0078368

SAF-RC-088
618-7 Burial Ground – Other Liquids
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Rick Kerkow	L6-06	KW 6/18/08 Initials/Date
Kathy Wendt	H4-21	KW 6/18/08 Initials/Date

COMMENTS:

SDG K1214 SAF-RC-088

Rad only Chem only X Rad & Chem

X Complete Partial

WASTE SITE: 618-7 Burial Ground (drums)

RECEIVED
JUL 07 2008
EDMC

EBERLINE SERVICES

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

May 22, 2008

RECEIVED
MAY 2008

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

Reference: **P.O. #S00W235A00**
Eberline Services R8-05-051-7812, SDG K1214

Dear Ms. Kessner:

Enclosed is the data report for three liquid (other liquid) samples designated under SAF No. RC-088 received at Eberline Services on May 6, 2008. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa Mannion

Melissa C. Mannion
Senior Program Manager

MCM/njv

Enclosure: Data Package

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K1214 was composed of three liquid (other liquid) samples designated under SAF No. RC-088 with a Project Designation of: 618-7 Burial Grounds-Other Liquids.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to WCH via e-mail on May 20, 2008.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analysis

The gross alpha QC LCS recovery was 132%, greater than the upper control limit of 130%. No other problems were encountered during the course of the analysis.

2.2 Total Strontium Analysis

No problems were encountered during the course of the analyses.

2.3 Isotopic Thorium Analysis

No problems were encountered during the course of the analyses.

2.4 Isotopic Uranium Analysis

No problems were encountered during the course of the analyses.

2.5 Isotopic Plutonium Analysis

No problems were encountered during the course of the analyses.

2.6 Americium-241 Analysis

No problems were encountered during the course of the analyses.

2.7 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

05/22/08
Date

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP K1214

SDG	7812
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. S00W235A00
Case no	SDG_K1214

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

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

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Prepared by

Melissa Mannion

Reviewed by

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	05/20/08

SDG 7812
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1214

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 05/20/08

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

SDG 7812
Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1214

AB AMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
805051-01	J16M70	618-7 BurialGrnd (drums)	LIQUID		RC-088	RC-088-016	04/29/08 10:20
805051-02	J16M71	618-7 BurialGrnd (drums)	LIQUID		RC-088	RC-088-017	04/29/08 12:30
805051-03	J16M72	618-7 BurialGrnd (drums)	LIQUID		RC-088	RC-088-017	04/30/08 14:00
805051-04	Lab Control Sample		LIQUID		RC-088		
805051-05	Method Blank		LIQUID		RC-088		
805051-06	Duplicate (R805051-01)	618-7 BurialGrnd (drums)	LIQUID		RC-088		04/29/08 10:20

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

SDG 7812
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1214

BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
2	RC-088-016	J16M70	LIQUID		521 mL		05/06/08	7	R805051-01	7812-001
	RC-088-017	J16M71	LIQUID		509 mL		05/06/08	7	R805051-02	7812-002
		J16M72	LIQUID		321 mL		05/06/08	6	R805051-03	7812-003
		Method Blank	LIQUID						R805051-05	7812-005
		Lab Control Sample	LIQUID						R805051-04	7812-004
		Duplicate (R805051-01)	LIQUID		521 mL		05/06/08	7	R805051-06	7812-006

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

SDG 7812
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1214

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
AM	LIQUID	Americium 241 in Liquid	6148-115	8.0	3			1	1	1/1		
PU	LIQUID	Plutonium-238,239/240, Liquid	6148-115	8.0	3			1	1	1/1		
TH	LIQUID	Thorium, Isotopic in Liquid	6148-115	8.0	3			1	1	1/1		
U	LIQUID	Uranium in Liquid	6148-115	8.0	3			1	1	1/1		
Beta Counting												
SR	LIQUID	Total Strontium in Liquids	6148-115	10.4	3			1	1	1/1		
Gas Proportional Counting												
93A	LIQUID	Gross Alpha in Liquid	6148-115	20.6	3			1	1	1/1		
93B	LIQUID	Gross Beta in Liquid	6148-115	11.0	3			1	1	1/1		
Gamma Spectroscopy												
GAM	LIQUID	Gamma Scan in Liquid	6148-115	7.0	3			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 05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

SDG 7812
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1214

SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
5051-01	J16M70			7812-001	93A/93		05/16/08	05/19/08	BW	Gross Alpha in Liquid
04/29/08	618-7 BurialGrnd (drums)		LIQUID	7812-001	93B/93		05/16/08	05/16/08	BW	Gross Beta in Liquid
05/06/08	RC-088-016	RC-088		7812-001	AM		05/14/08	05/15/08	BW	Americium 241 in Liquid
				7812-001	GAM		05/08/08	05/12/08	CSS	Gamma Scan in Liquid
				7812-001	PU		05/14/08	05/15/08	BW	Plutonium-238,239/240, Liquid
				7812-001	SR		05/10/08	05/13/08	BW	Total Strontium in Liquids
				7812-001	TH		05/13/08	05/19/08	BW	Thorium, Isotopic in Liquid
				7812-001	U		05/10/08	05/12/08	BW	Uranium in Liquid
5051-02	J16M71			7812-002	93A/93		05/17/08	05/19/08	BW	Gross Alpha in Liquid
04/29/08	618-7 BurialGrnd (drums)		LIQUID	7812-002	93B/93		05/17/08	05/19/08	BW	Gross Beta in Liquid
05/06/08	RC-088-017	RC-088		7812-002	AM		05/14/08	05/15/08	BW	Americium 241 in Liquid
				7812-002	GAM		05/08/08	05/12/08	CSS	Gamma Scan in Liquid
				7812-002	PU		05/14/08	05/15/08	BW	Plutonium-238,239/240, Liquid
				7812-002	SR		05/10/08	05/13/08	BW	Total Strontium in Liquids
				7812-002	TH		05/13/08	05/19/08	BW	Thorium, Isotopic in Liquid
				7812-002	U		05/10/08	05/12/08	BW	Uranium in Liquid
5051-03	J16M72			7812-003	93A/93		05/16/08	05/19/08	BW	Gross Alpha in Liquid
04/30/08	618-7 BurialGrnd (drums)		LIQUID	7812-003	93B/93		05/16/08	05/16/08	BW	Gross Beta in Liquid
05/06/08	RC-088-017	RC-088		7812-003	AM		05/14/08	05/15/08	BW	Americium 241 in Liquid
				7812-003	GAM		05/08/08	05/12/08	CSS	Gamma Scan in Liquid
				7812-003	PU		05/14/08	05/15/08	BW	Plutonium-238,239/240, Liquid
				7812-003	SR		05/10/08	05/13/08	BW	Total Strontium in Liquids
				7812-003	TH		05/13/08	05/19/08	BW	Thorium, Isotopic in Liquid
				7812-003	U		05/10/08	05/12/08	BW	Uranium in Liquid
5051-04	Lab Control Sample			7812-004	93A/93		05/16/08	05/19/08	BW	Gross Alpha in Liquid
			LIQUID	7812-004	93B/93		05/16/08	05/16/08	BW	Gross Beta in Liquid
		RC-088		7812-004	AM		05/14/08	05/15/08	BW	Americium 241 in Liquid
				7812-004	GAM		05/08/08	05/12/08	CSS	Gamma Scan in Liquid
				7812-004	PU		05/14/08	05/15/08	BW	Plutonium-238,239/240, Liquid
				7812-004	SR		05/10/08	05/13/08	BW	Total Strontium in Liquids
				7812-004	TH		05/13/08	05/19/08	BW	Thorium, Isotopic in Liquid
				7812-004	U		05/10/08	05/12/08	BW	Uranium in Liquid

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

SDG 7812
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1214

SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
5051-05	Method Blank			7812-005	93A/93		05/16/08	05/19/08	BW	Gross Alpha in Liquid
			LIQUID	7812-005	93B/93		05/16/08	05/16/08	BW	Gross Beta in Liquid
		RC-088		7812-005	AM		05/14/08	05/15/08	BW	Americium 241 in Liquid
				7812-005	GAM		05/08/08	05/12/08	CSS	Gamma Scan in Liquid
				7812-005	PU		05/14/08	05/15/08	BW	Plutonium-238,239/240, Liquid
				7812-005	SR		05/10/08	05/13/08	BW	Total Strontium in Liquids
				7812-005	TH		05/14/08	05/19/08	BW	Thorium, Isotopic in Liquid
				7812-005	U		05/10/08	05/12/08	BW	Uranium in Liquid
5051-06	Duplicate (R805051-01)			7812-006	93A/93		05/16/08	05/19/08	BW	Gross Alpha in Liquid
04/29/08	618-7 BurialGrnd (drums)		LIQUID	7812-006	93B/93		05/16/08	05/16/08	BW	Gross Beta in Liquid
05/06/08		RC-088		7812-006	AM		05/14/08	05/15/08	BW	Americium 241 in Liquid
				7812-006	GAM		05/09/08	05/12/08	CSS	Gamma Scan in Liquid
				7812-006	PU		05/14/08	05/15/08	BW	Plutonium-238,239/240, Liquid
				7812-006	SR		05/10/08	05/13/08	BW	Total Strontium in Liquids
				7812-006	TH		05/13/08	05/19/08	BW	Thorium, Isotopic in Liquid
				7812-006	U		05/10/08	05/12/08	BW	Uranium in Liquid

COUNTS OF TESTS BY SAMPLE TYPE

EST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
A/93	RC-088	Gross Alpha in Liquid	900.0_ALPHABETA_GPC	3			1	1	1	6
B/93	RC-088	Gross Beta in Liquid	900.0_ALPHABETA_GPC	3			1	1	1	6
1	RC-088	Americium 241 in Liquid	AMCMISO_IE_PLATE_AEA	3			1	1	1	6
M	RC-088	Gamma Scan in Liquid	GAMMA_GS	3			1	1	1	6
U	RC-088	Plutonium-238,239/240, Liquid	PUISO_PLATE_AEA	3			1	1	1	6
R	RC-088	Total Strontium in Liquids	SRTOT_SEP_PRECIP_GPC	3			1	1	1	6
H	RC-088	Thorium, Isotopic in Liquid	THISO_IE_PLATE_AEA	3			1	1	1	6
	RC-088	Uranium in Liquid	UISO_PLATE_AEA	3			1	1	1	6
TALS				24			8	8	8	48

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

7812-005 Method Blank

METHOD BLANK

SDG	7812	Client/Case no	Hanford	SDG K1214	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R805051-05	Client sample id	Method Blank		
Dept sample id	7812-005	Material/Matrix		LIQUID	
		SAF No	RC-088		

ANALYTE	CAS NO	RESULT pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-0.481	2.7	6.27	10.0	U	93A
Gross Beta	12587-47-2	-0.211	3.5	6.00	15.0	U	93B
Total Strontium	SR-RAD	-0.052	0.15	0.221	1.00	U	SR
Americium 241	14596-10-2	0	0.20	0.376	1.00	U	AM
Thorium 228	14274-82-9	-0.080	0.16	0.442	1.00	U	TH
Thorium 230	14269-63-7	-0.040	0.24	0.382	1.00	U	TH
Thorium 232	TH-232	-0.040	0.080	0.305	1.00	U	TH
Uranium 233/234	U-233/234	0.025	0.051	0.193	1.00	U	U
Uranium 235	15117-96-1	0	0.061	0.234	1.00	U	U
Uranium 238	U-238	0	0.051	0.193	1.00	U	U
Plutonium 238	13981-16-3	0	0.059	0.225	1.00	U	PU
Plutonium 239/240	PU-239/240	0.029	0.059	0.225	1.00	U	PU
Potassium 40	13966-00-2	U		1.28		U	GAM
Cobalt 60	10198-40-0	U		0.048	0.050	U	GAM
Cesium 137	10045-97-3	U		0.053	0.050	U	GAM
Radium 226	13982-63-3	U		0.103	0.100	U	GAM
Radium 228	15262-20-1	U		0.230	0.200	U	GAM
Europium 152	14683-23-9	U		0.138	0.100	U	GAM
Europium 154	15585-10-1	U		0.139	0.100	U	GAM
Europium 155	14391-16-3	U		0.123	0.100	U	GAM
Thorium 228	14274-82-9	U		0.074		U	GAM
Thorium 232	TH-232	U		0.230		U	GAM
Uranium 235	15117-96-1	U		0.213		U	GAM
Uranium 238	U-238	U		5.36		U	GAM
Americium 241	14596-10-2	U		0.191		U	GAM

618-7 Burial Ground-Other Liquid

QC-BLANK #65627

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

7812-004

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7812

Contact Melissa C. Mannion

Client/Case no Hanford SDG K1214

Contract No. S00W235A00

Lab sample id R805051-04

Dept sample id 7812-004

Client sample id Lab Control Sample

Material/Matrix LIQUID

SAF No RC-088

ANALYTE	RESULT pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST	ADDED pCi/mL	2σ ERR pCi/mL	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	148	20	9.84	10.0		93A	112	4.5	132	51-149	70-130
Gross Beta	102	8.0	6.13	15.0		93B	112	4.5	91	81-119	70-130
Total Strontium	11.0	0.60	0.250	1.00		SR	10.3	0.41	107	80-120	80-120
Americium 241	27.0	3.0	0.464	1.00		AM	28.0	1.1	96	79-121	80-120
Thorium 230	54.7	5.8	0.401	1.00		TH	52.0	2.1	105	78-122	80-120
Uranium 233/234	21.9	2.9	1.41	1.00		U	24.2	0.97	90	78-122	80-120
Uranium 235	19.6	2.7	0.395	1.00		U	19.6	0.78	100	75-125	80-120
Uranium 238	21.9	2.9	1.35	1.00		U	26.2	1.0	84	80-120	80-120
Plutonium 238	33.6	3.7	0.341	1.00		PU	32.2	1.3	104	78-122	80-120
Plutonium 239/240	37.1	4.0	0.341	1.00		PU	36.2	1.4	102	79-121	80-120
Cobalt 60	2.71	0.10	0.046	0.050		GAM	2.54	0.10	107	86-114	80-120
Cesium 137	3.06	0.087	0.058	0.050		GAM	2.81	0.11	109	86-114	80-120

618-7 Burial Ground-Other Liquid

QC-LCS #65626

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

7812-006 J16M70

DUPLICATE

SDG 7812
Contact Melissa C. Mannion

Client/Case no Hanford SDG K1214
Contract No. S00W235A00

DUPLICATE
Lab sample id R805051-06
Dept sample id 7812-006

ORIGINAL
Lab sample id R805051-01
Dept sample id 7812-001
Received 05/06/08

Client sample id J16M70
Location/Matrix 618-7 BurialGrnd (drums) LIQUID
Collected/Volume 04/29/08 10:20 521 mL
Custody/SAF No RC-088-016 RC-088

ANALYTE	DUPLICATE pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST	ORIGINAL pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	QUALI-FIERS	RPD %	3σ TOT	DER σ
Gross Alpha	0.077	1.1	2.21	10.0	U	93A	0.285	1.0	1.98	U	-		0.3
Gross Beta	1.82	5.0	8.11	15.0	U	93B	-0.294	2.8	4.86	U	-		0.7
Total Strontium	0.027	0.13	0.238	1.00	U	SR	0.031	0.12	0.246	U	-		0
Americium 241	0.042	0.17	0.399	1.00	U	AM	0.103	0.21	0.327	U	-		0.5
Thorium 228	0.033	0.066	0.106	1.00	U	TH	-0.065	0.065	0.248	U	-		2.1
Thorium 230	-0.059	0.091	0.204	1.00	U	TH	-0.097	0.13	0.248	U	-		0.5
Thorium 232	0.007	0.026	0.050	1.00	U	TH	-0.032	0.065	0.248	U	-		1.1
Uranium 233/234	0.115	0.077	0.147	1.00	U	U	0.114	0.077	0.146	U	-		0
Uranium 235	0.023	0.047	0.178	1.00	U	U	0.023	0.046	0.177	U	-		0
Uranium 238	0.096	0.077	0.147	1.00	U	U	0.076	0.076	0.146	U	-		0.4
Plutonium 238	0.024	0.048	0.184	1.00	U	PU	-0.084	0.11	0.344	U	-		1.8
Plutonium 239/240	0	0.048	0.184	1.00	U	PU	-0.028	0.056	0.214	U	-		0.8
Potassium 40	U		1.96		U	GAM	U		1.45	U	-		0.4
Cobalt 60	U		0.065	0.050	U	GAM	U		0.054	U	-		0.3
Cesium 137	U		0.082	0.050	U	GAM	U		0.055	U	-		0.5
Radium 226	U		0.175	0.100	U	GAM	U		0.122	U	-		0.5
Radium 228	U		0.364	0.200	U	GAM	U		0.253	U	-		0.5
Europium 152	U		0.219	0.100	U	GAM	U		0.155	U	-		0.5
Europium 154	U		0.243	0.100	U	GAM	U		0.172	U	-		0.5
Europium 155	U		0.161	0.100	U	GAM	U		0.114	U	-		0.5
Thorium 228	U		0.118		U	GAM	U		0.083	U	-		0.5
Thorium 232	U		0.364		U	GAM	U		0.253	U	-		0.5
Uranium 235	U		0.302		U	GAM	U		0.210	U	-		0.5
Uranium 238	U		8.93		U	GAM	U		6.54	U	-		0.4
Americium 241	U		0.164		U	GAM	U		0.114	U	-		0.5

618-7 Burial Ground-Other Liquid

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

7812-006 J16M70

DUPLICATE, cont.

SDG	7812			Client/Case no	Hanford SDG K1214
Contact	Melissa C. Mannion			Contract	No. S00W235A00
	DUPLICATE		ORIGINAL		
Lab sample id	R805051-06	Lab sample id	R805051-01	Client sample id	J16M70
Dept sample id	7812-006	Dept sample id	7812-001	Location/Matrix	618-7 BurialGrnd (drums) LIQUID
		Received	05/06/08	Collected/Volume	04/29/08 10:20 521 mL
				Custody/SAF No	RC-088-016 RC-088

QC-DUP#1 65628

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

7812-001 J16M70

DATA SHEET

SDG	7812	Client/Case no	Hanford SDG K1214
Contact	Melissa C. Mannion	Contract	No. S00W235A00
Lab sample id	R805051-01	Client sample id	J16M70
Dept sample id	7812-001	Location/Matrix	618-7 BurialGrnd (drums) LIQUID
Received	05/06/08	Collected/Volume	04/29/08 10:20 521 mL
		Custody/SAF No	RC-088-016 RC-088

ANALYTE	CAS NO	RESULT pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.285	1.0	1.98	10.0	U	93A
Gross Beta	12587-47-2	-0.294	2.8	4.86	15.0	U	93B
Total Strontium	SR-RAD	0.031	0.12	0.246	1.00	U	SR
Americium 241	14596-10-2	0.103	0.21	0.327	1.00	U	AM
Thorium 228	14274-82-9	-0.065	0.065	0.248	1.00	U	TH
Thorium 230	14269-63-7	-0.097	0.13	0.248	1.00	U	TH
Thorium 232	TH-232	-0.032	0.065	0.248	1.00	U	TH
Uranium 233/234	U-233/234	0.114	0.077	0.146	1.00	U	U
Uranium 235	15117-96-1	0.023	0.046	0.177	1.00	U	U
Uranium 238	U-238	0.076	0.076	0.146	1.00	U	U
Plutonium 238	13981-16-3	-0.084	0.11	0.344	1.00	U	PU
Plutonium 239/240	PU-239/240	-0.028	0.056	0.214	1.00	U	PU
Potassium 40	13966-00-2	U		1.45		U	GAM
Cobalt 60	10198-40-0	U		0.054	0.050	U	GAM
Cesium 137	10045-97-3	U		0.055	0.050	U	GAM
Radium 226	13982-63-3	U		0.122	0.100	U	GAM
Radium 228	15262-20-1	U		0.253	0.200	U	GAM
Europium 152	14683-23-9	U		0.155	0.100	U	GAM
Europium 154	15585-10-1	U		0.172	0.100	U	GAM
Europium 155	14391-16-3	U		0.114	0.100	U	GAM
Thorium 228	14274-82-9	U		0.083		U	GAM
Thorium 232	TH-232	U		0.253		U	GAM
Uranium 235	15117-96-1	U		0.210		U	GAM
Uranium 238	U-238	U		6.54		U	GAM
Americium 241	14596-10-2	U		0.114		U	GAM

618-7 Burial Ground-Other Liquid

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

7812-002 **J16M71**

DATA SHEET

SDG	7812	Client/Case no	Hanford SDG K1214
Contact	Melissa C. Mannion	Contract	No. S00W235A00
Lab sample id	R805051-02	Client sample id	J16M71
Dept sample id	7812-002	Location/Matrix	618-7 BurialGrnd (drums) LIQUID
Received	05/06/08	Collected/Volume	04/29/08 12:30 509 mL
		Custody/SAF No	RC-088-017 RC-088

ANALYTE	CAS NO	RESULT pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-1.03	1.5	3.41	10.0	U	93A
Gross Beta	12587-47-2	0.118	3.5	5.92	15.0	U	93B
Total Strontium	SR-RAD	-0.031	0.13	0.272	1.00	U	SR
Americium 241	14596-10-2	0	0.20	0.386	1.00	U	AM
Thorium 228	14274-82-9	0	0.20	0.366	1.00	U	TH
Thorium 230	14269-63-7	-0.066	0.13	0.253	1.00	U	TH
Thorium 232	TH-232	0	0.066	0.253	1.00	U	TH
Uranium 233/234	U-233/234	0.027	0.053	0.203	1.00	U	U
Uranium 235	15117-96-1	0	0.064	0.246	1.00	U	U
Uranium 238	U-238	0	0.053	0.203	1.00	U	U
Plutonium 238	13981-16-3	0.062	0.12	0.294	1.00	U	PU
Plutonium 239/240	PU-239/240	0.061	0.062	0.235	1.00	U	PU
Potassium 40	13966-00-2	U		0.679		U	GAM
Cobalt 60	10198-40-0	U		0.037	0.050	U	GAM
Cesium 137	10045-97-3	U		0.038	0.050	U	GAM
Radium 226	13982-63-3	U		0.068	0.100	U	GAM
Radium 228	15262-20-1	U		0.227	0.200	U	GAM
Europium 152	14683-23-9	U		0.095	0.100	U	GAM
Europium 154	15585-10-1	U		0.110	0.100	U	GAM
Europium 155	14391-16-3	U		0.081	0.100	U	GAM
Thorium 228	14274-82-9	U		0.056		U	GAM
Thorium 232	TH-232	U		0.227		U	GAM
Uranium 235	15117-96-1	U		0.135		U	GAM
Uranium 238	U-238	U		4.18		U	GAM
Americium 241	14596-10-2	U		0.150		U	GAM

618-7 Burial Ground-Other Liquid

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

7812-003 J16M72

DATA SHEET

SDG	7812	Client/Case no	Hanford	SDG_K1214	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R805051-03	Client sample id	J16M72		
Dept sample id	7812-003	Location/Matrix	618-7 BurialGrnd (drums)	LIQUID	
Received	05/06/08	Collected/Volume	04/30/08 14:00	321 mL	
		Custody/SAF No	RC-088-017	RC-088	

ANALYTE	CAS NO	RESULT pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	1.97	1.6	2.22	10.0	U	93A
Gross Beta	12587-47-2	-0.635	3.6	6.06	15.0	U	93B
Total Strontium	SR-RAD	-0.050	0.10	0.225	1.00	U	SR
Americium 241	14596-10-2	0	0.17	0.353	1.00	U	AM
Thorium 228	14274-82-9	0	0.085	0.325	1.00	U	TH
Thorium 230	14269-63-7	0	0.17	0.406	1.00	U	TH
Thorium 232	TH-232	0.042	0.085	0.324	1.00	U	TH
Uranium 233/234	U-233/234	0.711	0.24	0.151	1.00		U
Uranium 235	15117-96-1	0.024	0.048	0.183	1.00	U	U
Uranium 238	U-238	0.514	0.20	0.151	1.00		U
Plutonium 238	13981-16-3	0	0.054	0.206	1.00	U	PU
Plutonium 239/240	PU-239/240	0	0.054	0.205	1.00	U	PU
Potassium 40	13966-00-2	U		1.84		U	GAM
Cobalt 60	10198-40-0	U		0.066	0.050	U	GAM
Cesium 137	10045-97-3	U		0.069	0.050	U	GAM
Radium 226	13982-63-3	U		0.150	0.100	U	GAM
Radium 228	15262-20-1	U		0.299	0.200	U	GAM
Europium 152	14683-23-9	U		0.178	0.100	U	GAM
Europium 154	15585-10-1	U		0.209	0.100	U	GAM
Europium 155	14391-16-3	U		0.146	0.100	U	GAM
Thorium 228	14274-82-9	U		0.112		U	GAM
Thorium 232	TH-232	U		0.299		U	GAM
Uranium 235	15117-96-1	U		0.274		U	GAM
Uranium 238	U-238	U		8.19		U	GAM
Americium 241	14596-10-2	U		0.061		U	GAM

618-7 Burial Ground-Other Liquid

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

Test AM Matrix LIQUID
SDG 7812
Contact Melissa C. Mannion

LAB METHOD SUMMARY

AMERICIUM 241 IN LIQUID

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1214

SULTS

PLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Americium 241
paration batch 6148-115					
5051-01			7812-001	J16M70	U
5051-02			7812-002	J16M71	U
5051-03			7812-003	J16M72	U
5051-04			7812-004	Lab Control Sample	ok
5051-05			7812-005	Method Blank	U
5051-06			7812-006	Duplicate (R805051-01)	- U

nal values and limits from method RDLs (pCi/mL) 1.00
-7 Burial Ground-Other Liquid

THOD PERFORMANCE

PLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
paration batch 6148-115			2σ prep error 8.0 % Reference Lab Notebook #6148, pg. 115													
5051-01			J16M70	0.327	0.529			60		108			15	05/14/08	05/14	SS-033
5051-02			J16M71	0.386	0.495			52		108			15	05/14/08	05/14	SS-034
5051-03			J16M72	0.353	0.595			65		107			14	05/14/08	05/14	SS-035
5051-04			Lab Control Sample	0.464	0.400			62		107				05/14/08	05/14	SS-036
5051-05			Method Blank	0.376	0.400			54		107				05/14/08	05/14	SS-037
5051-06			Duplicate (R805051-01)	0.399	0.529			51		107			15	05/14/08	05/14	SS-038
nal values and limits from method				1.00	0.400			20-105		50	100		180			

OCEDURES	REFERENCE	AMCMISO_IE_PLATE_AEA
	CP-040	Environmental Water Dissolution, rev 9
	CP-963	Americium and Curium in Water and Dissolved Samples by Extraction Chromatography, rev 6
	CP-008	Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 0.384 ± 0.093
YIELD 57 ± 12

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

Test PU Matrix LIQUID
SDG 7812
:ontact Melissa C. Mannion

LAB METHOD SUMMARY

PLUTONIUM-238,239/240, LIQUID

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1214

SULTS

›LE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Plutonium 238		Plutonium 239/240	
›aration batch 6148-115								
;051-01			7812-001	J16M70	U		U	
;051-02			7812-002	J16M71	U		U	
;051-03			7812-003	J16M72	U		U	
;051-04			7812-004	Lab Control Sample	ok		ok	
;051-05			7812-005	Method Blank	U		U	
;051-06			7812-006	Duplicate (R805051-01)	-	U	-	U
›nal values and limits from method				RDLs (pCi/mL)	1.00		1.00	

·7 Burial Ground-Other Liquid

THOD PERFORMANCE

›LE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
›aration batch 6148-115			2σ prep error 8.0 % Reference Lab Notebook #6148, pg. 115													
;051-01			J16M70	0.344	0.529			69		109			15	05/14/08	05/14	SS-055
;051-02			J16M71	0.294	0.495			70		110			15	05/14/08	05/14	SS-061
;051-03			J16M72	0.206	0.595			78		110			14	05/14/08	05/14	SS-062
;051-04			Lab Control Sample	0.341	0.400			54		152				05/14/08	05/14	SS-063
;051-05			Method Blank	0.225	0.400			63		153				05/14/08	05/14	SS-064
;051-06			Duplicate (R805051-01)	0.184	0.529			67		153			15	05/14/08	05/14	SS-065
›nal values and limits from method				1.00	0.400			20-105		50			180			

›OCEDURES	REFERENCE	PUISO_PLATE_AEA
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	CP-941	Plutonium in Water and Dissolved Samples by Extraction Chromatography, rev 3
	CP-008	Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 0.266 ± 0.140
YIELD 67 ± 16

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

Test TH Matrix LIQUID
SDG 7812
:ontact Melissa C. Mannion

LAB METHOD SUMMARY

THORIUM, ISOTOPIC IN LIQUID

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1214

SULTS

›LE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Thorium 230
›aration batch 6148-115					
;051-01			7812-001	J16M70	U
;051-02			7812-002	J16M71	U
;051-03			7812-003	J16M72	U
;051-04			7812-004	Lab Control Sample	ok
;051-05			7812-005	Method Blank	U
;051-06			7812-006	Duplicate (R805051-01)	- U

.nal values and limits from method RDLs (pCi/mL) 1.00
·7 Burial Ground-Other Liquid

THOD PERFORMANCE

›LE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
›aration batch 6148-115			2σ prep error 8.0 % Reference Lab Notebook #6148, pg. 115													
;051-01			J16M70	0.248	0.264			88		151			14	05/12/08	05/13	SS-037
;051-02			J16M71	0.366	0.247			100		152			14	05/12/08	05/13	SS-038
;051-03			J16M72	0.406	0.298			80		153			13	05/12/08	05/13	SS-040
;051-04			Lab Control Sample	0.401	0.200			83		153				05/12/08	05/13	SS-042
;051-05			Method Blank	0.442	0.200			85		160				05/12/08	05/14	SS-027
;051-06			Duplicate (R805051-01)	0.204	0.264			89		849			14	05/12/08	05/13	SS-032
.nal values and limits from method				1.00	0.200			20-110		100	100		180			

:OCEDURES

REFERENCE	THISO_IE_PLATE_AEA	
SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 7	
CP-900	Thorium in Water and Dissolved Solid Samples by Extraction Chromatography, rev 1	
CP-008	Heavy Element Electroplating, rev 9	

AVERAGES ± 2 SD MDA 0.344 ± 0.192
FOR 6 SAMPLES YIELD 88 ± 14

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

Test U Matrix LIQUID
SDG 7812
'ontact Melissa C. Mannion

LAB METHOD SUMMARY

URANIUM IN LIQUID
ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1214

SULTS

'LE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	1: Uranium 233/234	2: Uranium 235	3: Uranium 238	RESULT RATIOS (%) 1+3	2σ	2+3	2σ
aration batch 6148-115											
051-01			7812-001	J16M70	U	U	U				
051-02			7812-002	J16M71	U	U	U				
051-03			7812-003	J16M72	0.711	U	0.514	138	71	5	10
051-04			7812-004	Lab Control Sample	ok	ok	ok				
051-05			7812-005	Method Blank	U	U	U				
051-06			7812-006	Duplicate (R805051-01)	- U	- U	- U				
nal values and limits from method				RDLs (pCi/mL)	1.00	1.00	1.00				
7 Burial Ground-Other Liquid								Averages 138		5	

THOD PERFORMANCE

'LE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
aration batch 6148-115			2σ prep error 8.0 % Reference Lab Notebook #6148, pg. 115													
051-01			J16M70	0.177	0.529			94		129			11	05/10/08	05/10	SS-038
051-02			J16M71	0.246	0.495			92		129			11	05/10/08	05/10	SS-040
051-03			J16M72	0.183	0.595			89		130			10	05/10/08	05/10	SS-042
051-04			Lab Control Sample	1.41	0.400			93		129				05/10/08	05/10	SS-059
051-05			Method Blank	0.234	0.400			90		129				05/10/08	05/10	SS-057
051-06			Duplicate (R805051-01)	0.178	0.529			85		129			11	05/10/08	05/10	SS-058
nal values and limits from method				1.00	0.400					100			180			

OCEDURES	REFERENCE	UISO_PLATE_AEA
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	CP-921	Uranium in Water and Dissolved Samples by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD MDA 0.405 ± 0.987
FOR 6 SAMPLES YIELD 90 ± 7

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

Test SR Matrix LIQUID
SDG 7812
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TOTAL STRONTIUM IN LIQUIDS

BETA COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1214

SULTS

PLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Total Strontium
paration batch 6148-115					
5051-01			7812-001	J16M70	U
5051-02			7812-002	J16M71	U
5051-03			7812-003	J16M72	U
5051-04			7812-004	Lab Control Sample	ok
5051-05			7812-005	Method Blank	U
5051-06			7812-006	Duplicate (R805051-01)	- U

inal values and limits from method RDLs (pCi/mL) 1.00
-7 Burial Ground-Other Liquid

THOD PERFORMANCE

PLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
paration batch 6148-115			2σ prep error 10.4 % Reference Lab Notebook #6148, pg. 115													
5051-01			J16M70	0.246	1.06			89		100			11	05/10/08	05/10	GRB-222
5051-02			J16M71	0.272	0.990			86		100			11	05/10/08	05/10	GRB-223
5051-03			J16M72	0.225	1.19			86		100			10	05/10/08	05/10	GRB-224
5051-04			Lab Control Sample	0.250	1.00			87		100				05/10/08	05/10	GRB-217
5051-05			Method Blank	0.221	1.00			85		200				05/10/08	05/10	GRB-226
5051-06			Duplicate (R805051-01)	0.238	1.06			88		120			11	05/10/08	05/10	GRB-227
inal values and limits from method				1.00	1.00					100			180			

ROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	CP-383	Strontium in Dissolved Solid of < 5.0g Aliquot, rev 1

AVERAGES ± 2 SD MDA 0.242 ± 0.037
FOR 6 SAMPLES YIELD 87 ± 3

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

Test 93A Matrix LIQUID
SDG 7812
:ontact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS ALPHA IN LIQUID

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1214

SULTS

?LE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha
›aration batch 6148-115					
;051-01	93		7812-001	J16M70	U
;051-02	93		7812-002	J16M71	U
;051-03	93		7812-003	J16M72	U
;051-04	93		7812-004	Lab Control Sample	HIGH
;051-05	93		7812-005	Method Blank	U
;051-06	93		7812-006	Duplicate (R805051-01)	- U

inal values and limits from method RDLs (pCi/mL) 10.0
·7 Burial Ground-Other Liquid

THOD PERFORMANCE

?LE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
›aration batch 6148-115			2σ prep error 20.6 % Reference Lab Notebook #6148, pg. 115													
;051-01	93		J16M70	1.98	0.106			0		100			17	05/14/08	05/16	GRB-109
;051-02	93		J16M71	3.41	0.0990			0		100			18	05/14/08	05/17	GRB-115
;051-03	93		J16M72	2.22	0.119			0		100			16	05/14/08	05/16	GRB-114
;051-04	93		Lab Control Sample	9.84	0.100			59		100				05/14/08	05/16	GRB-115
;051-05	93		Method Blank	6.27	0.100			59		100				05/14/08	05/16	GRB-105
;051-06	93		Duplicate (R805051-01)	2.21	0.106			0		100			17	05/14/08	05/16	GRB-107
inal values and limits from method				10.0	0.100			5-250		100			180			

ROCEDURES	REFERENCE	900.0_ALPHABETA_GPC
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	SPP-120	Gross Alpha and Gross Beta in Water, rev 0

AVERAGES ± 2 SD MDA 4.32 ± 6.29
FOR 6 SAMPLES RESIDUE 20 ± 61

Lab id EBRLNE
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

Test 93B Matrix LIQUID
SDG 7812
:ontact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS BETA IN LIQUID
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1214

SULTS

›LE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta
›aration batch 6148-115					
;051-01	93		7812-001	J16M70	U
;051-02	93		7812-002	J16M71	U
;051-03	93		7812-003	J16M72	U
;051-04	93		7812-004	Lab Control Sample	ok
;051-05	93		7812-005	Method Blank	U
;051-06	93		7812-006	Duplicate (R805051-01)	- U

.nal values and limits from method RDLs (pCi/mL) 15.0
·7 Burial Ground-Other Liquid

THOD PERFORMANCE

›LE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
›aration batch 6148-115			2σ prep error 11.0 % Reference Lab Notebook #6148, pg. 115													
;051-01	93		J16M70	4.86	0.106			0		100			17	05/14/08	05/16	GRB-109
;051-02	93		J16M71	5.92	0.0990			0		100			18	05/14/08	05/17	GRB-115
;051-03	93		J16M72	6.06	0.119			0		100			16	05/14/08	05/16	GRB-114
;051-04	93		Lab Control Sample	6.13	0.100			59		100				05/14/08	05/16	GRB-115
;051-05	93		Method Blank	6.00	0.100			59		100				05/14/08	05/16	GRB-105
;051-06	93		Duplicate (R805051-01)	8.11	0.106			0		100			17	05/14/08	05/16	GRB-107
.nal values and limits from method				15.0	0.100			5-250		100			180			

:OCEDURES REFERENCE 900.0_ALPHABETA_GPC
SPP-071 Soil Dissolution, > 1.0g Aliquot, rev 5
SPP-120 Gross Alpha and Gross Beta in Water, rev 0

AVERAGES ± 2 SD MDA 6.18 ± 2.11
FOR 6 SAMPLES RESIDUE 20 ± 61

Lab id EBRLNE
Protocol Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

Test GAM Matrix LIQUID
SDG 7812
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN IN LIQUID

GAMMA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1214

SULTS

PLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60		Cesium 137	
paration batch 6148-115								
5051-01			7812-001	J16M70	U		U	
5051-02			7812-002	J16M71	U		U	
5051-03			7812-003	J16M72	U		U	
5051-04			7812-004	Lab Control Sample	ok		ok	
5051-05			7812-005	Method Blank	U		U	
5051-06			7812-006	Duplicate (R805051-01)	-	U	-	U
inal values and limits from method				RDLs (pCi/mL)	0.050		0.050	
-7 Burial Ground-Other Liquid								

THOD PERFORMANCE

PLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
paration batch 6148-115			2σ prep error 7.0 % Reference Lab Notebook #6148, pg. 115													
5051-01			J16M70	0.055	100					934			9	05/08/08	05/08	JR,04,00
5051-02			J16M71	0.038	100					934			9	05/08/08	05/08	JR,05,00
5051-03			J16M72	0.069	101					934			8	05/08/08	05/08	JR,06,00
5051-04			Lab Control Sample	0.058	100					935				05/08/08	05/08	JR,07,00
5051-05			Method Blank	0.053	100					935				05/08/08	05/08	JR,08,00
5051-06			Duplicate (R805051-01)	0.082	100					400			10	05/08/08	05/09	JR,04,00
inal values and limits from method				0.050	100					100			180			

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

AVERAGES ± 2 SD MDA 0.059 ± 0.030
FOR 6 SAMPLES YIELD _____ ± _____

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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.

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Client Hanford
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Case no SDG_K1214

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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DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H Similar to 'L' except the recovery was high.

P The RESULT is 'preliminary'.

X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

* An MDA is underlined if it is bigger than its RDL.

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GUIDE, cont.

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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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DUPLICATE

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

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

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

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

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

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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.

K1214 / 7812

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-088-016	Page 1 of 1

Collector: B. Lawrence / E. Harries	Company Contact: Joan Kessner	Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH
Price Code: 9G	Data Turnaround: 15 Days		
Project Designation: 618-7 Burial Ground - Other Liquids	Sampling Location: 618-7 Burial Ground (drums) K1214 (7812)	SAF No.: RC-088	
Ice Chest No.: ERC-02-407	Field Logbook No.: EL-1395-12	COA: RG61878500	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A080228		Bill of Lading/Air Bill No.: see ospc

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

Preservation	Cool 4C	Cool 4C	None	None	None						
Type of Container	aG	aG	aG	aG	P						
No. of Container(s)	1	0	0	0	1						
Volume	250mL	~~125mL~~	~~125mL~~	~~60mL~~	500mL						
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL) RK 4-29-08	PCBs - 8082 4-29-08 RK	See item (1) in Special Instructions. RK 4-29-08	Ignitability - 1010 4-29-08 RK	See item (2) in Special Instructions.						PIN#
Sample No.	Matrix *	Sample Date	Sample Time								
~~J16M69~~	~~OTHER LIQUID~~	~~4-29-08~~	~~1000~~					X			0224
J16M70	OTHER LIQUID	4-29-08	1020					X			0082

MLM

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: B Lawrence	1110 4-29-08	Received By/Stored In: RB KERKOW / RB Kerk	1110 4-29-08
Relinquished By/Removed From: RKERKOW / RB Kerk	1600 4-29-08	Received By/Stored In: REF 1A (1060)	1600 4-29-08
Relinquished By/Removed From: 1060/1A	5/5/08 0940	Received By/Stored In: MStankovich	5/5/08 0940
Relinquished By/Removed From: WCH MStankovich	0940 5/5/08	Received By/Stored In: Fed EX	
Relinquished By/Removed From: Fed EX		Received By/Stored In:	05/06/08 09:20
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Aluminum, Antimony, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc, Zirconium}; ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Lead, Selenium, Thallium, Tin}; Mercury - 7471 - (CV)

(2) Gross Alpha: Gross Beta; Gamma Spectroscopy (TCL List) {Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Uranium; Isotopic Thorium; Americium-241; Isotopic Plutonium; Strontium-89,90 -- Total Sr

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

Matrix *

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

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

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-088-017	Page 1 of 1

Collector B. Lawrence / E. Harries	**Company Contact** Joan Kessner	**Telephone No.** 509-375-4688	**Project Coordinator** KESSNER, JH
Project Designation 618-7 Burial Ground - Other Liquids	**Sampling Location** 618-7 Burial Ground (drums) K1214 (7812)		**SAF No.** RC-088
Price Code 9G	**Data Turnaround** 15 Days		
Ice Chest No. ERC-02407	**Field Logbook No.** EL-1395-12	**COA** RG61878500	**Method of Shipment** FedEx
Shipped To EBERLINE SERVICES, LIONVILLE	**Offsite Property No.** A080228		**Bill of Lading/Air Bill No.**

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

Preservation	Cool 4C	Cool 4C	None	None	None						
Type of Container	aG	aG	aG	aG	P						
No. of Container(s)	1 250 mL	0	0	0	1						
Volume	~~250mL~~ OK RTC	~~125mL~~ RTC	~~125mL~~ RTC 4/29/08	~~60mL~~ RTC	500mL						
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	PCBs - 8082 RTC 4/29/08	See item (1) in Special Instructions.	Ignitability - 1010	See item (2) in Special Instructions.						PIN#
Sample No.	Matrix *	Sample Date	Sample Time								
J16M71	OTHER LIQUID	4/29/08	1230					X		SLUDGE/WATER	-0065
~~J16M72~~	~~OTHER LIQUID~~										

1 4/29/08

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From: B Lawrence — Date/Time 1640 4-29-08	Received By/Stored In: RT Coffman / RT Coffman 4/29/08	Date/Time 1640
Relinquished By/Removed From: RT Coffman / RT Coffman 4/29/08	Received By/Stored In: REFER #1A, 1060 BLDG., 4/29/08	Date/Time 1730
Relinquished By/Removed From: 1060/1A 5/5/08	Received By/Stored In: MStankovich	Date/Time 5/5/08 0935
Relinquished By/Removed From: MStankovich	Received By/Stored In: FedEx	Date/Time 5/5/08 0935
Relinquished By/Removed From: FedEx	Received By/Stored In: 05/06/08	Date/Time 09:20
Relinquished By/Removed From	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Aluminum, Antimony, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc, Zirconium}; ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Lead, Selenium, Thallium, Tin}; Mercury - 7471 - (CV)

(2) Gross Alpha; Gross Beta; Gamma Spectroscopy (TCL List) {Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Uranium; Isotopic Thorium; Americium-241; Isotopic Plutonium; Strontium-89,90 -- Total Sr

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

DS MW

Matrix *

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

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

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-088-017	Page 1 of 1

Collector B. Lawrence / E. Harries	Company Contact Joan Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Project Designation 618-7 Burial Ground - Other Liquids	Sampling Location 618-7 Burial Ground (drums) K1214 (1812)		SAF No. RC-088
Ice Chest No. ERC-02-407	Field Logbook No. EL-1395-12	COA RG61878500	Method of Shipment Fed Ex
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A080228		Bill of Lading/Air Bill No. See OSPC

Price Code: 9G

Data Turnaround: 15 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

Preservation	Cool 4C	Cool 4C	None	None	None						
Type of Container	aG	aG	aG	aG	P						
No. of Container(s)	1	0	0	0	1						
Volume	250mL	125mL	125mL	60mL	500mL						
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (1) in Special Instructions.	Ignitability - 1010	See item (2) in Special Instructions.						PIN#

RTC 4/30/08

Sample No.	Matrix *	Sample Date	Sample Time										
J16M71	OTHER LIQUID												
J16M72	OTHER LIQUID	4/30/08	1400					X		LEAKY OIL DRUM			-0232

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
B Lawrence	1600 4-30-08	RT Coffman / RT Coffman	1600 4/30/08
RT Coffman / RT Coffman	0700 5/1/08	REFER 1A, 1060 BLDG	0700 5/1/08
1060/1A	5/5/08 0925	MZL MStankovich	0925 5/5/08
WCH MZL MStankovich	0925 5/5/08		Fed Ex
Fed Ex		Fed Ex	05/06/08 09:30

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Aluminum, Antimony, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc, Zirconium}; ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Lead, Selenium, Thallium, Tin}; Mercury - 7471 - (CV)

(2) Gross Alpha; Gross Beta; Gamma Spectroscopy (TCL List) {Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Uranium; Isotopic Thorium; Americium-241; Isotopic Plutonium; Strontium-89,90 -- Total Sr

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

KW

Matrix *

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

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

WCH-EE-011

EBERLINE

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Same SD(6) AK 5/6/08

Client: W.C. HANFORD City RICHLAND State WA

Date/Time received 05/06/08 09:30 CoC No. RC-088-016, 017

Container I.D. No. ERC-02-407 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: 3 Sample Matrix X LIQUID
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 [ ] Not preserved [ ] pH _____ Preservative _____
13. Describe any anomalies:
    ① J16M69 IS SOLID AND SEPARATED AS OTHER GROUP
    ② J16M70, J16M71, J16M72 - THE LIQUID
14. Was P.M notified of any anomalies? Yes [ ] No [ ] Date _____
15. Inspected by MFW Date: 05/06/08 Time: 11:00

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

Ion Chamber Ser. No. _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

Beta/Gamma Meter Ser. No. 100482 Calibration date 09AUG07

"over 55 years of quality nuclear services"

EBERLINE SERVICES

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

May 22, 2008

RECEIVED
MAY 2008

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

Reference: **P.O. #S00W235A00**
Eberline Services R8-05-050-7811, SDG K1214

Dear Ms. Kessner:

Enclosed is the data report for one solid (other solid) sample designated under SAF No. RC-088 received at Eberline Services on May 6, 2008. The samples were analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

Melissa Mannion

Melissa C. Mannion
Senior Program Manager

MCM/njv

Enclosure: Data Package

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K1214 was composed of one solid (other solid) sample designated under SAF No. RC-088 with a Project Designation of: 618-7 Burial Grounds-Other Liquids.

Note: the sample was a mixture of oil and dirt, and were therefore treated as a solid (other solids). Results are reported in pCi/g.

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 May 20, 2008.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analysis

The gross alpha QC LCS recovery was 132%, greater than the upper control limit of 130%. No other problems were encountered during the course of the analysis.

2.2 Total Strontium Analysis

The relative percent difference in the original and duplicate results was 146%, greater than the control limit of 81%; the DER was 5.4. No other problems were encountered during the course of the analyses.

2.3 Isotopic Thorium Analysis

No problems were encountered during the course of the analyses.

2.4 Isotopic Uranium Analysis

No problems were encountered during the course of the analyses.

2.5 Isotopic Plutonium Analysis

No problems were encountered during the course of the analyses.

2.6 Americium-241 Analysis

No problems were encountered during the course of the analyses.

2.7 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

05/22/08
Date

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP K1214

SDG	7811
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. S00W235A00
Case no	SDG K1214

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

About this section	1
Sample Summaries	3
Prep Batch Summary	5
Work Summary	6
Method Blanks	8
Lab Control Samples	9
Duplicates	10
Data Sheets	12
Method Summaries	13
Report Guides	21
End of Section	35

Prepared by

Melissa Mannion
Reviewed by

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	05/20/08

SDG 7811
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1214

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 05/20/08

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

SDG 7811
Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1214

AB AMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
305050-01	J16M69	618-7 BurialGrnd (drums)	SOLID		RC-088	RC-088-016	04/29/08 10:00
305050-02	Duplicate (R805050-01)	618-7 BurialGrnd (drums)	SOLID		RC-088		04/29/08 10:00
305051-04	Lab Control Sample		SOLID		RC-088		
305051-05	Method Blank		SOLID		RC-088		

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

SDG 7811
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1214

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
1	RC-088-016	J16M69	SOLID	100.0	106 g		05/06/08	7	R805050-01	7811-001
		Duplicate (R805050-01)	SOLID	100.0	106 g		05/06/08	7	R805050-02	7811-002
2		Method Blank	SOLID						R805051-05	7812-005
		Lab Control Sample	SOLID						R805051-04	7812-004

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

SDG 7811
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1214

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
AM	SOLID	Americium 241 in Solids	6148-115	8.0	1			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	6148-115	8.0	1			1	1	1/1		
TH	SOLID	Thorium, Isotopic in Solids	6148-115	8.0	1			1	1	1/1		
U	SOLID	Uranium, Isotopic in Solids	6148-115	8.0	1			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Solids	6148-115	10.4	1			1	1	1/1		
Gas Proportional Counting												
93A	SOLID	Gross Alpha in Solids	6148-115	20.6	1			1	1	1/1		
93B	SOLID	Gross Beta in Solids	6148-115	11.0	1			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6148-115	7.0	1			1	1	1/1		

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

SDG 7811
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1214

SAMPLE OLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF- FIX	ANALYZED	REVIEWED	BY	METHOD
5050-01	J16M69			7811-001	93A/93		05/16/08	05/16/08	BW	Gross Alpha in Solids
04/29/08	618-7 BurialGrnd (drums)		SOLID	7811-001	93B/93		05/16/08	05/16/08	BW	Gross Beta in Solids
05/06/08	RC-088-016	RC-088		7811-001	AM		05/14/08	05/15/08	BW	Americium 241 in Solids
				7811-001	GAM		05/13/08	05/14/08	CSS	Gamma Scan
				7811-001	PU		05/14/08	05/14/08	BW	Plutonium, Isotopic in Solids
				7811-001	SR		05/10/08	05/15/08	BW	Total Strontium in Solids
				7811-001	TH		05/13/08	05/13/08	BW	Thorium, Isotopic in Solids
				7811-001	U		05/10/08	05/12/08	BW	Uranium, Isotopic in Solids
5050-02	Duplicate (R805050-01)			7811-002	93A/93		05/16/08	05/16/08	BW	Gross Alpha in Solids
04/29/08	618-7 BurialGrnd (drums)		SOLID	7811-002	93B/93		05/16/08	05/16/08	BW	Gross Beta in Solids
05/06/08		RC-088		7811-002	AM		05/14/08	05/15/08	BW	Americium 241 in Solids
				7811-002	GAM		05/08/08	05/14/08	CSS	Gamma Scan
				7811-002	PU		05/14/08	05/14/08	BW	Plutonium, Isotopic in Solids
				7811-002	SR		05/10/08	05/15/08	BW	Total Strontium in Solids
				7811-002	TH		05/13/08	05/13/08	BW	Thorium, Isotopic in Solids
				7811-002	U		05/10/08	05/12/08	BW	Uranium, Isotopic in Solids
5051-04	Lab Control Sample			7812-004	93A/93		05/16/08	05/16/08	BW	Gross Alpha in Solids
			SOLID	7812-004	93B/93		05/16/08	05/16/08	BW	Gross Beta in Solids
		RC-088		7812-004	AM		05/14/08	05/15/08	BW	Americium 241 in Solids
				7812-004	GAM		05/08/08	05/14/08	CSS	Gamma Scan
				7812-004	PU		05/14/08	05/15/08	BW	Plutonium, Isotopic in Solids
				7812-004	SR		05/10/08	05/15/08	BW	Total Strontium in Solids
				7812-004	TH		05/13/08	05/13/08	BW	Thorium, Isotopic in Solids
				7812-004	U		05/10/08	05/12/08	BW	Uranium, Isotopic in Solids
051-05	Method Blank			7812-005	93A/93		05/16/08	05/16/08	BW	Gross Alpha in Solids
			SOLID	7812-005	93B/93		05/16/08	05/16/08	BW	Gross Beta in Solids
		RC-088		7812-005	AM		05/14/08	05/15/08	BW	Americium 241 in Solids
				7812-005	GAM		05/08/08	05/14/08	CSS	Gamma Scan
				7812-005	PU		05/14/08	05/15/08	BW	Plutonium, Isotopic in Solids
				7812-005	SR		05/10/08	05/15/08	BW	Total Strontium in Solids
				7812-005	TH		05/14/08	05/14/08	BW	Thorium, Isotopic in Solids
				7812-005	U		05/10/08	05/12/08	BW	Uranium, Isotopic in Solids

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

SDG 7811
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1214

COUNTS OF TESTS BY SAMPLE TYPE

EST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
A/93	RC-088	Gross Alpha in Solids	900.0_ALPHABETA_GPC	1			1	1	1		4
B/93	RC-088	Gross Beta in Solids	900.0_ALPHABETA_GPC	1			1	1	1		4
1	RC-088	Americium 241 in Solids	AMCMISO_IE_PLATE_AEA	1			1	1	1		4
M	RC-088	Gamma Scan	GAMMA_GS	1			1	1	1		4
J	RC-088	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	1			1	1	1		4
	RC-088	Total Strontium in Solids	SRTOT_SEP_PRECIP_GPC	1			1	1	1		4
I	RC-088	Thorium, Isotopic in Solids	THISO_IE_PLATE_AEA	1			1	1	1		4
	RC-088	Uranium, Isotopic in Solids	UISO_PLATE_AEA	1			1	1	1		4
TALS				8			8	8	8		32

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

7812-005 Method Blank

METHOD BLANK

SDG	7811	Client/Case no	Hanford	SDG K1214	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R805051-05	Client sample id	Method Blank		
Dept sample id	7812-005	Material/Matrix		SOLID	
		SAF No	RC-088		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-0.481	2.7	6.27	10.0	U	93A
Gross Beta	12587-47-2	-0.211	3.5	6.00	15.0	U	93B
Total Strontium	SR-RAD	-0.052	0.15	0.221	1.00	U	SR
Americium 241	14596-10-2	0	0.16	0.301	1.00	U	AM
Thorium 228	14274-82-9	-0.064	0.13	0.354	1.00	U	TH
Thorium 230	14269-63-7	-0.032	0.19	0.305	1.00	U	TH
Thorium 232	TH-232	-0.032	0.064	0.244	1.00	U	TH
Uranium 233/234	U-233/234	0.020	0.040	0.155	1.00	U	U
Uranium 235	15117-96-1	0	0.049	0.187	1.00	U	U
Uranium 238	U-238	0	0.040	0.155	1.00	U	U
Plutonium 238	13981-16-3	0	0.047	0.180	1.00	U	PU
Plutonium 239/240	PU-239/240	0.023	0.047	0.180	1.00	U	PU
Potassium 40	13966-00-2	U		4.26		U	GAM
Cobalt 60	10198-40-0	U		0.159	0.050	U	GAM
Cesium 137	10045-97-3	U		0.175	0.100	U	GAM
Radium 226	13982-63-3	U		0.344	0.100	U	GAM
Radium 228	15262-20-1	U		0.766	0.200	U	GAM
Europium 152	14683-23-9	U		0.459	0.100	U	GAM
Europium 154	15585-10-1	U		0.463	0.100	U	GAM
Europium 155	14391-16-3	U		0.411	0.100	U	GAM
Thorium 228	14274-82-9	U		0.248		U	GAM
Thorium 232	TH-232	U		0.766		U	GAM
Uranium 235	15117-96-1	U		0.709		U	GAM
Uranium 238	U-238	U		17.8		U	GAM
Americium 241	14596-10-2	U		0.635		U	GAM

618-7 Burial Ground-Other Solid

QC-BLANK #65627

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

7812-004

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7811

Contact Melissa C. Mannion

Client/Case no Hanford SDG K1214

Contract No. S00W235A00

Lab sample id R805051-04

Dept sample id 7812-004

Client sample id Lab Control Sample

Material/Matrix SOLID

SAF No RC-088

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	148	20	9.84	10.0		93A	112	4.5	132	51-149	70-130
Gross Beta	102	8.0	6.13	15.0		93B	112	4.5	91	81-119	80-120
Total Strontium	11.0	0.60	0.250	1.00		SR	10.3	0.41	107	80-120	80-120
Americium 241	21.6	2.4	0.371	1.00		AM	22.4	0.90	96	79-121	80-120
Thorium 230	43.8	4.7	0.321	1.00		TH	41.6	1.7	105	78-122	80-120
Uranium 233/234	17.5	2.3	1.13	1.00		U	19.3	0.77	91	78-122	80-120
Uranium 235	15.6	2.2	0.316	1.00		U	15.7	0.63	99	75-125	80-120
Uranium 238	17.5	2.3	1.08	1.00		U	21.0	0.84	83	80-120	80-120
Plutonium 238	26.9	2.9	0.273	1.00		PU	25.8	1.0	104	78-122	80-120
Plutonium 239/240	29.7	3.2	0.273	1.00		PU	29.0	1.2	102	78-122	80-120
Cobalt 60	9.04	0.33	0.154	0.050		GAM	8.47	0.34	107	86-114	80-120
Cesium 137	10.2	0.29	0.192	0.100		GAM	9.37	0.37	109	86-114	80-120

618-7 Burial Ground-Other Solid

QC-LCS #65626

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

7811-002 J16M69

DUPLICATE

SDG	7811	Client/Case no	Hanford SDG K1214
Contact	Melissa C. Mannion	Contract	No. S00W235A00
DUPLICATE		ORIGINAL	
Lab sample id	R805050-02	Lab sample id	R805050-01
Dept sample id	7811-002	Dept sample id	7811-001
		Received	05/06/08
% solids	100.0	% solids	100.0
Client sample id	J16M69		
Location/Matrix	618-7 BurialGrnd (drums) SOLID		
Collected/Weight	04/29/08 10:00 106 g		
Custody/SAF No	RC-088-016 RC-088		

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	DER σ
Gross Alpha	0.167	3.9	7.05	10.0	U	93A	8.13	5.6	6.36		192	254	2.3
Gross Beta	44.2	7.1	9.04	15.0		93B	39.5	5.5	6.01		11	40	0.8
Total Strontium	0.743	0.19	0.231	1.00		SR	0.116	0.11	0.208	U	146	81	5.4
Americium 241	0	0.20	0.378	1.00	U	AM	-0.022	0.13	0.246	U	-		0.2
Thorium 228	-0.034	0.20	0.486	1.00	U	TH	-0.140	0.21	0.503	U	-		0.7
Thorium 230	0.067	0.20	0.258	1.00	U	TH	0.209	0.21	0.266	U	-		1.0
Thorium 232	-0.034	0.067	0.258	1.00	U	TH	0.035	0.070	0.266	U	-		1.4
Uranium 233/234	0.286	0.15	0.146	1.00		U	0.330	0.17	0.158		14	112	0.4
Uranium 235	0	0.046	0.177	1.00	U	U	0	0.050	0.191	U	-		0
Uranium 238	0.229	0.12	0.146	1.00		U	0.310	0.17	0.158		30	117	0.8
Plutonium 238	-0.034	0.067	0.258	1.00	U	PU	0.052	0.21	0.401	U	-		0.8
Plutonium 239/240	0	0.067	0.258	1.00	U	PU	0	0.10	0.400	U	-		0
Potassium 40	37.9	2.1	1.08			GAM	35.4	2.9	1.38		7	21	1.0
Cobalt 60	U		0.092	0.050	U	GAM	U		0.151	U	-		0.7
Cesium 137	U		0.099	0.100	U	GAM	U		0.158	U	-		0.6
Radium 226	U		0.212	0.100	U	GAM	U		0.320	U	-		0.6
Radium 228	U		0.442	0.200	U	GAM	U		0.686	U	-		0.6
Europium 152	U		0.271	0.100	U	GAM	U		0.422	U	-		0.6
Europium 154	U		0.272	0.100	U	GAM	U		0.405	U	-		0.5
Europium 155	U		0.234	0.100	U	GAM	U		0.391	U	-		0.7
Thorium 228	U		0.273		U	GAM	U		0.406	U	-		0.5
Thorium 232	U		0.442		U	GAM	U		0.686	U	-		0.6
Uranium 235	U		0.428		U	GAM	U		0.671	U	-		0.6
Uranium 238	U		10.9		U	GAM	U		17.8	U	-		0.7
Americium 241	U		0.244		U	GAM	U		0.392	U	-		0.6

618-7 Burial Ground-Other Solid

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

7811-002 J16M69

DUPLICATE, cont.

SDG	7811			Client/Case no	Hanford SDG K1214
Contact	Melissa C. Mannion			Contract	No. S00W235A00
	DUPLICATE		ORIGINAL		
Lab sample id	R805050-02	Lab sample id	R805050-01	Client sample id	J16M69
Dept sample id	7811-002	Dept sample id	7811-001	Location/Matrix	618-7 BurialGrnd (drums) SOLID
		Received	05/06/08	Collected/Weight	04/29/08 10:00 106 g
% solids	100.0	% solids	100.0	Custody/SAF No	RC-088-016 RC-088

QC-DUP#1 65625

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

7811-001 J16M69

DATA SHEET

SDG	7811	Client/Case no	Hanford	SDG_K1214	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R805050-01	Client sample id	J16M69		
Dept sample id	7811-001	Location/Matrix	618-7 BurialGrnd (drums)	SOLID	
Received	05/06/08	Collected/Weight	04/29/08 10:00	106 g	
% solids	100.0	Custody/SAF No	RC-088-016	RC-088	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	8.13	5.6	6.36	10.0		93A
Gross Beta	12587-47-2	39.5	5.5	6.01	15.0		93B
Total Strontium	SR-RAD	0.116	0.11	0.208	1.00	U	SR
Americium 241	14596-10-2	-0.022	0.13	0.246	1.00	U	AM
Thorium 228	14274-82-9	-0.140	0.21	0.503	1.00	U	TH
Thorium 230	14269-63-7	0.209	0.21	0.266	1.00	U	TH
Thorium 232	TH-232	0.035	0.070	0.266	1.00	U	TH
Uranium 233/234	U-233/234	0.330	0.17	0.158	1.00		U
Uranium 235	15117-96-1	0	0.050	0.191	1.00	U	U
Uranium 238	U-238	0.310	0.17	0.158	1.00		U
Plutonium 238	13981-16-3	0.052	0.21	0.401	1.00	U	PU
Plutonium 239/240	PU-239/240	0	0.10	0.400	1.00	U	PU
Potassium 40	13966-00-2	35.4	2.9	1.38			GAM
Cobalt 60	10198-40-0	U		0.151	0.050	U	GAM
Cesium 137	10045-97-3	U		0.158	0.100	U	GAM
Radium 226	13982-63-3	U		0.320	0.100	U	GAM
Radium 228	15262-20-1	U		0.686	0.200	U	GAM
Europium 152	14683-23-9	U		0.422	0.100	U	GAM
Europium 154	15585-10-1	U		0.405	0.100	U	GAM
Europium 155	14391-16-3	U		0.391	0.100	U	GAM
Thorium 228	14274-82-9	U		0.406		U	GAM
Thorium 232	TH-232	U		0.686		U	GAM
Uranium 235	15117-96-1	U		0.671		U	GAM
Uranium 238	U-238	U		17.8		U	GAM
Americium 241	14596-10-2	U		0.392		U	GAM

618-7 Burial Ground-Other Solid

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

Test AM Matrix SOLID
SDG 7811
Contact Melissa C. Mannion

LAB METHOD SUMMARY

AMERICIUM 241 IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1214

SULTS

PLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Americium 241	
paration batch 6148-115						
5050-01			7811-001	J16M69	U	
5050-02			7811-002	Duplicate (R805050-01)	-	U
5051-04			7812-004	Lab Control Sample	ok	
5051-05			7812-005	Method Blank	U	

inal values and limits from method RDLs (pCi/g) 1.00
-7 Burial Ground-Other Solid

THOD PERFORMANCE

PLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
paration batch 6148-115			2σ prep error 8.0 % Reference Lab Notebook #6148, pg. 115													
5050-01			J16M69	0.246	0.500			56		222			15	05/14/08	05/14	SS-031
5050-02			Duplicate (R805050-01)	0.378	0.500			49		108			15	05/14/08	05/14	SS-032
5051-04			Lab Control Sample	0.371	0.500			62		107				05/14/08	05/14	SS-036
5051-05			Method Blank	0.301	0.500			54		107				05/14/08	05/14	SS-037
inal values and limits from method				1.00	0.500			20-105		100	100		180			

ROCEDURES	REFERENCE	AMCMISO_IE_PLATE_AEA
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	CP-963	Americium and Curium in Water and Dissolved Samples by Extraction Chromatography, rev 6
	CP-008	Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.324 ± 0.125
YIELD 55 ± 11

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

Test PU Matrix SOLID
SDG 7811
Contact Melissa C. Mannion

LAB METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1214

SULTS

PLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Plutonium 238		Plutonium 239/240	
paration batch 6148-115								
5050-01			7811-001	J16M69	U		U	
5050-02			7811-002	Duplicate (R805050-01)	-	U	-	U
5051-04			7812-004	Lab Control Sample	ok		ok	
5051-05			7812-005	Method Blank	U		U	
inal values and limits from method				RDLs (pCi/g)	1.00		1.00	
-7 Burial Ground-Other Solid								

THOD PERFORMANCE

PLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
paration batch 6148-115			2σ prep error 8.0 %	Reference Lab Notebook #6148, pg. 115												
5050-01			J16M69	0.401	0.500			55		109			15	05/14/08	05/14	SS-040
5050-02			Duplicate (R805050-01)	0.258	0.500			75		109			15	05/14/08	05/14	SS-042
5051-04			Lab Control Sample	0.273	0.500			54		152				05/14/08	05/14	SS-063
5051-05			Method Blank	0.180	0.500			63		153				05/14/08	05/14	SS-064
inal values and limits from method				1.00	0.500			20-105		100	100		180			

ROCEDURES	REFERENCE	PUISO_PLATE_AEA
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	CP-941	Plutonium in Water and Dissolved Samples by Extraction Chromatography, rev 3
	CP-008	Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.278 ± 0.183
YIELD 62 ± 19

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

Test TH Matrix SOLID
SDG 7811
Contact Melissa C. Mannion

LAB METHOD SUMMARY

THORIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1214

SULTS

PLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Thorium 230	
paration batch 6148-115						
5050-01			7811-001	J16M69	U	
5050-02			7811-002	Duplicate (R805050-01)	-	U
5051-04			7812-004	Lab Control Sample	ok	
5051-05			7812-005	Method Blank	U	

inal values and limits from method RDLs (pCi/g) 1.00
-7 Burial Ground-Other Solid

THOD PERFORMANCE

PLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
paration batch 6148-115			2σ prep error 8.0 % Reference Lab Notebook #6148, pg. 115													
5050-01			J16M69	0.503	0.250			88		151			14	05/12/08	05/13	SS-035
5050-02			Duplicate (R805050-01)	0.486	0.250			89		151			14	05/12/08	05/13	SS-036
5051-04			Lab Control Sample	0.321	0.250			83		153				05/12/08	05/13	SS-042
5051-05			Method Blank	0.354	0.250			85		160				05/12/08	05/14	SS-027
inal values and limits from method				1.00	0.250			20-105		150			180			

ROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	CP-900	Thorium in Water and Dissolved Solid Samples by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.416 ± 0.184
YIELD 86 ± 6

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

Test U	Matrix SOLID
SDG 7811	
Contact Melissa C. Mannion	

LAB METHOD SUMMARY

URANIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford	
Contract No. S00W235A00	
Contract SDG K1214	

SULTS

PLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	1: Uranium 233/234	2: Uranium 235	3: Uranium 238	RESULT RATIOS (%) 1+3	2σ	2+3	2σ
paration batch 6148-115											
5050-01			7811-001	J16M69	0.330	U	0.310	106	80	0	16
5050-02			7811-002	Duplicate (R805050-01)	ok	- U	ok	125	93	0	20
5051-04			7812-004	Lab Control Sample	ok	ok	ok				
5051-05			7812-005	Method Blank	U	U	U				
inal values and limits from method				RDLs (pCi/g)	1.00	1.00	1.00	100		4	
-7 Burial Ground-Other Solid								Averages 116		0	

THOD PERFORMANCE

PLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
paration batch 6148-115			2σ prep error 8.0 %	Reference Lab Notebook #6148, pg. 115												
5050-01			J16M69	0.191	0.500			87		129			11	05/10/08	05/10	SS-036
5050-02			Duplicate (R805050-01)	0.177	0.500			93		129			11	05/10/08	05/10	SS-037
5051-04			Lab Control Sample	1.13	0.500			93		129				05/10/08	05/10	SS-059
5051-05			Method Blank	0.187	0.500			90		129				05/10/08	05/10	SS-057
inal values and limits from method				1.00	0.500			20-105		100	100		180			

ROCEDURES	REFERENCE	UISO_PLATE_AEA
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	CP-921	Uranium in Water and Dissolved Samples by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD	MDA	0.421 ±	0.945
FOR 4 SAMPLES	YIELD	91 ±	6

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

Test SR Matrix SOLID
SDG 7811
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOLIDS

BETA COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1214

SULTS

PLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Total Strontium
paration batch 6148-115					
5050-01			7811-001	J16M69	U
5050-02			7811-002	Duplicate (R805050-01)	OUT
5051-04			7812-004	Lab Control Sample	ok
5051-05			7812-005	Method Blank	U

inal values and limits from method RDLs (pCi/g) 1.00
-7 Burial Ground-Other Solid

THOD PERFORMANCE

PLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
paration batch 6148-115			2σ prep error 10.4 % Reference Lab Notebook #6148, pg. 115													
5050-01			J16M69	0.208	1.00			92		100			11	05/10/08	05/10	GRB-232
5050-02			Duplicate (R805050-01)	0.231	1.00			87		100			11	05/10/08	05/10	GRB-232
5051-04			Lab Control Sample	0.250	1.00			87		100				05/10/08	05/10	GRB-217
5051-05			Method Blank	0.221	1.00			85		200				05/10/08	05/10	GRB-226
nal values and limits from method				1.00	1.00			30-105		100			180			

OCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	CP-383	Strontium in Dissolved Solid of < 5.0g Aliquot, rev 1

AVERAGES ± 2 SD MDA 0.228 ± 0.035
FOR 4 SAMPLES YIELD 88 ± 6

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

Test 93A Matrix SOLID
SDG 7811
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS ALPHA IN SOLIDS
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1214

SULTS

PLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha	
paration batch 6148-115						
5050-01	93		7811-001	J16M69	8.13	
5050-02	93		7811-002	Duplicate (R805050-01)	ok	U
5051-04	93		7812-004	Lab Control Sample	HIGH	
5051-05	93		7812-005	Method Blank	U	

inal values and limits from method RDLs (pCi/g) 10.0
-7 Burial Ground-Other Solid

THOD PERFORMANCE

PLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
paration batch 6148-115			2σ prep error 20.6 % Reference Lab Notebook #6148, pg. 115													
5050-01	93		J16M69	6.36	0.100			62		100			17	05/14/08	05/16	GRB-105
5050-02	93		Duplicate (R805050-01)	7.05	0.100			68		100			17	05/14/08	05/16	GRB-107
5051-04	93		Lab Control Sample	9.84	0.100			59		100				05/14/08	05/16	GRB-115
5051-05	93		Method Blank	6.27	0.100			59		100				05/14/08	05/16	GRB-105
nal values and limits from method				10.0	0.100			5-250		100			180			

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

AVERAGES ± 2 SD MDA 7.38 ± 3.35
FOR 4 SAMPLES RESIDUE 62 ± 8

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

Test 93B Matrix SOLID
SDG 7811
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS BETA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1214

SULTS

PLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta
paration batch 6148-115					
050-01	93		7811-001	J16M69	39.5
050-02	93		7811-002	Duplicate (R805050-01)	ok
051-04	93		7812-004	Lab Control Sample	ok
051-05	93		7812-005	Method Blank	U

nal values and limits from method RDLs (pCi/g) 15.0
7 Burial Ground-Other Solid

THOD PERFORMANCE

PLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
paration batch 6148-115			2σ prep error 11.0 % Reference Lab Notebook #6148, pg. 115													
050-01	93		J16M69	6.01	0.100			62		100			17	05/14/08	05/16	GRB-105
050-02	93		Duplicate (R805050-01)	9.04	0.100			68		100			17	05/14/08	05/16	GRB-107
051-04	93		Lab Control Sample	6.13	0.100			59		100				05/14/08	05/16	GRB-115
051-05	93		Method Blank	6.00	0.100			59		100				05/14/08	05/16	GRB-105
nal values and limits from method				15.0	0.100			5-250		100			180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 6.80 ± 3.00
RESIDUE 62 ± 8

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1214

Test GAM Matrix SOLID
SDG 7811
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1214

SULTS

PLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60		Cesium 137	
paration batch 6148-115								
5050-01			7811-001	J16M69	U		U	
5050-02			7811-002	Duplicate (R805050-01)	-	U	-	U
5051-04			7812-004	Lab Control Sample	ok		ok	
5051-05			7812-005	Method Blank	U		U	
inal values and limits from method				RDLs (pCi/g)	0.050		0.100	

-7 Burial Ground-Other Solid

THOD PERFORMANCE

PLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
paration batch 6148-115			2σ prep error 7.0 %	Reference Lab Notebook #6148, pg. 115												
5050-01			J16M69	41.6	30.4					401			14	05/08/08	05/13	JR,02,00
5050-02			Duplicate (R805050-01)	27.0	30.4					934			9	05/08/08	05/08	JR,02,00
5051-04			Lab Control Sample	0.154	30.0					935				05/08/08	05/08	JR,07,00
5051-05			Method Blank	41.7	30.0					935				05/08/08	05/08	JR,08,00
nal values and limits from method				0.050	30.0					100			180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 27.6 ± 39.1
YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/20/08

SDG 7811
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1214

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.

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Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 05/20/08

SDG 7811
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1214

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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Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 05/20/08

SDG 7811
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REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1214

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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Client Hanford
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Case no SDG K1214

DATA SHEET

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

The following notes apply to this report:

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

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

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

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

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

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

The following qualifiers are defined by the DVD system:

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
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DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H Similar to 'L' except the recovery was high.

P The RESULT is 'preliminary'.

X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

* An MDA is underlined if it is bigger than its RDL.

SDG 7811
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1214

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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Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1214

LAB CONTROL SAMPLE

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

The following notes apply to this report:

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 05/20/08

DUPLICATE

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

The following notes apply to this report:

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

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

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

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

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

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

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

  This value reported for this limit is at most 999.

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

  1. A fixed percentage specified in the protocol.

DUPLICATE

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

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

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

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

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

SDG 7811
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1214

MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 05/20/08

MATRIX SPIKE

for the recovery.

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

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

METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

  MDAs are underlined if greater than the printed RDL.

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-088-016	Page 1 of 1

Collector B. Lawrence / E. Harries	**Company Contact** Joan Kessner	**Telephone No.** 509-375-4688	**Project Coordinator** KESSNER, JH
Price Code 9G	**Data Turnaround** 15 Days		
Project Designation 618-7 Burial Ground - Other Liquids	**Sampling Location** 618-7 Burial Ground (drums) K1214 (7811)	**SAF No.** RC-088	
Ice Chest No. ERC-02-407	**Field Logbook No.** EL-1395-12	**COA** RG61878500	**Method of Shipment** Fed Ex
Shipped To EBERLINE SERVICES / LIONVILLE	**Offsite Property No.** A080228	**Bill of Lading/Air Bill No.** see ospc	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

Preservation	Cool 4C	Cool 4C	None	None	None					
Type of Container	aG	aG	aG	aG	P					
No. of Container(s)	1	0	0	0	1					
Volume	250mL	~~125mL~~ DL 4-29-08	~~125mL~~ DL 4-29-08	~~60mL~~ DL 4-29-08	500mL					
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL) DL 4-29-08	PCBs - 8082 4-29-08 DL	See item (1) in Special Instructions. DL 4-29-08	Ignitability - 1010 4-29-08 DL	See item (2) in Special Instructions.					PIN#
Sample No.	Matrix * (solid MLM 5/6/08)	Sample Date	Sample Time							
J16M69	~~OTHER LIQUID~~	4-29-08	1000				X			0224
~~J16M70~~	~~OTHER LIQUID~~	4-29-08	1020				X			~~0082~~

MLM MLM

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From B Lawrence	1110 4-29-08	RB KERKOW / RB Kerk	1110 4-29-08
Relinquished By/Removed From RKERKOW / RB Kerk	1600 4-29-08	REF 1A (1060)	1600 4-29-08
Relinquished By/Removed From 1060/1A	5/5/08 0940	MStankovich	5/5/08 0940
Relinquished By/Removed From WCH MStankovich	0940 5/5/08	Received By/Stored In Fed Ex	
Relinquished By/Removed From Fed Ex		Received By/Stored In	05/06/08 09:20
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Aluminum, Antimony, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc, Zirconium}; ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Lead, Selenium, Thallium, Tin}; Mercury - 7471 - (CV)

(2) Gross Alpha; Gross Beta; Gamma Spectroscopy (TCL List) {Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Uranium; Isotopic Thorium; Americium-241; Isotopic Plutonium; Strontium-89,90 -- Total Sr

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

Matrix *

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

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

WCH-EE-011

EBERLINE

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Same SDG

JK 5/6/08

Client: W.C. HANFORD City RICHLAND State WA

Date/Time received 05/06/08 09:30 CoC No. RC-088-016

Container I.D. No. EBE-02-407 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 SOLID
7. Number of containers per sample: 1 (Or see CoC ____)
8. Samples are in correct container Yes [ ] No [ ]
9. Paperwork agrees with samples? Yes [ ] No [ ]
10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [ ]
11. Samples are: In good condition [ ] Leaking [ ] Broken Container [ ] Missing [ ]
12. Samples are: Preserved [ ] Not preserved [ ] pH ____ Preservative ____
13. Describe any anomalies:
    (1) J16M69 – ACTUAL MATRIX IS SOLID
    (2) J16M70 – IS LIQUID AND SEPARATED WITH OTHER SAMPLES
14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date ____
15. Inspected by [signature] Date: 05/06/08 Time: 11:00

Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe	Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	wipe
J16M69	<60						

Ion Chamber Ser. No ____ Calibration date ____

Alpha Meter Ser. No. ____ Calibration date ____

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

LIONVILLE LABORATORY INC.

JUN 2008

17 June 2008

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

Subject: Analytical Data Package

Dear Ms. Kessner:

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

LvLI Batch #	0805L054
SDG #	K1214
SAF #	RC-088
Date Received	5/6/08
# Samples	4
Matrix	OTHER LIQUID
Volatiles	
Semivolatiles	X
Pest/PCB	X
Glycols	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	X

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

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

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

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

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-088 K1214

RECEIVED
JUN 2008

DATE RECEIVED: 05/06/08 LVL LOT # 0805L054

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16M69	001	SO	08LE0229	04/29/08	05/12/08	05/16/08
J16M70	002	OI	08LE0233	04/29/08	05/13/08	05/16/08
J16M70	002 MS	OI	08LE0233	04/29/08	05/13/08	05/16/08
J16M70	002 MSD	OI	08LE0233	04/29/08	05/13/08	05/20/08
J16M71	003	OI	08LE0233	04/30/08	05/13/08	05/20/08
J16M72	004	OI	08LE0233	04/29/08	05/13/08	05/16/08
LAB QC:						
SBLKUT	MB1	S	08LE0229	N/A	05/12/08	05/20/08
SBLKUT	MB1 BS	S	08LE0229	N/A	05/12/08	05/20/08
SBLKUV	MB1	OI	08LE0233	N/A	05/13/08	05/16/08
SBLKUV	MB1 BS	OI	08LE0233	N/A	05/13/08	05/16/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-088
LVL #: 0805L054
SDG/SAF # K1214 / RC-088

W.O. #: 11343-606-001-9999-00
Date Received: 05-06-2008

SEMIVOLATILE

One (1) solid sample and three (3) oil samples were collected on 04-29,30-2008.

The samples and their associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3540C and 3580A (Waste Dilution Protocol, 1g into 10 mL DCM) on 05-12,13-2008 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 05-16,20-2008.

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

1. The results for solid samples were reported on a wet basis, due to the matrix.

2. Sample J16M69 extracted with an initial volume of 15 grams. Limited volume was sent by client.

3. Samples were extracted and analyzed within holding times.

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

5. Two (2) of sixty (60) surrogate recoveries were outside acceptance criteria. However, surrogate recovery acceptance criteria were met (i.e., no more than one outlier per fraction {acid and base neutral} and no recoveries less than 10%).

6. Two (2) of one hundred and twenty-eight (128) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

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

g:\group\data\bna\tnuhanford\0805-054ksoloil2.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 21 pages.

LvLI
LIONVILLE LABORATORY INC.

8. The method blanks were below the reporting limit for all target compounds.

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

10. All continuing calibration standard analyzed prior to sample extracts were within acceptance criteria.

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

12. Manual integrations are performed according to SOP QA-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

5/27/08
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 08MS109

Initiator: Shann Saylor
Date: 5-21-08
Client: Thy RC088 K1214

Batch: OFUSL054
Samples: msd
Method: SW846/MCAWW/CLP/

Parameter: 8270
Matrix: SOLID & OIL
Prep Batch: OFLE0233
OFLE0229

1. Reason for SDR

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

b. General Discrepancy

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

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

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

low recovery of ~~benzoic acid~~ & carbazole in the msd but ms & both BS's are ok
3nitroaniline
RCOSPL08TE

2. Known or Probable Causes(s) 3nitroaniline subject to erratic chromatographic behavior especially if the GC system contaminated with high boiling material. other compounds
RCOSPL08

3. Discussion and Proposed Action Other Description:

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

narrate

4. Project Manager Instructions...signature/date: 5/21/08

__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
__ Include in Case Narrative
__ Client Contacted:
Date/Person _____
__ Add
__ Cancel

5. Final Action...signature/date: 5/21/08 Other Explanation:

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

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

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

QA-105-A-0805

GLOSSARY

DATA QUALIFIERS

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

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

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

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

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

I = Interference.

NQ = Result qualitatively confirmed but not able to quantify.

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

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

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

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

GLOSSARY

ABBREVIATIONS

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

TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

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

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

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

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

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

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

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 05/23/08 13:34

RFW Batch Number: 0805L054 Client: TNUHANFORD RC-088 K1214 Work Order: 11343606001 Page: 1a

000000008

	Cust ID:	J16M69		J16M70		J16M70		J16M70		J16M71		J16M72	
Sample Information	RFW#:	001		002		002 MS		002 MSD		003		004	
	Matrix:	SOLID		OIL		OIL		OIL		OIL		OIL	
	D.F.:	1.00		21.0		21.0		21.0		21.0		21.0	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	80	%	120	%	107	%	85	%	89	%	108	%
	2-Fluorobiphenyl	71	%	103	%	98	%	85	%	89	%	102	%
	Terphenyl-d14	75	%	68	%	59	%	90	%	117	%	67	%
	Phenol-d5	85	%	124 *	%	109	%	95	%	80	%	113	%
	2-Fluorophenol	86	%	121	%	106	%	88	%	79	%	113	%
	2,4,6-Tribromophenol	26	%	92	%	82	%	91	%	63	%	81	%
			fl		fl		fl		fl		fl		fl
Phenol		670	U	210000	U	114	%	94	%	210000	U	210000	U
bis(2-Chloroethyl)ether		670	U	210000	U	112	%	84	%	210000	U	210000	U
2-Chlorophenol		670	U	210000	U	104	%	94	%	210000	U	210000	U
1,3-Dichlorobenzene		670	U	210000	U	96	%	86	%	210000	U	210000	U
1,4-Dichlorobenzene		670	U	210000	U	92	%	83	%	210000	U	210000	U
1,2-Dichlorobenzene		670	U	210000	U	95	%	87	%	210000	U	210000	U
2-Methylphenol		670	U	210000	U	112	%	92	%	210000	U	210000	U
2,2'-oxybis(1-Chloropropane)		670	U	210000	U	120	%	93	%	210000	U	210000	U
3/4 Methylphenol		670	U	210000	U	110	%	100	%	210000	U	210000	U
N-Nitroso-di-n-propylamine		670	U	210000	U	123	%	105	%	210000	U	210000	U
Hexachloroethane		670	U	210000	U	101	%	79	%	210000	U	210000	U
Nitrobenzene		670	U	210000	U	103	%	81	%	210000	U	210000	U
Isophorone		670	U	210000	U	119	%	105	%	210000	U	210000	U
2-Nitrophenol		670	U	210000	U	88	%	111	%	210000	U	210000	U
2,4-Dimethylphenol		670	U	210000	U	108	%	94	%	210000	U	210000	U
bis(2-Chloroethoxy)methane		670	U	210000	U	102	%	92	%	210000	U	210000	U
2,4-Dichlorophenol		670	U	210000	U	89	%	92	%	210000	U	210000	U
1,2,4-Trichlorobenzene		670	U	210000	U	85	%	85	%	210000	U	210000	U
Naphthalene		670	U	210000	U	92	%	85	%	210000	U	210000	U
4-Chloroaniline		670	U	210000	U	93	%	41	%	210000	U	210000	U
Hexachlorobutadiene		670	U	210000	U	87	%	87	%	210000	U	210000	U
4-Chloro-3-methylphenol		670	U	210000	U	101	%	98	%	210000	U	210000	U
2-Methylnaphthalene		670	U	210000	U	91	%	93	%	210000	U	210000	U
Hexachlorocyclopentadiene		670	U	210000	U	68	%	60	%	210000	U	210000	U
2,4,6-Trichlorophenol		670	U	210000	U	103	%	86	%	210000	U	210000	U
2,4,5-Trichlorophenol		1700	U	520000	U	102	%	92	%	520000	U	520000	U

*= Outside of EPA CLP QC limits.

Cust ID:	J16M69		J16M70		J16M70		J16M70		J16M71		J16M72	
RFW#:	001		002		002 MS		002 MSD		003		004	
2-Chloronaphthalene	670	U	210000	U	94	%	86	%	210000	U	210000	U
2-Nitroaniline	1700	U	520000	U	124	%	87	%	520000	U	520000	U
Dimethylphthalate	670	U	210000	U	94	%	93	%	210000	U	210000	U
Acenaphthylene	670	U	210000	U	93	%	86	%	210000	U	210000	U
2,6-Dinitrotoluene	670	U	210000	U	96	%	90	%	210000	U	210000	U
3-Nitroaniline	1700	U	520000	U	114	%	4 *	%	520000	U	520000	U
Acenaphthene	670	U	210000	U	89	%	82	%	210000	U	210000	U
2,4-Dinitrophenol	1700	U	520000	U	35	%	86	%	520000	U	520000	U
4-Nitrophenol	1700	U	520000	U	116	%	85	%	520000	U	520000	U
Dibenzofuran	670	U	210000	U	90	%	85	%	210000	U	210000	U
2,4-Dinitrotoluene	670	U	210000	U	92	%	93	%	210000	U	210000	U
Diethylphthalate	670	U	210000	U	87	%	86	%	210000	U	210000	U
4-Chlorophenyl-phenylether	670	U	210000	U	81	%	80	%	210000	U	210000	U
Fluorene	670	U	210000	U	87	%	82	%	210000	U	210000	U
4-Nitroaniline	1700	U	520000	U	100	%	53	%	520000	U	520000	U
4,6-Dinitro-2-methylphenol	1700	U	520000	U	51	%	103	%	520000	U	520000	U
N-Nitrosodiphenylamine (1)	670	U	210000	U	74	%	66	%	210000	U	210000	U
4-Bromophenyl-phenylether	670	U	210000	U	71	%	76	%	210000	U	210000	U
Hexachlorobenzene	670	U	210000	U	79	%	85	%	210000	U	210000	U
Pentachlorophenol	1700	U	520000	U	110	%	119	%	520000	U	520000	U
Phenanthrene	670	U	210000	U	88	%	84	%	210000	U	210000	U
Anthracene	670	U	210000	U	89	%	87	%	210000	U	210000	U
Carbazole	670	U	210000	U	88	%	53 *	%	210000	U	210000	U
Di-n-butylphthalate	670	U	210000	U	78	%	79	%	210000	U	210000	U
Fluoranthene	670	U	210000	U	96	%	77	%	210000	U	210000	U
Pyrene	670	U	210000	U	64	%	89	%	210000	U	210000	U
Butylbenzylphthalate	670	U	210000	U	68	%	88	%	210000	U	210000	U
3,3'-Dichlorobenzidine	670	U	210000	U	116	%	53	%	210000	U	210000	U
Benzo(a)anthracene	670	U	210000	U	89	%	82	%	210000	U	210000	U
Chrysene	670	U	210000	U	91	%	83	%	210000	U	210000	U
bis(2-Ethylhexyl)phthalate	81	JB	210000	U	86	%	74	%	210000	U	210000	U
Di-n-octyl phthalate	670	U	210000	U	59	%	74	%	210000	U	210000	U
Benzo(b)fluoranthene	670	U	210000	U	75	%	81	%	210000	U	210000	U
Benzo(k)fluoranthene	670	U	210000	U	78	%	82	%	210000	U	210000	U
Benzo(a)pyrene	670	U	210000	U	86	%	84	%	210000	U	210000	U
Indeno(1,2,3-cd)pyrene	670	U	210000	U	96	%	86	%	210000	U	210000	U
Dibenz(a,h)anthracene	670	U	210000	U	95	%	85	%	210000	U	210000	U
Benzo(g,h,i)perylene	670	U	210000	U	98	%	85	%	210000	U	210000	U

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

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 05/23/08 13:34

RFW Batch Number: 0805L054 Client: TNUHANFORD RC-088 K1214 Work Order: 11343606001 Page: 2a

	Cust ID:	SBLKUT	SBLKUT BS	SBLKUV	SBLKUV BS
Sample Information	RFW#:	08LE0229-MB1	08LE0229-MB1	08LE0233-MB1	08LE0233-MB1
	Matrix:	SOIL	SOIL	OIL	OIL
	D.F.:	1.00	1.00	21.0	21.0
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	73 %	68 %	111 %	107 %
	2-Fluorobiphenyl	68 %	65 %	98 %	96 %
	Terphenyl-d14	94 %	81 %	84 %	88 %
	Phenol-d5	71 %	71 %	105 %	103 %
	2-Fluorophenol	65 %	65 %	106 %	104 %
	2,4,6-Tribromophenol	18 * %	36 %	70 %	77 %
Phenol		330 U	71 %	210000 U	106 %
bis(2-Chloroethyl)ether		330 U	65 %	210000 U	119 %
2-Chlorophenol		330 U	68 %	210000 U	101 %
1,3-Dichlorobenzene		330 U	65 %	210000 U	98 %
1,4-Dichlorobenzene		330 U	65 %	210000 U	96 %
1,2-Dichlorobenzene		330 U	68 %	210000 U	100 %
2-Methylphenol		330 U	68 %	210000 U	94 %
2,2'-oxybis(1-Chloropropane)		330 U	65 %	210000 U	122 * %
3/4 Methylphenol		330 U	77 %	210000 U	99 %
N-Nitroso-di-n-propylamine		330 U	72 %	210000 U	123 %
Hexachloroethane		330 U	62 %	210000 U	105 %
Nitrobenzene		330 U	64 %	210000 U	108 %
Isophorone		330 U	83 %	210000 U	114 %
2-Nitrophenol		330 U	67 %	210000 U	91 %
2,4-Dimethylphenol		330 U	64 %	210000 U	97 %
bis(2-Chloroethoxy)methane		330 U	70 %	210000 U	102 %
2,4-Dichlorophenol		330 U	79 %	210000 U	80 %
1,2,4-Trichlorobenzene		330 U	72 %	210000 U	85 %
Naphthalene		330 U	67 %	210000 U	97 %
4-Chloroaniline		330 U	61 %	210000 U	90 %
Hexachlorobutadiene		330 U	71 %	210000 U	88 %
4-Chloro-3-methylphenol		330 U	87 %	210000 U	82 %
2-Methylnaphthalene		330 U	76 %	210000 U	93 %
Hexachlorocyclopentadiene		330 U	55 %	210000 U	87 %
2,4,6-Trichlorophenol		330 U	39 %	210000 U	97 %
2,4,5-Trichlorophenol		830 U	65 %	520000 U	92 %

*= Outside of EPA CLP QC limits.

000000010

Cust ID:	SBLKUT		SBLKUT BS		SBLKUV		SBLKUV BS	
RFW#:	08LE0229-MB1		08LE0229-MB1		08LE0233-MB1		08LE0233-MB1	
2-Chloronaphthalene	330	U	65	%	210000	U	93	%
2-Nitroaniline	830	U	72	%	520000	U	114	%
Dimethylphthalate	330	U	76	%	210000	U	92	%
Acenaphthylene	330	U	69	%	210000	U	94	%
2,6-Dinitrotoluene	330	U	81	%	210000	U	89	%
3-Nitroaniline	830	U	74	%	520000	U	104	%
Acenaphthene	330	U	66	%	210000	U	93	%
2,4-Dinitrophenol	830	U	28	%	520000	U	104	%
4-Nitrophenol	830	U	78	%	520000	U	124	%
Dibenzofuran	330	U	74	%	210000	U	95	%
2,4-Dinitrotoluene	330	U	90	%	210000	U	103	%
Diethylphthalate	330	U	76	%	210000	U	91	%
4-Chlorophenyl-phenylether	330	U	73	%	210000	U	91	%
Fluorene	330	U	74	%	210000	U	94	%
4-Nitroaniline	830	U	90	%	520000	U	104	%
4,6-Dinitro-2-methylphenol	830	U	42	%	520000	U	100	%
N-Nitrosodiphenylamine (1)	330	U	61	%	210000	U	69	%
4-Bromophenyl-phenylether	330	U	60	%	210000	U	71	%
Hexachlorobenzene	330	U	77	%	210000	U	85	%
Pentachlorophenol	830	U	47	%	520000	U	109	%
Phenanthrene	330	U	74	%	210000	U	91	%
Anthracene	330	U	78	%	210000	U	95	%
Carbazole	330	U	80	%	210000	U	91	%
Di-n-butylphthalate	21	J	76	%	210000	U	87	%
Fluoranthene	330	U	77	%	210000	U	96	%
Pyrene	330	U	78	%	210000	U	90	%
Butylbenzylphthalate	330	U	75	%	210000	U	94	%
3,3'-Dichlorobenzidine	330	U	67	%	210000	U	86	%
Benzo(a)anthracene	330	U	73	%	210000	U	94	%
Chrysene	330	U	74	%	210000	U	97	%
bis(2-Ethylhexyl)phthalate	37	J	71	%	210000	U	89	%
Di-n-octyl phthalate	330	U	77	%	210000	U	84	%
Benzo(b)fluoranthene	330	U	72	%	210000	U	89	%
Benzo(k)fluoranthene	330	U	76	%	210000	U	91	%
Benzo(a)pyrene	330	U	71	%	210000	U	91	%
Indeno(1,2,3-cd)pyrene	330	U	66	%	210000	U	89	%
Dibenz(a,h)anthracene	330	U	66	%	210000	U	90	%
Benzo(g,h,i)perylene	330	U	66	%	210000	U	90	%

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

000000011

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J16M69

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

Client: TNUHANFORD RC-088 K1214

Matrix: (soil/water) SOLID

Lab Sample ID: 0805L054-001

Sample wt/vol: 15.0 (g/mL) G

Lab File ID: C051605

Level: (low/med) LOW

Date Received: 05/06/08

% Moisture: 100 decanted: (Y/N)__

Date Extracted: 05/12/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/16/08

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: _____

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	5.426	800	J
2.	ALDOL CONDENSATE	5.857	400	JAB
3.	UNKNOWN	6.468	100000	JB
4.	ALDOL CONDENSATE	7.898	200	JA
5.	UNKNOWN	20.833	1000	JB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J16M70

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

Client: TNUHANFORD RC-088 K1214

Matrix: (soil/water) OIL

Lab Sample ID: 0805L054-002

Sample wt/vol: 1.00 (g/mL) G

Lab File ID: C051608

Level: (low/med) LOW

Date Received: 05/06/08

% Moisture: 100 decanted: (Y/N)__

Date Extracted: 05/13/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/16/08

Injection Volume: 2.0(uL)

Dilution Factor: 21.0

GPC Cleanup: (Y/N) N

pH: _____

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	27.254	2000000	J
2.	UNKNOWN	27.711	3000000	J
3.	UNKNOWN	28.537	5000000	J
4.	UNKNOWN	29.114	2000000	J
5.	UNKNOWN	29.709	1000000	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J16M71

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

Client: TNUHANFORD RC-088 K1214

Matrix: (soil/water) OIL

Lab Sample ID: 0805L054-003

Sample wt/vol: 1.00 (g/mL) G

Lab File ID: N052012

Level: (low/med) LOW

Date Received: 05/06/08

% Moisture: 100 decanted: (Y/N)__

Date Extracted: 05/13/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/20/08

Injection Volume: 2.0(uL)

Dilution Factor: 21.0

GPC Cleanup: (Y/N) N

pH: _____

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	3.190	70000	J
2.	UNKNOWN	3.661	90000	J
3.	UNKNOWN	3.705	100000	J
4.	UNKNOWN	3.731	100000	J
5.	UNKNOWN	34.166	400000	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J16M72

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

Client: TNUHANFORD RC-088 K1214

Matrix: (soil/water) OIL

Lab Sample ID: 0805L054-004

Sample wt/vol: 1.00 (g/mL) G

Lab File ID: C051607

Level: (low/med) LOW

Date Received: 05/06/08

% Moisture: 100 decanted: (Y/N)__

Date Extracted: 05/13/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/16/08

Injection Volume: 2.0(uL)

Dilution Factor: 21.0

GPC Cleanup: (Y/N) N

pH: _____

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	27.246	2000000	J
2.	UNKNOWN	27.702	2000000	J
3.	UNKNOWN	28.537	4000000	J
4.	UNKNOWN	29.106	3000000	J
5.	UNKNOWN	29.709	2000000	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKUT

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

Client: TNUHANFORD RC-088 K1214

Matrix: (soil/water) SOIL

Lab Sample ID: 08LE0229-MB1

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

Lab File ID: N052010

Level: (low/med) LOW

Date Received: 05/12/08

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

Date Extracted: 05/12/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/20/08

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: _____

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	4.100	300	J
2.	UNKNOWN	6.819	200	J
3.	ALDOL CONDENSATE	7.334	200	JA
4.	UNKNOWN	7.883	100000	J
5.	UNKNOWN	21.697	1000	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKUV

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

Client: TNUHANFORD RC-088 K1214

Matrix: (soil/water) OIL

Lab Sample ID: 08LE0233-MB1

Sample wt/vol: 1.00 (g/mL) G

Lab File ID: C051603

Level: (low/med) LOW

Date Received: 05/13/08

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

Date Extracted: 05/13/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/16/08

Injection Volume: 2.0(uL)

Dilution Factor: 21.0

GPC Cleanup: (Y/N) N

pH: _____

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

FORM 1 SV-TIC

RFW (v3.3)

nville Laboratory Use Only
8050054

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI Lionville Laboratory, Inc.

000000018

nt INU HANFORD SAFH RC-088
. 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
e Rec'd 5-6-08 Date Due 5-21-08

Refrigerator #			A														
#/Type Container	Liquid		3														
			1G														
	Solid		1G														
Volume			250														
			250														
Preservatives																	
ANALYSES REQUESTED →		ORGANIC: VOA	ORGANIC: BNA	ORGANIC: Pest/PCB	ORGANIC: Herb				INORG: Metal	INORG: CN	INORG: TOTAL						

TRIX DES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected		BNA	PCB					Metal		TIGN				
Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP Leachate, Wipe, Other, Fish									8250H	8PCB					Met①		TIGN				
	001	J16M69			X	4-29-08	1000		X	X					X		X				
	002	70			⊥	⊥	1020		X	X					X		X				
	003	71			SO	4-30-08	1400		X	X					X		X				
	004	72			OIL	4-29-08	1230		X	X					X		X				

ecial Instructions: #001, 002 004 other Liquid
Run matrix QC
met① = HSL + Zr, Sn

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

Relinquished by	Received by	Date	Time
		5/6/08	0940

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN	COMPOSITE MASTER		

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-088-016

000000019

llector B. Lawrence / E. Harries	Company Contact Joan Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Price Code 9G	Data Turnaround 15 Days		
oject Designation 618-7 Burial Ground - Other Liquids	Sampling Location 618-7 Burial Ground (drums)		SAF No. RC-088
e Chest No. 6PR-03-014	Field Logbook No. EL-1395-12	COA RG61878500	Method of Shipment FedEx
ipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A080245		Bill of Lading/Air Bill No. See OSPC

OSSIBLE SAMPLE HAZARDS/REMARKS

otential Radioactive contamination, potential beryllium ontamination

pecial Handling and/or Storage

one

Preservation	Cool 4C	Cool 4C	None	None	None						
Type of Container	aG	aG	aG	aG	P						
No. of Container(s)	1	0	0	0	1						
Volume	250mL	~~125mL~~ BL 4-29-08	~~125mL~~ BL 4-29-08	~~60mL~~ BL 4-29-08	500mL						
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (1) in Special Instructions.	Ignitability - 1010	See item (2) in Special Instructions. BL 4-29-08						PIN#
Sample No. / Matrix * / Sample Date / Sample Time											
3M69 / OTHER LIQUID / 4-29-08 / 1000	X	X	X	X							0224
3M70 / OTHER LIQUID / 4-29-08 / 1020	X	X	X	X							0082

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
quished By/Removed From: Lawrence	Received By/Stored In: RB Kerkow / RB Kerkow	1110 4-29-08
quished By/Removed From: RB Kerkow / RB Kerkow	Received By/Stored In: REF 1A, (1060)	1600 4-29-08
quished By/Removed From: 1060 / 1A	Received By/Stored In: MStankovich	0940 5/5/08
quished By/Removed From: WCH MStankovich	Received By/Stored In: FedEx	5/5/08 0940
quished By/Removed From: FedEx	Received By/Stored In:	5-6-08 0940
quished By/Removed From:	Received By/Stored In:	

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Aluminum, Antimony, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc, Zirconium}; ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Lead, Selenium, Thallium, Tin}; Mercury - 7471 - (CV)

(2) Gross Alpha; Gross Beta; Gamma Spectroscopy (TCL List) {Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Uranium; Isotopic Thorium; Americium-241; Isotopic Plutonium; Strontium-89,90 -- Total Sr

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

KW

Matrix *

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

BORATORY SECTION	Received By	Title	Date/Time
'AL SAMPLE SPOSITION	Disposal Method	Disposed By	Date/Time

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-088-017	Page 1 of 1

ollector B. Lawrence / E. Harries	Company Contact Joan Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Price Code 9G	Data Turnaround 15 Days		
olect Designation 618-7 Burial Ground - Other Liquids	Sampling Location 618-7 Burial Ground (drums)		SAF No. RC-088
e Chest No. GPR-03-014	Field Logbook No. EL-1395-12	COA RG61878500	Method of Shipment FedEx
ipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A080245		Bill of Lading/Air Bill No. STCOSPC

OSSIBLE SAMPLE HAZARDS/REMARKS

otential Radioactive contamination, potential beryllium ontamination

pecial Handling and/or Storage

one

Preservation	Cool 4C	Cool 4C	None	None	None						
Type of Container	aG	aG	aG	aG	P						
No. of Container(s)	1	0	0	0	1						
Volume	250mL	~~125mL~~ RTC 4/29/08	~~125mL~~ RTC 4/29/08	~~60mL~~ RTC 4/29/08	500mL						
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (1) in Special Instructions.	Ignitability - 1010	See item (2) in Special Instructions. RTC 4/29/08						PIN#
Sample No. / Matrix * / Sample Date / Sample Time											
6M71 / OTHER LIQUID / 4/29/08 / 1230	X	X	X	X				SLUDGE/WATER			-0065
~~3M72 / OTHER LIQUID~~											

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
quished By/Removed From: Lawrence / Date/Time 1640 4-29-08	Received By/Stored In: RT Coffman / RT Coffman 4/29/08 / Date/Time 1640	(1) ICP Metals - 6010A (TAL) {Aluminum, Antimony, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc, Zirconium}; ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Lead, Selenium, Thallium, Tin}; Mercury - 7471 - (CV)	S=Soil SE=Sediment SO=Solid Sl=Sludge W = Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue Wi=Wipe L=Liquid Ve=Vegetation X=Other
quished By/Removed From: RT Coffman / RT Coffman 4/29/08 / Date/Time 1730	Received By/Stored In: REFER #1A, 1060 BLDG, 4/29/08 / Date/Time 1730	(2) Gross Alpha; Gross Beta; Gamma Spectroscopy (TCL List) {Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Uranium; Isotopic Thorium; Americium-241; Isotopic Plutonium; Strontium-89,90 -- Total Sr.	
quished By/Removed From: 260/1A 5/5/08 / Date/Time 0930	Received By/Stored In: MS Stankovich / Date/Time 5/5/08 0930		
quished By/Removed From: MS Stankovich 5/5/08 / Date/Time 0930	Received By/Stored In: Fed Ex / Date/Time	Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.	
quished By/Removed From: Fed Ex / Date/Time 5-6-08 0940	Received By/Stored In: [signature] / Date/Time 5-6-08 0940		
quished By/Removed From / Date/Time	Received By/Stored In / Date/Time		

BORATORY SECTION	Received By	Title	Date/Time
NAL SAMPLE SPOSITION	Disposal Method	Disposed By	Date/Time

H-EE-011

000000020

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD Date: 5-6-08

Project/SAF/SOW/Release #: RC-088

LvLI Batch #: 0805L054 Sample Custodian: V. Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7900 0748 1198
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 4.1	°C	Cooler # GPR-03-014
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI

RECEIVED
JUN 2008

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-088 K1214

DATE RECEIVED: 05/06/08 LVL LOT # :08Q5L054

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16M69	001	SO	08LE0227	04/29/08	05/09/08	05/15/08
J16M70	002	OI	08LE0234	04/29/08	05/13/08	05/17/08
J16M70	002 MS	OI	08LE0234	04/29/08	05/13/08	05/17/08
J16M70	002 MSD	OI	08LE0234	04/29/08	05/13/08	05/17/08
J16M71	003	OI	08LE0234	04/30/08	05/13/08	05/17/08
J16M72	004	OI	08LE0234	04/29/08	05/13/08	05/17/08
LAB QC:						
PBLKQF	MB1	S	08LE0227	N/A	05/09/08	05/15/08
PBLKQF	MB1 BS	S	08LE0227	N/A	05/09/08	05/15/08
PBLKQI	MB1	S	08LE0234	N/A	05/13/08	05/16/08
PBLKQI	MB1 BS	S	08LE0234	N/A	05/13/08	05/16/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-088
LVL #: 0805L054
SDG/SAF # K1214 / RC-088

W.O. #: 11343-606-001-9999-00
Date Received: 05-06-2008

PCB

Three (3) oil samples and one (1) solid sample were collected on 04-29,30-2008.

The samples and their associated QC samples were extracted on 05-09,13-2008 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedure on 05-15,16,17-2008. The extraction procedure was based on method 3540C and 3580A (waste dilution 1g into 10 mLs of Hexane and the extracts were analyzed based on method 8082.

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

1. Samples were extracted and analyzed within required holding time.

2. The samples and their associated QC samples received Copper-Sulfur and Sulfuric Acid cleanups according to Lionville Laboratory SOPs based on SW846 methods 3660A and 3665A respectively.

3. The method blank was below the reporting limits for all target compounds.

4. One (1) of twenty (20) surrogate recoveries was outside acceptance criteria. However, the surrogate recovery acceptance criteria were met (i.e. no more than one outlier per sample).

5. All blank spike recoveries were within acceptance criteria.

6. All matrix spike recoveries were within acceptance criteria.

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

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

k:\group\data\pest\tnu\0805-054koilsol2.pcb.doc

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

LIONVILLE LABORATORY INC.

9. The results for solid samples were reported on an 'as-received basis' as required by the project.

10. 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.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

5/23/08
Date

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 05/20/08 12:44

RFW Batch Number: **0805L054** Client: **TNUHANFORD RC-088 K1214** Work Order: 11343606001 Page: 1

000000005

	Cust ID:	J16M69	J16M70	J16M70	J16M70	J16M71	J16M72
Sample Information	RFW#:	001	002	002 MS	002 MSD	003	004
	Matrix:	SOLID	OIL	OIL	OIL	OIL	OIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	93 %	96 %	100 %	102 %	84 %	122 %
	Decachlorobiphenyl	99 %	78 %	79 %	82 %	16 * %	117 %
		fl	fl	fl	fl	fl	fl
Aroclor-1016		40 U	400 U	90 %	89 %	400 U	400 U
Aroclor-1221		40 U	400 U	400 U	400 U	400 U	400 U
Aroclor-1232		40 U	400 U	400 U	400 U	400 U	400 U
Aroclor-1242		40 U	400 U	400 U	400 U	400 U	400 U
Aroclor-1248		40 U	400 U	400 U	400 U	400 U	400 U
Aroclor-1254		40 U	400 U	400 U	400 U	400 U	400 U
Aroclor-1260		40 U	400 U	103 %	104 %	400 U	400 U

	Cust ID:	PBLKQF	PBLKQF BS	PBLKQI	PBLKQI BS
Sample Information	RFW#:	08LE0227-MB1	08LE0227-MB1	08LE0234-MB1	08LE0234-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	94 %	82 %	117 %	127 %
	Decachlorobiphenyl	96 %	98 %	114 %	126 %
		fl	fl	fl	fl
Aroclor-1016		13 U	75 %	400 U	110 %
Aroclor-1221		13 U	13 U	400 U	400 U
Aroclor-1232		13 U	13 U	400 U	400 U
Aroclor-1242		13 U	13 U	400 U	400 U
Aroclor-1248		13 U	13 U	400 U	400 U
Aroclor-1254		13 U	13 U	400 U	400 U
Aroclor-1260		13 U	76 %	400 U	128 %

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

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 05/09/08 Extraction Batch No: 08LE0227 Analyst: MF Method: **** SOX3540

Test: OPCB Cleanup Date: 05/14/08 Analyst: MF Client: TNU-HANFORD RC-073

LIMS Report Date: 05/15/08 Solvent: DCM/ACETONE,HEXANE Adsorbent: H2SO4

Sample No:	Client Name / Client ID	pH	Initial WT/VOL	Surr. Mult.	Spike Mult.	Final VOL	Final VOL	Split Mult.	GPC Y/N	% Solids	C/D FACTOR
0805L052-	TNU-HANFORD RC-073										
001	J16V88		0.5	1.0		10		1.0	N	0.0	20000
001 -S	J16V88		0.5	1.0	1.0	10		1.0	N	0.0	20000
001 -T	J16V88		0.5	1.0	1.0	10		1.0	N	0.0	20000
0805L054-	TNUHANFORD RC-088 K1214										
001	J16M69		10.0	1.0		10		1.0	N	0.0	1000.0
0805L072-	VISTA ENGINEERING										
001	B109		30.0	1.0		10		1.0	N	97.00	343.6
0805L087-	VISTA ENGINEERING										
001	B110		30.0	1.0		10		1.0	N	84.00	396.8
002	B111		30.0	1.0		10		1.0	N	95.15	350.3
002 -S	B111		30.0	1.0	1.0	10		1.0	N	95.15	350.3
002 -T	B111		30.0	1.0	1.0	10		1.0	N	95.15	350.3
003	B112		30.0	1.0		10		1.0	N	95.85	347.8
08LE0227-MB1	PBLKQF		30.0	1.0		10		1.0	N	100.00	333.3
08LE0227-MB1 -S	PBLKQF		30.0	1.0	1.0	10		1.0	N	100.00	333.3

Comments: 054 LIMITED VOLUME
Surrogate: 250 UL OLM PSURR 89916405
Spike: 250 UL AR1660 89916602

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
all	[illegible]	5/15/05 12:25	SZ	5/15/08 12:25	GC

000000006

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 05/13/08 Extraction Batch No: 08LE0234 Analyst: MF Method: **** WD3580

Test: OPCB Cleanup Date: 05/15/08 Analyst: MF Client: TNUHANFORD RC-088 K1214

LIMS Report Date: 05/16/08 Solvent: HEXANE Adsorbent: H2SO4

Sample No:	Client Name / Client ID	pH	Initial WT/VOL	Surr. Mult.	Spike Mult.	Final VOL	Final VOL	Split Mult.	GPC Y/N	% Solids	C/D FACTOR
0805L054-	TNUHANFORD RC-088 K1214										
002	J16M70		1.0	1.0		10		1.0	N	0.00	10000
002 -S	J16M70		1.0	1.0	1.0	10		1.0	N	0.00	10000
002 -T	J16M70		1.0	1.0	1.0	10		1.0	N	0.00	10000
003	J16M71		1.0	1.0		10		1.0	N	0.00	10000
004	J16M72		1.0	1.0		10		1.0	N	0.00	10000
08LE0234-MB1	PBLKQI		1.0	1.0		10		1.0	N	100.00	10000
08LE0234-MB1 -S	PBLKQI		1.0	1.0	1.0	10		1.0	N	100.00	10000

Comments:
Surrogate: 250 UL OLM PSURR 89916406
Spike: 250 UL AR1660 89916602

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
all	[signature]	5/16/08 1305	SZ	5/16/08 13:05	ce

000000007

onville Laboratory Use Only

28051054

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

lent TNU HANFORD SAFH RC-088

t. Final Proj. Sampling Date

oject# 11343-606-001-9999-00

oject Contact/Phone#

onville Laboratory Project Manager O Johnson

SW846 Del STD TAT 15 days

ite Rec'd 5-6-08 Date Due 5-21-08

Refrigerator #			A																
#/Type Container	Liquid		3																
			1G																
	Solid		1G																
Volume			250																
			250																
Preservatives																			
ANALYSES REQUESTED →			ORGANIC							INORG									
			VOA	BNA	~~Pest~~/PCB	Herb				~~Pest~~ Metal	~~Hg~~	CN							

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only											
									OV25H	OPC13				Met①		IIGN			
Soil	001	J16M69			X	4-29-08	1000		X	X				X		X			
Sediment	002	70			⊥	⊥	1020		X	X				X		X			
Solid	003	71			SO	4-30-08	1400		X	X				X		X			
Sludge	004	72			OK	4-29-08	1230		X	X				X		X			
Water																			
Oil																			
Air																			
Drum Solids																			
Drum Liquids																			
EP/TCLP Leachate																			
Wipe																			
Other																			
Fish																			

Special Instructions: #001, 002 004 other liquid
Run matrix QC
Met① = HSL + Zr, Sn

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

Relinquished by	Received by	Date	Time
		5/6/08	0940

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		COMPOSITE	

0000000008

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-088-016	Page 1 of 1

Collector: B. Lawrence / E. Harries	Company Contact: Joan Kessner	Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH
Project Designation: 618-7 Burial Ground - Other Liquids	Sampling Location: 618-7 Burial Ground (drums)		SAF No.: RC-088
Ice Chest No.: 6PR-03-014	Field Logbook No.: EL-1395-12	COA: RG61878500	Method of Shipment: FedEx
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A080245		Bill of Lading/Air Bill No.: See OSPC

Price Code: 9G

Data Turnaround: 15 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

Preservation	Cool 4C	Cool 4C	None	None	None	
Type of Container	aG	aG	aG	aG	P	
No. of Container(s)	1	0	0	0	1	
Volume	250mL	~~125mL~~ RK 4-29-08	~~125mL~~ RK 4-29-08	~~60mL~~ RK 4-29-08	500mL	
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (1) in Special Instructions.	Ignitability - 1010	See item (2) in Special Instructions. RK 4-29-08	PIN#

Sample No.	Matrix *	Sample Date	Sample Time										PIN#
16M69	OTHER LIQUID	4-29-08	1000	X	X	X	X						0224
16M70	OTHER LIQUID	4-29-08	1020	X	X	X	X						0082

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Lawrence	1110 4-29-08	RBKERKOW/RB Kerk	1110 4-29-08
RBKERKOW/RB Kerk	1600 4-29-08	REF 1A, (1061)	1600 4-29-08
060/1A	5/5/08 0940	MStankovich	0940 5/5/08
MStankovich	WCH 5/5/08 0940	FedEx	
FedEx	5-6-08 0940		5-6-08 0940

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Aluminum, Antimony, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc, Zirconium}; ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Lead, Selenium, Thallium, Tin}; Mercury - 7471 - (CV)

(2) Gross Alpha; Gross Beta; Gamma Spectroscopy (TCL List) {Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Uranium; Isotopic Thorium; Americium-241; Isotopic Plutonium; Strontium-89,90 -- Total Sr

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

KW

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

000000009

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-088-017

Collector: B. Lawrence / E. Harries	Company Contact: Joan Kessner	Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH
Price Code: 9G	Data Turnaround: 15 Days		
Project Designation: 618-7 Burial Ground - Other Liquids	Sampling Location: 618-7 Burial Ground (drums)		SAF No.: RC-088
Ice Chest No.: GPR-03-014	Field Logbook No.: EL-1395-12	COA: RG61878500	Method of Shipment: FedEx
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A080245		Bill of Lading/Air Bill No.: STCOSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

Preservation	Cool 4C	Cool 4C	None	None	None						
Type of Container	aG	aG	aG	aG	P						
No. of Container(s)	1	0	0	0	1						
Volume	250mL	~~125mL~~ RTC 4/29/08	~~125mL~~ RTC 4/29/08	~~60mL~~ RTC 4/29/08	500mL						
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (1) in Special Instructions.	Ignitability - 1010	See item (2) in Special Instructions. RTC 4/29/08						PIN#
Sample No. / Matrix * / Sample Date / Sample Time											
16M71 / OTHER LIQUID / 4/29/08 / 1230	X	X	X	X				SLUDGE/WATER			0065
~~16M72 / OTHER LIQUID~~											

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: Lawrence	1640 4-29-08	Received By/Stored In: RT Coffman / RT Coffman	1640 4/29/08
Relinquished By/Removed From: RT Coffman / RT Coffman	1730 4/29/08	Received By/Stored In: REFER #1A, 1060 BLDG	1730 4/29/08
Relinquished By/Removed From: 060/1A	5/5/08 0930	Received By/Stored In: MStankovich	5/5/08 0930
Relinquished By/Removed From: MStankovich	0930 5/5/08	Received By/Stored In: Fed Ex	
Relinquished By/Removed From: Fed Ex	5-6-08 0940	Received By/Stored In:	5-6-08 0940
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Aluminum, Antimony, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc, Zirconium}; ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Lead, Selenium, Thallium, Tin}; Mercury - 7471 - (CV)

(2) Gross Alpha; Gross Beta; Gamma Spectroscopy (TCL List) {Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Uranium; Isotopic Thorium; Americium-241; Isotopic Plutonium; Strontium-89,90 -- Total Sr

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

Matrix *

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

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

CH-EE-011

000000010

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

Project/SAE/SOW/Release #: RC-088

Date: 5-6-08

LvLI Batch #: 08051054

Sample Custodian: V. Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7900 0748 1198
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 4.1	°C	Cooler # GPR-03-014
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI

RECEIVED
JUN 2008

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-088 K1214

DATE RECEIVED: 05/06/08 LVL LOT # :0805L054

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16M69						
TCLP	001	SO	08LT0043	04/29/08	05/16/08	05/17/08
SILVER, TOTAL	001	SO	08L0201	04/29/08	05/15/08	05/16/08
SILVER, TOTAL	001 REP	SO	08L0201	04/29/08	05/15/08	05/16/08
SILVER, TOTAL	001 MS	SO	08L0201	04/29/08	05/15/08	05/16/08
ALUMINUM, TOTAL	001	SO	08L0201	04/29/08	05/15/08	05/16/08
ALUMINUM, TOTAL	001 REP	SO	08L0201	04/29/08	05/15/08	05/16/08
ALUMINUM, TOTAL	001 MS	SO	08L0201	04/29/08	05/15/08	05/16/08
ARSENIC, TOTAL	001	SO	08L0201	04/29/08	05/15/08	05/16/08
ARSENIC, TOTAL	001 REP	SO	08L0201	04/29/08	05/15/08	05/16/08
ARSENIC, TOTAL	001 MS	SO	08L0201	04/29/08	05/15/08	05/16/08
BARIUM, TOTAL	001	SO	08L0201	04/29/08	05/15/08	05/16/08
BARIUM, TOTAL	001 REP	SO	08L0201	04/29/08	05/15/08	05/16/08
BARIUM, TOTAL	001 MS	SO	08L0201	04/29/08	05/15/08	05/16/08
BERYLLIUM, TOTAL	001	SO	08L0201	04/29/08	05/15/08	05/16/08
BERYLLIUM, TOTAL	001 REP	SO	08L0201	04/29/08	05/15/08	05/16/08
BERYLLIUM, TOTAL	001 MS	SO	08L0201	04/29/08	05/15/08	05/16/08
CALCIUM, TOTAL	001	SO	08L0201	04/29/08	05/15/08	05/16/08
CALCIUM, TOTAL	001 REP	SO	08L0201	04/29/08	05/15/08	05/16/08
CALCIUM, TOTAL	001 MS	SO	08L0201	04/29/08	05/15/08	05/16/08
CADMIUM, TOTAL	001	SO	08L0201	04/29/08	05/15/08	05/16/08
CADMIUM, TOTAL	001 REP	SO	08L0201	04/29/08	05/15/08	05/16/08
CADMIUM, TOTAL	001 MS	SO	08L0201	04/29/08	05/15/08	05/16/08
COBALT, TOTAL	001	SO	08L0201	04/29/08	05/15/08	05/16/08
COBALT, TOTAL	001 REP	SO	08L0201	04/29/08	05/15/08	05/16/08
COBALT, TOTAL	001 MS	SO	08L0201	04/29/08	05/15/08	05/16/08
CHROMIUM, TOTAL	001	SO	08L0201	04/29/08	05/15/08	05/16/08
CHROMIUM, TOTAL	001 REP	SO	08L0201	04/29/08	05/15/08	05/16/08
CHROMIUM, TOTAL	001 MS	SO	08L0201	04/29/08	05/15/08	05/16/08
COPPER, TOTAL	001	SO	08L0201	04/29/08	05/15/08	05/16/08
COPPER, TOTAL	001 REP	SO	08L0201	04/29/08	05/15/08	05/16/08
COPPER, TOTAL	001 MS	SO	08L0201	04/29/08	05/15/08	05/16/08
IRON, TOTAL	001	SO	08L0201	04/29/08	05/15/08	05/16/08
IRON, TOTAL	001 REP	SO	08L0201	04/29/08	05/15/08	05/16/08
IRON, TOTAL	001 MS	SO	08L0201	04/29/08	05/15/08	05/16/08
MERCURY, TOTAL	001	SO	08C0085	04/29/08	05/13/08	05/13/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-088 K1214

DATE RECEIVED: 05/06/08 LVL LOT # :0805L054

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	001 REP	SO	08C0085	04/29/08	05/13/08	05/13/08
MERCURY, TOTAL	001 MS	SO	08C0085	04/29/08	05/13/08	05/13/08
POTASSIUM, TOTAL	001	SO	08L0201	04/29/08	05/15/08	05/20/08
POTASSIUM, TOTAL	001 REP	SO	08L0201	04/29/08	05/15/08	05/20/08
POTASSIUM, TOTAL	001 MS	SO	08L0201	04/29/08	05/15/08	05/20/08
MAGNESIUM, TOTAL	001	SO	08L0201	04/29/08	05/15/08	05/16/08
MAGNESIUM, TOTAL	001 REP	SO	08L0201	04/29/08	05/15/08	05/16/08
MAGNESIUM, TOTAL	001 MS	SO	08L0201	04/29/08	05/15/08	05/16/08
MANGANESE, TOTAL	001	SO	08L0201	04/29/08	05/15/08	05/16/08
MANGANESE, TOTAL	001 REP	SO	08L0201	04/29/08	05/15/08	05/16/08
MANGANESE, TOTAL	001 MS	SO	08L0201	04/29/08	05/15/08	05/16/08
SODIUM, TOTAL	001	SO	08L0201	04/29/08	05/15/08	05/20/08
SODIUM, TOTAL	001 REP	SO	08L0201	04/29/08	05/15/08	05/20/08
SODIUM, TOTAL	001 MS	SO	08L0201	04/29/08	05/15/08	05/20/08
NICKEL, TOTAL	001	SO	08L0201	04/29/08	05/15/08	05/16/08
NICKEL, TOTAL	001 REP	SO	08L0201	04/29/08	05/15/08	05/16/08
NICKEL, TOTAL	001 MS	SO	08L0201	04/29/08	05/15/08	05/16/08
LEAD, TOTAL	001	SO	08L0201	04/29/08	05/15/08	05/16/08
LEAD, TOTAL	001 REP	SO	08L0201	04/29/08	05/15/08	05/16/08
LEAD, TOTAL	001 MS	SO	08L0201	04/29/08	05/15/08	05/16/08
ANTIMONY, TOTAL	001	SO	08L0201	04/29/08	05/15/08	05/16/08
ANTIMONY, TOTAL	001 REP	SO	08L0201	04/29/08	05/15/08	05/16/08
ANTIMONY, TOTAL	001 MS	SO	08L0201	04/29/08	05/15/08	05/16/08
SELENIUM, TOTAL	001	SO	08L0201	04/29/08	05/15/08	05/16/08
SELENIUM, TOTAL	001 REP	SO	08L0201	04/29/08	05/15/08	05/16/08
SELENIUM, TOTAL	001 MS	SO	08L0201	04/29/08	05/15/08	05/16/08
TIN, TOTAL	001	SO	08L0201	04/29/08	05/15/08	05/16/08
TIN, TOTAL	001 REP	SO	08L0201	04/29/08	05/15/08	05/16/08
TIN, TOTAL	001 MS	SO	08L0201	04/29/08	05/15/08	05/16/08
THALLIUM, TOTAL	001	SO	08L0201	04/29/08	05/15/08	05/16/08
THALLIUM, TOTAL	001 REP	SO	08L0201	04/29/08	05/15/08	05/16/08
THALLIUM, TOTAL	001 MS	SO	08L0201	04/29/08	05/15/08	05/16/08
VANADIUM, TOTAL	001	SO	08L0201	04/29/08	05/15/08	05/16/08
VANADIUM, TOTAL	001 REP	SO	08L0201	04/29/08	05/15/08	05/16/08
VANADIUM, TOTAL	001 MS	SO	08L0201	04/29/08	05/15/08	05/16/08
ZINC, TOTAL	001	SO	08L0201	04/29/08	05/15/08	05/16/08
ZINC, TOTAL	001 REP	SO	08L0201	04/29/08	05/15/08	05/16/08
ZINC, TOTAL	001 MS	SO	08L0201	04/29/08	05/15/08	05/16/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-088 K1214

DATE RECEIVED: 05/06/08 LVL LOT # :0805L054

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZIRCONIUM, TOTAL	001	SO	08L0201	04/29/08	05/15/08	05/16/08
ZIRCONIUM, TOTAL	001 REP	SO	08L0201	04/29/08	05/15/08	05/16/08
ZIRCONIUM, TOTAL	001 MS	SO	08L0201	04/29/08	05/15/08	05/16/08
J16M70						
SILVER, TOTAL	002	OI	08L0201	04/29/08	05/15/08	05/16/08
ALUMINUM, TOTAL	002	OI	08L0201	04/29/08	05/15/08	05/16/08
ARSENIC, TOTAL	002	OI	08L0201	04/29/08	05/15/08	05/16/08
BARIUM, TOTAL	002	OI	08L0201	04/29/08	05/15/08	05/16/08
BERYLLIUM, TOTAL	002	OI	08L0201	04/29/08	05/15/08	05/16/08
CALCIUM, TOTAL	002	OI	08L0201	04/29/08	05/15/08	05/16/08
CADMIUM, TOTAL	002	OI	08L0201	04/29/08	05/15/08	05/16/08
COBALT, TOTAL	002	OI	08L0201	04/29/08	05/15/08	05/16/08
CHROMIUM, TOTAL	002	OI	08L0201	04/29/08	05/15/08	05/16/08
COPPER, TOTAL	002	OI	08L0201	04/29/08	05/15/08	05/16/08
IRON, TOTAL	002	OI	08L0201	04/29/08	05/15/08	05/16/08
MERCURY, TOTAL	002	OI	08C0085	04/29/08	05/13/08	05/13/08
POTASSIUM, TOTAL	002	OI	08L0201	04/29/08	05/15/08	05/20/08
MAGNESIUM, TOTAL	002	OI	08L0201	04/29/08	05/15/08	05/16/08
MANGANESE, TOTAL	002	OI	08L0201	04/29/08	05/15/08	05/16/08
SODIUM, TOTAL	002	OI	08L0201	04/29/08	05/15/08	05/20/08
NICKEL, TOTAL	002	OI	08L0201	04/29/08	05/15/08	05/16/08
LEAD, TOTAL	002	OI	08L0201	04/29/08	05/15/08	05/16/08
ANTIMONY, TOTAL	002	OI	08L0201	04/29/08	05/15/08	05/16/08
SELENIUM, TOTAL	002	OI	08L0201	04/29/08	05/15/08	05/16/08
TIN, TOTAL	002	OI	08L0201	04/29/08	05/15/08	05/16/08
THALLIUM, TOTAL	002	OI	08L0201	04/29/08	05/15/08	05/16/08
VANADIUM, TOTAL	002	OI	08L0201	04/29/08	05/15/08	05/16/08
ZINC, TOTAL	002	OI	08L0201	04/29/08	05/15/08	05/16/08
ZIRCONIUM, TOTAL	002	OI	08L0201	04/29/08	05/15/08	05/16/08
J16M71						
SILVER, TOTAL	003	OI	08L0201	04/30/08	05/15/08	05/16/08
ALUMINUM, TOTAL	003	OI	08L0201	04/30/08	05/15/08	05/16/08
ARSENIC, TOTAL	003	OI	08L0201	04/30/08	05/15/08	05/16/08
BARIUM, TOTAL	003	OI	08L0201	04/30/08	05/15/08	05/16/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-088 K1214

DATE RECEIVED: 05/06/08 LVL LOT # :0805L054

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BERYLLIUM, TOTAL	003	OI	08L0201	04/30/08	05/15/08	05/16/08
CALCIUM, TOTAL	003	OI	08L0201	04/30/08	05/15/08	05/16/08
CADMIUM, TOTAL	003	OI	08L0201	04/30/08	05/15/08	05/16/08
COBALT, TOTAL	003	OI	08L0201	04/30/08	05/15/08	05/16/08
CHROMIUM, TOTAL	003	OI	08L0201	04/30/08	05/15/08	05/16/08
COPPER, TOTAL	003	OI	08L0201	04/30/08	05/15/08	05/16/08
IRON, TOTAL	003	OI	08L0201	04/30/08	05/15/08	05/16/08
MERCURY, TOTAL	003	OI	08C0085	04/30/08	05/13/08	05/13/08
POTASSIUM, TOTAL	003	OI	08L0201	04/30/08	05/15/08	05/20/08
MAGNESIUM, TOTAL	003	OI	08L0201	04/30/08	05/15/08	05/16/08
MANGANESE, TOTAL	003	OI	08L0201	04/30/08	05/15/08	05/16/08
SODIUM, TOTAL	003	OI	08L0201	04/30/08	05/15/08	05/20/08
NICKEL, TOTAL	003	OI	08L0201	04/30/08	05/15/08	05/16/08
LEAD, TOTAL	003	OI	08L0201	04/30/08	05/15/08	05/16/08
ANTIMONY, TOTAL	003	OI	08L0201	04/30/08	05/15/08	05/16/08
SELENIUM, TOTAL	003	OI	08L0201	04/30/08	05/15/08	05/16/08
TIN, TOTAL	003	OI	08L0201	04/30/08	05/15/08	05/16/08
THALLIUM, TOTAL	003	OI	08L0201	04/30/08	05/15/08	05/16/08
VANADIUM, TOTAL	003	OI	08L0201	04/30/08	05/15/08	05/16/08
ZINC, TOTAL	003	OI	08L0201	04/30/08	05/15/08	05/16/08
ZIRCONIUM, TOTAL	003	OI	08L0201	04/30/08	05/15/08	05/16/08
J16M72						
SILVER, TOTAL	004	OI	08L0201	04/29/08	05/15/08	05/16/08
ALUMINUM, TOTAL	004	OI	08L0201	04/29/08	05/15/08	05/16/08
ARSENIC, TOTAL	004	OI	08L0201	04/29/08	05/15/08	05/16/08
BARIUM, TOTAL	004	OI	08L0201	04/29/08	05/15/08	05/16/08
BERYLLIUM, TOTAL	004	OI	08L0201	04/29/08	05/15/08	05/16/08
CALCIUM, TOTAL	004	OI	08L0201	04/29/08	05/15/08	05/16/08
CADMIUM, TOTAL	004	OI	08L0201	04/29/08	05/15/08	05/16/08
COBALT, TOTAL	004	OI	08L0201	04/29/08	05/15/08	05/16/08
CHROMIUM, TOTAL	004	OI	08L0201	04/29/08	05/15/08	05/16/08
COPPER, TOTAL	004	OI	08L0201	04/29/08	05/15/08	05/16/08
IRON, TOTAL	004	OI	08L0201	04/29/08	05/15/08	05/16/08
MERCURY, TOTAL	004	OI	08C0085	04/29/08	05/13/08	05/13/08
POTASSIUM, TOTAL	004	OI	08L0201	04/29/08	05/15/08	05/20/08
MAGNESIUM, TOTAL	004	OI	08L0201	04/29/08	05/15/08	05/16/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-088 K1214

DATE RECEIVED: 05/06/08 LVL LOT # :0805L054

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MANGANESE, TOTAL	004	OI	08L0201	04/29/08	05/15/08	05/16/08
SODIUM, TOTAL	004	OI	08L0201	04/29/08	05/15/08	05/20/08
NICKEL, TOTAL	004	OI	08L0201	04/29/08	05/15/08	05/16/08
LEAD, TOTAL	004	OI	08L0201	04/29/08	05/15/08	05/16/08
ANTIMONY, TOTAL	004	OI	08L0201	04/29/08	05/15/08	05/16/08
SELENIUM, TOTAL	004	OI	08L0201	04/29/08	05/15/08	05/16/08
TIN, TOTAL	004	OI	08L0201	04/29/08	05/15/08	05/16/08
THALLIUM, TOTAL	004	OI	08L0201	04/29/08	05/15/08	05/16/08
VANADIUM, TOTAL	004	OI	08L0201	04/29/08	05/15/08	05/16/08
ZINC, TOTAL	004	OI	08L0201	04/29/08	05/15/08	05/16/08
ZIRCONIUM, TOTAL	004	OI	08L0201	04/29/08	05/15/08	05/16/08
J16M69						
SILVER, TCLP LEACHAT	005	W	08L0207	05/17/08	05/20/08	05/20/08
SILVER, TCLP LEACHAT	005 REP	W	08L0207	05/17/08	05/20/08	05/20/08
SILVER, TCLP LEACHAT	005 MS	W	08L0207	05/17/08	05/20/08	05/20/08
ARSENIC, TCLP LEACHA	005	W	08L0207	05/17/08	05/20/08	05/20/08
ARSENIC, TCLP LEACHA	005 REP	W	08L0207	05/17/08	05/20/08	05/20/08
ARSENIC, TCLP LEACHA	005 MS	W	08L0207	05/17/08	05/20/08	05/20/08
BARIUM, TCLP LEACHAT	005	W	08L0207	05/17/08	05/20/08	05/20/08
BARIUM, TCLP LEACHAT	005 REP	W	08L0207	05/17/08	05/20/08	05/20/08
BARIUM, TCLP LEACHAT	005 MS	W	08L0207	05/17/08	05/20/08	05/20/08
CADMIUM, TCLP LEACHA	005	W	08L0207	05/17/08	05/20/08	05/20/08
CADMIUM, TCLP LEACHA	005 REP	W	08L0207	05/17/08	05/20/08	05/20/08
CADMIUM, TCLP LEACHA	005 MS	W	08L0207	05/17/08	05/20/08	05/20/08
CHROMIUM, TCLP LEACH	005	W	08L0207	05/17/08	05/20/08	05/20/08
CHROMIUM, TCLP LEACH	005 REP	W	08L0207	05/17/08	05/20/08	05/20/08
CHROMIUM, TCLP LEACH	005 MS	W	08L0207	05/17/08	05/20/08	05/20/08
MERCURY, TCLP LEACHA	005	W	08C0089	05/17/08	05/20/08	05/21/08
MERCURY, TCLP LEACHA	005 REP	W	08C0089	05/17/08	05/20/08	05/21/08
MERCURY, TCLP LEACHA	005 MS	W	08C0089	05/17/08	05/20/08	05/21/08
LEAD, TCLP LEACHATE	005	W	08L0207	05/17/08	05/20/08	05/20/08
LEAD, TCLP LEACHATE	005 REP	W	08L0207	05/17/08	05/20/08	05/20/08
LEAD, TCLP LEACHATE	005 MS	W	08L0207	05/17/08	05/20/08	05/20/08
SELENIUM, TCLP LEACH	005	W	08L0207	05/17/08	05/20/08	05/20/08
SELENIUM, TCLP LEACH	005 REP	W	08L0207	05/17/08	05/20/08	05/20/08
SELENIUM, TCLP LEACH	005 MS	W	08L0207	05/17/08	05/20/08	05/20/08

LAB QC:

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-088 K1214

DATE RECEIVED: 05/06/08 LVL LOT # :0805L054

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SILVER LABORATORY	LC1 BS	S	08L0201	N/A	05/15/08	05/16/08
SILVER, TOTAL	MB1	S	08L0201	N/A	05/15/08	05/16/08
ALUMINUM LABORTORY	LC1 BS	S	08L0201	N/A	05/15/08	05/16/08
ALUMINUM, TOTAL	MB1	S	08L0201	N/A	05/15/08	05/16/08
ARSENIC LABORATORY	LC1 BS	S	08L0201	N/A	05/15/08	05/16/08
ARSENIC, TOTAL	MB1	S	08L0201	N/A	05/15/08	05/16/08
BARIUM LABORATORY	LC1 BS	S	08L0201	N/A	05/15/08	05/16/08
BARIUM, TOTAL	MB1	S	08L0201	N/A	05/15/08	05/16/08
BERYLLIUM LABORATORY	LC1 BS	S	08L0201	N/A	05/15/08	05/16/08
BERYLLIUM, TOTAL	MB1	S	08L0201	N/A	05/15/08	05/16/08
CALCIUM LABORATORY	LC1 BS	S	08L0201	N/A	05/15/08	05/16/08
CALCIUM, TOTAL	MB1	S	08L0201	N/A	05/15/08	05/16/08
CADMIUM LABORATORY	LC1 BS	S	08L0201	N/A	05/15/08	05/16/08
CADMIUM, TOTAL	MB1	S	08L0201	N/A	05/15/08	05/16/08
COBALT LABORATORY	LC1 BS	S	08L0201	N/A	05/15/08	05/16/08
COBALT, TOTAL	MB1	S	08L0201	N/A	05/15/08	05/16/08
CHROMIUM LABORATORY	LC1 BS	S	08L0201	N/A	05/15/08	05/16/08
CHROMIUM, TOTAL	MB1	S	08L0201	N/A	05/15/08	05/16/08
COPPER LABORATORY	LC1 BS	S	08L0201	N/A	05/15/08	05/16/08
COPPER, TOTAL	MB1	S	08L0201	N/A	05/15/08	05/16/08
IRON LABORATORY	LC1 BS	S	08L0201	N/A	05/15/08	05/16/08
IRON, TOTAL	MB1	S	08L0201	N/A	05/15/08	05/16/08
MERCURY LABORATORY	LC1 BS	S	08C0085	N/A	05/13/08	05/13/08
MERCURY, TOTAL	MB1	S	08C0085	N/A	05/13/08	05/13/08
POTASSIUM LABORATORY	LC1 BS	S	08L0201	N/A	05/15/08	05/20/08
POTASSIUM, TOTAL	MB1	S	08L0201	N/A	05/15/08	05/20/08
MAGNESIUM LABORATORY	LC1 BS	S	08L0201	N/A	05/15/08	05/16/08
MAGNESIUM, TOTAL	MB1	S	08L0201	N/A	05/15/08	05/16/08
MANGANESE LABORATORY	LC1 BS	S	08L0201	N/A	05/15/08	05/16/08
MANGANESE, TOTAL	MB1	S	08L0201	N/A	05/15/08	05/16/08
SODIUM LABORATORY	LC1 BS	S	08L0201	N/A	05/15/08	05/20/08
SODIUM, TOTAL	MB1	S	08L0201	N/A	05/15/08	05/20/08
NICKEL LABORATORY	LC1 BS	S	08L0201	N/A	05/15/08	05/16/08
NICKEL, TOTAL	MB1	S	08L0201	N/A	05/15/08	05/16/08
LEAD LABORATORY	LC1 BS	S	08L0201	N/A	05/15/08	05/16/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-088 K1214

DATE RECEIVED: 05/06/08 LVL LOT # :0805L054

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
LEAD, TOTAL	MB1	S	08L0201	N/A	05/15/08	05/16/08
ANTIMONY LABORATORY	LC1 BS	S	08L0201	N/A	05/15/08	05/16/08
ANTIMONY, TOTAL	MB1	S	08L0201	N/A	05/15/08	05/16/08
SELENIUM LABORATORY	LC1 BS	S	08L0201	N/A	05/15/08	05/16/08
SELENIUM, TOTAL	MB1	S	08L0201	N/A	05/15/08	05/16/08
TIN LABORATORY	LC1 BS	S	08L0201	N/A	05/15/08	05/16/08
TIN, TOTAL	MB1	S	08L0201	N/A	05/15/08	05/16/08
THALLIUM LABORATORY	LC1 BS	S	08L0201	N/A	05/15/08	05/16/08
THALLIUM, TOTAL	MB1	S	08L0201	N/A	05/15/08	05/16/08
VANADIUM LABORATORY	LC1 BS	S	08L0201	N/A	05/15/08	05/16/08
VANADIUM, TOTAL	MB1	S	08L0201	N/A	05/15/08	05/16/08
ZINC LABORATORY	LC1 BS	S	08L0201	N/A	05/15/08	05/16/08
ZINC, TOTAL	MB1	S	08L0201	N/A	05/15/08	05/16/08
ZIRCONIUM LABORATORY	LC1 BS	S	08L0201	N/A	05/15/08	05/16/08
ZIRCONIUM, TOTAL	MB1	S	08L0201	N/A	05/15/08	05/16/08
SILVER LABORATORY	LC1 BS	W	08L0207	N/A	05/20/08	05/20/08
SILVER, TCLP LEACHAT	MB1	W	08L0207	N/A	05/20/08	05/20/08
SILVER, TCLP LEACHAT	MB2	W	08L0207	N/A	05/20/08	05/20/08
ARSENIC LABORATORY	LC1 BS	W	08L0207	N/A	05/20/08	05/20/08
ARSENIC, TCLP LEACHA	MB1	W	08L0207	N/A	05/20/08	05/20/08
ARSENIC, TCLP LEACHA	MB2	W	08L0207	N/A	05/20/08	05/20/08
BARIUM LABORATORY	LC1 BS	W	08L0207	N/A	05/20/08	05/20/08
BARIUM, TCLP LEACHAT	MB1	W	08L0207	N/A	05/20/08	05/20/08
BARIUM, TCLP LEACHAT	MB2	W	08L0207	N/A	05/20/08	05/20/08
CADMIUM LABORATORY	LC1 BS	W	08L0207	N/A	05/20/08	05/20/08
CADMIUM, TCLP LEACHA	MB1	W	08L0207	N/A	05/20/08	05/20/08
CADMIUM, TCLP LEACHA	MB2	W	08L0207	N/A	05/20/08	05/20/08
CHROMIUM LABORATORY	LC1 BS	W	08L0207	N/A	05/20/08	05/20/08
CHROMIUM, TCLP LEACH	MB1	W	08L0207	N/A	05/20/08	05/20/08
CHROMIUM, TCLP LEACH	MB2	W	08L0207	N/A	05/20/08	05/20/08
MERCURY LABORATORY	LC1 BS	W	08C0089	N/A	05/20/08	05/21/08
MERCURY, TOTAL	MB1	W	08C0089	N/A	05/20/08	05/21/08
MERCURY, TCLP LEACHA	MB2	W	08C0089	N/A	05/20/08	05/21/08
LEAD LABORATORY	LC1 BS	W	08L0207	N/A	05/20/08	05/20/08
LEAD, TCLP LEACHATE	MB1	W	08L0207	N/A	05/20/08	05/20/08
LEAD, TCLP LEACHATE	MB2	W	08L0207	N/A	05/20/08	05/20/08
SELENIUM LABORATORY	LC1 BS	W	08L0207	N/A	05/20/08	05/20/08
SELENIUM, TCLP LEACH	MB1	W	08L0207	N/A	05/20/08	05/20/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-088 K1214

DATE RECEIVED: 05/06/08 LVL LOT # :0805L054

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM, TCLP LEACH	MB2	W	08L0207	N/A	05/20/08	05/20/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-088
LVL#: 0805L054
SDG/SAF#: K1214/RC-088

W.O.#: 11343-606-001-9999-00
Date Received: 05-06-08

METALS CASE NARRATIVE

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

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

1. This narrative covers the analyses of 1 solid sample, 3 oil samples, and 1 TCLP leachate sample.

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

   The solid sample was reported with a 3-fold dilution for all ICP analytes due to sample matrix. The solid sample was reported on a wet weight "as received" basis.

   Samples J16M70, J16M71, and J16M72 were reported with a 5-fold dilution for Mercury due to sample matrix.

   The TCLP leachate sample was prepped with a 5-fold dilution for ICP metals due to limited sample volume.

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

4. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury) with the exception of Sodium and Potassium. The solid and oil samples were rerun for Sodium and Potassium in file PS0520D.

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

6. The preparation/method blank 08L0201 for 4 analytes was outside method criteria. {less than the Limit of Quantitation (3-10X the LOD), MB value less than 5% of the RCRA limit,

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 34 pages.

or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

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

b). The MB results for Barium and Manganese were greater than the Limit of Quantitation (LOQ) {3-10x the (LOD) Limit of Detection} and all samples read greater than 20 times the MB concentration with the exception of sample J16M71 for Barium that was nondetect. Samples J16M70 and J16M71 for Manganese read less than 20 times the MB concentration. However, no corrective action criteria for MBs were provided in SW846 method 6010B. The sample results were reported herein "uncorrected" for the levels found in the MB.

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

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

9. The matrix spike (MS) recoveries for 7 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

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

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J16M69	Antimony	300	100.2
	Magnesium	150,000	126.3
	Aluminum	60,000	65.3
	Manganese	3,000	122.5
	Chromium	3,300	132.2
	Copper	300	90.1
	Barium	3,300	65.6

11. The duplicate analysis for 1 TCLP leachate analyte was outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

12. The TCLP extract from client sample J16M69 was selected for the matrix spike (MS) for this analytical batch.

13. The matrix spike for Silver was below 50% recovery (21.8%). The recovery in the TCLP Leachate was below 80-120% of the action level so standard addition was not required per Federal Register, Vol.57, No.227, Nov. 24, 1992, page 55117.

14. 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.

15. 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.

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

Judy Stine

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

5/22/08
Date

alm/m05-054

LvLI
LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

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

ɔt#: 08OSL054

eaching Procedure: __1310 __1311 __1312 __Other:_____

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

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

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
luminum	✓6010B		__200.7				__99
ntimony	✓6010B	__7041 [5]	__200.7	__204.2			__99
rsenic	✓6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
arium	✓6010B		__200.7				__99
eryllium	✓6010B		__200.7				__99
ismuth	__6010B [1]		__200.7 [1]			__1620	__99
oron	__6010B		__200.7				__99
admium	✓6010B	__7131A [5]	__200.7	__213.2			__99
alcium	✓6010B		__200.7				__99
hromium	✓6010B	__7191 [5]	__200.7	__218.2			__SS17
obalt	✓6010B		__200.7				__99
opper	✓6010B	__7211 [5]	__200.7	__220.2			__99
on	✓6010B		__200.7				__99
ead	✓6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
ithium	__6010B	__7430 [4]	__200.7			__1620	__99
lagnesium	✓6010B		__200.7				__99
langanese	✓6010B		__200.7				__99
lercury	✓7470A [3]	✓7471A [3]	__245.1 [2]	__245.5 [2]			__99
lolybdenum	__6010B		__200.7				__99
ickel	✓6010B		__200.7				__99
otassium	✓6010B	__7610 [4]	__200.7	__258.1 [4]			__99
are Earths	__6010B [1]		__200.7 [1]			__1620	__99
elenium	✓6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
ilicon	__6010B [1]		__200.7			__1620	__99
ilica	__6010B		__200.7			__1620	__99
ilver	✓6010B	__7761 [5]	__200.7	__272.2			__99
odium	✓6010B	__7770 [4]	__200.7	__273.1 [4]			__99
trontium	__6010B		__200.7				__99
hallium	✓6010B	__7841 [5]	__200.7	__279.2	__200.9		__99
in	✓6010B		__200.7				__99
itanium	__6010B		__200.7				__99
ranium	__6010B [1]		__200.7 [1]			__1620	__99
anadium	✓6010B		__200.7				__99
inc	✓6010B		__200.7				__99
irconium	✓6010B [1]		__200.7 [1]			__1620	__99

ther: _____ Method: _____

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

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

3. Flame AA.

4. Graphite Furnace AA.

L-WI-033/N-04/98

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/22/08

CLIENT: TNUHANFORD RC-088 K1214 LVL LOT #: 0805L054

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J16M69	Silver, Total	0.30 u	MG/KG	0.30	3.0
		Aluminum, Total	58000	MG/KG	11.9	3.0
		Arsenic, Total	1.5 u	MG/KG	1.5	3.0
		Barium, Total	1880	MG/KG	0.30	3.0
		Beryllium, Total	1.8	MG/KG	0.15	3.0
		Calcium, Total	6360	MG/KG	11.9	3.0
		Cadmium, Total	0.26	MG/KG	0.15	3.0
		Cobalt, Total	65.3	MG/KG	0.59	3.0
		Chromium, Total	1330	MG/KG	0.59	3.0
		Copper, Total	42.2	MG/KG	0.59	3.0
		Iron, Total	60000	MG/KG	13.4	3.0
		Mercury, Total	0.009u	MG/KG	0.009	1.0
		Potassium, Total	42300	MG/KG	146	3.0
		Magnesium, Total	111000	MG/KG	7.4	3.0
		Manganese, Total	754	MG/KG	0.12	3.0
		Sodium, Total	902	MG/KG	5.9	3.0
		Nickel, Total	206	MG/KG	0.59	3.0
		Lead, Total	2.4	MG/KG	0.89	3.0
		Antimony, Total	0.89 u	MG/KG	0.89	3.0
		Selenium, Total	1.8 u	MG/KG	1.8	3.0
		Tin, Total	1.8 u	MG/KG	1.8	3.0
		Thallium, Total	1.8 u	MG/KG	1.8	3.0
		Vanadium, Total	102	MG/KG	0.42	3.0
		Zinc, Total	82.8	MG/KG	1.8	3.0
		Zirconium, Total	14.8 u	MG/KG	14.8	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/22/08

CLIENT: TNUHANFORD RC-088 K1214 LVL LOT #: 0805L054

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J16M70	Silver, Total	0.12	MG/KG	0.1	1.0
		Aluminum, Total	283	MG/KG	3.8	1.0
		Arsenic, Total	0.48 u	MG/KG	0.48	1.0
		Barium, Total	189	MG/KG	0.1	1.0
		Beryllium, Total	0.05 u	MG/KG	0.05	1.0
		Calcium, Total	29.8	MG/KG	3.8	1.0
		Cadmium, Total	0.91	MG/KG	0.05	1.0
		Cobalt, Total	0.19 u	MG/KG	0.19	1.0
		Chromium, Total	0.76	MG/KG	0.19	1.0
		Copper, Total	26.2	MG/KG	0.19	1.0
		Iron, Total	376	MG/KG	4.3	1.0
		Mercury, Total	0.05 u	MG/KG	0.05	5.0
		Potassium, Total	46.9 u	MG/KG	46.9	1.0
		Magnesium, Total	7.1	MG/KG	2.4	1.0
		Manganese, Total	2.8	MG/KG	0.04	1.0
		Sodium, Total	24.0	MG/KG	1.9	1.0
		Nickel, Total	7.7	MG/KG	0.19	1.0
		Lead, Total	9.3	MG/KG	0.29	1.0
		Antimony, Total	0.29 u	MG/KG	0.29	1.0
		Selenium, Total	0.57 u	MG/KG	0.57	1.0
		Tin, Total	1.5	MG/KG	0.57	1.0
		Thallium, Total	0.57 u	MG/KG	0.57	1.0
		Vanadium, Total	0.13 u	MG/KG	0.13	1.0
		Zinc, Total	11.0	MG/KG	0.57	1.0
		Zirconium, Total	4.8 u	MG/KG	4.8	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/22/08

CLIENT: TNUHANFORD RC-088 K1214 LVL LOT #: 0805L054

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	J16M71	Silver, Total	0.08 u	MG/KG	0.08	1.0
		Aluminum, Total	3.1 u	MG/KG	3.1	1.0
		Arsenic, Total	0.39 u	MG/KG	0.39	1.0
		Barium, Total	0.08 u	MG/KG	0.08	1.0
		Beryllium, Total	0.04 u	MG/KG	0.04	1.0
		Calcium, Total	4.8	MG/KG	3.1	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Cobalt, Total	0.16 u	MG/KG	0.16	1.0
		Chromium, Total	0.16 u	MG/KG	0.16	1.0
		Copper, Total	0.16 u	MG/KG	0.16	1.0
		Iron, Total	461	MG/KG	3.5	1.0
		Mercury, Total	0.05 u	MG/KG	0.05	5.0
		Potassium, Total	38.5 u	MG/KG	38.5	1.0
		Magnesium, Total	2.0 u	MG/KG	2.0	1.0
		Manganese, Total	1.8	MG/KG	0.03	1.0
		Sodium, Total	19.8	MG/KG	1.6	1.0
		Nickel, Total	0.16 u	MG/KG	0.16	1.0
		Lead, Total	0.26	MG/KG	0.23	1.0
		Antimony, Total	0.23 u	MG/KG	0.23	1.0
		Selenium, Total	0.47 u	MG/KG	0.47	1.0
		Tin, Total	0.73	MG/KG	0.47	1.0
		Thallium, Total	0.47 u	MG/KG	0.47	1.0
		Vanadium, Total	0.11 u	MG/KG	0.11	1.0
		Zinc, Total	6.6	MG/KG	0.47	1.0
		Zirconium, Total	3.9 u	MG/KG	3.9	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/22/08

CLIENT: TNUHANFORD RC-088 K1214 LVL LOT #: 0805L054

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	J16M72	Silver, Total	0.20	MG/KG	0.09	1.0
		Aluminum, Total	387	MG/KG	3.6	1.0
		Arsenic, Total	0.62	MG/KG	0.45	1.0
		Barium, Total	1210	MG/KG	0.09	1.0
		Beryllium, Total	0.05 u	MG/KG	0.05	1.0
		Calcium, Total	71.3	MG/KG	3.6	1.0
		Cadmium, Total	4.6	MG/KG	0.05	1.0
		Cobalt, Total	0.18 u	MG/KG	0.18	1.0
		Chromium, Total	3.2	MG/KG	0.18	1.0
		Copper, Total	150	MG/KG	0.18	1.0
		Iron, Total	1540	MG/KG	4.1	1.0
		Mercury, Total	0.05 u	MG/KG	0.05	5.0
		Potassium, Total	44.4 u	MG/KG	44.4	1.0
		Magnesium, Total	22.1	MG/KG	2.3	1.0
		Manganese, Total	7.2	MG/KG	0.04	1.0
		Sodium, Total	46.9	MG/KG	1.8	1.0
		Nickel, Total	4.9	MG/KG	0.18	1.0
		Lead, Total	19.2	MG/KG	0.27	1.0
		Antimony, Total	0.27 u	MG/KG	0.27	1.0
		Selenium, Total	0.54 u	MG/KG	0.54	1.0
		Tin, Total	4.6	MG/KG	0.54	1.0
		Thallium, Total	0.54 u	MG/KG	0.54	1.0
		Vanadium, Total	0.13	MG/KG	0.13	1.0
		Zinc, Total	42.8	MG/KG	0.54	1.0
		Zirconium, Total	4.5 u	MG/KG	4.5	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/22/08

CLIENT: TNUHANFORD RC-088 K1214 LVL LOT #: 0805L054

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	J16M69	Silver, TCLP Leachate	5.0	u	UG/L	5.0	1.0
		Arsenic, TCLP Leachate	25.0	u	UG/L	25.0	1.0
		Barium, TCLP Leachate	4370		UG/L	5.0	1.0
		Cadmium, TCLP Leachate	2.5	u	UG/L	2.5	1.0
		Chromium, TCLP Leachate	10.0	u	UG/L	10.0	1.0
		Mercury, TCLP Leachate	0.06		UG/L	0.06	1.0
		Lead, TCLP Leachate	50.2		UG/L	15.0	1.0
		Selenium, TCLP Leachate	30.0	u	UG/L	30.0	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/22/08

CLIENT: TNUHANFORD RC-088 K1214 LVL LOT #: 0805L054

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08L0201-MB1	Silver, Total	0.10	u	MG/KG	0.10	1.0
		Aluminum, Total	4.0	u	MG/KG	4.0	1.0
		Arsenic, Total	0.50	u	MG/KG	0.50	1.0
		Barium, Total	0.84		MG/KG	0.10	1.0
		Beryllium, Total	0.05	u	MG/KG	0.05	1.0
		Calcium, Total	18.6		MG/KG	4.0	1.0
		Cadmium, Total	0.09		MG/KG	0.05	1.0
		Cobalt, Total	0.20	u	MG/KG	0.20	1.0
		Chromium, Total	0.20	u	MG/KG	0.20	1.0
		Copper, Total	0.20	u	MG/KG	0.20	1.0
		Iron, Total	12.6		MG/KG	4.5	1.0
		Potassium, Total	49.3	u	MG/KG	49.3	1.0
		Magnesium, Total	4.5		MG/KG	2.5	1.0
		Manganese, Total	0.26		MG/KG	0.04	1.0
		Sodium, Total	39.9		MG/KG	2.0	1.0
		Nickel, Total	0.46		MG/KG	0.20	1.0
		Lead, Total	0.60		MG/KG	0.30	1.0
		Antimony, Total	0.30	u	MG/KG	0.30	1.0
		Selenium, Total	0.60	u	MG/KG	0.60	1.0
		Tin, Total	1.2		MG/KG	0.60	1.0
		Thallium, Total	0.60	u	MG/KG	0.60	1.0
		Vanadium, Total	0.14	u	MG/KG	0.14	1.0
		Zinc, Total	7.9		MG/KG	0.60	1.0
		Zirconium, Total	5.0	u	MG/KG	5.0	1.0
BLANK1	08C0085-MB1	Mercury, Total	0.01	u	MG/KG	0.01	1.0
BLANK1	08L0207-MB1	Silver, TCLP Leachate	1.0	u	UG/L	1.0	1.0
		Arsenic, TCLP Leachate	5.0	u	UG/L	5.0	1.0
		Barium, TCLP Leachate	1.0	u	UG/L	1.0	1.0
		Cadmium, TCLP Leachate	0.50	u	UG/L	0.50	1.0
		Chromium, TCLP Leachate	2.0	u	UG/L	2.0	1.0
		Lead, TCLP Leachate	3.0	u	UG/L	3.0	1.0
		Selenium, TCLP Leachate	6.0	u	UG/L	6.0	1.0
BLANK2	08L0207-MB2	Silver, TCLP Leachate	6.0	u	UG/L	6.0	6.0
		Arsenic, TCLP Leachate	30.0	u	UG/L	30.0	6.0
		Barium, TCLP Leachate	6.0	u	UG/L	6.0	6.0
		Cadmium, TCLP Leachate	3.0	u	UG/L	3.0	6.0
		Chromium, TCLP Leachate	12.0	u	UG/L	12.0	6.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/22/08

CLIENT: TNUHANFORD RC-088 K1214 LVL LOT #: 0805L054

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK2	08L0207-MB2	Lead, TCLP Leachate	18.0	u	UG/L	18.0	6.0
		Selenium, TCLP Leachate	36.0	u	UG/L	36.0	6.0
BLANK1	08C0089-MB1	Mercury, Total	0.06	u	UG/L	0.06	1.0
BLANK2	08C0089-MB2	Mercury, TCLP Leachate	0.06	u	UG/L	0.06	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 05/22/08

CLIENT: TNUHANFORD RC-088 K1214

LVL LOT #: 0805L054

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J16M69	Silver, Total	4.8	0.30u	4.9	98.0	3.0
		Aluminum, Total	60600	58000	198	1348 *	3.0
		Arsenic, Total	182	1.5 u	198	91.7	3.0
		Barium, Total	2130	1880	198	125.4*	3.0
		Beryllium, Total	6.1	1.8	4.9	87.8	3.0
		Calcium, Total	8300	6360	2480	78.5	3.0
		Cadmium, Total	4.7	0.26	4.9	90.5	3.0
		Cobalt, Total	110	65.3	49.5	89.3	3.0
		Chromium, Total	1700	1330	19.8	1877 *	3.0
		Copper, Total	53.8	42.2	24.8	46.8	3.0
		Iron, Total	60100	60000	99.0	76.7*	3.0
		Mercury, Total	0.16	0.00u	0.15	106.8	1.0
		Potassium, Total	44600	42300	2480	91.5*	3.0
		Magnesium, Total	117000	111000	2480	268.6*	3.0
		Manganese, Total	766	754	49.5	22.8*	3.0
		Sodium, Total	3180	902	2480	92.1	3.0
		Nickel, Total	263	206	49.5	114.5*	3.0
		Lead, Total	47.0	2.4	49.5	90.1	3.0
		Antimony, Total	2.1	0.89u	49.5	4.2	3.0
		Selenium, Total	158	1.8 u	198	79.9	3.0
		Tin, Total	84.1	1.8 u	99.0	84.9	3.0
		Thallium, Total	174	1.8 u	198	87.7	3.0
		Vanadium, Total	144	102	49.5	84.2	3.0
		Zinc, Total	120	82.8	49.5	75.6	3.0
		Zirconium, Total	438	14.8 u	495	88.5	3.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 05/22/08

CLIENT: TNUHANFORD RC-088 K1214 LVL LOT #: 0805L054

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-005	J16M69	Silver, TCLP Leachate	5450	5.0 u	25000	21.8	1.0
		Arsenic, TCLP Leachate	25600	25.0 u	25000	102.5	1.0
		Barium, TCLP Leachate	508000	4370	500000	100.7	6.0
		Cadmium, TCLP Leachate	5080	2.5 u	5000	101.6	1.0
		Chromium, TCLP Leachat	25500	10.0 u	25000	102.1	1.0
		Mercury, TCLP Leachate	149	0.06	200	74.5	50.0
		Lead, TCLP Leachate	25700	50.2	25000	102.7	1.0
		Selenium, TCLP Leachat	5110	30.0 u	5000	102.1	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 05/22/08

CLIENT: TNUHANFORD RC-088 K1214 LVL LOT #: 0805L054

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J16M69	Silver, Total	0.30u	0.26u	NC	3.0
		Aluminum, Total	58000	58200	0.48	3.0
		Arsenic, Total	1.5 u	1.9	NC	3.0
		Barium, Total	1880	2020	6.9	3.0
		Beryllium, Total	1.8	1.7	5.7	3.0
		Calcium, Total	6360	6320	0.59	3.0
		Cadmium, Total	0.26	0.30	12.6	3.0
		Cobalt, Total	65.3	63.6	2.6	3.0
		Chromium, Total	1330	1390	3.9	3.0
		Copper, Total	42.2	40.4	4.4	3.0
		Iron, Total	60000	60500	0.81	3.0
		Mercury, Total	0.00u	0.00u	NC	1.0
		Potassium, Total	42300	41300	2.4	3.0
		Magnesium, Total	111000	109000	1.1	3.0
		Manganese, Total	754	749	0.73	3.0
		Sodium, Total	902	856	5.2	3.0
		Nickel, Total	206	204	1.2	3.0
		Lead, Total	2.4	2.3	4.3	3.0
		Antimony, Total	0.89u	0.79u	NC	3.0
		Selenium, Total	1.8 u	1.6 u	NC	3.0
		Tin, Total	1.8 u	1.6 u	NC	3.0
		Thallium, Total	1.8 u	1.6 u	NC	3.0
		Vanadium, Total	102	101	1.2	3.0
		Zinc, Total	82.8	80.1	3.3	3.0
		Zirconium, Total	14.8 u	13.2 u	NC	3.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 05/22/08

CLIENT: TNUHANFORD RC-088 K1214 LVL LOT #: 0805L054

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-005REP	J16M69	Silver, TCLP Leachate	5.0 u	5.0 u	NC	1.0
		Arsenic, TCLP Leachate	25.0 u	25.0 u	NC	1.0
		Barium, TCLP Leachate	4370	4010	8.5	1.0
		Cadmium, TCLP Leachate	2.5 u	2.5 u	NC	1.0
		Chromium, TCLP Leachate	10.0 u	10.0 u	NC	1.0
		Mercury, TCLP Leachate	0.06	0.07	7.9	1.0
		Lead, TCLP Leachate	50.2	24.7	68.1	1.0
		Selenium, TCLP Leachate	30.0 u	30.0 u	NC	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 05/22/08

CLIENT: TNUHANFORD RC-088 K1214 LVL LOT #: 0805L054

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0201-LC1	Silver, LCS	48.1	50.0	MG/KG	96.2
		Aluminum, LCS	525	500	MG/KG	105.0
		Arsenic, LCS	955	1000	MG/KG	95.5
		Barium, LCS	484	500	MG/KG	96.8
		Beryllium, LCS	25.0	25.0	MG/KG	100
		Calcium, LCS	2500	2500	MG/KG	100.2
		Cadmium, LCS	24.7	25.0	MG/KG	98.8
		Cobalt, LCS	247	250	MG/KG	98.9
		Chromium, LCS	50.2	50.0	MG/KG	100.4
		Copper, LCS	123	125	MG/KG	98.4
		Iron, LCS	499	500	MG/KG	99.7
		Potassium, LCS	2250	2500	MG/KG	89.8
		Magnesium, LCS	2400	2500	MG/KG	96.1
		Manganese, LCS	74.1	75.0	MG/KG	98.8
		Sodium, LCS	2410	2500	MG/KG	96.5
		Nickel, LCS	199	200	MG/KG	99.4
		Lead, LCS	247	250	MG/KG	98.9
		Antimony, LCS	284	300	MG/KG	94.7
		Selenium, LCS	924	1000	MG/KG	92.4
		Tin, LCS	495	500	MG/KG	99.0
		Thallium, LCS	962	1000	MG/KG	96.2
		Vanadium, LCS	240	250	MG/KG	95.8
		Zinc, LCS	98.4	100	MG/KG	98.4
		Zirconium, LCS	492	500	MG/KG	98.3
LCS1	08C0085-LC1	Mercury, LCS	5.1	4.7	MG/KG	108.5
LCS1	08L0207-LC1	Silver, LCS	517	500	UG/L	103.4
		Arsenic, LCS	10300	10000	UG/L	102.9
		Barium, LCS	5210	5000	UG/L	104.1
		Cadmium, LCS	258	250	UG/L	103.0
		Chromium, LCS	520	500	UG/L	104.0
		Lead, LCS	2590	2500	UG/L	103.5
		Selenium, LCS	10100	10000	UG/L	101.1
LCS1	08C0089-LC1	Mercury, LCS	5.1	5.0	UG/L	102.5

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0201
Date/Time Initiated: 5/15/08 1230
Date/Time Completed: 5/15/08 1930
Analyst(s): MW
Matrix: Soil Water Other:
Instr. Type: AA ICP
Parameters: HAL + Zr, Sn

Digested / Undigested (circle one)
Balance #: B20
Balance Cal Verif: Y NA
Hot Plate Temp: 93

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

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

TMW

COC Batch #	Spike Vol(s) (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/So/TC	Texture	Color/Appearance	Artifact	Turb
0805L054-001		1.01gr	100ml	<2	TO	coarse	vermiculite	Pb	
001R		1.14gr							
001S	1.0 ml *	1.01gr							
002		1.09gr				N/A	amber oil	N/A	
003		1.28gr					amber liquid	flakes	
004		1.11gr					brown oil	N/A	
08L0201-MB1		1.0gr				coarse	floating chips		
LC1	1.0 ml *	1.0gr							

MW 5/15/08

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

Reagent IDs:
HNO_3 E46025
HCL G05039
H_2O_2 E44A06
1:1 HNO_3 9787-077-04
1:1 HCL

File ID#: IC020101
LIMS Transfer: Y N
Data Review By/Date: updated
RMB, 05/06/08

* and 0.5 ml 6072-076-05 (Zr)

Lionville Laboratory Incorporated

Logbook #: 458

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0207
Date/Time Initiated: 5/20/08 1030
Date/Time Completed: 5/20/08 1400
Analyst(s): MW
Matrix: Soil Water Other: TCLP
Instr. Type: AA (ICP)
Parameters: RCRA

Digested / Undigested (circle one)
Balance #: N/A
Balance Cal Verif: Y (NA)
Hot Plate Temp: 95°

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

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

TW

COC Batch #	Spike Vol(s) (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/So/ TC	Texture	Color/Appearance	Artifact	Turb
08051054-005		20ml	100ml	<2	TC	N/A	clear/colorless	limited volume	
005R		↓	↓	↓	↓		↓		
005S	1.0ml								
08LT0093-LB1		100ml							
08L0207-MB1		↓							
LC1	1.0ml	↓	↓	↓			↓		

MW 5/20/08

Spiking IDs:
MS #: 6072-73-05
6072-078-06

LCS #: 6072-78-08
09
10
11

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

File ID#: IC020701
LIMS Transfer: (Y) N
Updated
Data Review By/Date: 5/22/08

Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 455

Analyst: Ten
Date 5/13/08
Start Time/Temp: 1330 | 93°
End Time/Temp: 1400 | 99°

Instrument ID HG-3.1
Balance #: B29 /NA
Pipette Calibration (Daily) Y ✓

Prep Batch: 08C0085
Worksheet: HG051301
SOP No. ME-HgCVAA, Rev. 02

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

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

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
Blank	3E			10mL	50mL	
0.2 µg/L	997	0.100				
1.0	290	0.500				
2.0	Z4	1.000				
5.0	H5	2.500				
10.0	P18	5.000				
ICV	A9	0.125	2.5			
CCV	DK	0.250	5.0			
ICB/CCB	C4D					% SOL
MB1	114			0.30		PDS185 100.00
LC1	JC	*	*	0.33		LCS185
0805L054-001	A27			0.34		R
001R	CX			0.32		
001S	C9	0.500	1.0	0.34		
002	BG			0.30		
003	X8			0.30		
004	K35			0.30		
0805L087-001	C48			0.37		R 84.00
002	3H			0.36		95.15
002R	RU			0.39		
002S	7IL	0.500	1.0	0.36		
002T	A1	0.500	1.0	0.35		
003	194			0.35		95.85
0805L095-001	3			0.39		R 95.46
002	GTR			0.32		93.82
003	Z			0.36		93.38
005	M1			0.40		94.39

Standard:	ID	Prep Date/Time
ICAL/MS	R16022-78-14D	5/13/08 0950
ICV/CCV/LCS	US 6072-78-15A	

Reviewed By/Date: [signature] 5/15/08

see book # 9368 for std traceability information

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

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

ME-HgCVAA-Prep1007

Page #:

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Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 455

Analyst: TCB
Date 5/13/08
Start Time/Temp: See page 005
End Time/Temp:

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

Prep Batch: 08C0085
Worksheet: HG051301 / HG051401
SOP No. ME-HgCVAA, Rev. 02

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

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

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
08052095-006	AIR			0.33	50mL	96.38
0805L102-001	HW			0.30		R 96.65
002	P18			0.37		97.16
0805L033-001	BB			0.37		91.48
001R	G7			0.39		
001S	L53	0.500	1.0	0.37		
002	6T			0.31		95.49
003	81G			0.35		99.76
006	L2			0.32		97.45
008	KX			0.31		99.09

E005/13/08

Standard:	ID	Prep Date/Time
ICAL/MS		
ICV/CCV/LCS	See page 005	

Reviewed By/Date [signature] 5/15

see book # 936 for std traceability information

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

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

Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 455

Analyst: TEB
Date 5/20/08
Start Time/Temp: 1415 | 94°
End Time/Temp: 1615 | 92°

Instrument ID H63.2
Balance #: NA
Pipette Calibration (Daily) Y ✓

Prep Batch: 08C0089
Worksheet: HG052102
SOP No. ME-HgCVAA, Rev. 02

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

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

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
Blank	JB			33mL	33mL	
0.2 µg/L	PO	0.0667				
1.0	S	0.334				
2.0	IV	0.667				
5.0	41	1.667				
10.0	Z4	3.334				
ICV	5H	0.0834	2.5			
CCV	1721	0.167	5.0			
ICB/CCB	CT					
MB1	711					PBW189
LC1	183	0.167	5.0			LCSW189
0805L054-005	551					
005R	31					
005S	27	0.667	200			
08LT0043-LB1	522					
08054133-002	8H					
002R	537					
002S	2I	0.334	1.0			
004	8T					
0805L150-008	AH					

TEB 5/20/08

Standard:	ID	Prep Date/Time
ICAL/MS	R1 6078-78-14B	5/20/08 1040
ICV/CCV/LCS	4S 6078-78-15A	

Reviewed By/Date [signature] 5/22

see book # 9368 for std traceability information

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

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

ME-HgCVAA-Prep1007

Page #:

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Lionville Laboratory Use Only

28056054

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI Lionville Laboratory Inc.

000000031

Client: TNLL HANFORD SAFH RC-088

Est. Final Proj. Sampling Date:

Project#: 11343-606-001-9999-00

Project Contact/Phone#:

Lionville Laboratory Project Manager: C Johnson

SW846 Del STP TAT 15 days

Date Rec'd: 5-6-08 Date Due: 5-21-08

Refrigerator #		A 3													
#/Type Container	Liquid	16													
	Solid	16													
Volume		250													
		250													
Preservatives															
ANALYSES REQUESTED →		ORGANIC: VOA	BNA	PCB	Herb				INORG: Metal	CN			LEACHATE		

MATRIX CODES: Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP Leachate, Wipe, Other, Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected		OV25H	OPCB			ITCLP	MetO		IIGN		RCRA		
001	J16M69			X	4-29-08	1000		X	X			X	X		X				
002	70			L	↓	1020		X	X				X		X				
003	71			SO	4-30-08	1400		X	X				X		X				
004	72			OIL	4-29-08	1230		X	X				X		X				
005	69 TCLP of 001			L	↓												X		

Lionville Laboratory Use Only

Special Instructions: #001, 002 004 other Liquid Run matrix QC 5-8-08

Met ① = HSL + Zr, Sn

Special Instructions:

1. Add TCLP met to sample #001.
2.
3.
4.
5.
6.

*See Lab chron

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	5/6/08	0940

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-088-016	Page 1 of 1

Collector: B. Lawrence / E. Harries	Company Contact: Joan Kessner	Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH
Project Designation: 618-7 Burial Ground - Other Liquids	Sampling Location: 618-7 Burial Ground (drums)		SAF No.: RC-088
Ice Chest No.: 6PR-03-014	Field Logbook No.: EL-1395-12	COA: RG61878500	Method of Shipment: FedEx
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A080245		Bill of Lading/Air Bill No.: See OSPC

Price Code: 9G

Data Turnaround: 15 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

Preservation	Cool 4C	Cool 4C	None	None	None						
Type of Container	aG	aG	aG	aG	P						
No. of Container(s)	1	0	0	0	1						
Volume	250mL	~~125mL~~ DL 4-29-08	~~125mL~~ DL 4-29-08	~~60mL~~ DL 4-29-08	500mL						
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (1) in Special Instructions.	Ignitability - 1010	See item (2) in Special Instructions. DL 4-29-08						PIN#
Sample No. / Matrix * / Sample Date / Sample Time											
6M69 / OTHER LIQUID / 4-29-08 / 1000	X	X	X	X							0224
6M70 / OTHER LIQUID / 4-29-08 / 1020	X	X	X	X							0082

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By/Removed From: B. Lawrence	Received By/Stored In: RB Kerkow / RB Kerkow	1110 4-29-08
Relinquished By/Removed From: RB Kerkow / RB Kerkow	Received By/Stored In: REF 1A, (1060)	1600 4-29-08
Relinquished By/Removed From: 1060 / 1A	Received By/Stored In: MS Stankovich	0940 5/5/08
Relinquished By/Removed From: WCH MS Stankovich	Received By/Stored In: FedEx	5/5/08 0940
Relinquished By/Removed From: FedEx	Received By/Stored In:	5-6-08 0940
Relinquished By/Removed From:	Received By/Stored In:	

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Aluminum, Antimony, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc, Zirconium}; ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Lead, Selenium, Thallium, Tin}; Mercury - 7471 - (CV)

(2) Gross Alpha; Gross Beta; Gamma Spectroscopy (TCL List) {Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Uranium; Isotopic Thorium; Americium-241; Isotopic Plutonium; Strontium-89,90 -- Total Sr

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

KW

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

H-EE-011

000000032

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-088-017	Page 1 of 1

Collector: B. Lawrence / E. Harries	Company Contact: Joan Kessner	Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH
Price Code: 9G	Data Turnaround: 15 Days		
Project Designation: 618-7 Burial Ground - Other Liquids	Sampling Location: 618-7 Burial Ground (drums)		SAF No.: RC-088
Ice Chest No.: GPR-03-014	Field Logbook No.: EL-1395-12	COA: RG61878500	Method of Shipment: FedEx
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A080245		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

Preservation	Cool 4C	Cool 4C	None	None	None						
Type of Container	aG	aG	aG	aG	P						
No. of Container(s)	1	0	0	0	1						
Volume	250mL	~~125mL~~ RTC 4/29/08	~~125mL~~ RTC 4/29/08	~~60mL~~ RTC 4/29/08	500mL						
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (1) in Special Instructions.	Ignitability - 1010	See item (2) in Special Instructions. RTC 4/29/08						PIN#
Sample No. / Matrix * / Sample Date / Sample Time											
6M71 / OTHER LIQUID / 4/29/08 / 1230	X	X	X	X				SLUDGE/WATER			0065
~~6M72 / OTHER LIQUID~~											

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
B. Lawrence / [signature]	1640 4-29-08	RT Coffman / RT Coffman	1640 4/29/08
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RT Coffman / RT Coffman	1730 4/29/08	REFER# 1A, 1060 BLDG,	1730 4/29/08
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
260/1A	5/5/08 0930	M Stankovich	5/5/08 0930
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
M Stankovich	0930 5/5/08		Fed Ex
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex	5-6-08 0940	[signature]	5-6-08 0940
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Aluminum, Antimony, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc, Zirconium}; ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Lead, Selenium, Thallium, Tin}; Mercury - 7471 - (CV)

(2) Gross Alpha; Gross Beta; Gamma Spectroscopy (TCL List) {Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Uranium; Isotopic Thorium; Americium-241; Isotopic Plutonium; Strontium-89,90 -- Total Sr

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

Matrix *

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

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

H-EE-011

000000033

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

Project/SAF/SOW/Release #: RC-088

Date: 5-6-08

LvLI Batch #: 08051054

Sample Custodian: V. Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7900 0748 1198
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 4.1	°C	Cooler # GPR-03-014
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-088 K1214

RECEIVED
JUN 2008

DATE RECEIVED: 05/06/08 LVL LOT # :0805L054

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16M69						
IGNITABILITY	001	SO	08LFP010	04/29/08	05/08/08	05/08/08
TCLP	001	SO	08LT0043	04/29/08	05/16/08	05/17/08
J16M70						
IGNITABILITY	002	OI	08LFP010	04/29/08	05/08/08	05/08/08
J16M71						
IGNITABILITY	003	OI	08LFP010	04/30/08	05/08/08	05/08/08
J16M72						
IGNITABILITY	004	OI	08LFP010	04/29/08	05/08/08	05/08/08

LAB QC:

IGNITEABILITY	MB1 BS	W	08LFP010	N/A	05/08/08	05/08/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-088 K1214
LVL#: 0508L054

W.O.#: 11343-606-001-9999-00
Date Received: 05-06-08

INORGANIC NARRATIVE

1. This narrative covers the analysis of 3 oil samples and 1 soil sample.

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

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

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

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

5. The Laboratory Control Samples (LCS) were within the method criteria.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

6/10/08
Date

njp\i05-054

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 9 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

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

Other: **Method:**

Other: **Method**

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.

Inorganic Data Summary Report
Physical Testing Observation

Client: TNU-HANFORD RC-088 K1214
LVL#: 0805L054

W.O.#: 11343-606-001-9999-00
Date Received: 05-06-08

Analyte:	**Observation:**
Ignitability	Samples J16M69, J16M70, J16M71 and J16M72 did not ignite. The samples were heated to approximately 220°F. p-Xylene was used to determined the accuracy of the ignitability apparatus. The p-Xylene will ignite at 81°F +/- 1°F. For this test, the p-Xylene ignited at 82°F.

njp\i05-054.pt2

LIONVILLE LABORATORY INC.

onville Laboratory Use Only

28051054

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

lient: TNU HANFORD SAFH RC-088 K1214

t. Final Proj. Sampling Date

oject#: 11343-606-001-9999-00

oject Contact/Phone#:

onville Laboratory Project Manager: O Johnson

: SW846 Del: STD TAT: 15 days

ate Rec'd: 5-6-08 Date Due: 5-21-08

Refrigerator #			A 3														
#/Type Container	Liquid		1G														
	Solid		1G														
Volume			250 ml														
			250														
Preservatives																	
ANALYSES REQUESTED →			ORGANIC							INORG							
			VOA	BNA	~~Pest~~/PCB	Herb				~~TC~~ Metal ~~Hg~~	CN	Ignit		LEACHATE			

ATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only												
									8270	OPCB				TCLP	MET①		IGN		RCRA	
Soil	001	J16M69			X	4-29-08	1000		X	X				X	X		X			
Sediment	002	70			⊥	⊥	1020		X	X					X		X			
Solid	003	71			SO	4-30-08	1400		X	X					X		X			
Sludge	004	72			OIL	4-30-08	1230		X	X					X		X			
Water	005	69TCLP05001			L	*													X	
Oil																				
Air																				
Drum Solids																				
Drum Liquids																				
EP/TCLP Leachate																				
Wipe																				
Other																				
Fish																				

Special Instructions: #001, 002 004 other liquid
Run matrix QC 5-8-08
met① = HSL + Zr, Sn

Special Instructions:
1. Add TCLP met to sample #001.
2.
3.
4.
5.
6.

*See Lab chron

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	5/6/08	0940

Relinquished by	Received by	Date	Time

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

000000000

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-088-016	Page 1 of 1

ollector B. Lawrence / E. Harries	Company Contact Joan Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Price Code 9G	Data Turnaround 15 Days		
roject Designation 618-7 Burial Ground - Other Liquids	Sampling Location 618-7 Burial Ground (drums)		SAF No. RC-088
e Chest No. 6PR-03-014	Field Logbook No. EL-1395-12	COA RG61878500	Method of Shipment FedEx
hipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A080245		Bill of Lading/Air Bill No. See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

Preservation	Cool 4C	Cool 4C	None	None	None						
Type of Container	aG	aG	aG	aG	P						
No. of Container(s)	1	0	0	0	1						
Volume	250mL	~~125mL~~ BL 4-29-08	~~125mL~~ BL 4-29-08	~~60mL~~ BL 4-29-08	500mL						
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (1) in Special Instructions.	Ignitability - 1010	See item (2) in Special Instructions. BL 4-29-08						PIN#
Sample No. / Matrix * / Sample Date / Sample Time											
16M69 / OTHER LIQUID / 4-29-08 / 1000	X	X	X	X							0224
16M70 / OTHER LIQUID / 4-29-08 / 1020	X	X	X	X							0082

CHAIN OF POSSESSION	Sign/Print Names	
linquished By/Removed From: Lawrence	Date/Time 1110 4-29-08	Received By/Stored In: RB Kerkow / RB Kerk	Date/Time 1110 4-29-08
linquished By/Removed From: RB Kerkow / RB Kerk	Date/Time 1600 4-29-08	Received By/Stored In: REF 1A, (1060)	Date/Time 1600 4-29-08
linquished By/Removed From: 060/1A	Date/Time 5/5/08 0940	Received By/Stored In: MStankovich	Date/Time 0940 5/5/08
linquished By/Removed From: WCH MStankovich	Date/Time 5/5/08 0940	Received By/Stored In: FedEx	Date/Time
linquished By/Removed From: FedEx	Date/Time 5-6-08 0940	Received By/Stored In:	Date/Time 5-6-08 0940
linquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Aluminum, Antimony, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc, Zirconium}; ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Lead, Selenium, Thallium, Tin}; Mercury - 7471 - (CV)

(2) Gross Alpha; Gross Beta; Gamma Spectroscopy (TCL List) {Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Uranium; Isotopic Thorium; Americium-241; Isotopic Plutonium; Strontium-89,90 -- Total Sr

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

KW

Matrix *

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

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

CH-EE-011

0000000007

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-088-017 | Page 1 of 1

Collector: B. Lawrence / E. Harries	Company Contact: Joan Kessner	Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH
Price Code: 9G	Data Turnaround: 15 Days		
Project Designation: 618-7 Burial Ground - Other Liquids	Sampling Location: 618-7 Burial Ground (drums)		SAF No.: RC-088
Ice Chest No.: GPR-03-014	Field Logbook No.: EL-1395-12	COA: RG61878500	Method of Shipment: FedEx
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A080245		Bill of Lading/Air Bill No.: See ospc

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

Preservation	Cool 4C	Cool 4C	None	None	None						
Type of Container	aG	aG	aG	aG	P						
No. of Container(s)	1	0	0	0	1						
Volume	250mL	~~125mL~~ RTC 4/29/08	~~125mL~~ RTC 4/29/08	~~60mL~~ RTC 4/29/08	500mL						
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (1) in Special Instructions.	Ignitability - 1010	See item (2) in Special Instructions. RTC 4/29/08						PIN#
Sample No. / Matrix * / Sample Date / Sample Time											
16M71 / OTHER LIQUID / 4/29/08 / 1230	X	X	X	X					SLUDGE/WATER		0065
~~16M72~~ / ~~OTHER LIQUID~~											

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By/Removed From: B. Lawrence / [signature]	Received By/Stored In: RT Coffman / RT Coffman	4-29-08 1640
Relinquished By/Removed From: RT Coffman / RT Coffman	Received By/Stored In: REFER #1A, 1060 BLDG,	4/29/08 1730
Relinquished By/Removed From: 1060/1A	Received By/Stored In: M Stankovich	5/5/08 0930
Relinquished By/Removed From: M Stankovich	Received By/Stored In: Fed Ex	5/5/08 0930
Relinquished By/Removed From: [signature]	Received By/Stored In: [signature]	5-6-08 0940
Relinquished By/Removed From:	Received By/Stored In:	

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Aluminum, Antimony, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc, Zirconium}; ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Lead, Selenium, Thallium, Tin}; Mercury - 7471 - (CV)

(2) Gross Alpha; Gross Beta; Gamma Spectroscopy (TCL List) {Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Uranium; Isotopic Thorium; Americium-241; Isotopic Plutonium; Strontium-89,90 -- Total Sr

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

Matrix *

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

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

CH-EE-011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

Project/SAF/SOW/Release #: RC-088

Date: 5-6-08

LvLI Batch #: 08051054

Sample Custodian: V. Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7900 0748 1198
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 4.1	°C	Cooler # GPR-03-014
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI