SAF-RC-051
100 & 300 Area Component of the RCBRA - Incremental Soil Sampling FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Jill Thomson	H0-23	KW 6/13/06 INITIAL/DATE
Jeanette Duncan	H9-02	KW 6/13/06 INITIAL/DATE

COMMENTS:

SDG K0306 SAF-RC-051

Rad only Chem only X Rad & Chem

X Complete Partial

Waste Site: Upriver Riparian #14

EBERLINE
SERVICES

June 5, 2006

Ms. Joan Kessner
Washington Closure Hanford
3190 George Washington Way
MSIN H9-02
Richland, WA 99352

Reference: **P.O. #630**
Eberline Services R6-04-106-7422, SDG K0306

Dear Ms. Kessner:

Enclosed is the data report for five solid (soil) samples designated under SAF No. RC-051. The samples were received at Eberline Services on April 14, 2006. 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

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

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K0306 was composed of five solid (soil) samples designated under SAF No. RC-051 with a Project Designation of: 100 & 300 Area Component of the RCBRA-Incremental So.

The strontium, thorium, and uranium aliquots were taken from 30-gram leachates of the respective samples and not from full dissolutions. The gamma aliquots were taken from the samples as received.

The samples were received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. All results were transmitted to WCH via e-mail on June 2, 2006.

2.0 ANALYSIS NOTES

2.1 Total Strontium Analysis

No problems were encountered during the course of the analyses.

2.2 Isotopic Thorium Analysis

No problems were encountered during the course of the analyses.

2.3 Isotopic Uranium Analysis

No problems were encountered during the course of the analyses.

2.4 Gamma Spectroscopy

No problems were encountered during the course of the analyses.

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 — 6/5/6

Melissa C. Mannion **Date**
Senior Program Manager

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 K0306

SDG	7422
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. 630
Case no	SDG_K0306

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

Prepared by

Reviewed by

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	06/02/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0306

SDG 7422
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_K0306

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 06/02/06

SDG 7422
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG_K0306

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.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/02/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0306

SDG 7422
Contact Melissa C. Mannion

SAMPLE SUMMARY

Client Hanford
Contract No. 630
Case no SDG K0306

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
J11JL6	UPRIVER RIPARIAN #14	SOLID		R604106-01	RC-051	RC-051-127	04/12/06 09:12
J11JL7	UPRIVER RIPARIAN #14	SOLID		R604106-02	RC-051	RC-051-127	04/12/06 10:19
J11JL8	UPRIVER RIPARIAN #14	SOLID		R604106-03	RC-051	RC-051-127	04/12/06 10:20
J11JL9	UPRIVER RIPARIAN #14	SOLID		R604106-04	RC-051	RC-051-127	04/12/06 11:28
J11JM0	UPRIVER RIPARIAN #14	SOLID		R604106-05	RC-051	RC-051-127	04/12/06 13:05
Method Blank		SOLID		R604106-07	RC-051		
Lab Control Sample		SOLID		R604106-06	RC-051		
Duplicate (R604106-01)	UPRIVER RIPARIAN #14	SOLID		R604106-08	RC-051		04/12/06 09:12

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 06/02/06

EBERLINE SERVICES/RICHMOND

SDG 7422
Contact Melissa C. Mannion

SAMPLE DELIVERY GROUP K0306

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG K0306

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7422	RC-051-127	J11JL6	SOLID	100.0	493 g		04/14/06	2	R604106-01	7422-001
		J11JL7	SOLID	100.0	432 g		04/14/06	2	R604106-02	7422-002
		J11JL8	SOLID	100.0	435 g		04/14/06	2	R604106-03	7422-003
		J11JL9	SOLID	100.0	431 g		04/14/06	2	R604106-04	7422-004
		J11JM0	SOLID	100.0	438 g		04/14/06	2	R604106-05	7422-005
		Method Blank	SOLID						R604106-07	7422-007
		Lab Control Sample	SOLID						R604106-06	7422-006
		Duplicate (R604106-01)	SOLID	100.0	493 g		04/14/06	2	R604106-08	7422-008

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 06/02/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0306

PREP BATCH SUMMARY

SDG 7422
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG K0306

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
TH	SOLID	Thorium, Isotopic in Solids	7181-073	5.0	5			1	1	1/1		
U	SOLID	Uranium, Isotopic in Solids	7181-073	5.0	5			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Solids	7181-073	10.0	5			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	7181-073	15.0	5			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 06/02/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0306

WORK SUMMARY

SDG 7422
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG K0306

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUFFIX	ANALYZED	REVIEWED	BY	METHOD
J11JL6			R604106-01	7422-001	GAM		05/24/06	05/24/06	CSS	Gamma Scan
UPRIVER RIPARIAN #14		SOLID	04/12/06	7422-001	SR		05/19/06	06/02/06	MWT	Total Strontium in Solids
RC-051-127	RC-051		04/14/06	7422-001	TH		05/22/06	05/24/06	MWT	Thorium, Isotopic in Solids
				7422-001	U		05/22/06	05/25/06	MWT	Uranium, Isotopic in Solids
J11JL7			R604106-02	7422-002	GAM		05/24/06	05/24/06	CSS	Gamma Scan
UPRIVER RIPARIAN #14		SOLID	04/12/06	7422-002	SR		05/19/06	06/02/06	MWT	Total Strontium in Solids
RC-051-127	RC-051		04/14/06	7422-002	TH		05/22/06	05/24/06	MWT	Thorium, Isotopic in Solids
				7422-002	U		05/24/06	05/25/06	MWT	Uranium, Isotopic in Solids
J11JL8			R604106-03	7422-003	GAM		05/24/06	05/24/06	CSS	Gamma Scan
UPRIVER RIPARIAN #14		SOLID	04/12/06	7422-003	SR		05/19/06	06/02/06	MWT	Total Strontium in Solids
RC-051-127	RC-051		04/14/06	7422-003	TH		05/22/06	05/24/06	MWT	Thorium, Isotopic in Solids
				7422-003	U		05/22/06	05/25/06	MWT	Uranium, Isotopic in Solids
J11JL9			R604106-04	7422-004	GAM		05/24/06	05/24/06	CSS	Gamma Scan
UPRIVER RIPARIAN #14		SOLID	04/12/06	7422-004	SR		05/19/06	06/02/06	MWT	Total Strontium in Solids
RC-051-127	RC-051		04/14/06	7422-004	TH		05/22/06	05/24/06	MWT	Thorium, Isotopic in Solids
				7422-004	U		05/22/06	05/25/06	MWT	Uranium, Isotopic in Solids
J11JM0			R604106-05	7422-005	GAM		05/24/06	05/24/06	CSS	Gamma Scan
UPRIVER RIPARIAN #14		SOLID	04/12/06	7422-005	SR		05/19/06	06/02/06	MWT	Total Strontium in Solids
RC-051-127	RC-051		04/14/06	7422-005	TH		05/22/06	05/24/06	MWT	Thorium, Isotopic in Solids
				7422-005	U		05/22/06	05/25/06	MWT	Uranium, Isotopic in Solids
Method Blank			R604106-07	7422-007	GAM		05/24/06	05/24/06	CSS	Gamma Scan
		SOLID		7422-007	SR		05/19/06	06/02/06	MWT	Total Strontium in Solids
	RC-051			7422-007	TH		05/22/06	05/24/06	MWT	Thorium, Isotopic in Solids
				7422-007	U		05/22/06	05/25/06	MWT	Uranium, Isotopic in Solids
Lab Control Sample			R604106-06	7422-006	GAM		05/24/06	05/24/06	CSS	Gamma Scan
		SOLID		7422-006	SR		05/19/06	06/02/06	MWT	Total Strontium in Solids
	RC-051			7422-006	TH		05/22/06	05/24/06	MWT	Thorium, Isotopic in Solids
				7422-006	U		05/22/06	05/25/06	MWT	Uranium, Isotopic in Solids
Duplicate (R604106-01)			R604106-08	7422-008	GAM		05/24/06	05/24/06	CSS	Gamma Scan
UPRIVER RIPARIAN #14		SOLID	04/12/06	7422-008	SR		05/19/06	06/02/06	MWT	Total Strontium in Solids
	RC-051		04/14/06	7422-008	TH		05/22/06	05/24/06	MWT	Thorium, Isotopic in Solids
				7422-008	U		05/22/06	05/25/06	MWT	Uranium, Isotopic in Solids

Lab id EBRLNE
Protocol Hanford
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Form DVD-CWS
Version 3.06
Report date 06/02/06

SDG 7422
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG K0306

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
GAM	RC-051	Gamma Scan	GAMMA_GS	5			1	1	1	8
SR	RC-051	Total Strontium in Solids	SRTOT_SEP_PRECIP_GPC	5			1	1	1	8
TH	RC-051	Thorium, Isotopic in Solids	THISO_IE_PLATE_AEA	5			1	1	1	8
U	RC-051	Uranium, Isotopic in Solids	UISO_PLATE_AEA	5			1	1	1	8
TOTALS				20			4	4	4	32

Lab id EBRLNE
Protocol Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0306

R604106-07 **Method Blank**

METHOD BLANK

SDG	7422	Client/Case no	Hanford SDG_K0306
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R604106-07	Client sample id	Method Blank
Dept sample id	7422-007	Material/Matrix	SOLID
		SAF No	RC-051

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	-0.013	0.11	0.22	1.0	U	SR
Thorium 228	14274-82-9	-0.044	0.27	0.64	1.0	U	TH
Thorium 230	14269-63-7	0.044	0.18	0.34	1.0	U	TH
Thorium 232	TH-232	0	0.089	0.34	1.0	U	TH
Uranium 233/234	U-233/234	0	0.057	0.22	1.0	U	U
Uranium 235	15117-96-1	0	0.069	0.26	1.0	U	U
Uranium 238	U-238	0.029	0.057	0.22	1.0	U	U
Potassium 40	13966-00-2	U		3.0		U	GAM
Cobalt 60	10198-40-0	U		0.13	0.050	U	GAM
Cesium 137	10045-97-3	U		0.11	0.10	U	GAM
Radium 226	13982-63-3	U		0.21	0.10	U	GAM
Radium 228	15262-20-1	U		0.65	0.20	U	GAM
Europium 152	14683-23-9	U		0.25	0.10	U	GAM
Europium 154	15585-10-1	U		0.33	0.10	U	GAM
Europium 155	14391-16-3	U		0.26	0.10	U	GAM
Thorium 228	14274-82-9	U		0.14		U	GAM
Thorium 232	TH-232	U		0.65		U	GAM
Uranium 235	15117-96-1	U		0.35		U	GAM
Uranium 238	U-238	U		12		U	GAM
Americium 241	14596-10-2	U		0.32		U	GAM
Cesium 134	13967-70-9	U		0.12		U	GAM

100&300Area Compnt RCBRA-Incrmntl So

QC-BLANK 56889

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 06/02/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0306

R604106-06 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7422 Client/Case no Hanford SDG K0306

Contact Melissa C. Mannion Contract No. 630

Lab sample id R604106-06 Client sample id Lab Control Sample

Dept sample id 7422-006 Material/Matrix SOLID

SAF No RC-051

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
Total Strontium	10.8	0.55	0.21	1.0		SR	10.8	0.43	100	82-118	80-120
Thorium 230	42.0	4.5	0.38	1.0		TH	44.4	1.8	95	82-118	80-120
Uranium 233/234	18.4	2.2	0.97	1.0		U	18.6	0.74	99	80-120	80-120
Uranium 235	13.4	1.8	0.27	1.0		U	15.1	0.60	89	80-120	80-120
Uranium 238	19.2	2.3	0.94	1.0		U	20.2	0.81	95	81-119	80-120
Cobalt 60	3.52	0.36	0.13	0.050		GAM	3.39	0.14	104	71-129	80-120
Cesium 137	3.57	0.31	0.21	0.10		GAM	3.53	0.14	101	73-127	80-120

100&300Area Compnt RCBRA-Incrmntl So

QC-LCS 56888

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 06/02/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0306

R604106-08 J11JL6

DUPLICATE

SDG 7422 Client/Case no Hanford SDG K0306

Contact Melissa C. Mannion Contract No. 630

DUPLICATE	ORIGINAL	
Lab sample id R604106-08	Lab sample id R604106-01	Client sample id J11JL6
Dept sample id 7422-008	Dept sample id 7422-001	Location/Matrix UPRIVER RIPARIAN #14 SOLID
	Received 04/14/06	Collected/Weight 04/12/06 09:12 493 g
% solids 100.0	% solids 100.0	Custody/SAF No RC-051-127 RC-051

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
Total Strontium	-0.008	0.11	0.22	1.0	U	SR	0.077	0.11	0.20	U	-		1.1
Thorium 228	0.454	0.29	0.41	1.0		TH	0.489	0.31	0.29		7	136	0.2
Thorium 230	0.255	0.23	0.22	1.0		TH	0.457	0.31	0.29		57	163	1.0
Thorium 232	0.509	0.23	0.22	1.0		TH	0.640	0.31	0.23		23	101	0.7
Uranium 233/234	1.18	0.44	0.27	1.0		U	1.18	0.39	0.24		0	75	0
Uranium 235	0.086	0.087	0.33	1.0	U	U	0.038	0.075	0.29	U	-		0.8
Uranium 238	0.678	0.29	0.27	1.0		U	0.965	0.38	0.24		35	88	1.2
Potassium 40	8.39	1.4	0.80			GAM	9.31	1.6	1.0		10	48	0.6
Cobalt 60	U		0.089	0.050	U	GAM	U		0.11	U	-		0.3
Cesium 137	0.178	0.093	0.11	0.10		GAM	0.199	0.072	0.087		11	99	0.3
Radium 226	0.680	0.18	0.17	0.10		GAM	0.755	0.17	0.16		10	61	0.5
Radium 228	1.20	0.40	0.38	0.20		GAM	0.807	0.39	0.46		39	90	1.3
Europium 152	U		0.22	0.10	U	GAM	U		0.23	U	-		0.1
Europium 154	U		0.28	0.10	U	GAM	U		0.36	U	-		0.3
Europium 155	U		0.23	0.10	U	GAM	U		0.26	U	-		0.2
Thorium 228	0.978	0.16	0.17			GAM	0.938	0.11	0.11		4	44	0.3
Thorium 232	1.20	0.40	0.38			GAM	0.807	0.39	0.46		39	90	1.3
Uranium 235	U		0.34		U	GAM	U		0.39	U	-		0.2
Uranium 238	U		11		U	GAM	U		12	U	-		0.1
Americium 241	U		0.44		U	GAM	U		0.48	U	-		0.1
Cesium 134	U		0.11		U	GAM	U		0.12	U	-		0.1

100&300Area Compnt RCBRA-Incrmntl So

QC-DUP#1 56890

DUPLICATES

Page 1

SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 06/02/06

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K0306

R604106-01 J11JL6

DATA SHEET

SDG	7422	Client/Case no	Hanford SDG K0306
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R604106-01	Client sample id	J11JL6
Dept sample id	7422-001	Location/Matrix	UPRIVER RIPARIAN #14 SOLID
Received	04/14/06	Collected/Weight	04/12/06 09:12 493 g
% solids	100.0	Custody/SAF No	RC-051-127 RC-051

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	0.077	0.11	0.20	1.0	U	SR
Thorium 228	14274-82-9	0.489	0.31	0.29	1.0		TH
Thorium 230	14269-63-7	0.457	0.31	0.29	1.0		TH
Thorium 232	TH-232	0.640	0.31	0.23	1.0		TH
Uranium 233/234	U-233/234	1.18	0.39	0.24	1.0		U
Uranium 235	15117-96-1	0.038	0.075	0.29	1.0	U	U
Uranium 238	U-238	0.965	0.38	0.24	1.0		U
Potassium 40	13966-00-2	9.31	1.6	1.0			GAM
Cobalt 60	10198-40-0	U		0.11	0.050	U	GAM
Cesium 137	10045-97-3	0.199	0.072	0.087	0.10		GAM
Radium 226	13982-63-3	0.755	0.17	0.16	0.10		GAM
Radium 228	15262-20-1	0.807	0.39	0.46	0.20		GAM
Europium 152	14683-23-9	U		0.23	0.10	U	GAM
Europium 154	15585-10-1	U		0.36	0.10	U	GAM
Europium 155	14391-16-3	U		0.26	0.10	U	GAM
Thorium 228	14274-82-9	0.938	0.11	0.11			GAM
Thorium 232	TH-232	0.807	0.39	0.46			GAM
Uranium 235	15117-96-1	U		0.39		U	GAM
Uranium 238	U-238	U		12		U	GAM
Americium 241	14596-10-2	U		0.48		U	GAM
Cesium 134	13967-70-9	U		0.12		U	GAM

100&300Area Compnt RCBRA-Incrmntl So

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/02/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0306

R604106-02 J11JL7

DATA SHEET

SDG 7422 Client/Case no Hanford SDG K0306
Contact Melissa C. Mannion Contract No. 630

Lab sample id R604106-02 Client sample id J11JL7
Dept sample id 7422-002 Location/Matrix UPRIVER RIPARIAN #14 SOLID
Received 04/14/06 Collected/Weight 04/12/06 10:19 432 g
% solids 100.0 Custody/SAF No RC-051-127 RC-051

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	0.017	0.092	0.19	1.0	U	SR
Thorium 228	14274-82-9	0.604	0.34	0.26	1.0		TH
Thorium 230	14269-63-7	0.268	0.27	0.26	1.0		TH
Thorium 232	TH-232	0.435	0.27	0.26	1.0		TH
Uranium 233/234	U-233/234	0.960	0.59	0.73	1.0		U
Uranium 235	15117-96-1	0.116	0.23	0.89	1.0	U	U
Uranium 238	U-238	0.960	0.59	0.73	1.0		U
Potassium 40	13966-00-2	12.1	3.4	0.92			GAM
Cobalt 60	10198-40-0	U		0.13	0.050	U	GAM
Cesium 137	10045-97-3	0.140	0.099	0.13	0.10		GAM
Radium 226	13982-63-3	0.837	0.23	0.20	0.10		GAM
Radium 228	15262-20-1	0.680	0.43	0.46	0.20		GAM
Europium 152	14683-23-9	U		0.26	0.10	U	GAM
Europium 154	15585-10-1	U		0.40	0.10	U	GAM
Europium 155	14391-16-3	U		0.32	0.10	U	GAM
Thorium 228	14274-82-9	0.978	0.19	0.20			GAM
Thorium 232	TH-232	0.680	0.43	0.46			GAM
Uranium 235	15117-96-1	U		0.41		U	GAM
Uranium 238	U-238	U		13		U	GAM
Americium 241	14596-10-2	U		0.40		U	GAM
Cesium 134	13967-70-9	U		0.13		U	GAM

100&300Area Compnt RCBRA-Incrmntl So

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 06/02/06

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K0306

R604106-03 J11JL8

DATA SHEET

SDG	7422	Client/Case no	Hanford SDG K0306
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R604106-03	Client sample id	J11JL8
Dept sample id	7422-003	Location/Matrix	UPRIVER RIPARIAN #14 SOLID
Received	04/14/06	Collected/Weight	04/12/06 10:20 435 g
% solids	100.0	Custody/SAF No	RC-051-127 RC-051

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Total Strontium	SR-RAD	-0.003	0.12	0.24	1.0	U	SR
Thorium 228	14274-82-9	0.556	0.45	0.61	1.0	U	TH
Thorium 230	14269-63-7	0.222	0.33	0.42	1.0	U	TH
Thorium 232	TH-232	0.388	0.33	0.42	1.0	U	TH
Uranium 233/234	U-233/234	0.738	0.36	0.33	1.0		U
Uranium 235	15117-96-1	0.053	0.11	0.40	1.0	U	U
Uranium 238	U-238	0.868	0.36	0.33	1.0		U
Potassium 40	13966-00-2	9.79	1.7	1.2			GAM
Cobalt 60	10198-40-0	U		0.14	0.050	U	GAM
Cesium 137	10045-97-3	0.144	0.12	0.12	0.10		GAM
Radium 226	13982-63-3	0.593	0.19	0.20	0.10		GAM
Radium 228	15262-20-1	0.876	0.45	0.42	0.20		GAM
Europium 152	14683-23-9	U		0.28	0.10	U	GAM
Europium 154	15585-10-1	U		0.40	0.10	U	GAM
Europium 155	14391-16-3	U		0.25	0.10	U	GAM
Thorium 228	14274-82-9	0.837	0.17	0.20			GAM
Thorium 232	TH-232	0.876	0.45	0.42			GAM
Uranium 235	15117-96-1	U		0.39		U	GAM
Uranium 238	U-238	U		14		U	GAM
Americium 241	14596-10-2	U		0.29		U	GAM
Cesium 134	13967-70-9	U		0.13		U	GAM

100&300Area Compnt RCBRA-Incrmntl So

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/02/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0306

R604106-04 **J11JL9**

DATA SHEET

SDG	7422	Client/Case no	Hanford SDG_K0306
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R604106-04	Client sample id	J11JL9
Dept sample id	7422-004	Location/Matrix	UPRIVER RIPARIAN #14 SOLID
Received	04/14/06	Collected/Weight	04/12/06 11:28 431 g
% solids	100.0	Custody/SAF No	RC-051-127 RC-051

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	-0.038	0.099	0.21	1.0	U	SR
Thorium 228	14274-82-9	0.484	0.35	0.42	1.0		TH
Thorium 230	14269-63-7	0.351	0.35	0.34	1.0		TH
Thorium 232	TH-232	0.351	0.26	0.34	1.0		TH
Uranium 233/234	U-233/234	0.864	0.33	0.24	1.0		U
Uranium 235	15117-96-1	0.039	0.078	0.30	1.0	U	U
Uranium 238	U-238	0.576	0.26	0.24	1.0		U
Potassium 40	13966-00-2	12.7	3.4	0.99			GAM
Cobalt 60	10198-40-0	U		0.12	0.050	U	GAM
Cesium 137	10045-97-3	0.222	0.11	0.11	0.10		GAM
Radium 226	13982-63-3	0.690	0.20	0.19	0.10		GAM
Radium 228	15262-20-1	0.954	0.40	0.39	0.20		GAM
Europium 152	14683-23-9	U		0.25	0.10	U	GAM
Europium 154	15585-10-1	U		0.29	0.10	U	GAM
Europium 155	14391-16-3	U		0.27	0.10	U	GAM
Thorium 228	14274-82-9	0.764	0.12	0.12			GAM
Thorium 232	TH-232	0.954	0.40	0.39			GAM
Uranium 235	15117-96-1	U		0.35		U	GAM
Uranium 238	U-238	U		12		U	GAM
Americium 241	14596-10-2	U		0.36		U	GAM
Cesium 134	13967-70-9	U		0.13		U	GAM

100&300Area Compnt RCBRA-Incrmntl So

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/02/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0306

R604106-05 J11JM0

DATA SHEET

SDG	7422	Client/Case no	Hanford SDG K0306
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R604106-05	Client sample id	J11JM0
Dept sample id	7422-005	Location/Matrix	UPRIVER RIPARIAN #14 SOLID
Received	04/14/06	Collected/Weight	04/12/06 13:05 438 g
% solids	100.0	Custody/SAF No	RC-051-127 RC-051

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Total Strontium	SR-RAD	0.035	0.10	0.21	1.0	U	SR
Thorium 228	14274-82-9	0.552	0.27	0.25	1.0		TH
Thorium 230	14269-63-7	0.262	0.26	0.35	1.0	U	TH
Thorium 232	TH-232	0.603	0.27	0.20	1.0		TH
Uranium 233/234	U-233/234	1.28	0.45	0.28	1.0		U
Uranium 235	15117-96-1	0.133	0.18	0.34	1.0	U	U
Uranium 238	U-238	1.02	0.38	0.28	1.0		U
Potassium 40	13966-00-2	11.8	3.6	1.0			GAM
Cobalt 60	10198-40-0	U		0.12	0.050	U	GAM
Cesium 137	10045-97-3	0.220	0.11	0.11	0.10		GAM
Radium 226	13982-63-3	0.591	0.22	0.20	0.10		GAM
Radium 228	15262-20-1	0.729	0.48	0.48	0.20		GAM
Europium 152	14683-23-9	U		0.24	0.10	U	GAM
Europium 154	15585-10-1	U		0.36	0.10	U	GAM
Europium 155	14391-16-3	U		0.30	0.10	U	GAM
Thorium 228	14274-82-9	0.659	0.13	0.14			GAM
Thorium 232	TH-232	0.729	0.48	0.48			GAM
Uranium 235	15117-96-1	U		0.39		U	GAM
Uranium 238	U-238	U		14		U	GAM
Americium 241	14596-10-2	U		0.39		U	GAM
Cesium 134	13967-70-9	U		0.13		U	GAM

100&300Area Compnt RCBRA-Incrmntl So

Lab id	EBRLNE
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0306

Test TH Matrix SOLID
SDG 7422
Contact Melissa C. Mannion

METHOD SUMMARY

THORIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG K0306

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Thorium 230
Preparation batch 7181-073					
J11JL6	R604106-01			7422-001	0.457
J11JL7	R604106-02			7422-002	0.268
J11JL8	R604106-03			7422-003	U
J11JL9	R604106-04			7422-004	0.351
J11JM0	R604106-05			7422-005	U
Method Blank	R604106-07			7422-007	U
Lab Control Sample	R604106-06			7422-006	ok
Duplicate (R604106-01)	R604106-08			7422-008	ok
Nominal values and limits from method				RDLs (pCi/g)	1.0
100&300Area Compnt RCBRA-Incrmntl So					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT keV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7181-073	2σ prep error 5.0 %			Reference Lab Notebook 7181 pg. 73												
J11JL6	R604106-01			0.29	0.250			69		245			40	05/20/06	05/22	SS-028
J11JL7	R604106-02			0.26	0.250			65		245			40	05/20/06	05/22	SS-029
J11JL8	R604106-03			0.61	0.250			39		245			40	05/20/06	05/22	SS-031
J11JL9	R604106-04			0.42	0.250			49		245			40	05/20/06	05/22	SS-032
J11JM0	R604106-05			0.35	0.250			82		245			40	05/20/06	05/22	SS-033
Method Blank	R604106-07			0.64	0.250			43		244				05/20/06	05/22	SS-035
Lab Control Sample	R604106-06			0.38	0.250			55		246				05/20/06	05/22	SS-034
Duplicate (R604106-01)	R604106-08			0.41	0.250			64		244			40	05/20/06	05/22	SS-036
Nominal values and limits from method				1.0	0.250			20-105		150			180			

Lab id EBRLNE
Protocol Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0306

Test U Matrix SOLID
SDG 7422
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG K0306

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	1: Uranium 233/234	2: Uranium 235	3: Uranium 238	RESULT RATIOS (%) 1+3	2σ	2+3	2σ
Preparation batch 7181-073											
J11JL6	R604106-01			7422-001	1.18	U	0.965	122	63	4	8
J11JL7	R604106-02			7422-002	0.960	U	0.960	100	87	12	25
J11JL8	R604106-03			7422-003	0.738	U	0.868	85	54	6	13
J11JL9	R604106-04			7422-004	0.864	U	0.576	150	89	7	14
J11JM0	R604106-05			7422-005	1.28	U	1.02	125	64	13	18
Method Blank	R604106-07			7422-007	U	U	U				
Lab Control Sample	R604106-06			7422-006	ok	ok	ok				
Duplicate (R604106-01)	R604106-08			7422-008	ok	- U	ok	174	99	13	14
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0	1.0	100		4	
100&300Area Compnt RCBRA-Incrmntl So							Averages	126		9	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7181-073 2σ prep error 5.0 % Reference Lab Notebook 7181 pg. 73																
J11JL6	R604106-01			0.29	0.500			85		105			40	05/22/06	05/22	SS-062
J11JL7	R604106-02			0.89	0.500			18		171			42	05/22/06	05/24	SS-063
J11JL8	R604106-03			0.40	0.500			60		105			40	05/22/06	05/22	SS-064
J11JL9	R604106-04			0.30	0.500			82		105			40	05/22/06	05/22	SS-065
J11JM0	R604106-05			0.34	0.500			72		105			40	05/22/06	05/22	SS-066
Method Blank	R604106-07			0.26	0.500			85		106				05/22/06	05/22	SS-028
Lab Control Sample	R604106-06			0.97	0.500			82		105				05/22/06	05/22	SS-027
Duplicate (R604106-01)	R604106-08			0.33	0.500			70		106			40	05/22/06	05/22	SS-029
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

Lab id EBRLNE
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0306

Test SR Matrix SOLID
SDG 7422
Contact Melissa C. Mannion

METHOD SUMMARY

TOTAL STRONTIUM IN SOLIDS
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG K0306

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium	
Preparation batch 7181-073						
J11JL6	R604106-01			7422-001	U	
J11JL7	R604106-02			7422-002	U	
J11JL8	R604106-03			7422-003	U	
J11JL9	R604106-04			7422-004	U	
J11JM0	R604106-05			7422-005	U	
Method Blank	R604106-07			7422-007	U	
Lab Control Sample	R604106-06			7422-006	ok	
Duplicate (R604106-01)	R604106-08			7422-008	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.0	
100&300Area Compnt RCBRA-Incrmntl So						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7181-073 2σ prep error 10.0 % Reference Lab Notebook 7181 pg. 73																
J11JL6	R604106-01			0.20	1.00			93		100			37	05/19/06	05/19	GRB-224
J11JL7	R604106-02			0.19	1.00			92		100			37	05/19/06	05/19	GRB-224
J11JL8	R604106-03			0.24	1.00			93		100			37	05/19/06	05/19	GRB-219
J11JL9	R604106-04			0.21	1.00			93		100			37	05/19/06	05/19	GRB-227
J11JM0	R604106-05			0.21	1.00			91		100			37	05/19/06	05/19	GRB-228
Method Blank	R604106-07			0.22	1.00			91		100				05/19/06	05/19	GRB-223
Lab Control Sample	R604106-06			0.21	1.00			96		100				05/19/06	05/19	GRB-222
Duplicate (R604106-01)	R604106-08			0.22	1.00			92		100			37	05/19/06	05/19	GRB-224
Nominal values and limits from method				1.0	1.00			30-105		100			180			

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

AVERAGES ± 2 SD FOR 8 SAMPLES
MDA 0.21 ± 0.030
YIELD 93 ± 3

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0306

Test GAM Matrix SOLID
SDG 7422
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG K0306

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60	Cesium 137
Preparation batch 7181-073						
J11JL6	R604106-01			7422-001	U	0.199
J11JL7	R604106-02			7422-002	U	0.140
J11JL8	R604106-03			7422-003	U	0.144
J11JL9	R604106-04			7422-004	U	0.222
J11JM0	R604106-05			7422-005	U	0.220
Method Blank	R604106-07			7422-007	U	U
Lab Control Sample	R604106-06			7422-006	ok	ok
Duplicate (R604106-01)	R604106-08			7422-008	- U	ok
Nominal values and limits from method				RDLs (pCi/g)	0.050	0.10
100&300Area Compnt RCBRA-Incrmntl So						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7181-073	2σ prep error 15.0 %	Reference Lab Notebook 7181 pg. 73														
J11JL6	R604106-01			23	140					128			42	05/04/06	05/24	JR,05,00
J11JL7	R604106-02			24	158					102			42	05/04/06	05/24	JR,02,00
J11JL8	R604106-03			25	157					128			42	05/04/06	05/24	JR,03,00
J11JL9	R604106-04			22	151					128			42	05/04/06	05/24	JR,08,00
J11JM0	R604106-05			23	154					114			42	05/04/06	05/24	JR,02,00
Method Blank	R604106-07			24	139					106				05/04/06	05/24	JR,08,00
Lab Control Sample	R604106-06			0.13	139					105				05/04/06	05/24	JR,03,00
Duplicate (R604106-01)	R604106-08			19	140					154			42	05/04/06	05/24	JR,05,00
Nominal values and limits from method				0.050	139					100			180			

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

AVERAGES ± 2 SD FOR 8 SAMPLES
MDA 20 ± 16
YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 06/02/06

SDG 7422
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_K0306

SAMPLE SUMMARY

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

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

The following notes apply to these reports:

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

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

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

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

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/02/06

SDG 7422
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_K0306

PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

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

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

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

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

  These qualifiers should be reviewed as follows:

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

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

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/02/06

SDG 7422
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_K0306

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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REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_K0306

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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Protocol Hanford
Version Ver 1.0
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SDG 7422
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG_K0306

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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Case no SDG_K0306

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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REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_K0306

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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Contract No. 630
Case no SDG K0306

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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GUIDE, cont.

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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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GUIDE, cont.

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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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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.

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GUIDE, cont.

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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

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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.

Lab id EBRLNE
Protocol Hanford
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Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-051-127	Page 1 of 3
Collector STANKOVICH, M.	**Company Contact** JOAN KESSNER **Telephone No.** 375-4688		**Project Coordinator** KESSNER, JH	**Price Code** 8L **Data Turnaround** 45 Days
Project Designation 100 & 300 Area Component of the RCBRA - Incremental So	**Sampling Location** UPRIVER RIPARIAN #14 K0306 (7422)		**SAF No.** RC-051	**Air Quality** ☐
Ice Chest No.	**Field Logbook No.** EL-1596-1	**COA** BESRAS6520	**Method of Shipment** FED EX	
Shipped To (EBERLINE SERVICES) LIONVILLE	**Offsite Property No.** A060151		**Bill of Lading/Air Bill No.** SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

Use page 3 for original material to Corvallis for MIS preparation and aliquoting, page 1 for radioanalytical fractions to Eberline, & page 2 for chemical analytical fractions to Lionville.

Preservation	None	None	None	None	None	None	None	None	None	None
Type of Container	G/P	G/P	`	`	`	^	^	^	^	^
No. of Container(s)	5	7	0	0	0	0	0	0	0	0
Volume	400g	30g	1`	1`	1`	1^	1^	1^	1^	1^
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Isotopic Plutonium (Plutonium-238, Plutonium-239/240)	^	^^	^^^	^^^^	^^^^^

Sample No.	Matrix *	Sample Date	Sample Time								
J11JL6	SOIL	4-12-06	0912	1	3						
J11JL7	"	"	1019	1	1						
J11JL8	"	"	1020	1	1						
J11JL9	"	"	1128	1	1						
J11JM0	"	"	1305	1	1						

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Elizabeth M Tepper		CH2M Hill →	
CH2M Elizabeth M Tepper	4-13-06 11:30	Fed Ex	4-13-06 11:30
Fed Ex		[illegible]	04/14/06 9:30

SPECIAL INSTRUCTIONS

` These marks indicate that unless lined out, analytes to be included with Strontium-89,90 -- Total Sr analysis fraction.

^~ These marks indicate that this is a non-analysis used to properly format COC form. Contact Joan Kessner for any questions.

(1) Gamma Spec - (Full List) (Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-226, Radium-228)

Matrix *

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

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

EBERLINE SERVICES

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Client: W.C. HANFORD City RICHLAND State WA

Date/Time received 04/14/06 CoC No. RC-051-127

Container I.D. No. LEE CHEST Requested TAT (Days) 45 P.O. Received Yes [ ] No [ ]

INSPECTION

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

14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
15. Inspected by MTM Date: 04/14/06 Time: 10:45

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

Ion Chamber Ser. No. _____ Calibration date _____
Alpha Meter Ser. No. _____ Calibration date _____
Beta/Gamma Meter Ser. No. _____ Calibration date _____

LIONVILLE LABORATORY INC.

7 June 2006

Joan Kessner
WC-Hanford
3190 Washington Way
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 #	0604L783
SDG #	K0306
SAF #	RC-051
Date Received	4/14/06
# Samples	5
Mat\rix	Soil
Volatiles	
Semivolatiles	X
Pest/PCB	X
PAH	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	X

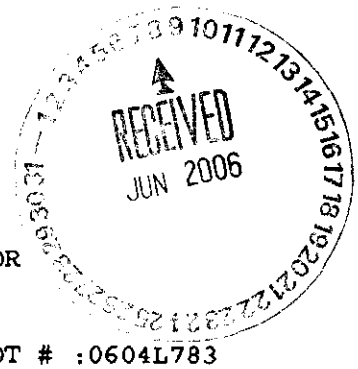
The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

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-051 K0306

DATE RECEIVED: 04/14/06 LVL LOT # :0604L783

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J11JL6	001	S	06LE0318	04/12/06	04/25/06	05/04/06
J11JL7	002	S	06LE0318	04/12/06	04/25/06	05/04/06
J11JL7	002 MS	S	06LE0318	04/12/06	04/25/06	05/04/06
J11JL7	002 MSD	S	06LE0318	04/12/06	04/25/06	05/07/06
J11JL8	003	S	06LE0318	04/12/06	04/25/06	05/07/06
J11JL9	004	S	06LE0318	04/12/06	04/25/06	05/04/06
J11JM0	005	S	06LE0318	04/12/06	04/25/06	05/07/06
LAB QC:						
SBLKWW	MB1	S	06LE0318	N/A	04/25/06	05/03/06
SBLKWW	MB1 BS	S	06LE0318	N/A	04/25/06	05/03/06

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-051
LVL #: 0604L783
SDG/SAF # K0306/RC-051

W.O. #: 11343-606-001-9999-00
Date Received: 04-14-2006

SEMIVOLATILE

Five (5) soil samples were collected on 04-12-2006.

The samples and their associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3540C on 04-25-2006 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 05-03,04,07-2006.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy with the exception of a discrepancy, which was documented on the Sample Receipt Checklist.

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

3. All soil sample results were reported on a wet-weight basis.

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

5. All surrogate recoveries were within acceptance criteria.

6. All matrix spike recoveries were within acceptance criteria.

7. One (1) of sixty-four (64) blank spike recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

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

9. 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").

LIONVILLE LABORATORY INC.

10. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. 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.

Judy Stinn

5/10/06

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated
Date

som\gorup\data\bna\tmu-hanford\0604-783.doc

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 06MS152

Initiator: ShawnSaylor
Date: 5-8-06
Client: TMM

Batch: 0604783
Samples: 65
Method: SW846/MCAWW/CLP/

Parameter: 8270
Matrix: Solid
Prep Batch: 06E0718

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 2,4-dinitrophenol in the blank spike but the matrix spike & matrix spike dup are ok

2. Known or Probable Cause(s)

loss due to highly erratic chromatographic behavior of this compound

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: 5/9/06

√ 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: 5/10/06 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
C	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: _____

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.

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 resolve 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 - **Co-elution/ Background:** Peak was manually integrated to eliminate contribution from co-eluting compounds, background signal, or other interference.

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

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List — Report Date: 05/09/06 11:53

RFW Batch Number: 0604L783 — Client: TNUHANFORD RC-051 K0306 — Work Order: 11343606001 — Page: 1a

	Cust ID:	J11JL6		J11JL7		J11JL7		J11JL7		J11JL8		J11JL9	
Sample Information	RFW#:	001		002		002 MS		002 MSD		003		004	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	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 Recovery	Nitrobenzene-d5	85	%	65	%	76	%	60	%	77	%	73	%
	2-Fluorobiphenyl	79	%	64	%	82	%	64	%	79	%	70	%
	Terphenyl-d14	101	%	83	%	93	%	71	%	95	%	82	%
	Phenol-d5	62	%	51	%	68	%	56	%	64	%	53	%
	2-Fluorophenol	62	%	45	%	56	%	46	%	57	%	51	%
	2,4,6-Tribromophenol	82	%	70	%	89	%	66	%	84	%	70	%
			fl		fl		fl		fl		fl		fl
Phenol		330	U	330	U	76	%	63	%	330	U	330	U
bis(2-Chloroethyl)ether		330	U	330	U	73	%	59	%	330	U	330	U
2-Chlorophenol		330	U	330	U	75	%	63	%	330	U	330	U
1,3-Dichlorobenzene		330	U	330	U	73	%	60	%	330	U	330	U
1,4-Dichlorobenzene		330	U	330	U	73	%	60	%	330	U	330	U
1,2-Dichlorobenzene		330	U	330	U	77	%	64	%	330	U	330	U
2-Methylphenol		330	U	330	U	75	%	66	%	330	U	330	U
2,2'-oxybis(1-Chloropropane)		330	U	330	U	75	%	60	%	330	U	330	U
4-Methylphenol		330	U	330	U	80	%	68	%	330	U	330	U
N-Nitroso-di-n-propylamine		330	U	330	U	91	%	79	%	330	U	330	U
Hexachloroethane		330	U	330	U	63	%	58	%	330	U	330	U
Nitrobenzene		330	U	330	U	84	%	67	%	330	U	330	U
Isophorone		330	U	330	U	90	%	74	%	330	U	330	U
2-Nitrophenol		330	U	330	U	80	%	63	%	330	U	330	U
2,4-Dimethylphenol		330	U	330	U	78	%	64	%	330	U	330	U
bis(2-Chloroethoxy)methane		330	U	330	U	81	%	65	%	330	U	330	U
2,4-Dichlorophenol		330	U	330	U	81	%	68	%	330	U	330	U
1,2,4-Trichlorobenzene		330	U	330	U	82	%	67	%	330	U	330	U
Naphthalene		330	U	330	U	80	%	64	%	330	U	330	U
4-Chloroaniline		330	U	330	U	31	%	29	%	330	U	330	U
Hexachlorobutadiene		330	U	330	U	95	%	80	%	330	U	330	U
4-Chloro-3-methylphenol		330	U	330	U	84	%	73	%	330	U	330	U
2-Methylnaphthalene		330	U	330	U	86	%	73	%	330	U	330	U
Hexachlorocyclopentadiene		330	U	330	U	46	%	51	%	330	U	330	U
2,4,6-Trichlorophenol		330	U	330	U	96	%	79	%	330	U	330	U
2,4,5-Trichlorophenol		830	U	830	U	92	%	75	%	830	U	830	U

*= Outside of EPA CLP QC limits.

Cust ID:	J11JL6		J11JL7		J11JL7		J11JL7		J11JL8		J11JL9	
RFW#:	001		002		002 MS		002 MSD		003		004	
2-Chloronaphthalene	330	U	330	U	88	%	71	%	330	U	330	U
2-Nitroaniline	830	U	830	U	92	%	78	%	830	U	830	U
Dimethylphthalate	330	U	330	U	89	%	76	%	330	U	330	U
Acenaphthylene	330	U	330	U	86	%	72	%	330	U	330	U
2,6-Dinitrotoluene	330	U	330	U	84	%	71	%	330	U	330	U
3-Nitroaniline	830	U	830	U	65	%	60	%	830	U	830	U
Acenaphthene	330	U	330	U	88	%	74	%	330	U	330	U
2,4-Dinitrophenol	830	U	830	U	72	%	57	%	830	U	830	U
4-Nitrophenol	830	U	830	U	89	%	84	%	830	U	830	U
Dibenzofuran	330	U	330	U	91	%	78	%	330	U	330	U
2,4-Dinitrotoluene	330	U	330	U	90	%	80	%	330	U	330	U
Diethylphthalate	330	U	330	U	90	%	80	%	330	U	330	U
4-Chlorophenyl-phenylether	330	U	330	U	89	%	79	%	330	U	330	U
Fluorene	330	U	330	U	86	%	75	%	330	U	330	U
4-Nitroaniline	830	U	830	U	54	%	53	%	830	U	830	U
4,6-Dinitro-2-methylphenol	830	U	830	U	101	%	83	%	830	U	830	U
N-Nitrosodiphenylamine (1)	330	U	330	U	75	%	60	%	330	U	330	U
4-Bromophenyl-phenylether	330	U	330	U	83	%	68	%	330	U	330	U
Hexachlorobenzene	330	U	330	U	95	%	77	%	330	U	330	U
Pentachlorophenol	830	U	830	U	103	%	94	%	830	U	830	U
Phenanthrene	330	U	330	U	91	%	79	%	330	U	330	U
Anthracene	330	U	330	U	90	%	75	%	330	U	330	U
Carbazole	330	U	330	U	79	%	71	%	330	U	330	U
Di-n-butylphthalate	330	U	330	U	86	%	77	%	330	U	330	U
Fluoranthene	330	U	330	U	84	%	80	%	330	U	330	U
Pyrene	330	U	330	U	104	%	85	%	330	U	330	U
Butylbenzylphthalate	330	U	330	U	100	%	85	%	330	U	330	U
3,3'-Dichlorobenzidine	330	U	330	U	24	%	26	%	330	U	330	U
Benzo(a)anthracene	330	U	330	U	88	%	78	%	330	U	330	U
Chrysene	330	U	330	U	82	%	74	%	330	U	330	U
bis(2-Ethylhexyl)phthalate	23	J	18	J	90	%	85	%	50	J	31	J
Di-n-octyl phthalate	330	U	330	U	104	%	92	%	330	U	330	U
Benzo(b)fluoranthene	330	U	330	U	100	%	96	%	330	U	330	U
Benzo(k)fluoranthene	330	U	330	U	85	%	68	%	330	U	330	U
Benzo(a)pyrene	330	U	330	U	83	%	73	%	330	U	330	U
Indeno(1,2,3-cd)pyrene	330	U	330	U	66	%	60	%	330	U	330	U
Dibenz(a,h)anthracene	330	U	330	U	68	%	60	%	330	U	330	U
Benzo(g,h,i)perylene	330	U	330	U	57	%	54	%	330	U	330	U

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

	Cust ID:	J11JM0		SBLKWW		SBLKWW BS	
Sample Information	RFW#:	005		06LE0318-MB1		06LE0318-MB1	
	Matrix:	SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	69	%	75	%	67	%
	2-Fluorobiphenyl	72	%	74	%	76	%
	Terphenyl-d14	91	%	99	%	93	%
	Phenol-d5	59	%	59	%	63	%
	2-Fluorophenol	47	%	60	%	56	%
	2,4,6-Tribromophenol	77	%	68	%	85	%
Phenol		330	U	330	U	69	%
bis(2-Chloroethyl)ether		330	U	330	U	74	%
2-Chlorophenol		330	U	330	U	72	%
1,3-Dichlorobenzene		330	U	330	U	75	%
1,4-Dichlorobenzene		330	U	330	U	74	%
1,2-Dichlorobenzene		330	U	330	U	80	%
2-Methylphenol		330	U	330	U	73	%
2,2'-oxybis(1-Chloropropane)		330	U	330	U	64	%
4-Methylphenol		330	U	330	U	73	%
N-Nitroso-di-n-propylamine		330	U	330	U	87	%
Hexachloroethane		330	U	330	U	76	%
Nitrobenzene		330	U	330	U	75	%
Isophorone		330	U	330	U	84	%
2-Nitrophenol		330	U	330	U	69	%
2,4-Dimethylphenol		330	U	330	U	60	%
bis(2-Chloroethoxy)methane		330	U	330	U	72	%
2,4-Dichlorophenol		330	U	330	U	73	%
1,2,4-Trichlorobenzene		330	U	330	U	78	%
Naphthalene		330	U	330	U	72	%
4-Chloroaniline		330	U	330	U	73	%
Hexachlorobutadiene		330	U	330	U	92	%
4-Chloro-3-methylphenol		330	U	330	U	80	%
2-Methylnaphthalene		330	U	330	U	81	%
Hexachlorocyclopentadiene		330	U	330	U	71	%
2,4,6-Trichlorophenol		330	U	330	U	86	%
2,4,5-Trichlorophenol		830	U	840	U	83	%

*= Outside of EPA CLP QC limits.

Cust ID:	J11JM0		SBLKWW		SBLKWW BS		
RFW#:	005		06LE0318-MB1		06LE0318-MB1		
2-Chloronaphthalene	330	U	330	U	83		%
2-Nitroaniline	830	U	840	U	88		%
Dimethylphthalate	330	U	330	U	89		%
Acenaphthylene	330	U	330	U	84		%
2,6-Dinitrotoluene	330	U	330	U	83		%
3-Nitroaniline	830	U	840	U	94		%
Acenaphthene	330	U	330	U	86		%
2,4-Dinitrophenol	830	U	840	U	13	*	%
4-Nitrophenol	830	U	840	U	89		%
Dibenzofuran	330	U	330	U	92		%
2,4-Dinitrotoluene	330	U	330	U	92		%
Diethylphthalate	330	U	330	U	93		%
4-Chlorophenyl-phenylether	330	U	330	U	93		%
Fluorene	330	U	330	U	89		%
4-Nitroaniline	830	U	840	U	76		%
4,6-Dinitro-2-methylphenol	830	U	840	U	81		%
N-Nitrosodiphenylamine (1)	330	U	330	U	76		%
4-Bromophenyl-phenylether	330	U	330	U	84		%
Hexachlorobenzene	330	U	330	U	95		%
Pentachlorophenol	830	U	840	U	75		%
Phenanthrene	330	U	330	U	95		%
Anthracene	330	U	330	U	97		%
Carbazole	330	U	330	U	88		%
Di-n-butylphthalate	330	U	330	U	103		%
Fluoranthene	330	U	330	U	100		%
Pyrene	330	U	330	U	102		%
Butylbenzylphthalate	330	U	330	U	95		%
3,3'-Dichlorobenzidine	330	U	330	U	92		%
Benzo(a)anthracene	330	U	330	U	89		%
Chrysene	330	U	330	U	89		%
bis(2-Ethylhexyl)phthalate	57	J	330	U	94		%
Di-n-octyl phthalate	330	U	330	U	97		%
Benzo(b)fluoranthene	330	U	330	U	91		%
Benzo(k)fluoranthene	330	U	330	U	90		%
Benzo(a)pyrene	330	U	330	U	83		%
Indeno(1,2,3-cd)pyrene	330	U	330	U	72		%
Dibenz(a,h)anthracene	330	U	330	U	73		%
Benzo(g,h,i)perylene	330	U	330	U	64		%

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

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J11JL6

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

Client: TNUHANFORD RC-051 K0306

Matrix: (soil/water) SOIL

Lab Sample ID: 0604L783-001

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

Lab File ID: J050411

Level: (low/med) LOW

Date Received: 04/14/06

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

Date Extracted: 04/25/06

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/04/06

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.	110-82-7	CYCLOHEXANE	4.083	2000	JBN
2.		UNKNOWN	13.066	2000	J
3.		UNKNOWN	30.265	2000	J
4.		ALKANE	30.989	4000	J
5.		ALKANE	34.810	3000	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J11JL7

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

Client: TNUHANFORD RC-051 K0306

Matrix: (soil/water) SOIL

Lab Sample ID: 0604L783-002

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

Lab File ID: J050412

Level: (low/med) LOW

Date Received: 04/14/06

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

Date Extracted: 04/25/06

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/04/06

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.	110-82-7	CYCLOHEXANE	4.803	2000	JBN
2.		ALKANE	28.339	1000	J
3.		UNKNOWN	30.265	2000	J
4.		ALKANE	30.989	4000	J
5.		ALKANE	34.810	3000	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J11JL8

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

Client: TNUHANFORD RC-051 K0306

Matrix: (soil/water) SOIL

Lab Sample ID: 0604L783-003

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

Lab File ID: J050704

Level: (low/med) LOW

Date Received: 04/14/06

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

Date Extracted: 04/25/06

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/07/06

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.	110-82-7	CYCLOHEXANE	4.772	2000	JBN
2.		UNKNOWN	13.024	2000	J
3.		ALKANE	30.876	3000	J
4.		UNKNOWN	31.383	2000	J
5.		ALKANE	34.655	3000	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J11JL9

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

Client: TNUHANFORD RC-051 K0306

Matrix: (soil/water) SOIL

Lab Sample ID: 0604L783-004

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

Lab File ID: J050410

Level: (low/med) LOW

Date Received: 04/14/06

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

Date Extracted: 04/25/06

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/04/06

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.	110-82-7	CYCLOHEXANE	4.792	1000	JBN
2.		UNKNOWN	13.066	2000	J
3.		ALKANE	28.338	1000	J
4.		ALKANE	30.989	3000	J
5.		ALKANE	34.800	3000	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J11JM0

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

Client: TNUHANFORD RC-051 K0306

Matrix: (soil/water) SOIL

Lab Sample ID: 0604L783-005

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

Lab File ID: J050705

Level: (low/med) LOW

Date Received: 04/14/06

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

Date Extracted: 04/25/06

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/07/06

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.	110-82-7	CYCLOHEXANE	4.761	2000	JBN
2.		UNKNOWN	30.161	900	J
3.		ALKANE	30.886	4000	J
4.		UNKNOWN	31.362	2000	J
5.		ALKANE	34.655	3000	J

1F

CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SBLKWW

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

Client: TNUHANFORD RC-051 K0306

Matrix: (soil/water) SOIL

Lab Sample ID: 06LE0318-MB1

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

Lab File ID: J050210

Level: (low/med) LOW

Date Received: 04/25/06

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

Date Extracted: 04/25/06

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/03/06

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: _____

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	CYCLOHEXANE	4.803	2000	JN

FORM 1 SV-TIC

RFW (v3.3)

Lionville Laboratory Use Only
0604L-183

Custody Transfer Record/Lab Work Request

 See SRC

LVLI

0000000018

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU Hanford RC-051

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: DJ

QC: Spec Del: Std TAT: 30 Days

Date Rec'd: 4/14/06 Date Due: 5/14/06

			AC	DF		GI	JL	M-O	P-R		S-U					
Refrigerator #			2	2		2	2	2	2		2					
#/Type Container	Liquid															
	Solid		AGL	AGL		AGL	AGL	AGL	AGL		AGL					
Volume	Liquid															
	Solid		30	30		30	30	30	30		30					
Preservatives			—	—		—	—	—	—		—					
ANALYSES REQUESTED →		ORGANIC: VOA	BNA	Pest/PCB	Herb	PCB	IC(NO3)	NO2/NO3	INORG: Metal (1)	CN	Chrom Hex					
Lionville Laboratory Use Only			0625H	0608H		OPCB	ICNO3	IN3N2	METALS(1)		ICR6					

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	PCB	IC(NO3)	NO2/NO3	Metal	CN	Chrom Hex
001	J11JL6	✓	✓	S	4/12/06	0912		1	1		1	1	1	3		1
002	L7	✓	✓			1019		3	1		1	1	1	1		3
003	L8	✓	✓			1020		1	3		3	1	1	1		1
004	L9	✓	✓			1128		1	1		1	3	3	1		1
005	M0					1315		1	1		1	1	1	3		3

Special Instructions:

METALS(1) = HSL + Bi, B, Li, Mo, P, Si, Sr, Sn, U (NO Hg)

No % SOL

NON-RAD PER DJ

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
FedEx	[signature]	4/14/06	0925

Relinquished by	Received by	Date	Time

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-051-127	Page 2 of 3

Collector: STANKOVICH, M.	Company Contact: JOAN KESSNER — Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 8L — Data Turnaround: 45 Days
Project Designation: 100 & 300 Area Component of the RCBRA - Incremental So	Sampling Location: UPRIVER RIPARIAN #14	SAF No.: RC-051	Air Quality ☐
Ice Chest No.	Field Logbook No.: EL-1596-1 — COA: BESRAS6520	Method of Shipment: FED EX	
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A060151	Bill of Lading/Air Bill No.: SEE OSPC	

0000000819

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

Use page 3 for original material to Corvallis for MIS preparation and aliquoting, page 1 for radioanalytical fractions to Eberline, & page 2 for chemical analytical fractions to Lionville.

Preservation	None	None	None	None	None	None	None	None	None	None
Type of Container	G/P	G/P	aG	aG	aG	aG	G/P	G/P	^	^
No. of Container(s)	9	9	7		7	7	7	7	0	0
Volume	30g	30g	30g	30g	30g	30g	30g	30g	1^	1^

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	See item (1) in Special Instructions.	Chromium Hex - 7196	Semi-VOA - 8270A (TCL)	PAHs - 8310	Pesticides - 8081	PCBs - 8082	IC Anions - 300.0 (Nitrate)	NO2/NO3 - 353.2 (Nitrogen in Nitrite and Nitrate)	~	~~
J11JL6	SOIL	4-12-06	0912	3	1	1		1	1	1	1		
J11JL7	"	"	1019	1	3	3		1	1	1	1		
J11JL8	"	"	1020	1	1	1		3	3	1	1		
J11JL9	"	"	1128	1	1	1		1	1	3	3		
J11JM0	"	"	1305	3	3	1		1	1	1	1		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Dayna Kaumanns	4/13/06	CH2M Hill →	
Dayna Kaumanns	4/13/06 11:30	Fed Ex	4/13/06 11:30
FedEx		JPMurry	4/14/06 0925

SPECIAL INSTRUCTIONS

` These marks indicate that unless lined out, analytes to be included with Strontium-89,90 -- Total Sr analysis fraction.

^~ These marks indicate that this is a non-analysis used to properly format COC form.

Contact Joan Kessner for any questions.

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

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	

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH | Project # 336761.AO.ZZ

Site # Upriver Riparian #14 | Sample # J11JL6

Tray # 7 | Tare Wt. 1464 gm.

Total Dry Wt. 4391.2 gm. | Net Dry Wt. 2927.2 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	0912	400 g	401.3	KE
RAD STR	↓	30 g	30.1	↓
ICP MET		30 g	30.1	
HEX CR		30 g	30.2	
SEMI VOA		30 g	30.2	
PEST		30 g	30.3	
PCB		30 g	30.3	
IC ANION		30 g	30.5	
NO2/NO3		30 g	30.2	
RAD STR MS		30 g	30.5	
RAD STR MSD		30 g	30.4	
ICP MET MS		30 g	30.2	
ICP MET MSD	↓	30 g	30.3	↓

Comments:

Name (print): Kelly Ensor | Signature: Kelly Ensor

Sub-Sampled Date: 04/12/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH **Project #** 336761.AO.ZZ

Site # Upriver Riparian #14 **Sample #** J11JL7

Tray # 55 **Tare Wt.** 1465 gm.

Total Dry Wt. 4469.7 gm. **Net Dry Wt.** 3004.7 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	1019	400 g	400.2	
RAD STR	↓	30 g	30.2	↓
ICP MET		30 g	30.4	
HEX CR		30 g	30.1	
SEMI VOA		30 g	30.4	
PEST		30 g	30.4	
PCB		30 g	30.3	
IC ANION		30 g	30.9	
NO2/NO3		30 g	30.4	
HEX CR MS		30 g	30.3	
HEX CR MSD		30 g	30.3	
SEMI VOA MS		30 g	30.3	
SEMI VOA MSD	↓	30 g	30.1	↓

Comments:

Name (print): Kelly Enser **Signature:** Kelly Enser

Sub-Sampled Date: 04/12/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH **Project #** 336761.AO.ZZ

Site # Upriver Riparian #14 **Sample #** J11JL8

Tray # 36 **Tare Wt.** 1460 gm.

Total Dry Wt. 4463.7 gm. **Net Dry Wt.** 3003.7 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	10:20	400 g	404.07	KC
RAD STR	"	30 g	30.30	"
ICP MET	"	30 g	30.47	"
HEX CR	"	30 g	30.36	"
SEMI VOA	"	30 g	30.29	"
PEST	"	30 g	30.22	"
PCB	"	30 g	30.39	"
IC ANION	"	30 g	30.16	"
NO2/NO3	"	30 g	30.22	"
PEST MS	"	30 g	30.14	"
PEST MSD	"	30 g	30.30	"
PCB MS	"	30 g	30.04	"
PCB MSD	"	30 g	30.47	"

Comments:

Name (print): Kasey Carlson **Signature:** Kasey Carlson

Sub-Sampled Date: 04/12/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #14

Sample # J11JL9

Tray # 11

Tare Wt. 1450 gm.

Total Dry Wt. 4743.0 gm.

Net Dry Wt. 3293.0 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	~~1328~~ 1128	400 g	400.3	KES
RAD STR	↓	30 g	30.2	↓
ICP MET		30 g	30.2	
HEX CR		30 g	30.1	
SEMI VOA		30 g	30.0	
PEST		30 g	30.4	
PCB		30 g	30.1	
IC ANION		30 g	30.2	
NO2/NO3		30 g	30.5	
IC ANION MS		30 g	30.3	
IC ANION MSD		30 g	30.2	
NO2/NO3 MS		30 g	30.3	
NO2/NO3 MSD	↓	30 g	30.2	↓

Comments:

Name (print): Kelly Ensor

Signature: Kelly Ensor

Sub-Sampled Date: 04/12/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH | Project # 336761.AO.ZZ

Site # Upriver Riparian #14 | Sample # J11JM0

Tray # 69 | Tare Wt. 1460 gm.

Total Dry Wt. 4701.7 gm. | Net Dry Wt. 3962.1 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	1305	400 g	406.86	KC
RAD STR	"	30 g	30.11	"
ICP MET	"	30 g	30.20	"
HEX CR	"	30 g	30.11	"
SEMI VOA	"	30 g	30.15	"
PEST	"	30 g	30.09	"
PCB	"	30 g	30.07	"
IC ANION	"	30 g	30.08	"
NO2/NO3	"	30 g	30.09	"
ICP MET MS	"	30 g	30.11	"
ICP MET MSD	"	30 g	30.24	"
HEX CR MS	"	30 g	30.17	"
HEX CR MSD	"	30 g	30.12	"

Comments:

Name (print): Kasey Carlson | Signature: Kasey Carlson

Sub-Sampled Date: 04/12/2006

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford Date: 4/14/06

Purchase Order / Project# / SAF# / SOW# / Release #: RC-051

LvLI Batch # : 0604L783 Sample Custodian: [signature]

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier FedEx		Airbill# 6595 0631 4211	
2.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ No Seals	Comments
3.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No		
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No		
5.	Samples received cooled or ambient? IR	Temp 19.1 °C		Cooler # CAS/Green	
6.	Custody seals on sample containers intact, signed and dated?	☐ Yes	☐ No	☑ No Seals	
7.	coc signed and dated?	☑ Yes	☐ No		
8.	Sample containers are intact?	☑ Yes	☐ No		
9.	All samples on coc received? All samples received on coc?	☑ Yes	☐ No		
10.	All sample label information matches coc?	☐ Yes	☑ No	0052 - label on bottle says Strontium 89,90 - Total (Not metals)	
11.	Samples properly preserved?	☑ Yes	☐ No		
12.	Samples received within hold times? Short holds taken to wet lab?	☑ Yes	☐ No		
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 not within policy. See reverse side for policy)	☑ Yes JF 4/14/06	☑ No		
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☑ Yes AJ voicemail 4/14/06	☐ No	☐ No Discrepancies	

SR-002-B

LvLI

Lionville Laboratory, Inc.
PEST/PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0306

DATE RECEIVED: 04/14/06 LVL LOT # :0604L783

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J11JL6	001	S	06LE0824	04/12/06	04/26/06	05/08/06
J11JL7	002	S	06LE0824	04/12/06	04/26/06	05/08/06
J11JL8	003	S	06LE0824	04/12/06	04/26/06	05/08/06
J11JL8	003 MS	S	06LE0824	04/12/06	04/26/06	05/08/06
J11JL8	003 MSD	S	06LE0824	04/12/06	04/26/06	05/08/06
J11JL9	004	S	06LE0824	04/12/06	04/26/06	05/08/06
J11JM0	005	S	06LE0824	04/12/06	04/26/06	05/08/06
LAB QC:						
PBLKGR	MB1	S	06LE0824	N/A	04/26/06	05/11/06
PBLKGR	MB1 BS	S	06LE0824	N/A	04/26/06	05/11/06

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-051
LVL #: 0604L783
SDG/SAF # K0306/RC-051

W.O. #: 11343-606-001-9999-00
Date Received: 04-14-2006

CHLORINATED PESTICIDES

Five (5) soil samples were collected on 04-12-2006.

The samples and their associated QC samples were extracted on 04-26-2006 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 05-08,11-2006. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8081. All soil samples are reported on a dry weight base 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. Discrepancies from the Sample acceptance policy have been recorded on the Sample Receipt Checklist.

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

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

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

5. Seven (7) of eighteen (18) surrogate recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 06GC157) has been enclosed.

6. All blank spike recoveries were within acceptance criteria.

7. All matrix spike recoveries were within acceptance criteria.

8. The results for soil samples were reported on a wet-weight basis.

9. All samples required a 4-fold instrument dilutions due to matrix. Reporting limits have been adjusted to reflect the necessary dilutions.

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

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

12. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

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

for Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

5/18/06
Date

kim\r:\group\data\pest\tnu hanford\0604-783.pst

LVLI
LIONVILLE LABORATORY INC.

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 066C/67

Initiator: MP
Date: 5/17/06
Client: TN

Batch: 0604L783
Samples: 002, 003, 003msd, 004, 005
Method: SW846/MCAWW/CLP/

Parameter: PEST
Matrix: SOIL
Prep Batch: 0604824

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)

Surrogate recoveries high in most samples.

2. Known or Probable Causes(s)

3. Discussion and Proposed Action

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

Other Description:

Recovery exceed control criteria by 10-20% indicating some slight high bias to sample data - No target compounds detected greater than RL. No action required

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

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

5. Final Action...signature/date: _____ 5/18/06

Other Explanation:

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

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

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

QA-105-A-0805

GLOSSARY OF DATA

DATA QUALIFIERS

U	=	Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
J	=	Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
B	=	This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
I	=	Interference.
.1	=	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.

Pesticide/PCBs by GC, CLP List — Report Date: 05/17/06 14:02

RFW Batch Number: 0604L783 Client: TNUHANFORD RC-051 K0306 Work Order: 11343606001 Page: 1

0000000006

	Cust ID:	J11JL6	J11JL7	J11JL8	J11JL8	J11JL8	J11JL9
Sample Information	RFW#:	001	002	003	003 MS	003 MSD	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	4.00	4.00	4.00	4.00	4.00	4.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	112 %	123 * %	125 * %	114 %	131 * %	138 * %
	Decachlorobiphenyl	107 %	113 %	114 %	104 %	130 * %	125 * %
Alpha-BHC		1.3 U	1.3 U	1.3 U	80 %	101 %	1.3 U
gamma-BHC (Lindane)		1.3 U	1.3 U	1.3 U	85 %	105 %	1.3 U
Beta-BHC		1.3 U	1.3 U	1.3 U	88 %	109 %	1.3 U
Heptachlor		1.3 U	1.3 U	1.3 U	84 %	108 %	1.3 U
Delta-BHC		1.3 U	1.3 U	1.3 U	64 %	82 %	1.3 U
Aldrin		1.3 U	1.3 U	1.3 U	79 %	102 %	1.3 U
Heptachlor epoxide		1.3 U	1.3 U	1.3 U	84 %	108 %	1.3 U
gamma-Chlordane		1.3 U	1.3 U	1.3 U	82 %	104 %	0.47 J
Endosulfan I		1.3 J	1.3 U	1.3 U	84 %	106 %	0.97 J
alpha-Chlordane		1.3 U	1.3 U	1.3 U	83 %	107 %	1.3 U
4,4'-DDE		0.77 J	0.76 J	1.3 U	80 %	102 %	0.80 J
Dieldrin		1.3 U	1.3 U	1.3 U	77 %	101 %	1.3 U
Endrin		1.3 U	1.3 U	1.3 U	78 %	105 %	1.3 U
4,4'-DDD		1.3 U	1.3 U	1.3 U	87 %	97 %	1.3 U
Endosulfan II		1.3 U	1.3 U	1.3 U	80 %	105 %	1.3 U
4,4'-DDT		0.70 J	0.63 J	0.37 J	58 %	104 %	0.53 J
Endrin aldehyde		1.3 U	1.3 U	1.3 U	80 %	106 %	1.3 U
Endosulfan sulfate		1.3 U	1.3 U	1.3 U	78 %	101 %	1.3 U
Methoxychlor		1.3 U	1.3 U	1.3 U	72 %	116 %	1.3 U
Endrin ketone		1.3 U	1.3 U	1.3 U	82 %	108 %	1.3 U
Toxaphene		13 U	13 U	13 U	13 U	13 U	13 U

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

	Cust ID:	J11JM0	PBLKGR	PBLKGR BS
Sample Information	RFW#:	005	06LE0824-MB1	06LE0824-MB1
	Matrix:	SOIL	SOIL	SOIL
	D.F.:	4.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG
Surrogate: Tetrachloro-m-xylene		130 * %	108 %	106 %
Decachlorobiphenyl		118 %	94 %	103 %
Alpha-BHC		1.3 U	0.33 U	104 %
gamma-BHC (Lindane)		1.3 U	0.33 U	104 %
Beta-BHC		1.3 U	0.33 U	111 %
Heptachlor		1.3 U	0.33 U	101 %
Delta-BHC		1.3 U	0.33 U	89 %
Aldrin		1.3 U	0.33 U	104 %
Heptachlor epoxide		1.3 U	0.33 U	103 %
gamma-Chlordane		1.3 U	0.33 U	101 %
Endosulfan I		0.77 J	0.33 U	103 %
alpha-Chlordane		1.3 U	0.33 U	100 %
4,4'-DDE		0.70 J	0.33 U	103 %
Dieldrin		1.3 U	0.33 U	106 %
Endrin		1.3 U	0.33 U	107 %
4,4'-DDD		1.3 U	0.33 U	101 %
Endosulfan II		1.3 U	0.33 U	103 %
4,4'-DDT		1.3 U	0.33 U	102 %
Endrin aldehyde		1.3 U	0.33 U	95 %
Endosulfan sulfate		1.3 U	0.33 U	98 %
Methoxychlor		1.3 U	0.33 U	102 %
Endrin ketone		1.3 U	0.33 U	100 %
Toxaphene		13 U	3.3 U	3.3 U

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

Lionville Laboratory Use Only: 0604L783

Custody Transfer Record/Lab Work Request

See SRC

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU Hanford RC-051

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: DJ

QC: Spec Del: Std TAT: 30 Days

Date Rec'd: 4/14/06 Date Due: 5/14/06

		VOA	BNA	Pest/~~PCB~~	Herb	PCB	IC(NO3)	NO2/NO3	(1) Metal	CN	Chrom Hex
			AC	DF		GI	JL	MO	PR		SU
Refrigerator #			2	2		2	2	2	2		2
#/Type Container	Liquid										
	Solid		AGL	AGL		AGL	AGL	AGL	AGL		AGL
Volume	Liquid										
	Solid		30	30		30	20	30	30		30
Preservatives			—	—		—	—	—	—		—
ANALYSES REQUESTED →		ORGANIC							INORG		

Lionville Laboratory Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	0625H	0608H	Herb	OPCB	ICN03	IN3N2	METALS(1)	CN	ICR6
001	J11JL6	✓	✓	S	4/12/06	0912		1	1		1	1	1	3		1
002	L7	✓	✓	↓	↓	1019		3	1		1	1	1	1		3
003	L8	✓	✓	↓	↓	1020		1	3		3	1	1	1		1
004	L9	✓	✓	↓	↓	1128		1	1		1	3	3	1		1
005	M0			↓	↓	1305		1	1		1	1	1	3		3

Special Instructions:

METALS(1) = HSL + Bi, B, Li, Mo, P, Si, Sr, Sn, U (No Hg)

No %SOL

NON-RAD PER DJ

DATE/REVISIONS:

1. 0608H
2. OPCB R
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
FedEx	[illegible signature]	4/14/06	0925

Relinquished by	Received by	Date	Time

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-051-127	Page 2 of 3
Collector STANKOVICH, M.	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8L Air Quality ☐
Project Designation 100 & 300 Area Component of the RCBRA - Incremental So	Sampling Location UPRIVER RIPARIAN #14		SAF No. RC-051	Data Turnaround 45 Days
Ice Chest No.	Field Logbook No. EL-1596-1	COA BESRAS6520	Method of Shipment FED EX	
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A060151		Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

Use page 3 for original material to Corvallis for MIS preparation and aliquoting, page 1 for radioanalytical fractions to Eberline, & page 2 for chemical analytical fractions to Lionville.

Preservation	None	None	None	None	None	None	None	None	None	None	
Type of Container	G/P	G/P	aG	aG	aG	aG	G/P	G/P	^	^	
No. of Container(s)	9	9	7		7	7	7	7	0	0	
Volume	30g	30g	30g	30g	30g	30g	30g	30g	1^	1^	
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	Semi-VOA - 8270A (TCL)	PAHs - 8310	Pesticides - 8081	PCBs - 8082	IC Anions - 300.0 (Nitrate)	NOZ/NO3 - 353.2 (Nitrogen in Nitrite and Nitrate)	~	~~	

Sample No.	Matrix *	Sample Date	Sample Time									
J11JL6	SOIL	4-12-06	0912	3	1	1		1	1	1	1	
J11JL7	"	"	1019	1	3	3		1	1	1	1	
J11JL8	"	"	1020	1	1	1		3	3	1	1	
J11JL9	"	"	1128	1	1	1		1	1	3	3	
J11JM0	"	"	1305	3	3	1		1	1	1	1	

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Dayna Kaumanns	4/13/06	CH2M Hill →	
Relinquished By/Removed From	Date/Time 11:30	Received By/Stored In	Date/Time
Dayna Kaumanns	4/13/06 11:30	Fed Ex	4/13/06 11:30
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
FedEx		JPMurray	4/14/06 0925
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

` These marks indicate that unless lined out, analytes to be included with Strontium-89,90 -- Total Sr analysis fraction.

~ These marks indicate that this is a non-analysis used to properly format COC form.

Contact Joan Kessner for any questions.

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

Matrix *

S=Soil
Sd=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

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH | Project # 336761.AO.ZZ

Site # Upriver Riparian #14 | Sample # J11JL6

Tray # 7 | Tare Wt. 1464 gm.

Total Dry Wt. 4391.2 gm. | Net Dry Wt. 2927.2 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	0912	400 g	401.3	KE
RAD STR	↓	30 g	30.1	↓
ICP MET		30 g	30.1	
HEX CR		30 g	30.2	
SEMI VOA		30 g	30.2	
PEST		30 g	30.3	
PCB		30 g	30.3	
IC ANION		30 g	30.5	
NO2/NO3		30 g	30.2	
RAD STR MS		30 g	30.5	
RAD STR MSD		30 g	30.4	
ICP MET MS		30 g	30.2	
ICP MET MSD	↓	30 g	30.3	↓

Comments:

Name (print): Kelly Ensor | Signature: Kelly Ensor

Sub-Sampled Date: 04/12/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH | Project # 336761.AO.ZZ

Site # Upriver Riparian #14 | Sample # J11JL7

Tray # 55 | Tare Wt. 1465 gm.

Total Dry Wt. 4469.7 gm. | Net Dry Wt. 3004.7 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	1019	400 g	400.2	[illegible]
RAD STR	"	30 g	30.2	"
ICP MET	"	30 g	30.4	"
HEX CR	"	30 g	30.1	"
SEMI VOA	"	30 g	30.4	"
PEST	"	30 g	30.4	"
PCB	"	30 g	30.3	"
IC ANION	"	30 g	30.9	"
NO2/NO3	"	30 g	30.4	"
HEX CR MS	"	30 g	30.3	"
HEX CR MSD	"	30 g	30.3	"
SEMI VOA MS	"	30 g	30.3	"
SEMI VOA MSD	"	30 g	30.1	"

Comments:

Name (print): Kelly Ensor | Signature: Kelly Ensor

Sub-Sampled Date: 04/12/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH | Project # 336761.AO.ZZ

Site # Upriver Riparian #14 | Sample # J11JL8

Tray # 36 | Tare Wt. 1460 gm.

Total Dry Wt. 4463.7 gm. | Net Dry Wt. 3003.7 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	10:20	400 g	404.07	KC
RAD STR	↓	30 g	30.30	↓
ICP MET		30 g	30.93	
HEX CR		30 g	30.36	
SEMI VOA		30 g	30.29	
PEST		30 g	30.22	
PCB		30 g	30.39	
IC ANION		30 g	30.16	
NO2/NO3		30 g	30.22	
PEST MS		30 g	30.14	
PEST MSD		30 g	30.30	
PCB MS		30 g	30.09	
PCB MSD	↓	30 g	30.47	↓

Comments:

Name (print): Kasey Carlson | Signature: Kasey Carlson

Sub-Sampled Date: 04/12/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #14

Sample # J11JL9

Tray # 11

Tare Wt. 1450 gm.

Total Dry Wt. 4743.0 gm.

Net Dry Wt. 3293.0 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	~~1324~~ 1128	400 g	400.3	KEE
RAD STR		30 g	30.2	
ICP MET		30 g	30.2	
HEX CR		30 g	30.1	
SEMI VOA		30 g	30.0	
PEST		30 g	30.4	
PCB		30 g	30.1	
IC ANION		30 g	30.2	
NO2/NO3		30 g	30.5	
IC ANION MS		30 g	30.3	
IC ANION MSD		30 g	30.2	
NO2/NO3 MS		30 g	30.3	
NO2/NO3 MSD		30 g	30.2	

Comments:

Name (print): Kelly Ensor

Signature: Kelly Ensor

Sub-Sampled Date: 04/12/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH | Project # 336761.AO.ZZ

Site # Upriver Riparian #14 | Sample # J11JM0

Tray # 69 | Tare Wt. 1460 gm.

Total Dry Wt. 4701.7 gm. | Net Dry Wt. 3962.1 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	13:05	400 g	406.86	KC
RAD STR	"	30 g	30.11	"
ICP MET	"	30 g	30.20	"
HEX CR	"	30 g	30.11	"
SEMI VOA	"	30 g	30.15	"
PEST	"	30 g	30.09	"
PCB	"	30 g	30.07	"
IC ANION	"	30 g	30.08	"
NO2/NO3	"	30 g	30.09	"
ICP MET MS	"	30 g	30.11	"
ICP MET MSD	"	30 g	30.24	"
HEX CR MS	"	30 g	30.17	"
HEX CR MSD	"	30 g	30.12	"

Comments:

Name (print): Kasey Carlson | Signature: Kasey Carlson

Sub-Sampled Date: 04/12/2006

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford Date: 4/14/06

Purchase Order / Project# / SAF# / SOW# / Release #: RC-051

LvLI Batch # : 0604L783 Sample Custodian:

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or (Shipped)	Carrier FEDEX		Airbill# 6595 0631 4211	
2.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ No Seals	Comments
3.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No		
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No		
5.	Samples received cooled or (ambient)? IR	Temp 19.1 °C		Cooler # CAS/Green	
6.	Custody seals on sample containers intact, signed and dated?	☐ Yes	☐ No	☑ No Seals	
7.	coc signed and dated?	☑ Yes	☐ No		
8.	Sample containers are intact?	☑ Yes	☐ No		
9.	All samples on coc received? All samples received on coc?	☑ Yes	☐ No		
10.	All sample label information matches coc?	☐ Yes	☑ No	005 Q - label on bottle says Strontium 89,90 - Total (Not metals)	
11.	Samples properly preserved?	☑ Yes	☐ No		
12.	Samples received within hold times? Short holds taken to wet lab?	☑ Yes	☐ No		
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 not within policy. See reverse side for policy)	☑ Yes dr 4/14/06	☑ No		
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☑ Yes AJ voicemail 4/14/06	☐ No	☐ No Discrepancies	

SR-002-B

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0306

DATE RECEIVED: 04/14/06 LVL LOT # :0604L783

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J11JL6	001	S	06LE0325	04/12/06	04/26/06	05/06/06
J11JL7	002	S	06LE0325	04/12/06	04/26/06	05/06/06
J11JL8	003	S	06LE0325	04/12/06	04/26/06	05/06/06
J11JL8	003 MS	S	06LE0325	04/12/06	04/26/06	05/06/06
J11JL8	003 MSD	S	06LE0325	04/12/06	04/26/06	05/06/06
J11JL9	004	S	06LE0325	04/12/06	04/26/06	05/06/06
J11JM0	005	S	06LE0325	04/12/06	04/26/06	05/06/06
LAB QC:						
PBLKGS	MB1	S	06LE0325	N/A	04/26/06	05/06/06
PBLKGS	MB1 BS	S	06LE0325	N/A	04/26/06	05/06/06

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-051
LVL #: 0604L783
SDG/SAF # K0306/RC-051

W.O. #: 11343-606-001-9999-00
Date Received: 04-14-2006

PCB

Five (5) soil samples were collected on 04-12-2006.

The samples and their associated QC samples were extracted on 04-26-2006 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 05-06-2006. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8082. All soil samples are reported on a dry weight base 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. Discrepancies from the Sample acceptance policy have been recorded on the Sample Receipt Check list.

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

3. 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.

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

5. All surrogate recoveries were within acceptance criteria.

6. The blank spike recoveries were within acceptance criteria.

7. All matrix spike recoveries were within acceptance criteria.

8. The results for soil samples were reported on a wet-weight basis.

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

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

11. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

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

for Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

5/11/06
Date

kim\r:\group\data\pest\tnu hanford\0604-783.pcbs

LvLI
LIONVILLE LABORATORY INC

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: 05/11/06 13:32

RFW Batch Number: 0604L783 Client: TNUHANFORD RC-051 K0306 Work Order: 11343606001 Page: 1

	Cust ID:	J11JL6	J11JL7	J11JL8	J11JL8	J11JL8	J11JL9
Sample Information	RFW#:	001	002	003	003 MS	003 MSD	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	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	104 %	90 %	110 %	93 %	95 %	101 %
	Decachlorobiphenyl	102 %	88 %	115 %	101 %	98 %	105 %
		fl	fl	fl	fl	fl	fl
Aroclor-1016		13 U	13 U	13 U	106 %	94 %	13 U
Aroclor-1221		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1232		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1242		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1248		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1254		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1260		13 U	13 U	13 U	106 %	95 %	13 U

	Cust ID:	J11JM0	PBLKGS	PBLKGS BS
Sample Information	RFW#:	005	06LE0325-MB1	06LE0325-MB1
	Matrix:	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	91 %	88 %	100 %
	Decachlorobiphenyl	92 %	87 %	100 %
		fl	fl	fl
Aroclor-1016		13 U	13 U	92 %
Aroclor-1221		13 U	13 U	13 U
Aroclor-1232		13 U	13 U	13 U
Aroclor-1242		13 U	13 U	13 U
Aroclor-1248		13 U	13 U	13 U
Aroclor-1254		13 U	13 U	13 U
Aroclor-1260		13 U	13 U	94 %

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

0000000005

Lionville Laboratory Use Only

0604L783

Custody Transfer Record/Lab Work Request

Page 1 of 1 See SRC

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client TNU Hanford RC-051

Est. Final Proj. Sampling Date

Project # 11343-606-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager OJ

QC SOW Del Std TAT 30 Days

Date Rec'd 4/14/06 Date Due 5/14/06

		AC	DF		GI	JL	MO	PF		SW					
Refrigerator #		2	2		2	2	2	2		2					
#/Type Container	Liquid / Solid	ASL	ASL		ASL	ASL	ASL	ASL		ASL					
Volume	Liquid / Solid	30	30		30	80	30	30		30					
Preservatives		-	-		-	-	-	-		-					
ANALYSES REQUESTED →		ORGANIC						INORG							
		VOA	BNA	Pest/PCB	Herb	PCB	TAL(NO3)	NO2/NO3	(S) Metal	CN	Chrom Hex				
		Lionville Laboratory Use Only													
		C625H	060814			OPCB	IAN03	IN3N2	METALS(Q)		ICR6				

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

Lab ID	Client ID/Description	Matrix QC Chosen (S) MS	MSD	Matrix	Date Collected	Time Collected											
001	J11JL6	✓	✓	S	4/12/06	0912		1	1		1	1	1	3		1	
002	L7	✓	✓			1019		3	1		1	1	1	1		3	
003	L8	✓	✓			1020		1	3		3	1	1	1		1	
004	L9	✓	✓			1128		1	1		1	3	3	1		1	
005	MO					1315		1	1		1	1	1	3		0	

Special Instructions:

METALS(Q) = HSL + Bi, B, Li, Mo, P, Si, Sr, Sn, U (NO Hg)

No % SOL

NON-RAD per OJ

DATE/REVISIONS:

1. 060814
2. OPCB R
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
FedEx	JFlumy	4/14/06	0925

Relinquished by	Received by	Date	Time

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

9000000000

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-051-127	Page 2 of 3

Collector	Company Contact / Telephone No.	Project Coordinator	Price Code / Data Turnaround
STANKOVICH, M.	JOAN KESSNER 375-4688	KESSNER, JH	8L / 45 Days
Project Designation	**Sampling Location**	**SAF No.**	**Air Quality** ☐
100 & 300 Area Component of the RCBRA - Incremental So	UPRIVER RIPARIAN #14	RC-051	
Ice Chest No.	**Field Logbook No.** / **COA**	**Method of Shipment**	
	EL-1596-1 / BESRAS6520	FED EX	
Shipped To	**Offsite Property No.**	**Bill of Lading/Air Bill No.**	
EBERLINE SERVICES (LIONVILLE)	A060151	SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

Use page 3 for original material to Corvallis for MIS preparation and aliquoting, page 1 for radioanalytical fractions to Eberline, & page 2 for chemical analytical fractions to Lionville.

Preservation	None	None	None	None	None	None	None	None	None	None
Type of Container	G/P	G/P	aG	aG	aG	aG	G/P	G/P	^	^
No. of Container(s)	9	9	7		7	7	7	7	0	0
Volume	30g	30g	30g	30g	30g	30g	30g	30g	1^	1^

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	See item (1) in Special Instructions	Chromium Hex - 7196	Semi-VOA - 8270A (TCL)	PAHs - 8310 JHS 3/06	Pesticides - 8081	PCBs - 8082	IC Anions - 300.0 [Nitrate]	NO2/NO3 - 353.2 [Nitrogen in Nitrite and Nitrate]	-	--
J11JL6	SOIL	4-12-06	0912	3	1	1		1	1	1	1		
J11JL7	"	"	1019	1	3	3		1	1	1	1		
J11JL8	"	"	1020	1	1	1		3	3	1	1		
J11JL9	"	"	1128	1	1	1		1	1	3	3		
J11JM0	"	"	1305	3	3	1		1	1	1	1		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Dayna Kaumanns	4/13/06	CH2M Hill →	
Dayna Kaumanns	4/13/06 11:30	Fed Ex	4/13/06 11:30
FedEx		JMurray	4/14/06 0925

SPECIAL INSTRUCTIONS

` These marks indicate that unless lined out, analytes to be included with Strontium-89,90 -- Total Sr analysis fraction.

^~ These marks indicate that this is a non-analysis used to properly format COC form. Contact Joan Kessner for any questions.

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

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

BHI-EE-011 (08/29/2005)

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH | Project # 336761.AO.ZZ

Site # Upriver Riparian #14 | Sample # J11JL6

Tray # 7 | Tare Wt. 1464 gm.

Total Dry Wt. 4391.2 gm. | Net Dry Wt. 2927.2 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	0912	400 g	401.3	KE
RAD STR	↓	30 g	30.1	↓
ICP MET		30 g	30.1	
HEX CR		30 g	30.2	
SEMI VOA		30 g	30.2	
PEST		30 g	30.3	
PCB		30 g	30.3	
IC ANION		30 g	30.5	
NO2/NO3		30 g	30.2	
RAD STR MS		30 g	30.5	
RAD STR MSD		30 g	30.4	
ICP MET MS		30 g	30.2	
ICP MET MSD	↓	30 g	30.3	↓

Comments:

Name (print): Kelly Ensor | Signature: Kelly Ensor

Sub-Sampled Date: 04/12/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #14

Sample # J11JL7

Tray # 55

Tare Wt. 1465 gm.

Total Dry Wt. 4469.7 gm.

Net Dry Wt. 3004.7 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	1019	400 g	400.2	KE
RAD STR	↓	30 g	30.2	↓
ICP MET		30 g	30.4	
HEX CR		30 g	30.1	
SEMI VOA		30 g	30.4	
PEST		30 g	30.4	
PCB		30 g	30.3	
IC ANION		30 g	30.9	
NO2/NO3		30 g	30.4	
HEX CR MS		30 g	30.3	
HEX CR MSD		30 g	30.3	
SEMI VOA MS		30 g	30.3	
SEMI VOA MSD	↓	30 g	30.1	↓

Comments:

Name (print): Kelly Ensor

Signature: Kelly Ensor

Sub-Sampled Date: 04/12/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH | Project # 336761.AO.ZZ

Site # Upriver Riparian #14 | Sample # J11JL8

Tray # 36 | Tare Wt. 1460 gm.

Total Dry Wt. 4463.7 gm. | Net Dry Wt. 3003.7 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	10:20	400 g	404.07	KC
RAD STR	↓	30 g	30.30	↓
ICP MET		30 g	30.73	
HEX CR		30 g	30.36	
SEMI VOA		30 g	30.29	
PEST		30 g	30.22	
PCB		30 g	30.39	
IC ANION		30 g	30.16	
NO2/NO3		30 g	30.22	
PEST MS		30 g	30.14	
PEST MSD		30 g	30.30	
PCB MS		30 g	30.04	
PCB MSD	↓	30 g	30.47	↓

Comments:

Name (print): Kasey Carlson | Signature: Kasey Carlson

Sub-Sampled Date: 04/12/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH Project # 336761.AO.ZZ

Site # Upriver Riparian #14 Sample # J11JL9

Tray # 11 Tare Wt. 1450 gm.

Total Dry Wt. 4743.0 gm. Net Dry Wt. 3293.0 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	~~1324~~ 1128	400 g	400.3	KEE
RAD STR	↓	30 g	30.2	↓
ICP MET		30 g	30.2	
HEX CR		30 g	30.1	
SEMI VOA		30 g	30.0	
PEST		30 g	30.4	
PCB		30 g	30.1	
IC ANION		30 g	30.2	
NO2/NO3		30 g	30.5	
IC ANION MS		30 g	30.3	
IC ANION MSD		30 g	30.2	
NO2/NO3 MS		30 g	30.3	
NO2/NO3 MSD	↓	30 g	30.2	↓

Comments:

Name (print): Kelly Ensor Signature: Kelly Ensor

Sub-Sampled Date: 04/12/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH | Project # 336761.AO.ZZ

Site # Upriver Riparian #14 | Sample # J11JM0

Tray # 109 | Tare Wt. 1460 gm.

Total Dry Wt. 4701.7 gm. | Net Dry Wt. 3962.1 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	11.05	400 g	406.86	KC
RAD STR	"	30 g	30.11	"
ICP MET	"	30 g	30.20	"
HEX CR	"	30 g	30.11	"
SEMI VOA	"	30 g	30.15	"
PEST	"	30 g	30.09	"
PCB	"	30 g	30.07	"
IC ANION	"	30 g	30.08	"
NO2/NO3	"	30 g	30.09	"
ICP MET MS	"	30 g	30.11	"
ICP MET MSD	"	30 g	30.24	"
HEX CR MS	"	30 g	30.17	"
HEX CR MSD	"	30 g	30.12	"

Comments:

Name (print): Kasey Carlson | Signature: Kasey Carlson

Sub-Sampled Date: 04/12/2006

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford Date: 4/14/06

Purchase Order / Project# / SAF# / SOW# / Release #: RC-051

LvLI Batch # : 0604L783 Sample Custodian: [signature]

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or (Shipped)	Carrier FedEX		Airbill# 6595 0631 4211	
2.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ No Seals	Comments
3.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No		
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No		
5.	Samples received cooled or (ambient?) IR	Temp 19.1 °C		Cooler # CAS/Green	
6.	Custody seals on sample containers intact, signed and dated?	☐ Yes	☐ No	☑ No Seals	
7.	coc signed and dated?	☑ Yes	☐ No		
8.	Sample containers are intact?	☑ Yes	☐ No		
9.	All samples on coc received? All samples received on coc?	☑ Yes	☐ No		
10.	All sample label information matches coc?	☐ Yes	☑ No	005 R - Label on bottle says Strontium 89,90 - Tota (Not metals)	
11.	Samples properly preserved?	☑ Yes	☐ No		
12.	Samples received within hold times? Short holds taken to wet lab?	☑ Yes	☐ No		
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 not within policy. See reverse side for policy)	~~☑ Yes~~ JR 4/14/06	☑ No		
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria) AJ voicemail 4/14/06	☑ Yes	☐ No	☐ No Discrepancies	

SR-002-B

LvLI

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0306

DATE RECEIVED: 04/14/06 LVL LOT # :0604L783

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J11JL6						
SILVER, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
SILVER, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
SILVER, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
ALUMINUM, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
ALUMINUM, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
ALUMINUM, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
ARSENIC, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
ARSENIC, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
ARSENIC, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
BORON, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
BORON, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
BORON, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
BARIUM, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
BARIUM, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
BARIUM, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
BERYLLIUM, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/06/06
BERYLLIUM, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/06/06
BERYLLIUM, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/06/06
BISMUTH, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
BISMUTH, TOTAL REP	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
BISMUTH, TOTAL SPIKE	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
CALCIUM, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
CALCIUM, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
CALCIUM, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
CADMIUM, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
CADMIUM, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
CADMIUM, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
COBALT, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
COBALT, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
COBALT, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
CHROMIUM, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
CHROMIUM, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
CHROMIUM, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
COPPER, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
COPPER, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0306

DATE RECEIVED: 04/14/06 LVL LOT # :0604L783

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
IRON, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
IRON, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
IRON, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
POTASSIUM, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
POTASSIUM, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
POTASSIUM, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
LITHIUM, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
LITHIUM, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
LITHIUM, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
MAGNESIUM, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
MAGNESIUM, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
MAGNESIUM, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
MANGANESE, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
MANGANESE, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
MANGANESE, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
MOLYBDENUM, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
MOLYBDENUM, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
MOLYBDENUM, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
SODIUM, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
SODIUM, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
SODIUM, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
NICKEL, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
NICKEL, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
NICKEL, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
PHOSPHORUS, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/06/06
PHOSPHORUS, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/06/06
PHOSPHORUS, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/06/06
LEAD, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
LEAD, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
LEAD, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
ANTIMONY, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
ANTIMONY, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
ANTIMONY, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
SELENIUM, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
SELENIUM, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
SELENIUM, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
SILICON, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0306

DATE RECEIVED: 04/14/06 LVL LOT # :0604L783

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SILICON, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
SILICON, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
TIN, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
TIN, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
TIN, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
STRONTIUM, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
STRONTIUM, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
STRONTIUM, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
THALLIUM, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
THALLIUM, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
THALLIUM, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
URANIUM, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
URANIUM, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
URANIUM, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
VANADIUM, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
VANADIUM, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
VANADIUM, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
ZINC, TOTAL	001	S	06L0271	04/12/06	05/03/06	05/04/06
ZINC, TOTAL	001 REP	S	06L0271	04/12/06	05/03/06	05/04/06
ZINC, TOTAL	001 MS	S	06L0271	04/12/06	05/03/06	05/04/06
J11JL7						
SILVER, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
ALUMINUM, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
ARSENIC, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
BORON, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
BARIUM, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
BERYLLIUM, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/06/06
BISMUTH, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
CALCIUM, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
CADMIUM, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
COBALT, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
CHROMIUM, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
COPPER, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
IRON, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
POTASSIUM, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
LITHIUM, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0306

DATE RECEIVED: 04/14/06 LVL LOT # :0604L783

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
MANGANESE, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
MOLYBDENUM, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
SODIUM, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
NICKEL, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
PHOSPHORUS, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/06/06
LEAD, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
ANTIMONY, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
SELENIUM, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
SILICON, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
TIN, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
STRONTIUM, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
THALLIUM, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
URANIUM, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
VANADIUM, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
ZINC, TOTAL	002	S	06L0271	04/12/06	05/03/06	05/04/06
J11JL8						
SILVER, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
ALUMINUM, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
ARSENIC, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
BORON, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
BARIUM, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
BERYLLIUM, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/06/06
BISMUTH, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
CALCIUM, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
CADMIUM, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
COBALT, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
CHROMIUM, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
COPPER, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
IRON, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
POTASSIUM, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
LITHIUM, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
MAGNESIUM, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
MANGANESE, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
MOLYBDENUM, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
SODIUM, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0306

DATE RECEIVED: 04/14/06 LVL LOT # :0604L783

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NICKEL, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
PHOSPHORUS, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/06/06
LEAD, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
ANTIMONY, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
SELENIUM, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
SILICON, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
TIN, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
STRONTIUM, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
THALLIUM, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
URANIUM, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
VANADIUM, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
ZINC, TOTAL	003	S	06L0271	04/12/06	05/03/06	05/04/06
J11JL9						
SILVER, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
ALUMINUM, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
ARSENIC, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
BORON, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
BARIUM, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
BERYLLIUM, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/06/06
BISMUTH, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
CALCIUM, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
CADMIUM, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
COBALT, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
CHROMIUM, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
COPPER, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
IRON, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
POTASSIUM, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
LITHIUM, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
MAGNESIUM, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
MANGANESE, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
MOLYBDENUM, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
SODIUM, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
NICKEL, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
PHOSPHORUS, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/06/06
LEAD, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
ANTIMONY, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0306

DATE RECEIVED: 04/14/06 LVL LOT # :0604L783

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
SILICON, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
TIN, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
STRONTIUM, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
THALLIUM, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
URANIUM, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
VANADIUM, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
ZINC, TOTAL	004	S	06L0271	04/12/06	05/03/06	05/04/06
J11JM0						
SILVER, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
ALUMINUM, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
ARSENIC, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
BORON, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
BARIUM, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
BERYLLIUM, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/06/06
BISMUTH, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
CALCIUM, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
CADMIUM, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
COBALT, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
CHROMIUM, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
COPPER, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
IRON, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
POTASSIUM, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
LITHIUM, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
MAGNESIUM, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
MANGANESE, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
MOLYBDENUM, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
SODIUM, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
NICKEL, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
PHOSPHORUS, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/06/06
LEAD, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
ANTIMONY, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
SELENIUM, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
SILICON, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
TIN, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
STRONTIUM, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0306

DATE RECEIVED: 04/14/06 LVL LOT # :0604L783

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
THALLIUM, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
URANIUM, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
VANADIUM, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06
ZINC, TOTAL	005	S	06L0271	04/12/06	05/03/06	05/04/06

LAB QC:

SILVER LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
SILVER, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
ALUMINUM LABORTORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
ALUMINUM, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
ARSENIC LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
ARSENIC, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
BORON LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
BORON, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
BARIUM LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
BARIUM, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
BERYLLIUM LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/06/06
BERYLLIUM, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/06/06
BISMUTH, LCS	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
BISMUTH, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
CALCIUM LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
CALCIUM, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
CADMIUM LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
CADMIUM, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
COBALT LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
COBALT, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
CHROMIUM LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
CHROMIUM, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
COPPER LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
COPPER, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
IRON LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
IRON, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
POTASSIUM LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
POTASSIUM, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
LITHIUM LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
LITHIUM, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
MAGNESIUM LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0306

DATE RECEIVED: 04/14/06 LVL LOT # :0604L783

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
MANGANESE LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
MANGANESE, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
MOLYBDENUM LABORATOR	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
MOLYBDENUM, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
SODIUM LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
SODIUM, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
NICKEL LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
NICKEL, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
PHOSPHORUS LCS	LC1 BS	S	06L0271	N/A	05/03/06	05/06/06
PHOSPHORUS, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/06/06
LEAD LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
LEAD, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
ANTIMONY LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
ANTIMONY, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
SELENIUM LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
SELENIUM, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
SILICON LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
SILICON, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
TIN LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
TIN, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
STRONTIUM LCS STANDA	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
STRONTIUM, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
THALLIUM LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
THALLIUM, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
URANIUM LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
URANIUM, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
VANADIUM LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
VANADIUM, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06
ZINC LABORATORY	LC1 BS	S	06L0271	N/A	05/03/06	05/04/06
ZINC, TOTAL	MB1	S	06L0271	N/A	05/03/06	05/04/06

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-051
LVL#: 0604L783
SDG/SAF#: K0306/RC-051

W.O.#: 11343-606-001-9999-00
Date Received: 04-14-06

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 5 soil samples.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary. The samples were digested in 2 gram increments in multiple beakers until all of the metals sample aliquot was digested. The resulting digestates were composited to represent each sample for analysis, and a portion of the final digestate volume was filtered for analysis. All samples, except for sample J11JR9, were reported with 3-fold dilutions due to high concentrations and sample matrix. The sample results are reported on a wet weight, 'as received' basis.

   The samples were rerun for Beryllium due to sample matrix.

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

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

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits.

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

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

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

9. All laboratory control samples (LCS) were within the 80-120% control limits with the exception of Silicon at 73.0%. Refer to the Inorganics Laboratory Control Standards Report. Associated sample results may be biased low.

10. The matrix spike (MS) recoveries for 4 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

11. 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
J11JL6	Aluminum	60,000	95.8
	Iron	60,000	100.4
	Antimony	300	99.9
	Silicon	6,300	100.1

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

13. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.

14. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

5/26/04
Date

jjw/h04-78

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within t
Lot#: 0604L783

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

Metals Digestion Methods: __3005A __3010A __3015 __3020A X3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846	EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	X6010B	__200.7				__99
Antimony	X6010B __7041 [5]	__200.7	__204.2			__99
Arsenic	X6010B __7060A [5]	__200.7	__206.2	__3113B		__99
Barium	X6010B	__200.7				__99
Beryllium	X6010B	__200.7				__99
Bismuth	X6010B [1]	__200.7 [1]			__1620	__99
Boron	X6010B	__200.7				__99
Cadmium	X6010B __7131A [5]	__200.7	__213.2			__99
Calcium	X6010B	__200.7				__99
Chromium	X6010B __7191 [5]	__200.7	__218.2			__SS17
Cobalt	X6010B	__200.7				__99
Copper	X6010B __7211 [5]	__200.7	__220.2			__99
Iron	X6010B	__200.7				__99
Lead	X6010B __7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	X6010B __7430 [4]	__200.7			__1620	__99
Magnesium	X6010B	__200.7				__99
Manganese	X6010B	__200.7				__99
Mercury	__7470A [3] __7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	X6010B	__200.7				__99
Nickel	X6010B	__200.7				__99
Potassium	X6010B __7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]	__200.7 [1]			__1620	__99
Selenium	X6010B __7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	X6010B [1]	__200.7			__1620	__99
Silica	__6010B	__200.7			__1620	__99
Silver	X6010B __7761 [5]	__200.7	__272.2			__99
Sodium	X6010B __7770 [4]	__200.7	__273.1 [4]			__99
Strontium	X6010B	__200.7				__99
Thallium	X6010B __7841 [5]	__200.7	__279.2 __200.9			__99
Tin	X6010B	__200.7				__99
Titanium	__6010B	__200.7				__99
Uranium	X6010B [1]	__200.7 [1]			__1620	__99
Vanadium	X6010B	__200.7				__99
Zinc	X6010B	__200.7				__99
Zirconium	__6010B [1]	__200.7 [1]			__1620	__99

Other: Phosphorous Method: 6010B

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

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

3. Flame AA.

4. Graphite Furnace AA.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/25/06

CLIENT: TNUHANFORD RC-051 K0306 LVL LOT #: 0604L783

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J11JL6	Silver, Total	0.10 u	MG/KG	0.10	3.0
		Aluminum, Total	10900	MG/KG	4.3	3.0
		Arsenic, Total	6.6	MG/KG	0.91	3.0
		Boron, Total	1.9	MG/KG	0.36	3.0
		Barium, Total	117	MG/KG	0.03	3.0
		Beryllium, Total	0.27	MG/KG	0.03	3.0
		Bismuth, Total	0.76 u	MG/KG	0.76	3.0
		Calcium, Total	5390	MG/KG	2.5	3.0
		Cadmium, Total	1.7	MG/KG	0.10	3.0
		Cobalt, Total	8.3	MG/KG	0.21	3.0
		Chromium, Total	23.2	MG/KG	0.19	3.0
		Copper, Total	29.7	MG/KG	0.18	3.0
		Iron, Total	23400	MG/KG	5.2	3.0
		Potassium, Total	1110	MG/KG	3.4	3.0
		Lithium, Total	12.1	MG/KG	0.04	3.0
		Magnesium, Total	5930	MG/KG	1.4	3.0
		Manganese, Total	532	MG/KG	0.04	3.0
		Molybdenum, Total	0.66	MG/KG	0.43	3.0
		Sodium, Total	234	MG/KG	1.1	3.0
		Nickel, Total	23.1	MG/KG	0.36	3.0
		Phosphorus, Total	805	MG/KG	1.3	3.0
		Lead, Total	38.5	MG/KG	0.46	3.0
		Antimony, Total	0.83	MG/KG	0.66	3.0
		Selenium, Total	0.70 u	MG/KG	0.70	3.0
		Silicon, Total	355	MG/KG	3.4	3.0
		Tin, Total	1.6 u	MG/KG	1.6	3.0
		Strontium, Total	35.7	MG/KG	0.01	3.0
		Thallium, Total	1.0 u	MG/KG	1.0	3.0
		Uranium, Total	1.3 u	MG/KG	1.3	3.0
		Vanadium, Total	50.9	MG/KG	0.13	3.0
		Zinc, Total	302	MG/KG	0.24	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/25/06

CLIENT: TNUHANFORD RC-051 K0306 LVL LOT #: 0604L783

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J11JL7	Silver, Total	0.10 u	MG/KG	0.10	3.0
		Aluminum, Total	10300	MG/KG	4.3	3.0
		Arsenic, Total	6.3	MG/KG	0.91	3.0
		Boron, Total	2.0	MG/KG	0.36	3.0
		Barium, Total	107	MG/KG	0.03	3.0
		Beryllium, Total	0.30	MG/KG	0.03	3.0
		Bismuth, Total	0.76 u	MG/KG	0.76	3.0
		Calcium, Total	5170	MG/KG	2.4	3.0
		Cadmium, Total	1.6	MG/KG	0.10	3.0
		Cobalt, Total	7.9	MG/KG	0.21	3.0
		Chromium, Total	22.2	MG/KG	0.19	3.0
		Copper, Total	28.6	MG/KG	0.18	3.0
		Iron, Total	22600	MG/KG	5.2	3.0
		Potassium, Total	1010	MG/KG	3.4	3.0
		Lithium, Total	11.6	MG/KG	0.04	3.0
		Magnesium, Total	5660	MG/KG	1.4	3.0
		Manganese, Total	486	MG/KG	0.04	3.0
		Molybdenum, Total	0.59	MG/KG	0.43	3.0
		Sodium, Total	235	MG/KG	1.1	3.0
		Nickel, Total	21.8	MG/KG	0.36	3.0
		Phosphorus, Total	786	MG/KG	1.3	3.0
		Lead, Total	36.5	MG/KG	0.46	3.0
		Antimony, Total	0.78	MG/KG	0.65	3.0
		Selenium, Total	0.70 u	MG/KG	0.70	3.0
		Silicon, Total	297	MG/KG	3.4	3.0
		Tin, Total	1.6 u	MG/KG	1.6	3.0
		Strontium, Total	33.2	MG/KG	0.01	3.0
		Thallium, Total	1.0 u	MG/KG	1.0	3.0
		Uranium, Total	2.3	MG/KG	1.3	3.0
		Vanadium, Total	50.0	MG/KG	0.13	3.0
		Zinc, Total	291	MG/KG	0.24	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/25/06

CLIENT: TNUHANFORD RC-051 K0306 LVL LOT #: 0604L783

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	J11JL8	Silver, Total	0.10 u	MG/KG	0.10	3.0
		Aluminum, Total	10500	MG/KG	4.3	3.0
		Arsenic, Total	6.7	MG/KG	0.91	3.0
		Boron, Total	1.7	MG/KG	0.36	3.0
		Barium, Total	118	MG/KG	0.03	3.0
		Beryllium, Total	0.28	MG/KG	0.03	3.0
		Bismuth, Total	0.76 u	MG/KG	0.76	3.0
		Calcium, Total	5120	MG/KG	2.4	3.0
		Cadmium, Total	1.5	MG/KG	0.10	3.0
		Cobalt, Total	8.1	MG/KG	0.21	3.0
		Chromium, Total	22.2	MG/KG	0.19	3.0
		Copper, Total	30.9	MG/KG	0.18	3.0
		Iron, Total	23900	MG/KG	5.2	3.0
		Potassium, Total	988	MG/KG	3.4	3.0
		Lithium, Total	11.6	MG/KG	0.04	3.0
		Magnesium, Total	5500	MG/KG	1.4	3.0
		Manganese, Total	460	MG/KG	0.04	3.0
		Molybdenum, Total	0.63	MG/KG	0.43	3.0
		Sodium, Total	244	MG/KG	1.1	3.0
		Nickel, Total	21.6	MG/KG	0.36	3.0
		Phosphorus, Total	770	MG/KG	1.3	3.0
		Lead, Total	37.5	MG/KG	0.46	3.0
		Antimony, Total	0.81	MG/KG	0.65	3.0
		Selenium, Total	0.70 u	MG/KG	0.70	3.0
		Silicon, Total	332	MG/KG	3.4	3.0
		Tin, Total	1.6 u	MG/KG	1.6	3.0
		Strontium, Total	33.3	MG/KG	0.01	3.0
		Thallium, Total	1.0 u	MG/KG	1.0	3.0
		Uranium, Total	1.3 u	MG/KG	1.3	3.0
		Vanadium, Total	56.0	MG/KG	0.13	3.0
		Zinc, Total	285	MG/KG	0.24	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/25/06

CLIENT: TNUHANFORD RC-051 K0306 LVL LOT #: 0604L783

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	J11JL9	Silver, Total	0.10 u	MG/KG	0.10	3.0
		Aluminum, Total	10900	MG/KG	4.3	3.0
		Arsenic, Total	6.7	MG/KG	0.91	3.0
		Boron, Total	1.5	MG/KG	0.36	3.0
		Barium, Total	127	MG/KG	0.03	3.0
		Beryllium, Total	0.31	MG/KG	0.03	3.0
		Bismuth, Total	0.76 u	MG/KG	0.76	3.0
		Calcium, Total	5230	MG/KG	2.5	3.0
		Cadmium, Total	1.7	MG/KG	0.10	3.0
		Cobalt, Total	8.2	MG/KG	0.21	3.0
		Chromium, Total	22.5	MG/KG	0.19	3.0
		Copper, Total	31.3	MG/KG	0.18	3.0
		Iron, Total	22900	MG/KG	5.2	3.0
		Potassium, Total	1050	MG/KG	3.4	3.0
		Lithium, Total	11.8	MG/KG	0.04	3.0
		Magnesium, Total	5730	MG/KG	1.4	3.0
		Manganese, Total	481	MG/KG	0.04	3.0
		Molybdenum, Total	0.64	MG/KG	0.43	3.0
		Sodium, Total	236	MG/KG	1.1	3.0
		Nickel, Total	23.0	MG/KG	0.36	3.0
		Phosphorus, Total	758	MG/KG	1.3	3.0
		Lead, Total	38.6	MG/KG	0.46	3.0
		Antimony, Total	0.66	MG/KG	0.66	3.0
		Selenium, Total	0.70 u	MG/KG	0.70	3.0
		Silicon, Total	352	MG/KG	3.4	3.0
		Tin, Total	1.6 u	MG/KG	1.6	3.0
		Strontium, Total	34.7	MG/KG	0.01	3.0
		Thallium, Total	1.0 u	MG/KG	1.0	3.0
		Uranium, Total	1.9	MG/KG	1.3	3.0
		Vanadium, Total	51.4	MG/KG	0.13	3.0
		Zinc, Total	294	MG/KG	0.24	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/25/06

CLIENT: TNUHANFORD RC-051 K0306 LVL LOT #: 0604L783

WORK ORDER: 11243-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	J11JM0	Silver, Total	0.12	MG/KG	0.10	3.0
		Aluminum, Total	10500	MG/KG	4.3	3.0
		Arsenic, Total	6.7	MG/KG	0.91	3.0
		Boron, Total	1.5	MG/KG	0.36	3.0
		Barium, Total	121	MG/KG	0.03	3.0
		Beryllium, Total	0.33	MG/KG	0.03	3.0
		Bismuth, Total	0.76 u	MG/KG	0.76	3.0
		Calcium, Total	5220	MG/KG	2.4	3.0
		Cadmium, Total	1.6	MG/KG	0.10	3.0
		Cobalt, Total	8.0	MG/KG	0.21	3.0
		Chromium, Total	22.5	MG/KG	0.19	3.0
		Copper, Total	30.1	MG/KG	0.18	3.0
		Iron, Total	22600	MG/KG	5.2	3.0
		Potassium, Total	1010	MG/KG	3.4	3.0
		Lithium, Total	11.5	MG/KG	0.04	3.0
		Magnesium, Total	5600	MG/KG	1.4	3.0
		Manganese, Total	481	MG/KG	0.04	3.0
		Molybdenum, Total	0.67	MG/KG	0.43	3.0
		Sodium, Total	230	MG/KG	1.1	3.0
		Nickel, Total	22.3	MG/KG	0.36	3.0
		Phosphorus, Total	772	MG/KG	1.3	3.0
		Lead, Total	35.9	MG/KG	0.46	3.0
		Antimony, Total	0.78	MG/KG	0.66	3.0
		Selenium, Total	0.70 u	MG/KG	0.70	3.0
		Silicon, Total	328	MG/KG	3.4	3.0
		Tin, Total	1.6 u	MG/KG	1.6	3.0
		Strontium, Total	34.2	MG/KG	0.01	3.0
		Thallium, Total	1.1	MG/KG	1.0	3.0
		Uranium, Total	1.3 u	MG/KG	1.3	3.0
		Vanadium, Total	52.6	MG/KG	0.13	3.0
		Zinc, Total	278	MG/KG	0.24	3.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/25/06

CLIENT: TNUHANFORD RC-051 K0306 LVL LOT #: 0604L783

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	06L0271-MB1	Silver, Total	0.04 u	MG/KG	0.04	1.0
		Aluminum, Total	1.4 u	MG/KG	1.4	1.0
		Arsenic, Total	0.30 u	MG/KG	0.30	1.0
		Boron, Total	0.18	MG/KG	0.12	1.0
		Barium, Total	0.01 u	MG/KG	0.01	1.0
		Beryllium, Total	0.01 u	MG/KG	0.01	1.0
		Bismuth, Total	0.26 u	MG/KG	0.26	1.0
		Calcium, Total	0.82 u	MG/KG	0.82	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Cobalt, Total	0.07 u	MG/KG	0.07	1.0
		Chromium, Total	0.06 u	MG/KG	0.06	1.0
		Copper, Total	0.06 u	MG/KG	0.06	1.0
		Iron, Total	2.3	MG/KG	1.7	1.0
		Potassium, Total	1.1 u	MG/KG	1.1	1.0
		Lithium, Total	0.02	MG/KG	0.02	1.0
		Magnesium, Total	0.48 u	MG/KG	0.48	1.0
		Manganese, Total	0.02 u	MG/KG	0.02	1.0
		Molybdenum, Total	0.14 u	MG/KG	0.14	1.0
		Sodium, Total	0.38 u	MG/KG	0.38	1.0
		Nickel, Total	0.12 u	MG/KG	0.12	1.0
		Phosphorus, Total	0.45 u	MG/KG	0.45	1.0
		Lead, Total	0.16 u	MG/KG	0.16	1.0
		Antimony, Total	0.22 u	MG/KG	0.22	1.0
		Selenium, Total	0.24 u	MG/KG	0.24	1.0
		Silicon, Total	1.1 u	MG/KG	1.1	1.0
		Tin, Total	0.54 u	MG/KG	0.54	1.0
		Strontium, Total	0.005u	MG/KG	0.005	1.0
		Thallium, Total	0.35 u	MG/KG	0.35	1.0
		Uranium, Total	0.44 u	MG/KG	0.44	1.0
		Vanadium, Total	0.04 u	MG/KG	0.04	1.0
		Zinc, Total	0.08 u	MG/KG	0.08	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 05/25/06

CLIENT: TNUHANFORD RC-051 K0306 LVL LOT #: 0604L783

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J11JL6	Silver, Total	2.3	0.10u	2.5	92.0	3.0
		Aluminum, Total	11700	10900	99.2	810.3*	3.0
		Arsenic, Total	104	6.6	99.2	98.2	3.0
		Boron, Total	48.1	1.9	49.6	93.1	3.0
		Barium, Total	215	117	99.2	98.7	3.0
		Beryllium, Total	2.9	0.27	2.5	105.0	3.0
		Bismuth, Total	47.5	0.76u	49.6 ~~248~~	~~19.2~~ 95.8	3.0
		Calcium, Total	6780	5390	1240	112.0*	3.0
		Cadmium, Total	4.1	1.7	2.5	96.0	3.0
		Cobalt, Total	32.4	8.3	24.8	97.2	3.0
		Chromium, Total	33.4	23.2	9.9	103.0	3.0
		Copper, Total	41.7	29.7	12.4	96.8	3.0
		Iron, Total	23100	23400	49.6	-520. *	3.0
		Potassium, Total	2320	1110	1240	97.6	3.0
		Lithium, Total	64.4	12.1	49.6	105.4	3.0
		Magnesium, Total	7170	5930	1240	99.5*	3.0
		Manganese, Total	552	532	24.8	78.6*	3.0
		Molybdenum, Total	47.0	0.66	49.6	93.4	3.0
		Sodium, Total	1480	234	1240	100.2	3.0
		Nickel, Total	47.7	23.1	24.8	99.2	3.0
		Phosphorus, Total	1020	805	248	88.1	3.0
		Lead, Total	62.8	38.5	24.8	98.0	3.0
		Antimony, Total	7.9	0.83	24.8	28.5	3.0
		Selenium, Total	96.7	0.70u	99.2	97.5	3.0
		Silicon, Total	537	355	49.6	366.5*	3.0
		Tin, Total	44.9	1.6 u	49.6	90.5	3.0
		Strontium, Total	85.6	35.7	49.6	100.6	3.0
		Thallium, Total	98.0	1.0 u	49.6 99.2	98.8	3.0
		Uranium, Total	50.1	1.3 u	~~248~~	~~30.0~~ 101.0	3.0
		Vanadium, Total	75.0	50.9	24.8	97.2	3.0
		Zinc, Total	323	302	24.8	86.3*	3.0

correct entry per std/lot

correct entry per std/lot

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 05/25/06

CLIENT: TNUHANFORD RC-051 K0306 LVL LOT #: 0604L783

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-001REP	J11JL6	Silver, Total	0.10u	0.10u	NC	3.0
		Aluminum, Total	10900	10800	1.4	3.0
		Arsenic, Total	6.6	6.4	3.1	3.0
		Boron, Total	1.9	1.6	17.1	3.0
		Barium, Total	117	115	1.7	3.0
		Beryllium, Total	0.27	0.31	10.6	3.0
		Bismuth, Total	0.76u	0.76u	NC	3.0
		Calcium, Total	5390	5350	0.80	3.0
		Cadmium, Total	1.7	1.7	0.00	3.0
		Cobalt, Total	8.3	8.2	1.2	3.0
		Chromium, Total	23.2	23.0	0.87	3.0
		Copper, Total	29.7	29.1	2.0	3.0
		Iron, Total	23400	23100	1.2	3.0
		Potassium, Total	1110	1090	2.2	3.0
		Lithium, Total	12.1	11.9	1.7	3.0
		Magnesium, Total	5930	5850	1.4	3.0
		Manganese, Total	532	525	1.4	3.0
		Molybdenum, Total	0.66	0.53	20.5	3.0
		Sodium, Total	234	234	0.30	3.0
		Nickel, Total	23.1	23.3	0.86	3.0
		Phosphorus, Total	805	790	2.0	3.0
		Lead, Total	38.5	38.2	0.78	3.0
		Antimony, Total	0.83	0.66u	~~NC~~ 200	3.0
		Selenium, Total	0.70u	0.70u	NC	3.0
		Silicon, Total	355	330	7.3	3.0
		Tin, Total	1.6 u	1.6 u	NC	3.0
		Strontium, Total	35.7	35.3	1.1	3.0
		Thallium, Total	1.0 u	1.0 u	NC	3.0
		Uranium, Total	1.3 u	2.6	~~NC~~ 200	3.0
		Vanadium, Total	50.9	50.7	0.39	3.0
		Zinc, Total	302	298	1.3	3.0

correct entry MW 5/25/06

correct entry MW 5/25/06

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 05/25/06

CLIENT: TNUHANFORD RC-051 K0306 LVL LOT #: 0604L783

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	06L0271-LC1	Silver, LCS	24.7	25.0	MG/KG	98.8
		Aluminum, LCS	246	250	MG/KG	98.4
		Arsenic, LCS	489	500	MG/KG	97.9
		Boron, LCS	242	250	MG/KG	97.0
		Barium, LCS	247	250	MG/KG	98.9
		Beryllium, LCS	11.9	12.5	MG/KG	95.2
		Bismuth, LCS	49.2	50 ~~250~~ *	MG/KG *	~~19.7~~ 98.3
		Calcium, LCS	1260	1250	MG/KG	101.1
		Cadmium, LCS	12.4	12.5	MG/KG	99.2
		Cobalt, LCS	122	125	MG/KG	97.2
		Chromium, LCS	25.0	25.0	MG/KG	100
		Copper, LCS	62.2	62.5	MG/KG	99.5
		Iron, LCS	249	250	MG/KG	99.5
		Potassium, LCS	1150	1250	MG/KG	91.9
		Lithium, LCS	257	250	MG/KG	102.8
		Magnesium, LCS	1240	1250	MG/KG	99.2
		Manganese, LCS	38.0	37.5	MG/KG	101.3
		Molybdenum, LCS	249	250	MG/KG	99.7
		Sodium, LCS	1150	1250	MG/KG	92.2
		Nickel, LCS	100	100	MG/KG	100.3
		Phosphorus, LCS	222	250	MG/KG	88.8
		Lead, LCS	124	125	MG/KG	99.6
		Antimony, LCS	147	150	MG/KG	98.1
		Selenium, LCS	472	500	MG/KG	94.4
		Silicon, LCS	182	250	MG/KG	73.0
		Tin, LCS	247	250	MG/KG	98.9
		Strontium, LCS	249	250	MG/KG	99.7
		Thallium, LCS	494	500	MG/KG	98.7
		Uranium, LCS	48.7	50 ~~250~~ *	MG/KG *	~~19.5~~ 97.4
		Vanadium, LCS	122	125	MG/KG	97.5
		Zinc, LCS	48.6	50.0	MG/KG	97.2

* corrected entries pw 5/25/06

Lionville Laboratory Use Only

0604L-183

Custody Transfer Record/Lab Work Request

 See SRC

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU Hanford RC-051

Est. Final Proj. Sampling Date

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

Project Contact/Phone #

Lionville Laboratory Project Manager: OJ

QC: Spec Del: Std TAT: 30 Days

Date Rec'd: 4/14/06 Date Due: 5/14/06

		AC	DF		GI	J-L	M-O	P-R		S-U
Refrigerator #		2	2		2	2	2	2		2
#/Type Container – Liquid										
#/Type Container – Solid		AGL	AGL		AGL	AGL	AGL	AGL		AGL
Volume – Liquid										
Volume – Solid		30	30		30	30	30	30		30
Preservatives		–	–		–	–	–	–		–
ANALYSES REQUESTED →	ORGANIC: VOA	BNA	Pest/PCB	Herb	PCB	IC(NO3)	NO2/NO3	INORG: (1) Metal	CN	Chrm Hex
Lionville Laboratory Use Only		C625H	06081H		OPCB	ICNO3	IN3N2	METALS(1)		ICR6

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

Lab ID	Client ID/Description	MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	PCB	IC(NO3)	NO2/NO3	Metal	CN	Chrm Hex
001	J11JL6	✓	✓	S	4/12/06	0912		1	1		1	1	1	3		1
002	L7	✓	✓			1019		3	1		1	1	1	1		3
003	L8	✓	✓			1020		1	3		3	1	1	1		1
004	L9	✓	✓			1128		1	1		1	3	3	1		1
005	M0					1305		1	1		1	1	1	3		3

Special Instructions:

METALS(1) = HSL + Bi, B, Li, Mo, P, Si, Sr, Sn, U (NO Hg)

No % SOL

NON-RAD PER OJ

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
FedEx	[illegible signature]	4/14/06	0925					"COMPOSITE WASTE"		ORIGINAL REWRITTEN	

000000022

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-051-127	Page 2 of 3
Collector STANKOVICH, M.	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8L Air Quality ☐	Data Turnaround 45 Days
Project Designation 100 & 300 Area Component of the RCBRA - Incremental So	Sampling Location UPRIVER RIPARIAN #14		SAF No. RC-051		
Ice Chest No.	Field Logbook No. EL-1596-1	COA BESRAS6520	Method of Shipment FED EX		
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A060151		Bill of Lading/Air Bill No. SEE OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

Use page 3 for original material to Corvallis for MIS preparation and aliquoting, page 1 for radioanalytical fractions to Eberline, & page 2 for chemical analytical fractions to Lionville.

SAMPLE ANALYSIS												
Preservation	None	None	None	None	None	None	None	None	None	None		
Type of Container	G/P	G/P	aG	aG	aG	aG	G/P	G/P	^	^		
No. of Container(s)	9	9	7		7	7	7	7	0	0		
Volume	30g	30g	30g	30g	30g	30g	30g	30g	1^	1^		
	See item (1) in Special Instructions.	Chromium Hex - 7196	Semi-VOA - 8270A (TCL)	PAHs - 8310 JLL 3/06	Pesticides - 8081	PCBs - 8082	IC Anions - 300.0 (Nitrate)	NO2/NO3 - 353.2 (Nitrogen in Nitrite and Nitrate)	~	~~		
Sample No.	Matrix *	Sample Date	Sample Time									
J11JL6	SOIL	4-12-06	0912	3	1	1		1	1	1	1	
J11JL7			1019	1	3	3		1	1	1	1	
J11JL8			1020	1	1	1		3	3	1	1	
J11JL9			1128	1	1	1		1	1	3	3	
J11JM0			1305	3	3	1		1	1	1	1	

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Dayna Kaumanns	4/13/06	CH2M HILL	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Dayna Kaumanns	4/13/06 11:30	Fed Ex	4/13/06 11:30
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
FedEx		JMann	4/14/06 0925
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

` These marks indicate that unless lined out, analytes to be included with Strontium-89,90 -- Total Sr analysis fraction.

^~ These marks indicate that this is a non-analysis used to properly format COC form.

Contact Joan Kessner for any questions.

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

Matrix *
S=Soil
SD=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

0000023

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #14

Sample # J11JL6

Tray # 7

Tare Wt. 1464 gm.

Total Dry Wt. 4391.2 gm.

Net Dry Wt. 2927.2 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	0912	400 g	401.3	KE
RAD STR		30 g	30.1	
ICP MET		30 g	30.1	
HEX CR		30 g	30.2	
SEMI VOA		30 g	30.2	
PEST		30 g	30.3	
PCB		30 g	30.3	
IC ANION		30 g	30.5	
NO2/NO3		30 g	30.2	
RAD STR MS		30 g	30.5	
RAD STR MSD		30 g	30.4	
ICP MET MS		30 g	30.2	
ICP MET MSD	↓	30 g	30.3	↓

Comments:

Name (print): Kelly Ensor

Signature: Kelly Ensor

Sub-Sampled Date: 04/12/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH | Project # 336761.AO.ZZ

Site # Upriver Riparian #14 | Sample # J11JL7

Tray # 55 | Tare Wt. 1465 gm.

Total Dry Wt. 4469.7 gm. | Net Dry Wt. 3004.7 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	1019	400 g	400.2	KE
RAD STR	↓	30 g	30.2	↓
ICP MET	↓	30 g	30.4	↓
HEX CR	↓	30 g	30.1	↓
SEMI VOA	↓	30 g	30.4	↓
PEST	↓	30 g	30.4	↓
PCB	↓	30 g	30.3	↓
IC ANION	↓	30 g	30.9	↓
NO2/NO3	↓	30 g	30.4	↓
HEX CR MS	↓	30 g	30.3	↓
HEX CR MSD	↓	30 g	30.3	↓
SEMI VOA MS	↓	30 g	30.3	↓
SEMI VOA MSD	↓	30 g	30.1	↓

Comments:

Name (print): Kelly Ensor | Signature: Kelly Ensor

Sub-Sampled Date: 04/12/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #14

Sample # J11JL8

Tray # 36

Tare Wt. 1460 gm.

Total Dry Wt. 4463.7 gm.

Net Dry Wt. 3003.7 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	10:20	400 g	404.07	KC
RAD STR	↓	30 g	30.30	↓
ICP MET		30 g	30.43	
HEX CR		30 g	30.36	
SEMI VOA		30 g	30.29	
PEST		30 g	30.22	
PCB		30 g	30.39	
IC ANION		30 g	30.16	
NO2/NO3		30 g	30.22	
PEST MS		30 g	30.14	
PEST MSD		30 g	30.30	
PCB MS		30 g	30.04	
PCB MSD	↓	30 g	30.47	↓

Comments:

Name (print): Kasey Carlson

Signature: Kasey Carlson

Sub-Sampled Date: 04/12/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH | Project # 336761.AO.ZZ

Site # Upriver Riparian #14 | Sample # J11JL9

Tray # 11 | Tare Wt. 1450 gm.

Total Dry Wt. 4743.0 gm. | Net Dry Wt. 3293.0 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	1128	400 g	400.3	KES
RAD STR	↓	30 g	30.2	↓
ICP MET		30 g	30.2	
HEX CR		30 g	30.1	
SEMI VOA		30 g	30.0	
PEST		30 g	30.4	
PCB		30 g	30.1	
IC ANION		30 g	30.2	
NO2/NO3		30 g	30.5	
IC ANION MS		30 g	30.3	
IC ANION MSD		30 g	30.2	
NO2/NO3 MS		30 g	30.3	
NO2/NO3 MSD	↓	30 g	30.2	↓

Comments:

Name (print): Kelly Ensor | Signature: Kelly Ensor

Sub-Sampled Date: 04/12/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH | Project # 336761.AO.ZZ

Site # Upriver Riparian #14 | Sample # J11JM0

Tray # 69 | Tare Wt. 1460 gm.

Total Dry Wt. 4701.7 gm. | Net Dry Wt. 3962.1 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	13.05	400 g	406.86	KC
RAD STR	"	30 g	30.11	"
ICP MET	"	30 g	30.20	"
HEX CR	"	30 g	30.11	"
SEMI VOA	"	30 g	30.15	"
PEST	"	30 g	30.09	"
PCB	"	30 g	30.07	"
IC ANION	"	30 g	30.08	"
NO2/NO3	"	30 g	30.09	"
ICP MET MS	"	30 g	30.11	"
ICP MET MSD	"	30 g	30.24	"
HEX CR MS	"	30 g	30.17	"
HEX CR MSD	"	30 g	30.12	"

Comments:

Name (print): Kasey Carlson | Signature: Kasey Carlson

Sub-Sampled Date: 04/12/2006

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford

Date: 4/14/06

Purchase Order / Project# / SAF# / SOW# / Release #: RC-051

LvLI Batch # : 0604L783

Sample Custodian: [signature]

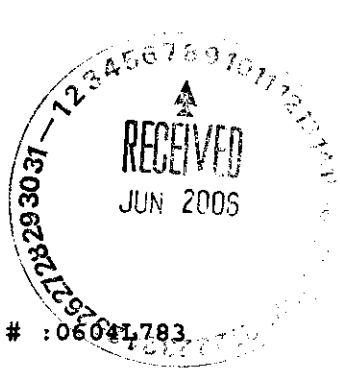
NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or (Shipped)	Carrier FedEX		Airbill# 6595 0631 4211	
2.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ No Seals	Comments
3.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No		
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No		
5.	Samples received cooled or (ambient?) IR	Temp 19.1 °C		Cooler # CAS/Green	
6.	Custody seals on sample containers intact, signed and dated?	☐ Yes	☐ No	☑ No Seals	
7.	coc signed and dated?	☑ Yes	☐ No		
8.	Sample containers are intact?	☑ Yes	☐ No		
9.	All samples on coc received? All samples received on coc?	☑ Yes	☐ No		
10.	All sample label information matches coc?	☐ Yes	☑ No	005Q - label on bottle says Strontium 89,90 - Total (Not metals)	
11.	Samples properly preserved?	☑ Yes	☐ No		
12.	Samples received within hold times? Short holds taken to wet lab?	☑ Yes	☐ No		
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 not within policy. See reverse side for policy)	~~☑ Yes~~ JF 4/14/06	☑ No		
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria) AJ voicemail 4/14/06	☑ Yes	☐ No	☐ No Discrepancies	

SR-002-B

LvLI

000000029



Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0306

DATE RECEIVED: 04/14/06 LVL LOT # :0604L783

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J11JL6						
NITRATE BY IC	001	S	06LICD52	04/12/06	05/30/06	05/31/06
CHROMIUM VI	001	S	06LVI031	04/12/06	04/26/06	04/26/06
NITRATE NITRITE	001	S	06LN3044	04/12/06	06/01/06	06/01/06
J11JL7						
NITRATE BY IC	002	S	06LICD52	04/12/06	05/30/06	05/31/06
CHROMIUM VI	002	S	06LVI031	04/12/06	04/26/06	04/26/06
CHROMIUM VI	002 REP	S	06LVI031	04/12/06	04/26/06	04/26/06
CHROMIUM VI	002 MS	S	06LVI031	04/12/06	04/26/06	04/26/06
NITRATE NITRITE	002	S	06LN3044	04/12/06	06/01/06	06/01/06
J11JL8						
NITRATE BY IC	003	S	06LICD52	04/12/06	05/30/06	05/31/06
CHROMIUM VI	003	S	06LVI031	04/12/06	04/26/06	04/26/06
NITRATE NITRITE	003	S	06LN3044	04/12/06	06/01/06	06/01/06
J11JL9						
NITRATE BY IC	004	S	06LICD52	04/12/06	05/30/06	05/31/06
NITRATE BY IC	004 REP	S	06LICD52	04/12/06	05/30/06	05/31/06
NITRATE BY IC	004 MS	S	06LICD52	04/12/06	05/30/06	05/31/06
CHROMIUM VI	004	S	06LVI031	04/12/06	04/26/06	04/26/06
NITRATE NITRITE	004	S	06LN3044	04/12/06	06/01/06	06/01/06
NITRATE NITRITE	004 REP	S	06LN3044	04/12/06	06/01/06	06/01/06
NITRATE NITRITE	004 MS	S	06LN3044	04/12/06	06/01/06	06/01/06
J11JM0						
NITRATE BY IC	005	S	06LICD52	04/12/06	05/30/06	05/31/06
CHROMIUM VI	005	S	06LVI031	04/12/06	04/26/06	04/26/06
NITRATE NITRITE	005	S	06LN3044	04/12/06	06/01/06	06/01/06

LAB QC:

NITRATE BY IC	MB1	S	06LICD52	N/A	05/30/06	05/30/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0306

DATE RECEIVED: 04/14/06 LVL LOT # :0604L783

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRATE BY IC	MB1 BS	S	06LICD52	N/A	05/30/06	05/30/06
CHROMIUM VI	MB1	S	06LVI031	N/A	04/26/06	04/26/06
CHROMIUM VI	MB1 BS	S	06LVI031	N/A	04/26/06	04/26/06
CHROMIUM VI	MB1 BSD	S	06LVI031	N/A	04/26/06	04/26/06
NITRATE NITRITE	MB1	S	06LN3044	N/A	06/01/06	06/01/06
NITRATE NITRITE	MB1 BS	S	06LN3044	N/A	06/01/06	06/01/06

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-051 K0306
LVL#: 0604L783

W.O.#: 11343-606-001-9999-00
Date Received: 04-14-06

INORGANIC NARRATIVE

1. This narrative covers the analyses of 5 soil samples.

2. The samples were prepared and analyzed in accordance with the methods checked on the attached glossary with the exception of the sample digestate compilation modification requested by the client for Chromium VI. The total sample mass submitted for each sample number was determined and then portioned for the digestion preparation step and the subsequent digestates were composited prior to the colorimetric analysis. For Nitrate Nitrite and IC analyses, the sample extraction ratios were 1:10 using the total sample masses submitted. The Nitrate Nitrite extracts were preserved with sulfuric acid prior to analysis. The sample weights were as follows:

LvLI Sample	Site ID	Cr6+ sample wt,g	Nitrate-Nitrite IC Nitrate sample wt,g
0604L783-001	J11JL6	30.256	30.561
0604L783-002	J11JL7	30.318	NA
0604L783-002 dup	J11JL7	29.273	NA
0604L783-002 spk	J11JL7	30.187	30.925
0604L783-003	J11JL8	30.379	30.187
0604L783-004	J11JL9	30.149	31.223
0604L783-004 dup	J11JL9	NA	30.278
0604L783-004 spk	J11JL9	NA	30.227
0604L783-005	J11JM0	30.105	30.112

Elevated reporting limits for Chromium VI are the result of the necessity to dilute the samples to diminish background color of the digestates.

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

LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

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 did not meet LvLI's sample acceptance policy as noted on the Sample Receipt Checklist.

5. The method blanks were within the method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits.

7. The matrix spike (MS) recoveries for Nitrate and Nitrate Nitrite were within the 75-125% control limits however MS recovery for Soluble Chromium VI was below the control limits at 72.1 that may be attributed to sample inhomogeneity.

8. The replicate analyses for Chromium VI, Nitrate and Nitrate Nitrite were within the 20% Relative Percent Difference (RPD) control limit.

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

6/5/02
Date

njp\04-783

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: Nitrate		**Method:** EPA 300.0	
Other: Nitrate Nitrite		**Method** EPA 353.2	

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

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

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

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

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

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

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

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

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

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

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/02/06

CLIENT: TNUHANFORD RC-051 K0306 LVL LOT #: 0604L783
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J11JL6	Nitrate by IC	37.3	MG/KG	2.45	1.0
		Chromium VI	0.20 u	MG/KG	0.20	1.0
		Nitrate Nitrite	9.9	MG/KG	0.39	2.0
-002	J11JL7	Nitrate by IC	35.1	MG/KG	2.42	1.0
		Chromium VI	0.20 u	MG/KG	0.20	1.0
		Nitrate Nitrite	7.4	MG/KG	0.39	2.0
-003	J11JL8	Nitrate by IC	25.7	MG/KG	2.48	1.0
		Chromium VI	0.20 u	MG/KG	0.20	1.0
		Nitrate Nitrite	5.8	MG/KG	0.20	1.0
-004	J11JL9	Nitrate by IC	23.4	MG/KG	2.48	1.0
		Chromium VI	0.20 u	MG/KG	0.20	1.0
		Nitrate Nitrite	5.2	MG/KG	0.20	1.0
-005	J11JM0	Nitrate by IC	33.8	MG/KG	2.49	1.0
		Chromium VI	0.20 u	MG/KG	0.20	1.0
		Nitrate Nitrite	4.3	MG/KG	0.20	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 06/02/06

CLIENT: TNUHANFORD RC-051 K0306 LVL LOT #: 0604L783
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	06LICD52-MB1	Nitrate by IC	2.50 u	MG/KG	2.50	1.0
BLANK10	06LVI031-MB1	Chromium VI	0.20 u	MG/KG	0.20	1.0
BLANK10	06LN3044-MB1	Nitrate Nitrite	0.20 u	MG/KG	0.20	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 06/02/06

CLIENT: TNUHANFORD RC-051 K0306 LVL LOT #: 0604L783
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	J11JL7	Soluble Chromium VI	2.6	0.20u	4.0	72.1	1.0
-004	J11JL9	Nitrate by IC	77.5	23.4	50.0	108.1	1.0
		Nitrate Nitrite	15.7	5.2	9.9	106.3	2.0
BLANK10	06LICD52-MB1	Nitrate by IC	48.8	2.50u	50.0	97.6	1.0
BLANK10	06LVI031-MB1	Soluble Chromium VI	4.0	0.20u	4.0	100	1.0
		Insoluble Chromium VI	1220	0.20u	1150	105.7	100
BLANK10	06LN3044-MB1	Nitrate Nitrite	5.3	0.20u	5.0	105.2	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 06/02/06

CLIENT: TNUHANFORD RC-051 K0306 LVL LOT #: 0604L783
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-002REP	J11JL7	Chromium VI	0.20u	0.20u	NC	1.0
-004REP	J11JL9	Nitrate by IC	23.4	22.4	4.4	1.0
		Nitrate Nitrite	5.2	5.4	3.6	1.0

Lionville Laboratory Use Only

0606HL1763

Custody Transfer Record/Lab Work Request

Page 1 of 1 See SRC

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU Hanford RC-051

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: SOW2 Del: Std TAT: 30 Days

Date Rec'd: 4/14/06 Date Due: 5/14/06

Refrigerator #		AC 2	DF 2	GI 2	JL 2	MO 2	PR 2	SW 2
#/Type Container	Liquid / Solid	AGL	AGL	AGL	AGL	AGL	AGL	AGL
Volume	Liquid / Solid	30	30	30	80	30	30	30
Preservatives		-	-	-	-	-	-	-

ANALYSES REQUESTED → ORGANIC: VOA; BNA; Pest/PCB; Herb. INORG: Metal; CN; Chrom Hex

MATRIX CODES: S - Soil, SE - Sediment, SO - Solid, SL - Sludge, W - Water, O - Oil, A - Air, DS - Drum Solids, DL - Drum Liquids, L - EP/TCLP Leachate, WI - Wipe, X - Other, F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only: 0625H	060814	OPCB	ICN03	IN3N2	METALSQ	ICR6
	001	J1NL10	✓	✓	S	4/12/06	0912	1	1	1	1	1	3	1
	002	L7	✓	✓			1019	3	1	1	1	1	1	3
	003	L8	✓	✓			1020	1	3	3	1	1	1	1
	004	L9	✓	✓			1128	1	1	1	3	3	1	1
	005	M10					1315	1	1	1	1	1	3	0

Special Instructions:

METALSQ = HSL + Bi, B, Li, Mo, P, Si, Sr, Sn, U (NO Hg)

No %SOL

NON-RAD PER OJ

DATE/REVISIONS:

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

Relinquished by	Received by	Date	Time
FedEx	JHenry	4/14/06	0925

Relinquished by	Received by	Date	Time

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-051-127	Page 2 of 3
Collector STANKOVICH, M.	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8L Air Quality ☐
Project Designation 100 & 300 Area Component of the RCBRA - Incremental So	Sampling Location UPRIVER RIPARIAN #14		SAF No. RC-051	Data Turnaround 45 Days
Ice Chest No.	Field Logbook No. EL-1596-1	COA BESRAS6520	Method of Shipment FED EX	
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A060151		Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

Use page 3 for original material to Corvallis for MIS preparation and aliquoting, page 1 for radioanalytical fractions to Eberline, & page 2 for chemical analytical fractions to Lionville.

SAMPLE ANALYSIS												
Preservation				None	None	None	None	None	None	None	None	None	None
Type of Container				G/P	G/P	aG	aG	aG	aG	G/P	G/P	^	^
No. of Container(s)				9	9	7		7	7	7	7	0	0
Volume				30g	30g	30g	30g	30g	30g	30g	30g	1^	1^
				See item (1) in Special Instructions.	Chromium Hex - 7196	Semi-VOA - 8270A (TCL)	PAHs - 8310	Pesticides - 8081	PCBs - 8082	IC Anions - 300.0 (Nitrate)	NO2/NO3 - 353.2 (Nitrogen in Nitrite and Nitrate)		
Sample No.	Matrix *	Sample Date	Sample Time										
J11JL6	SOIL	4-12-06	0912	3	1	1		1	1	1	1		
J11JL7	"	"	1019	1	3	3		1	1	1	1		
J11JL8	"	"	1020	1	1	1		3	3	1	1		
J11JL9	"	"	1128	1	1	1		1	1	3	3		
J11JM0	"	"	1305	3	3	1		1	1	1	1		

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Dayna Kaumanns	4/13/06	CH2M HILL	
Relinquished By/Removed From	Date/Time 11:30	Received By/Stored In	Date/Time
Dayna Kaumanns	4/13/06 11:30	Fed Ex	4/13/06 11:30
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
FedEx		JPMurray	4/14/06 0925
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

` These marks indicate that unless lined out, analytes to be included with Strontium-89,90 -- Total Sr analysis fraction.

^- These marks indicate that this is a non-analysis used to properly format COC form. Contact Joan Kessner for any questions.

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

Matrix *

SeSoil
SESediment
SOSolid
SlSludge
WWater
OOil
AAir
DSDrum Solids
DLDrum Liquids
TsTissue
WIWipe
LqLiquid
VgVegetation
XOther

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

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH | Project # 336761.AO.ZZ

Site # Upriver Riparian #14 | Sample # J11JL6

Tray # 7 | Tare Wt. 1464 gm.

Total Dry Wt. 4391.2 gm. | Net Dry Wt. 2927.2 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	0912	400 g	401.3	LE
RAD STR		30 g	30.1	
ICP MET		30 g	30.1	
HEX CR		30 g	30.2	
SEMI VOA		30 g	30.2	
PEST		30 g	30.3	
PCB		30 g	30.3	
IC ANION		30 g	30.5	
NO2/NO3		30 g	30.2	
RAD STR MS		30 g	30.5	
RAD STR MSD		30 g	30.4	
ICP MET MS		30 g	30.2	
ICP MET MSD	↓	30 g	30.3	↓

Comments:

Name (print): Kelly Ensor | Signature: Kelly Ensor

Sub-Sampled Date: 04/12/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH | Project # 336761.AO.ZZ

Site # Upriver Riparian #14 | Sample # J11JL7

Tray # 55 | Tare Wt. 1465 gm.

Total Dry Wt. 4469.7 gm. | Net Dry Wt. 3004.7 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	1019	400 g	400.2	KE
RAD STR	↓	30 g	30.2	↓
ICP MET		30 g	30.4	
HEX CR		30 g	30.1	
SEMI VOA		30 g	30.4	
PEST		30 g	30.4	
PCB		30 g	30.3	
IC ANION		30 g	30.9	
NO2/NO3		30 g	30.4	
HEX CR MS		30 g	30.3	
HEX CR MSD		30 g	30.3	
SEMI VOA MS		30 g	30.3	
SEMI VOA MSD	↓	30 g	30.1	↓

Comments:

Name (print): Kelly Ensor | Signature: Kelly Ensor

Sub-Sampled Date: 04/12/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH | Project # 336761.AO.ZZ

Site # Upriver Riparian #14 | Sample # J11JL8

Tray # 36 | Tare Wt. 1460 gm.

Total Dry Wt. 4463.7 gm. | Net Dry Wt. 3003.7 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	10:20	400 g	404.07	KC
RAD STR	↓	30 g	30.30	↓
ICP MET		30 g	30.73	
HEX CR		30 g	30.36	
SEMI VOA		30 g	30.29	
PEST		30 g	30.22	
PCB		30 g	30.39	
IC ANION		30 g	30.16	
NO2/NO3		30 g	30.22	
PEST MS		30 g	30.14	
PEST MSD		30 g	30.30	
PCB MS		30 g	30.09	
PCB MSD	↓	30 g	30.47	↓

Comments:

Name (print): Kasey Carlson | Signature: Kasey Carlson

Sub-Sampled Date: 04/12/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH | Project # 336761.AO.ZZ

Site # Upriver Riparian #14 | Sample # J11JL9

Tray # 11 | Tare Wt. 1450 gm.

Total Dry Wt. 4743.0 gm. | Net Dry Wt. 3293.0 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	~~1328~~ 1128	400 g	400.3	KDS
RAD STR	↓	30 g	30.2	↓
ICP MET		30 g	30.2	
HEX CR		30 g	30.1	
SEMI VOA		30 g	30.0	
PEST		30 g	30.4	
PCB		30 g	30.1	
IC ANION		30 g	30.2	
NO2/NO3		30 g	30.5	
IC ANION MS		30 g	30.3	
IC ANION MSD		30 g	30.2	
NO2/NO3 MS		30 g	30.3	
NO2/NO3 MSD	↓	30 g	30.2	↓

Comments:

Name (print): Kelly Ensor | Signature: Kelly Ensor

Sub-Sampled Date: 04/12/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH | Project # 336761.AO.ZZ

Site # Upriver Riparian #14 | Sample # J11JM0

Tray # 69 | Tare Wt. 1460 gm.

Total Dry Wt. 4701.7 gm. | Net Dry Wt. 3962.1 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	13:05	400 g	406.86	KC
RAD STR	"	30 g	30.11	"
ICP MET	"	30 g	30.20	"
HEX CR	"	30 g	30.11	"
SEMI VOA	"	30 g	30.15	"
PEST	"	30 g	30.09	"
PCB	"	30 g	30.07	"
IC ANION	"	30 g	30.08	"
NO2/NO3	"	30 g	30.09	"
ICP MET MS	"	30 g	30.11	"
ICP MET MSD	"	30 g	30.24	"
HEX CR MS	"	30 g	30.17	"
HEX CR MSD	"	30 g	30.12	"

Comments:

Name (print): Kasey Carlson | Signature: Kasey Carlson

Sub-Sampled Date: 04/12/2006

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford Date: 4/14/06

Purchase Order / Project# / SAF# / SOW# / Release #: RC-051

LvLI Batch # : 0604L783 Sample Custodian: [signature]

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped (circled)	Carrier FedEX		Airbill# 6595 0631 4211	
2.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ No Seals	Comments
3.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No		
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No		
5.	Samples received cooled or ambient? (ambient circled) IR	Temp 19.1 °C		Cooler # CAS/Green	
6.	Custody seals on sample containers intact, signed and dated?	☐ Yes	☐ No	☑ No Seals	
7.	coc signed and dated?	☑ Yes	☐ No		
8.	Sample containers are intact?	☑ Yes	☐ No		
9.	All samples on coc received? All samples received on coc?	☑ Yes	☐ No		
10.	All sample label information matches coc?	☐ Yes	☑ No	005Q - Label on bottle says Strontium 89,90 - Total (Not metals)	
11.	Samples properly preserved?	☑ Yes	☐ No		
12.	Samples received within hold times? Short holds taken to wet lab?	☑ Yes	☐ No		
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 not within policy. See reverse side for policy)	~~☑ Yes~~ Jr 4/14/06	☑ No		
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria) AJ voicemail 4/14/06	☑ Yes	☐ No	☐ No Discrepancies	

SR-002-B

LvLI