0077892

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

COMPLETE COPY OF DATA PACKAGE TO:

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

COMMENTS:

SDG K1158 SAF RC-073

Rad only Chem only X Rad & Chem

X Complete Partial

Waste Site: 118-D-3, anomaly 100D-AN-08-011

RECEIVED
JUN 11 2008
EDMC

EBERLINE
SERVICES

April 14, 2008

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

RECEIVED
APR 2008

Reference: **P.O. #S00W235A00**
Eberline Services R8-03-128-7786, SDG K1158

Dear Ms. Kessner:

Enclosed is a data report for one solid (other solid) sample designated under SAF No. RC-073 received at Eberline Services on March 27, 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
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1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K1158 was composed of one solid (other solid) sample designated under SAF No. RC-073 with a Project Designation of: 100-D/DR Burial Grounds & Remaining Sites – Other Solid Q.

The sample was received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to WCH via e-mail on April 11, 2008.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analysis

No problems were encountered during the course of the analysis.

3.0 Case Narrative Certification Statement

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

Melissa Mannion

Melissa C. Mannion
Senior Program Manager

04/14/08

Date

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP K1158

SDG	7786
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. S00W235A00
Case no	SDG K1158

S U M M A R Y D A T A S E C T I O N

T A B L E O F C O N T E N T S

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Prepared by

Reviewed by

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	04/11/08

SDG 7786
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1158

ABOUT THE DATA SUMMARY SECTION

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

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

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

PREPARATION BATCH SUMMARY

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

WORK SUMMARY

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

METHOD BLANKS

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

LAB CONTROL SAMPLES

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/11/08

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 K1158

SDG 7786
ontact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1158

B MPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
03128-01	J16J15	118-D-3, anomaly	SOLID		RC-073	RC-073-037	03/24/08 10:17
03128-02	Lab Control Sample		SOLID		RC-073		
03128-03	Method Blank		SOLID		RC-073		
03128-04	Duplicate (R803128-01)	118-D-3, anomaly	SOLID		RC-073		03/24/08 10:17

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 04/11/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1158

SDG 7786
ontact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1158

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-073-037	J16J15	SOLID	100.0	46 g		03/27/08	3	R803128-01	7786-001
		Method Blank	SOLID						R803128-03	7786-003
		Lab Control Sample	SOLID						R803128-02	7786-002
		Duplicate (R803128-01)	SOLID	100.0	46 g		03/27/08	3	R803128-04	7786-004

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 04/11/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1158

SDG 7786
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1158

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	6148-051	20.6	1			1	1	1/1		
93B	SOLID	Gross Beta in Solids	6148-051	11.0	1			1	1	1/1		

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 04/11/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1158

SDG 7786
:ontact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1158

SAMPLE :LLECTED :ECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
128-01	J16J15			7786-001	93A/93		04/09/08	04/09/08	BW	Gross Alpha in Solids
3/24/08	118-D-3, anomaly		SOLID	7786-001	93B/93		04/03/08	04/09/08	BW	Gross Beta in Solids
3/27/08	RC-073-037	RC-073								
128-02	Lab Control Sample			7786-002	93A/93		04/03/08	04/09/08	BW	Gross Alpha in Solids
			SOLID	7786-002	93B/93		04/03/08	04/09/08	BW	Gross Beta in Solids
		RC-073								
128-03	Method Blank			7786-003	93A/93		04/03/08	04/09/08	BW	Gross Alpha in Solids
			SOLID	7786-003	93B/93		04/03/08	04/09/08	BW	Gross Beta in Solids
		RC-073								
128-04	Duplicate (R803128-01)			7786-004	93A/93		04/09/08	04/09/08	BW	Gross Alpha in Solids
3/24/08	118-D-3, anomaly		SOLID	7786-004	93B/93		04/03/08	04/09/08	BW	Gross Beta in Solids
3/27/08		RC-073								

COUNTS OF TESTS BY SAMPLE TYPE

ST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
A/93	RC-073	Gross Alpha in Solids	900.0_ALPHABETA_GPC	1			1	1	1	4
B/93	RC-073	Gross Beta in Solids	900.0_ALPHABETA_GPC	1			1	1	1	4
TALS				2			2	2	2	8

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 04/11/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1158

7786-003 Method Blank

METHOD BLANK

SDG	7786	Client/Case no	Hanford	SDG_K1158	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R803128-03	Client sample id	Method Blank		
Dept sample id	7786-003	Material/Matrix		SOLID	
		SAF No	RC-073		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	1.05	3.8	7.34	10.0	U	93A
Gross Beta	12587-47-2	0.565	3.2	5.69	15.0	U	93B

100D/DR BurialGrnds&RemainSites-OSol

QC-BLANK #65216

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	04/11/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1158

7786-002

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7786
Contact Melissa C. Mannion

Client/Case no Hanford SDG K1158
Contract No. S00W235A00

Lab sample id R803128-02
Dept sample id 7786-002

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

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	116	18	6.23	10.0		93A	102	4.1	114	56-144	70-130
Gross Beta	85.8	7.1	5.70	15.0		93B	93.6	3.7	92	80-120	80-120

100D/DR BurialGrnds&RemainSites-OSol

QC-LCS #65215

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 04/11/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1158

7786-004 J16J15

DUPLICATE

SDG	7786			Client/Case no	Hanford SDG K1158
Contact	Melissa C. Mannion			Contract	No. S00W235A00
	DUPLICATE		ORIGINAL		
Lab sample id	R803128-04	Lab sample id	R803128-01	Client sample id	J16J15
Dept sample id	7786-004	Dept sample id	7786-001	Location/Matrix	118-D-3, anomaly SOLID
		Received	03/27/08	Collected/Weight	03/24/08 10:17 46 g
% solids	100.0	% solids	100.0	Custody/SAF No	RC-073-037 RC-073

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	DER σ
Gross Alpha	6.04	3.5	3.59	10.0		93A	5.91	3.4	4.08		2	130	0.1
Gross Beta	1090	22	5.51	15.0		93B	1100	22	5.51		1	24	0.1

100D/DR BurialGrnds&RemainSites-OSol

QC-DUP#1 65217

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	04/11/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1158

7786-001 J16J15

DATA SHEET

SDG	7786	Client/Case no	Hanford	SDG K1158	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R803128-01	Client sample id	J16J15		
Dept sample id	7786-001	Location/Matrix	118-D-3, anomaly	SOLID	
Received	03/27/08	Collected/Weight	03/24/08 10:17	46 g	
% solids	100.0	Custody/SAF No	RC-073-037	RC-073	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	5.91	3.4	4.08	10.0		93A
Gross Beta	12587-47-2	1100	22	5.51	15.0		93B

100D/DR BurialGrnds&RemainSites-OSol

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	04/11/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1158

Test 93A Matrix SOLID
SDG 7786
ontact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS ALPHA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1158

SULTS

LE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha
aration batch 6148-051					
128-01	93		7786-001	J16J15	5.91
128-02	93		7786-002	Lab Control Sample	ok
128-03	93		7786-003	Method Blank	U
128-04	93		7786-004	Duplicate (R803128-01)	ok

nal values and limits from method RDLs (pCi/g) 10.0
/DR BurialGrnds&RemainSites-OSol

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 6148-051			2σ prep error 20.6 % Reference Lab Notebook #6148, pg. 51													
128-01	93		J16J15	4.08	0.100			20		100			16	04/02/08	04/09	GRB-210
128-02	93		Lab Control Sample	6.23	0.100			60		100				04/02/08	04/03	GRB-209
128-03	93		Method Blank	7.34	0.100			60		100				04/02/08	04/03	GRB-210
128-04	93		Duplicate (R803128-01)	3.59	0.100			20		100			16	04/02/08	04/09	GRB-209
nal values and limits from method				10.0	0.100			5-250		100			180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 5.31 ± 3.55
RESIDUE 40 ± 46

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 04/11/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1158

Test 93B Matrix SOLID
SDG 7786
ontact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS BETA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1158

SULTS

LE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta
aration batch 6148-051					
128-01	93		7786-001	J16J15	1100
128-02	93		7786-002	Lab Control Sample	ok
128-03	93		7786-003	Method Blank	U
128-04	93		7786-004	Duplicate (R803128-01)	ok
nal values and limits from method				RDLs (pCi/g)	15.0

/DR BurialGrnds&RemainSites-OSol

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 6148-051			2σ prep error 11.0 % Reference Lab Notebook #6148, pg. 51													
128-01	93		J16J15	5.51	0.100			20		100			10	04/02/08	04/03	GRB-211
128-02	93		Lab Control Sample	5.70	0.100			60		100				04/02/08	04/03	GRB-209
128-03	93		Method Blank	5.69	0.100			60		100				04/02/08	04/03	GRB-210
128-04	93		Duplicate (R803128-01)	5.51	0.100			20		100			10	04/02/08	04/03	GRB-211
nal values and limits from method				15.0	0.100			5-250		100			180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 5.60 ± 0.214
RESIDUE 40 ± 46

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 04/11/08

SDG 7786
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1158

SAMPLE SUMMARY

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

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

The following notes apply to these reports:

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

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

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

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

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/11/08

SDG 7786
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1158

PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

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

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

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

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

  These qualifiers should be reviewed as follows:

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

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

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/11/08

SDG 7786
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1158

WORK SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/11/08

SDG 7786
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1158

DATA SHEET

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

The following notes apply to this report:

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

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

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

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

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

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

The following qualifiers are defined by the DVD system:

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/11/08

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 7786
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1158

DATA SHEET

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

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/11/08

SDG 7786
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1158

LAB CONTROL SAMPLE

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

The following notes apply to this report:

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

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

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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 7786
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1158

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

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MATRIX SPIKE

for the recovery.

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

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

METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

  MDAs are underlined if greater than the printed RDL.

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-073-037 | Page 1 of 1

Collector: D.W.Shea (D. Everhart SEC)	Company Contact: D.W.Shea	Telephone No.: 521-6014	Project Coordinator: KESSNER, JH
Price Code: 9K	Data Turnaround: 15 days		
Project Designation: 100-D/DR Burial Grounds & Remaining Sites - Other Solid Q	Sampling Location: 118-D-3, anomaly 100D-AN-08-011 (K1158 (7786))		SAF No.: RC-073
Ice Chest No.: ERC-99-046	Field Logbook No.: EL-1607-3	COA: R118D32600	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES/ LIONVILLE	Offsite Property No.: ~~See OPSC~~ DAS 3/26/08 A080215		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Potentially radioactive

Special Handling and/or Storage

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	
Type of Container	G/P	G	aG	G/P	G P	G	Gs*	G P	G P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60ml.	60ml.	60ml.	60ml.	60ml.	60ml.	60ml.	5g	60g	
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	TOX - 9020	IC Anions - 300.0; pH - 9045	NO2 NO3 - 353.2	Total Cyanide - 9010; Sulfides - 9030	TCLP Semi-VOA - 1311 8270A	Gross Alpha, Gross Beta	See item (3) in Special Instructions.	

Sample No.	Matrix *	Sample Date	Sample Time									
J16J15	OTHER SOLID	3/24/08	1017			DWShea 3/24/08	DWShea 3/24/08			✓	DWShea 3/24/08	

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
~~Laura K. Everhart~~	~~3-24-08~~ 1208	~~DWShea DWSHEA~~	~~3/24/08~~ 1208
~~DWShea DWShea~~	~~3/24/08~~ 1854	~~Fridge 1B~~	~~3/24/08~~ 1854
~~DAVID ST. JOHN~~ David St. John	3/26/08 1230	~~DAVID ST. JOHN~~ David St. John	3/26/08 FED EX
FED EX	3/26/08	DAS 3/26/08	03/27/08 01:00

Sign/Print Names

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}
(2) Metals by ICP (TCLP) - 1311 6010 {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury (TCLP) - 1311:7470 {Mercury}
(3) RCF GEA Shipping Screen {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

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

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

WCH-EE-011

EBERLINE SERVICES

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

JK 3/27/08

Client: W. C. HANFORD City RICHLAND State WA

Date/Time received 03/27/08 09:00 CoC No. RC-073-037

Container I.D. No. ERC-99-046 Requested TAT (Days) 15 P.O. Received Yes [ ] No [ ]

INSPECTION

1. Custody seals on shipping container intact? Yes [X] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [X] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [X] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [X] No [ ] N/A [ ]
5. Packing material is: Wet [ ] Dry [ ]
6. Number of samples in shipping container: 1 Sample Matrix X OTHER SOLID
7. Number of containers per sample: 1 (Or see CoC _____)
8. Samples are in correct container Yes [X] No [ ]
9. Paperwork agrees with samples? Yes [X] No [ ]
10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [ ]
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 [signature] Date: 03/27/08 Time: 10:30

Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe	Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	wipe
J16J15	170 cpm						

Ion Chamber Ser. No. _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

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

LIONVILLE LABORATORY INC.

21 April 2008

RECEIVED APR 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 #	0803L829
SDG #	K1158
SAF #	RC-073
Date Received	3/27/08
# Samples	1
Matrix	SOIL
Volatiles	
Semivolatiles	X
Pest/PCB	
Glycols	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	X

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

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

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

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

RECEIVED
APR 2008

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-073 K1158

DATE RECEIVED: 03/27/08 LVL LOT # :0803L829

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16J15						
TCLP	001	SO	08LT0026	03/24/08	04/01/08	04/02/08
SILVER, TOTAL	001	SO	08L0138	03/24/08	04/09/08	04/09/08
SILVER, TOTAL	001 REP	SO	08L0138	03/24/08	04/09/08	04/09/08
SILVER, TOTAL	001 MS	SO	08L0138	03/24/08	04/09/08	04/09/08
ALUMINUM, TOTAL	001	SO	08L0138	03/24/08	04/09/08	04/10/08
ALUMINUM, TOTAL	001 REP	SO	08L0138	03/24/08	04/09/08	04/10/08
ALUMINUM, TOTAL	001 MS	SO	08L0138	03/24/08	04/09/08	04/10/08
ARSENIC, TOTAL	001	SO	08L0138	03/24/08	04/09/08	04/09/08
ARSENIC, TOTAL	001 REP	SO	08L0138	03/24/08	04/09/08	04/09/08
ARSENIC, TOTAL	001 MS	SO	08L0138	03/24/08	04/09/08	04/09/08
BORON, TOTAL	001	SO	08L0138	03/24/08	04/09/08	04/09/08
BORON, TOTAL	001 REP	SO	08L0138	03/24/08	04/09/08	04/09/08
BORON, TOTAL	001 MS	SO	08L0138	03/24/08	04/09/08	04/09/08
BARIUM, TOTAL	001	SO	08L0138	03/24/08	04/09/08	04/09/08
BARIUM, TOTAL	001 REP	SO	08L0138	03/24/08	04/09/08	04/09/08
BARIUM, TOTAL	001 MS	SO	08L0138	03/24/08	04/09/08	04/09/08
BERYLLIUM, TOTAL	001	SO	08L0138	03/24/08	04/09/08	04/09/08
BERYLLIUM, TOTAL	001 REP	SO	08L0138	03/24/08	04/09/08	04/09/08
BERYLLIUM, TOTAL	001 MS	SO	08L0138	03/24/08	04/09/08	04/09/08
CALCIUM, TOTAL	001	SO	08L0138	03/24/08	04/09/08	04/10/08
CALCIUM, TOTAL	001 REP	SO	08L0138	03/24/08	04/09/08	04/10/08
CALCIUM, TOTAL	001 MS	SO	08L0138	03/24/08	04/09/08	04/10/08
CADMIUM, TOTAL	001	SO	08L0138	03/24/08	04/09/08	04/09/08
CADMIUM, TOTAL	001 REP	SO	08L0138	03/24/08	04/09/08	04/09/08
CADMIUM, TOTAL	001 MS	SO	08L0138	03/24/08	04/09/08	04/09/08
COBALT, TOTAL	001	SO	08L0138	03/24/08	04/09/08	04/09/08
COBALT, TOTAL	001 REP	SO	08L0138	03/24/08	04/09/08	04/09/08
COBALT, TOTAL	001 MS	SO	08L0138	03/24/08	04/09/08	04/09/08
CHROMIUM, TOTAL	001	SO	08L0138	03/24/08	04/09/08	04/09/08
CHROMIUM, TOTAL	001 REP	SO	08L0138	03/24/08	04/09/08	04/09/08
CHROMIUM, TOTAL	001 MS	SO	08L0138	03/24/08	04/09/08	04/09/08
COPPER, TOTAL	001	SO	08L0138	03/24/08	04/09/08	04/09/08
COPPER, TOTAL	001 REP	SO	08L0138	03/24/08	04/09/08	04/09/08
COPPER, TOTAL	001 MS	SO	08L0138	03/24/08	04/09/08	04/09/08
IRON, TOTAL	001	SO	08L0138	03/24/08	04/09/08	04/10/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-073 K1158

DATE RECEIVED: 03/27/08 LVL LOT # :0803L829

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
IRON, TOTAL	001 REP	SO	08L0138	03/24/08	04/09/08	04/10/08
IRON, TOTAL	001 MS	SO	08L0138	03/24/08	04/09/08	04/10/08
POTASSIUM, TOTAL	001	SO	08L0138	03/24/08	04/09/08	04/10/08
POTASSIUM, TOTAL	001 REP	SO	08L0138	03/24/08	04/09/08	04/10/08
POTASSIUM, TOTAL	001 MS	SO	08L0138	03/24/08	04/09/08	04/10/08
LITHIUM, TOTAL	001	SO	08L0138	03/24/08	04/09/08	04/09/08
LITHIUM, TOTAL	001 REP	SO	08L0138	03/24/08	04/09/08	04/09/08
LITHIUM, TOTAL	001 MS	SO	08L0138	03/24/08	04/09/08	04/09/08
MAGNESIUM, TOTAL	001	SO	08L0138	03/24/08	04/09/08	04/09/08
MAGNESIUM, TOTAL	001 REP	SO	08L0138	03/24/08	04/09/08	04/09/08
MAGNESIUM, TOTAL	001 MS	SO	08L0138	03/24/08	04/09/08	04/09/08
MANGANESE, TOTAL	001	SO	08L0138	03/24/08	04/09/08	04/09/08
MANGANESE, TOTAL	001 REP	SO	08L0138	03/24/08	04/09/08	04/09/08
MANGANESE, TOTAL	001 MS	SO	08L0138	03/24/08	04/09/08	04/09/08
MOLYBDENUM, TOTAL	001	SO	08L0138	03/24/08	04/09/08	04/09/08
MOLYBDENUM, TOTAL	001 REP	SO	08L0138	03/24/08	04/09/08	04/09/08
MOLYBDENUM, TOTAL	001 MS	SO	08L0138	03/24/08	04/09/08	04/09/08
SODIUM, TOTAL	001	SO	08L0138	03/24/08	04/09/08	04/10/08
SODIUM, TOTAL	001 REP	SO	08L0138	03/24/08	04/09/08	04/10/08
SODIUM, TOTAL	001 MS	SO	08L0138	03/24/08	04/09/08	04/10/08
NICKEL, TOTAL	001	SO	08L0138	03/24/08	04/09/08	04/09/08
NICKEL, TOTAL	001 REP	SO	08L0138	03/24/08	04/09/08	04/09/08
NICKEL, TOTAL	001 MS	SO	08L0138	03/24/08	04/09/08	04/09/08
LEAD, TOTAL	001	SO	08L0138	03/24/08	04/09/08	04/09/08
LEAD, TOTAL	001 REP	SO	08L0138	03/24/08	04/09/08	04/09/08
LEAD, TOTAL	001 MS	SO	08L0138	03/24/08	04/09/08	04/09/08
ANTIMONY, TOTAL	001	SO	08L0138	03/24/08	04/09/08	04/09/08
ANTIMONY, TOTAL	001 REP	SO	08L0138	03/24/08	04/09/08	04/09/08
ANTIMONY, TOTAL	001 MS	SO	08L0138	03/24/08	04/09/08	04/09/08
SELENIUM, TOTAL	001	SO	08L0138	03/24/08	04/09/08	04/09/08
SELENIUM, TOTAL	001 REP	SO	08L0138	03/24/08	04/09/08	04/09/08
SELENIUM, TOTAL	001 MS	SO	08L0138	03/24/08	04/09/08	04/09/08
VANADIUM, TOTAL	001	SO	08L0138	03/24/08	04/09/08	04/09/08
VANADIUM, TOTAL	001 REP	SO	08L0138	03/24/08	04/09/08	04/09/08
VANADIUM, TOTAL	001 MS	SO	08L0138	03/24/08	04/09/08	04/09/08
ZINC, TOTAL	001	SO	08L0138	03/24/08	04/09/08	04/09/08
ZINC, TOTAL	001 REP	SO	08L0138	03/24/08	04/09/08	04/09/08
ZINC, TOTAL	001 MS	SO	08L0138	03/24/08	04/09/08	04/09/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-073 K1158

DATE RECEIVED: 03/27/08 LVL LOT # :0803L829

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SILVER, TCLP LEACHAT	002	W	08L0135	04/02/08	04/08/08	04/09/08
SILVER, TCLP LEACHAT	002 REP	W	08L0135	04/02/08	04/08/08	04/09/08
SILVER, TCLP LEACHAT	002 MS	W	08L0135	04/02/08	04/08/08	04/09/08
ARSENIC, TCLP LEACHA	002	W	08L0135	04/02/08	04/08/08	04/09/08
ARSENIC, TCLP LEACHA	002 REP	W	08L0135	04/02/08	04/08/08	04/09/08
ARSENIC, TCLP LEACHA	002 MS	W	08L0135	04/02/08	04/08/08	04/09/08
BARIUM, TCLP LEACHAT	002	W	08L0135	04/02/08	04/08/08	04/09/08
BARIUM, TCLP LEACHAT	002 REP	W	08L0135	04/02/08	04/08/08	04/09/08
BARIUM, TCLP LEACHAT	002 MS	W	08L0135	04/02/08	04/08/08	04/09/08
CADMIUM, TCLP LEACHA	002	W	08L0135	04/02/08	04/08/08	04/09/08
CADMIUM, TCLP LEACHA	002 REP	W	08L0135	04/02/08	04/08/08	04/09/08
CADMIUM, TCLP LEACHA	002 MS	W	08L0135	04/02/08	04/08/08	04/09/08
CHROMIUM, TCLP LEACH	002	W	08L0135	04/02/08	04/08/08	04/09/08
CHROMIUM, TCLP LEACH	002 REP	W	08L0135	04/02/08	04/08/08	04/09/08
CHROMIUM, TCLP LEACH	002 MS	W	08L0135	04/02/08	04/08/08	04/09/08
MERCURY, TCLP LEACHA	002	W	08C0057	04/02/08	04/03/08	04/04/08
MERCURY, TCLP LEACHA	002 REP	W	08C0057	04/02/08	04/03/08	04/04/08
MERCURY, TCLP LEACHA	002 MS	W	08C0057	04/02/08	04/03/08	04/04/08
LEAD, TCLP LEACHATE	002	W	08L0135	04/02/08	04/08/08	04/09/08
LEAD, TCLP LEACHATE	002 REP	W	08L0135	04/02/08	04/08/08	04/09/08
LEAD, TCLP LEACHATE	002 MS	W	08L0135	04/02/08	04/08/08	04/09/08
SELENIUM, TCLP LEACH	002	W	08L0135	04/02/08	04/08/08	04/09/08
SELENIUM, TCLP LEACH	002 REP	W	08L0135	04/02/08	04/08/08	04/09/08
SELENIUM, TCLP LEACH	002 MS	W	08L0135	04/02/08	04/08/08	04/09/08

AB QC:

SILVER LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
SILVER, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
ALUMINUM LABORTORY	LC1 BS	S	08L0138	N/A	04/09/08	04/10/08
ALUMINUM, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/10/08
ARSENIC LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
ARSENIC, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
BORON LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
BORON, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
BARIUM LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
BARIUM, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
BERYLLIUM LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-073 K1158

DATE RECEIVED: 03/27/08 LVL LOT # :0803L829

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BERYLLIUM, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
CALCIUM LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/10/08
CALCIUM, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/10/08
CADMIUM LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
CADMIUM, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
COBALT LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
COBALT, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
CHROMIUM LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
CHROMIUM, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
COPPER LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
COPPER, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
IRON LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/10/08
IRON, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/10/08
POTASSIUM LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/10/08
POTASSIUM, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/10/08
LITHIUM LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
LITHIUM, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
MAGNESIUM LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
MAGNESIUM, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
MANGANESE LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
MANGANESE, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
MOLYBDENUM LABORATOR	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
MOLYBDENUM, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
SODIUM LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/10/08
SODIUM, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/10/08
NICKEL LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
NICKEL, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
LEAD LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
LEAD, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
ANTIMONY LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
ANTIMONY, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
SELENIUM LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
SELENIUM, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
VANADIUM LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
VANADIUM, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
ZINC LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
ZINC, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
SILVER LABORATORY	LC1 BS	W	08L0135	N/A	04/08/08	04/09/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-073 K1158

DATE RECEIVED: 03/27/08 LVL LOT # :0803L829

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SILVER, TCLP LEACHAT	MB1	W	08L0135	N/A	04/08/08	04/09/08
ARSENIC LABORATORY	LC1 BS	W	08L0135	N/A	04/08/08	04/09/08
ARSENIC, TCLP LEACHA	MB1	W	08L0135	N/A	04/08/08	04/09/08
BARIUM LABORATORY	LC1 BS	W	08L0135	N/A	04/08/08	04/09/08
BARIUM, TCLP LEACHAT	MB1	W	08L0135	N/A	04/08/08	04/09/08
CADMIUM LABORATORY	LC1 BS	W	08L0135	N/A	04/08/08	04/09/08
CADMIUM, TCLP LEACHA	MB1	W	08L0135	N/A	04/08/08	04/09/08
CHROMIUM LABORATORY	LC1 BS	W	08L0135	N/A	04/08/08	04/09/08
CHROMIUM, TCLP LEACH	MB1	W	08L0135	N/A	04/08/08	04/09/08
MERCURY LABORATORY	LC1 BS	W	08C0057	N/A	04/03/08	04/04/08
MERCURY, TOTAL	MB1	W	08C0057	N/A	04/03/08	04/04/08
MERCURY, TCLP LEACHA	MB2	W	08C0057	N/A	04/03/08	04/04/08
MERCURY, TCLP LEACHA	MB3	W	08C0057	N/A	04/03/08	04/04/08
LEAD LABORATORY	LC1 BS	W	08L0135	N/A	04/08/08	04/09/08
LEAD, TCLP LEACHATE	MB1	W	08L0135	N/A	04/08/08	04/09/08
SELENIUM LABORATORY	LC1 BS	W	08L0135	N/A	04/08/08	04/09/08
SELENIUM, TCLP LEACH	MB1	W	08L0135	N/A	04/08/08	04/09/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-073
LVL#: 0803L829
SDG/SAF#: K1158/RC-073

W.O.#: 11343-606-001-9999-00
Date Received: 03-27-08

METALS CASE NARRATIVE

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

All soil samples are reported on a dry weight basis unless requested by the client, required by the method, or noted otherwise.

1. This narrative covers the analyses of 1 soil sample and 1 TCLP leachate sample.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary. The soil samples were rerun on a different instrument for Aluminum, Calcium, and Iron due to sample matrix. Soil samples were reported on a wet weight as received basis.

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

4. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury) with the exception of the ICV for Sodium and Potassium in file TA0409C. All samples were rerun for Sodium and Potassium along with Aluminum, Calcium and Iron in file PS0410A.

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

6. All preparation/method blanks (MB) were within method criteria {less than the Limit of Quantitation (3-10X the LOD), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

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

8. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.

9. The matrix spike (MS) recoveries for 3 analytes were outside the 75-125% control limits. Refer to

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 24 pages.

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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
J16J15	Iron	2,000	103.3
	Antimony	100	106.4
	Selenium	100	102.6

11. The duplicate analyses for 3 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

12. The TCLP extract from client sample J16J15 was selected for the matrix spike (MS) for this analytical batch. All MS recoveries were greater than 50% as per method criteria.

13. 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.

14. 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.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

4/16/08
Date

alm/m03-829

METALS METHOD GLOSSARY

'he following methods are used as reference for the digestion and analysis of samples contained within this
ot#: 0803L829

eaching Procedure: __1310 __1311 __1312 __Other:_____

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

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

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
luminum	✓6010B		__200.7				__99
ntimony	✓6010B	__7041 [5]	__200.7	__204.2			__99
rsenic	✓6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
arium	✓6010B		__200.7				__99
eryllium	✓6010B		__200.7				__99
ismuth	__6010B [1]		__200.7 [1]			__1620	__99
oron	✓6010B		__200.7				__99
admium	✓6010B	__7131A [5]	__200.7	__213.2			__99
alcium	✓6010B		__200.7				__99
hromium	✓6010B	__7191 [5]	__200.7	__218.2			__SS17
obalt	✓6010B		__200.7				__99
opper	✓6010B	__7211 [5]	__200.7	__220.2			__99
ron	✓6010B		__200.7				__99
ead	✓6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
ithium	✓6010B	__7430 [4]	__200.7			__1620	__99
agnesium	✓6010B		__200.7				__99
anganese	✓6010B		__200.7				__99
ercury	✓7470A [3]	__7471A [3]	__245.1 [2]	__245.5 [2]			__99
olybdenum	✓6010B		__200.7				__99
ickel	✓6010B		__200.7				__99
otassium	✓6010B	__7610 [4]	__200.7	__258.1 [4]			__99
are Earths	__6010B [1]		__200.7 [1]			__1620	__99
elenium	✓6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
ilicon	__6010B [1]		__200.7			__1620	__99
ilica	__6010B		__200.7			__1620	__99
ilver	✓6010B	__7761 [5]	__200.7	__272.2			__99
odium	✓6010B	__7770 [4]	__200.7	__273.1 [4]			__99
trontium	__6010B		__200.7				__99
hallium	__6010B	__7841 [5]	__200.7	__279.2	__200.9		__99
in	__6010B		__200.7				__99
itanium	__6010B		__200.7				__99
ranium	__6010B [1]		__200.7 [1]			__1620	__99
anadium	✓6010B		__200.7				__99
inc	✓6010B		__200.7				__99
irconium	__6010B [1]		__200.7 [1]			__1620	__99

Other:_____ Method:_____

L-WI-033/M-03/01

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

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

3. Flame AA.

4. Graphite Furnace AA.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/11/08

CLIENT: TNUHANFORD RC-073 K1158 LVL LOT #: 0803L829

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J16J15	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Aluminum, Total	29.1	MG/KG	3.7	1.0
		Arsenic, Total	0.47 u	MG/KG	0.47	1.0
		Boron, Total	0.47 u	MG/KG	0.47	1.0
		Barium, Total	12.4	MG/KG	0.09	1.0
		Beryllium, Total	0.05 u	MG/KG	0.05	1.0
		Calcium, Total	53.6	MG/KG	3.7	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	0.19 u	MG/KG	0.19	1.0
		Chromium, Total	0.20	MG/KG	0.19	1.0
		Copper, Total	1.2	MG/KG	0.19	1.0
		Iron, Total	76.7	MG/KG	4.2	1.0
		Potassium, Total	46.1 u	MG/KG	46.1	1.0
		Lithium, Total	0.06	MG/KG	0.04	1.0
		Magnesium, Total	8.9	MG/KG	2.3	1.0
		Manganese, Total	0.50	MG/KG	0.04	1.0
		Molybdenum, Total	0.28 u	MG/KG	0.28	1.0
		Sodium, Total	46.6	MG/KG	1.9	1.0
		Nickel, Total	0.19 u	MG/KG	0.19	1.0
		Lead, Total	6.9	MG/KG	0.28	1.0
		Antimony, Total	0.28 u	MG/KG	0.28	1.0
		Selenium, Total	0.56 u	MG/KG	0.56	1.0
		Vanadium, Total	0.67	MG/KG	0.13	1.0
		Zinc, Total	0.56 u	MG/KG	0.56	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/11/08

CLIENT: TNUHANFORD RC-073 K1158 LVL LOT #: 0803L829

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J16J15	Silver, TCLP Leachate	1.0 u	UG/L	1.0	1.0
		Arsenic, TCLP Leachate	14.8	UG/L	5.0	1.0
		Barium, TCLP Leachate	189	UG/L	1.0	1.0
		Cadmium, TCLP Leachate	0.50 u	UG/L	0.50	1.0
		Chromium, TCLP Leachate	19.8	UG/L	2.0	1.0
		Mercury, TCLP Leachate	0.06 u	UG/L	0.06	1.0
		Lead, TCLP Leachate	1390	UG/L	34.8	1.0
		Selenium, TCLP Leachate	5.0 u	UG/L	5.0	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/11/08

CLIENT: TNUHANFORD RC-073 K1158 LVL LOT #: 0803L829

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08L0138-MB1	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Aluminum, Total	4.0 u	MG/KG	4.0	1.0
		Arsenic, Total	0.50 u	MG/KG	0.50	1.0
		Boron, Total	0.50 u	MG/KG	0.50	1.0
		Barium, Total	0.10 u	MG/KG	0.10	1.0
		Beryllium, Total	0.05 u	MG/KG	0.05	1.0
		Calcium, Total	5.5	MG/KG	4.0	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	0.20 u	MG/KG	0.20	1.0
		Chromium, Total	0.20 u	MG/KG	0.20	1.0
		Copper, Total	0.44	MG/KG	0.20	1.0
		Iron, Total	4.8	MG/KG	4.5	1.0
		Potassium, Total	49.3 u	MG/KG	49.3	1.0
		Lithium, Total	0.04 u	MG/KG	0.04	1.0
		Magnesium, Total	2.5 u	MG/KG	2.5	1.0
		Manganese, Total	0.04 u	MG/KG	0.04	1.0
		Molybdenum, Total	0.30 u	MG/KG	0.30	1.0
		Sodium, Total	4.0	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
		Vanadium, Total	0.14 u	MG/KG	0.14	1.0
		Zinc, Total	1.6	MG/KG	0.60	1.0
BLANK1	08L0135-MB1	Silver, TCLP Leachate	25.0	UG/L	1.0	1.0
		Arsenic, TCLP Leachate	9.9	UG/L	5.0	1.0
		Barium, TCLP Leachate	1.1	UG/L	1.0	1.0
		Cadmium, TCLP Leachate	0.50 u	UG/L	0.50	1.0
		Chromium, TCLP Leachate	6.3	UG/L	2.0	1.0
		Lead, TCLP Leachate	34.8 u	UG/L	34.8	1.0
		Selenium, TCLP Leachate	5.0 u	UG/L	5.0	1.0
BLANK1	08C0057-MB1	Mercury, Total	0.06 u	UG/L	0.06	1.0
BLANK2	08C0057-MB2	Mercury, TCLP Leachate	0.06 u	UG/L	0.06	1.0
BLANK3	08C0057-MB3	Mercury, TCLP Leachate	0.06 u	UG/L	0.06	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 04/11/08

CLIENT: TNUHANFORD RC-073 K1158 LVL LOT #: 0803L829

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J16J15	Silver, Total	4.0	0.09u	4.6	87.0	1.0
		Aluminum, Total	185	29.1	185	84.4	1.0
		Arsenic, Total	156	0.47u	185	84.1	1.0
		Boron, Total	76.9	0.47u	92.6	83.0	1.0
		Barium, Total	169	12.4	185	84.4	1.0
		Beryllium, Total	3.9	0.05u	4.6	84.8	1.0
		Calcium, Total	2030	53.6	2320	85.3	1.0
		Cadmium, Total	3.9	0.05u	4.6	84.8	1.0
		Cobalt, Total	39.2	0.19u	46.3	84.7	1.0
		Chromium, Total	15.9	0.20	18.5	84.9	1.0
		Copper, Total	20.9	1.2	23.1	85.3	1.0
		Iron, Total	143	76.7	92.6	71.5	1.0
		Potassium, Total	1980	46.1 u	2320	85.6	1.0
		Lithium, Total	81.5	0.06	92.6	88.0	1.0
		Magnesium, Total	1910	8.9	2320	82.3	1.0
		Manganese, Total	39.7	0.50	46.3	84.7	1.0
		Molybdenum, Total	75.6	0.28u	92.6	81.6	1.0
		Sodium, Total	2080	46.6	2320	87.8	1.0
		Nickel, Total	39.0	0.19u	46.3	84.2	1.0
		Lead, Total	44.9	6.9	46.3	82.1	1.0
		Antimony, Total	32.6	0.28u	46.3	70.4	1.0
		Selenium, Total	133	0.56u	185	71.9	1.0
		Vanadium, Total	39.2	0.67	46.3	83.2	1.0
		Zinc, Total	39.4	0.56u	46.3	85.1	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 04/11/08

CLIENT: TNUHANFORD RC-073 K1158 LVL LOT #: 0803L829

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	J16J15	Silver, TCLP Leachate	2850	1.0 u	5000	57.0	1.0
		Arsenic, TCLP Leachate	4900	14.8	5000	97.7	1.0
		Barium, TCLP Leachate	99900	189	100000	99.7	6.0
		Cadmium, TCLP Leachate	943	0.50u	1000	94.3	1.0
		Chromium, TCLP Leachat	4720	19.8	5000	94.0	1.0
		Mercury, TCLP Leachate	189	0.06u	200	94.4	50.0
		Lead, TCLP Leachate	6380	1390	5000	99.8	1.0
		Selenium, TCLP Leachat	969	5.0 u	1000	96.9	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 04/11/08

CLIENT: TNUHANFORD RC-073 K1158 LVL LOT #: 0803L829

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J16J15	Silver, Total	0.09u	0.1 u	NC	1.0
		Aluminum, Total	29.1	29.7	2.0	1.0
		Arsenic, Total	0.47u	0.48u	NC	1.0
		Boron, Total	0.47u	0.48u	NC	1.0
		Barium, Total	12.4	12.0	3.3	1.0
		Beryllium, Total	0.05u	0.05u	NC	1.0
		Calcium, Total	53.6	31.7	51.3	1.0
		Cadmium, Total	0.05u	0.05u	NC	1.0
		Cobalt, Total	0.19u	0.19u	NC	1.0
		Chromium, Total	0.20	0.21	5.9	1.0
		Copper, Total	1.2	0.85	34.2	1.0
		Iron, Total	76.7	69.1	10.4	1.0
		Potassium, Total	46.1 u	46.9 u	NC	1.0
		Lithium, Total	0.06	0.04u	NC	1.0
		Magnesium, Total	8.9	8.2	8.2	1.0
		Manganese, Total	0.50	0.30	49.3	1.0
		Molybdenum, Total	0.28u	0.29u	NC	1.0
		Sodium, Total	46.6	55.7	17.8	1.0
		Nickel, Total	0.19u	0.19	NC	1.0
		Lead, Total	6.9	5.8	17.3	1.0
		Antimony, Total	0.28u	0.29u	NC	1.0
		Selenium, Total	0.56u	0.57u	NC	1.0
		Vanadium, Total	0.67	0.69	2.4	1.0
		Zinc, Total	0.56u	0.57u	NC	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 04/11/08

CLIENT: TNUHANFORD RC-073 K1158

LVL LOT #: 0803L829

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-002REP	J16J15	Silver, TCLP Leachate	1.0 u	1.0 u	NC	1.0
		Arsenic, TCLP Leachate	14.8	16.3	9.6	1.0
		Barium, TCLP Leachate	189	188	0.90	1.0
		Cadmium, TCLP Leachate	0.50u	0.50u	NC	1.0
		Chromium, TCLP Leachate	19.8	20.4	3.0	1.0
		Mercury, TCLP Leachate	0.06u	0.06u	NC	1.0
		Lead, TCLP Leachate	1390	1410	1.0	1.0
		Selenium, TCLP Leachate	5.0 u	14.8	NC	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 04/11/08

CLIENT: TNUHANFORD RC-073 K1158 LVL LOT #: 0803L829

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0138-LC1	Silver, LCS	44.1	50.0	MG/KG	88.2
		Aluminum, LCS	448	500	MG/KG	89.5
		Arsenic, LCS	882	1000	MG/KG	88.2
		Boron, LCS	440	500	MG/KG	88.0
		Barium, LCS	439	500	MG/KG	87.8
		Beryllium, LCS	22.4	25.0	MG/KG	89.6
		Calcium, LCS	2200	2500	MG/KG	88.2
		Cadmium, LCS	22.3	25.0	MG/KG	89.2
		Cobalt, LCS	222	250	MG/KG	88.8
		Chromium, LCS	44.8	50.0	MG/KG	89.6
		Copper, LCS	112	125	MG/KG	89.3
		Iron, LCS	448	500	MG/KG	89.7
		Potassium, LCS	2190	2500	MG/KG	87.8
		Lithium, LCS	462	500	MG/KG	92.3
		Magnesium, LCS	2220	2500	MG/KG	88.8
		Manganese, LCS	67.3	75.0	MG/KG	89.7
		Molybdenum, LCS	436	500	MG/KG	87.2
		Sodium, LCS	2220	2500	MG/KG	88.8
		Nickel, LCS	179	200	MG/KG	89.6
		Lead, LCS	226	250	MG/KG	90.3
		Antimony, LCS	258	300	MG/KG	86.1
		Selenium, LCS	842	1000	MG/KG	84.2
		Vanadium, LCS	217	250	MG/KG	86.8
		Zinc, LCS	95.6	100	MG/KG	95.6
LCS1	08L0135-LC1	Silver, LCS	503	500	UG/L	100.6
		Arsenic, LCS	10000	10000	UG/L	100.5
		Barium, LCS	5280	5000	UG/L	105.6
		Cadmium, LCS	239	250	UG/L	95.4
		Chromium, LCS	497	500	UG/L	99.4
		Lead, LCS	2490	2500	UG/L	99.6
		Selenium, LCS	9980	10000	UG/L	99.8
LCS1	08C0057-LC1	Mercury, LCS	5.0	5.0	UG/L	99.0

Lionville Laboratory Incorporated Logbook #: 440

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0135
Date/Time Initiated: 4/8/08 1200
Date/Time Completed: 4/8/08 1800
Analyst(s): MW
Matrix: Soil Water Other: Leach
Instr. Type: AA (ICP)
Parameters: ReCA

Digested / Undigested (circle one)
Balance #: N/A
Balance Cal Verif: Y (NA)
Hot Plate Temp: 92°

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

LVLI/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
0803L800-~~002~~ 005		50 ml	50 ml	<2	TC	N/A	yellowish - oily surface film		
⊗ 005S ~~002S~~ ⊗	~~1.0~~ 0.5 ml								
0803L829-002							yellowish - slightly cloudy		
002R									
002S	0.5 ml								
08L0135-MB1		100 ml	100 ml				clear/colorless		
LC1	1.0 ml								

⊗ WE, PMP 04-10-08

MW 4/8/08

Spiking IDs:
MS #W.E ~~8100~~ 6072-073-03
MW 4/8/08 05
~~6072~~
LCS #: W.E. 6072-78-08
MW 4/8/08 09
10
11

Reagent IDs:
HNO_3 E46025
HCL
H_2O_2
1:1 HNO_3
1:1 HCL 6072-069-03

File ID#: IC013501
LIMS Transfer: (Y) N
Data Review By/Date: updated
PMP, 04/10/08

Lionville Laboratory Incorporated Logbook #: 440

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L-0138
Date/Time Initiated: 4/9/08 1100
Date/Time Completed: 4/9/08 1500
Analyst(s): TW
Matrix: (Soil) Water Other:
Instr. Type: AA (ICP)
Parameters: See bottle log

(Digested) / Undigested (circle one)
Balance #: B70
Balance Cal Verif: (Y) NA
Hot Plate Temp: 90°

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

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

TW

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
0803L828-001		1.23gm	100ml	<2	TO	coarse	dark brown/rocks		
001R		1.30gm							
001S	1.0 ml	1.24gm							
002		1.17gm					brown/rocks		
003		1.27gm							
004		1.19gm							
0803L829-001		1.07gm					brown/crystalline		
001R		1.05gm							
001S	1.0 ml	1.08gm							
0804L860-001		1.08gm				fine	brown/vegetation		
001R		1.10gm							
001S	1.0 ml	1.08gm							
002		1.24gm					rocks		
08L0138-MB1		1.0gm				coarse	boiling chips		
LC1	1.0 ml								

TW 4/9/08

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

Reagent IDs:
HNO_3 E46025
HCL E45047
H_2O_2 E44A06
1:1 HNO_3 9789-07-06
1:1 HCL 010
W.E. TW 4/10/08

File ID#: IC013801 IC013802 IC013803
LIMS Transfer: (Y) N
Updated
Data Review By/Date: RMR, 04/10/08

Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 422

Analyst: TEB
Date 4/3/08
Start Time/Temp: 1640 | 97
End Time/Temp: 1845 | 92

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

Prep Batch: 08C0057
Worksheet: HG040401
SOP No. ME-HgCVAA, Rev. 02

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

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

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
Blank	G7			33mL	33mL	
0.2 µg/L	P3	0.0667				
1.0	I94	0.334				
2.0	B32	0.667				
5.0	P5	1.667				
10.0	Z4	3.334				
ICV	183	0.0834	2.5			
CCV	R	0.167	5.0			
ICB/CCB	CT					
MB1	KX					PNW157
LC1	880	0.167	5.0			LCSW157
0803L843-001	HH					
001R	LV					
001S	28	0.334	1.0			
001T	AP	0.334	1.0			
002	A94					
004	PC					
005	537					
0803L800-005	HT					R
005S	Gd	0.667	200			
0803L814-007	B2					
007S	31	0.667	200			
007T	A4	0.667	200			
008	GR					
009	411					
0803L825-018	194					
019	297					

Standard:	ID	Prep Date/Time
LCAL/MS	R16072-75-07B	4/3/08 1420
ICV/CCV/LCS	US6072-75-08A	✓

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

see book # 9768 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 # 422

Analyst: TRB
Date 4/3/08
Start Time/Temp: see page
End Time/Temp: 0540

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

Prep Batch: 080057
Worksheet: HG040401
SOP No. ME-HgCVAA, Rev. 02

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

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

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
08032825-020	40			33mL	33mL	
021	SPRT					
022	NR					
023	QTR					
024	8					
025	154					
026	M1					
08032829-002	P1					R
002R	AH					
002S	PD	0.667	200			
08LT0025-LB1	A901					
08LT0026-LB1	B14					

TRB 4/3/08

Standard:	ID	Prep Date/Time
ICAL/MS		
ICV/CCV/LCS	See page	0540

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

see book # 9368 for std traceability information

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

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

See SRC

Lionville Laboratory Use Only

08031829

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratories, Inc.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TMC HANFORD SAF RC-073

Est. Final Proj. Sampling Date:

Project#: 11343-606-001-9999

Project Contact/Phone#:

Lionville Laboratory Project Manager: O. Johnson

QC: SW846 Del: Std TAT: 15 days

Date Rec'd: 3/27/08 Date Due: 4-11-08

		A				B		C	D	E	F	G		
Refrigerator #		3				3		3	3	3	3	3		
#/Type Container	Liquid													
	Solid	16				16		16	16	16	16	16		
Volume		60				60		60	60	60	60	60		
Preservatives		—				—		—	—	—	—	—		
ANALYSES REQUESTED	ORGANIC: VOA	ORGANIC: TCLP BNA	ORGANIC: Pest/PCB	ORGANIC: Herb		TOX		INORG: Metal	INORG: TOC CN	SULF	IC ANIONS	TCLP Met Hg	INORG NO3	
Lionville Laboratory Use Only		ITCLP			OGSH METALS REPEATED 03-31-08	IEOXO		METO	ICNTO	ISFD	IPH. ICO	ITCLP	INBNZ	

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ITCLP	OGSH METALS REPEATED 03-31-08	IEOXO	METO	ICNTO	ISFD	IPH. ICO	ITCLP	INBNZ
001	J16J15	/	/	SOLID	3-24-08	1017	X		X	X	X	X	X	X	X
002	J16J15 TCLP of 001			L				X							

Special Instructions:

ICO = IC BR, ICCL, ICF, ICNO2, ICNO3, IC SO4, IC PO4

IETO = HSL+Li, B, mo, NO HG, TL

Special Instructions:

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

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	3/27/08	0935

Relinquished by	Received by	Date	Time

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-073-037	Page 1 of 1

Collector D.W.Shea D. Everhart SEC	Company Contact D.W.Shea	Telephone No. 521-6014	Project Coordinator KESSNER, JH
Price Code 912	Data Turnaround 15 days		
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Other Solid Q	Sampling Location 118-D-3, anomaly 100D-AN-08-011		SAF No. RC-073
Ice Chest No. ERC-96-511	Field Logbook No. EL-1607-3	COA R118D32600	Method of Shipment Fed Ex
Shipped To EBERLINE SERVICES/ LIONVILLE	Offsite Property No. ~~See OPSC~~ DAS 3/25/08 4080206		Bill of Lading/Air Bill No. SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Potentially radioactive

Special Handling and/or Storage

SAMPLE ANALYSIS												
			Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None
			Type of Container	G/P	G	aG	G/P	G/P	G	Gs*	G/P	G/P
			No. of Container(s)	1	1	1	1	1	1	1	1	1
			Volume	60mL	60mL	60mL	60mL	60mL	60mL	60mL	5g	60g
				See item (1) in Special Instructions.	See item (2) in Special Instructions.	TOX - 9020	IC Anions - 300.0; pH - 9045	NO2 NO3 - 353.2	Total Cyanide - 9010; Sulfides - 9030	TCLP Semi-VOA - 1311/8270A	Gross Alpha, Gross Beta	See item (3) in Special Instructions.
Sample No.	Matrix *	Sample Date	Sample Time									
J16J15	OTHER SOLID	3/24/08	1017	✓	✓	✓	✓	✓	✓	✓	DWShea 3/24/08	

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From		Received By/Stored In	
[illegible]	3-24-08 1208	DWShea DWSHEA	3/24/08 1208
DWShea DWSHEA	3/24/08 1854	Enclose 1B	3/24/08 1854
1060 EATELLE 1B	3/26/08 1230	DAVID ST. JOHN	3/26/08 1230
DAVID ST. JOHN	3/26/08 1230	FED EX	
[illegible]	3-27-08 0935	[illegible]	3-27-08 0935
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}
(2) Metals by ICP (TCLP) - 1311/6010 {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury (TCLP) - 1311/7470 {Mercury}
(3) RCF GEA Shipping Screen {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

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

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

WCH-EE-011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD
Project/SAP/SOW/Release #: RC-073

Date: 3/27/08

LvLI Batch #: 08 03L 829

Sample Custodian: V. Nunnally

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7918 7358 1123
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 3.3	°C	Cooler # ERC-96-511
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.

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-073 K1158

RECEIVED
APR 2008

DATE RECEIVED: 03/27/08 LVL LOT # :0803L829

CLIENT ID	LVL #	MTX	PREP #	LEACH DATE	EXTR/PREP	ANALYSIS
J16J15	002	W	08LE0153	04/02/08	04/02/08	04/08/08
J16J15	002 MS	W	08LE0153	04/02/08	04/02/08	04/08/08
J16J15	002 MSD	W	08LE0153	04/02/08	04/02/08	04/08/08

LAB QC:

SBLKTR	MB1	W	08LE0153	N/A	04/02/08	04/07/08
SBLKTR	MB1 BS	W	08LE0153	N/A	04/02/08	04/07/08
SBLKTR	MB1 BSD	W	08LE0153	N/A	04/02/08	04/07/08
08LT0026-LB1	LB1	W	08LE0153	N/A	04/02/08	04/08/08

ADDENDUM

This report provides Toxicity Characteristics Leaching Procedure (TCLP) information. Listed on the next page, the client identification on the ITCL labchron, "TCLP" represents the non-volatile leachate fraction and "TCLP LEACHATE" represents the Zero Headspace Extraction (ZHE) volatile leachate fraction. The "EXTR/PREP DATE" is the date the leachate preparation was initiated; the "ANALYSIS DATE" is the date the leachates were completed.

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-073 K1158

DATE RECEIVED: 03/27/08 LVL LOT # :0803L829

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16J15						
TCLP	001	SO	08LT0026	03/24/08	04/01/08	04/02/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-073
LVL #: 0803L829
SDG/SAF # K1158 / RC-073

W.O. #: 11343-606-001-9999-00
Date Received: 03-27-2008

SEMIVOLATILE - TCLP

One (1) leachate sample was generated on 04-02-2008 from a solid sample collected on 03-24-2008.

The sample and its associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3520C on 04-02-2008 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for Client Specified Semivolatile target compounds on 04-07,08-2008.

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

1. Samples were extracted and analyzed within holding times.
2. Non-target compounds were detected, but not reported with these samples.
3. All surrogate recoveries were within acceptance criteria.
4. One (1) of twenty-four (24) matrix spike recoveries was outside acceptance criteria. Biased high minimal impact on the data.
5. All blank spike recoveries were within acceptance criteria.
6. The method blank was below the reporting limit for all target compounds.
7. Internal standard area and retention time criteria were met.
8. All continuing calibration standard analyzed prior to sample extracts were within acceptance criteria.
9. Internal standard area and retention time criteria were met.

k:\group\data\bna\tnuhanford\0803-829kl1.doc

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

LIONVILLE LABORATORY INC.

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

4/14/08
Date

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

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, TCLP Leachate

Report Date: 04/10/08 15:52

RFW Batch Number: **0803L829** Client: **TNUHANFORD RC-073 K1158** Work Order: 11343606001 Page: 1a

	Cust ID:	J16J15		J16J15		J16J15		SBLKTR		SBLKTR BS		SBLKTR BSD	
Sample Information	RFW#:	002		002 MS		002 MSD		08LE0153-MB1		08LE0153-MB1		08LE0153-MB1	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Surrogate Recovery	Nitrobenzene-d5	61	%	60	%	64	%	64	%	76	%	66	%
	2-Fluorobiphenyl	62	%	62	%	65	%	59	%	81	%	67	%
	p-Terphenyl-d14	87	%	72	%	79	%	79	%	94	%	75	%
	Phenol-d5	74	%	54	%	60	%	71	%	64	%	65	%
	2-Fluorophenol	66	%	57	%	66	%	67	%	63	%	62	%
	2,4,6-Tribromophenol	71	%	78	%	75	%	71	%	80	%	77	%
			fl		fl		fl		fl		fl		fl
Pyridine		0.050		55	%	64	%	0.050	U	49	%	58	%
1,4-Dichlorobenzene		0.050	U	50	%	62	%	0.050	U	54	%	52	%
2-Methylphenol		0.050	U	67	%	79	%	0.050	U	72	%	67	%
3/4-Methylphenol		0.050	U	74	%	74	%	0.050	U	74	%	70	%
Hexachloroethane		0.050	U	46	%	56	%	0.050	U	53	%	51	%
Nitrobenzene		0.050	U	67	%	72	%	0.050	U	69	%	67	%
Hexachlorobutadiene		0.050	U	62	%	75	%	0.050	U	59	%	57	%
2,4,6-Trichlorophenol		0.050	U	49	%	60	%	0.050	U	71	%	81	%
2,4,5-Trichlorophenol		0.12	U	107	%	102	%	0.12	U	75	%	85	%
2,4-Dinitrotoluene		0.050	U	77	%	77	%	0.050	U	95	%	84	%
Hexachlorobenzene		0.050	U	75	%	83	%	0.050	U	84	%	73	%
Pentachlorophenol		0.12	U	101	%	105 *	%	0.12	U	88	%	99	%

*= Outside of EPA CLP QC limits.

000000009

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, TCLP Leachate

Report Date: 04/10/08 15:52

RFW Batch Number: **0803L829** Client: **TNUHANFORD RC-073 K1158** Work Order: 11343606001 Page: 2a

000000010

Cust ID: **LCHBLK**

Sample Information

RFW#: **08LT0026-LB1**
Matrix: WATER
D.F.: 1.00
Units: mg/L

Surrogate Recovery	Nitrobenzene-d5	52	%
	2-Fluorobiphenyl	52	%
	p-Terphenyl-d14	71	%
	Phenol-d5	46	%
	2-Fluorophenol	52	%
	2,4,6-Tribromophenol	46	%

==========fl==========fl==========fl==========fl==========fl==========fl

Pyridine	0.050	U
1,4-Dichlorobenzene	0.050	U
2-Methylphenol	0.050	U
3/4-Methylphenol	0.050	U
Hexachloroethane	0.050	U
Nitrobenzene	0.050	U
Hexachlorobutadiene	0.050	U
2,4,6-Trichlorophenol	0.050	U
2,4,5-Trichlorophenol	0.12	U
2,4-Dinitrotoluene	0.050	U
Hexachlorobenzene	0.050	U
Pentachlorophenol	0.12	U

*= Outside of EPA CLP QC limits.

ville Laboratory Use Only

8031829

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Project: TAIL HANFORD SAF RC-073

Final Proj. Sampling Date

Project# 11343-606-001-9999

Project Contact/Phone#

Lionville Laboratory Project Manager: C. Johnson

SW846 Dal: Std TAT: 15 days

Rec'd: 3/27/08 Date Due: 4-11-08

	A				B		C	D	E	F	G		
Refrigerator #	3				3		3	3	1	3	3	3		
#/Type Container (Liquid / Solid)	1G				1G		1G	1G	1	1G	1G	1G		
Volume	60				60		60	60	1	60	60	60		
Preservatives	—				—		—	—	—	—	—	—		
ANALYSES REQUESTED	ORGANIC: VOA	TCLP BNA	Pest/PCB	Herb	TOX		INORG: Metal	TOC CN	SULF	IC ANIONS	TCLP Met Hg	NO3		

Lionville Laboratory Use Only

X / Soil / Sediment / Solid / Sludge / Water / Oil / Drum Solids / Drum Liquids / TCLP / Leachate / Pipe / Other / Wipe	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected		TCLP			OGDSH METHOD REPEAT	TOX		METD	ICNTD	ISFD	IPH ICD	TCLP	INBN2		
	001	J16J15	✓	✓	SOLID	3-24-08	1017		X				X		X	X	X	X	X	X		
	002	J16J15 TCLP of 001			L							X										

Special Instructions:

= ICBR, ICCL, ICFL, ICNO2, ICNO3, ICSO4, ICPO4

D = HSL + Li, B, Mo, NO HG, TL

Special Instructions:

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

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	3/27/08	0930

Relinquished by	Received by	Date	Time

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

0000000011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-073-037	Page 1 of 1

Collector D.W.Shea D. Everhart SEC	Company Contact D.W.Shea	Telephone No. 521-6014	Project Coordinator KESSNER, JH	Price Code 912	Data Turnaround 15 days
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Other Solid Q	Sampling Location 118-D-3, anomaly 100D-AN-08-011		SAF No. RC-073		
Ice Chest No. ERC-96-511	Field Logbook No. EL-1607-3	COA R118D32600	Method of Shipment Fed Ex		
Shipped To EBERLINE SERVICES/ LIONVILLE	Offsite Property No. ~~See OPSC~~ DAS 3/25/08 4080206		Bill of Lading/Air Bill No. SEE OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS

Potentially radioactive

Special Handling and/or Storage

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	
Type of Container	G/P	G	aG	G/P	G/P	G	Gs*	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60mL	60mL	60mL	60mL	60mL	60mL	60mL	5g	60g	
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	TOX - 9020	IC Anions - 300.0; pH - 9045	NO2 NO3 - 353.2	Total Cyanide - 9010; Sulfides - 9030	TCLP Semi-VOA - 1311 8270A	Gross Alpha Gross Beta	See item (3) in Special Instructions.	

Sample No.	Matrix *	Sample Date	Sample Time										
16J15	OTHER SOLID	3/24/08	1017	✓	✓	✓	✓	✓	✓	✓	DWSHEA 3/24/08		

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From [signature]	3-24-08 1208	Received By/Stored In DWSHEA DWSHEA	3/24/08 1208
Relinquished By/Removed From DWSHEA DWSHEA	3/24/08 1854	Received By/Stored In Fridge 1B	3/24/08 1854
Relinquished By/Removed From 260 BATELLE 1B	3/26/08 1230	Received By/Stored In DAVID ST. JOHN [signature]	3/26/08 1230
Relinquished By/Removed From DAVID ST. JOHN [signature]	3/26/08 1230	Received By/Stored In FED EX	
Relinquished By/Removed From [signature]	3-27-08 0935	Received By/Stored In [signature] 3-27-08	0935
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}
(2) Metals by ICP (TCLP) - 1311/6010 {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury (TCLP) - 1311/7470 {Mercury}
(3) RCF GEA Shipping Screen {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

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/SAP/SOW/Release #: RC-073

Date: 3/27/08

LvLI Batch #: 08031829

Sample Custodian: V. Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7918 7358 1123
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 3.3	°C	Cooler # ERC-96-511
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

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-073 K1158

RECEIVED APR 2008

DATE RECEIVED: 03/27/08 LVL LOT # :08031829

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16J15						
BROMIDE BY IC	001	SO	08LICS24	03/24/08	03/31/08	03/31/08
BROMIDE BY IC	001 REP	SO	08LICS24	03/24/08	03/31/08	03/31/08
BROMIDE BY IC	001 MS	SO	08LICS24	03/24/08	03/31/08	03/31/08
CHLORIDE BY IC	001	SO	08LICS24	03/24/08	03/31/08	03/31/08
CHLORIDE BY IC	001 REP	SO	08LICS24	03/24/08	03/31/08	03/31/08
CHLORIDE BY IC	001 MS	SO	08LICS24	03/24/08	03/31/08	03/31/08
FLUORIDE BY IC	001	SO	08LICS24	03/24/08	03/31/08	03/31/08
FLUORIDE BY IC	001 REP	SO	08LICS24	03/24/08	03/31/08	03/31/08
FLUORIDE BY IC	001 MS	SO	08LICS24	03/24/08	03/31/08	03/31/08
NITRITE BY IC	001	SO	08LICS24	03/24/08	03/31/08	03/31/08
NITRITE BY IC	001 REP	SO	08LICS24	03/24/08	03/31/08	03/31/08
NITRITE BY IC	001 MS	SO	08LICS24	03/24/08	03/31/08	03/31/08
NITRATE BY IC	001	SO	08LICS24	03/24/08	03/31/08	03/31/08
NITRATE BY IC	001 REP	SO	08LICS24	03/24/08	03/31/08	03/31/08
NITRATE BY IC	001 MS	SO	08LICS24	03/24/08	03/31/08	03/31/08
TOTAL CYANIDE	001	SO	08LC020	03/24/08	03/31/08	03/31/08
TOTAL CYANIDE	001 REP	SO	08LC020	03/24/08	03/31/08	03/31/08
TOTAL CYANIDE	001 MS	SO	08LC020	03/24/08	03/31/08	03/31/08
PHOSPHATE BY IC	001	SO	08LICS24	03/24/08	03/31/08	03/31/08
PHOSPHATE BY IC	001 REP	SO	08LICS24	03/24/08	03/31/08	03/31/08
PHOSPHATE BY IC	001 MS	SO	08LICS24	03/24/08	03/31/08	03/31/08
SULFATE BY IC	001	SO	08LICS24	03/24/08	03/31/08	03/31/08
SULFATE BY IC	001 REP	SO	08LICS24	03/24/08	03/31/08	03/31/08
SULFATE BY IC	001 MS	SO	08LICS24	03/24/08	03/31/08	03/31/08
EXTRACTABLE ORGANIC	001	SO	08LE002	03/24/08	04/02/08	04/03/08
EXTRACTABLE ORGANIC	001 MS	SO	08LE002	03/24/08	04/02/08	04/03/08
EXTRACTABLE ORGANIC	001 MSD	SO	08LE002	03/24/08	04/02/08	04/03/08
NITRATE NITRITE	001	SO	08LN3S13	03/24/08	04/04/08	04/04/08
NITRATE NITRITE	001 REP	SO	08LN3S13	03/24/08	04/04/08	04/04/08
NITRATE NITRITE	001 MS	SO	08LN3S13	03/24/08	04/04/08	04/04/08
PH	001	SO	08LPH015	03/24/08	03/28/08	03/28/08
PH	001 REP	SO	08LPH015	03/24/08	03/28/08	03/28/08
SULFIDE	001	SO	08LSD019	03/24/08	03/31/08	03/31/08
SULFIDE	001 REP	SO	08LSD019	03/24/08	03/31/08	03/31/08
SULFIDE	001 MS	SO	08LSD019	03/24/08	03/31/08	03/31/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-073 K1158

DATE RECEIVED: 03/27/08 LVL LOT # :0803L829

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
TCLP	001	SO	08LT0026	03/24/08	04/01/08	04/02/08

AB QC:

BROMIDE BY IC	MB1	S	08LICS24	N/A	03/31/08	03/31/08
BROMIDE BY IC	MB1 BS	S	08LICS24	N/A	03/31/08	03/31/08
CHLORIDE BY IC	MB1	S	08LICS24	N/A	03/31/08	03/31/08
CHLORIDE BY IC	MB1 BS	S	08LICS24	N/A	03/31/08	03/31/08
FLUORIDE BY IC	MB1	S	08LICS24	N/A	03/31/08	03/31/08
FLUORIDE BY IC	MB1 BS	S	08LICS24	N/A	03/31/08	03/31/08
NITRITE BY IC	MB1	S	08LICS24	N/A	03/31/08	03/31/08
NITRITE BY IC	MB1 BS	S	08LICS24	N/A	03/31/08	03/31/08
NITRATE BY IC	MB1	S	08LICS24	N/A	03/31/08	03/31/08
NITRATE BY IC	MB1 BS	S	08LICS24	N/A	03/31/08	03/31/08
TOTAL CYANIDE	LCS L	S	08LC020	N/A	03/31/08	03/31/08
TOTAL CYANIDE	LCS L	S	08LC020	N/A	03/31/08	03/31/08
TOTAL CYANIDE	MB1	S	08LC020	N/A	03/31/08	03/31/08
PHOSPHATE BY IC	MB1	S	08LICS24	N/A	03/31/08	03/31/08
PHOSPHATE BY IC	MB1 BS	S	08LICS24	N/A	03/31/08	03/31/08
SULFATE BY IC	MB1	S	08LICS24	N/A	03/31/08	03/31/08
SULFATE BY IC	MB1 BS	S	08LICS24	N/A	03/31/08	03/31/08
EXTRACTABLE ORGANIC	MB1	S	08LE002	N/A	04/02/08	04/03/08
EXTRACTABLE ORGANIC	MB1 BS	S	08LE002	N/A	04/02/08	04/03/08
NITRATE NITRITE	MB1	S	08LN3S13	N/A	04/04/08	04/04/08
NITRATE NITRITE	MB1 BS	S	08LN3S13	N/A	04/04/08	04/04/08
NITRATE NITRITE	MB1 BSD	S	08LN3S13	N/A	04/04/08	04/04/08
SULFIDE	MB1	S	08LSD019	N/A	03/31/08	03/31/08
SULFIDE	MB1 BS	S	08LSD019	N/A	03/31/08	03/31/08
SULFIDE	MB1 BSD	S	08LSD019	N/A	03/31/08	03/31/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-073 K1158
LVL#: 0803L829

W.O.#: 11343-606-001-9999-00
Date Received: 03-27-08

INORGANIC NARRATIVE

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

2. The sample was prepared and analyzed in accordance with the methods indicated 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 as noted on the Sample Receipt Checklist.

5. The method blanks were within the method criteria.

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

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

8. The replicate analyses were within the 20% RPD control limit with the exception of Chloride, Fluoride and Nitrate Nitrite that may be attributed to sample inhomogeneity.

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

4/10/08
Date

njp\i03-829

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 14 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	ASTM	SW846	OTHER
% Ash	__ D2216-80		
% Moisture	__ D2216-80		__ ILMO4.0 (e)
% Solids	__ D2216-80		__ ILMO4.0 (e)
% Volatile Solids	__ D2216-80		
ASTM Extraction in Water	__ D3987-81/85		
BTU	__ D240-87		
CEC		__ 9081	__ c
Chromium VI		__ 3060A/7196A	
Corrosivity ___ by coupon ___ by pH		__ 1110(mod) __ 9045C	
Cyanide, Total		✓ 9010B /9014	__ ILMO4.0 (e)
Cyanide, Reactive		__ Section 7.3/9014	
Halides, Extractable Organic		✓ ~~9020B~~ 9023 ~~4.10.05~~	__ EPA 600/4/84-008
Halides, Total		__ 9020B	__ EPA 600/4/84-008
EP Toxicity		__ 1310A	
Flash Point		__ 1010	
Ignitability		__ 1010	
Oil & Grease		__ 9071A	
Carbon, Total Organic		__ 9060	__ Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	__ D240-87(mod)	__ 5050	
Petroleum Hydrocarbons, Total Recoverable		__ 9071	__ EPA 418.1
pH, Soil		✓ 9045~~C~~ D 4.10.05	
Sulfide, Reactive		__ Section 7.3/9030B	
Sulfide		✓ 9030B(mod) /9034	
Specific Gravity	__ D1429-76C/	__ D5057-90	
Sulfur, Total		__ 9056	
Synthetic Preparation Leach		__ 1312	
Paint Filter		__ 9095A	

Other: Bromide, Chloride, Fluoride, } **Method:** EPA 300.0

Other: Nitrite, Nitrate, Phosphate, Sulfate } **Method** EPA 353.2 (mod.)

Nitrate Nitrite

L-WI-034/B-01/01

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

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

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

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

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

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

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

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

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

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

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/10/08

CLIENT: TNUHANFORD RC-073 K1158 LVL LOT #: 0803L829

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J16J15	Bromide by IC	2.4	u	MG/KG	2.4	1.0
		Chloride by IC	9.3		MG/KG	2.4	1.0
		Fluoride by IC	6.0		MG/KG	2.4	1.0
		Nitrite by IC	2.36	u	MG/KG	2.36	1.0
		Nitrate by IC	12.7		MG/KG	2.36	1.0
		Cyanide, Total	0.58	u	MG/KG	0.58	1.0
		Phosphate by IC	2.4	u	MG/KG	2.4	1.0
		Sulfate by IC	225		MG/KG	23.6	10.0
		Extr. Organic Halides	47.1	u	MG/KG	47.1	1.0
		Nitrate Nitrite	1.4		MG/KG	0.26	1.0
		pH	3.9		SOIL PH	0.01	1.0
		Sulfide	20.6	u	MG/KG	20.6	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/10/08

CLIENT: TNUHANFORD RC-073 K1158 LVL LOT #: 0803L829

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	08LICS24-MB1	Bromide by IC	2.5	u	MG/KG	2.5	1.0
		Chloride by IC	2.5	u	MG/KG	2.5	1.0
		Fluoride by IC	2.5	u	MG/KG	2.5	1.0
		Nitrite by IC	2.52	u	MG/KG	2.52	1.0
		Nitrate by IC	2.52	u	MG/KG	2.52	1.0
		Phosphate by IC	2.5	u	MG/KG	2.5	1.0
		Sulfate by IC	2.5	u	MG/KG	2.5	1.0
BLANK1	08LC020-MB1	Cyanide, Total	0.49	u	MG/KG	0.49	1.0
BLANK1	08LE002-MB1	Extr. Organic Halides	39.2	u	MG/KG	39.2	1.0
BLANK10	08LN3S13-MB1	Nitrate Nitrite	0.30	u	MG/KG	0.30	1.0
BLANK10	08LSD019-MB1	Sulfide	37.2	u	MG/KG	37.2	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 04/10/08

CLIENT: TNUHANFORD RC-073 K1158

LVL LOT #: 0803L829

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV.	DILUTION FACTOR(SPK)
-001	J16J15	Bromide by IC	92.6	0.0	94.0	98.5	2.0
		Chloride by IC	104	9.3	94.0	100.9	2.0
		Fluoride by IC	101	6.0	94.0	101.1	2.0
		Nitrite by IC	92.0	2.36u	94.0	97.9	2.0
		Nitrate by IC	111	12.7	94.0	104.5	2.0
		Cyanide, Total	5.72	0.58u	6.08	94.1	1.0
		Phosphate by IC	108	2.4 u	94.0	114.8	2.0
		Sulfate by IC	1030	225	941	85.4	20.0
		Extr. Organic Halides	2960	28.0	2910	101.0	1.0
		Extr. Organic Halides	3120	28.0	2980	103.7	1.0
		Nitrate Nitrite	7.1	1.4	6.6	85.9	1.0
		Sulfide	259	14.4	270	90.8	1.0
BLANK10	08LICS24-MB1	Bromide by IC	54.2	2.5 u	60.9	89.0	1.0
		Chloride by IC	53.7	2.5 u	60.9	88.2	1.0
		Fluoride by IC	53.3	2.5 u	60.9	87.4	1.0
		Nitrite by IC	53.8	2.52u	60.9	88.2	1.0
		Nitrate by IC	54.0	2.52u	60.9	88.7	1.0
		Phosphate by IC	54.5	2.5 u	60.9	89.4	1.0
		Sulfate by IC	56.0	2.5 u	60.9	91.8	1.0
BLANK1	08LE002-MB1	Extr. Organic Halides	2470	39.2 u	2480	99.9	1.0
BLANK10	08LN3S13-MB1	Nitrate Nitrite	6.8	0.30u	7.1	95.0	1.0
		Nitrate Nitrite MSD	6.9	0.30u	7.1	96.6	1.0
BLANK10	08LSD019-MB1	Sulfide	476	37.2 u	495	96.1	1.0
		Sulfide MSD	479	37.2 u	510	93.8	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 04/10/08

CLIENT: TNUHANFORD RC-073 K1158 LVL LOT #: 0803L829

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
-001	J16J15	Extr. Organic Halides	101.0	103.7	2.7
BLANK10	08LN3S13-MB1	Nitrate Nitrite	95.0	96.6	1.7
BLANK10	08LSD019-MB1	Sulfide	96.1	93.8	2.4

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 04/10/08

CLIENT: TNUHANFORD RC-073 K1158 LVL LOT #: 0803L829

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J16J15	Bromide by IC	2.4 u	2.5 u	NC	1.0
		Chloride by IC	9.3	12.6	30.4	1.0
		Fluoride by IC	6.0	9.8	47.9	1.0
		Nitrite by IC	2.36u	2.52u	NC	1.0
		Nitrate by IC	12.7	11.8	7.4	1.0
		Cyanide, Total	0.58u	0.62u	NC	1.0
		Phosphate by IC	2.4 u	2.5 u	NC	1.0
		Sulfate by IC	225	202	10.9	10.0
		Nitrate Nitrite	1.4	1.1	23.5	1.0
		pH	3.9	3.9	0.3	1.0
		Sulfide	20.6 u	20.4 u	NC	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 04/10/08

CLIENT: TNUHANFORD RC-073 K1158 LVL LOT #: 0803L829
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCSS1	08LC020-LCS1	Cyanide, Total LCS	1.96	2.0	MG/KG	98.2
LCSS2	08LC020-LCS2	Cyanide, Total LCS	9.80	10.0	MG/KG	98.0

Lionville Laboratory Use Only

8031829

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratory Inc.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

000000012

Project: TAIL HANFORD SAF BC-073

Final Proj. Sampling Date

Project# 11343-606-001-9999

Project Contact/Phone#

Lionville Laboratory Project Manager: C. Johnson

SW846 Del: Std TAT: 15 days

Rec'd: 3/27/08 Date Due: 4-11-08

	A				B		C	D	E	F	G		
Refrigerator #	3				3		3	3	3	3	3		
#/Type Container (Liquid / Solid)	16				16		16	16	16	16	16		
Volume	60				60		60	60	60	60	60		
Preservatives													
ANALYSES REQUESTED	ORGANIC: VOA	ORGANIC: TCLP BNA	ORGANIC: Pest/PCB	ORGANIC: Herb	RCRA TCLP 8260B	70X	INORG: Metal	INORG: Pot CN	Sulf.	IC Anions	TCLP Met Hg	IC-NO3	
Lionville Laboratory Use Only		ITCLP			OGSH TMETD	IEOX	METD	ICNTD	ISFD	IPH ICD	ITCLP	INBNZ	

Matrix: W Water, Soil, Sediment, Solid, Sludge, 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														
001	J16J15	/	/	SOLID	3-24-08	1017		X				X		X	X	X	X	X	X	
002	J16J15 TCLP of 001			L							X									

Special Instructions:

D = IC BR, ICCL, ICF, ICNO2, ICNO3, IC SO4, IC PO4

Q = HSL + Li, B, Mo, NO HG, TL

Special Instructions:

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

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	3/26/08	0930

Relinquished by	Received by	Date	Time

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-073-037	Page 1 of 1
Collector: D.W.Shea (D. Everhart SEC)	Company Contact: D.W.Shea; Telephone No.: 521-6014	Project Coordinator: KESSNER, JH	Price Code: 912; Data Turnaround: 15 days
Project Designation: 100-D/DR Burial Grounds & Remaining Sites - Other Solid Q	Sampling Location: 118-D-3, anomaly 100D-AN-08-011	SAF No.: RC-073	
Ice Chest No.: ERC-96-511	Field Logbook No.: EL-1607-3; COA: R118D32600	Method of Shipment: Fed Ex	
Shipped To: EBERLINE SERVICES/ LIONVILLE	Offsite Property No.: 4080206 (~~See OPSC~~ DAS 3/25/08)	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potentially radioactive

Special Handling and/or Storage

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	
Type of Container	G/P	G	aG	G/P	G/P	G	Gs*	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60mL	60mL	60mL	60mL	60mL	60mL	60mL	5g	60g	
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	TOX - 9020	IC Anions - 300.0; pH - 9045	NO2 NO3 - 353.2	Total Cyanide - 9010; Sulfides - 9030	TCLP Semi-VOA - 1311 8270A	Gross Alpha; Gross Beta	See item (3) in Special Instructions.	
Sample No. / Matrix * / Sample Date / Sample Time								DWShea 3/24/08		
116J15 / OTHER SOLID / 3/24/08 / 1017	✓	✓	✓	✓	✓	✓	✓			

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By/Removed From: [signature]	Received By/Stored In: DWShea DWSHEA	3-24-08 1208
Relinquished By/Removed From: DWShea DWSHEA	Received By/Stored In: Fridge 1B	3/24/08 1854
Relinquished By/Removed From: 1060 BATELLE 1B	Received By/Stored In: DAVID ST. JOHN [signature]	3/26/08 1230
Relinquished By/Removed From: DAVID ST. JOHN [signature]	Received By/Stored In: FED EX	3/26/08 1230
Relinquished By/Removed From: [signature]	Received By/Stored In: [signature]	3-27-08 0935
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}
(2) Metals by ICP (TCLP) - 1311/6010 {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury (TCLP) - 1311/7470 {Mercury}
(3) RCF GEA Shipping Screen {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

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

000000013

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

Project/SAP/SOW/Release #: RC-073

Date: 3/27/08

LvLI Batch #: 08031829

Sample Custodian: V. Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7918 7358 1123
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 3.3	°C	Cooler # ERC-96-511
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.

LIONVILLE LABORATORY INC.

13 May 2008

RECEIVED MAY 2008

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

Subject: Analytical Data Package

Dear Ms. Kessner:

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

LvLI Batch #	0804L920
SDG #	K1158 ADDON
SAF #	RC-073
Date Received	4/16/08
# Samples	1
Matrix	OTHER SOLID
Volatiles	
Semivolatiles	
Pest/PCB	
Glycols	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	

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

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

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

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

RECEIVED
MAY 2008

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD RC-073 K1158

DATE RECEIVED: 04/16/08 LVL LOT # :0804L920

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16J15						
MERCURY, TOTAL	001	SO	08C0072	03/24/08	04/18/08	04/18/08
MERCURY, TOTAL	001 REP	SO	08C0072	03/24/08	04/18/08	04/18/08
MERCURY, TOTAL	001 MS	SO	08C0072	03/24/08	04/18/08	04/18/08
AB QC:						
MERCURY LABORATORY	LC1 BS	S	08C0072	N/A	04/18/08	04/18/08
MERCURY, TOTAL	MB1	S	08C0072	N/A	04/18/08	04/18/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-073
LVL#: 0804L920
SDG/SAF#: K1158 /RC-075

W.O.#: 11343-606-001-9999-00
Date Received: 03-27-08

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.

   This sample is a relog of LvLI#: 0803L829 for Mercury analysis.

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

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

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

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

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

8. The laboratory control sample (LCS) was within the 80-120% control limits.

9. The matrix spike (MS) recovery was within the 75-125% control limits. Refer to the Inorganics Accuracy Report.

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 16 pages.

LIONVILLE LABORATORY INC.

10. The duplicate analysis was within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

11. 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.

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

5/2/08
Date

alm/m04-920

METALS METHOD GLOSSARY

he following methods are used as reference for the digestion and analysis of samples contained within th
ot#: 0804L920

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 04/22/08

CLIENT: TNU-HANFORD RC-073 K1158

LVL LOT #: 0804L920

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J16J15	Mercury, Total	0.01 u	MG/KG	0.01	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/22/08

CLIENT: TNU-HANFORD RC-073 K1158 LVL LOT #: 0804L920

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08C0072-MB1	Mercury, Total	0.01 u	MG/KG	0.01	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 04/22/08

CLIENT: TNU-HANFORD RC-073 K1158

LVL LOT #: 0804L920

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J16J15	Mercury, Total	0.16	0.01u	0.17	94.6	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 04/22/08

CLIENT: TNU-HANFORD RC-073 K1158 LVL LOT #: 0804L920

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J16J15	Mercury, Total	0.01u	0.00u	NC	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 04/22/08

CLIENT: TNU-HANFORD RC-073 K1158 LVL LOT #: 0804L920

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08C0072-LC1	Mercury, LCS	5.0	4.7	MG/KG	107.3

onville Laboratory
corporated

MERCURY PREPARATION

Logbook # 422

alyst: EB
ate 4/18/08
art Time/Temp: 1410 | 95°
nd Time/Temp: 1440 | 97°

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

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

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

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

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
Blank	205			10mL	50mL	
0.2 µg/L	Z4	0.100				
1.0	DR	0.500				
2.0	X3	1.000				
5.0	BB	2.500				
10.0	B32	5.000				
ICV	G7	0.125	2.5			
CCV	IV	0.250	5.0			
ICB/CCB	I94					90.80L
MB1	416			0.30		PBS172 100.00
LC1	537	*	*	0.30		LCSS172
0804L813-001	X5			0.33		93.75
001R	114			0.34		
001S	SH	0.500	1.0	0.33		
0804L920-001	C9			0.30		R 100.00
001R	A9			0.32		
001S	OLN	0.500	1.0	0.30		
0804L904-001	B6			0.33		91.07
002	JB			0.40		96.96
003	PA			0.38		92.75
004	194			0.34		R 95.91
005	KX			0.32		97.05
006	BG			0.38		97.65
0804L900-001	X0			0.35		100.00
001R	GTR			0.39		
001S	40	0.500	1.0	0.35		
002	3P			0.35		

Standard:	ID	Prep Date/Time
CAL/MS	RI6072-75-07B	4/18/08 1130
CV/CCV/LCS	US6072-75-08A	

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

see book # 736Y for std traceability information

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

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

.ville Laboratory
rporated

MERCURY PREPARATION

Logbook # 422

/st: TLB
4/18/08
Time/Temp: see page 080
Time/Temp:

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

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

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

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

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

TLB 4/18/08

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

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

see book # 9368 for std traceability information

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

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

ME-HgCVAA-Prep1007

Page #:

onville Laboratory Use Only

08041920

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

000000013

ent TNU Hanford RC-073

t. Final Proj. Sampling Date

oject# 11343-606-001-9999-00

oject Contact/Phone#

onville Laboratory Project Manager Arlette Johnson

SW846 Del STO TAT 7 Days

te Rec'd 3-27-08 Date Due 4-23-08

Refrigerator #								A 3							
#/Type Container	Liquid / Solid							1gl							
Volume	Solid							60							
Preservatives								1							
ANALYSES REQUESTED →		ORGANIC						INORG							
		VOA	BNA	Pest/PCB	Herb			Total Metal Hg	CN						
		Lionville Laboratory Use Only													
								MHGTO							

TRIX DES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected														
Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP Leachate, Wipe, Other, Fish	001	J16J15	✓	✓	SO	3-24-08	1017							X							

Special Instructions:

Special Instructions:

1. Relog of 08031829.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
F.	[signature]	4-1-08	0730

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

3 Laboratory Use Only

0131829

Custody Transfer Record/Lab Work Request

Page 1 of 1

VLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

TMC HANFORD SAF RC-073

Proj. Sampling Date 11343-606-001-9999

Contact/Phone#

Laboratory Project Manager D. Johnson

10846 Del Std TAT 15 days

c'd 3/27/08 Date Due 4-11-08

		A				B		C	D		E	F	G		
Refrigerator #		3				3		3	3	1	3	3	3		
#/Type Container	Liquid / Solid	16				16		16	16	1	16	16	16		
Volume		60				60		60	60	1	60	60	60		
Preservatives		—				—		—	—	—	—	—	—		
ANALYSES REQUESTED →	ORGANIC: VOA	ORGANIC: TCL BNA	ORGANIC: Pest/PCB	ORGANIC: Herb		TOX		INORG: Metal	INORG: PT CN		TC Anions	TCLP Metals	Anions		
Lionville Laboratory Use Only		ITCLP			OGSH METHOD	IEOX		METD	ICNTO	ISFD	IPH ICD	ITCLP	INBNZ		

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ITCLP	OGSH METHOD	IEOX	METD	ICNTO	ISFD	IPH ICD	ITCLP	INBNZ
001	J16J15	/	/	SOLID	3-24-08	1017	X		X	X	X	X	X	X	X
002	J16J15 TCLP of 001			L				X							

Instructions:

IC BR; ICCL, ICFL, ICNO2, ICNO3
ICSO4, ICPO4

2 = HSL + Li, B, mo.
NO HG, TL

Special Instructions:

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

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	3/27/08	0930

Relinquished by	Received by	Date	Time

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

000000014

Vashington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-073-037 | Page 1 of 1

ctor D. Everhart SEC
W.Shea

Company Contact: D.W.Shea
Telephone No.: 521-6014
Project Coordinator: KESSNER, JH
Price Code: 912
Data Turnaround: 15 days

ct Designation:)-D/DR Burial Grounds & Remaining Sites - Other Solid Q
Sampling Location: 118-D-3, anomaly 100D-AN-08-011
SAF No.: RC-073

hest No. ERC-96-511
Field Logbook No.: EL-1607-3
COA: R118D32600
Method of Shipment: Fed Ex

ned To: ERLINE SERVICES/ LIONVILLE
Offsite Property No.: 4080206 ~~See OPSC~~ DAS 3/25/08
Bill of Lading/Air Bill No.: SEE OSPC

SIBLE SAMPLE HAZARDS/REMARKS
nitially radioactive

cial Handling and/or Storage

Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
Type of Container	G/P	G	aG	G/P	G/P	G	Gs*	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1	1		
Volume	60mL	60mL	60mL	60mL	60mL	60mL	60mL	5g	60g		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	TOX - 9020	IC Anions - 300.0; pH - 9045	NO2 NO3 - 353.2	Total Cyanide - 9010; Sulfides - 9030	TCLP Semi-VOA - 1311 8270A	Gross Alpha, Gross Beta	See item (3) in Special Instructions.		

DWShea 3/24/08

Sample No.	Matrix *	Sample Date	Sample Time										
15	OTHER SOLID	3/24/08	1017	✓	✓	✓	✓	✓	✓	✓	3/24/08		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
D. Everhart	3-24-08 1208	DWShea DWSHEA	3/24/08 1208
DWShea DWSHEA	3/24/08 1854	Endse IB	3/24/08 1854
BATELLE IB	3/26/08 1230	DAVID ST JOHN	3/26/08 1230
ID ST. JOHN	3/26/08 1230	FED EX	
FED EX	3-27-08 0935		3-27-08 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}
(2) Metals by ICP (TCLP) - 1311/6010 {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury (TCLP) - 1311/7470 {Mercury}
(3) RCF GEA Shipping Screen {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

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

ORATORY ECTION	Received By	Title	Date/Time
AL SAMPLE POSITION	Disposal Method	Disposed By	Date/Time

-EE-011

000000015

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

Project/SAF/SOW/Release #: RC-073

Date: 3/27/08

LvLI Batch #: 08.03L829

Sample Custodian: V. Nelson

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier: Fed Ex		Airbill # 7918 7358 1123
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 3.3	°C	Cooler # ERC-96-511
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