GAM
Europium 155	14391-16-3	U		0.149	0.100	U	GAM
Thorium 228	14274-82-9	0.640	0.12	0.128			GAM
Thorium 232	TH-232	0.562	0.29	0.307			GAM
Uranium 235	15117-96-1	U		0.254		U	GAM
Uranium 238	U-238	U		10.1		U	GAM
Americium 241	14596-10-2	U		0.073		U	GAM
Silver 108m	14391-65-2	U		0.055		U	GAM
Barium 133	13981-41-4	U		0.077		U	GAM

100-F RemainSitesBurialGrnds-SoilFP

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/12/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1138

Test 93A Matrix SOLID
SDG 7780
ontact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS ALPHA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG K1138

SULTS

LE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha
aration batch 6148-034					
028-01	93		7780-001	J16DF5	6.32
028-02	93		7780-002	Lab Control Sample	ok
028-03	93		7780-003	Method Blank	U
028-04	93		7780-004	Duplicate (R803028-01)	ok

nal values and limits from method RDLs (pCi/g) 10.0
F RemainSitesBurialGrnds-SoilFP

THOD PERFORMANCE

LE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
aration batch 6148-034			2σ prep error 20.0 % Reference Lab Notebook #6148, pg. 34													
028-01	93		J16DF5	2.73	0.100			5		100			5	03/10/08	03/10	GRB-210
028-02	93		Lab Control Sample	6.73	0.100			61		100				03/10/08	03/10	GRB-211
028-03	93		Method Blank	6.96	0.100			62		100				03/10/08	03/10	GRB-213
028-04	93		Duplicate (R803028-01)	2.70	0.100			4		100			5	03/10/08	03/10	GRB-214
nal values and limits from method				10.0	0.100			5-250		100			180			

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

AVERAGES ± 2 SD MDA 4.78 ± 4.77
FOR 4 SAMPLES RESIDUE 33 ± 66

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 03/12/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1138

Test 93B Matrix SOLID
SDG 7780
ontact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS BETA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG K1138

SULTS

'LE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta	
aration batch 6148-034						
028-01	93		7780-001	J16DF5	U	
028-02	93		7780-002	Lab Control Sample	ok	
028-03	93		7780-003	Method Blank	U	
028-04	93		7780-004	Duplicate (R803028-01)	-	U

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

THOD PERFORMANCE

'LE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
aration batch 6148-034			2σ prep error 15.0 % Reference Lab Notebook #6148, pg. 34													
028-01	93		J16DF5	5.47	0.100			5		100			5	03/10/08	03/10	GRB-210
028-02	93		Lab Control Sample	5.64	0.100			61		100				03/10/08	03/10	GRB-211
028-03	93		Method Blank	8.85	0.100			62		100				03/10/08	03/10	GRB-213
028-04	93		Duplicate (R803028-01)	8.26	0.100			4		100			5	03/10/08	03/10	GRB-214
nal values and limits from method				15.0	0.100			5-250		100			180			

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

AVERAGES ± 2 SD MDA 7.06 ± 3.50
FOR 4 SAMPLES RESIDUE 33 ± 66

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 03/12/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1138

Test GAM Matrix SOLID
SDG 7780
'ontact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG K1138

SULTS

'LE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60		Cesium 137	
aration batch 6148-034								
028-01			7780-001	J16DF5	U		U	
028-02			7780-002	Lab Control Sample	ok		ok	
028-03			7780-003	Method Blank	U		U	
028-04			7780-004	Duplicate (R803028-01)	-	U	-	U
nal values and limits from method				RDLs (pCi/g)	0.050		0.100	

F RemainSitesBurialGrnds-SoilFP

THOD PERFORMANCE

LE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
aration batch 6148-034			2σ prep error 15.0 % Reference Lab Notebook #6148, pg. 34													
028-01			J16DF5	17.1	158					184			3	03/07/08	03/08	JR,01,00
028-02			Lab Control Sample	0.047	158					184				03/07/08	03/08	JR,02,00
028-03			Method Blank	16.0	158					184				03/07/08	03/08	JR,04,00
028-04			Duplicate (R803028-01)	21.7	158					105			3	03/07/08	03/08	JR,01,00
nal values and limits from method				0.050	158					100			180			

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

AVERAGES ± 2 SD MDA 13.7 ± 18.9
FOR 4 SAMPLES YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 03/12/08

SDG 7780
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K1138

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 03/12/08

SDG 7780
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K1138

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 03/12/08

SDG 7780
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K1138

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 03/12/08

SDG 7780
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K1138

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 03/12/08

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 7780
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG_K1138

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 03/12/08

SDG 7780
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K1138

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 03/12/08

DUPLICATE

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

The following notes apply to this report:

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

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

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

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

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

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

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

  This value reported for this limit is at most 999.

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

  1. A fixed percentage specified in the protocol.

DUPLICATE

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

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

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

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

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

SDG 7780
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K1138

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
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Report date 03/12/08

MATRIX SPIKE

for the recovery.

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

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

SDG 7780
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K1138

METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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

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

Lab id EBRLNE
Protocol Hanford
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Version 3.06
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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-032-195	Page 1 of 1

Collector: ETHERINGTON	Company Contact: R.T. Coffman	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: 128-F-2 Verification phase 2 K1138 (7780)		SAF No.: RC-032		
Ice Chest No.: ERC-01-014	Field Logbook No.: EFL-1174-4	COA: R128F22000	Method of Shipment: FED EX		
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A080175		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	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										
J16DF5 / SOIL / 3-5-08 / 1200							X	X		A-7

JRD 3-5-08

CHAIN OF POSSESSION	Sign/Print Names
Relinquished By/Removed From: ETHERINGTON — Date/Time: 3-5-08 1210	Received By/Stored In: JR DeBuigne JR DeBuigne — Date/Time: 1210 3-5-08
Relinquished By/Removed From: JR DeBuigne JR DeBuigne — Date/Time: 1520 3-5-08	Received By/Stored In: MS Stankovich — Date/Time: 3/5/08 1520
Relinquished By/Removed From: MS Stankovich — Date/Time: 1500 3/6/08	Received By/Stored In: Fed Ex — Date/Time:
Relinquished By/Removed From: FED EX — Date/Time:	Received By/Stored In: Alex Kellerhof — Date/Time: 3/7/08 10:00
Relinquished By/Removed From: — Date/Time:	Received By/Stored In: — Date/Time:
Relinquished By/Removed From: — Date/Time:	Received By/Stored In: — Date/Time:

SPECIAL INSTRUCTIONS

(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}

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

EBERLINE

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

7780

Client: U.S. HANFORD City RICHLAND State WA

Date/Time received 3/07/08 10:00 CoC No. RC-080-195

Container I.D. No. ERC-01-014 Requested TAT (Days) 3 P.O. Received Yes [ ] No [ ]

INSPECTION

1. Custody seals on shipping container intact? Yes [✓] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [✓] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [✓] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [✓] No [ ] N/A [ ]
5. Packing material is: Wet [ ] Dry [ ] N/A ✓
6. Number of samples in shipping container: 1 Sample Matrix: SOIL
7. Number of containers per sample 2 (Or see CoC)
8. Samples are in correct container Yes [✓] No [ ]
9. Paperwork agrees with samples? Yes [✓] No [ ]
10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [✓]
11. Samples are: In good condition [✓] Leaking [ ] Broken Container [ ] Missing [ ]
12. Samples are: Preserved [ ] Not preserved [ ] pH _____ Preservative _____
13. Describe any anomalies:
14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
15. Inspected by JK Date 3/7/08 Time 1020

Customer Sample No	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe	Customer Sample No	Beta/Gamma cpm	Ion Chamber mR/hr	wipe
J1EDF5	<60						

Ion Chamber Ser. No. _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

Beta/Gamma Meter Ser. No. 100482 Calibration date 9 may 2007

LvLI
LIONVILLE LABORATORY INC.

RECEIVED APR 2008

31 March 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 #	0803L716
SDG #	K1138
SAF #	RC-032
Date Received	3/07/08
# 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

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD RC-032 K1138

RECEIVED APR 2008

DATE RECEIVED: 03/07/08 LVL LOT # 0803L716

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16DF5	001	S	08LE0117	03/05/08	03/07/08	03/10/08
J16DF5	001 MS	S	08LE0117	03/05/08	03/07/08	03/10/08
J16DF5	001 MSD	S	08LE0117	03/05/08	03/07/08	03/10/08
LAB QC:						
PBLKNR	MB1	S	08LE0117	N/A	03/07/08	03/10/08
PBLKNR	MB1 BS	S	08LE0117	N/A	03/07/08	03/10/08

LVLI
LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-032
LVL #: 0803L716
SDG/SAF # K113E / RC-032

W.O. #: 11343-606-001-9999-00
Date Received: 03-07-2008

PCB

One (1) soil sample was collected on 03-05-2008.

The samples and their associated QC samples were extracted on 03-07-2008 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedure on 03-10-2008. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8082.

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

1. Samples were extracted and analyzed within required holding time
2. The samples and their associated QC samples received Copper-Sulfur and Sulfuric Acid cleanups according to Lionville Laboratory SOPs based on SW846 methods 3660A and 3665A respectively.
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. All 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.

k:\group\data\pest\tnu\0803-716ks1.pcb.doc

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

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

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

3/19/08
Date

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

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
NS	=	Not Spiked.
SP	=	Indicates Spiked Compound.
P	=	This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
D	=	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
C	=	This flag applies to a compound that has been confirmed by GC/MS.

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 03/11/08 11:47

RFW Batch Number: **0803L716** Client: **TNU-HANFORD RC-032** Work Order: 11343606001 Page: 1

000000005

	Cust ID:	J16DF5	J16DF5	J16DF5	PBLKNR	PBLKNR BS
Sample Information	RFW#:	001	001 MS	001 MSD	08LE0117-MB1	08LE0117-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	87 %	82 %	87 %	90 %	90 %
	Decachlorobiphenyl	95 %	92 %	95 %	87 %	94 %
		fl	fl	fl	fl	fl
Aroclor-1016		14 U	71 %	75 %	13 U	73 %
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		14 U	14 U	14 U	13 U	13 U
Aroclor-1260		14 U	75 %	78 %	13 U	75 %

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

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 03/07/08 Extraction Batch No: 08LE0117 Analyst: MF Method: ****

Test: OPCB Cleanup Date: 03/10/08 Analyst: Client: TNU-HANFORD RC-032

LIMS Report Date: 03/11/08 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	% Solid	Vis H2O	C/D FACTOR	Sulfur Clean?
0803L716-	TNU-HANFORD RC-032												
001	J16DF5		30.0	1.0		10		1.0	N	94.76		351.8	
001 -S	J16DF5		30.0	1.0	1.0	10		1.0	N	94.76		351.8	
001 -T	J16DF5		30.0	1.0	1.0	10		1.0	N	94.76		351.8	
0803L718-	TNU-HANFORD RC-020												
001	J16DD3		30.0	1.0		10		1.0	N	96.17		346.6	
001 -S	J16DD3		30.0	1.0	1.0	10		1.0	N	96.17		346.6	
001 -T	J16DD3		30.0	1.0	1.0	10		1.0	N	96.17		346.6	
08LE0117-MB1			30.0	1.0		10		1.0	N	100.00		333.3	
08LE0117-MB1 -S			30.0	1.0	1.0	10		1.0	N	100.00		333.3	

Comments:
Surrogate: 250 UL OLM PSURR 89916404
Spike: 250 UL AR1660 89916602

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
			CAC	3/11/08	% Solids update

000000006

Lionville Laboratory, Inc.

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 03/07/08 Extraction Batch No: 08LE0117 Analyst: MF Method: **** S OX 3540

Test: OPCB Cleanup Date: 03/10/08 Analyst: Client: TNU-HANFORD RC-032

LIMS Report Date: 03/10/08 Solvent: DCM/ACETONE,HEXANE Adsorbent: H2SO4

Sample No:	Client Name / Client ID	pH	Initial WT/VOL	Surr. Mult.	Spike Mult.	Final VOL	Final VOL	Split Mult.	GPC Y/N	% Solids	C/D FACTOR
0803L716-	TNU-HANFORD RC-032										
001	J16DF5		30.0	1.0		10		1.0	N	0.0	333.3
001 -S	J16DF5		30.0	1.0	1.0	10		1.0	N	0.0	333.3
001 -T	J16DF5		30.0	1.0	1.0	10		1.0	N	0.0	333.3
0803L718-	TNU-HANFORD RC-020										
001	J16DD3		30.0	1.0		10		1.0	N	0.0	333.3
001 -S	J16DD3		30.0	1.0	1.0	10		1.0	N	0.0	333.3
001 -T	J16DD3		30.0	1.0	1.0	10		1.0	N	0.0	333.3
08LE0117-MB1	PBLKNR		30.0	1.0		10		1.0	N	100.00	333.3
08LE0117-MB1 -S	PBLKNR		30.0	1.0	1.0	10		1.0	N	100.00	333.3

Comments:
Surrogate: 250 UL OLM PSURR 89916404
Spike: 250 UL AR1660 89916602

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
all	[illegible]	3/10/08 1318	SZ	3/10/08 13:20	GC

000000007

nville Laboratory Use Only

8803L716

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

nt TNU HANFORD RC-032

. Final Proj. Sampling Date

ect# 11343-606-001-9999-00

ect Contact/Phone#

nville Laboratory Project Manager O. JOHNSON

SW846 Del STP TAT 3 Day

e Rec'd 3-7-08 Date Due 3-10-08

Refrigerator #			A	B		C	D		EF		G					
			2	2		2	2		2		2					
#/Type Container	Liquid		1G	1G		1G	1G		2P		1P					
	Solid															
Volume			120	60		120	120		125		250					
Preservatives			—	—		—	—		—		—					
ANALYSES REQUESTED →		VOA	BNA	Pest/PCB	Herb	PEST	TOT TPH		Metal HG	CN	CRHE					
			ORGANIC						INORG							
Lionville Laboratory Use Only			0625H	0PCB		0608H	IPHC		MetO		ICP6					

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	101	T16DF5	✓	✓	SOIL	3/5/08	1200

ecial Instructions:

met① = HSL + B, ma, s; (NOTL)

Special Instructions:

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

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	3/7/08	0935

Relinquished by	Received by	Date	Time

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

8000000008

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-032-195	Page 1 of 1

Collector: ETHERINGTON	Company Contact: R.T. Coffman	Telephone No.: 528-6409	Project Coordinator: KESSNER, JH
Price Code: BA	Data Turnaround: 3DAY		
Project Designation: 100-F Remaining Sites Burial Grounds - Soil Full Protocol	Sampling Location: 128-F-2 Verification phase 2	SAF No.: RC-032	
Ice Chest No.: 6RP-03-014	Field Logbook No.: EFL-1174-4	COA: R128F22000	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A080194	Bill of Lading/Air Bill No.: see ospc	

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA Cool 4°C

Preservation	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None			
Type of Container	P	P	aG	aG	aG	aG	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											
116DF5 / SOIL / 3-5-08 / 1200	X	X	X	X	X	X					A-7

JRD 4-04

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: ETHERINGTON	3-5-08 1210	Received By/Stored In: JRDeBrigne JRDeBrigne	3-5-08 1210
Relinquished By/Removed From: JRDeBrigne JRDeBrigne	3-5-08 1520	Received By/Stored In: mstankovich	3/5/02 1520
Relinquished By/Removed From: mstankovich	3/6/08 0815	Received By/Stored In: Fed Ex	
Relinquished By/Removed From: Fed Ex	3-7-08 0935	Received By/Stored In:	3-7-08 0935
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

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}

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

VCH-EE-011

0000000009

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

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

Date: 3/7/08

LvLI Batch #: 0803L716

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 790463539349
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 2.3°	°C	Cooler # GRP-03-014
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI LIONVILLE LABORATORY INC.

SR-002-B.doc

RECEIVED
APR 2008

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K1138

DATE RECEIVED: 03/07/08 LVL LOT # :08031716

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16DF5						
% SOLIDS	001	S	08L%S031	03/05/08	03/10/08	03/10/08
% SOLIDS	001 REP	S	08L%S031	03/05/08	03/10/08	03/10/08
CHROMIUM VI	001	S	08LVI024	03/05/08	03/10/08	03/10/08
CHROMIUM VI	001 REP	S	08LVI024	03/05/08	03/10/08	03/10/08
CHROMIUM VI	001 MS	S	08LVI024	03/05/08	03/10/08	03/10/08
CHROMIUM VI	001 MSD	S	08LVI024	03/05/08	03/10/08	03/10/08
PETROLEUM HYDROCARBO	001	S	08LHC010	03/05/08	03/13/08	03/18/08
PETROLEUM HYDROCARBO	001 REP	S	08LHC010	03/05/08	03/13/08	03/18/08
PETROLEUM HYDROCARBO	001 MS	S	08LHC010	03/05/08	03/13/08	03/18/08
LAB QC:						
CHROMIUM VI	MB1	S	08LVI024	N/A	03/10/08	03/10/08
CHROMIUM VI	MB1 BS	S	08LVI024	N/A	03/10/08	03/10/08
CHROMIUM VI	MB1 BSD	S	08LVI024	N/A	03/10/08	03/10/08
PETROLEUM HYDROCARBO	MB1	S	08LHC010	N/A	03/13/08	03/18/08
PETROLEUM HYDROCARBO	MB1 BS	S	08LHC010	N/A	03/13/08	03/18/08
PETROLEUM HYDROCARBO	MB1 BSD	S	08LHC010	N/A	03/13/08	03/18/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-032 K1138
LVL#: 0803L716

W.O.#: 11343-606-001-9999-00
Date Received: 03-07-08

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 for Chromium VI and Petroleum Hydrocarbons (PHC) were within the method criteria.

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

7. The matrix spike (MS) recoveries for Insoluble Chromium VI and PHC were within the 75-125% control limits however MS recovery for Soluble Chomium VI was below the control limits at at 3.3% that is attributed to negative matrix interference as a post preparation matrix spike yielded no additional recovery.

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

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

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

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

3/19/08
Date

njp\i03-716

LIONVILLE LABORATORY INC.

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 03/18/08

CLIENT: TNUHANFORD RC-032 K1138 LVL LOT #: 0803L716

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J16DF5	% Solids	94.8		%	0.01	1.0
		Chromium VI	0.46		MG/KG	0.21	1.0
		Petroleum Hydrocarbons	140	u	MG/KG	140	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/18/08

CLIENT: TNUHANFORD RC-032 K1138 LVL LOT #: 0803L716

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	08LVI024-MB1	Chromium VI	0.20 u	MG/KG	0.20	1.0
BLANK10	08LHC010-MB1	Petroleum Hydrocarbons	133 u	MG/KG	133	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 03/18/08

CLIENT: TNUHANFORD RC-032 K1138

LVL LOT #: 0803L716

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J16DF5	Soluble Chromium VI	0.60	0.46	4.2	3.3	1.0
		Insoluble Chromium VI	949	0.46	1030	91.9	100
		Petroleum Hydrocarbons	570	5.3	617	91.5	1.0
BLANK10	08LVI024-MB1	Soluble Chromium VI	4.0	0.20u	4.0	101.2	1.0
		Insoluble Chromium VI	1140	0.20u	1050	108.8	100
BLANK10	08LHC010-MB1	Petroleum Hydrocarbons	520	133 u	560	92.8	1.0
		Petroleum Hydrocarbons	535	133 u	559	95.8	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 03/15/08

CLIENT: TNUHANFORD RC-032 K1138 LVL LOT #: 0803L716

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	08LHC010-MB1	Petroleum Hydrocarbons	92.8	95.8	3.2

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 03/18/08

CLIENT: TNUHANFORD RC-032 K1138 LVL LOT #: 0803L716

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J16DF5	% Solids	94.8	94.9	0.11	1.0
		Chromium VI	0.46	0.59	24.6	1.0
		Petroleum Hydrocarbons	140 u	147 u	NC	1.0

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78031716

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

nt TNU HANFORD RC-032

Final Proj. Sampling Date

ject# 11343-606-001-9999-00

ject Contact/Phone#

nville Laboratory Project Manager O. JOHNSON

SW846 Del STP TAT 3 Day

e Rec'd 3-7-08 Date Due 3-10-08

Refrigerator #		A	B	C	D	EF	G
		2	2	2	2	2	2
#/Type Container	Liquid / Solid	1G	1G	1G	1G	2P	1P
Volume		120	60	120	120	125	250
Preservatives		—	—	—	—	—	—
ANALYSES REQUESTED		VOA	BNA	Pest/PCB	Herb	RST / TOT TPH	Metal Hg / CN / Cr+6
Lionville Laboratory Use Only			0625H	OPCB		0608H / IPHC	metO / ICR6

RIX:
ESS:
Soil
Sediment
Solid
Sludge
Water
Oil
Air
Drum Solids
Drum Liquids
EP/TCLP
Leachate
Wipe
Other
Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	RST / TOT TPH	Metal Hg	CN	Cr+6
001	T16DF5	✓	✓	SOIL	3/5/08	1200		X	X		X	X		X

cial Instructions:

metO = HSL + B, mo, S; (NOTL)

Special Instructions:

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

Relinquished by	Received by	Date	Time
[illegible]	V. Kennard	3/7/08	0935

Relinquished by	Received by	Date	Time

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

0000000011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-032-195	Page 1 of 1

Collector: ETHERINGTON	Company Contact: R.T. Coffman	Telephone No.: 528-6409	Project Coordinator: KESSNER, JH
Price Code: 8A	Data Turnaround: 3DAY		
Project Designation: 100-F Remaining Sites Burial Grounds - Soil Full Protocol	Sampling Location: 128-F-2 Verification phase 2		SAF No.: RC-032
Ice Chest No.: GRP-03-014	Field Logbook No.: EFL-1174-4	COA: R128F22000	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES ALTONVILLE	Offsite Property No.: A080194		Bill of Lading/Air Bill No.: see ospc

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA Cool 4°C

Preservation	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None			
Type of Container	P	P	aG	aG	aG	aG	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											
16DF5	SOIL	3-5-08	1200	X	X	X	X	X	X	JRD 4-04				A-7

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: E.T. Etherington	3-5-08 1210	Received By/Stored In: JR DeBruyne JR DeBruyne	3-5-08 1210
Relinquished By/Removed From: JR DeBruyne JR DeBruyne	3-5-08 1520	Received By/Stored In: M Stankovich M Stankovich	3/5/02 1520
Relinquished By/Removed From: M Stankovich	3/6/08 0815	Received By/Stored In: Fed Ex	
Relinquished By/Removed From: Fed Ex	3-7-08 0935	Received By/Stored In: [illegible]	3-7-08 0935
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(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}

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

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

CH-EE-011

000000012

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

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

Date: 3/7/08

LvLI Batch #: 0803L716

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 790463539349
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 2.3°	°C	Cooler # GRP-03-014
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI LIONVILLE LABORATORY INC.

SR-002-B.doc

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD RC-032 K1138

RECEIVED APR 2008

DATE RECEIVED: 03/07/08 LVL LOT # :0803L718

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16DF5						
SILVER, TOTAL	001	S	08L0098	03/05/08	03/11/08	03/11/08
SILVER, TOTAL	001 REP	S	08L0098	03/05/08	03/11/08	03/11/08
SILVER, TOTAL	001 MS	S	08L0098	03/05/08	03/11/08	03/11/08
ALUMINUM, TOTAL	001	S	08L0098	03/05/08	03/11/08	03/11/08
ALUMINUM, TOTAL	001 REP	S	08L0098	03/05/08	03/11/08	03/11/08
ALUMINUM, TOTAL	001 MS	S	08L0098	03/05/08	03/11/08	03/11/08
ARSENIC, TOTAL	001	S	08L0098	03/05/08	03/11/08	03/11/08
ARSENIC, TOTAL	001 REP	S	08L0098	03/05/08	03/11/08	03/11/08
ARSENIC, TOTAL	001 MS	S	08L0098	03/05/08	03/11/08	03/11/08
BORON, TOTAL	001	S	08L0098	03/05/08	03/11/08	03/11/08
BORON, TOTAL	001 REP	S	08L0098	03/05/08	03/11/08	03/11/08
BORON, TOTAL	001 MS	S	08L0098	03/05/08	03/11/08	03/11/08
BARIUM, TOTAL	001	S	08L0098	03/05/08	03/11/08	03/11/08
BARIUM, TOTAL	001 REP	S	08L0098	03/05/08	03/11/08	03/11/08
BARIUM, TOTAL	001 MS	S	08L0098	03/05/08	03/11/08	03/11/08
BERYLLIUM, TOTAL	001	S	08L0098	03/05/08	03/11/08	03/11/08
BERYLLIUM, TOTAL	001 REP	S	08L0098	03/05/08	03/11/08	03/11/08
BERYLLIUM, TOTAL	001 MS	S	08L0098	03/05/08	03/11/08	03/11/08
CALCIUM, TOTAL	001	S	08L0098	03/05/08	03/11/08	03/11/08
CALCIUM, TOTAL	001 REP	S	08L0098	03/05/08	03/11/08	03/11/08
CALCIUM, TOTAL	001 MS	S	08L0098	03/05/08	03/11/08	03/11/08
CADMIUM, TOTAL	001	S	08L0098	03/05/08	03/11/08	03/11/08
CADMIUM, TOTAL	001 REP	S	08L0098	03/05/08	03/11/08	03/11/08
CADMIUM, TOTAL	001 MS	S	08L0098	03/05/08	03/11/08	03/11/08
COBALT, TOTAL	001	S	08L0098	03/05/08	03/11/08	03/11/08
COBALT, TOTAL	001 REP	S	08L0098	03/05/08	03/11/08	03/11/08
COBALT, TOTAL	001 MS	S	08L0098	03/05/08	03/11/08	03/11/08
CHROMIUM, TOTAL	001	S	08L0098	03/05/08	03/11/08	03/11/08
CHROMIUM, TOTAL	001 REP	S	08L0098	03/05/08	03/11/08	03/11/08
CHROMIUM, TOTAL	001 MS	S	08L0098	03/05/08	03/11/08	03/11/08
COPPER, TOTAL	001	S	08L0098	03/05/08	03/11/08	03/11/08
COPPER, TOTAL	001 REP	S	08L0098	03/05/08	03/11/08	03/11/08
COPPER, TOTAL	001 MS	S	08L0098	03/05/08	03/11/08	03/11/08
IRON, TOTAL	001	S	08L0098	03/05/08	03/11/08	03/11/08
IRON, TOTAL	001 REP	S	08L0098	03/05/08	03/11/08	03/11/08

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

DATE RECEIVED: 03/07/08 LVL LOT # :0803L716

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
IRON, TOTAL	001 MS	S	08L0098	03/05/08	03/11/08	03/11/08
MERCURY, TOTAL	001	S	08C0045	03/05/08	03/11/08	03/11/08
MERCURY, TOTAL	001 REP	S	08C0045	03/05/08	03/11/08	03/11/08
MERCURY, TOTAL	001 MS	S	08C0045	03/05/08	03/11/08	03/11/08
POTASSIUM, TOTAL	001	S	08L0098	03/05/08	03/11/08	03/11/08
POTASSIUM, TOTAL	001 REP	S	08L0098	03/05/08	03/11/08	03/11/08
POTASSIUM, TOTAL	001 MS	S	08L0098	03/05/08	03/11/08	03/11/08
MAGNESIUM, TOTAL	001	S	08L0098	03/05/08	03/11/08	03/11/08
MAGNESIUM, TOTAL	001 REP	S	08L0098	03/05/08	03/11/08	03/11/08
MAGNESIUM, TOTAL	001 MS	S	08L0098	03/05/08	03/11/08	03/11/08
MANGANESE, TOTAL	001	S	08L0098	03/05/08	03/11/08	03/11/08
MANGANESE, TOTAL	001 REP	S	08L0098	03/05/08	03/11/08	03/11/08
MANGANESE, TOTAL	001 MS	S	08L0098	03/05/08	03/11/08	03/11/08
MOLYBDENUM, TOTAL	001	S	08L0098	03/05/08	03/11/08	03/11/08
MOLYBDENUM, TOTAL	001 REP	S	08L0098	03/05/08	03/11/08	03/11/08
MOLYBDENUM, TOTAL	001 MS	S	08L0098	03/05/08	03/11/08	03/11/08
SODIUM, TOTAL	001	S	08L0098	03/05/08	03/11/08	03/11/08
SODIUM, TOTAL	001 REP	S	08L0098	03/05/08	03/11/08	03/11/08
SODIUM, TOTAL	001 MS	S	08L0098	03/05/08	03/11/08	03/11/08
NICKEL, TOTAL	001	S	08L0098	03/05/08	03/11/08	03/11/08
NICKEL, TOTAL	001 REP	S	08L0098	03/05/08	03/11/08	03/11/08
NICKEL, TOTAL	001 MS	S	08L0098	03/05/08	03/11/08	03/11/08
LEAD, TOTAL	001	S	08L0098	03/05/08	03/11/08	03/11/08
LEAD, TOTAL	001 REP	S	08L0098	03/05/08	03/11/08	03/11/08
LEAD, TOTAL	001 MS	S	08L0098	03/05/08	03/11/08	03/11/08
ANTIMONY, TOTAL	001	S	08L0098	03/05/08	03/11/08	03/11/08
ANTIMONY, TOTAL	001 REP	S	08L0098	03/05/08	03/11/08	03/11/08
ANTIMONY, TOTAL	001 MS	S	08L0098	03/05/08	03/11/08	03/11/08
SELENIUM, TOTAL	001	S	08L0098	03/05/08	03/11/08	03/11/08
SELENIUM, TOTAL	001 REP	S	08L0098	03/05/08	03/11/08	03/11/08
SELENIUM, TOTAL	001 MS	S	08L0098	03/05/08	03/11/08	03/11/08
SILICON, TOTAL	001	S	08L0098	03/05/08	03/11/08	03/11/08
SILICON, TOTAL	001 REP	S	08L0098	03/05/08	03/11/08	03/11/08
SILICON, TOTAL	001 MS	S	08L0098	03/05/08	03/11/08	03/11/08
VANADIUM, TOTAL	001	S	08L0098	03/05/08	03/11/08	03/11/08
VANADIUM, TOTAL	001 REP	S	08L0098	03/05/08	03/11/08	03/11/08
VANADIUM, TOTAL	001 MS	S	08L0098	03/05/08	03/11/08	03/11/08
ZINC, TOTAL	001	S	08L0098	03/05/08	03/11/08	03/11/08

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

DATE RECEIVED: 03/07/08 LVL LOT # :0803L716

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZINC, TOTAL	001 REP	S	08L0098	03/05/08	03/11/08	03/11/08
ZINC, TOTAL	001 MS	S	08L0098	03/05/08	03/11/08	03/11/08

AB QC:

SILVER LABORATORY	LC1 BS	S	08L0098	N/A	03/11/08	03/11/08
SILVER, TOTAL	MB1	S	08L0098	N/A	03/11/08	03/11/08
ALUMINUM LABORTORY	LC1 BS	S	08L0098	N/A	03/11/08	03/11/08
ALUMINUM, TOTAL	MB1	S	08L0098	N/A	03/11/08	03/11/08
ARSENIC LABORATORY	LC1 BS	S	08L0098	N/A	03/11/08	03/11/08
ARSENIC, TOTAL	MB1	S	08L0098	N/A	03/11/08	03/11/08
BORON LABORATORY	LC1 BS	S	08L0098	N/A	03/11/08	03/11/08
BORON, TOTAL	MB1	S	08L0098	N/A	03/11/08	03/11/08
BARIUM LABORATORY	LC1 BS	S	08L0098	N/A	03/11/08	03/11/08
BARIUM, TOTAL	MB1	S	08L0098	N/A	03/11/08	03/11/08
BERYLLIUM LABORATORY	LC1 BS	S	08L0098	N/A	03/11/08	03/11/08
BERYLLIUM, TOTAL	MB1	S	08L0098	N/A	03/11/08	03/11/08
CALCIUM LABORATORY	LC1 BS	S	08L0098	N/A	03/11/08	03/11/08
CALCIUM, TOTAL	MB1	S	08L0098	N/A	03/11/08	03/11/08
CADMIUM LABORATORY	LC1 BS	S	08L0098	N/A	03/11/08	03/11/08
CADMIUM, TOTAL	MB1	S	08L0098	N/A	03/11/08	03/11/08
COBALT LABORATORY	LC1 BS	S	08L0098	N/A	03/11/08	03/11/08
COBALT, TOTAL	MB1	S	08L0098	N/A	03/11/08	03/11/08
CHROMIUM LABORATORY	LC1 BS	S	08L0098	N/A	03/11/08	03/11/08
CHROMIUM, TOTAL	MB1	S	08L0098	N/A	03/11/08	03/11/08
COPPER LABORATORY	LC1 BS	S	08L0098	N/A	03/11/08	03/11/08
COPPER, TOTAL	MB1	S	08L0098	N/A	03/11/08	03/11/08
IRON LABORATORY	LC1 BS	S	08L0098	N/A	03/11/08	03/11/08
IRON, TOTAL	MB1	S	08L0098	N/A	03/11/08	03/11/08
MERCURY LABORATORY	LC1 BS	S	08C0045	N/A	03/11/08	03/11/08
MERCURY, TOTAL	MB1	S	08C0045	N/A	03/11/08	03/11/08
POTASSIUM LABORATORY	LC1 BS	S	08L0098	N/A	03/11/08	03/11/08
POTASSIUM, TOTAL	MB1	S	08L0098	N/A	03/11/08	03/11/08
MAGNESIUM LABORATORY	LC1 BS	S	08L0098	N/A	03/11/08	03/11/08
MAGNESIUM, TOTAL	MB1	S	08L0098	N/A	03/11/08	03/11/08
MANGANESE LABORATORY	LC1 BS	S	08L0098	N/A	03/11/08	03/11/08
MANGANESE, TOTAL	MB1	S	08L0098	N/A	03/11/08	03/11/08
MOLYBDENUM LABORATOR	LC1 BS	S	08L0098	N/A	03/11/08	03/11/08

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

DATE RECEIVED: 03/07/08 LVL LOT # :0803L716

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MOLYBDENUM, TOTAL	MB1	S	08L0098	N/A	03/11/08	03/11/08
SODIUM LABORATORY	LC1 BS	S	08L0098	N/A	03/11/08	03/11/08
SODIUM, TOTAL	MB1	S	08L0098	N/A	03/11/08	03/11/08
NICKEL LABORATORY	LC1 BS	S	08L0098	N/A	03/11/08	03/11/08
NICKEL, TOTAL	MB1	S	08L0098	N/A	03/11/08	03/11/08
LEAD LABORATORY	LC1 BS	S	08L0098	N/A	03/11/08	03/11/08
LEAD, TOTAL	MB1	S	08L0098	N/A	03/11/08	03/11/08
ANTIMONY LABORATORY	LC1 BS	S	08L0098	N/A	03/11/08	03/11/08
ANTIMONY, TOTAL	MB1	S	08L0098	N/A	03/11/08	03/11/08
SELENIUM LABORATORY	LC1 BS	S	08L0098	N/A	03/11/08	03/11/08
SELENIUM, TOTAL	MB1	S	08L0098	N/A	03/11/08	03/11/08
SILICON LABORATORY	LC1 BS	S	08L0098	N/A	03/11/08	03/11/08
SILICON, TOTAL	MB1	S	08L0098	N/A	03/11/08	03/11/08
VANADIUM LABORATORY	LC1 BS	S	08L0098	N/A	03/11/08	03/11/08
VANADIUM, TOTAL	MB1	S	08L0098	N/A	03/11/08	03/11/08
ZINC LABORATORY	LC1 BS	S	08L0098	N/A	03/11/08	03/11/08
ZINC, TOTAL	MB1	S	08L0098	N/A	03/11/08	03/11/08

Analytical Report

Client: TNU-HANFORD RC-032
LVL#: 0803L716
SDG/SAF#: K1138 /RC-032

W.O.#: 11343-606-001-9999-00
Date Received: 03-07-08

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 solid sample.

2. The sample was prepared and analyzed in accordance with methods checked on the attached glossary. The sample is reported on a wet weight, 'as-received' basis.

   The sample was analyzed with a 3-fold dilution for ICP metals due to sample matrix.

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

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

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

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

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

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

LIONVILLE LABORATORY INC.
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.

8. All laboratory control samples (LCS) were within the 80-120% control limits with the exception of Silicon at 35.8%. Refer to the Inorganics Laboratory Control Standards Report. Associated sample results may be biased low.

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

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

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J16DF5	Aluminum	66,000	98.0
	Iron	66,000	93.1
	Manganese	3,000	108.8
	Silicon	300	66.9
	Antimony	300	104.4

11. All duplicate analyses were within 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.

for Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

3/12/08
Date

alm/m03-716

LVLI
LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

ne following methods are used as reference for the digestion and analysis of samples contained within th
ot#:

eaching Procedure: __1310 __1311 __1312 __Other:_____

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

letals Digestion Methods: __3005A __3010A __3015 __3020A __3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
luminum	__6010B		__200.7				__99
ntimony	__6010B	__7041 [5]	__200.7	__204.2			__99
rsenic	__6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
arium	__6010B		__200.7				__99
eryllium	__6010B		__200.7				__99
ismuth	__6010B [1]		__200.7 [1]			__1620	__99
oron	__6010B		__200.7				__99
admium	__6010B	__7131A [5]	__200.7	__213.2			__99
alcium	__6010B		__200.7				__99
hromium	__6010B	__7191 [5]	__200.7	__218.2			__SS17
obalt	__6010B		__200.7				__99
opper	__6010B	__7211 [5]	__200.7	__220.2			__99
on	__6010B		__200.7				__99
ead	__6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
ithium	__6010B	__7430 [4]	__200.7			__1620	__99
lagnesium	__6010B		__200.7				__99
langanese	__6010B		__200.7				__99
lercury	__7470A [3]	__7471A [3]	__245.1 [2]	__245.5 [2]			__99
lolybdenum	__6010B		__200.7				__99
ickel	__6010B		__200.7				__99
otassium	__6010B	__7610 [4]	__200.7	__258.1 [4]			__99
are Earths	__6010B [1]		__200.7 [1]			__1620	__99
elenium	__6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
ilicon	__6010B [1]		__200.7			__1620	__99
ilica	__6010B		__200.7			__1620	__99
ilver	__6010B	__7761 [5]	__200.7	__272.2			__99
odium	__6010B	__7770 [4]	__200.7	__273.1 [4]			__99
trontium	__6010B		__200.7				__99
hallium	__6010B	__7841 [5]	__200.7	__279.2__200.9			__99
in	__6010B		__200.7				__99
itanium	__6010B		__200.7				__99
ranium	__6010B [1]		__200.7 [1]			__1620	__99
anadium	__6010B		__200.7				__99
inc	__6010B		__200.7				__99
irconium	__6010B [1]		__200.7 [1]			__1620	__99

ther:_____ Method:_____

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

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

3. Flame AA.

4. Graphite Furnace AA.

L-WI-033/N-04/98

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/12/08

CLIENT: TNU-HANFORD RC-032 LVL LOT #: 0803L716

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J16DF5	Silver, Total	0.27 u	MG/KG	0.27	3.0
		Aluminum, Total	7670	MG/KG	10.9	3.0
		Arsenic, Total	4.0	MG/KG	1.4	3.0
		Boron, Total	1.4 u	MG/KG	1.4	3.0
		Barium, Total	102	MG/KG	0.27	3.0
		Beryllium, Total	0.23	MG/KG	0.14	3.0
		Calcium, Total	2630	MG/KG	10.9	3.0
		Cadmium, Total	0.14 u	MG/KG	0.14	3.0
		Cobalt, Total	5.0	MG/KG	0.55	3.0
		Chromium, Total	21.9	MG/KG	0.55	3.0
		Copper, Total	16.5	MG/KG	0.55	3.0
		Iron, Total	17400	MG/KG	12.3	3.0
		Mercury, Total	0.009u	MG/KG	0.009	1.0
		Potassium, Total	828	MG/KG	10.9	3.0
		Magnesium, Total	3890	MG/KG	6.8	3.0
		Manganese, Total	216	MG/KG	0.11	3.0
		Molybdenum, Total	0.82 u	MG/KG	0.82	3.0
		Sodium, Total	97.7	MG/KG	5.5	3.0
		Nickel, Total	9.8	MG/KG	0.55	3.0
		Lead, Total	2.8	MG/KG	0.82	3.0
		Antimony, Total	0.82 u	MG/KG	0.82	3.0
		Selenium, Total	1.6 u	MG/KG	1.6	3.0
		Silicon, Total	391	MG/KG	10.9	3.0
		Vanadium, Total	36.2	MG/KG	0.38	3.0
		Zinc, Total	34.8	MG/KG	1.6	3.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/12/08

CLIENT: TNU-HANFORD RC-032 LVL LOT #: 0803L716

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08L0098-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	10.1	MG/KG	4.0	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	0.20 u	MG/KG	0.20	1.0
		Chromium, Total	0.20 u	MG/KG	0.20	1.0
		Copper, Total	0.20 u	MG/KG	0.20	1.0
		Iron, Total	5.8	MG/KG	4.5	1.0
		Potassium, Total	4.0 u	MG/KG	4.0	1.0
		Magnesium, Total	3.5	MG/KG	2.5	1.0
		Manganese, Total	0.05	MG/KG	0.04	1.0
		Molybdenum, Total	0.30 u	MG/KG	0.30	1.0
		Sodium, Total	7.7	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	08C0045-MB1	Mercury, Total	0.01 u	MG/KG	0.01	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 03/12/08

CLIENT: TNU-HANFORD RC-032 LVL LOT #: 0803L716

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J16DF5	Silver, Total	4.4	0.27u	4.5	97.8	3.0
		Aluminum, Total	8260	7670	182	323.8*	3.0
		Arsenic, Total	178	4.0	182	95.5	3.0
		Boron, Total	86.7	1.4 u	90.9	95.4	3.0
		Barium, Total	278	102	182	96.6	3.0
		Beryllium, Total	4.6	0.23	4.5	97.0	3.0
		Calcium, Total	4930	2630	2270	101.3	3.0
		Cadmium, Total	4.4	0.14u	4.5	97.8	3.0
		Cobalt, Total	47.7	5.0	45.4	94.1	3.0
		Chromium, Total	40.0	21.9	18.2	99.5	3.0
		Copper, Total	39.9	16.5	22.7	103.1	3.0
		Iron, Total	16700	17400	90.9	-750. *	3.0
		Mercury, Total	0.14	0.00u	0.14	100	1.0
		Potassium, Total	2760	828	2270	85.1	3.0
		Magnesium, Total	5930	3890	2270	89.8	3.0
		Manganese, Total	231	216	45.4	32.6*	3.0
		Molybdenum, Total	82.6	0.82u	90.9	90.9	3.0
		Sodium, Total	2140	97.7	2270	90.0	3.0
		Nickel, Total	53.4	9.8	45.4	96.0	3.0
		Lead, Total	46.6	2.8	45.4	96.5	3.0
		Antimony, Total	18.2	0.82u	45.4	40.1	3.0
		Selenium, Total	153	1.6 u	182	84.3	3.0
		Silicon, Total	449	391	90.9	64.1*	3.0
		Vanadium, Total	79.4	36.2	45.4	95.2	3.0
		Zinc, Total	77.2	34.8	45.4	93.4	3.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 03/12/08

CLIENT: TNU-HANFORD RC-032 LVL LOT #: 0803L716

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J16DF5	Silver, Total	0.27u	0.25u	NC	3.0
		Aluminum, Total	7670	7680	0.085	3.0
		Arsenic, Total	4.0	4.5	11.8	3.0
		Boron, Total	1.4 u	1.3 u	NC	3.0
		Barium, Total	102	103	0.78	3.0
		Beryllium, Total	0.23	0.28	16.3	3.0
		Calcium, Total	2630	2440	7.3	3.0
		Cadmium, Total	0.14u	0.13u	NC	3.0
		Cobalt, Total	5.0	4.8	4.1	3.0
		Chromium, Total	21.9	22.9	4.5	3.0
		Copper, Total	16.5	17.9	8.1	3.0
		Iron, Total	17400	16600	5.1	3.0
		Mercury, Total	0.00u	0.01u	NC	1.0
		Potassium, Total	828	782	5.6	3.0
		Magnesium, Total	3890	3710	4.7	3.0
		Manganese, Total	216	200	8.0	3.0
		Molybdenum, Total	0.82u	0.76u	NC	3.0
		Sodium, Total	97.7	108	9.9	3.0
		Nickel, Total	9.8	9.8	0.00	3.0
		Lead, Total	2.8	3.4	19.4	3.0
		Antimony, Total	0.82u	0.76u	NC	3.0
		Selenium, Total	1.6 u	1.5 u	NC	3.0
		Silicon, Total	391	398	1.7	3.0
		Vanadium, Total	36.2	35.4	2.2	3.0
		Zinc, Total	34.8	33.8	2.9	3.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 03/12/08

CLIENT: TNU-HANFORD RC-032 LVL LOT #: 08C3L716

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0098-LC1	Silver, LCS	47.5	50.0	MG/KG	95.0
		Aluminum, LCS	494	500	MG/KG	98.9
		Arsenic, LCS	944	1000	MG/KG	94.4
		Boron, LCS	466	500	MG/KG	93.2
		Barium, LCS	476	500	MG/KG	95.1
		Beryllium, LCS	24.3	25.0	MG/KG	97.2
		Calcium, LCS	2470	2500	MG/KG	99.0
		Cadmium, LCS	24.0	25.0	MG/KG	96.0
		Cobalt, LCS	240	250	MG/KG	96.1
		Chromium, LCS	48.4	50.0	MG/KG	96.8
		Copper, LCS	123	125	MG/KG	98.2
		Iron, LCS	474	500	MG/KG	94.9
		Potassium, LCS	2210	2500	MG/KG	88.5
		Magnesium, LCS	2360	2500	MG/KG	94.3
		Manganese, LCS	74.5	75.0	MG/KG	99.3
		Molybdenum, LCS	466	500	MG/KG	93.1
		Sodium, LCS	2200	2500	MG/KG	87.8
		Nickel, LCS	193	200	MG/KG	96.6
		Lead, LCS	243	250	MG/KG	97.3
		Antimony, LCS	283	300	MG/KG	94.4
		Selenium, LCS	911	1000	MG/KG	91.1
		Silicon, LCS	179	500	MG/KG	35.8
		Vanadium, LCS	238	250	MG/KG	95.0
		Zinc, LCS	95.8	100	MG/KG	95.8
LCS1	08C0045-LC1	Mercury, LCS	4.4	4.7	MG/KG	93.2

Lionville Laboratory Incorporated

Logbook #: _____

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0098
Date/Time Initiated: 3/11/08 1150
Date/Time Completed: 3/11/08 1430
Analyst(s): MW
Matrix: (Soil) Water Other: _____
Instr. Type: AA (CP)
Parameters: see backlog

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

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

DW 200.7 (1994)
200.9
3113B
MCAWW 200.7 (1982)
200 (AA)
206.2 (As/Se)
SM 3030C (NC)
CLP ILMO3.0
ILMO4.0
Other _____

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
0803L716-001		1.16 gm	100 ml	<2	TO	coarse	brown/white	N/A	N/A
001R		1.25 gm							
001S	1.0 ml	1.16 gm							
0803L717-001		1.11 gm					black		
001R		1.18 gm							
(A) 001S	1.0 ml	1.11 gm							
002		1.15 gm					brown		
003		1.16 gm					black/brown		
08L0098-MB1		1.0 gm					white chips		
(A) LC1	1.0 ml	1.0 gm							

MW 3/11/08

Spiking IDs:
MS #: 8100-04-01
02
03
8072-072-01
LCS #: 02
03
04
05

Reagent IDs:
HNO_3 E72071
HCL E40060
H_2O_2 E44A06
1:1 HNO_3 9781-070-06
1:1 HCL

File ID#: IC009801 IC009802

LIMS Transfer: (Y) N

Data Review By/Date: updated
RMP, 03/11/08

(A) also 0.25 ml each {6072-076-06 (Bi)
6072-076-07 (P-)
6072-078-01 (U-)

Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 422

Analyst: TCB
Date 3/11/08
Start Time/Temp: 1020 | 92°
End Time/Temp: 1050 | 98°

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

Prep Batch: 08C0045
Worksheet: HG031101
SOP No. ME-HgCVAA, Rev. 02

pH < 2 for Liquids? __ Yes N/A 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	500			10mL	50mL	
0.2 µg/L	H5	0.100				
1.0	S	0.500				
2.0	A901	1.000				
5.0	F8	2.500				
10.0	L15	5.000				
ICV	503	0.125	2.5			
CCV	194	0.250	5.0			
ICB/CCB	CA					9.50L
MB1	1C			0.30		PBS145 100.0
LCS	871	*	*	0.33		LCSS145
0803L716-001	2I			0.37		94.76
001R	OLN			0.33		
001S	HW	0.500	1.0	0.37		
0803L717-001	OF			0.33		97.89
001R	LV			0.31		
001S	C9	0.500	1.0	0.33		
002	1/1E			0.32		93.53
003	JC			0.37		96.03
0803L710-001	N2			0.31		95.70
001R	11A			0.36		
001S	P5	0.500	1.0	0.32		
002	M1			0.39		96.58
003	PT			0.38		95.64
004	95			0.38		95.51
005	C4D			0.30		97.03
006	4T			0.40		95.94

Standard:	ID	Prep Date/Time
ICAL/MS	RI 6072-75-07B	3/11/08 0825
ICV/CCV/LCS	US 6072-75-08A	

Reviewed By/Date: Andrew Malay

see book # 9348 for std traceability information

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

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

Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 0422

Analyst: CB
Date 3/11/08
Start Time/Temp: see page
End Time/Temp: 035

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

Prep Batch: 08C0045
Worksheet: HG031101
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.
0803L710-007	NB			0.36	50mL	97.16
008	205			0.35		92.27
009	X3			0.35		97.36
010	AB			0.37		96.58
011	154			0.35		95.92
012	N60			0.33		96.19
013	N4			0.35		97.61

Tue 3/11/08

Standard:	ID	Prep Date/Time
ICAL/MS		
ICV/CCV/LCS	see page	035

Reviewed By/Date: [signature]

see book # 9368 for std traceability information

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

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

ME-HgCVAA-Prep1007

Page #:

000000016

Lionville Laboratory Use Only
08031716

Custody Transfer Record/Lab Work Request

Page 1 of 1

VLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client TNU HANFORD RC-032
Est. Final Proj. Sampling Date
Project# 11343-606-001-9999-00
Project Contact/Phone#
Lionville Laboratory Project Manager O. JOHNSON
PO SW846 Del STP TAT 3 Day
Date Rec'd 3-7-08 Date Due 3-10-08

		A	B		C	D		EF		G
Refrigerator #		2	2		2	2		2		2
#/Type Container	Liquid	1G	1G		1G	1G		2P		1P
	Solid									
Volume		120	60		120	120		125		250
Preservatives		—	—		—	—		—		—
ANALYSES REQUESTED →		ORGANIC						INORG		
		VOA	BNA	Pest/PCB	Herb	PST	TOT TPH	Metal	CN	CR+6
Lionville Laboratory Use Only			0635H	0PCB		0608H	TPHC	MetO		ICR6

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	PST	TOT TPH	Metal	CN	CR+6
001	J16DF5	✓	✓	SOIL	3/5/08	1200		X	X		X	X	X		X

Special Instructions:
met① = HSL + B, mo, S; (NOTL)

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

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	3/6/08	0935

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-032-195	Page 1 of 1

Collector: ETHERINGTON	Company Contact: R.T. Coffman	Telephone No.: 528-6409	Project Coordinator: KESSNER, JH
Price Code: 8A	Data Turnaround: 3DAY		
Project Designation: 100-F Remaining Sites Burial Grounds - Soil Full Protocol	Sampling Location: 128-F-2 Verification phase 2		SAF No.: RC-032
Ice Chest No.: GRP-03-014	Field Logbook No.: EFL-1174-4	COA: R128F22000	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A080194		Bill of Lading/Air Bill No.: see ospc

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA Cool 4°C

Preservation	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None			
Type of Container	P	P	aG	aG	aG	aG	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										
J16DF5	SOIL	3-5-08	1200	X	X	X	X	X	X	JRD 4-04			A-7

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
EETHERINGTON	3-5-08 1210	JRDeBrigne JRDeBrigne	3-5-08 1210
JRDeBrigne JRDeBrigne	3-5-08 1520	MLS mstankovich	3/5/02 1520
MLS mstankovich	3/6/08 0915	Fed EX	
Fed EX	3-7-08 0935	[illegible]	3-7-08 0935

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}

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

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

WCH-EE-011

000000018

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

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

Date: 3/7/08

LvLI Batch #: 0803L716

Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 790463539349
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 2.3°	°C	Cooler # GRP-03-014
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI LIONVILLE LABORATORY, INC.

SR-002-B.doc

Lionville Laboratory, Inc.
PEST/PCB ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD RC-032 IC1138

RECEIVED APR 2008

DATE RECEIVED: 03/07/08 LVL LOT # :0803L716

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16DF5	001	S	08LE0117	03/05/08	03/07/08	03/10/08
J16DF5	001 MS	S	08LE0117	03/05/08	03/07/08	03/10/08
J16DF5	001 MSD	S	08LE0117	03/05/08	03/07/08	03/10/08

LAB QC:

PBLKNR	MB1	S	08LE0117	N/A	03/07/08	03/10/08
PBLKNR	MB1 BS	S	08LE0117	N/A	03/07/08	03/10/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-032
LVL #: 0803L716
SDG/SAF # K1138 / RC-032

W.O. #: 11343-606-001-9999-00
Date Received: 03-07-2008

CHLORINATED PESTICIDES

One (1) soil sample was collected on 03-05-2008.

The sample and its associated QC samples were extracted on 03-07-2008 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedure on 03-10-2008. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8081A.

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 method blank was below the reporting limits for all target compounds.
3. All surrogate recoveries were within acceptance criteria.
4. All blank spike recoveries were within acceptance criteria.
5. Seven (7) of forty (40) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
6. Due to the martix, samples J16DF5, J16DF5 MS, J16DF5 MSD required a 4-fold dilution.
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\0803-716ks1.pest.doc

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

LvLI
LIONVILLE LABORATORY INC.

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

3/14/08
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 08GC0031

Initiator: CAC
Date: 3-11-08
Client: TNU

Batch: 0803L716
Samples: 001MS
Method: SW846/MCAWW/CLP/

Parameter: Pest
Matrix: SOIL
Prep Batch: 08LE0117

1. Reason for SDR

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

b. General Discrepancy

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

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

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

several spike recoveries in 001 MS are low

2. Known or Probable Causes(s) Not Known.

3. Discussion and Proposed Action

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

Other Description:

BS/MSD ARE GOOD.
Chromatograms look OK.
Narrate
JD.

4. Project Manager Instructions...signature/date: _____

__ 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: KRA 3-14-08

Other Explanation:

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

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

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

QA-105-A-0805

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.

Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List

Report Date: 03/11/08 12:07

RFW Batch Number: **0803L716** Client: **TNU-HANFORD RC-032** Work Order: 11343606001 Page: 1

000000006

	Cust ID:	J16DF5	J16DF5	J16DF5	PBLKNR	PBLKNR BS
Sample Information	RFW#:	001	001 MS	001 MSD	08LE0117-MB1	08LE0117-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	4.00	4.00	4.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	91 %	84 %	99 %	84 %	86 %
	Decachlorobiphenyl	85 %	79 %	91 %	77 %	76 %
		fl	fl	fl	fl	fl fl
Alpha-BHC		1.4 U	74 %	91 %	0.33 U	96 %
gamma-BHC (Lindane)		1.4 U	79 %	95 %	0.33 U	96 %
Beta-BHC		1.4 U	89 %	101 %	0.33 U	93 %
Heptachlor		1.4 U	86 %	104 %	0.33 U	90 %
Delta-BHC		1.4 U	44 * %	71 %	0.33 U	82 %
Aldrin		1.4 U	80 %	96 %	0.33 U	95 %
Heptachlor epoxide		1.4 U	90 %	103 %	0.33 U	94 %
gamma-Chlordane		1.4 U	89 %	102 %	0.33 U	96 %
Endosulfan I		1.4 U	37 * %	104 %	0.33 U	96 %
alpha-Chlordane		1.4 U	89 %	102 %	0.33 U	95 %
4,4'-DDE		1.4 U	93 %	108 %	0.33 U	104 %
Dieldrin		1.4 U	88 %	101 %	0.33 U	96 %
Endrin		1.4 U	86 %	108 %	0.33 U	98 %
4,4'-DDD		1.4 U	83 %	97 %	0.33 U	97 %
Endosulfan II		1.4 U	57 * %	104 %	0.33 U	95 %
4,4'-DDT		1.4 U	81 * %	105 %	0.33 U	105 %
Endrin aldehyde		1.4 U	34 * %	102 %	0.33 U	85 %
Endosulfan sulfate		1.4 U	49 * %	100 %	0.33 U	91 %
Methoxychlor		1.4 U	85 %	115 %	0.33 U	100 %
Endrin ketone		1.4 U	73 * %	106 %	0.33 U	92 %
Toxaphene		14 U	NS	NS	3.3 U	NS

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

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 03/07/08 Extraction Batch No: 08LE0117 Analyst: MF Method: ****

Test: O608 Cleanup Date: Analyst: Client: TNU-HANFORD RC-032

LIMS Report Date: 03/11/08 Solvent: DCM/ACETONE,HEXANE 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	Vis H2O	C/D FACTOR	Sulfur Clean?
0803L716-	TNU-HANFORD RC-032												
001 H	J16DF5		30.0	1.0		10		1.0	Y	94.76		351.8	
001 HS	J16DF5		30.0	1.0	1.0	10		1.0	Y	94.76		351.8	
001 HT	J16DF5		30.0	1.0	1.0	10		1.0	Y	94.76		351.8	
08LE0117-MB1 H			30.0	1.0		10		1.0	Y	100.00		333.3	
08LE0117-MB1 HS			30.0	1.0	1.0	10		1.0	Y	100.00		333.3	

Comments:
Surrogate: 250 UL OLM PSURR 89916404
Spike: 250 UL FULL LIST PEST SPIKE 89915509

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
			CAC	3/11/08	% Solids updated

000000007

Lionville Laboratory, Inc.

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 03/07/08 Extraction Batch No: 08LE0117 Analyst: MF Method: **** SOX3540

Test: O608 Cleanup Date: Analyst: Client: TNU-HANFORD RC-032

LIMS Report Date: 03/10/08 Solvent: DCM/ACETONE,HEXANE 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
0803L716-	TNU-HANFORD RC-032										
001 H	J16DF5		30.0	1.0		10		1.0	Y	~~0.094~~ 4.76	333.3
001 HS	J16DF5		30.0	1.0	1.0	10		1.0	Y	0.0	333.3
001 HT	J16DF5		30.0	1.0	1.0	10		1.0	Y	0.0	333.3
08LE0117-MB1 H	PBLKNR		30.0	1.0		10		1.0	Y	100.00	333.3
08LE0117-MB1 HS	PBLKNR		30.0	1.0	1.0	10		1.0	Y	100.00	333.3

Comments:
Surrogate: 250 UL OLM PSURR 89916404
Spike: 250 UL FULL LIST PEST SPIKE 89915509

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
all	[illegible]	3/10/08 1318	SZ	3/10/08 13:20	GC

000000008

onville Laboratory Use Only
08031716

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

VLI

ent TNU HANFORD RC-032
Final Proj. Sampling Date
ject# 11343-606-001-9999-00
ject Contact/Phone#
nville Laboratory Project Manager O. JOHNSON
SW846 Del STP TAT 3 Day
te Rec'd 3-7-08 Date Due 3-10-08

		A	B		C	D		EF		G					
Refrigerator #		2	2		2	2		2		2					
#/Type Container	Liquid														
	Solid	1G	1G		1G	1G		2P		1P					
Volume		120	60		120	120		125		250					
Preservatives		—	—		—	—		—		—					
ANALYSES REQUESTED	ORGANIC	VOA	BNA	Pest/PCB	Herb	PCST	TOT TPH		INORG Metal	CN	PH				
Lionville Laboratory Use Only			0625H	0PCB		0608H	TPHC		MetO		ICR6				

MATRIX DESI	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, Rat	1101	T16DF5	✓	✓	SOIL	3/5/08	1200

Special Instructions:
met① = HSL + B, mo, S; (NOTL)

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

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	3/7/08	0935

Relinquished by	Received by	Date	Time

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

00000000

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-032-195	Page 1 of 1

Collector: ETHERINGTON	Company Contact: R.T. Coffman	Telephone No.: 528-6409	Project Coordinator: KESSNER, JH
Price Code: BA	Data Turnaround: 3DAY		
Project Designation: 100-F Remaining Sites Burial Grounds - Soil Full Protocol	Sampling Location: 128-F-2 Verification phase 2		SAF No.: RC-032
Ice Chest No.: GRP-03-014	Field Logbook No.: EFL-1174-4	COA: R128F22000	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (JONVILLE)	Offsite Property No.: A080194		Bill of Lading/Air Bill No.: see aspc

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA Cool 4°C

Preservation	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None			
Type of Container	P	P	aG	aG	aG	aG	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								
J16DF5	SOIL	3-5-08	1200	X	X	X	X	X	X		A-7

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
ETHERINGTON	3-5-08 1210	JRDeBruine JRDeBruine	3-5-08 1210
JRDeBruine JRDeBruine	3-5-08 1520	mstankovich mstankovich	3/5/02 1520
mstankovich mstankovich	3/6/08 0815	Fed Ex	
Fed Ex	3-7-08 0935	[illegible]	3-7-08 0935

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)

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

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

VCH-EE-011

0100000010

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

Date: 3/7/08

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

LvLI Batch #: 0803L716

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7904 6353 9349
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 2.3°	°C	Cooler # GRP-03-014
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI LIONVILLE LABORATORY INC

SR-002-B.doc

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-032 K1138

RECEIVED
APR 2008

DATE RECEIVED: 03/07/08 LVL LOT # : 08031L216

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16DF5	001	S	08LE0118	03/05/08	03/07/08	03/24/08
J16DF5	001 MS	S	08LE0118	03/05/08	03/07/08	03/24/08
J16DF5	001 MSD	S	08LE0118	03/05/08	03/07/08	03/24/08
LAB QC:						
SBLKTD	MB1	S	08LE0118	N/A	03/07/08	03/24/08
SBLKTD	MB1 BS	S	08LE0118	N/A	03/07/08	03/24/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-032
LVL #: 0803L716
SDG/SAF # K1138 / RC-032

W.O. #: 11343-606-001-9999-00
Date Received: 03-07-2008

SEMIVOLATILE

One (1) soil sample was collected on 03-05-2008.

The sample and its associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3540C on 03-07-2008 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 03-24-2008.

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

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

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

3. All surrogate recoveries were within acceptance criteria.

4. One (1) of one hundred and twenty-eight (128) matrix spike recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

5. Four (4) of sixty-four (64) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

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

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

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

r:\group\data\2008\bna\tnu\0802-716ks1.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 14 pages.

LIONVILLE LABORATORY INC.

9. Internal standard criteria were not met for samples J16DF5 MS, and 08LE0118-MB1S. The out of criteria samples were reanalyzed on 03-25-08 with similar results and not reported.

10. 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").

11. 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.

12. 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

3/27/08
Date

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

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 08M5057

Initiator: Robert Carden
Date: 3/27/08
Client: TNU Hanford RC032 19138

Batch: 08032716
Samples: MS/MSD/B5
Method: SW8463/MCAWW/CLP

Parameter: 625H
Matrix: Soil
Prep Batch: 08UE0118

1. Reason for SDR

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

b. General Discrepancy

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

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

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

Several spike recoveries outside QC Criteria in MS/MSD/B5. All surrogates within Criteria

2. Known or Probable Causes(s)

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: 3/27/08

__ 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: 3-27-08 Other Explanation:

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

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

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
__	X Initiator	__	__ Metals: Beegle
__	X Lab General Manager: M. Taylor	__	__ Inorganic: Perrone
✓	X Project Mgr: Stone/Johnson		__ GC/LC: Kiger
__	__ Data Management: Stilwell	✓	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: 03/27/08 12:51

RFW Batch Number: **0803L716** Client: **TNUHANFORD RC-032 K1138** Work Order: 11343606001 Page: 1a

	Cust ID:	J16DF5		J16DF5		J16DF5		SBLKTD		SBLKTD BS	
Sample Information	RFW#:	001		001 MS		001 MSD		08LE0118-MB1		08LE0118-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	66	%	57	%	58	%	63	%	56	%
	2-Fluorobiphenyl	70	%	86	%	90	%	63	%	90	%
	Terphenyl-d14	89	%	82	%	96	%	77	%	89	%
	Phenol-d5	73	%	80	%	86	%	68	%	79	%
	2-Fluorophenol	73	%	79	%	87	%	68	%	75	%
	2,4,6-Tribromophenol	65	%	59	%	64	%	52	%	46	%
Phenol		350	U	85	%	95	%	330	U	83	%
bis(2-Chloroethyl)ether		350	U	70	%	76	%	330	U	66	%
2-Chlorophenol		350	U	82	%	93	%	330	U	83	%
1,3-Dichlorobenzene		350	U	71	%	79	%	330	U	74	%
1,4-Dichlorobenzene		350	U	71	%	81	%	330	U	73	%
1,2-Dichlorobenzene		350	U	77	%	84	%	330	U	76	%
2-Methylphenol		350	U	80	%	95	%	330	U	78	%
2,2'-oxybis(1-Chloropropane)		350	U	71	%	80	%	330	U	69	%
3/4 Methylphenol		350	U	85	%	96	%	330	U	86	%
N-Nitroso-di-n-propylamine		350	U	70	%	81	%	330	U	72	%
Hexachloroethane		350	U	67	%	76	%	330	U	68	%
Nitrobenzene		350	U	54	%	56	%	330	U	53	%
Isophorone		350	U	61	%	67	%	330	U	59 *	%
2-Nitrophenol		350	U	62	%	69	%	330	U	61	%
2,4-Dimethylphenol		350	U	56	%	64	%	330	U	57	%
bis(2-Chloroethoxy)methane		350	U	58	%	62	%	330	U	56	%
2,4-Dichlorophenol		350	U	65	%	73	%	330	U	66	%
1,2,4-Trichlorobenzene		350	U	59 *	%	66	%	330	U	64	%
Naphthalene		350	U	59	%	63	%	330	U	58	%
4-Chloroaniline		350	U	45	%	47	%	330	U	41	%
Hexachlorobutadiene		350	U	68	%	73	%	330	U	64	%
4-Chloro-3-methylphenol		350	U	65	%	70	%	330	U	2 *	%
2-Methylnaphthalene		350	U	63	%	69	%	330	U	56 *	%
Hexachlorocyclopentadiene		350	U	79	%	87	%	330	U	77	%
2,4,6-Trichlorophenol		350	U	64	%	77	%	330	U	49	%
2,4,5-Trichlorophenol		880	U	92	%	98	%	830	U	76	%

*= Outside of EPA CLP QC limits.

000000008

Cust ID:	J16DF5		J16DF5		J16DF5		SBLKTD		SBLKTD BS	
RFW#:	001		001 MS		001 MSD		08LE0118-MB1		08LE0118-MB1	
2-Chloronaphthalene	350	U	82	%	88	%	330	U	80	%
2-Nitroaniline	880	U	86	%	94	%	830	U	85	%
Dimethylphthalate	350	U	92	%	99	%	330	U	88	%
Acenaphthylene	350	U	86	%	92	%	330	U	84	%
2,6-Dinitrotoluene	350	U	94	%	101	%	330	U	90	%
3-Nitroaniline	880	U	90	%	94	%	830	U	92	%
Acenaphthene	350	U	85	%	91	%	330	U	85	%
2,4-Dinitrophenol	880	U	55	%	52	%	830	U	24	%
4-Nitrophenol	880	U	91	%	84	%	830	U	70	%
Dibenzofuran	350	U	93	%	101	%	330	U	86	%
2,4-Dinitrotoluene	350	U	112	%	117	%	330	U	99	%
Diethylphthalate	350	U	99	%	106	%	330	U	92	%
4-Chlorophenyl-phenylether	350	U	94	%	99	%	330	U	87	%
Fluorene	350	U	92	%	100	%	330	U	86	%
4-Nitroaniline	880	U	119	%	116	%	830	U	109	%
4,6-Dinitro-2-methylphenol	880	U	51	%	55	%	830	U	31 *	%
N-Nitrosodiphenylamine (1)	350	U	67	%	77	%	330	U	66	%
4-Bromophenyl-phenylether	350	U	77	%	90	%	330	U	84	%
Hexachlorobenzene	350	U	97	%	113	%	330	U	107	%
Pentachlorophenol	880	U	71	%	81	%	830	U	38	%
Phenanthrene	350	U	85	%	97	%	330	U	89	%
Anthracene	350	U	90	%	105	%	330	U	96	%
Carbazole	350	U	103	%	111	%	330	U	108	%
Di-n-butylphthalate	350	U	97	%	107	%	330	U	104	%
Fluoranthene	350	U	115	%	122	%	330	U	124	%
Pyrene	350	U	73	%	87	%	330	U	73	%
Butylbenzylphthalate	350	U	80	%	92	%	330	U	80	%
3,3'-Dichlorobenzidine	350	U	67	%	72	%	330	U	84	%
Benzo(a)anthracene	350	U	86	%	96	%	330	U	92	%
Chrysene	350	U	87	%	97	%	330	U	94	%
bis(2-Ethylhexyl)phthalate	26	JB	81	%	92	%	32	J	80	%
Di-n-octyl phthalate	350	U	76	%	85	%	330	U	73	%
Benzo(b)fluoranthene	350	U	87	%	93	%	330	U	93	%
Benzo(k)fluoranthene	350	U	82	%	94	%	330	U	82	%
Benzo(a)pyrene	350	U	83	%	93	%	330	U	89	%
Indeno(1,2,3-cd)pyrene	350	U	78	%	96	%	330	U	92	%
Dibenz(a,h)anthracene	350	U	73	%	97	%	330	U	90	%
Benzo(g,h,i)perylene	350	U	83	%	95	%	330	U	96	%

(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.

J16DF5

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

Client: TNUHANFORD RC-032 K1138

Matrix: (soil/water) SOIL

Lab Sample ID: 0803L716-001

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

Lab File ID: N032405

Level: (low/med) LOW

Date Received: 03/07/08

% Moisture: 5 decanted: (Y/N)__

Date Extracted: 03/07/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 03/24/08

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	4.781	400	JAB
2.	UNKNOWN	4.824	400	J
3.	UNKNOWN	4.868	800	J
4.	UNKNOWN	5.460	100000	JB
5.	UNKNOWN	19.606	400	JB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKTD

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

Client: TNUHANFORD RC-032 K1138

Matrix: (soil/water) SOIL

Lab Sample ID: 08LE0118-MB1

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

Lab File ID: N032403

Level: (low/med) LOW

Date Received: 03/07/08

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

Date Extracted: 03/07/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 03/24/08

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: _____

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	4.470	100	J
2.	ALDOL CONDENSATE	4.836	80	JA
3.	UNKNOWN	5.377	30000	J
4.	UNKNOWN	19.609	300	J

nville Laboratory Use Only

18031716

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

nt TNU HANFORD RC-032

Final Proj. Sampling Date

ect# 11343-606-001-9999-00

ect Contact/Phone#

ville Laboratory Project Manager O. JOHNSON

SW846 Del STP TAT 3 Day

Rec'd 3-7-08 Date Due 3-10-08

		A	B		C	D		EF		G					
Refrigerator #		2	2		2	2		2		2					
#/Type Container	Liquid														
	Solid	1G	1G		1G	1G		2P		1P					
Volume		120	60		120	120		125		250					
Preservatives		—	—		—	—		—		—					
ANALYSES REQUESTED	ORGANIC: VOA	BNA	Pest/PCB	Herb	PST	TOT TPH		INORG: Metal	Hg	CN	PH				

RIX ES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only: 0625H	0PCB	0608H	TPHC	MET①	ICP6
Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP Leachate, Wipe, Other, Fish	101	J16DF5	✓	✓	SOIL	3/5/08	1200	X	X	X	X	X	X

cial Instructions:

met① = HSL + B, mo, S; (NOTL)

Special Instructions:

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

Relinquished by	Received by	Date	Time
DEO	W. Newman	3/7/08	0935

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGIN-L REWRITTEN		"COMPOSITE WASTE"	

000000012

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-032-195	Page 1 of 1

ollector ETHERINGTON	Company Contact R.T. Coffman	Telephone No. 528-6409	Project Coordinator KESSNER, JH	Price Code 8A	Data Turnaround 3DAY
oject Designation 100-F Remaining Sites Burial Grounds - Soil Full Protocol	Sampling Location 128-F-2 Verification phase 2		SAF No. RC-032		
e Chest No. GRP-03-014	Field Logbook No. EFL-1174-4	COA R128F22000	Method of Shipment FED EX		
ipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A080194		Bill of Lading/Air Bill No. SEE OSPC		

OSSIBLE SAMPLE HAZARDS/REMARKS
/A

pecial Handling and/or Storage
/A Cool 4°C

Preservation	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
Type of Container	P	P	aG	aG	aG	aG	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										
6DF5 / SOIL / 3-5-08 / 1200	X	X	X	X	X	X				A-7

JRD 3-4-08

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
GRD ETHERINGTON	3-5-08 1210	JRDeBruin JRDeBruin	3-5-08 1210
JRDeBruin JRDeBruin	3-5-08 1520	mstankovich mstankovich	3/5/02 1520
mstankovich	3/6/08 0815	FedEx	
FedEx	3-7-08 0935		3-7-08 0935

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)

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

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

CH-EE-011

000000013

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

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

Date: 3/7/08

LvLI Batch #: 0803L716

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 790463539349
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 2.3°	°C	Cooler # GRP-03-014
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI LIONVILLE LABORATORY INC.

SR-002-B.doc