0074390

SAF-RC-076
100-D/DR Burial Grounds & Remaining Sites – Aqueous Liquid Quick Turn
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Jeanette Duncan H4-21 KW 11/6/07
INITIAL/DATE

COMMENTS:

SDG K0991 SAF-RC-076

Rad only Chem only X Rad & Chem

X Complete Partial

Waste Site: 118-D-3, water from adjacent pipe

RECEIVED
NOV 14 2007
EDMC

EBERLINE
SERVICES

RECEIVED
OCT 2007

October 19, 2007

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

Reference: **P.O. #630**
Eberline Services R7-10-050-7890, SDG K0991

Dear Ms. Kessner:

Enclosed is the data report for one water sample designated under SAF No. RC-076, received at Eberline Services on October 10, 2007. 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 K0991 was composed of one water sample designated under SAF No. RC-076 with a Project Designation of: 100-D/Dr Burial Grounds & Remaining Sites-Aqueous Liquid.

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 October 18, 2007.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analysis

No problems were encountered during the course of the analyses.

2.2 Gamma Spectroscopy

No problems were encountered during the course of the analyses.

3.0 Case Narrative Certification Statement

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

Melissa Mannion

Melissa C. Mannion
Senior Program Manager

10/19/7

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 K0991

SDG	7890
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. 630
Case no	SDG_K0991

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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Melissa Mannion
Prepared by

Melissa Mannion
Reviewed by

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	10/18/07

SDG 7890
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K0991

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 10/18/07

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 K0991

SDG 7890
Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford
Contract No. 630
Case no SDG K0991

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R710050-01	J15PM7	118-D-3, Water Adj. Pipe	WATER		RC-076	RC-076-022	10/08/07 09:51
R710050-02	Lab Control Sample		WATER		RC-076		
R710050-03	Method Blank		WATER		RC-076		
R710050-04	Duplicate (R710050-01)	118-D-3, Water Adj. Pipe	WATER		RC-076		10/08/07 09:51

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 10/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0991

QC SUMMARY

SDG 7890
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG K0991

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7890	RC-076-022	J15PM7	WATER		1.0 L		10/10/07	2	R710050-01	7890-001
		Method Blank	WATER						R710050-03	7890-003
		Lab Control Sample	WATER						R710050-02	7890-002
		Duplicate (R710050-01)	WATER		1.0 L		10/10/07	2	R710050-04	7890-004

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 10/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0991

SDG 7890
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG K0991

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Gas Proportional Counting												
93A	WATER	Gross Alpha in Water	6126-182	20.0	1			1	1	1/1		
93B	WATER	Gross Beta in Water	6126-182	15.0	1			1	1	1/1		
Gamma Spectroscopy												
GAM	WATER	Gamma Emitters	6126-182	15.0	1			1	1	1/1		

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 10/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0991

SDG 7890
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG K0991

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R710050-01	J15PM7			7890-001	93A/93		10/17/07	10/17/07	BW	Gross Alpha in Water
10/08/07	118-D-3, Water Adj. Pipe		WATER	7890-001	93B/93		10/17/07	10/17/07	BW	Gross Beta in Water
10/10/07	RC-076-022	RC-076		7890-001	GAM		10/16/07	10/18/07	BW	Gamma Emitters
R710050-02	Lab Control Sample			7890-002	93A/93		10/17/07	10/17/07	BW	Gross Alpha in Water
			WATER	7890-002	93B/93		10/17/07	10/17/07	BW	Gross Beta in Water
		RC-076		7890-002	GAM		10/16/07	10/18/07	BW	Gamma Emitters
R710050-03	Method Blank			7890-003	93A/93		10/17/07	10/17/07	BW	Gross Alpha in Water
			WATER	7890-003	93B/93		10/17/07	10/17/07	BW	Gross Beta in Water
		RC-076		7890-003	GAM		10/16/07	10/18/07	BW	Gamma Emitters
R710050-04	Duplicate (R710050-01)			7890-004	93A/93		10/17/07	10/17/07	BW	Gross Alpha in Water
10/08/07	118-D-3, Water Adj. Pipe		WATER	7890-004	93B/93		10/17/07	10/17/07	BW	Gross Beta in Water
10/10/07		RC-076		7890-004	GAM		10/17/07	10/18/07	BW	Gamma Emitters

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
93A/93	RC-076	Gross Alpha in Water	900.0_ALPHABETA_GPC	1			1	1	1	4
93B/93	RC-076	Gross Beta in Water	900.0_ALPHABETA_GPC	1			1	1	1	4
GAM	RC-076	Gamma Emitters	GAMMA_GS	1			1	1	1	4
TOTALS				3			3	3	3	12

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 10/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0991

7890-003 **Method Blank**

METHOD BLANK

SDG	7890	Client/Case no	Hanford	SDG K0991	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R710050-03	Client sample id	Method Blank		
Dept sample id	7890-003	Material/Matrix		WATER	
		SAF No	RC-076		

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-1.46	1.9	3.98	3.00	U	93A
Gross Beta	12587-47-2	-0.309	1.0	1.85	4.00	U	93B
Potassium 40	13966-00-2	U		1700		U	GAM
Cobalt 60	10198-40-0	U		65.4	25.0	U	GAM
Cesium 137	10045-97-3	U		61.3	15.0	U	GAM
Radium 226	13982-63-3	U		141		U	GAM
Radium 228	15262-20-1	U		278		U	GAM
Europium 152	14683-23-9	U		174	50.0	U	GAM
Europium 154	15585-10-1	U		196	50.0	U	GAM
Europium 155	14391-16-3	U		118	50.0	U	GAM
Thorium 228	14274-82-9	U		101		U	GAM
Thorium 232	TH-232	U		278		U	GAM
Uranium 235	15117-96-1	U		248		U	GAM
Uranium 238	U-238	U		7090		U	GAM
Americium 241	14596-10-2	U		55.8		U	GAM

100-D/DR Burial Grounds&Remaining Si

QC-BLANK #63118

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0991

7890-002 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7890 Client/Case no Hanford SDG K0991
Contact Melissa C. Mannion Contract No. 630

Lab sample id R710050-02 Client sample id Lab Control Sample
Dept sample id 7890-002 Material/Matrix WATER
SAF No RC-076

ANALYTE	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	38.7	5.9	3.10	3.00		93A	33.7	1.3	115	56-144	70-130
Gross Beta	31.7	2.6	2.13	4.00		93B	31.5	1.3	101	73-127	80-120
Cobalt 60	2360	100	55.8	25.0		GAM	2350	94	100	76-124	80-120
Cesium 137	2540	91	65.8	15.0		GAM	2380	95	107	75-125	80-120

100-D/DR Burial Grounds&Remaining Si

QC-LCS #63117

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 10/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0991

7890-004 J15PM7

DUPLICATE

SDG	7890	Client/Case no	Hanford SDG K0991
Contact	Melissa C. Mannion	Contract	No. 630
DUPLICATE		ORIGINAL	
Lab sample id	R710050-04	Lab sample id	R710050-01
Dept sample id	7890-004	Dept sample id	7890-001
		Received	10/10/07
Client sample id	J15PM7		
Location/Matrix	118-D-3, Water Adj. Pipe WATER		
Collected/Volume	10/08/07 09:51 1.0 L		
Custody/SAF No	RC-076-022 RC-076		

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI-FIERS	RPD %	3σ TOT	DER σ
Gross Alpha	-0.557	0.75	1.72	3.00	U	93A	-0.266	0.78	1.71	U	-		0.5
Gross Beta	5.92	1.4	1.86	4.00		93B	5.04	1.3	1.82		16	61	0.8
Potassium 40	U		397		U	GAM	U		362	U	-		0.1
Cobalt 60	U		37.8	25.0	U	GAM	U		39.0	U	-		0
Cesium 137	U		38.4	15.0	U	GAM	U		32.0	U	-		0.3
Radium 226	U		80.0		U	GAM	U		69.8	U	-		0.2
Radium 228	U		158		U	GAM	U		132	U	-		0.2
Europium 152	U		93.1	50.0	U	GAM	U		83.8	U	-		0.1
Europium 154	U		111	50.0	U	GAM	U		105	U	-		0.1
Europium 155	U		71.2	50.0	U	GAM	U		51.1	U	-		0.5
Thorium 228	U		61.6		U	GAM	U		49.1	U	-		0.3
Thorium 232	U		158		U	GAM	U		132	U	-		0.2
Uranium 235	U		128		U	GAM	U		101	U	-		0.3
Uranium 238	U		4080		U	GAM	U		4150	U	-		0
Americium 241	U		33.4		U	GAM	U		29.4	U	-		0.2

100-D/DR Burial Grounds&Remaining Si

QC-DUP#1 63119

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	10/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0991

7890-001 J15PM7

DATA SHEET

SDG	7890	Client/Case no	Hanford	SDG K0991	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R710050-01	Client sample id	J15PM7		
Dept sample id	7890-001	Location/Matrix	118-D-3, Water Adj. Pipe	WATER	
Received	10/10/07	Collected/Volume	10/08/07 09:51	1.0 L	
		Custody/SAF No	RC-076-022	RC-076	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-0.266	0.78	1.71	3.00	U	93A
Gross Beta	12587-47-2	5.04	1.3	1.82	4.00		93B
Potassium 40	13966-00-2	U		362		U	GAM
Cobalt 60	10198-40-0	U		39.0	25.0	U	GAM
Cesium 137	10045-97-3	U		32.0	15.0	U	GAM
Radium 226	13982-63-3	U		69.8		U	GAM
Radium 228	15262-20-1	U		132		U	GAM
Europium 152	14683-23-9	U		83.8	50.0	U	GAM
Europium 154	15585-10-1	U		105	50.0	U	GAM
Europium 155	14391-16-3	U		51.1	50.0	U	GAM
Thorium 228	14274-82-9	U		49.1		U	GAM
Thorium 232	TH-232	U		132		U	GAM
Uranium 235	15117-96-1	U		101		U	GAM
Uranium 238	U-238	U		4150		U	GAM
Americium 241	14596-10-2	U		29.4		U	GAM

100-D/DR Burial Grounds&Remaining Si

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0991

Test 93A Matrix WATER
SDG 7890
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS ALPHA IN WATER

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG K0991

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha	
Preparation batch 6126-182						
R710050-01	93		7890-001	J15PM7	U	
R710050-02	93		7890-002	LCS (QC ID=63117)	ok	
R710050-03	93		7890-003	BLK (QC ID=63118)	U	
R710050-04	93		7890-004	Duplicate (R710050-01)	-	U

Nominal values and limits from method RDLs (pCi/L) 3.00
100-D/DR Burial Grounds&Remaining Si

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6126-182			2σ prep error 20.0 % Reference Lab Notebook #6126, pg.182													
R710050-01	93		J15PM7	1.71	0.300			22		100			9	10/16/07	10/17	GRB-211
R710050-02	93		LCS (QC ID=63117)	3.10	0.300			60		100				10/16/07	10/17	GRB-110
R710050-03	93		BLK (QC ID=63118)	3.98	0.300			59		100				10/16/07	10/17	GRB-111
R710050-04	93		Duplicate (R710050-01) (QC ID=63119)	1.72	0.300			21		100			9	10/16/07	10/17	GRB-112
Nominal values and limits from method				3.00	0.300			5-250		100			180			

PROCEDURES REFERENCE 900.0_ALPHABETA_GPC
SPP-120 Gross Alpha and Gross Beta in Water, rev 0

AVERAGES ± 2 SD MDA 2.63 ± 2.23
FOR 4 SAMPLES RESIDUE 40 ± 44

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 10/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0991

Test 93B Matrix WATER
SDG 7890
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS BETA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG K0991

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta
Preparation batch 6126-182					
R710050-01	93		7890-001	J15PM7	5.04
R710050-02	93		7890-002	LCS (QC ID=63117)	ok
R710050-03	93		7890-003	BLK (QC ID=63118)	U
R710050-04	93		7890-004	Duplicate (R710050-01)	ok
Nominal values and limits from method 100-D/DR Burial Grounds&Remaining Si				RDLs (pCi/L)	4.00

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6126-182			2σ prep error 15.0 % Reference Lab Notebook #6126, pg.182													
R710050-01	93		J15PM7	1.82	0.300			22		100			9	10/16/07	10/17	GRB-211
R710050-02	93		LCS (QC ID=63117)	2.13	0.300			60		100				10/16/07	10/17	GRB-110
R710050-03	93		BLK (QC ID=63118)	1.85	0.300			59		100				10/16/07	10/17	GRB-111
R710050-04	93		Duplicate (R710050-01) (QC ID=63119)	1.86	0.300			21		100			9	10/16/07	10/17	GRB-112
Nominal values and limits from method				4.00	0.300			5-250		100			180			

PROCEDURES REFERENCE 900.0_ALPHABETA_GPC
SPP-120 Gross Alpha and Gross Beta in Water, rev 0

AVERAGES ± 2 SD MDA 1.92 ± 0.289
FOR 4 SAMPLES RESIDUE 40 ± 44

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 10/18/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0991

Test GAM Matrix WATER
SDG 7890
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA EMITTERS

GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG K0991

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60		Cesium 137	
Preparation batch 6126-182								
R710050-01			7890-001	J15PM7	U		U	
R710050-02			7890-002	LCS (QC ID=63117)	ok		ok	
R710050-03			7890-003	BLK (QC ID=63118)	U		U	
R710050-04			7890-004	Duplicate (R710050-01)	-	U	-	U
Nominal values and limits from method 100-D/DR Burial Grounds&Remaining Si				RDLs (pCi/L)	25.0		15.0	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6126-182			2σ prep error 15.0 % Reference Lab Notebook #6126, pg.182													
R710050-01			J15PM7	118	0.100					982			8	10/15/07	10/16	JR,07,00
R710050-02			LCS (QC ID=63117)	65.8	0.100					982				10/15/07	10/16	JR,05,00
R710050-03			BLK (QC ID=63118)	289	0.100					982				10/15/07	10/16	JR,06,00
R710050-04			Duplicate (R710050-01) (QC ID=63119)	146	0.100					959			9	10/15/07	10/17	JR,01,00
Nominal values and limits from method				15.0	0.100					100			180			

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

AVERAGES ± 2 SD MDA 155 ± 191
FOR 4 SAMPLES YIELD _____ ± _____

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 10/18/07

SDG 7890
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K0991

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 10/18/07

SDG 7890
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K0991

PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

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

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

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

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

  These qualifiers should be reviewed as follows:

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

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

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

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

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WORK SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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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).

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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.

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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.

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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.

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

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

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

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

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

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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.

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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'

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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-076-022	Page 1 of 1

Collector D.W. Shea/Subcontractor sampler J. Caldwell	**Company Contact** D.W.Shea	**Telephone No.** 521-6014	**Project Coordinator** KESSNER, JH
Price Code 7K	**Data Turnaround** 15 days		
Project Designation 100-D/DR Burial Grounds&Remaining Sites - Aqueous Liqu	**Sampling Location** 118-D-3, water from adjacent pipe K0991 (7890)		**SAF No.** RC-076
Ice Chest No. AFS-04-012	**Field Logbook No.** EL-1607-2	**COA** R118D32600	**Method of Shipment** DWShea 10/8/07 ~~company vehicle~~ Fed Ex
Shipped To EBERLINE SERVICES / LIONVILLE	**Offsite Property No.** A080004		**Bill of Lading/Air Bill No.** See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

~~Potentially radioactive~~ DWShea 10/8/07

Special Handling and/or Storage

Preservation	HNO3 to pH <2	Cool 4C	NaOH to pH >= 12 Cool 4C	ZnAc+NaOH to pH >9 Cool	Cool 4C	HNO3 to pH <2	HNO3 to pH <2			
Type of Container	G/P	G/P	G/P	G/P	P	G/P	G/P			
No. of Container(s)	1	1	1	1	1	1	DWS 0			
Volume	250mL	250mL	500mL	125mL	125ml	125ml	500ml			
SAMPLE ANALYSIS	See item (1) in Special Instructions	TSS - 160.2	Total Cyanide - 9010	Sulfides - 9030	IC Anions - 300.0, pH (Water) - 9040	Gamma Spectroscopy (TCL List)	Gross Alpha, Gross Beta			
Sample No. / Matrix * / Sample Date / Sample Time										
J15PM7 / WATER / 10/8/07 / 0951			10/8/07			✓	✓			

DWShea 10/8/07

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
John Caldwell (SEC)	10/8/07 0955	DWShea DWShea	10/8/07 0955
DWShea DWShea	10/8/07 1417	Fridge 3A	10/8/07 1417
Fridge 3A	10-9-07 0930	KJ Singleton	10-9-07 0930
KJ Singleton	10-9-07 1500	FED EX	
FED EX			10/10/07 09:30

SPECIAL INSTRUCTIONS

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

DWShea 10/8/07

note: samples not field preserved other than cooling

Sampler unavailable to relinquish samples from 3728 Ref # 3A. 3728 Custodian removed samples for shipping on 10/9/07.

Matrix *

S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
Wl=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

10/10/07

Client: W.C. HANFORD City RICHLAND State WA

Date/Time received 10/10/07 09:30 CoC No. RC-076-022

Container I.D. No. AFS-04-012 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 [X]
6. Number of samples in shipping container: 1 Sample Matrix W
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 [X]
11. Samples are: In good condition [X] Leaking [ ] Broken Container [ ] Missing [ ]
12. Samples are: Preserved [X] Not preserved [ ] pH _____ Preservative _____
13. Describe any anomalies:

14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
15. Inspected by [signature] Date: 10/10/07 Time: 10:45

Customer Sample No.	cpm	mR/hr	Wipe	Customer Sample No.	cpm	mR/hr	wipe

Ion Chamber Ser. No. _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

Beta/Gamma Meter Ser. No. _____ Calibration date _____

LvLI
LIONVILLE LABORATORY INC.

RECEIVED
NOV 2007

2 November 2007

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 #	0710L026
SDG #	K0991
SAF #	RC-076
Date Received	10/10/07
# Samples	1
Matrix	OTHER LIQUID
Volatiles	
Semivolatiles	
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

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-076 K0991

RECEIVED NOV 2007

DATE RECEIVED: 10/10/07 LVL LOT # :07L0L026

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	
J15PM7							
BROMIDE BY IC	001	W	07LICA61	10/08/07	10/11/07	10/11/07	
BROMIDE BY IC	001 REP	W	07LICA61	10/08/07	10/11/07	10/11/07	
BROMIDE BY IC	001 MS	W	07LICA61	10/08/07	10/11/07	10/11/07	
CHLORIDE BY IC	001	W	07LICA61	10/08/07	10/11/07	10/11/07	
CHLORIDE BY IC	001 REP	W	07LICA61	10/08/07	10/11/07	10/11/07	
CHLORIDE BY IC	001 MS	W	07LICA61	10/08/07	10/11/07	10/11/07	
FLUORIDE BY IC	001	W	07LICA61	10/08/07	10/11/07	10/11/07	
FLUORIDE BY IC	001 REP	W	07LICA61	10/08/07	10/11/07	10/11/07	
FLUORIDE BY IC	001 MS	W	07LICA61	10/08/07	10/11/07	10/11/07	
NITRITE BY IC	001	W	07LICA61	10/08/07	10/11/07	10/11/07	1429
NITRITE BY IC	001 REP	W	07LICA61	10/08/07	10/11/07	10/11/07	1442
NITRITE BY IC	001 MS	W	07LICA61	10/08/07	10/11/07	10/11/07	1455
NITRATE BY IC	001	W	07LICA61	10/08/07	10/11/07	10/11/07	1429 10-15-07
NITRATE BY IC	001 REP	W	07LICA61	10/08/07	10/11/07	10/11/07	1442
NITRATE BY IC	001 MS	W	07LICA61	10/08/07	10/11/07	10/11/07	1455
TOTAL CYANIDE	001	W	07LC051	10/08/07	10/12/07	10/12/07	
PHOSPHATE BY IC	001	W	07LICA61	10/08/07	10/11/07	10/11/07	1429
PHOSPHATE BY IC	001 REP	W	07LICA61	10/08/07	10/11/07	10/11/07	1442
PHOSPHATE BY IC	001 MS	W	07LICA61	10/08/07	10/11/07	10/11/07	1455
SULFATE BY IC	001	W	07LICA61	10/08/07	10/11/07	10/11/07	
SULFATE BY IC	001 REP	W	07LICA61	10/08/07	10/11/07	10/11/07	
SULFATE BY IC	001 MS	W	07LICA61	10/08/07	10/11/07	10/11/07	
PH	001	W	07LPH064	10/08/07	10/10/07	10/10/07	~~1244824~~ 1322
PH	001 REP	W	07LPH064	10/08/07	10/10/07	10/10/07	1326
SULFIDE	001	W	07LSD016	10/08/07	10/15/07	10/15/07	
TOTAL SUSPENDED SOLI	001	W	07LSS086	10/08/07	10/11/07	10/11/07	
TOTAL SUSPENDED SOLI	001 REP	W	07LSS086	10/08/07	10/11/07	10/11/07	

LAB QC:

BROMIDE BY IC	MB1	W	07LICA61	N/A	10/11/07	10/11/07
BROMIDE BY IC	MB1 BS	W	07LICA61	N/A	10/11/07	10/11/07
CHLORIDE BY IC	MB1	W	07LICA61	N/A	10/11/07	10/11/07
CHLORIDE BY IC	MB1 BS	W	07LICA61	N/A	10/11/07	10/11/07
FLUORIDE BY IC	MB1	W	07LICA61	N/A	10/11/07	10/11/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-076 K0991

DATE RECEIVED: 10/10/07 LVL LOT # :0710L026

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
FLUORIDE BY IC	MB1 BS	W	07LICA61	N/A	10/11/07	10/11/07
NITRITE BY IC	MB1	W	07LICA61	N/A	10/11/07	10/11/07
NITRITE BY IC	MB1 BS	W	07LICA61	N/A	10/11/07	10/11/07
NITRATE BY IC	MB1	W	07LICA61	N/A	10/11/07	10/11/07
NITRATE BY IC	MB1 BS	W	07LICA61	N/A	10/11/07	10/11/07
TOTAL CYANIDE	LCS L	W	07LC051	N/A	10/12/07	10/12/07
TOTAL CYANIDE	LCS L	W	07LC051	N/A	10/12/07	10/12/07
TOTAL CYANIDE	MB1	W	07LC051	N/A	10/12/07	10/12/07
PHOSPHATE BY IC	MB1	W	07LICA61	N/A	10/11/07	10/11/07
PHOSPHATE BY IC	MB1 BS	W	07LICA61	N/A	10/11/07	10/11/07
SULFATE BY IC	MB1	W	07LICA61	N/A	10/11/07	10/11/07
SULFATE BY IC	MB1 BS	W	07LICA61	N/A	10/11/07	10/11/07
SULFIDE	MB1	W	07LSD016	N/A	10/15/07	10/15/07
SULFIDE	MB1 BS	W	07LSD016	N/A	10/15/07	10/15/07
SULFIDE	MB1 BSD	W	07LSD016	N/A	10/15/07	10/15/07
TOTAL SUSPENDED SOLI	MB1	W	07LSS086	N/A	10/11/07	10/11/07
TOTAL SUSPENDED SOLI	MB1 BS	W	07LSS086	N/A	10/11/07	10/11/07
TOTAL SUSPENDED SOLI	MB1 BSD	W	07LSS086	N/A	10/11/07	10/11/07

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-076 K0991
LVL#: 0710L026

W.O.#: 11343-606-001-9999-00
Date Received: 10-10-07

INORGANIC NARRATIVE

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

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

   LvLI is NELAP accredited by the State of Pennsylvania. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager. LvLI certifies that all test results meet the requirements of NELAC with any exception noted in the following statements. Lionville's certification for orthophosphate by EPA method 300.0 has been suspended temporarily due to reporting slightly high results in our last two performance evaluation studies. Since orthophosphate was not detected in any of the samples reported herein there is no impact on data.

3. Sample holding times as required by the method and/or contract were met with the exception of pH, Nitrite, Nitrate and (ortho)Phosphate (see the sample chronology summary for analyses times for short hold samples).

4. The results presented in this report are derived from a sample that did not meet LvLI's sample acceptance policy.

5. The method blanks were within the method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits with the exception of Phosphate that was above the control limits at 120.6%. The duplicate LCS were within the 20% Relative Percent Difference (RPD) control limit.

7. The matrix spike recoveries for Bromide, Chloride, Fluoride, Nitrite, Nitrate, Phosphate and Sulfate were within the 75-125% control limits.

8. The replicate analyses for Bromide, Chloride, Fluoride, Nitrite, Nitrate, Phosphate, Sulfate, pH and Total Suspended Solids were within the 20% RPD control limit.

9. Insufficent sample was provided so as to performe matirx quality control analyses for Total Cyanide and Sulfide.

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

Judy Stm

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

10/19/07
Date

njp/i10-026

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 WATER SAMPLE ANALYSIS

	EPA /600	SW846	OTHER
Acidity	___ 305.1		
___Alkalinity ___Bicarbonate ___Carbonate	___ 310.1		
BOD	___ 405.1		___ 5210B (b)
Ion Chromatography:			
✓ Bromide ✓ Chloride ✓ Fluoride	✓ 300.0	___ 9056	
✓ Nitrate ✓ Nitrite ✓ Phosphate	✓ 300.0	___ 9056	
✓ Sulfate ___Formate ___Acetate ___Oxalate	✓ 300.0	___ 9056	
Chloride	___ 325.2	___ 9251	
Chorine, Residual	___ 330.5 (mod)		
Cyanide, Amenable to Chlorination	___ 335.2	✓ 9010B	
Cyanide, Total	___ 335.2	✓ 9010B ✓ 9014	___ ILMO4.0 (e)
Cyanide, Weak Acid Dissociable		___	___ 412 (a) ___ 4500CN-I (
COD	___ 410.4(mod)		___ 5220C (b)
Color	___ 110.2		
Corrosivity by Coupon		___ 1110(mod)	
Chromium VI		___ 7196A	___ 3500Cr-D (b)
Fluoride	___ 340.2		___ 4500-FC
Hardness, Calcium	___ 215.2		
Hardness, Total	___ 130.2		
Iodide			___ ASTM D19P202 (1)
Surfactant	___ 425.1		
___Nitrate-Nitrite ___Nitrate ___Nitrite	___ 353.2		
Ammonia	___ 350.3		
Total___ Kjeldahl ___ Organic Nitrogen	___ 351.3		
Total___ Organic ___ Inorganic Carbon	___ 415.1	___ 9060	
Oil & Grease	___ 413.1	___ 9070	
✓ pH ___ pH; paper	___ 150.1	✓ 9040B ___ 9041A	
Petroleum Hydrocarbons, Total Recoverable	___ 418.1		
Phenol	___ 420.1 ___ 420.2	___ 9065 ___ 9066	
___Ortho ___Total Phosphate	___ 365.2		___ 4500-P B ___ C
Salinity			___ 210A (a) ___ 2520 (b)
Settleable Solids	___ 160.5		
Sulfide	___ 376.1	✓ ~~9030B~~/9034 (acid soluble) 10-15-07	
Reactive ___Cyanide ___Sulfide		___ Section 7.3 (__9014__9030B)	
Silica	___ 370.1		
Sulfite	___ 377.1		
Sulfate	___ 375.4	___ 9038	
Specific Conductance	___ 120.1	___ 9050A	
Specific Gravity			___ D5057-90 ___ 213E (a)
Synthetic Precipitation Leach		___ 1312	
Total ___Dissolved __Suspended ___Solids	160 ___.1 ___.2 ___.3		
Total Organic Halides	___ 450.1	___ 9020B	
Turbidity	___ 180.1		
Volatile Solids:			
__Total __Dissolved __Suspended	___ 160.4		

Other: **Method:**

L-WI-034/A-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 10/16/07

CLIENT: TNUHANFORD RC-076 K0991 LVL LOT #: 0710L026

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J15PM7	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	8.0	MG/L	0.25	1.0
		Fluoride by IC	0.25 u	MG/L	0.25	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	0.25 u	MG/L	0.25	1.0
		Cyanide, Total	5.00 u	UG/L	5.00	1.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	0.25 u	MG/L	0.25	1.0
		pH	8.1	PH UNIT	0.01	1.0
		Sulfide	1.0 u	MG/L	1.0	1.0
		Total Suspended Solids	5.00 u	MG/L	5.00	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 10/16/07

CLIENT: TNUHANFORD RC-076 K0991 LVL LOT #: 0710L026

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	07LICA61-MB1	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	0.25 u	MG/L	0.25	1.0
		Fluoride by IC	0.25 u	MG/L	0.25	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	0.25 u	MG/L	0.25	1.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	0.25 u	MG/L	0.25	1.0
BLANK1	07LC051-MB1	Cyanide, Total	5.00 u	UG/L	5.00	1.0
BLANK10	07LSD016-MB1	Sulfide	1.0 u	MG/L	1.0	1.0
BLANK10	07LSS086-MB1	Total Suspended Solids	5.00 u	MG/L	5.00	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 10/16/07

CLIENT: TNUHANFORD RC-076 K0991

LVL LOT #: 0710L026

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J15PM7	Bromide by IC	5.2	0.00	5.0	104.3	1.0
		Chloride by IC	18.0	8.0	10.0	99.7	2.0
		Fluoride by IC	5.1	0.008	5.0	101.2	1.0
		Nitrite by IC	5.45	0.25u	5.00	109.0	1.0
		Nitrate by IC	5.17	0.25u	5.00	103.5	1.0
		Phosphate by IC	5.5	0.25u	5.0	110.5	1.0
		Sulfate by IC	5.2	0.25u	5.0	104.8	1.0
BLANK10	07LICA61-MB1	Bromide by IC	4.9	0.25u	5.0	98.1	1.0
		Chloride by IC	4.8	0.25u	5.0	96.2	1.0
		Fluoride by IC	5.0	0.25u	5.0	100	1.0
		Nitrite by IC	4.84	0.25u	5.00	96.7	1.0
		Nitrate by IC	5.08	0.25u	5.00	101.7	1.0
		Phosphate by IC	6.0	0.25u	5.0	120.6	1.0
		Sulfate by IC	5.0	0.25u	5.0	99.2	1.0
BLANK10	07LSD016-MB1	Sulfide	13.0	1.0 u	13.1	98.7	1.0
		Sulfide MSD	12.9	1.0 u	13.1	98.0	1.0
BLANK10	07LSS086-MB1	Total Suspended Solids	99.0	5.00u	100	99.0	1.0
		Total Suspended Solids	94.0	5.00u	100	94.0	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 10/16/07

CLIENT: TNUHANFORD RC-076 K0991 LVL LOT #: 0710L026

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	07LSD016-MB1	Sulfide	98.7	98.0	0.77
BLANK10	07LSS086-MB1	Total Suspended Solids	99.0	94.0	5.2

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 10/16/07

CLIENT: TNUHANFORD RC-076 K0991 LVL LOT #: 0710L026

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-001REP	J15PM7	Bromide by IC	0.25u	0.25u	NC	1.0
		Chloride by IC	8.0	8.0	1.1	1.0
		Fluoride by IC	0.25u	0.25u	NC	1.0
		Nitrite by IC	0.25u	0.25u	NC	1.0
		Nitrate by IC	0.25u	0.25u	NC	1.0
		Phosphate by IC	0.25u	0.25u	NC	1.0
		Sulfate by IC	0.25u	0.25u	NC	1.0
		pH	8.1	8.1	0.4	1.0
		Total Suspended Solids	5.00u	5.00u	NC	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 10/16/07

CLIENT: TNUHANFORD RC-076 K0991 LVL LOT #: 0710L026

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCSS1	07LC051-LCS1	Cyanide, Total LCS	19.0	20.0	UG/L	95.1
LCSS2	07LC051-LCS2	Cyanide, Total LCS	98.8	100	UG/L	98.8

onville Laboratory Use Only

7/0L026

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

VLI

000000012

ent TMC HANFORD SAF# RC-076

t. Final Proj. Sampling Date

ject# 11343-606-001-9999.00

ject Contact/Phone#

nville Laboratory Project Manager O Johnson

SW846 Del STD TAT 15 days

te Rec'd 10-10-07 Date Due 10-31-07

		A	B
Refrigerator #		3	3
#/Type Container	Liquid	16	16
	Solid		
Volume		L	L
Preservatives		HNO3	NaOH

ANALYSES REQUESTED →

ORGANIC				INORG					
VOA	BNA	Pest/PCB	Herb	Metal	TOC	CN	TSS	Solf	Ic Anions	PH

MATRIX CODES	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Metal	TOC	CN	TSS	Solf	Ic Anions	PH
Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP, Leachate, Wipe, Other, Fish	001	I15PM7	✓	✓	W	10/8/07	0951	X	X	X	X	X	X	X

Special Instructions:

met(1) = HSL + B, Bi, Li, Mo, P, Si, Sr, Sn, U

Special Instructions:

1. Samples not Field Preserved
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	10/10/07	0925

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-076-022 | Page 1 of 1

Collector: D.W. Shea/Subcontractor sampler (J. Coldwell	Company Contact: D.W.Shea	Telephone No.: 521-6014	Project Coordinator: KESSNER, JH
Price Code: 7K	Data Turnaround: 15days		
Project Designation: 100-D/DR Burial Grounds&Remaining Sites - Aqueous Liqu	Sampling Location: 118-D-3, water from adjacent pipe		SAF No.: RC-076
Ice Chest No.: SML-412	Field Logbook No.: EL-1607-2	COA: R118D32600	Method of Shipment: 10/8/07 ~~company vehicle~~ DWShea Fed Ex
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A080042		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

~~Potentially radioactive~~ DWShea 10/8/07

Special Handling and/or Storage

Preservation	HNO3 to pH <2	Cool 4C	NaOH to pH >= 12 Cool 4C	ZnAc+NaOH to pH >9 Cool	Cool 4C	HNO3 to pH <2	HNO3 to pH <2				
Type of Container	G/P	G/P	G/P	G/P	P	G/P	G/P				
No. of Container(s)	1	0 X DWS	1	0 X DWS	0 X DWS	1	0 X DWS				
Volume	~~250mL~~ 1000mL	250mL	~~500mL~~ 1000mL	125mL	125mL	125mL	500mL				
SAMPLE ANALYSIS	See item (1) in Special Instructions	TSS - 160.2	Total Cyanide - 9010	Sulfides - 9030	IC Anions - 300.0, pH (Water) - 9040	Gamma Spectroscopy (TCL List)	Gross Alpha: Gross Beta				
Sample No. / Matrix * / Sample Date / Sample Time											
15PM7 / WATER / 10/8/07 / 0951	✓	✓	✓	✓	✓						

DWShea 10/8/07

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
J. Coldwell (SEC)	10/8/07 0955	DWShea DWShea	10/8/07 0955
DWShea DWShea	10/8/07 1417	Fridge 3A	10/8/07 1417
Fridge 3A	10-9-07 0930	KMSingleton	10-9-07 0930
KMSingleton	10-9-07 1500	FED EX	
Fed Ex	10-10-07 0925		10-10-07 0925

Sign/Print Names

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Client List) [Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc; and Hg DWS 10/4/07

note: samples not field preserved other than cooling

Samples unavailable to relinquish samples from 3728 Ref # 3A. 3728 Custodian removed samples for shipping on 10 19 07

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

000000013

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

Project/SAF/SOW/Release #: RC-076

Date: 10/

LvLI Batch #: 0708L 026

Sample Custodian: [signature]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7987 8176 7629
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 plastic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 3.3 °C		Cooler # 5ML-412
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	Labels Indicate Preserved. see 8
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☑ No	Samples not field Preserva COC
12. Samples received within hold times?	☑ Yes	☑ No	PH
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 MR 10-18-07	☑ No	
16. Project Manager contacted concerning any discrepancies?	☑ Yes	☐ No	☐ N/A

Person Contacted [illegible] Date 10-10-07

LvLI

RECEIVED
NOV 2007

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-076 K0991

DATE RECEIVED: 10/10/07 LVL LOT # :0710L026

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J15PM7						
SILVER, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
SILVER, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
SILVER, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
SILVER, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
ALUMINUM, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
ALUMINUM, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
ALUMINUM, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
ALUMINUM, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
ARSENIC, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
ARSENIC, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
ARSENIC, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
ARSENIC, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
BORON, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
BORON, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
BORON, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
BORON, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
BARIUM, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
BARIUM, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
BARIUM, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
BARIUM, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
BERYLLIUM, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
BERYLLIUM, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
BERYLLIUM, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
BERYLLIUM, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
BISMUTH, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
BISMUTH, TOTAL REP	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
BISMUTH, TOTAL SPIKE	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
BISMUTH, TOTAL DUP S	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
CALCIUM, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/16/07
CALCIUM, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/16/07
CALCIUM, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/16/07
CALCIUM, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/16/07
CADMIUM, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
CADMIUM, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
CADMIUM, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-076 K0991

DATE RECEIVED: 10/10/07 LVL LOT # :0710L026

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CADMIUM, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
COBALT, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
COBALT, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
COBALT, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
COBALT, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
CHROMIUM, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
CHROMIUM, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
CHROMIUM, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
CHROMIUM, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
COPPER, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
COPPER, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
COPPER, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
COPPER, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
IRON, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
IRON, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
IRON, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
IRON, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
MERCURY, TOTAL	001	W	07C0191	10/08/07	10/18/07	10/19/07
MERCURY, TOTAL	001 REP	W	07C0191	10/08/07	10/18/07	10/19/07
MERCURY, TOTAL	001 MS	W	07C0191	10/08/07	10/18/07	10/19/07
POTASSIUM, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
POTASSIUM, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
POTASSIUM, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
POTASSIUM, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
LITHIUM, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
LITHIUM, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
LITHIUM, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
LITHIUM, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
MAGNESIUM, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
MAGNESIUM, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
MAGNESIUM, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
MAGNESIUM, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
MANGANESE, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
MANGANESE, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
MANGANESE, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
MANGANESE, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
MOLYBDENUM, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
MOLYBDENUM, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-076 K0991

DATE RECEIVED: 10/10/07 LVL LOT # :0710L026

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MOLYBDENUM, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
MOLYBDENUM, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
SODIUM, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
SODIUM, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
SODIUM, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
SODIUM, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
NICKEL, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
NICKEL, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
NICKEL, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
NICKEL, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
PHOSPHORUS, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/16/07
PHOSPHORUS, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/16/07
PHOSPHORUS, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/16/07
PHOSPHORUS, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/16/07
LEAD, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
LEAD, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
LEAD, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
LEAD, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
ANTIMONY, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
ANTIMONY, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
ANTIMONY, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
ANTIMONY, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
SELENIUM, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
SELENIUM, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
SELENIUM, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
SELENIUM, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
SILICON, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
SILICON, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
SILICON, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
SILICON, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
TIN, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
TIN, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
TIN, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
TIN, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
STRONTIUM, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
STRONTIUM, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
STRONTIUM, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
STRONTIUM, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-076 K0991

DATE RECEIVED: 10/10/07 LVL LOT # :0710L026

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
THALLIUM, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
THALLIUM, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
THALLIUM, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
THALLIUM, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
URANIUM, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
URANIUM, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
URANIUM, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
URANIUM, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
VANADIUM, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
VANADIUM, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
VANADIUM, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
VANADIUM, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07
ZINC, TOTAL	001	W	07L0526	10/08/07	10/15/07	10/15/07
ZINC, TOTAL	001 REP	W	07L0526	10/08/07	10/15/07	10/15/07
ZINC, TOTAL	001 MS	W	07L0526	10/08/07	10/15/07	10/15/07
ZINC, TOTAL	001 MSD	W	07L0526	10/08/07	10/15/07	10/15/07

LAB QC:

SILVER LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
SILVER, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
ALUMINUM LABORTORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
ALUMINUM, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
ARSENIC LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
ARSENIC, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
BORON LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
BORON, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
BARIUM LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
BARIUM, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
BERYLLIUM LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
BERYLLIUM, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
BISMUTH, LCS	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
BISMUTH, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
CALCIUM LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/16/07
CALCIUM, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/16/07
CADMIUM LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
CADMIUM, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
COBALT LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-076 K0991

DATE RECEIVED: 10/10/07 LVL LOT # :0710L026

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COBALT, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
CHROMIUM LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
CHROMIUM, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
COPPER LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
COPPER, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
IRON LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
IRON, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
MERCURY LABORATORY	LC1 BS	W	07C0191	N/A	10/18/07	10/19/07
MERCURY, TOTAL	MB1	W	07C0191	N/A	10/18/07	10/19/07
POTASSIUM LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
POTASSIUM, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
LITHIUM LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
LITHIUM, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
MAGNESIUM LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
MAGNESIUM, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
MANGANESE LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
MANGANESE, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
MOLYBDENUM LABORATOR	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
MOLYBDENUM, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
SODIUM LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
SODIUM, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
NICKEL LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
NICKEL, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
PHOSPHORUS LCS	LC1 BS	W	07L0526	N/A	10/15/07	10/16/07
PHOSPHORUS, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/16/07
LEAD LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
LEAD, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
ANTIMONY LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
ANTIMONY, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
SELENIUM LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
SELENIUM, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
SILICON LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
SILICON, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
TIN LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
TIN, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
STRONTIUM LCS STANDA	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
STRONTIUM, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
THALLIUM LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-076 K0991

DATE RECEIVED: 10/10/07 LVL LOT # :0710L026

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
THALLIUM, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
URANIUM LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
URANIUM, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
VANADIUM LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
VANADIUM, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07
ZINC LABORATORY	LC1 BS	W	07L0526	N/A	10/15/07	10/15/07
ZINC, TOTAL	MB1	W	07L0526	N/A	10/15/07	10/15/07

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-076
LVL#: 0710L026
SDG/SAF#: K0991/RC-076

W.O.#: 11343-606-001-9999-00
Date Received: 10-10-07

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.

1. This narrative covers the analysis of 1 water sample.

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

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

4. Please refer to the Sample Receipt Check List for sample discrepancies in LvLI's sample acceptance policy.

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury) with the exception of the ending CCV for Calcium (3179 line) at 110.8%. The sample was rerun for Calcium along with the Phosphorous analysis.

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

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

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

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

10. All matrix spike (MS) and matrix spike duplicate (MSD) recoveries were 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 22 pages.

11. All MSs and MSDs were within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Matrix Spike Duplicate Report.

12. All duplicate analyses were within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

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.

for Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

10/31/07
Date

jjw/m10-026

LVLI
LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within t

Lot#: 0710L026

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

Metals Digestion Methods: X3005A __3010A __3015 __3020A __3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	X6010B		__200.7				__99
Antimony	X6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	X6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	X6010B		__200.7				__99
Beryllium	X6010B		__200.7				__99
Bismuth	X6010B [1]		__200.7 [1]			__1620	__99
Boron	X6010B		__200.7				__99
Cadmium	X6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	X6010B		__200.7				__99
Chromium	X6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	X6010B		__200.7				__99
Copper	X6010B	__7211 [5]	__200.7	__220.2			__99
Iron	X6010B		__200.7				__99
Lead	X6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	X6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	X6010B		__200.7				__99
Manganese	X6010B		__200.7				__99
Mercury	X7470A [3]	__7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	X6010B		__200.7				__99
Nickel	X6010B		__200.7				__99
Potassium	X6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	X6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	X6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	X6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	X6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	X6010B		__200.7				__99
Thallium	X6010B	__7841 [5]	__200.7	__279.2 __200.9			__99
Tin	X6010B		__200.7				__99
Titanium	__6010B		__200.7				__99
Uranium	X6010B [1]		__200.7 [1]			__1620	__99
Vanadium	X6010B		__200.7				__99
Zinc	X6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

Other: Phosphorous Method: 6010B

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.

L-WI-033/N-04/98

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 10/29/07

CLIENT: TNUHANFORD RC-076 K0991 LVL LOT #: 0710L026

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J15PM7	Silver, Total	1.0	u	UG/L	1.0	1.0
		Aluminum, Total	40.0	u	UG/L	40.0	1.0
		Arsenic, Total	5.0	u	UG/L	5.0	1.0
		Boron, Total	29.7		UG/L	5.0	1.0
		Barium, Total	29.2		UG/L	1.0	1.0
		Beryllium, Total	0.50	u	UG/L	0.50	1.0
		Bismuth, Total	6.0	u	UG/L	6.0	1.0
		Calcium, Total	7020		UG/L	40.0	1.0
		Cadmium, Total	1.0	u	UG/L	1.0	1.0
		Cobalt, Total	2.0	u	UG/L	2.0	1.0
		Chromium, Total	2.0	u	UG/L	2.0	1.0
		Copper, Total	55.6		UG/L	2.0	1.0
		Iron, Total	1980		UG/L	45.0	1.0
		Mercury, Total	0.10	u	UG/L	0.10	1.0
		Potassium, Total	5150		UG/L	40.0	1.0
		Lithium, Total	17.5		UG/L	0.40	1.0
		Magnesium, Total	810		UG/L	25.0	1.0
		Manganese, Total	44.7		UG/L	0.40	1.0
		Molybdenum, Total	3.0	u	UG/L	3.0	1.0
		Sodium, Total	7950		UG/L	20.0	1.0
		Nickel, Total	3.0		UG/L	2.0	1.0
		Phosphorus, Total	50.0	u	UG/L	50.0	1.0
		Lead, Total	26.4		UG/L	3.0	1.0
		Antimony, Total	3.0	u	UG/L	3.0	1.0
		Selenium, Total	6.0	u	UG/L	6.0	1.0
		Silicon, Total	1060		UG/L	40.0	1.0
		Tin, Total	6.0	u	UG/L	6.0	1.0
		Strontium, Total	53.8		UG/L	0.30	1.0
		Thallium, Total	6.0	u	UG/L	6.0	1.0
		Uranium, Total	50.0	u	UG/L	50.0	1.0
		Vanadium, Total	1.4	u	UG/L	1.4	1.0
		Zinc, Total	38.3		UG/L	6.0	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 10/29/07

CLIENT: TNUHANFORD RC-076 K0991 LVL LOT #: 0710L026

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	07L0526-MB1	Silver, Total	1.0	u	UG/L	1.0	1.0
		Aluminum, Total	40.0	u	UG/L	40.0	1.0
		Arsenic, Total	5.0	u	UG/L	5.0	1.0
		Boron, Total	5.0	u	UG/L	5.0	1.0
		Barium, Total	1.0	u	UG/L	1.0	1.0
		Beryllium, Total	0.50	u	UG/L	0.50	1.0
		Bismuth, Total	6.0	u	UG/L	6.0	1.0
		Calcium, Total	40.0	u	UG/L	40.0	1.0
		Cadmium, Total	1.0	u	UG/L	1.0	1.0
		Cobalt, Total	2.0	u	UG/L	2.0	1.0
		Chromium, Total	2.0	u	UG/L	2.0	1.0
		Copper, Total	2.0	u	UG/L	2.0	1.0
		Iron, Total	45.0	u	UG/L	45.0	1.0
		Potassium, Total	40.0	u	UG/L	40.0	1.0
		Lithium, Total	0.40	u	UG/L	0.40	1.0
		Magnesium, Total	25.0	u	UG/L	25.0	1.0
		Manganese, Total	0.40	u	UG/L	0.40	1.0
		Molybdenum, Total	3.0	u	UG/L	3.0	1.0
		Sodium, Total	20.0	u	UG/L	20.0	1.0
		Nickel, Total	2.0	u	UG/L	2.0	1.0
		Phosphorus, Total	50.0	u	UG/L	50.0	1.0
		Lead, Total	3.0	u	UG/L	3.0	1.0
		Antimony, Total	3.0	u	UG/L	3.0	1.0
		Selenium, Total	6.0	u	UG/L	6.0	1.0
		Silicon, Total	52.9		UG/L	40.0	1.0
		Tin, Total	6.0	u	UG/L	6.0	1.0
		Strontium, Total	0.30	u	UG/L	0.30	1.0
		Thallium, Total	6.0	u	UG/L	6.0	1.0
		Uranium, Total	50.0	u	UG/L	50.0	1.0
		Vanadium, Total	1.4	u	UG/L	1.4	1.0
		Zinc, Total	6.0	u	UG/L	6.0	1.0
BLANK1	07C0191-MB1	Mercury, Total	0.10	u	UG/L	0.10	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 10/29/07

CLIENT: TNUHANFORD RC-076 K0991 LVL LOT #: 0710L026

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J15PM7	Silver, Total	50.2	1.0 u	50.0	100.4	1.0
		Silver, Total MSD	51.7	1.0 u	50.0	103.4	1.0
		Aluminum, Total	2020	40.0 u	2000	100.9	1.0
		Aluminum, Total MSD	2060	40.0 u	2000	102.9	1.0
		Arsenic, Total	1980	5.0 u	2000	98.9	1.0
		Arsenic, Total MSD	2030	5.0 u	2000	101.3	1.0
		Boron, Total	1030	29.7	1000	100.2	1.0
		Boron, Total MSD	1050	29.7	1000	102.3	1.0
		Barium, Total	1990	29.2	2000	97.9	1.0
		Barium, Total MSD	2020	29.2	2000	99.6	1.0
		Beryllium, Total	50.2	0.50u	50.0	100.4	1.0
		Beryllium, Total MSD	51.5	0.50u	50.0	103.0	1.0
		Bismuth, Total	2440	6.0 u	2500	97.6	1.0
		Bismuth, Total MSD	2550	6.0 u	2500	101.8	1.0
		Calcium, Total	32400	7020	25000	101.4	1.0
		Calcium, Total MSD	32200	7020	25000	100.9	1.0
		Cadmium, Total	50.6	1.0 u	50.0	101.2	1.0
		Cadmium, Total MSD	51.9	1.0 u	50.0	103.8	1.0
		Cobalt, Total	504	2.0 u	500	100.9	1.0
		Cobalt, Total MSD	517	2.0 u	500	103.5	1.0
		Chromium, Total	203	2.0 u	200	101.6	1.0
		Chromium, Total MSD	208	2.0 u	200	104.2	1.0
		Copper, Total	304	55.6	250	99.5	1.0
		Copper, Total MSD	306	55.6	250	100.1	1.0
		Iron, Total	3110	1980	1000	112.7	1.0
		Iron, Total MSD	3090	1980	1000	110.7	1.0
		Mercury, Total	1.0	0.10u	1.0	100.7	1.0
		Potassium, Total	30200	5150	25000	100.0	1.0
		Potassium, Total MSD	30300	5150	25000	100.5	1.0
		Lithium, Total	1090	17.5	1000	107.2	1.0
		Lithium, Total MSD	1100	17.5	1000	108.3	1.0
		Magnesium, Total	25800	810	25000	100.1	1.0
		Magnesium, Total MSD	26200	810	25000	101.7	1.0
		Manganese, Total	556	44.7	500	102.2	1.0
		Manganese, Total MSD	569	44.7	500	104.8	1.0
		Molybdenum, Total	980	3.0 u	1000	98.0	1.0
		Molybdenum, Total MSD	998	3.0 u	1000	99.8	1.0
		Sodium, Total	31700	7950	25000	94.8	1.0
		Sodium, Total MSD	31700	7950	25000	95.2	1.0
		Nickel, Total	503	3.0	500	100.0	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 10/29/07

CLIENT: TNUHANFORD RC-076 K0991 LVL LOT #: 0710L026

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J15PM7	Nickel, Total MSD	516	3.0	500	102.7	1.0
		Phosphorus, Total	2420	50.0 u	2500	96.9	1.0
		Phosphorus, Total MSD	2450	50.0 u	2500	97.9	1.0
		Lead, Total	528	26.4	500	100.2	1.0
		Lead, Total MSD	540	26.4	500	102.7	1.0
		Antimony, Total	496	3.0 u	500	99.1	1.0
		Antimony, Total MSD	501	3.0 u	500	100.2	1.0
		Selenium, Total	1740	6.0 u	2000	86.8	1.0
		Selenium, Total MSD	1760	6.0 u	2000	88.0	1.0
		Silicon, Total	2030	1060	1000	97.4	1.0
		Silicon, Total MSD	2060	1060	1000	99.8	1.0
		Tin, Total	1010	6.0 u	1000	101.0	1.0
		Tin, Total MSD	1030	6.0 u	1000	102.7	1.0
		Strontium, Total	1040	53.8	1000	99.1	1.0
		Strontium, Total MSD	1060	53.8	1000	100.2	1.0
		Thallium, Total	2000	6.0 u	2000	99.8	1.0
		Thallium, Total MSD	2030	6.0 u	2000	101.6	1.0
		Uranium, Total	2410	50.0 u	2500	96.2	1.0
		Uranium, Total MSD	2430	50.0 u	2500	97.3	1.0
		Vanadium, Total	494	1.4 u	500	98.9	1.0
		Vanadium, Total MSD	506	1.4 u	500	101.1	1.0
		Zinc, Total	534	38.3	500	99.2	1.0
		Zinc, Total MSD	548	38.3	500	102.0	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 10/29/07

CLIENT: TNUHANFORD RC-076 K0991 LVL LOT #: 0710L026

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
-001	J15PM7	Silver, Total	100.4	103.4	2.9
		Aluminum, Total	100.9	102.9	2.0
		Arsenic, Total	98.9	101.3	2.4
		Boron, Total	100.2	102.3	2.1
		Barium, Total	97.9	99.6	1.7
		Beryllium, Total	100.4	103.0	2.6
		Bismuth, Total	97.6	101.8	4.2
		Calcium, Total	101.4	100.9	0.46
		Cadmium, Total	101.2	103.8	2.5
		Cobalt, Total	100.9	103.5	2.5
		Chromium, Total	101.6	104.2	2.6
		Copper, Total	99.5	100.1	0.64
		Iron, Total	112.7	110.7	1.8
		Potassium, Total	100.0	100.5	0.44
		Lithium, Total	107.2	108.3	0.99
		Magnesium, Total	100.1	101.7	1.6
		Manganese, Total	102.2	104.8	2.5
		Molybdenum, Total	98.0	99.8	1.8
		Sodium, Total	94.8	95.2	0.37
		Nickel, Total	100.0	102.7	2.6
		Phosphorus, Total	96.9	97.9	1.1
		Lead, Total	100.2	102.7	2.4
		Antimony, Total	99.1	100.2	1.1
		Selenium, Total	86.8	88.0	1.4
		Silicon, Total	97.4	99.8	2.4
		Tin, Total	101.0	102.7	1.6
		Strontium, Total	99.1	100.2	1.1
		Thallium, Total	99.8	101.6	1.8
		Uranium, Total	96.2	97.3	1.1
		Vanadium, Total	98.9	101.1	2.3
		Zinc, Total	99.2	102.0	2.8

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 10/29/07

CLIENT: TNUHANFORD RC-076 K0991 LVL LOT #: 0710L026

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J15PM7	Silver, Total	1.0 u	1.0 u	NC	1.0
		Aluminum, Total	40.0 u	40.0 u	NC	1.0
		Arsenic, Total	5.0 u	5.0 u	NC	1.0
		Boron, Total	29.7	26.8	10.3	1.0
		Barium, Total	29.2	29.0	0.69	1.0
		Beryllium, Total	0.50u	0.50u	NC	1.0
		Bismuth, Total	6.0 u	6.0 u	NC	1.0
		Calcium, Total	7020	7030	0.15	1.0
		Cadmium, Total	1.0 u	1.0 u	NC	1.0
		Cobalt, Total	2.0 u	2.0 u	NC	1.0
		Chromium, Total	2.0 u	2.0 u	NC	1.0
		Copper, Total	55.6	54.9	1.3	1.0
		Iron, Total	1980	1990	0.32	1.0
		Mercury, Total	0.10u	0.10u	NC	1.0
		Potassium, Total	5150	5090	1.1	1.0
		Lithium, Total	17.5	17.6	0.57	1.0
		Magnesium, Total	810	813	0.38	1.0
		Manganese, Total	44.7	44.7	0.00	1.0
		Molybdenum, Total	3.0 u	3.0 u	NC	1.0
		Sodium, Total	7950	7930	0.29	1.0
		Nickel, Total	3.0	3.4	12.5	1.0
		Phosphorus, Total	50.0 u	50.0 u	NC	1.0
		Lead, Total	26.4	25.9	1.9	1.0
		Antimony, Total	3.0 u	3.0 u	NC	1.0
		Selenium, Total	6.0 u	6.0 u	NC	1.0
		Silicon, Total	1060	1080	1.9	1.0
		Tin, Total	6.0 u	6.0 u	NC	1.0
		Strontium, Total	53.8	53.7	0.19	1.0
		Thallium, Total	6.0 u	6.0 u	NC	1.0
		Uranium, Total	50.0 u	50.0 u	NC	1.0
		Vanadium, Total	1.4 u	1.4 u	NC	1.0
		Zinc, Total	38.3	36.0	6.2	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 10/29/07

CLIENT: TNUHANFORD RC-076 K0991 LVL LOT #: 0710L026

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	07L0526-LC1	Silver, LCS	498	500	UG/L	99.5
		Aluminum, LCS	4950	5000	UG/L	99.1
		Arsenic, LCS	9990	10000	UG/L	99.9
		Boron, LCS	5000	5000	UG/L	99.9
		Barium, LCS	4820	5000	UG/L	96.5
		Beryllium, LCS	258	250	UG/L	103.4
		Bismuth, LCS	2520	2500	UG/L	100.6
		Calcium, LCS	25100	25000	UG/L	100.6
		Cadmium, LCS	260	250	UG/L	104.0
		Cobalt, LCS	2580	2500	UG/L	103.3
		Chromium, LCS	513	500	UG/L	102.6
		Copper, LCS	1210	1250	UG/L	96.9
		Iron, LCS	5090	5000	UG/L	101.9
		Potassium, LCS	25000	25000	UG/L	100.2
		Lithium, LCS	5200	5000	UG/L	104.0
		Magnesium, LCS	25200	25000	UG/L	100.8
		Manganese, LCS	776	750	UG/L	103.5
		Molybdenum, LCS	4970	5000	UG/L	99.4
		Sodium, LCS	24000	25000	UG/L	96.0
		Nickel, LCS	2060	2000	UG/L	103.1
		Phosphorus, LCS	2310	2500	UG/L	92.5
		Lead, LCS	2600	2500	UG/L	103.8
		Antimony, LCS	2980	3000	UG/L	99.4
		Selenium, LCS	10000	10000	UG/L	100.1
		Silicon, LCS	4810	5000	UG/L	96.1
		Tin, LCS	5250	5000	UG/L	105.0
		Strontium, LCS	4890	5000	UG/L	97.8
		Thallium, LCS	10100	10000	UG/L	101.1
		Uranium, LCS	2360	2500	UG/L	94.4
		Vanadium, LCS	2510	2500	UG/L	100.3
		Zinc, LCS	1020	1000	UG/L	102.3
LCS1	07C0191-LC1	Mercury, LCS	5.4	5.0	UG/L	107.4

Lionville Laboratory Use Only

07/0L026

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

Client: INU HANFORD SAF# RC-076

Est. Final Proj. Sampling Date

Project# 11343-606-001-9999-00

Project Contact/Phone#

Lionville Laboratory Project Manager: O Johnson

PO# SW846 Del STD TAT 15 days

Date Rec'd 10-10-07 Date Due 10-31-07

		A	B													
Refrigerator #										3	3					
#/Type Container	Liquid									1G	1G					
	Solid															
Volume										L	L					
Preservatives										HNO3+NaOH						
ANALYSES REQUESTED		ORGANIC								INORG						
		VOA	BNA	Pest/PCB	Herb					Metal NP	CN	TSS Sulf	IC Anions	PH		

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only												
															M*①	ICNTO	TSS SFD	CBR HCL	CFL CN OH	ICSO4 ICPO4	PH
	001	I15PM7	✓	✓	W	10/8/07	0951								X	X	X	X	X	X	X

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

Special Instructions: M*① = HSL + B, Ba, Li, Mo, P, Si, Sr, Sn, U

Special Instructions:
1. Samples not Field Preserved
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	10/10/07	0925

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-076-022	Page 1 of 1

Collector: D.W. Shea/Subcontractor sampler (J. Caldwell	Company Contact: D.W.Shea	Telephone No.: 521-6014	Project Coordinator: KESSNER, JH
Price Code: 7K	Data Turnaround: 15 days		
Project Designation: 100-D/DR Burial Grounds&Remaining Sites - Aqueous Liqu	Sampling Location: 118-D-3, water from adjacent pipe		SAF No.: RC-076
Ice Chest No.: SML-412	Field Logbook No.: EL-1607-2	COA: R118D32600	Method of Shipment: 10/9/07 ~~company vehicle~~ DWShea Fed Ex
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A080042		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

~~Potentially radioactive~~ DWShea 10/8/07

Special Handling and/or Storage

Preservation	HNO3 to pH <2	Cool 4C	NaOH to pH >= 12 Cool 4C	ZnAc+NaOH to pH >9 Cool	Cool 4C	HNO3 to pH <2	HNO3 to pH <2			
Type of Container	G/P	G/P	G/P	G/P	P	G/P	G/P			
No. of Container(s)	1	0 ~~1~~ DWS	1	0 ~~1~~ DWS	0 ~~1~~ DWS	1	0 ~~1~~ DWS			
Volume	~~250mL~~ 1000mL	250mL	~~500mL~~ 1000mL	125mL	125mL	125mL	500mL			
SAMPLE ANALYSIS	See item (1) in Special Instructions	TSS - 160.2	Total Cyanide - 9010	Sulfides - 9030	IC Anions - 300.0, pH (Water) - 9040	Gamma Spectroscopy (TCL List)	Gross Alpha: Gross Beta			
Sample No. / Matrix * / Sample Date / Sample Time										
J15PM7 / WATER / 10/8/07 / 0951	✓	✓	✓	✓	✓	DWShea 10/8/07				

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Jon Caldwell (SEC)	10/8/07 0955	DWShea DWSHEA	10/8/07 0955
Relinquished By/Removed From	DWShea DWShea	10/8/07 1417	Fridge 3A	10/8/07 1417
Relinquished By/Removed From	Fridge 3A	10-9-07 0930	KMSingleton	10-9-07 0930
Relinquished By/Removed From	KMSingleton	10-9-07 1500	FED EX	
Relinquished By/Removed From	Fed Ex	10-10-07 0925	[illegible]	10-10-07 0925
Relinquished By/Removed From			Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Client List) [Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc] and Hg DWS 10/4/07

note: samples not field preserved other than cooling

Sampler unavailable to relinquish samples from 3728 Ref # 3A. 3728 Custodian removed samples for shipping on 10 19 07

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

NCH-EE-011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

Project/SAF/SOW/Release #: RC-076

Date: 10/

LvLI Batch #: 0708L 026

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7987 8176 7629
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 plastic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 3.3 °C		Cooler # 5ML-412
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 Labels Indicate Preserved. see B	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☑ No Samples not field Preserved COC	
12. Samples received within hold times?	☐ Yes	☑ No PH	
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 [illegible]		Date 10-10-07	

LvLI

00000000020

onville Laboratory
corporated

MERCURY PREPARATION

Logbook # 0326

alyst: TCB
te 10/18/07
rt Time/Temp: 1305 | 93°
d Time/Temp: 1505 | 92°

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

Prep Batch: 07C0191
Worksheet: HG101901
OP 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	TR			33mL	33mL	
0.2 µg/L	DR	0.0667				
1.0	IC	0.334				
2.0	A1R	0.667				
5.0	XO	1.667				
10.0	27	3.334				
ICV	C7	0.0834	2.5			
CCV	A901	0.167	5.0			
ICB/CCB	PT/P13					
MBI	CYD					PBW191
LCI	PI	0.167	5.0			LCSW191
0710L026-001	95					
001R	I4					
001S	J1	0.334	1.0			
0710L001-001	U3			0.33mL		dil due to matrix
001R	OLN					Redigest from 07C0185
001S	SH	0.334	100.00			

TCB 10/18/07

Standard:	ID	Prep Date/Time
CAL/MS	RI 6072-75-07B	10/18/07 1040
CV/CCV/LCS	US 6072-75-08A	

Reviewed By/Date: [signature] 10/19/07

see book # 9768 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

ME-HgCVAA-Prep1007

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SAMPLE DIGESTION RECORD

Digestion Batch #: 07L0526
Date/Time Initiated: 10/15/07 8:00AM
Date/Time Completed: 10/15/07 11:45AM
Analyst(s): MW/KMC
Matrix: Soil (Water) Other:
Instr. Type: AA (ICP)
Parameters: see backlog

(Digested) / Undigested (circle one)
Balance #: B29
Balance Cal Verif: (Y) NA
Hot Plate Temp: 91°

SOP: L-SPI-3020 Rev. 00

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

TNU

COC Batch #	Spike Vol(s) (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/So/TC	Texture	Color/Appearance	Artifact	Turb
07L0526-001		100mL	100mL	(Y)	TO	N/A	clear	N/A	N/A
-001R									
☆ -001S	1.0mL								
☆ -001T	1.0mL								
07L0526-MB1							clear/colorless		
☆ -LC1	1.0mL								

10/15/07

KMC

Spiking IDs: 8100-04-01
MS #: 8100-04-02
8100-04-03
8072-077-01
LCS #: 8072-077-02
8072-077-03
8072-077-04
8072-077-05

Reagent IDs:
HNO_3 E11023
HCL E21053
H_2O_2
1:1 HNO_3
1:1 HCL

File ID#: IC052601
LIMS Transfer: (Y) N Updated
Data Review By/Date: PMP, 10/15/07

☆ ~~Ag~~ KMC WE 10/15/07
Also 0.25mL Bi - 8072-076-06
P - 8072-071-02
Y 8072-008-15

L-SPI-3020-A-0601