0068448

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	____NB 1/17/06 INITIAL/DATE
Jeanette Duncan	H9-02	___NB 1/17/06 INITIAL/DATE

COMMENTS:

SDG (K0120)____ SAF-RC-051

Rad only Chem only X Rad & Chem

X Complete Partial

Waste Site: Upland Backfill Low - 116-DR-1 &2
Upland Native Reference – Central Plateau

RECEIVED
FEB 07 2006
EDMC

LIONVILLE LABORATORY INC.

11 January 2006

RECEIVED JAN 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 #	0511L748
SDG #	K0120
SAF #	RC-051
Date Received	11-17-05
# Samples	5
Matrix	Soil
Volatiles	
Semivolatiles	X
Pest/PCB	X
PAH	X
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 K0120

RECEIVED
JAN 2006

DATE RECEIVED: 11/17/05 LVL LOT # 1511L748

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J10DR5	001	S	05LE0915	11/15/05	11/18/05	11/22/05
J10DR5	001 MS	S	05LE0915	11/15/05	11/18/05	11/22/05
J10DR5	001 MSD	S	05LE0915	11/15/05	11/18/05	11/22/05
J10DR6	002	S	05LE0915	11/15/05	11/18/05	11/25/05
J10DR7	003	S	05LE0915	11/15/05	11/18/05	11/25/05
J10DR8	004	S	05LE0915	11/15/05	11/18/05	11/25/05
J10DR9	005	S	05LE0915	11/15/05	11/18/05	11/25/05

LAB QC:

SBLKQP	MB1	S	05LE0915	N/A	11/18/05	11/22/05
SBLKQP	MB1 BS	S	05LE0915	N/A	11/18/05	11/22/05

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-051
LVL #: 0511L748
SDG/SAF # K0120/RC-051

W.O. #: 11343-606-001-9999-00
Date Received: 11-17-2005

SEMIVOLATILE

Five (5) soil samples were collected on 11-15-2005.

The samples and their associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3540C on 11-18-2005 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 11-22,25-2005.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. Samples were extracted and analyzed within required holding time.
3. Non-target compounds were detected in the samples.
4. All surrogate recoveries were within acceptance criteria.
5. All matrix spike recoveries were within acceptance criteria.
6. Two (2) of sixty-four (64) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
7. The method blank contained the common laboratory contaminant Bis (2-Ethylhexyl) phthalate at a level less than the CRQL.
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").
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.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

11/30/05
Date

som\gorup\data\bna\tnu-hanford\0511-748.doc
The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 1 9 pages.

Initiator: Shawn Saylor
Date: 11-29-05
Client: TNU

Batch: 05IIL748
Samples: 001 65
Method: SW846/ICAWW/CLP/

Parameter: 8270
Matrix: SOLID
Prep Batch: 05IE0915

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)

< 10% 2,4-dinitrophenol in the blank spike but the ms + msd are ok

2. Known or Probable Causes(s)

loss during extraction

3. Discussion and Proposed Action Other Description:

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

4. Project Manager Instructions...signature/date: 11/29/05

__ 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: 11/30/05 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
(T)	X Project Mgr: Stone/Johnson/Haslett		__ GC/LC: Kiger
__	X Technical Mgr: Wesson/Daniels	(T)	X MS: Rychlak/Layman
__	X QA (file): Alberts	__	__ Log-in: Melnic
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Beegle/Kiger	__	__ Other: _____

QA-105-A-0801

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.

sb\10-03\gloss.doc

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.

LVL-21-21-035/A-08/93

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 11/29/05 07:18

RFW Batch Number: 0511L748 Client: TNUHANFORD RC-051 K0120 Work Order: 11343606001 Page: 1a

000000007

	Cust ID:	J10DR5		J10DR5		J10DR5		J10DR6		J10DR7		J10DR8	
Sample Information	RFW#:	001		001 MS		001 MSD		002		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	74	%	79	%	77	%	65	%	59	%	75	%
	2-Fluorobiphenyl	83	%	87	%	83	%	71	%	68	%	81	%
	Terphenyl-d14	94	%	99	%	83	%	85	%	85	%	90	%
	Phenol-d5	75	%	77	%	74	%	67	%	68	%	78	%
	2-Fluorophenol	70	%	70	%	65	%	60	%	58	%	74	%
	2,4,6-Tribromophenol	89	%	96	%	87	%	74	%	79	%	77	%
			fl		fl		fl		fl		fl		fl
Phenol		330	U	81	%	81	%	340	U	330	U	330	U
bis(2-Chloroethyl)ether		330	U	88	%	80	%	340	U	330	U	330	U
2-Chlorophenol		330	U	77	%	73	%	340	U	330	U	330	U
1,3-Dichlorobenzene		330	U	72	%	65	%	340	U	330	U	330	U
1,4-Dichlorobenzene		330	U	69	%	62	%	340	U	330	U	330	U
1,2-Dichlorobenzene		330	U	74	%	68	%	340	U	330	U	330	U
2-Methylphenol		330	U	82	%	79	%	340	U	330	U	330	U
2,2'-oxybis(1-Chloropropane)		330	U	98	%	87	%	340	U	330	U	330	U
4-Methylphenol		330	U	84	%	82	%	340	U	330	U	330	U
N-Nitroso-di-n-propylamine		330	U	85	%	80	%	340	U	330	U	330	U
Hexachloroethane		330	U	73	%	64	%	340	U	330	U	330	U
Nitrobenzene		330	U	80	%	79	%	340	U	330	U	330	U
Isophorone		330	U	93	%	94	%	340	U	330	U	330	U
2-Nitrophenol		330	U	94	%	91	%	340	U	330	U	330	U
2,4-Dimethylphenol		330	U	76	%	79	%	340	U	330	U	330	U
bis(2-Chloroethoxy)methane		330	U	92	%	90	%	340	U	330	U	330	U
2,4-Dichlorophenol		330	U	83	%	86	%	340	U	330	U	330	U
1,2,4-Trichlorobenzene		330	U	75	%	74	%	340	U	330	U	330	U
Naphthalene		330	U	80	%	79	%	340	U	330	U	330	U
4-Chloroaniline		330	U	101	%	110	%	340	U	330	U	330	U
Hexachlorobutadiene		330	U	83	%	78	%	340	U	330	U	330	U
4-Chloro-3-methylphenol		330	U	82	%	86	%	340	U	330	U	330	U
2-Methylnaphthalene		330	U	81	%	84	%	340	U	330	U	330	U
Hexachlorocyclopentadiene		330	U	66	%	63	%	340	U	330	U	330	U
2,4,6-Trichlorophenol		330	U	89	%	90	%	340	U	330	U	330	U
2,4,5-Trichlorophenol		840	U	91	%	91	%	840	U	840	U	840	U

*= Outside of EPA CLP QC limits.

Cust ID:	J10DR5		J10DR5		J10DR5		J10DR6		J10DR7		J10DR8	
RFW#:	001		001 MS		001 MSD		002		003		004	
2-Chloronaphthalene	330	U	89	%	90	%	340	U	330	U	330	U
2-Nitroaniline	840	U	93	%	95	%	840	U	840	U	840	U
Dimethylphthalate	330	U	87	%	87	%	340	U	330	U	330	U
Acenaphthylene	330	U	85	%	86	%	340	U	330	U	330	U
2,6-Dinitrotoluene	330	U	91	%	94	%	340	U	330	U	330	U
3-Nitroaniline	840	U	103	%	110	%	840	U	840	U	840	U
Acenaphthene	330	U	84	%	84	%	340	U	330	U	330	U
2,4-Dinitrophenol	840	U	46	%	47	%	840	U	840	U	840	U
4-Nitrophenol	840	U	81	%	84	%	840	U	840	U	840	U
Dibenzofuran	330	U	87	%	90	%	340	U	330	U	330	U
2,4-Dinitrotoluene	330	U	91	%	92	%	340	U	330	U	330	U
Diethylphthalate	330	U	77	%	77	%	340	U	330	U	330	U
4-Chlorophenyl-phenylether	330	U	82	%	83	%	340	U	330	U	330	U
Fluorene	330	U	84	%	86	%	340	U	330	U	330	U
4-Nitroaniline	840	U	94	%	92	%	840	U	840	U	840	U
4,6-Dinitro-2-methylphenol	840	U	105	%	100	%	840	U	840	U	840	U
N-Nitrosodiphenylamine (1)	330	U	90	%	85	%	340	U	330	U	330	U
4-Bromophenyl-phenylether	330	U	86	%	80	%	340	U	330	U	330	U
Hexachlorobenzene	330	U	83	%	78	%	340	U	330	U	330	U
Pentachlorophenol	840	U	103	%	98	%	840	U	840	U	840	U
Phenanthrene	330	U	91	%	87	%	340	U	330	U	330	U
Anthracene	330	U	92	%	88	%	340	U	330	U	330	U
Carbazole	330	U	106	%	103	%	340	U	330	U	330	U
Di-n-butylphthalate	23	J	90	%	84	%	340	U	21	J	23	J
Fluoranthene	330	U	85	%	81	%	340	U	330	U	330	U
Pyrene	330	U	99	%	91	%	340	U	330	U	330	U
Butylbenzylphthalate	330	U	99	%	90	%	340	U	330	U	330	U
3,3'-Dichlorobenzidine	330	U	73	%	80	%	340	U	330	U	330	U
Benzo(a)anthracene	330	U	98	%	91	%	340	U	330	U	330	U
Chrysene	330	U	94	%	89	%	340	U	330	U	330	U
bis(2-Ethylhexyl)phthalate	76	JB	102	%	93	%	72	JB	33	JB	44	JB
Di-n-octyl phthalate	330	U	96	%	93	%	340	U	330	U	330	U
Benzo(b)fluoranthene	330	U	90	%	88	%	340	U	330	U	330	U
Benzo(k)fluoranthene	330	U	90	%	94	%	340	U	330	U	330	U
Benzo(a)pyrene	330	U	91	%	92	%	340	U	330	U	330	U
Indeno(1,2,3-cd)pyrene	330	U	117	%	119	%	340	U	330	U	330	U
Dibenz(a,h)anthracene	330	U	118	%	122	%	340	U	330	U	330	U
Benzo(g,h,i)perylene	330	U	111	%	115	%	340	U	330	U	330	U

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

0000000008

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 11/29/05 07:18

RFW Batch Number: **0511L748** Client: **TNUHANFORD RC-051 K0120** Work Order: 11343606001 Page: 2a

000000009

	Cust ID:	J10DR9		SBLKQP		SBLKQP BS	
Sample Information	RFW#:	005		05LE0915-MB1		05LE0915-MB1	
	Matrix:	SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	70	%	57	%	83	%
	2-Fluorobiphenyl	76	%	62	%	86	%
	Terphenyl-d14	82	%	97	%	96	%
	Phenol-d5	77	%	55	%	80	%
	2-Fluorophenol	71	%	55	%	80	%
	2,4,6-Tribromophenol	74	%	58	%	91	%
Phenol		330	U	330	U	86	%
bis(2-Chloroethyl)ether		330	U	330	U	92	%
2-Chlorophenol		330	U	330	U	84	%
1,3-Dichlorobenzene		330	U	330	U	84	%
1,4-Dichlorobenzene		330	U	330	U	81	%
1,2-Dichlorobenzene		330	U	330	U	86	%
2-Methylphenol		330	U	330	U	86	%
2,2'-oxybis(1-Chloropropane)		330	U	330	U	99	%
4-Methylphenol		330	U	330	U	86	%
N-Nitroso-di-n-propylamine		330	U	330	U	86	%
Hexachloroethane		330	U	330	U	88	%
Nitrobenzene		330	U	330	U	84	%
Isophorone		330	U	330	U	97	%
2-Nitrophenol		330	U	330	U	98	%
2,4-Dimethylphenol		330	U	330	U	75	%
bis(2-Chloroethoxy)methane		330	U	330	U	94	%
2,4-Dichlorophenol		330	U	330	U	88	%
1,2,4-Trichlorobenzene		330	U	330	U	82	%
Naphthalene		330	U	330	U	86	%
4-Chloroaniline		330	U	330	U	118	%
Hexachlorobutadiene		330	U	330	U	92	%
4-Chloro-3-methylphenol		330	U	330	U	88	%
2-Methylnaphthalene		330	U	330	U	89	%
Hexachlorocyclopentadiene		330	U	330	U	111 *	%
2,4,6-Trichlorophenol		330	U	330	U	92	%
2,4,5-Trichlorophenol		840	U	830	U	95	%

*= Outside of EPA CLP QC limits.

Cust ID:	J10DR9		SBLKQP		SBLKQP BS	
RFW#:	005		05LE0915-MB1		05LE0915-MB1	
2-Chloronaphthalene	330	U	330	U	92	%
2-Nitroaniline	840	U	830	U	96	%
Dimethylphthalate	330	U	330	U	90	%
Acenaphthylene	330	U	330	U	89	%
2,6-Dinitrotoluene	330	U	330	U	96	%
3-Nitroaniline	840	U	830	U	119	%
Acenaphthene	330	U	330	U	86	%
2,4-Dinitrophenol	840	U	830	U	9 *	%
4-Nitrophenol	840	U	830	U	87	%
Dibenzofuran	330	U	330	U	92	%
2,4-Dinitrotoluene	330	U	330	U	97	%
Diethylphthalate	330	U	330	U	81	%
4-Chlorophenyl-phenylether	330	U	330	U	89	%
Fluorene	330	U	330	U	91	%
4-Nitroaniline	840	U	830	U	113	%
4,6-Dinitro-2-methylphenol	840	U	830	U	79	%
N-Nitrosodiphenylamine (1)	330	U	330	U	83	%
4-Bromophenyl-phenylether	330	U	330	U	83	%
Hexachlorobenzene	330	U	330	U	83	%
Pentachlorophenol	840	U	830	U	79	%
Phenanthrene	330	U	330	U	92	%
Anthracene	330	U	330	U	96	%
Carbazole	330	U	330	U	108	%
Di-n-butylphthalate	330	U	330	U	93	%
Fluoranthene	330	U	330	U	94	%
Pyrene	330	U	330	U	96	%
Butylbenzylphthalate	330	U	330	U	96	%
3,3'-Dichlorobenzidine	330	U	330	U	117	%
Benzo(a)anthracene	330	U	330	U	95	%
Chrysene	330	U	330	U	96	%
bis(2-Ethylhexyl)phthalate	37	JB	190	J	93	%
Di-n-octyl phthalate	330	U	330	U	96	%
Benzo(b)fluoranthene	330	U	330	U	89	%
Benzo(k)fluoranthene	330	U	330	U	98	%
Benzo(a)pyrene	330	U	330	U	97	%
Indeno(1,2,3-cd)pyrene	330	U	330	U	116	%
Dibenz(a,h)anthracene	330	U	330	U	117	%
Benzo(g,h,i)perylene	330	U	330	U	110	%

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

000000010

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J10DR5

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

Client: TNUHANFORD RC-051 K0120

Matrix: (soil/water) SOIL

Lab Sample ID: 0511L748-001

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

Lab File ID: D112211

Level: (low/med) LOW

Date Received: 11/17/05

% Moisture: 0 decanted: (Y/N)__

Date Extracted: 11/18/05

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/22/05

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	9.295	300	J
2.	UNKNOWN	9.915	600	J
3.	UNKNOWN	13.186	400	J
4.	ALKANE	28.590	300	J
5.	ALKANE	32.017	700	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J10DR6

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

Client: TNUHANFORD RC-051 K0120

Matrix: (soil/water) SOIL

Lab Sample ID: 0511L748-002

Sample wt/vol: 29.9 (g/mL) G

Lab File ID: D112508

Level: (low/med) LOW

Date Received: 11/17/05

% Moisture: 0 decanted: (Y/N)__

Date Extracted: 11/18/05

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/25/05

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	9.200	300	J
2.	UNKNOWN	9.819	400	J
3.	ALKANE	28.443	200	J
4.	ALKANE	31.810	500	J
5.	ALKANE	35.788	200	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J10DR7

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

Client: TNUHANFORD RC-051 K0120

Matrix: (soil/water) SOIL

Lab Sample ID: 0511L748-003

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

Lab File ID: D112509

Level: (low/med) LOW

Date Received: 11/17/05

% Moisture: 0 decanted: (Y/N)__

Date Extracted: 11/18/05

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/25/05

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	9.198	500	J
2.	UNKNOWN	9.826	800	J
3.	ALKANE	28.450	200	J
4.	ALKANE	31.808	400	J
5.	ALKANE	35.786	400	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J10DR8

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

Client: TNUHANFORD RC-051 K0120

Matrix: (soil/water) SOIL

Lab Sample ID: 0511L748-004

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

Lab File ID: D112510

Level: (low/med) LOW

Date Received: 11/17/05

% Moisture: 0 decanted: (Y/N)__

Date Extracted: 11/18/05

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/25/05

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	9.197	700	J
2.	UNKNOWN	9.825	1000	J
3.	ALKANE	28.440	300	J
4.	ALKANE	31.807	700	J
5.	ALKANE	35.785	300	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J10DR9

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

Client: TNUHANFORD RC-051 K0120

Matrix: (soil/water) SOIL

Lab Sample ID: 0511L748-005

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

Lab File ID: D112511

Level: (low/med) LOW

Date Received: 11/17/05

% Moisture: 0 decanted: (Y/N)__

Date Extracted: 11/18/05

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/25/05

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	9.193	400	J
2.	UNKNOWN	9.821	700	J
3.	UNKNOWN	31.192	200	J
4.	ALKANE	31.803	500	J
5.	ALKANE	35.781	200	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKQP

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

Client: TNUHANFORD RC-051 K0120

Matrix: (soil/water) SOIL

Lab Sample ID: 05LE0915-MB1

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

Lab File ID: D112206

Level: (low/med) LOW

Date Received: 11/18/05

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

Date Extracted: 11/18/05

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/22/05

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: _____

Number TICs found: 0

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

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

FORM 1 SV-TIC

RFW (v3.3)

Lionville Laboratory Use Only

0511L748

Custody Transfer Record/Lab Work Request

Page 1 of 1

VLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU- HANFORD SAF# RC-051

Est. Final Proj. Sampling Date:

Project #: 11343-006-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: Spec Del: Std TAT: 30 Days

Date Rec'd: 11/17/05 Date Due: 12/17/05

		AC	DF		GI			JL		MO	PQR	See	SRC
Refrigerator #		5	5		5			5		5	5		
#/Type Container	Liquid												
	Solid	6	6		6			6		6	6		
Volume	Liquid												
	Solid	30	30		30			30		30	30		
Preservatives		-	-		-			-		-	-		
ANALYSES REQUESTED →		ORGANIC						INORG					
		VOA	BNA	Pest/PCB	Herb	PCB		Total Metal	CN	PAHs	Hot Spec		
		Lionville Laboratory Use Only											
			0625H	0608H		0PCB		METALS①		0831O	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		0625H	0608H		0PCB			METALS①		0831O	ICR6				
001	J10DR5	✓	✓	Soil	11/15/05	902		3	1		1			1		1	3				
002	6	✓	✓			839		1	1	5	1			1		3	1				
003	7	✓	✓			1057		1	3		1			1		1	1				
004	8	✓	✓			1408		1	1		3			1		1	1				
005	9	✓	✓			943		1	1		1			3		1	1				

Special Instructions:
See attached special instructions
001 - QC on BNA & ICR6
002 - QC on PAHs
003 - QC on Pest
004 - QC on PCB
005 - QC on metals
Non-Rad, per OJ/Client.

DATE/REVISIONS:
1. METALS① = HSL + Bi, B, Li, Mo, P, Si, Sr, Sn, U (No Hg)
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11/17/05	0915

Relinquished by	Received by	Date	Time

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

0000000017

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-051-14	Page 1 of 1

Collector: L. COLLOM	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: Upland Native Reference-Central Plateau	SAF No.: RC-051	Air Quality ☐
Ice Chest No.	Field Logbook No.: EL-1596 — COA: BESRAS6520	Method of Shipment	
Shipped To: Lionville	Offsite Property No.: A060151	Bill of Lading/Air Bill No.	

POSSIBLE SAMPLE HAZARDS/REMARKS
NONE

Special Handling and/or Storage
NONE

Preservation	None	None	None	None	None	None	None	None		
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG	aG		
No. of Container(s)			7	7	7	7	7	7		
Volume	500g	30g	30g	30g	30g	30g	30g	30g		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Chromium Hex - 7196	Semi-VOA - 8270A (TCL)	PAHs - 8310	Pesticides - 8081	PCBs - 8082		

Sample No.	Matrix *	Sample Date	Sample Time										
J10DR5	SOIL	11-15-05	9:02			1	3	3	1	1	~~3~~ 1	2 11/16/05	
J10DR6	SOIL		8:39			1	1	1	3	1	1		
J10DR7	SOIL		10:51			1	1	1	1	3	1		
J10DR8	SOIL		14:08			1	1	1	1	1	3		
J10DR9	SOIL		9:43			3	1	1	1	1	1		

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: Elizabeth Tepper	15:00	NA →	
Relinquished By/Removed From: Elizabeth Tepper	11/16/05	Received By/Stored In: Fed EX	11/16/05 15:00
Relinquished By/Removed From: Fed Ex 11-17-05	0915	Received By/Stored In: [signature] 11-17-05	0915
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
This chain of custody form documents the transfer of bulk field collected soils to the CH2M Hill Corvallis laboratory for incremental preparation and aliquoting.

(1) Gamma Spec - (Full List) {Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-226, Radium-228}
(2) Strontium-89,90 -- Total Sr; Isotopic Thorium {Thorium-232}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Isotopic Plutonium
(3) 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)

000000018

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU- HANFORD **Date:** 11/17/05

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

LvLI Batch # : 05IIL748 **Sample Custodian:** T. Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier FedEx		Airbill# 6595 0629 0081	
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?	Temp 13.2 °C		Cooler # ERC-99-560	
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		
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	☐ No		
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☐ Yes	☐ No	☑ No Discrepancies	

SR-002-B

LVLI LIONVILLE LABORATORIES

RECEIVED
JAN 2006

Lionville Laboratory, Inc.
PEST/PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :0511L748

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J10DR5	001	S	05LE0916	11/15/05	11/18/05	11/26/05
J10DR6	002	S	05LE0916	11/15/05	11/18/05	11/26/05
J10DR7	003	S	05LE0916	11/15/05	11/18/05	11/26/05
J10DR7	003 MS	S	05LE0916	11/15/05	11/18/05	11/26/05
J10DR7	003 MSD	S	05LE0916	11/15/05	11/18/05	11/26/05
J10DR8	004	S	05LE0916	11/15/05	11/18/05	11/26/05
J10DR9	005	S	05LE0916	11/15/05	11/18/05	11/26/05

LAB QC:

PBLKWO	MB1	S	05LE0916	N/A	11/18/05	11/23/05
PBLKWO	MB1 BS	S	05LE0916	N/A	11/18/05	11/23/05

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-051
LVL #: 0511L748
SDG/SAF # K0120/RC-051

W.O. #: 11343-606-001-9999-00
Date Received: 11-17-2005

CHLORINATED PESTICIDES

Five (5) soil samples were collected on 11-15-2005.

The samples and their associated QC samples were extracted on 11-18-2005 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 11-23,26-2005. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8081A.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. Samples were extracted and analyzed within required holding time.
3. The samples and their associated QC samples received a Copper-Sulfur cleanup according to Lionville Laboratory SOPs based on SW846 method 3660A.
4. The method blank was below the reporting limits for all target compounds.
5. All surrogate recoveries were within acceptance criteria.
6. One (1) of twenty (20) blank spike recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
7. Sixteen (16) of forty (40) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
8. All samples required a 4-fold dilution due to the nature of the sample matrix. The reporting limits were adjusted to reflect the necessary dilution.
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 with the exception of CCV analyzed for the method blank and blank spike on 11-23-2005 at 02:08 on both columns. The breakdown also exceeded the 15% criteria for Endrin on RTX-CLP2 column. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
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.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

12/15/5
Date

som\r:\group\data\pest\tnu hanford\0511-748.pst
The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 9 pages.

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 0526580

Initiator: TE
Date: 12/9/05
Client: INV

Batch: 0511L748
Samples:
Method: SW846/MCAWW/CLP/

Parameter: 8081H
Matrix: SOIL
Prep Batch: 0512096

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) ① CCVs were out high on both columns due to an increase in instrument response prior to BLK and BS. Which were inadvertantly not reanalyzed with rest of sample block - little impact on data. ② DDD recovery was out slightly high (125%) (upper lim 1+122) all others ok. ③ Breakdown exceeded 15%. criteria on EXLLAZ column (15.5%) for Endrin ④ MS/MSD several recoveries out high - no targets were identified in samples would like to narrate. Please advise

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:

Narrate - minimal impact on sample data. Increased impure does not impact analyst's ability to identify target compounds. Marginal spike recovery exceedances does not impact non-detection of target compounds.

4. Project Manager Instructions...signature/date: 12/9/05

__ 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: 12/14/05

Other Explanation:

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

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

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

QA-105-A-0805

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List

Report Date: 12/13/05 12:44

RFW Batch Number: 0511L748 Client: TNUHANFORD RC-051 K0120 Work Order: 11343606001 Page: 1

000000005

	Cust ID:	J10DR5	J10DR6	J10DR7	J10DR7	J10DR7	J10DR8
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	110 %	96 %	104 %	105 %	109 %	114 %
	Decachlorobiphenyl	101 %	103 %	98 %	95 %	107 %	106 %
		fl	fl	fl	fl	fl	fl
Alpha-BHC		1.3 U	1.3 U	1.3 U	121 %	114 %	1.3 U
gamma-BHC (Lindane)		1.3 U	1.3 U	1.3 U	126 %	124 %	1.3 U
Beta-BHC		1.3 U	1.3 U	1.3 U	154 * %	144 * %	1.3 U
Heptachlor		1.3 U	1.3 U	1.3 U	131 * %	128 %	1.3 U
Delta-BHC		1.3 U	1.3 U	1.3 U	135 * %	131 * %	1.3 U
Aldrin		1.3 U	1.3 U	1.3 U	122 * %	119 %	1.3 U
Heptachlor epoxide		1.3 U	1.3 U	1.3 U	121 %	118 %	1.3 U
gamma-Chlordane		1.3 U	1.3 U	1.3 U	121 %	120 %	1.3 U
Endosulfan I		1.3 U	1.3 U	1.3 U	129 * %	126 * %	1.3 U
alpha-Chlordane		1.3 U	1.3 U	1.3 U	125 %	122 %	1.3 U
4,4'-DDE		1.3 U	1.3 U	1.3 U	143 * %	138 * %	1.3 U
Dieldrin		1.3 U	1.3 U	1.3 U	128 %	124 %	1.3 U
Endrin		1.3 U	1.3 U	1.3 U	133 %	129 %	1.3 U
4,4'-DDD		1.3 U	1.3 U	1.3 U	151 * %	148 * %	1.3 U
Endosulfan II		1.3 U	1.3 U	1.3 U	130 * %	126 * %	1.3 U
4,4'-DDT		1.3 U	1.3 U	1.3 U	134 %	128 %	1.3 U
Endrin aldehyde		1.3 U	1.3 U	1.3 U	120 %	118 %	1.3 U
Endosulfan sulfate		1.3 U	1.3 U	1.3 U	133 * %	128 * %	1.3 U
Methoxychlor		1.3 U	1.3 U	1.3 U	148 %	142 %	1.3 U
Endrin ketone		1.3 U	1.3 U	1.3 U	130 %	125 %	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

Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List

Report Date: 12/13/05 12:44

RFW Batch Number: 0511L748 Client: TNUHANFORD RC-051 K0120 Work Order: 11343606001 Page: 2

	Cust ID:	J10DR9	PBLKWO	PBLKWO BS
Sample Information	RFW#:	005	05LE0916-MB1	05LE0916-MB1
	Matrix:	SOIL	SOIL	SOIL
	D.F.:	4.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG

Surrogate:	Tetrachloro-m-xylene	118	%	77	%	79	%	
	Decachlorobiphenyl	110	%	84	%	82	%	
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	104	%	
Heptachlor		1.3	U	0.33	U	105	%	
Delta-BHC		1.3	U	0.33	U	113	%	
Aldrin		1.3	U	0.33	U	95	%	
Heptachlor epoxide		1.3	U	0.33	U	92	%	
gamma-Chlordane		1.3	U	0.33	U	99	%	
Endosulfan I		1.3	U	0.33	U	98	%	
alpha-Chlordane		1.3	U	0.33	U	97	%	
4,4'-DDE		1.3	U	0.33	U	110	%	
Dieldrin		1.3	U	0.33	U	101	%	
Endrin		1.3	U	0.33	U	99	%	
4,4'-DDD		1.3	U	0.33	U	125 *	%	
Endosulfan II		1.3	U	0.33	U	100	%	
4,4'-DDT		1.3	U	0.33	U	113	%	
Endrin aldehyde		1.3	U	0.33	U	88	%	
Endosulfan sulfate		1.3	U	0.33	U	100	%	
Methoxychlor		1.3	U	0.33	U	106	%	
Endrin ketone		1.3	U	0.33	U	94	%	
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

000000006

Lionville Laboratory Use Only: 0511L748

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU HANFORD SAF# RC-051
Est. Final Proj. Sampling Date:
Project #: 11345-606-001-9999-00
Project Contact/Phone #:
Lionville Laboratory Project Manager: OJ
QC: spec Del: Std TAT: 30 Days
Date Rec'd: 11/17/05 Date Due: 12/17/05

Refrigerator #			5	5		5			5		5	5					
#/Type Container	Liquid / Solid		G	G		G			G		G	G					
Volume	Liquid / Solid		30	30		30			30		30	30					
Preservatives			–	–		–			–		–	–					
ANALYSES REQUESTED →		VOA	BNA	Pest/PCB	Herb	PCB			TCLP Metal	CN	PAHs	Hex Cr					
			ORGANIC						INORG								
Lionville Laboratory Use Only			0625H	0608H		OPCB			METALS①		08310	ICP6					

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			TCLP Metal	CN	PAHs	Hex Cr				
001	J10DR5	✓	✓	Soil	11-15-05	902		3	1		1			1		1	3				
002	6	✓	✓			839		1	1		1			1		3	1				
003	7	✓	✓			1057		1	3		1			1		1	1				
004	8	✓	✓			1408		1	1		3			1		1	1				
005	9	✓	✓			943		1	1		1			3		1	1				

Special instructions:
See attached special instructions
001 - QC on BNA & ICP6
002 - QC on PAHs
003 - QC on Pest
004 - QC on PCB
005 - QC on metals
Non-Rad, per OJ / Client.

DATE/REVISIONS:
1. METALS① = HSL + Bi, B, Li, Mo, P, Si, Sr, Sn, U (No Hg)
2.
3. 0608H
4. OPCB R
5. 08310 F
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11/17/05	0915

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-051-14	Page 1 of 1

Collector L. COLLOM	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 Upland Native Reference-Central Plateau		SAF No. RC-051		
Ice Chest No.	Field Logbook No. EL-1596	COA BESRAS6520	Method of Shipment		
Shipped To Lionville	Offsite Property No. A060151		Bill of Lading/Air Bill No.		

POSSIBLE SAMPLE HAZARDS/REMARKS
NONE

Special Handling and/or Storage
NONE

Preservation	None	None	None	None	None	None	None	None		
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG	aG		
No. of Container(s)			7	7	7	7	7	7		
Volume	500g	30g	30g	30g	30g	30g	30g	30g		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Chromium Hex - 7196	Semi-VOA - 8270A (TCL)	PAHs - 8310	Pesticides - 8081	PCBs - 8082		

Sample No.	Matrix *	Sample Date	Sample Time										
J10DR5	SOIL	11-15-05	9:02			1	3	3	1	1	3 1	E 11/16/05	
J10DR6	SOIL		8:39			1	1	1	3	1	1		
J10DR7	SOIL		10:51			1	1	1	1	3	1		
J10DR8	SOIL		14:08			1	1	1	1	1	3		
J10DR9	SOIL		9:43			3	1	1	1	1	1		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Elizabeth Tepper	15:00	NA →	
Elizabeth Tepper	11/16/05	Fed EX	11/16/05 15:00
Fed Ex	11-17-05 0915	[illegible]	11-17-05 0915
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
This chain of custody form documents the transfer of bulk field collected soils to the CH2M Hill Corvallis laboratory for incremental preparation and aliquoting.

(1) Gamma Spec - (Full List) (Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-226, Radium-228)
(2) Strontium-89,90 -- Total Sr; Isotopic Thorium (Thorium-232); Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Isotopic Plutonium
(3) 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
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

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

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU- HANFORD **Date:** 11/17/05

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

LvLI Batch # : 05 11L 748 **Sample Custodian:** T. Hienardy

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier Fed Ex		Airbill# 6595 0629 0081	
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?	Temp 13.2 °C		Cooler # ERC-99-560	
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		
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	☐ No		
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☐ Yes	☐ No	☑ No Discrepancies	

SR-002-B

LVLI

RECEIVED
JAN 2006

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :0511L748

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J10DR5	001	S	05LE0917	11/15/05	11/19/05	11/21/05
J10DR6	002	S	05LE0917	11/15/05	11/19/05	11/21/05
J10DR7	003	S	05LE0917	11/15/05	11/19/05	11/21/05
J10DR8	004	S	05LE0917	11/15/05	11/19/05	11/21/05
J10DR8	004 MS	S	05LE0917	11/15/05	11/19/05	11/22/05
J10DR8	004 MSD	S	05LE0917	11/15/05	11/19/05	11/22/05
J10DR9	005	S	05LE0917	11/15/05	11/19/05	11/22/05
LAB QC:						
PBLKWR	MB1	S	05LE0917	N/A	11/19/05	11/21/05
PBLKWR	MB1 BS	S	05LE0917	N/A	11/19/05	11/21/05

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-051
LVL #: 0511L748
SDG/SAF # K0120/RC-051

W.O. #: 11343-606-001-9999-00
Date Received: 11-17-2005

PCB

Five (5) soil samples were collected on 11-15-2005.

The samples and their associated QC samples were extracted on 11-19-2005 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 11-21-2005. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8082.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
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 initial calibrations associated with this data set were within acceptance criteria.
9. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
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.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

12/20/05
Date

kim\r:\group\data\pest\tnu hanford\0511-748.pcbs
The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 14 pages.

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 056C530

Initiator: DR
Date: 11/21/05
Client: QA

Batch: ICAL
Samples:
Method: SW846/MCAWW/CLP/

Parameter: OPCB
Matrix:
Prep Batch:

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) PCB 1660 ICAL ANALYZED 11/14/05 WAS inadvertently done using a curve that expired on 11/11/05 However the ICV used to check calibrations met criteria validating expired curve. PCB STDS are generally stable. No Data impacted significantly Copy of SDR will be kept with STDS.

2. Known or Probable Causes(s)

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)

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: _____ Other Explanation:

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

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

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

QA-105-A-0805

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 12/17/05 15:44

RFW Batch Number: 0511L748 Client: TNUHANFORD RC-051 K0120 Work Order: 11343606001 Page: 1

000000005

	Cust ID:	J10DR5		J10DR6		J10DR7		J10DR8		J10DR8		J10DR8	
Sample Information	RFW#:	001		002		003		004		004 MS		004 MSD	
	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	79	%	77	%	70	%	75	%	84	%	80	%
	Decachlorobiphenyl	80	%	81	%	73	%	76	%	86	%	84	%
Aroclor-1016		13	U	13	U	13	U	13	U	100	%	102	%
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	13	U	105	%	106	%

	Cust ID:	J10DR9		PBLKWR		PBLKWR BS	
Sample Information	RFW#:	005		05LE0917-MB1		05LE0917-MB1	
	Matrix:	SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG	
Surrogate:	Tetrachloro-m-xylene	67	%	82	%	84	%
	Decachlorobiphenyl	73	%	87	%	89	%
Aroclor-1016		13	U	13	U	107	%
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	109	%

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

0511L748

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU HANFORD SAF# RC-051

Est. Final Proj. Sampling Date:

Project #: 11343-006-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: spec Del: Std TAT: 30 Days

Date Rec'd: 11/17/05 Date Due: 12/17/05

Refrigerator #			A-C 5	D-F 5		G-I 5			J-L 5		M-O 5	P-R 5	See SRC			
#/Type Container	Liquid															
	Solid		6	6		6			6		6	6				
Volume	Liquid															
	Solid		30	30		30			30		30	30				
Preservatives			–	–		–			–		–	–				
ANALYSES REQUESTED →			ORGANIC: VOA	BNA	Pest/PCB	Herb	PCB			INORG: TCP Metal	CN	PAHs	Kerr Gen			
Lionville Laboratory Use Only				0022SH	0008H		0PCB			METALS(1)		08310	ICRL6			

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													
001	J10DR5	✓	✓	Soil	11/15	902		3	1		1			1		1	3		
002	6	✓	✓			839		1	1		1			1		3	1		
003	7	✓	✓			1057		1	3		1			1		1	1		
004	8	✓	✓			1408		1	1		3			1		1	1		
005	9	✓	✓			943		1	1		1			3		1	1		

Special Instructions:
See attached special instructions
001 - QC on BNA & ICRL6
002 - QC on PAHs
003 - QC on Pest
004 - QC on PCB
005 - QC on metals
Non-Rad, per OJ / Client.

DATE/REVISIONS:
1. METALS(1) = HSL + Bi, B, Li, Mo, P, Si, Sr, Sn, U (No Hg)
2.
3. 0008H
4. 0PCB R
5. 08310 F
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11/17/05	0945

Relinquished by	Received by	Date	Time

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

0000000006

FOR 05110748

For Sample prep (which includes the sample, MS, and MSD) use ALL of the volume sent for each assigned test/Lionville sample#; even if the amount sent is greater than the method requirement. With this approach metals and cr6 samples will require multiple digestions.

Separate sample jars are provided for MS and MSD analyses; matrix QC is designated as ~~follows:~~ on the COC

Metals matrix QC must be spike with mercury @ 20 ppb. We are not performing the mercury analysis. A metals digestate aliquot will be sent to STL for mercury by ICP/MS. Please record the mercury spike amounts in the narrative.

%Solids are NOT required.

Samples are nonrad per client.

If you have any questions please ask.

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-051-14	Page 1 of 1

Collector: L. COLLOM	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: Upland Native Reference-Central Plateau	SAF No.: RC-051	Air Quality ☐
Ice Chest No.	Field Logbook No.: EL-1596 — COA: BESRAS6520	Method of Shipment	
Shipped To: Lionville	Offsite Property No.: A060151	Bill of Lading/Air Bill No.	

POSSIBLE SAMPLE HAZARDS/REMARKS
NONE

Special Handling and/or Storage
NONE

Preservation	None	None	None	None	None	None	None	None		
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG	aG		
No. of Container(s)			7	7	7	7	7	7		
Volume	500g	30g	30g	30g	30g	30g	30g	30g		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Chromium Hex - 7196	Semi-VOA - 8270A (TCL)	PAHs - 8310	Pesticides - 8081	PCBs - 8082		

Sample No.	Matrix *	Sample Date	Sample Time										
J10DR5	SOIL	11-15-05	9:02			1	3	3	1	1	3 1	E 11/16/05	
J10DR6	SOIL		8:39			1	1	1	3	1	1		
J10DR7	SOIL		10:51			1	1	1	1	3	1		
J10DR8	SOIL		14:08			1	1	1	1	1	3		
J10DR9	SOIL		9:43			3	1	1	1	1	1		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: Elizabeth Tepper	Date/Time: 15:00	Received By/Stored In: NA →	Date/Time:
Relinquished By/Removed From: Elizabeth Tepper	Date/Time: 11/16/05	Received By/Stored In: Fed EX	Date/Time: 11/16/05 15:00
Relinquished By/Removed From: Fed Ex 11-17-05	Date/Time: 0915	Received By/Stored In: [signature] 11-17-05	Date/Time: 0915
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
This chain of custody form documents the transfer of bulk field collected soils to the CH2M Hill Corvallis laboratory for incremental preparation and aliquoting.

(1) Gamma Spec - (Full List) (Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-226, Radium-228)
(2) Strontium-89,90 -- Total Sr; Isotopic Thorium (Thorium-232); Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Isotopic Plutonium
(3) 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

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

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.A0.ZZ

Site Number: Upland Native Reference - Central Plateau

Tray #: 32 Tare Weight: 1453 gm.

Sample #: J10DR5 Total Dry Weight: 3957.4 gm.

Net Dry Sample Weight: 2504.4 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	0902	500	500.7	[illegible]
Rad Str		30	30.03	
ICP Met		30	30.02	
Hex Cr		30	30.02	
Semi Vol		30	30.03	
PAHs		30	30.08	
Pest		30	30.03	
PCBs		30	30.04	
Hex Cr MS		30	30.02	
Hex Cr MSD		30	30.07	
Semi VOA MS		30	30.02	
Semi VOA MSD		30	30.05	

Comments:

Name (print): Kelly Easer Signature: [illegible]

Sub-Sampled Date: 4/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.A0.ZZ

Site Number: Upland Native Reference - Central Plateau

Tray #: 7 Tare Weight: 1464 gm.

Sample #: J10DR6 Total Dry Weight: 4486.2 gm.

Net Dry Sample Weight: ~~4486.2~~ gm. 3022.2
ST 11/14/05

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	8:39	500	501.87	AW
Rad Str		30	30.21	AW
ICP Met		30	30.12	AW
Hex Cr		30	30.08	AW
Semi Vol		30	30.03	AW
PAHs		30	30.09	AW
Pest		30	30.04	AW
PCBs		30	30.17	AW
PAH MS		30	30.52	AW
PAH MSD		30	30.09	AW

Comments:

Name (print): Ashley Wille Signature: [illegible]

Sub-Sampled Date: 11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.A0.ZZ

Site Number: Upland Native Reference - Central Plateau

Tray #: 5 Tare Weight: 1455 gm.

Sample #: J10DR7 Total Dry Weight: 4427.0 gm.

Net Dry Sample Weight: 2972 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	10:51	500	500.31	AW
Rad Str		30	30.01	AW
ICP Met		30	30.06	AW
Hex Cr		30	30.10	AW
Semi Vol		30	30.10	AW
PAHs		30	30.20	AW
Pest		30	30.26	AW
PCBs		30	30.11	AW
Pest MS		30	30.13	AW
Pest MSD		30	30.06	AW

Comments:

Name (print): Ashley Wille Signature: [illegible]

Sub-Sampled Date: 11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.A0.ZZ

Site Number: Upland Native Reference - Central Plateau

Tray #: 63 Tare Weight: 1458 gm.

Sample #: J10DR8 Total Dry Weight: 3826.3 gm.

Net Dry Sample Weight: 2368.3 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	1408	500	500.1	[illegible]
Rad Str		30	30.02	
ICP Met		30	30.03	
Hex Cr		30	30.03	
Semi Vol		30	30.04	
PAHs		30	30.12	
Pest		30	30.06	
PCBs		30	30.11	
PCB MS		30	30.04	
PCB MSD		30	30.03	

Comments:

Name (print): Kelly Ensor Signature: [illegible]

Sub-Sampled Date: 11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.A0.ZZ

Site Number: Upland Native Reference - Central Plateau

Tray #: 54 Tare Weight: 1457 gm.

Sample #: J10DR9 Total Dry Weight: 4425.5 gm.

Net Dry Sample Weight: 2 968.5 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	9:43	500	502.60	AW
Rad Str		30	30.37	AW
ICP Met		30	30.22	AW
Hex Cr		30	30.11	AW
Semi Vol		30	30.21	AW
PAHs		30	30.14	AW
Pest		30	30.15	AW
PCBs		30	30.23	AW
Rad Str MS		30	30.09	AW
Rad Str MSD		30	30.01	AW
ICP Met MS		30	30.30	AW
ICP Met MSD		30	30.03	AW

Comments:

Name (print): Ashley W. Ile. Signature: [illegible]

Sub-Sampled Date: 11/15/05

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU- HANFORD **Date:** 11/17/05

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

LvLI Batch # : 05 11L 748 **Sample Custodian:** V. Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier FedEx		Airbill# 6595 0629 0081	
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?	Temp 13.2 °C		Cooler # ERC-99-560	
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		
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	☐ No		
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☐ Yes	☐ No	☑ No Discrepancies	

SR-002-B

LvLI

RECEIVED
JAN 2006

Lionville Laboratory, Inc.
8310 ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :05111748

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J10DR5	001	S	05LE0923	11/15/05	11/21/05	12/22/05
J10DR6	002	S	05LE0923	11/15/05	11/21/05	12/22/05
J10DR6	002 MS	S	05LE0923	11/15/05	11/21/05	12/22/05
J10DR6	002 MSD	S	05LE0923	11/15/05	11/21/05	12/22/05
J10DR7	003	S	05LE0923	11/15/05	11/21/05	12/27/05
J10DR8	004	S	05LE0923	11/15/05	11/21/05	12/27/05
J10DR9	005	S	05LE0923	11/15/05	11/21/05	12/27/05

LAB QC:

BLK	MB1	S	05LE0923	N/A	11/21/05	12/22/05
BLK	MB1 BS	S	05LE0923	N/A	11/21/05	12/22/05

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-051
LVL #: 0511L748
SDG/SAF # K0120/RC-051

W.O. #: 11343-606-001-9999-00
Date Received: 11-17-2005

POLYAROMATIC HYDROCARBONS

Five (5) soil samples were collected on 11-15-2005.

The samples and their associated QC samples were extracted on 11-21-2005 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 12-22,27-2005. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8310.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from a sample that met LvLI's sample acceptance policy.
2. The samples were extracted and analyzed within required holding time.
3. The method blank was below the reporting limits for all target compounds.
4. All obtainable surrogate recoveries were within acceptance criteria..
5. All blank spike recoveries were within acceptance criteria.
6. One (1) of thirty-two (32) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 05GC616) has been enclosed.
7. The initial calibrations associated with this data set were within acceptance criteria.
8. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. 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.
10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

12/29/05
Date

kim\r:\group\data\pest\tnu hanford\0511-748.8310

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 15 pages.

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

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 056C616.

Initiator: John Lach.
Date: 12/22/05
Client: TNV

Batch: 05LL758 (4 pts)
Samples: MSD
Method: SW846/MCAWW/CLP/

Parameter: PAH
Matrix: Soil
Prep Batch: 05LE0923

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)

Phenanthrene elevated in MSD 136.
@152 Limit 136%.

2. Known or Probable Causes(s)

matrix effects.

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:

Narr. The Blank Spike is in control.

4. Project Manager Instructions...signature/date: _____ 12/28/05

✓ 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: 12/28/05

Other Explanation:

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

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

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

QA-105-A-0805

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

Lionville Laboratory, Inc.

PAH'S by HPLC / Method 8310

Report Date: 12/29/05 09:28

RFW Batch Number: 0511L748 Client: TNUHANFORD RC-051 K0120 Work Order: 11343606001 Page: 1

000000005

	Cust ID:	J10DR5	J10DR6	J10DR6	J10DR6	J10DR7	J10DR8
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
Triphenylene		100 %	101 %	106 %	102 %	117 %	117 %
		fl	fl	fl	fl	fl	fl
Naphthalene		33.5 U	15 J	129 %	136 %	33.3 U	33.4 U
Acenaphthylene		33.5 U	33.5 U	65 %	75 %	33.3 U	33.4 U
Acenaphthene		33.5 U	33.5 U	93 %	102 %	33.3 U	33.4 U
Fluorene		3.35 U	3.35 U	102 %	85 %	3.33 U	3.34 U
Phenanthrene		3.35 U	4.6	115 %	152 * %	3.33 U	3.34 U
Anthracene		3.35 U	3.35 U	109 %	101 %	3.33 U	3.34 U
Fluoranthene		6.69 U	6.69 U	111 %	99 %	6.66 U	6.69 U
Pyrene		6.69 U	6.69 U	106 %	98 %	6.66 U	6.69 U
Benzo(a)anthracene		3.35 U	3.35 U	150 %	137 %	3.33 U	3.34 U
Chrysene		3.35 U	3.35 U	133 %	115 %	3.33 U	3.34 U
Benzo(b)fluoranthrene		3.35 U	3.35 U	112 %	103 %	3.33 U	3.34 U
Benzo(k)fluoranthrene		3.35 U	3.35 U	107 %	98 %	3.33 U	3.34 U
Benzo(a)pyrene		3.35 U	3.35 U	110 %	100 %	3.33 U	3.34 U
Dibenzo(a,h)anthracene		3.35 U	3.35 U	111 %	102 %	3.33 U	3.34 U
Benzo(ghi)perylene		3.35 U	3.35 U	108 %	98 %	3.33 U	3.34 U
Indeno(1,2,3-cd)pyrene		3.35 U	3.35 U	118 %	103 %	3.33 U	3.34 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

12/29/05

Lionville Laboratory, Inc.

PAH'S by HPLC / Method 8310

Report Date: 12/29/05 09:28

RFW Batch Number: 0511L748 Client: TNUHANFORD RC-051 K0120 Work Order: 11343606001 Page: 2

000000006

	Cust ID:	J10DR9	BLK	BLK BS
Sample Information	RFW#:	005	05LE0923-MB1	05LE0923-MB1
	Matrix:	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg
Triphenylene		102 %	112 %	108 %

Naphthalene	33.3	U	33.3	U	105	%
Acenaphthylene	33.3	U	33.3	U	93	%
Acenaphthene	33.3	U	33.3	U	99	%
Fluorene	3.33	U	3.33	U	103	%
Phenanthrene	18		3.33	U	105	%
Anthracene	3.33	U	3.33	U	108	%
Fluoranthene	6.66	U	6.67	U	104	%
Pyrene	6.66	U	6.67	U	105	%
Benzo(a)anthracene	3.33	U	3.33	U	144	%
Chrysene	3.33	U	3.33	U	122	%
Benzo(b)fluoranthrene	3.33	U	3.33	U	107	%
Benzo(k)fluoranthrene	3.33	U	3.33	U	104	%
Benzo(a)pyrene	3.33	U	3.33	U	108	%
Dibenzo(a,h)anthracene	3.33	U	3.33	U	109	%
Benzo(ghi)perylene	3.33	U	3.33	U	106	%
Indeno(1,2,3-cd)pyrene	3.33	U	3.33	U	112	%

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

05IIL748

Custody Transfer Record/Lab Work Request

Page 1 of 1

VLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU - HANFORD SAF# RC-051

Est. Final Proj. Sampling Date:

Project #: 11343-6016-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: Spec Del: Std TAT: 30 Days

Date Rec'd: 11/17/05 Date Due: 12/17/05

		AC	DF		GI			JKL		MNO	PQR	See	SRC
Refrigerator #		5	5		5			5		5	5		
#/Type Container	Liquid / Solid	G	G		G			G		G	G		
Volume	Liquid / Solid	30	30		30			30		30	30		
Preservatives		-	-		-			-		-	-		
ANALYSES REQUESTED		ORGANIC: VOA	BNA	Pest/PCB	Herb	PCB		INORG: TCP Metal	CN	PAHs	Kel 9056		
Lionville Laboratory Use Only			8625H	8608H		8PCB		METALS①		8310	ICP6		

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		8625H	8608H		8PCB			METALS①		8310	ICP6				
001	J10DR5	✓	✓	Soil	11/15/05	902		3	1		1			1		1	3				
002	6	✓	✓			839		1	1		1			1		3	1				
003	7	✓	✓			1057		1	3		1			1		1	1				
004	8	✓	✓			1408		1	1		3			1		1	1				
005	9	✓	✓			943		1	1		1			3		1	1				

Special Instructions:
See attached special instructions
001 - QC on BNA & ICP6
002 - QC on PAHs
003 - QC on Pest
004 - QC on PCB
005 - QC on metals
Non-Rad, per OJ / Client.

DATE/REVISIONS:
1. METALS① = HSL + Bi, B, Li, Mo, P, Si, Sr, Sn, U (No Hg)
2.
3. 8608H;
4. 8PCB R
5. 8310 F
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11/17/05	0915

Relinquished by	Received by	Date	Time

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

FOR 0511L748

For Sample prep (which includes the sample, MS, and MSD) use ALL of the volume sent for each assigned test/Lionville sample#; even if the amount sent is greater than the method requirement. With this approach metals and cr6 samples will require multiple digestions.

Separate sample jars are provided for MS and MSD analyses; matrix QC is designated as ~~follows:~~ on the COC

Metals matrix QC must be spike with mercury @ 20 ppb. We are not performing the mercury analysis. A metals digestate aliquot will be sent to STL for mercury by ICP/MS. Please record the mercury spike amounts in the narrative.

%Solids are NOT required.

Samples are nonrad per client.

If you have any questions please ask.

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-051-14	Page 1 of 1

Collector L. COLLOM	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 Upland Native Reference-Central Plateau		SAF No. RC-051	Air Quality ☐	
Ice Chest No.	Field Logbook No. EL-1596	COA BESRAS6520	Method of Shipment		
Shipped To Lionville	Offsite Property No. A060151		Bill of Lading/Air Bill No.		

POSSIBLE SAMPLE HAZARDS/REMARKS
NONE

Special Handling and/or Storage
NONE

Preservation	None	None	None	None	None	None	None	None		
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG	aG		
No. of Container(s)			7	7	7	7	7	7		
Volume	500g	30g	30g	30g	30g	30g	30g	30g		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Chromium Hex - 7196	Semi-VOA - 8270A (TCL)	PAHs - 8310	Pesticides - 8081	PCBs - 8082		

Sample No.	Matrix *	Sample Date	Sample Time										
J10DR5	SOIL	11-15-05	9:02			1	3	3	1	1	3 1	E 11/16/05	
J10DR6	SOIL		8:39			1	1	1	3	1	1		
J10DR7	SOIL		10:51			1	1	1	1	3	1		
J10DR8	SOIL		14:08			1	1	1	1	1	3		
J10DR9	SOIL		9:43			3	1	1	1	1	1		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Elizabeth Tepper	15:00	NA →	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Elizabeth Tepper	11/16/05	Fed EX	11/16/05 15:00
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex 11-17-05	0915	[illegible] 11-17-05	0915
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

This chain of custody form documents the transfer of bulk field collected soils to the CH2M Hill Corvallis laboratory for incremental preparation and aliquoting.

(1) Gamma Spec - (Full List) (Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-226, Radium-228)
(2) Strontium-89,90 -- Total Sr; Isotopic Thorium (Thorium-232); Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Isotopic Plutonium
(3) 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

3HI-EE-011 (08/29/2005)

600000000

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.A0.ZZ

Site Number: Upland Inactive Reference - Central Plateau

Tray #: 32 Tare Weight: 1453 gm.

Sample #: J10DR5 Total Dry Weight: 3957.4 gm.

Net Dry Sample Weight: 2504.4 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	0902	500	500.7	[illegible]
Rad Str		30	30.03	
ICP Met		30	30.02	
Hex Cr		30	30.02	
Semi Vol		30	30.03	
PAHs		30	30.08	
Pest		30	30.03	
PCBs		30	30.04	
Hex Cr MS		30	30.02	
Hex Cr MSD		30	30.07	
Semi VOA MS		30	30.02	
Semi VOA MSD		30	30.05	

Comments:

Name (print): Kelly Ensor Signature: Kelly Ensor

Sub-Sampled Date: 1/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.A0.ZZ

Site Number: Upland Native Reference - Central Plateau

Tray #: 7 Tare Weight: 1464 gm.

Sample #: J10DR6 Total Dry Weight: 4486.2 gm.

Net Dry Sample Weight: ~~4486.2~~ gm. 3022.2
ST 11/14/05

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	8:39	500	501.87	AW
Rad Str		30	30.21	AW
ICP Met		30	30.12	AW
Hex Cr		30	30.08	AW
Semi Vol		30	30.03	AW
PAHs		30	30.09	AW
Pest		30	30.04	AW
PCBs		30	30.17	AW
PAH MS		30	30.52	AW
PAH MSD		30	30.09	AW

Comments:

Name (print): Ashley Wille Signature: [illegible]

Sub-Sampled Date: 11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.A0.ZZ

Site Number: Upland Native Reference - Central Plateau

Tray #: 5 Tare Weight: 1455 gm.

Sample #: J10DR7 Total Dry Weight: 4427.0 gm.

Net Dry Sample Weight: 2972 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	10:51	500	500.31	AW
Rad Str		30	30.01	AW
ICP Met		30	30.06	AW
Hex Cr		30	30.10	AW
Semi Vol		30	30.10	AW
PAHs		30	30.20	AW
Pest		30	30.26	AW
PCBs		30	30.11	AW
Pest MS		30	30.18	AW
Pest MSD		30	30.06	AW

Comments:

Name (print): Ashley Wille Signature: Ashley Wille

Sub-Sampled Date: 11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.A0.ZZ

Site Number: Upland Native Reference - Central Plateau

Tray #: 63 Tare Weight: 1458 gm.

Sample #: J10DR8 Total Dry Weight: 3846.3 gm.

Net Dry Sample Weight: 2368.3 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	1408	500	500.1	[illegible]
Rad Str	↓	30	30.02	↓
ICP Met	↓	30	30.03	↓
Hex Cr	↓	30	30.03	↓
Semi Vol	↓	30	30.04	↓
PAHs	↓	30	30.12	↓
Pest	↓	30	30.06	↓
PCBs	↓	30	30.11	↓
PCB MS	↓	30	30.04	↓
PCB MSD	↓	30	30.03	↓

Comments:

Name (print): Kelly Ensor Signature: [illegible]

Sub-Sampled Date: 11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.A0.ZZ

Site Number: Upland Native Reference - Central Plateau

Tray #: 54 Tare Weight: 1457 gm.

Sample #: J10DR9 Total Dry Weight: 4425.5 gm.

Net Dry Sample Weight: 2968.5 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	9:43	500	502.60	AW
Rad Str		30	30.37	AW
ICP Met		30	30.22	AW
Hex Cr		30	30.11	AW
Semi Vol		30	30.21	AW
PAHs		30	30.14	AW
Pest		30	30.15	AW
PCBs		30	30.23	AW
Rad Str MS		30	30.09	AW
Rad Str MSD		30	30.01	AW
ICP Met MS		30	30.30	AW
ICP Met MSD		30	30.03	AW

Comments:

Name (print): Ashley Wille Signature: [signature]

Sub-Sampled Date: 11/15/05

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU- HANFORD **Date:** 11/17/05

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

LvLI Batch # : 0511L748 **Sample Custodian:** B. Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier FedEx		Airbill# 6595 0629 0081	
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?	Temp 13.2 °C		Cooler # ERC-99-560	
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		
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	☐ No		
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☐ Yes	☐ No	☑ No Discrepancies	

SR-002-B

LVLI

RECEIVED
JAN 2006

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :0511L748

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J10DR5						
SILVER, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
ALUMINUM, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
ARSENIC, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
BORON, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
BARIUM, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
BERYLLIUM, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
BISMUTH, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
CALCIUM, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
CADMIUM, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
COBALT, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
CHROMIUM, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
COPPER, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
IRON, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
POTASSIUM, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
LITHIUM, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
MAGNESIUM, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
MANGANESE, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
MOLYBDENUM, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
SODIUM, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
NICKEL, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
PHOSPHORUS, TOTAL	001	S	05L0761	11/15/05	12/28/05	12/29/05
LEAD, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
ANTIMONY, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
SELENIUM, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
SILICON, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
TIN, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
STRONTIUM, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
THALLIUM, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
URANIUM, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
VANADIUM, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
ZINC, TOTAL	001	S	05L0761	11/15/05	12/28/05	01/06/06
J10DR6						
SILVER, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :0511L748

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
ARSENIC, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
BORON, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
BARIUM, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
BERYLLIUM, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
BISMUTH, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
CALCIUM, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
CADMIUM, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
COBALT, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
CHROMIUM, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
COPPER, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
IRON, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
POTASSIUM, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
LITHIUM, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
MAGNESIUM, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
MANGANESE, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
MOLYBDENUM, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
SODIUM, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
NICKEL, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
PHOSPHORUS, TOTAL	002	S	05L0761	11/15/05	12/28/05	12/29/05
LEAD, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
ANTIMONY, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
SELENIUM, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
SILICON, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
TIN, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
STRONTIUM, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
THALLIUM, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
URANIUM, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
VANADIUM, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
ZINC, TOTAL	002	S	05L0761	11/15/05	12/28/05	01/06/06
J10DR7						
SILVER, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
ALUMINUM, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
ARSENIC, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
BORON, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
BARIUM, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :0511L748

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BERYLLIUM, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
BISMUTH, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
CALCIUM, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
CADMIUM, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
COBALT, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
CHROMIUM, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
COPPER, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
IRON, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
POTASSIUM, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
LITHIUM, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
MAGNESIUM, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
MANGANESE, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
MOLYBDENUM, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
SODIUM, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
NICKEL, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
PHOSPHORUS, TOTAL	003	S	05L0761	11/15/05	12/28/05	12/29/05
LEAD, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
ANTIMONY, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
SELENIUM, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
SILICON, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
TIN, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
STRONTIUM, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
THALLIUM, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
URANIUM, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
VANADIUM, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
ZINC, TOTAL	003	S	05L0761	11/15/05	12/28/05	01/06/06
J10DR8						
SILVER, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
ALUMINUM, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
ARSENIC, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
BORON, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
BARIUM, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
BERYLLIUM, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
BISMUTH, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
CALCIUM, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
CADMIUM, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :0511L748

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COBALT, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
CHROMIUM, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
COPPER, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
IRON, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
POTASSIUM, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
LITHIUM, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
MAGNESIUM, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
MANGANESE, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
MOLYBDENUM, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
SODIUM, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
NICKEL, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
PHOSPHORUS, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/04/06
LEAD, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
ANTIMONY, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
SELENIUM, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
SILICON, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
TIN, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
STRONTIUM, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
THALLIUM, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
URANIUM, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
VANADIUM, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
ZINC, TOTAL	004	S	05L0766	11/15/05	12/30/05	01/06/06
J10DR9						
SILVER, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
SILVER, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
SILVER, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
ALUMINUM, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
ALUMINUM, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
ALUMINUM, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
ARSENIC, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
ARSENIC, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
ARSENIC, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
BORON, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
BORON, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
BORON, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
BARIUM, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :0511L748

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BARIUM, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
BARIUM, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
BERYLLIUM, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
BERYLLIUM, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
BERYLLIUM, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
BISMUTH, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
BISMUTH, TOTAL REP	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
BISMUTH, TOTAL SPIKE	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
CALCIUM, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
CALCIUM, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
CALCIUM, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
CADMIUM, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
CADMIUM, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
CADMIUM, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
COBALT, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
COBALT, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
COBALT, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
CHROMIUM, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
CHROMIUM, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
CHROMIUM, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
COPPER, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
COPPER, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
COPPER, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
IRON, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
IRON, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
IRON, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
POTASSIUM, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
POTASSIUM, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
POTASSIUM, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
LITHIUM, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
LITHIUM, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
LITHIUM, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
MAGNESIUM, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
MAGNESIUM, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
MAGNESIUM, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
MANGANESE, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
MANGANESE, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
MANGANESE, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :0511L748

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MOLYBDENUM, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
MOLYBDENUM, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
MOLYBDENUM, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
SODIUM, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
SODIUM, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
SODIUM, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
NICKEL, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
NICKEL, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
NICKEL, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
PHOSPHORUS, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/04/06
PHOSPHORUS, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/04/06
PHOSPHORUS, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/04/06
LEAD, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
LEAD, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
LEAD, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
ANTIMONY, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
ANTIMONY, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
ANTIMONY, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
SELENIUM, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
SELENIUM, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
SELENIUM, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
SILICON, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
SILICON, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
SILICON, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
TIN, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
TIN, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
TIN, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
STRONTIUM, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
STRONTIUM, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
STRONTIUM, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
THALLIUM, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
THALLIUM, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
THALLIUM, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
URANIUM, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
URANIUM, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
URANIUM, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
VANADIUM, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
VANADIUM, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :0511L748

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
VANADIUM, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06
ZINC, TOTAL	005	S	05L0765	11/15/05	12/30/05	01/06/06
ZINC, TOTAL	005 REP	S	05L0765	11/15/05	12/30/05	01/06/06
ZINC, TOTAL	005 MS	S	05L0765	11/15/05	12/30/05	01/06/06

LAB QC:

SILVER LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
SILVER, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
ALUMINUM LABORTORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
ALUMINUM, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
ARSENIC LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
ARSENIC, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
BORON LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
BORON, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
BARIUM LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
BARIUM, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
BERYLLIUM LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
BERYLLIUM, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
BISMUTH, LCS	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
BISMUTH, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
CALCIUM LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
CALCIUM, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
CADMIUM LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
CADMIUM, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
COBALT LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
COBALT, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
CHROMIUM LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
CHROMIUM, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
COPPER LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
COPPER, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
IRON LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
IRON, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
POTASSIUM LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
POTASSIUM, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
LITHIUM LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
LITHIUM, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
MAGNESIUM LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :0511L748

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
MANGANESE LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
MANGANESE, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
MOLYBDENUM LABORATOR	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
MOLYBDENUM, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
SODIUM LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
SODIUM, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
NICKEL LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
NICKEL, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
PHOSPHORUS LCS	LC1 BS	S	05L0761	N/A	12/28/05	12/29/05
PHOSPHORUS, TOTAL	MB1	S	05L0761	N/A	12/28/05	12/29/05
LEAD LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
LEAD, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
ANTIMONY LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
ANTIMONY, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
SELENIUM LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
SELENIUM, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
SILICON LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
SILICON, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
TIN LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
TIN, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
STRONTIUM LCS STANDA	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
STRONTIUM, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
THALLIUM LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
THALLIUM, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
URANIUM LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
URANIUM, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
VANADIUM LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
VANADIUM, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
ZINC LABORATORY	LC1 BS	S	05L0761	N/A	12/28/05	01/06/06
ZINC, TOTAL	MB1	S	05L0761	N/A	12/28/05	01/06/06
SILVER LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
SILVER, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
ALUMINUM LABORTORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
ALUMINUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
ARSENIC LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
ARSENIC, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
BORON LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :0511L748

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BORON, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
BARIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
BARIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
BERYLLIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
BERYLLIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
BISMUTH, LCS	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
BISMUTH, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
CALCIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
CALCIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
CADMIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
CADMIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
COBALT LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
COBALT, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
CHROMIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
CHROMIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
COPPER LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
COPPER, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
IRON LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
IRON, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
POTASSIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
POTASSIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
LITHIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
LITHIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
MAGNESIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
MAGNESIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
MANGANESE LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
MANGANESE, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
MOLYBDENUM LABORATOR	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
MOLYBDENUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
SODIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
SODIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
NICKEL LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
NICKEL, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
PHOSPHORUS LCS	LC1 BS	S	05L0766	N/A	12/30/05	01/04/06
PHOSPHORUS, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/04/06
LEAD LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
LEAD, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
ANTIMONY LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :0511L748

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ANTIMONY, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
SELENIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
SELENIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
SILICON LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
SILICON, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
TIN LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
TIN, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
STRONTIUM LCS STANDA	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
STRONTIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
THALLIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
THALLIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
URANIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
URANIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
VANADIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
VANADIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
ZINC LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
ZINC, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
SILVER LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
SILVER, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
ALUMINUM LABORTORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
ALUMINUM, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
ARSENIC LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
ARSENIC, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
BORON LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
BORON, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
BARIUM LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
BARIUM, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
BERYLLIUM LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
BERYLLIUM, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
BISMUTH, LCS	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
BISMUTH, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
CALCIUM LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
CALCIUM, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
CADMIUM LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
CADMIUM, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
COBALT LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
COBALT, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
CHROMIUM LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :0511L748

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
COPPER LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
COPPER, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
IRON LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
IRON, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
POTASSIUM LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
POTASSIUM, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
LITHIUM LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
LITHIUM, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
MAGNESIUM LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
MAGNESIUM, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
MANGANESE LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
MANGANESE, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
MOLYBDENUM LABORATOR	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
MOLYBDENUM, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
SODIUM LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
SODIUM, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
NICKEL LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
NICKEL, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
PHOSPHORUS LCS	LC1 BS	S	05L0765	N/A	12/30/05	01/04/06
PHOSPHORUS, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/04/06
LEAD LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
LEAD, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
ANTIMONY LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
ANTIMONY, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
SELENIUM LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
SELENIUM, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
SILICON LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
SILICON, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
TIN LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
TIN, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
STRONTIUM LCS STANDA	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
STRONTIUM, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
THALLIUM LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
THALLIUM, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
URANIUM LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
URANIUM, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
VANADIUM LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :0511L748

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
VANADIUM, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06
ZINC LABORATORY	LC1 BS	S	05L0765	N/A	12/30/05	01/06/06
ZINC, TOTAL	MB1	S	05L0765	N/A	12/30/05	01/06/06

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-051
LVL#: 0511L748
SDG/SAF#: K0120/RC-051

W.O.#: 11343-606-001-9999-00
Date Received: 11-17-05

METALS CASE NARRATIVE

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. Aliquots of the resulting digestates were composited to represent each sample for analysis.

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

4. All results presented in this report are derived from samples that met 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 in 05L0761-LC1 (55.9%). 05L0765-LC1 (49.8%), and 05L0766-LC1 (41.1%). 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.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 38 pages.

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
J10DR9	Aluminum	66,000	90.6
	Iron	66,000	87.5
	Antimony	300	101.3
	Silicon	3,300	95.7

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

1/10/06
Date

jjw/m11-748

LVLI
LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within Lot#: 0511L748

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

Metals Digestion Methods: __3005A __3010A __3015 __3020A X 3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	X 6010B		__200.7				__99
Antimony	X 6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	X 6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	X 6010B		__200.7				__99
Beryllium	X 6010B		__200.7				__99
Bismuth	X 6010B [1]		__200.7 [1]			__1620	__99
Boron	X 6010B		__200.7				__99
Cadmium	X 6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	X 6010B		__200.7				__99
Chromium	X 6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	X 6010B		__200.7				__99
Copper	X 6010B	__7211 [5]	__200.7	__220.2			__99
Iron	X 6010B		__200.7				__99
Lead	X 6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	X 6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	X 6010B		__200.7				__99
Manganese	X 6010B		__200.7				__99
Mercury	__7470A [3]	__7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	X 6010B		__200.7				__99
Nickel	X 6010B		__200.7				__99
Potassium	X 6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	X 6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	X 6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	X 6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	X 6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	X 6010B		__200.7				__99
Thallium	X 6010B	__7841 [5]	__200.7	__279.2 __200.9			__99
Tin	X 6010B		__200.7				__99
Titanium	__6010B		__200.7				__99
Uranium	X 6010B [1]		__200.7 [1]			__1620	__99
Vanadium	X 6010B		__200.7				__99
Zinc	X 6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

Other: Phosphorus 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.

L-WI-033/N-04/98

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/09/06

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L748

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J10DR5	Silver, Total	0.22 u	MG/KG	0.22	3.0
		Aluminum, Total	6010	MG/KG	2.8	3.0
		Arsenic, Total	2.7	MG/KG	0.53	3.0
		Boron, Total	1.3	MG/KG	0.42	3.0
		Barium, Total	71.0	MG/KG	0.03	3.0
		Beryllium, Total	0.39	MG/KG	0.02	3.0
		Bismuth, Total	0.95 u	MG/KG	0.95	3.0
		Calcium, Total	2960	MG/KG	1.8	3.0
		Cadmium, Total	0.11 u	MG/KG	0.11	3.0
		Cobalt, Total	6.5	MG/KG	0.19	3.0
		Chromium, Total	8.6	MG/KG	0.25	3.0
		Copper, Total	10.8	MG/KG	0.19	3.0
		Iron, Total	19100	MG/KG	5.0	3.0
		Potassium, Total	1290	MG/KG	8.6	3.0
		Lithium, Total	6.1	MG/KG	0.05	3.0
		Magnesium, Total	3820	MG/KG	2.1	3.0
		Manganese, Total	339	MG/KG	0.03	3.0
		Molybdenum, Total	0.20	MG/KG	0.20	3.0
		Sodium, Total	108	MG/KG	0.26	3.0
		Nickel, Total	10.2	MG/KG	0.20	3.0
		Phosphorus, Total	763	MG/KG	0.43	1.0
		Lead, Total	6.3	MG/KG	0.48	3.0
		Antimony, Total	0.62 u	MG/KG	0.62	3.0
		Selenium, Total	0.56 u	MG/KG	0.56	3.0
		Silicon, Total	395	MG/KG	1.3	3.0
		Tin, Total	0.81 u	MG/KG	0.81	3.0
		Strontium, Total	17.2	MG/KG	0.02	3.0
		Thallium, Total	0.99 u	MG/KG	0.99	3.0
		Uranium, Total	3.2 u	MG/KG	3.2	3.0
		Vanadium, Total	44.2	MG/KG	0.14	3.0
		Zinc, Total	40.2	MG/KG	0.08	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/09/06

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L748

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J10DR6	Silver, Total	0.22 u	MG/KG	0.22	3.0
		Aluminum, Total	5840	MG/KG	2.8	3.0
		Arsenic, Total	3.0	MG/KG	0.53	3.0
		Boron, Total	0.98	MG/KG	0.42	3.0
		Barium, Total	71.9	MG/KG	0.03	3.0
		Beryllium, Total	0.41	MG/KG	0.02	3.0
		Bismuth, Total	0.94 u	MG/KG	0.94	3.0
		Calcium, Total	3010	MG/KG	1.8	3.0
		Cadmium, Total	0.11 u	MG/KG	0.11	3.0
		Cobalt, Total	6.6	MG/KG	0.19	3.0
		Chromium, Total	8.4	MG/KG	0.25	3.0
		Copper, Total	11.2	MG/KG	0.19	3.0
		Iron, Total	18800	MG/KG	5.0	3.0
		Potassium, Total	1230	MG/KG	8.6	3.0
		Lithium, Total	6.0	MG/KG	0.05	3.0
		Magnesium, Total	3800	MG/KG	2.1	3.0
		Manganese, Total	337	MG/KG	0.03	3.0
		Molybdenum, Total	0.20 u	MG/KG	0.20	3.0
		Sodium, Total	100	MG/KG	0.26	3.0
		Nickel, Total	10.2	MG/KG	0.20	3.0
		Phosphorus, Total	738	MG/KG	0.43	1.0
		Lead, Total	6.1	MG/KG	0.48	3.0
		Antimony, Total	0.62 u	MG/KG	0.62	3.0
		Selenium, Total	0.56 u	MG/KG	0.56	3.0
		Silicon, Total	381	MG/KG	1.3	3.0
		Tin, Total	0.82	MG/KG	0.80	3.0
		Strontium, Total	16.9	MG/KG	0.02	3.0
		Thallium, Total	0.99 u	MG/KG	0.99	3.0
		Uranium, Total	3.2 u	MG/KG	3.2	3.0
		Vanadium, Total	43.0	MG/KG	0.14	3.0
		Zinc, Total	39.2	MG/KG	0.08	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/09/06

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L748

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	J10DR7	Silver, Total	0.22 u	MG/KG	0.22	3.0
		Aluminum, Total	5230	MG/KG	2.9	3.0
		Arsenic, Total	2.1	MG/KG	0.53	3.0
		Boron, Total	0.81	MG/KG	0.42	3.0
		Barium, Total	70.9	MG/KG	0.03	3.0
		Beryllium, Total	0.36	MG/KG	0.02	3.0
		Bismuth, Total	0.95 u	MG/KG	0.95	3.0
		Calcium, Total	2820	MG/KG	1.9	3.0
		Cadmium, Total	0.11 u	MG/KG	0.11	3.0
		Cobalt, Total	6.3	MG/KG	0.19	3.0
		Chromium, Total	7.4	MG/KG	0.25	3.0
		Copper, Total	10.6	MG/KG	0.19	3.0
		Iron, Total	17200	MG/KG	5.0	3.0
		Potassium, Total	1170	MG/KG	8.6	3.0
		Lithium, Total	5.4	MG/KG	0.05	3.0
		Magnesium, Total	3550	MG/KG	2.1	3.0
		Manganese, Total	328	MG/KG	0.03	3.0
		Molybdenum, Total	0.20 u	MG/KG	0.20	3.0
		Sodium, Total	84.7	MG/KG	0.27	3.0
		Nickel, Total	9.7	MG/KG	0.20	3.0
		Phosphorus, Total	729	MG/KG	0.43	1.0
		Lead, Total	5.5	MG/KG	0.48	3.0
		Antimony, Total	0.62 u	MG/KG	0.62	3.0
		Selenium, Total	0.56 u	MG/KG	0.56	3.0
		Silicon, Total	421	MG/KG	1.3	3.0
		Tin, Total	0.81 u	MG/KG	0.81	3.0
		Strontium, Total	15.7	MG/KG	0.02	3.0
		Thallium, Total	1.0 u	MG/KG	1.0	3.0
		Uranium, Total	3.2 u	MG/KG	3.2	3.0
		Vanadium, Total	37.7	MG/KG	0.14	3.0
		Zinc, Total	36.8	MG/KG	0.08	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/09/06

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L748

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	J10DR8	Silver, Total	0.22 u	MG/KG	0.22	3.0
		Aluminum, Total	5620	MG/KG	2.8	3.0
		Arsenic, Total	2.7	MG/KG	0.53	3.0
		Boron, Total	0.92	MG/KG	0.42	3.0
		Barium, Total	69.7	MG/KG	0.03	3.0
		Beryllium, Total	0.41	MG/KG	0.02	3.0
		Bismuth, Total	0.94 u	MG/KG	0.94	3.0
		Calcium, Total	2980	MG/KG	1.8	3.0
		Cadmium, Total	0.11 u	MG/KG	0.11	3.0
		Cobalt, Total	6.5	MG/KG	0.19	3.0
		Chromium, Total	8.5	MG/KG	0.25	3.0
		Copper, Total	10.3	MG/KG	0.19	3.0
		Iron, Total	18700	MG/KG	5.0	3.0
		Potassium, Total	1210	MG/KG	8.6	3.0
		Lithium, Total	5.7	MG/KG	0.05	3.0
		Magnesium, Total	3730	MG/KG	2.1	3.0
		Manganese, Total	340	MG/KG	0.03	3.0
		Molybdenum, Total	0.29	MG/KG	0.20	3.0
		Sodium, Total	97.7	MG/KG	0.26	3.0
		Nickel, Total	10.1	MG/KG	0.20	3.0
		Phosphorus, Total	743	MG/KG	0.43	1.0
		Lead, Total	7.0	MG/KG	0.48	3.0
		Antimony, Total	0.62 u	MG/KG	0.62	3.0
		Selenium, Total	0.56 u	MG/KG	0.56	3.0
		Silicon, Total	409	MG/KG	1.3	3.0
		Tin, Total	1.4	MG/KG	0.80	3.0
		Strontium, Total	16.2	MG/KG	0.02	3.0
		Thallium, Total	0.99 u	MG/KG	0.99	3.0
		Uranium, Total	3.2 u	MG/KG	3.2	3.0
		Vanadium, Total	42.5	MG/KG	0.14	3.0
		Zinc, Total	39.6	MG/KG	0.08	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/09/06

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L748

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	J10DR9	Silver, Total	0.22 u	MG/KG	0.22	3.0
		Aluminum, Total	5670	MG/KG	2.8	3.0
		Arsenic, Total	3.4	MG/KG	0.53	3.0
		Boron, Total	1.6	MG/KG	0.42	3.0
		Barium, Total	71.9	MG/KG	0.03	3.0
		Beryllium, Total	0.43	MG/KG	0.02	3.0
		Bismuth, Total	0.95 u	MG/KG	0.95	3.0
		Calcium, Total	2990	MG/KG	1.9	3.0
		Cadmium, Total	0.11 u	MG/KG	0.11	3.0
		Cobalt, Total	6.6	MG/KG	0.19	3.0
		Chromium, Total	8.6	MG/KG	0.25	3.0
		Copper, Total	10.8	MG/KG	0.19	3.0
		Iron, Total	19000	MG/KG	5.0	3.0
		Potassium, Total	1200	MG/KG	8.6	3.0
		Lithium, Total	5.9	MG/KG	0.05	3.0
		Magnesium, Total	3780	MG/KG	2.1	3.0
		Manganese, Total	346	MG/KG	0.03	3.0
		Molybdenum, Total	0.56	MG/KG	0.20	3.0
		Sodium, Total	95.1	MG/KG	0.26	3.0
		Nickel, Total	10.0	MG/KG	0.20	3.0
		Phosphorus, Total	751	MG/KG	0.43	1.0
		Lead, Total	6.6	MG/KG	0.48	3.0
		Antimony, Total	0.62 u	MG/KG	0.62	3.0
		Selenium, Total	0.56 u	MG/KG	0.56	3.0
		Silicon, Total	352	MG/KG	1.3	3.0
		Tin, Total	0.81 u	MG/KG	0.81	3.0
		Strontium, Total	16.5	MG/KG	0.02	3.0
		Thallium, Total	1.0 u	MG/KG	1.0	3.0
		Uranium, Total	3.2 u	MG/KG	3.2	3.0
		Vanadium, Total	42.6	MG/KG	0.14	3.0
		Zinc, Total	39.5	MG/KG	0.08	3.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/09/06

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L748

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	05L0761-MB1	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	0.92 u	MG/KG	0.92	1.0
		Arsenic, Total	0.17 u	MG/KG	0.17	1.0
		Boron, Total	0.14 u	MG/KG	0.14	1.0
		Barium, Total	0.03	MG/KG	0.01	1.0
		Beryllium, Total	0.005u	MG/KG	0.005	1.0
		Bismuth, Total	0.30 u	MG/KG	0.30	1.0
		Calcium, Total	1.3	MG/KG	0.60	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Cobalt, Total	0.06 u	MG/KG	0.06	1.0
		Chromium, Total	0.08 u	MG/KG	0.08	1.0
		Copper, Total	0.06 u	MG/KG	0.06	1.0
		Iron, Total	1.6 u	MG/KG	1.6	1.0
		Potassium, Total	3.8	MG/KG	2.8	1.0
		Lithium, Total	0.02 u	MG/KG	0.02	1.0
		Magnesium, Total	0.68 u	MG/KG	0.68	1.0
		Manganese, Total	0.01 u	MG/KG	0.01	1.0
		Molybdenum, Total	0.07	MG/KG	0.06	1.0
		Sodium, Total	0.82	MG/KG	0.08	1.0
		Nickel, Total	0.06 u	MG/KG	0.06	1.0
		Phosphorus, Total	0.42 u	MG/KG	0.42	1.0
		Lead, Total	0.22	MG/KG	0.16	1.0
		Antimony, Total	0.20 u	MG/KG	0.20	1.0
		Selenium, Total	0.18 u	MG/KG	0.18	1.0
		Silicon, Total	0.41 u	MG/KG	0.41	1.0
		Tin, Total	0.65	MG/KG	0.26	1.0
		Strontium, Total	0.01	MG/KG	0.005	1.0
		Thallium, Total	0.32 u	MG/KG	0.32	1.0
		Uranium, Total	1.0 u	MG/KG	1.0	1.0
		Vanadium, Total	0.04 u	MG/KG	0.04	1.0
		Zinc, Total	0.02 u	MG/KG	0.02	1.0
BLANK1	05L0766-MB1	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	1.6	MG/KG	0.92	1.0
		Arsenic, Total	0.17 u	MG/KG	0.17	1.0
		Boron, Total	0.14 u	MG/KG	0.14	1.0
		Barium, Total	0.01 u	MG/KG	0.01	1.0
		Beryllium, Total	0.005u	MG/KG	0.005	1.0
		Bismuth, Total	0.30 u	MG/KG	0.30	1.0
		Calcium, Total	0.74	MG/KG	0.60	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/09/06

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L748

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	05L0766-MB1	Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Cobalt, Total	0.06 u	MG/KG	0.06	1.0
		Chromium, Total	0.08 u	MG/KG	0.08	1.0
		Copper, Total	0.06 u	MG/KG	0.06	1.0
		Iron, Total	1.6 u	MG/KG	1.6	1.0
		Potassium, Total	2.8 u	MG/KG	2.8	1.0
		Lithium, Total	0.02 u	MG/KG	0.02	1.0
		Magnesium, Total	0.68 u	MG/KG	0.68	1.0
		Manganese, Total	0.01 u	MG/KG	0.01	1.0
		Molybdenum, Total	0.08	MG/KG	0.06	1.0
		Sodium, Total	0.16	MG/KG	0.08	1.0
		Nickel, Total	0.06 u	MG/KG	0.06	1.0
		Phosphorus, Total	0.62	MG/KG	0.42	1.0
		Lead, Total	0.16 u	MG/KG	0.16	1.0
		Antimony, Total	0.20 u	MG/KG	0.20	1.0
		Selenium, Total	0.18 u	MG/KG	0.18	1.0
		Silicon, Total	0.41 u	MG/KG	0.41	1.0
		Tin, Total	0.50	MG/KG	0.26	1.0
		Strontium, Total	0.005u	MG/KG	0.005	1.0
		Thallium, Total	0.32 u	MG/KG	0.32	1.0
		Uranium, Total	1.0 u	MG/KG	1.0	1.0
		Vanadium, Total	0.04 u	MG/KG	0.04	1.0
		Zinc, Total	0.02 u	MG/KG	0.02	1.0
BLANK1	05L0765-MB1	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	0.92 u	MG/KG	0.92	1.0
		Arsenic, Total	0.17 u	MG/KG	0.17	1.0
		Boron, Total	0.14 u	MG/KG	0.14	1.0
		Barium, Total	0.01 u	MG/KG	0.01	1.0
		Beryllium, Total	0.005u	MG/KG	0.005	1.0
		Bismuth, Total	0.30 u	MG/KG	0.30	1.0
		Calcium, Total	0.60 u	MG/KG	0.60	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Cobalt, Total	0.06 u	MG/KG	0.06	1.0
		Chromium, Total	0.08 u	MG/KG	0.08	1.0
		Copper, Total	0.06 u	MG/KG	0.06	1.0
		Iron, Total	1.6 u	MG/KG	1.6	1.0
		Potassium, Total	11.7	MG/KG	2.8	1.0
		Lithium, Total	0.02 u	MG/KG	0.02	1.0
		Magnesium, Total	0.68 u	MG/KG	0.68	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/09/06

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L748

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	05L0765-MB1	Manganese, Total	0.01 u	MG/KG	0.01	1.0
		Molybdenum, Total	0.06 u	MG/KG	0.06	1.0
		Sodium, Total	0.51	MG/KG	0.08	1.0
		Nickel, Total	0.06 u	MG/KG	0.06	1.0
		Phosphorus, Total	0.55	MG/KG	0.42	1.0
		Lead, Total	0.16 u	MG/KG	0.16	1.0
		Antimony, Total	0.20 u	MG/KG	0.20	1.0
		Selenium, Total	0.18 u	MG/KG	0.18	1.0
		Silicon, Total	0.41 u	MG/KG	0.41	1.0
		Tin, Total	0.47	MG/KG	0.26	1.0
		Strontium, Total	0.005u	MG/KG	0.005	1.0
		Thallium, Total	0.32 u	MG/KG	0.32	1.0
		Uranium, Total	1.0 u	MG/KG	1.0	1.0
		Vanadium, Total	0.04 u	MG/KG	0.04	1.0
		Zinc, Total	0.02 u	MG/KG	0.02	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/09/06

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L748

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-005	J10DR9	Silver, Total	2.3	0.22u	2.6	88.5	3.0
		Aluminum, Total	6470	5670	105	757.4*	3.0
		Arsenic, Total	99.8	3.4	105	92.2	3.0
		Boron, Total	47.0	1.6	52.3	86.8	3.0
		Barium, Total	170	71.9	105	93.9	3.0
		Beryllium, Total	2.9	0.43	2.6	95.0	3.0
		Bismuth, Total	50.0	0.95u	52.3	95.5	3.0
		Calcium, Total	4320	2990	1310	101.7	3.0
		Cadmium, Total	2.5	0.11u	2.6	96.2	3.0
		Cobalt, Total	31.5	6.6	26.1	95.4	3.0
		Chromium, Total	18.7	8.6	10.5	96.2	3.0
		Copper, Total	23.1	10.8	13.1	93.9	3.0
		Iron, Total	19100	19000	52.3	363.5*	3.0
		Potassium, Total	2380	1200	1310	90.2	3.0
		Lithium, Total	57.2	5.9	52.3	98.1	3.0
		Magnesium, Total	5080	3780	1310	99.4	3.0
		Manganese, Total	369	346	26.1	88.5*	3.0
		Molybdenum, Total	47.3	0.56	52.3	89.4	3.0
		Sodium, Total	1290	95.1	1310	91.7	3.0
		Nickel, Total	35.3	10.0	26.1	96.9	3.0
		Phosphorus, Total	961	751	262	80.2	1.0
		Lead, Total	31.3	6.6	26.1	94.6	3.0
		Antimony, Total	12.7	0.62u	26.1	48.7	3.0
		Selenium, Total	95.0	0.56u	105	90.8	3.0
		Silicon, Total	538	352	52.3	355.6*	3.0
		Tin, Total	48.5	0.81u	52.3	92.7	3.0
		Strontium, Total	65.8	16.5	52.3	94.3	3.0
		Thallium, Total	99.5	1.0 u	105	95.1	3.0
		Uranium, Total	47.3	3.2 u	52.3	90.4	3.0
		Vanadium, Total	66.3	42.6	26.1	90.8	3.0
		Zinc, Total	64.8	39.5	26.1	96.9	3.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/09/06

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L748

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-005REP	J10DR9	Silver, Total	0.22u	0.22u	NC	3.0
		Aluminum, Total	5670	5730	0.92	3.0
		Arsenic, Total	3.4	2.6	26.7	3.0
		Boron, Total	1.6	1.1	37.0	3.0
		Barium, Total	71.9	72.1	0.28	3.0
		Beryllium, Total	0.43	0.39	10.2	3.0
		Bismuth, Total	0.95u	0.94u	NC	3.0
		Calcium, Total	2990	2950	1.1	3.0
		Cadmium, Total	0.11u	0.11u	NC	3.0
		Cobalt, Total	6.6	6.5	1.5	3.0
		Chromium, Total	8.6	8.4	2.4	3.0
		Copper, Total	10.8	11.8	8.8	3.0
		Iron, Total	19000	19100	0.56	3.0
		Potassium, Total	1200	1210	0.91	3.0
		Lithium, Total	5.9	5.9	0.00	3.0
		Magnesium, Total	3780	3780	0.087	3.0
		Manganese, Total	346	343	0.93	3.0
		Molybdenum, Total	0.56	0.20u	~~NC~~ 200	3.0
		Sodium, Total	95.1	95.0	0.11 MJ 1/9/06	3.0
		Nickel, Total	10.0	9.8	2.0	3.0
		Phosphorus, Total	751	748	0.45	1.0
		Lead, Total	6.6	5.9	11.2	3.0
		Antimony, Total	0.62u	0.62u	NC	3.0
		Selenium, Total	0.56u	0.56u	NC	3.0
		Silicon, Total	352	358	1.6	3.0
		Tin, Total	0.81u	0.80u	NC	3.0
		Strontium, Total	16.5	16.8	1.8	3.0
		Thallium, Total	1.0 u	0.99u	NC	3.0
		Uranium, Total	3.2 u	3.2 u	NC	3.0
		Vanadium, Total	42.6	43.7	2.5	3.0
		Zinc, Total	39.5	40.2	1.8	3.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/09/06

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L748

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	05L0761-LC1	Silver, LCS	24.6	25.0	MG/KG	98.4
		Aluminum, LCS	245	250	MG/KG	98.2
		Arsenic, LCS	469	500	MG/KG	93.9
		Boron, LCS	237	250	MG/KG	94.8
		Barium, LCS	248	250	MG/KG	99.3
		Beryllium, LCS	12.4	12.5	MG/KG	99.2
		Bismuth, LCS	49.6	50.0	MG/KG	99.1
		Calcium, LCS	1220	1250	MG/KG	97.6
		Cadmium, LCS	12.4	12.5	MG/KG	99.2
		Cobalt, LCS	125	125	MG/KG	99.8
		Chromium, LCS	25.3	25.0	MG/KG	101.2
		Copper, LCS	62.4	62.5	MG/KG	99.8
		Iron, LCS	253	250	MG/KG	101.0
		Potassium, LCS	1140	1250	MG/KG	91.6
		Lithium, LCS	261	250	MG/KG	104.4
		Magnesium, LCS	1200	1250	MG/KG	95.8
		Manganese, LCS	38.0	37.5	MG/KG	101.3
		Molybdenum, LCS	247	250	MG/KG	98.8
		Sodium, LCS	1170	1250	MG/KG	93.8
		Nickel, LCS	98.3	100	MG/KG	98.3
		Phosphorus, LCS	217	250	MG/KG	86.9
		Lead, LCS	122	125	MG/KG	97.8
		Antimony, LCS	143	150	MG/KG	95.1
		Selenium, LCS	450	500	MG/KG	90.0
		Silicon, LCS	140	250	MG/KG	55.9
		Tin, LCS	246	250	MG/KG	98.2
		Strontium, LCS	248	250	MG/KG	99.1
		Thallium, LCS	494	500	MG/KG	98.7
		Uranium, LCS	48.9	50.0	MG/KG	97.8
		Vanadium, LCS	124	125	MG/KG	99.0
		Zinc, LCS	48.7	50.0	MG/KG	97.4
LCS1	05L0766-LC1	Silver, LCS	24.6	25.0	MG/KG	98.4
		Aluminum, LCS	247	250	MG/KG	98.8
		Arsenic, LCS	500	500	MG/KG	99.9
		Boron, LCS	248	250	MG/KG	99.1
		Barium, LCS	245	250	MG/KG	97.9
		Beryllium, LCS	13.4	12.5	MG/KG	107.2
		Bismuth, LCS	49.4	50.0	MG/KG	98.7
		Calcium, LCS	1310	1250	MG/KG	104.5

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/09/06

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L748

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	05L0766-LC1	Cadmium, LCS	13.4	12.5	MG/KG	107.2
		Cobalt, LCS	131	125	MG/KG	104.9
		Chromium, LCS	26.5	25.0	MG/KG	106.0
		Copper, LCS	61.9	62.5	MG/KG	99.0
		Iron, LCS	261	250	MG/KG	104.4
		Potassium, LCS	1120	1250	MG/KG	89.7
		Lithium, LCS	260	250	MG/KG	104.1
		Magnesium, LCS	1220	1250	MG/KG	97.6
		Manganese, LCS	39.9	37.5	MG/KG	106.4
		Molybdenum, LCS	258	250	MG/KG	103.0
		Sodium, LCS	1170	1250	MG/KG	93.5
		Nickel, LCS	105	100	MG/KG	104.7
		Phosphorus, LCS	228	250	MG/KG	91.0
		Lead, LCS	129	125	MG/KG	103.4
		Antimony, LCS	148	150	MG/KG	98.7
		Selenium, LCS	482	500	MG/KG	96.3
		Silicon, LCS	103	250	MG/KG	41.1
		Tin, LCS	259	250	MG/KG	103.6
		Strontium, LCS	246	250	MG/KG	98.4
		Thallium, LCS	511	500	MG/KG	102.2
		Uranium, LCS	48.7	50.0	MG/KG	97.4
		Vanadium, LCS	128	125	MG/KG	102.2
		Zinc, LCS	51.1	50.0	MG/KG	102.2
LCS1	05L0765-LC1	Silver, LCS	24.3	25.0	MG/KG	97.2
		Aluminum, LCS	242	250	MG/KG	96.8
		Arsenic, LCS	467	500	MG/KG	93.3
		Boron, LCS	235	250	MG/KG	94.0
		Barium, LCS	243	250	MG/KG	97.2
		Beryllium, LCS	12.3	12.5	MG/KG	98.4
		Bismuth, LCS	48.9	50.0	MG/KG	97.9
		Calcium, LCS	1210	1250	MG/KG	96.5
		Cadmium, LCS	12.2	12.5	MG/KG	97.6
		Cobalt, LCS	123	125	MG/KG	98.7
		Chromium, LCS	24.9	25.0	MG/KG	99.6
		Copper, LCS	61.3	62.5	MG/KG	98.1
		Iron, LCS	247	250	MG/KG	98.8
		Potassium, LCS	1150	1250	MG/KG	91.9
		Lithium, LCS	257	250	MG/KG	102.8
		Magnesium, LCS	1190	1250	MG/KG	94.8

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/09/06

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L748

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	05L0765-LC1	Manganese, LCS	37.4	37.5	MG/KG	99.7
		Molybdenum, LCS	245	250	MG/KG	97.9
		Sodium, LCS	1160	1250	MG/KG	92.7
		Nickel, LCS	97.3	100	MG/KG	97.3
		Phosphorus, LCS	224	250	MG/KG	89.8
		Lead, LCS	121	125	MG/KG	96.7
		Antimony, LCS	142	150	MG/KG	94.8
		Selenium, LCS	450	500	MG/KG	90.0
		Silicon, LCS	125	250	MG/KG	49.8
		Tin, LCS	244	250	MG/KG	97.5
		Strontium, LCS	244	250	MG/KG	97.8
		Thallium, LCS	491	500	MG/KG	98.1
		Uranium, LCS	48.5	50.0	MG/KG	96.9
		Vanadium, LCS	122	125	MG/KG	97.7
		Zinc, LCS	48.2	50.0	MG/KG	96.4

Lionville Laboratory Use Only

0511L748

Custody Transfer Record/Lab Work Request

Page 1 of 1

VLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU - HANFORD SAF# 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: 11/17/05 Date Due: 12/17/05

		A-C	D-F	G-I	J-L	M-O	P-R	See SRC
Refrigerator #		5	5	5	5	5	5	
#/Type Container	Liquid							
	Solid	6	6	6	6	6	6	
Volume	Liquid							
	Solid	30	30	30	30	30	30	
Preservatives		–	–	–	–	–	–	
ANALYSES REQUESTED →	ORGANIC: VOA							
	ORGANIC: BNA							
	ORGANIC: Pest/PCB			PCB				
	ORGANIC: Herb							
	INORG: TCLP Metal							
	INORG: CN							
						PAHs	Hex Cr	

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	OG25H	OG08H	OPCB	METALS①	08310	ICR6
001	J10DR5	✓	✓	Soil	11-15-5	902	3	1	1	1	1	3
002	6	✓	✓			859	1	1	1	1	3	1
003	7	✓	✓			1057	1	3	1	1	1	1
004	8	✓	✓			1408	1	1	3	1	1	1
005	9	✓	✓			943	1	1	1	3	1	1

Special Instructions:

See attached special instructions

001 - QC on BNA & ICR6
002 - QC on PAHs
003 - QC on Pest
004 - QC on PCB
005 - QC on metals
Non-Rad, per OJ / Client.

DATE/REVISIONS:

1. METALS① = HSL + Bi, B, Li, Mo, P, Si, Sr, Sn, U (No Hg)
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11/17/05	0915

Relinquished by	Received by	Date	Time

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

FOR 0511L748

For Sample prep (which includes the sample, MS, and MSD) use ALL of the volume sent for each assigned test/Lionville sample#; even if the amount sent is greater than the method requirement. With this approach metals and cr6 samples will require multiple digestions.

Separate sample jars are provided for MS and MSD analyses; matrix QC is designated as ~~follows:~~ on the COC

Metals matrix QC must be spike with mercury @ 20 ppb. We are not performing the mercury analysis. A metals digestate aliquot will be sent to STL for mercury by ICP/MS. Please record the mercury spike amounts in the narrative.

%Solids are NOT required.

Samples are nonrad per client.

If you have any questions please ask.

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-051-14	Page 1 of 1

Collector L. COLLOM	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 Upland Native Reference-Central Plateau		SAF No. RC-051		
Ice Chest No.	Field Logbook No. EL-1596	COA BESRAS6520	Method of Shipment		
Shipped To Lionville	Offsite Property No. A060151		Bill of Lading/Air Bill No.		

POSSIBLE SAMPLE HAZARDS/REMARKS
NONE

Special Handling and/or Storage
NONE

Preservation	None	None	None	None	None	None	None	None		
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG	aG		
No. of Container(s)			7	7	7	7	7	7		
Volume	500g	30g	30g	30g	30g	30g	30g	30g		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Chromium Hex - 7196	Semi-VOA - 8270A (TCL)	PAHs - 8310	Pesticides - 8081	PCBs - 8082		

Sample No.	Matrix *	Sample Date	Sample Time										
J10DR5	SOIL	11-15-05	9:02			1	3	3	1	1	~~3~~ 1	EL 11/16/05	
J10DR6	SOIL		8:39			1	1	1	3	1	1		
J10DR7	SOIL		10:51			1	1	1	1	3	1		
J10DR8	SOIL		14:08			1	1	1	1	1	3		
J10DR9	SOIL		9:43			3	1	1	1	1	1		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Elizabeth Tepper	15:00	NA →	
Elizabeth Tepper	11/16/05	Fed EX	11/16/05 15:00
Fed Ex 11-17-05	0915	[signature]	11-17-05 0915
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
This chain of custody form documents the transfer of bulk field collected soils to the CH2M Hill Corvallis laboratory for incremental preparation and aliquoting.

(1) Gamma Spec - (Full List) (Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-226, Radium-228)
(2) Strontium-89,90 -- Total Sr; Isotopic Thorium (Thorium-232); Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Isotopic Plutonium
(3) 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

Project Name: RCBRAMIS Project Number: 334247.A0.ZZ

Site Number: Upland Native Reference - Central Plateau

Tray #: 32 Tare Weight: 1453 gm.

Sample #: J10DR5 Total Dry Weight: 3957.4 gm.

Net Dry Sample Weight: 2504.4 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	0902	500	500.7	[illegible]
Rad Str		30	30.03	
ICP Met		30	30.02	
Hex Cr		30	30.02	
Semi Vol		30	30.03	
PAHs		30	30.08	
Pest		30	30.03	
PCBs		30	30.04	
Hex Cr MS		30	30.02	
Hex Cr MSD		30	30.07	
Semi VOA MS		30	30.02	
Semi VOA MSD		30	30.05	

Comments:

Name (print): Kelly Ensor Signature: [illegible]

Sub-Sampled Date: 11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.A0.ZZ

Site Number: Upland Native Reference - Central Plateau

Tray #: 7 Tare Weight: 1464 gm.

Sample #: J10DR6 Total Dry Weight: 4486.2 gm.

Net Dry Sample Weight: ~~4486.2~~ gm. 3022.2
ST 11/14/05

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	8:39	500	501.87	AW
Rad Str		30	30.21	AW
ICP Met		30	30.12	AW
Hex Cr		30	30.08	AW
Semi Vol		30	30.03	AW
PAHs		30	30.09	AW
Pest		30	30.04	AW
PCBs		30	30.17	AW
PAH MS		30	30.52	AW
PAH MSD		30	30.09	AW

Comments:

Name (print): Ashley Wille Signature: [illegible]

Sub-Sampled Date: 11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.A0.ZZ.

Site Number: Upland Native Reference - Central Plateau

Tray #: 5 Tare Weight: 1455 gm.

Sample #: J10DR7 Total Dry Weight: 4427.0 gm.

Net Dry Sample Weight: 2972 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	10:51	500	500.31	AW
Rad Str		30	30.01	AW
ICP Met		30	30.06	AW
Hex Cr		30	30.10	AW
Semi Vol		30	30.10	AW
PAHs		30	30.20	AW
Pest		30	30.26	AW
PCBs		30	30.11	AW
Pest MS		30	30.18	AW
Pest MSD		30	30.06	AW

Comments:

Name (print): Ashley Wille Signature: Ashley Wille

Sub-Sampled Date: 11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.A0.ZZ

Site Number: Upland Native Reference - Central Plateau

Tray #: 63 Tare Weight: 1458 gm.

Sample #: J10DR8 Total Dry Weight: 3826.3 gm.

Net Dry Sample Weight: 2368.3 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	1408	500	500.1	[illegible]
Rad Str		30	30.02	
ICP Met		30	30.03	
Hex Cr		30	30.03	
Semi Vol		30	30.04	
PAHs		30	30.12	
Pest		30	30.06	
PCBs		30	30.11	
PCB MS		30	30.04	
PCB MSD		30	30.03	

Comments:

Name (print): Kelly Ensor Signature: [illegible]

Sub-Sampled Date: 11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.A0.ZZ

Site Number: Upland Native Reference - Central Plateau

Tray #: 54 Tare Weight: 1457 gm.

Sample #: J10DR9 Total Dry Weight: 4425.5 gm.

Net Dry Sample Weight: 2 968.5 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	9:43	500	502.60	AW
Rad Str		30	30.37	AW
ICP Met		30	30.22	AW
Hex Cr		30	30.11	AW
Semi Vol		30	30.21	AW
PAHs		30	30.14	AW
Pest		30	30.15	AW
PCBs		30	30.23	AW
Rad Str MS		30	30.09	AW
Rad Str MSD		30	30.01	AW
ICP Met MS		30	30.30	AW
ICP Met MSD		30	30.03	AW

Comments:

Name (print): Ashley Wille Signature: [illegible]

Sub-Sampled Date: 11/15/05

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU- HANFORD **Date:** 11/17/05

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

LvLI Batch # : 0511L748 **Sample Custodian:** V. Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier Fed Ex		Airbill# 6595 0629 0081	
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?	Temp 13.2 °C		Cooler # ERC-99-500	
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		
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	☐ No		
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☐ Yes	☐ No	☑ No Discrepancies	

SR-002-B

LvLI

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

RECEIVED
JAN 2006

DATE RECEIVED: 11/17/05 LVL LOT # :0511L248

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J10DR5						
CHROMIUM VI	001	S	05LVI086	11/15/05	11/28/05	11/28/05
CHROMIUM VI	001 REP	S	05LVI086	11/15/05	11/28/05	11/28/05
CHROMIUM VI	001 MS	S	05LVI086	11/15/05	11/28/05	11/28/05
J10DR6						
CHROMIUM VI	002	S	05LVI086	11/15/05	11/28/05	11/28/05
J10DR7						
CHROMIUM VI	003	S	05LVI086	11/15/05	11/28/05	11/28/05
J10DR8						
CHROMIUM VI	004	S	05LVI086	11/15/05	11/28/05	11/28/05
J10DR9						
CHROMIUM VI	005	S	05LVI086	11/15/05	11/28/05	11/28/05
LAB QC:						
CHROMIUM VI	MB1	S	05LVI086	N/A	11/28/05	11/28/05
CHROMIUM VI	MB1 BS	S	05LVI086	N/A	11/28/05	11/28/05
CHROMIUM VI	MB1 BSD	S	05LVI086	N/A	11/28/05	11/28/05

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-051 K0120
LVL#: 0511L748

W.O.#: 11343-606-001-9999-00
Date Received: 11-17-05

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. The total sample volume 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. The sample weight were as follows:

LvLI Sample	Site ID	Total sample weight, g
0511L748-001	J10DR5	29.997
0511L748-001 duplicate	J10DR5	26.691
0511L748-001 spike	J10DR5	29.991
0511L748-002	J10DR6	26.810
0511L748-003	J10DR7	27.002
0511L748-004	J10DR8	26.529
0511L748-005	JMDR9	26.620

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.

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 18 pages.

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

7. The matrix spike recovery for Soluble Chromium VI was within the 75-125% control limits.

8. The replicate analysis for Chromium VI was within the 20% Relative Percent Difference (RPD) control limit.

9. 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

1/3/06
Date

njp\11-748

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

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

04

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

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

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

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

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

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

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

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

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

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

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/02/05

CLIENT: TNUHANFORD RC-051 K0120

LVL LOT #: 0511L748

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J10DR5	Chromium VI	0.49	MG/KG	0.20	1.0
-002	J10DR6	Chromium VI	0.20 u	MG/KG	0.20	1.0
-003	J10DR7	Chromium VI	0.20 u	MG/KG	0.20	1.0
-004	J10DR8	Chromium VI	0.29	MG/KG	0.21	1.0
-005	J10DR9	Chromium VI	0.25	MG/KG	0.21	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/02/05

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L748

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	05LVI086-MB1	Chromium VI	0.20 u	MG/KG	0.20	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 12/02/05

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L748

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J10DR5	Soluble Chromium VI	4.2	0.49	4.0	92.9	1.0
BLANK10	05LVI086-MB1	Soluble Chromium VI	4.0	0.20u	4.0	99.3	1.0
		Insoluble Chromium VI	1260	0.20u	1240	102.3	100

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 12/02/05

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L748

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J10DR5	Chromium VI	0.49	0.46	6.8	1.0

Lionville Laboratory Use Only

05IIL748

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU HANFORD SAF# RC-051

Est. Final Proj. Sampling Date:

Project #: 17343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: Spec Del: Std TAT: 30 Days

Date Rec'd: 11/17/05 Date Due: 12/17/05

		AC	DF		GI			JK		MO	PQR	See SRC			
Refrigerator #		5	5		5			5		5	5				
#/Type Container	Liquid														
	Solid	G	G		G			G		G	G				
Volume	Liquid														
	Solid	30	30		30			30		30	30				
Preservatives		—	—		—			—		—	—				
ANALYSES REQUESTED →		ORGANIC						INORG							
		VOA	BNA	Pest/PCB	Herb	PCB			Total Metal	CN	PAHs	Hot Gr Rad			
Lionville Laboratory Use Only			8270SH	8081H		8PCB			METALS①		8310	ICP6			

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected
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	001	J10DR5	✓	✓	Soil	11-15-05	902
	002	6	✓	✓			859
	003	7	✓	✓			1057
	004	8	✓	✓			1408
	005	9	✓	✓			943

Lab ID	8270SH	8081H		8PCB			METALS①		8310	ICP6
001	3	1		1			1		1	3
002	1	1		1			1		3	1
003	1	3		1			1		1	1
004	1	1		3			1		1	1
005	1	1		1			3		1	1

Special Instructions:

See attached special instructions

001 - QC on BNA & ICP6
002 - QC on PAHs
003 - QC on Pest
004 - QC on PCB
005 - QC on metals
Non-Rad, per OJ / Client.

DATE/REVISIONS:

1. METALS① = HSL + Bi, B, Li, Mo, P, Si, Sr, Sn, U (No Hg)
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11/17/05	0945

Relinquished by	Received by	Date	Time

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

FOR 0511L748

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Separate sample jars are provided for MS and MSD analyses; matrix QC is designated as ~~follows:~~ on the COC

Metals matrix QC must be spike with mercury @ 20 ppb. We are not performing the mercury analysis. A metals digestate aliquot will be sent to STL for mercury by ICP/MS. Please record the mercury spike amounts in the narrative.

%Solids are NOT required.

Samples are nonrad per client.

If you have any questions please ask.

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-051-14	Page 1 of 1

Collector L. COLLOM	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 Upland Native Reference-Central Plateau		SAF No. RC-051	Air Quality ☐	
Ice Chest No.	Field Logbook No. EL-1596	COA BESRAS6520	Method of Shipment		
Shipped To Lionville	Offsite Property No. A060151		Bill of Lading/Air Bill No.		

POSSIBLE SAMPLE HAZARDS/REMARKS
NONE

Special Handling and/or Storage
NONE

Preservation	None	None	None	None	None	None	None	None		
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG	aG		
No. of Container(s)			7	7	7	7	7	7		
Volume	500g	30g	30g	30g	30g	30g	30g	30g		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Chromium Hex - 7196	Semi-VOA - 8270A (TCL)	PAHs - 8310	Pesticides - 8081	PCBs - 8082		

Sample No.	Matrix *	Sample Date	Sample Time									
J10DR5	SOIL	11-15-05	9:02			1	3	3	1	1	3 1	11/16/05
J10DR6	SOIL		8:39			1	1	1	3	1	1	
J10DR7	SOIL		10:51			1	1	1	1	3	1	
J10DR8	SOIL		14:08			1	1	1	1	1	3	
J10DR9	SOIL		9:43			3	1	1	1	1	1	

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Elizabeth Tepper	15:00	NA →	
Elizabeth Tepper	11/16/05	Fed EX	11/16/05 15:00
Fed Ex 11-17-05	0915	[signature]	11-17-05 0915
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
This chain of custody form documents the transfer of bulk field collected soils to the CH2M Hill Corvallis laboratory for incremental preparation and aliquoting.

(1) Gamma Spec - (Full List) {Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-226, Radium-228}
(2) Strontium-89,90 -- Total Sr; Isotopic Thorium {Thorium-232}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Isotopic Plutonium
(3) 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

Project Name: RCBRAMIS Project Number: 334247.A0.ZZ

Site Number: Upland Native Reference - Central Plateau

Tray #: 32 Tare Weight: 1453 gm.

Sample #: J10DR5 Total Dry Weight: 3957.4 gm.

Net Dry Sample Weight: 2504.4 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	0902	500	500.7	[illegible]
Rad Str		30	30.03	
ICP Met		30	30.02	
Hex Cr		30	30.02	
Semi Vol		30	30.03	
PAHs		30	30.08	
Pest		30	30.03	
PCBs		30	30.04	
Hex Cr MS		30	30.02	
Hex Cr MSD		30	30.07	
Semi VOA MS		30	30.02	
Semi VOA MSD		30	30.05	

Comments:

Name (print): Kelly Ensor Signature: Kelly Ensor

Sub-Sampled Date: 11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.A0.ZZ

Site Number: Upland Native Reference - Central Plateau

Tray #: 7 Tare Weight: 1464 gm.

Sample #: J10DR6 Total Dry Weight: 4486.2 gm.

Net Dry Sample Weight: ~~4486.2~~ gm. 3022.2
ST 11/14/05

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	8:39	500	501.87	AW
Rad Str		30	30.21	AW
ICP Met		30	30.12	AW
Hex Cr		30	30.08	AW
Semi Vol		30	30.03	AW
PAHs		30	30.09	AW
Pest		30	30.04	AW
PCBs		30	30.17	AW
PAH MS		30	30.52	AW
PAH MSD		30	30.09	AW

Comments:

Name (print): Ashley Wille Signature: [illegible]

Sub-Sampled Date: 11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.A0.ZZ

Site Number: Upland Native Reference - Central Plateau

Tray #: 5 Tare Weight: 1455 gm.

Sample #: J10DR7 Total Dry Weight: 4427.0 gm.

Net Dry Sample Weight: 2972 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	10:51	500	500.31	AW
Rad Str		30	30.01	AW
ICP Met		30	30.06	AW
Hex Cr		30	30.10	AW
Semi Vol		30	30.10	AW
PAHs		30	30.20	AW
Pest		30	30.26	AW
PCBs		30	30.11	AW
Pest MS		30	30.13	AW
Pest MSD		30	30.06	AW

Comments:

Name (print): Ashley Wille Signature: Ashley Wille

Sub-Sampled Date: 11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.A0.ZZ

Site Number: Upland Native Reference - Central Plateau

Tray #: 63 Tare Weight: 1458 gm.

Sample #: J10DR8 Total Dry Weight: 3826.3 gm.

Net Dry Sample Weight: 2368.3 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	1408	500	500.1	[illegible]
Rad Str	↓	30	30.02	↓
ICP Met	↓	30	30.03	↓
Hex Cr	↓	30	30.03	↓
Semi Vol	↓	30	30.04	↓
PAHs	↓	30	30.12	↓
Pest	↓	30	30.06	↓
PCBs	↓	30	30.11	↓
PCB MS	↓	30	30.04	↓
PCB MSD	↓	30	30.03	↓

Comments:

Name (print): Kelly Ensor Signature: [signature]

Sub-Sampled Date: 11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.A0.ZZ

Site Number: Upland Native Reference - Central Plateau

Tray #: 54 Tare Weight: 1457 gm.

Sample #: J10DR9 Total Dry Weight: 4425.5 gm.

Net Dry Sample Weight: 2 968.5 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	9:43	500	502.60	AW
Rad Str		30	30.37	AW
ICP Met		30	30.22	AW
Hex Cr		30	30.11	AW
Semi Vol		30	30.21	AW
PAHs		30	30.14	AW
Pest		30	30.15	AW
PCBs		30	30.23	AW
Rad Str MS		30	30.09	AW
Rad Str MSD		30	30.01	AW
ICP Met MS		30	30.30	AW
ICP Met MSD		30	30.03	AW

Comments:

Name (print): Ashley Wille Signature: Ashley Wille

Sub-Sampled Date: 11/15/05

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU- HANFORD **Date:** 11/17/05

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

LvLI Batch # : 05 11L 748 **Sample Custodian:** V. Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier FedEx		Airbill# 6595 0629 0081	
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?	Temp 13.2 °C		Cooler # ERC-99-500	
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		
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 JM 12-11-05	☑ No	Aee #5 > 6°C	
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☐ Yes	☐ No	☑ No Discrepancies	

SR-002-B

LvLI

LIONVILLE LABORATORY INC.

11 January 2006

RECEIVED JAN 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 #	0511L758
SDG #	K0120
SAF #	RC-051
Date Received	11-17-05
# Samples	5
Matrix	Soil
Volatiles	
Semivolatiles	X
Pest/PCB	X
PAH	X
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	X

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

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

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

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD RC-051 K0120

RECEIVED
JAN 2006

DATE RECEIVED: 11/17/05 LVL LOT # :05LL758

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J10DR0	001	S	05LE0915	11/15/05	11/18/05	11/28/05
J10DR1	002	S	05LE0915	11/15/05	11/18/05	11/25/05
J10DR1	002 MS	S	05LE0915	11/15/05	11/18/05	11/25/05
J10DR1	002 MSD	S	05LE0915	11/15/05	11/18/05	11/25/05
J10DR2	003	S	05LE0915	11/15/05	11/18/05	11/28/05
J10DR3	004	S	05LE0915	11/15/05	11/18/05	11/28/05
J10DR4	005	S	05LE0915	11/15/05	11/18/05	11/28/05

LAB QC:

SBLKQP	MB1	S	05LE0915	N/A	11/18/05	11/22/05
SBLKQP	MB1 BS	S	05LE0915	N/A	11/18/05	11/22/05

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-051
LVL #: 0511L758
SDG/SAF # K0120 /RC-051

W.O. #: 11343-606-001-9999-00
Date Received: 11-17-2005

SEMIVOLATILE

Five (5) soil samples were collected on 11-15-2005.

The samples and their associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3540C on 11-18-2005 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 11-22,25,28-2005.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. Samples were extracted and analyzed within required holding time.
3. Non-target compounds were detected in the samples.
4. Two (2) of fifty-four (54) surrogate recoveries were outside acceptance criteria. However, the surrogate recovery criteria were met (i.e., no more than one outlier per fraction {acid and base neutral} and no recoveries less than 10%).
5. All matrix spike recoveries were within acceptance criteria.
6. Two (2) of sixty-four (64) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
7. The method blank contained the common laboratory contaminant Bis (2-Ethylhexyl) phthalate at a level less than the CRQL.
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").
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.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

12/2/05
Date

som\gorup\data\bna\tnu-hanford\0511-758.doc
The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 1 9 pages.

Initiator: Sharon Snyder
Date: 11-29-05
Client: TNU

Batch: 0511L758
Samples: 002 mentioned
Method: SW846/MCAWW/CLP/

Parameter: 8270
Matrix: solid
Prep Batch: 0511E0915

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)

① 2 surrogates had low recovery in sample extract J10DR2 (0511L758-003)
② <10% recovery of 2,4-dinitrophenol in BS but ms, msd is ok

2. Known or Probable Causes(s)

loss during extraction

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: 11/29/05

✓ 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: 12/02/05 Other Explanation:

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

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

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
__	X Initiator	__	__ Metals: Beegle
	X Lab General Manager: M. Taylor	__	__ Inorganic: Perrone
①	X Project Mgr: Stone/Johnson/Haslett		GC/LC: Kiger
	X Technical Mgr: Wesson/Daniels	②	X MS: Rychlak/Layman
__	X QA (file): Alberts	__	__ Log-in: Melnic
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Beegle/Kiger	__	__ Other: _____

QA-105-A-0801

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: 11/29/05 10:17

RFW Batch Number: 0511L758 Client: TNU-HANFORD RC-051 Work Order: 11343606001 Page: 1a

000000007

	Cust ID:	J10DR0	J10DR1	J10DR1	J10DR1	J10DR2	J10DR3
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	74 %	50 %	82 %	81 %	19 * %	66 %
	2-Fluorobiphenyl	79 %	55 %	84 %	82 %	55 %	72 %
	Terphenyl-d14	105 %	79 %	85 %	87 %	101 %	102 %
	Phenol-d5	84 %	57 %	85 %	84 %	33 %	73 %
	2-Fluorophenol	77 %	50 %	79 %	78 %	11 * %	71 %
	2,4,6-Tribromophenol	73 %	66 %	89 %	85 %	63 %	71 %
		fl	fl	fl	fl	fl	fl
Phenol		330 U	330 U	90 %	91 %	330 U	330 U
bis(2-Chloroethyl)ether		330 U	330 U	87 %	87 %	330 U	330 U
2-Chlorophenol		330 U	330 U	84 %	83 %	330 U	330 U
1,3-Dichlorobenzene		330 U	330 U	76 %	76 %	330 U	330 U
1,4-Dichlorobenzene		330 U	330 U	75 %	73 %	330 U	330 U
1,2-Dichlorobenzene		330 U	330 U	81 %	78 %	330 U	330 U
2-Methylphenol		330 U	330 U	85 %	86 %	330 U	330 U
2,2'-oxybis(1-Chloropropane)		330 U	330 U	86 %	85 %	330 U	330 U
4-Methylphenol		330 U	330 U	87 %	88 %	330 U	330 U
N-Nitroso-di-n-propylamine		330 U	330 U	85 %	85 %	330 U	330 U
Hexachloroethane		330 U	330 U	74 %	72 %	330 U	330 U
Nitrobenzene		330 U	330 U	81 %	83 %	330 U	330 U
Isophorone		330 U	330 U	91 %	94 %	330 U	330 U
2-Nitrophenol		330 U	330 U	85 %	84 %	330 U	330 U
2,4-Dimethylphenol		330 U	330 U	74 %	75 %	330 U	330 U
bis(2-Chloroethoxy)methane		330 U	330 U	86 %	87 %	330 U	330 U
2,4-Dichlorophenol		330 U	330 U	84 %	86 %	330 U	330 U
1,2,4-Trichlorobenzene		330 U	330 U	77 %	76 %	330 U	330 U
Naphthalene		330 U	330 U	80 %	77 %	330 U	330 U
4-Chloroaniline		330 U	330 U	110 %	110 %	330 U	330 U
Hexachlorobutadiene		330 U	330 U	81 %	82 %	330 U	330 U
4-Chloro-3-methylphenol		330 U	330 U	84 %	84 %	330 U	330 U
2-Methylnaphthalene		330 U	330 U	81 %	83 %	330 U	330 U
Hexachlorocyclopentadiene		330 U	330 U	74 %	70 %	330 U	330 U
2,4,6-Trichlorophenol		330 U	330 U	88 %	87 %	330 U	330 U
2,4,5-Trichlorophenol		830 U	830 U	90 %	91 %	830 U	830 U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 0511L758 Client: TNU-HANFORD RC-051 Work Order: 11343606001 Page: 1b

Cust ID:	J10DR0		J10DR1		J10DR1		J10DR1		J10DR2		J10DR3	
RFW#:	001		002		002 MS		002 MSD		003		004	
2-Chloronaphthalene	330	U	330	U	85	%	85	%	330	U	330	U
2-Nitroaniline	830	U	830	U	96	%	96	%	830	U	830	U
Dimethylphthalate	330	U	330	U	92	%	92	%	330	U	330	U
Acenaphthylene	330	U	330	U	87	%	86	%	330	U	330	U
2,6-Dinitrotoluene	330	U	330	U	93	%	94	%	330	U	330	U
3-Nitroaniline	830	U	830	U	117	%	115	%	830	U	830	U
Acenaphthene	330	U	330	U	85	%	84	%	330	U	330	U
2,4-Dinitrophenol	830	U	830	U	38	%	36	%	830	U	830	U
4-Nitrophenol	830	U	830	U	102	%	91	%	830	U	830	U
Dibenzofuran	330	U	330	U	88	%	88	%	330	U	330	U
2,4-Dinitrotoluene	330	U	330	U	97	%	99	%	330	U	330	U
Diethylphthalate	330	U	330	U	93	%	96	%	330	U	330	U
4-Chlorophenyl-phenylether	330	U	330	U	89	%	87	%	330	U	330	U
Fluorene	330	U	330	U	90	%	90	%	330	U	330	U
4-Nitroaniline	830	U	830	U	119	%	120	%	830	U	830	U
4,6-Dinitro-2-methylphenol	830	U	830	U	97	%	100	%	830	U	830	U
N-Nitrosodiphenylamine (1)	330	U	330	U	78	%	76	%	330	U	330	U
4-Bromophenyl-phenylether	330	U	330	U	81	%	79	%	330	U	330	U
Hexachlorobenzene	330	U	330	U	84	%	84	%	330	U	330	U
Pentachlorophenol	830	U	830	U	116	%	120	%	830	U	830	U
Phenanthrene	330	U	330	U	91	%	90	%	330	U	330	U
Anthracene	330	U	330	U	94	%	93	%	330	U	330	U
Carbazole	330	U	330	U	110	%	111	%	330	U	330	U
Di-n-butylphthalate	330	U	330	U	98	%	98	%	330	U	330	U
Fluoranthene	23	J	330	U	99	%	100	%	330	U	330	U
Pyrene	24	J	330	U	85	%	89	%	330	U	330	U
Butylbenzylphthalate	330	U	330	U	94	%	99	%	330	U	330	U
3,3'-Dichlorobenzidine	330	U	330	U	136	%	134	%	330	U	330	U
Benzo(a)anthracene	330	U	330	U	94	%	98	%	330	U	330	U
Chrysene	330	U	330	U	92	%	95	%	330	U	330	U
bis(2-Ethylhexyl)phthalate	36	JB	44	JB	100	%	106	%	37	JB	87	JB
Di-n-octyl phthalate	330	U	330	U	96	%	103	%	330	U	330	U
Benzo(b)fluoranthene	330	U	330	U	85	%	90	%	330	U	330	U
Benzo(k)fluoranthene	330	U	330	U	88	%	91	%	330	U	330	U
Benzo(a)pyrene	330	U	330	U	93	%	95	%	330	U	330	U
Indeno(1,2,3-cd)pyrene	330	U	330	U	108	%	106	%	330	U	330	U
Dibenz(a,h)anthracene	330	U	330	U	108	%	106	%	330	U	330	U
Benzo(g,h,i)perylene	330	U	330	U	106	%	104	%	330	U	330	U

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

000000008

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 11/29/05 10:17

RFW Batch Number: 0511L758 Client: TNU-HANFORD RC-051 Work Order: 11343606001 Page: 2a

000000006

	Cust ID:	J10DR4		SBLKQP		SBLKQP BS	
Sample Information	RFW#:	005		05LE0915-MB1		05LE0915-MB1	
	Matrix:	SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	60	%	57	%	83	%
	2-Fluorobiphenyl	68	%	62	%	86	%
	Terphenyl-d14	103	%	97	%	96	%
	Phenol-d5	64	%	55	%	80	%
	2-Fluorophenol	58	%	55	%	80	%
	2,4,6-Tribromophenol	66	%	58	%	91	%
Phenol		330	U	330	U	86	%
bis(2-Chloroethyl)ether		330	U	330	U	92	%
2-Chlorophenol		330	U	330	U	84	%
1,3-Dichlorobenzene		330	U	330	U	84	%
1,4-Dichlorobenzene		330	U	330	U	81	%
1,2-Dichlorobenzene		330	U	330	U	86	%
2-Methylphenol		330	U	330	U	86	%
2,2'-oxybis(1-Chloropropane)		330	U	330	U	99	%
4-Methylphenol		330	U	330	U	86	%
N-Nitroso-di-n-propylamine		330	U	330	U	86	%
Hexachloroethane		330	U	330	U	88	%
Nitrobenzene		330	U	330	U	84	%
Isophorone		330	U	330	U	97	%
2-Nitrophenol		330	U	330	U	98	%
2,4-Dimethylphenol		330	U	330	U	75	%
bis(2-Chloroethoxy)methane		330	U	330	U	94	%
2,4-Dichlorophenol		330	U	330	U	88	%
1,2,4-Trichlorobenzene		330	U	330	U	82	%
Naphthalene		330	U	330	U	86	%
4-Chloroaniline		330	U	330	U	118	%
Hexachlorobutadiene		330	U	330	U	92	%
4-Chloro-3-methylphenol		330	U	330	U	88	%
2-Methylnaphthalene		330	U	330	U	89	%
Hexachlorocyclopentadiene		330	U	330	U	111 *	%
2,4,6-Trichlorophenol		330	U	330	U	92	%
2,4,5-Trichlorophenol		830	U	830	U	95	%

*= Outside of EPA CLP QC limits.

Cust ID:	J10DR4		SBLKQP		SBLKQP BS	
RFW#:	005		05LE0915-MB1		05LE0915-MB1	
2-Chloronaphthalene	330	U	330	U	92	%
2-Nitroaniline	830	U	830	U	96	%
Dimethylphthalate	330	U	330	U	90	%
Acenaphthylene	330	U	330	U	89	%
2,6-Dinitrotoluene	330	U	330	U	96	%
3-Nitroaniline	830	U	830	U	119	%
Acenaphthene	330	U	330	U	86	%
2,4-Dinitrophenol	830	U	830	U	9 *	%
4-Nitrophenol	830	U	830	U	87	%
Dibenzofuran	330	U	330	U	92	%
2,4-Dinitrotoluene	330	U	330	U	97	%
Diethylphthalate	330	U	330	U	81	%
4-Chlorophenyl-phenylether	330	U	330	U	89	%
Fluorene	330	U	330	U	91	%
4-Nitroaniline	830	U	830	U	113	%
4,6-Dinitro-2-methylphenol	830	U	830	U	79	%
N-Nitrosodiphenylamine (1)	330	U	330	U	83	%
4-Bromophenyl-phenylether	330	U	330	U	83	%
Hexachlorobenzene	330	U	330	U	83	%
Pentachlorophenol	830	U	830	U	79	%
Phenanthrene	330	U	330	U	92	%
Anthracene	330	U	330	U	96	%
Carbazole	330	U	330	U	108	%
Di-n-butylphthalate	330	U	330	U	93	%
Fluoranthene	330	U	330	U	94	%
Pyrene	330	U	330	U	96	%
Butylbenzylphthalate	330	U	330	U	96	%
3,3'-Dichlorobenzidine	330	U	330	U	117	%
Benzo(a)anthracene	330	U	330	U	95	%
Chrysene	330	U	330	U	96	%
bis(2-Ethylhexyl)phthalate	51	JB	190	J	93	%
Di-n-octyl phthalate	330	U	330	U	96	%
Benzo(b)fluoranthene	330	U	330	U	89	%
Benzo(k)fluoranthene	330	U	330	U	98	%
Benzo(a)pyrene	330	U	330	U	97	%
Indeno(1,2,3-cd)pyrene	330	U	330	U	116	%
Dibenz(a,h)anthracene	330	U	330	U	117	%
Benzo(g,h,i)perylene	330	U	330	U	110	%

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

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J10DR0

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

Client: TNU-HANFORD RC-051

Matrix: (soil/water) SOIL

Lab Sample ID: 0511L758-001

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

Lab File ID: D112806

Level: (low/med) LOW

Date Received: 11/17/05

% Moisture: 0 decanted: (Y/N)__

Date Extracted: 11/18/05

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/28/05

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	9.189	200	J
2.	UNKNOWN	9.809	400	J
3.	UNKNOWN	13.090	80	J
4.	ALKANE	31.748	300	J
5.	ALKANE	35.726	300	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J10DR1

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

Client: TNU-HANFORD RC-051

Matrix: (soil/water) SOIL

Lab Sample ID: 0511L758-002

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

Lab File ID: D112513

Level: (low/med) LOW

Date Received: 11/17/05

% Moisture: 0 decanted: (Y/N)__

Date Extracted: 11/18/05

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/25/05

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	23.163	400	J
2.	UNKNOWN	23.189	400	J
3.	UNKNOWN	23.516	500	J
4.	UNKNOWN	25.109	700	J
5.	UNKNOWN	25.609	400	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J10DR2

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

Client: TNU-HANFORD RC-051

Matrix: (soil/water) SOIL

Lab Sample ID: 0511L758-003

Sample wt/vol: 30.1 (g/mL) G

Lab File ID: D112803

Level: (low/med) LOW

Date Received: 11/17/05

% Moisture: 0 decanted: (Y/N)__

Date Extracted: 11/18/05

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/28/05

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

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

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	9.172	100	J
2.	UNKNOWN	9.800	200	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J10DR3

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

Client: TNU-HANFORD RC-051

Matrix: (soil/water) SOIL

Lab Sample ID: 0511L758-004

Sample wt/vol: 30.1 (g/mL) G

Lab File ID: D112804

Level: (low/med) LOW

Date Received: 11/17/05

% Moisture: 0 decanted: (Y/N)__

Date Extracted: 11/18/05

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/28/05

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

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

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	9.179	200	J
2.	UNKNOWN	9.799	400	J
3.	UNKNOWN	13.080	80	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J10DR4

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

Client: TNU-HANFORD RC-051

Matrix: (soil/water) SOIL

Lab Sample ID: 0511L758-005

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

Lab File ID: D112805

Level: (low/med) LOW

Date Received: 11/17/05

% Moisture: 0 decanted: (Y/N)

Date Extracted: 11/18/05

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/28/05

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH:

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	9.188	300	J
2.	UNKNOWN	9.808	400	J
3.	UNKNOWN	13.080	100	J
4.	ALKANE	31.747	80	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKQP

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

Client: TNU-HANFORD RC-051

Matrix: (soil/water) SOIL

Lab Sample ID: 05LE0915-MB1

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

Lab File ID: D112206

Level: (low/med) LOW

Date Received: 11/18/05

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

Date Extracted: 11/18/05

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/22/05

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: _____

Number TICs found: 0

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

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

Lionville Laboratory Use Only

0511L758

Custody Transfer Record/Lab Work Request

Page 1 of 1

See SRC

VLI

'FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU Hanford RC-051

Est. Final Proj. Sampling Date:

Project #: 11343-006-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: Dr Lotte Johnson

QC: Spec Del: Std TAT: 30 Days

Date Rec'd: 11.17.05 Date Due: 12/17/05

		A-C	D-F	G-I			J-L		M-O		P-R			
Refrigerator #		5	5	5			5		5		5			
#/Type Container	Liquid													
	Solid	9	9	9			9		9		9			
Volume	Liquid													
	Solid	30g	30g	30g			30g		30g		30g			
Preservatives		1	1	1			1		1		1			
ANALYSES REQUESTED →		ORGANIC					INORG							
		VOA	BNA	Pest/PCB	Herb	PCBs			(3) Metal	CN	Hex Chrome		PAHs	
		Lionville Laboratory Use Only												
			0425H	0608H		0PCB			Metals①		ICRC		0820	

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															
001	J10DR0	✓	✓	S	11.15.05	1457		1	1		1			3		1		1			
002	J10DR1	✓	✓			1650		3	1		1			1		3		1			
003	J10DR2	✓	✓			1900		1	3		1			1		1		3			
004	J10DR3	✓	✓			1720		1	1		3			1		1		1			
005	J10DR4					1619		1	1		1			1		1		1			

Special Instructions: See attached special instructions

001 - QC on metals
002 - QC on BNA, CR6
003 - QC on Pest, PAH
004 - QC on PCB
~~005 - QC on NONE~~ Multinlos

NON-RAD per OJ / Client

DATE/REVISIONS:

1. Metals① = HSL + Bi, B, Li, Mo, P, Si, Sr, Sn, U (No Hg)
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11.17.05	0915

Relinquished by	Received by	Date	Time

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

000000017

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-051-13	Page 1 of 1

Collector: L. COLLOM	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8L	Data Turnaround: 45 Days	Air Quality:	
Project Designation: 100 & 300 Area Component of the RCBRA - Incremental So	Sampling Location: Upland Backfill Low-116-DR-1&2	SAF No.: RC-051	
Ice Chest No.	Field Logbook No.: EL-1596	COA: BESRAS6520	Method of Shipment: FED EX
Shipped To: LIONVILLE	Offsite Property No.: A060151	Bill of Lading/Air Bill No.	

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

NONE

Preservation	None	None	None	None	None	None	None	None		
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG	aG		
No. of Container(s)			7	7	7	7	7	7		
Volume	500g	30g	30g	30g	30g	30g	30g	30g		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Chromium Hex - 7196	Semi-VOA - 8270A (TCL)	PAHs - 8310	Pesticides - 8081	PCBs - 8082		

Sample No.	Matrix *	Sample Date	Sample Time										
J10DR0	SOIL	11/15/05	14:57			3	1	1	1	1	1		
J10DR1	SOIL	11/15/05	16:50			1	3	3	1	1	1		
J10DR2	SOIL	11/15/05	19:00			1	1	1	3	3	1		
J10DR3	SOIL	11/15/05	17:20			1	1	1	1	1	3		
J10DR4	SOIL	11/15/05	16:19			1	1	1	1	1	1		

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: Elizabeth Tepper	15:00	NA	
Relinquished By/Removed From: Beth Lupo	11/16/05	Fed ex	15:00 11-16-05
Relinquished By/Removed From: [illegible]	11.17.05 0915	[illegible]	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

This chain of custody form documents the transfer of bulk field collected soils to the CH2M Hill Corvallis laboratory for incremental preparation and aliquoting.

(1) Gamma Spec - (Full List) {Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-226, Radium-228}
(2) Strontium-89,90 – Total Sr; Isotopic Thorium {Thorium-232}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Isotopic Plutonium
(3) 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)

000000018

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford **Date:** 11.17.05

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

LvLI Batch # : 05111L758 **Sample Custodian:**

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier Fed Ex		Airbill# 6595 0629 0092	
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?	Temp 14.1 °C		Cooler # N/A	
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		
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	☐ No		
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☐ Yes	☐ No	☑ No Discrepancies	

SR-002-B

LVLI

Lionville Laboratory, Inc.
PEST/PCB ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD RC-051 K0120

RECEIVED
JAN 2006

DATE RECEIVED: 11/17/05 LVL LOT # :05LL758

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J10DR0	001	S	05LE0916	11/15/05	11/18/05	11/26/05
J10DR1	002	S	05LE0916	11/15/05	11/18/05	11/26/05
J10DR2	003	S	05LE0916	11/15/05	11/18/05	11/26/05
J10DR2	003 MS	S	05LE0916	11/15/05	11/18/05	11/26/05
J10DR2	003 MSD	S	05LE0916	11/15/05	11/18/05	11/28/05
J10DR3	004	S	05LE0916	11/15/05	11/18/05	11/28/05
J10DR4	005	S	05LE0916	11/15/05	11/18/05	11/28/05

LAB QC:

PBLKWO	MB1	S	05LE0916	N/A	11/18/05	11/23/05
PBLKWO	MB1 BS	S	05LE0916	N/A	11/18/05	11/23/05

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-051
LVL #: 0511L758
SDG/SAF # K0120/RC-051

W.O. #: 11343-606-001-9999-00
Date Received: 11-17-2005

CHLORINATED PESTICIDES

Five (5) soil samples were collected on 11-15-2005.

The samples and their associated QC samples were extracted on 11-18-2005 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 11-23,26,28-2005. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8081A.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy, with the exception of some discrepancies, which 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 a Copper-Sulfur cleanup according to Lionville Laboratory SOPs based on SW846 method 3660A.
4. The method blank was below the reporting limits for all target compounds.
5. Two (2) of eighteen (18) surrogate recoveries were outside acceptance criteria. However, the surrogate recovery acceptance criteria were met (i.e. no more than one outlier per samle).
6. One (1) of twenty (20) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
7. Five (5) of forty (40) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
8. All samples required a 4-dilution due to the nature of the sample matrix.
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 with the exception of CCV analyzed on 11-23-2005 at 02:08 A.M on both columns. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
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.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

12/16/05
Date

kim\r:\group\data\pest\tnu hanford\0511-758.pst

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 15 pages.

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 056C581

Initiator: DR
Date: 12/9/05
Client: TNU

Batch: 0511L758
Samples:
Method: SW846/MCAWW/CLP/

Parameter: 608H
Matrix: Soil
Prep Batch: 0516091G

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) (a) CCV's out on the columns prior to BK, BS due to an increase in instrument response, DATA not significantly impacted recoveries acceptable, w/ Exception of DDD which was slightly high 125% (upper limit 122%) (b) Breakdown for Endrin Exceeded 15% criteria slightly on ETX CLP2 column prior to samples 1,2,3,35 (15.5) several ms/msd recoveries were high. Ability to identify cmpds not impaired.
No targets identified. Narrate?

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:
Narrate – no significant impact on ability to identify or quantitate target compounds.

12/9/05

4. Project Manager Instructions...signature/date: 12/9/05

✓ 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: 12/15/05

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	2	__ GC/LC: Kiger
__	__ Data Management: Stilwell	__	__ MS: Rychlak/Daley
__	__ Sample Prep: Beegle/Kiger	__	__ Log-in: Perry
		__	__ Admin: _____
		__	__ Other: _____

QA-105-A-0805

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List

Report Date: 12/15/05 10:29

RFW Batch Number: 0511L758 Client: TNUHANFORD RC-051 K0120 Work Order: 11343606001 Page: 1

000000005

	Cust ID:	J10DR0	J10DR1	J10DR2	J10DR2	J10DR2	J10DR3
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	124 * %	127 * %	91 %	108 %	106 %	89 %
	Decachlorobiphenyl	118 %	120 %	86 %	103 %	93 %	81 %
		fl	fl	fl	fl	fl	fl
Alpha-BHC		1.3 U	1.3 U	1.3 U	114 %	108 %	1.3 U
gamma-BHC (Lindane)		1.3 U	1.3 U	1.3 U	111 %	106 %	1.3 U
Beta-BHC		1.3 U	1.3 U	1.3 U	138 * %	126 %	1.3 U
Heptachlor		1.3 U	1.3 U	1.3 U	118 %	116 %	1.3 U
Delta-BHC		1.3 U	1.3 U	1.3 U	119 %	118 %	1.3 U
Aldrin		1.3 U	1.3 U	1.3 U	111 %	103 %	1.3 U
Heptachlor epoxide		1.3 U	1.3 U	1.3 U	110 %	102 %	1.3 U
gamma-Chlordane		1.3 U	1.3 U	1.3 U	112 %	103 %	1.3 U
Endosulfan I		1.3 U	1.3 U	1.3 U	119 %	109 %	1.3 U
alpha-Chlordane		1.3 U	1.3 U	1.3 U	115 %	105 %	1.3 U
4,4'-DDE		1.3 U	1.3 U	1.3 U	127 * %	121 * %	1.3 U
Dieldrin		1.3 U	1.3 U	1.3 U	117 %	108 %	1.3 U
Endrin		1.3 U	1.3 U	1.3 U	118 %	114 %	1.3 U
4,4'-DDD		1.3 U	1.3 U	1.3 U	138 * %	129 * %	1.3 U
Endosulfan II		1.3 U	1.3 U	1.3 U	118 %	105 %	1.3 U
4,4'-DDT		1.3 U	1.3 U	1.3 U	113 %	116 %	1.3 U
Endrin aldehyde		1.3 U	1.3 U	1.3 U	112 %	104 %	1.3 U
Endosulfan sulfate		1.3 U	1.3 U	1.3 U	120 %	111 %	1.3 U
Methoxychlor		1.3 U	1.3 U	1.3 U	127 %	125 %	1.3 U
Endrin ketone		1.3 U	1.3 U	1.3 U	120 %	107 %	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

Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List

Report Date: 12/15/05 10:29

RFW Batch Number: 0511L758 Client: TNUHANFORD RC-051 K0120 Work Order: 11343606001 Page: 2

000000006

	Cust ID:	J10DR4		PBLKWO		PBLKWO BS	
Sample Information	RFW#:	005		05LE0916-MB1		05LE0916-MB1	
	Matrix:	SOIL		SOIL		SOIL	
	D.F.:	4.00		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG	
Surrogate: Tetrachloro-m-xylene		104	%	77	%	79	%
Decachlorobiphenyl		95	%	84	%	82	%
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	104	%
Heptachlor		1.3	U	0.33	U	105	%
Delta-BHC		1.3	U	0.33	U	113	%
Aldrin		1.3	U	0.33	U	95	%
Heptachlor epoxide		1.3	U	0.33	U	92	%
gamma-Chlordane		1.3	U	0.33	U	99	%
Endosulfan I		1.3	U	0.33	U	98	%
alpha-Chlordane		1.3	U	0.33	U	97	%
4,4'-DDE		1.3	U	0.33	U	110	%
Dieldrin		1.3	U	0.33	U	101	%
Endrin		1.3	U	0.33	U	99	%
4,4'-DDD		1.3	U	0.33	U	125 *	%
Endosulfan II		1.3	U	0.33	U	100	%
4,4'-DDT		1.3	U	0.33	U	113	%
Endrin aldehyde		1.3	U	0.33	U	88	%
Endosulfan sulfate		1.3	U	0.33	U	100	%
Methoxychlor		1.3	U	0.33	U	106	%
Endrin ketone		1.3	U	0.33	U	94	%
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

05IIL758

Custody Transfer Record/Lab Work Request

Page 1 of 1

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: Dr Lotti Johnson

QC: Spec Del: Std TAT: 30 Days

Date Rec'd: 11-17-05 Date Due: 12/17/05

	A-C	D-F	G-I	J-L	M-O	P-R
Refrigerator #	5	5	5	5	5	5
#/Type Container (Solid)	9	9	9	9	9	9
Volume (Solid)	30g	30g	30g	30g	30g	30g
Preservatives	–	–	–	–	–	–

ANALYSES REQUESTED →

Lab ID	Client ID/Description	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	PCBs	(3) Metal	CN	Hex Chrome	PAHs
					ORGANIC					INORG			
					Lionville Laboratory Use Only								
					0625H	0608H			0PCB	Metals①		ICRL	0810
001	J10DR0	S	11-15-05	1457		1	1		1	3		1	1
002	J10DR1			1650		3	1		1	1		3	1
003	J10DR2			1900		1	3		1	1		1	3
004	J10DR3			1720		1	1		3	1		1	1
005	J10DR4			1619		1	1		1	1		1	1

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
001	J10DR0	✓	✓
002	J10DR1	✓	✓
003	J10DR2	✓	✓
004	J10DR3	✓	✓
005	J10DR4		

Special Instructions: See attached special instructions

001 - QC on metals
002 - QC on BNA, CRL6
003 - QC on Pest, PAH
004 - QC on PCB
~~005 - QC on Metals~~ Spilling

NON-RAD per OJ / Client

DATE/REVISIONS:

1. Metals① = HSL + Bi, B, Li, Mo, P, Si, Sr, Sn, Tl (No Hg)
2. 0608H
3. 0PCB R
4. 0810F
5.
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11-17-05	0915

Relinquished by	Received by	Date	Time

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

000000007

FOR 05116758

For Sample prep (which includes the sample, MS, and MSD) use ALL of the volume sent for each assigned test/Lionville sample#; even if the amount sent is greater than the method requirement. With this approach metals and cr6 samples will require multiple digestions.

Separate sample jars are provided for MS and MSD analyses; matrix QC is designated as ~~follows:~~ on the COC

Metals matrix QC must be spike with mercury @ 20 ppb. We are not performing the mercury analysis. A metals digestate aliquot will be sent to STL for mercury by ICP/MS. Please record the mercury spike amounts in the narrative.

%Solids are NOT required.

Samples are nonrad per client.

If you have any questions please ask.

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-051-13	Page 1 of 1

Collector L. COLLOM	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH
Project Designation 100 & 300 Area Component of the RCBRA - Incremental So	Sampling Location Upland Backfill Low-116-DR-1&2		SAF No. RC-051
Ice Chest No.	Field Logbook No. EL-1596	COA BESRAS6520	Method of Shipment FED EX
Shipped To LIONVILLE	Offsite Property No. A060151		Bill of Lading/Air Bill No.

Price Code 8L

Air Quality

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

NONE

Preservation	None	None	None	None	None	None	None	None		
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG	aG		
No. of Container(s)			7	7	7	7	7	7		
Volume	500g	30g	30g	30g	30g	30g	30g	30g		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Chromium Hex - 7196	Semi-VOA - 8270A (TCL)	PAHs - 8310	Pesticides - 8081	PCBs - 8082		

Sample No.	Matrix *	Sample Date	Sample Time										
J10DR0	SOIL	11/15/05	14:57			3	1	1	1	1	1		
J10DR1	SOIL	11/15/05	16:50			1	3	3	1	1	1		
J10DR2	SOIL	11/15/05	19:00			1	1	1	3	3	1		
J10DR3	SOIL	11/15/05	17:20			1	1	1	1	1	3		
J10DR4	SOIL	11/15/05	16:19			1	1	1	1	1	1		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Elizabeth Tepper	15:00	NA	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Daleth Lipp	11/16/05	Fed ex	15:00 11-16-05
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex	11.17.05 0915	[illegible]	
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

This chain of custody form documents the transfer of bulk field collected soils to the CH2M Hill Corvallis laboratory for incremental preparation and aliquoting.

(1) Gamma Spec - (Full List) {Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-226, Radium-228}
(2) Strontium-89,90 – Total Sr; Isotopic Thorium {Thorium-232}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Isotopic Plutonium
(3) 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

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

000000009

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.A0.ZZ

Site Number: Upland Backfill Low - 116 - DR - 1 & 2

Tray #: 51 Tare Weight: 1454 gm.

Sample #: J10DR0 Total Dry Weight: 5323.1 gm.

Net Dry Sample Weight: 3869.1 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	14:57	500	500.77	AW
Rad Str		30	30.01	AW
ICP Met		30	30.09	AW
Hex Cr		30	30.16	AW
Semi VOA		30	30.10	AW
PAHs		30	30.11	AW
Pest		30	30.43	AW
PCBs		30	30.36	AW
Rad Str MS		30	30.09	AW
Rad Str MSD		30	30.22	AW
ICP Met MS		30	30.14	AW
ICP Met MSD		30	30.62	AW

Comments:

Name (print): Ashley Wille Signature: [illegible]

Sub-Sampled Date: 11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.AC.ZZ

Site Number: Upland Backfill Low - 116 - DR - 1 & 2

Tray #: 34 Tare Weight: 1452 gm.

Sample #: J10DR1 Total Dry Weight: 5265.8 gm.

Net Dry Sample Weight: 3813.8 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	16:50	500	501.05	AW
Rad Str		30	30.05	AW
ICP Met		30	30.02	AW
Hex Cr		30	30.06	AW
Semi VOA		30	30.10	AW
PAHs		30	30.17	AW
Pest		30	30.12	AW
PCBs		30	30.33	AW
Hex Cr MS		30	30.42	AW
Hex Cr MSD		30	30.16	AW
Semi VOA MS		30	30.05	AW
Semi VOA MSD		30	30.07	AW

Comments:

Name (print): Ashley Wille Signature: [illegible]

Sub-Sampled Date: 11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.AC.ZZ

Site Number: Upland Backfill Low - 116 - DR - 122

Tray #: 56 Tare Weight: 1453 gm.

Sample #: J10DR2 Total Dry Weight: 4549.2 gm.

Net Dry Sample Weight: 3096.2 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	19:00	500	502.3	ET
Rad Str	19:00	30	30.10	ET
ICP Met	19:00	30	30.04	ET
Hex Cr	19:00	30	30.19	ET
Semi VOA	19:00	30	30.01	ET
PAHs	19:00	30	30.10	ET
Pest	19:00	30	30.01	ET
PCBs	19:00	30	30.03	ET
PAHs MS	19:00	30	30.15	ET
PAHs MSD	19:00	30	30.05	ET
Pest MS	19:00	30	30.02	ET
Pest MSD	19:00	30	30.03	ET

Comments:

Name (print): E Tepper Signature: Elizabeth Tepper

Sub-Sampled Date:

11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.AC.22

Site Number: Upland Backfill Low - 116 - DR - 1 2 2

Tray #: 33 Tare Weight: 1451 gm.

Sample #: J10DR3 Total Dry Weight: 4507.6 gm.

Net Dry Sample Weight: 3456.6 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	17:20	500	504.4	ET
Rad Str	17:20	30	30.20	ET
ICP Met	17:20	30	30.03	ET
Hex Cr	17:20	30	30.01	ET
Semi VOA	17:20	30	30.05	ET
PAHs	17:20	30	30.07	ET
Pest	17:20	30	30.05	ET
PCBs	17:20	30	30.10	ET
PCB MS	17:20	30	30.10	ET
PCB MSD	17:20	30	30.08	ET

Comments:

Name (print): Elizabeth M Tepper Signature: Elizabeth M Tepper

Sub-Sampled Date:
11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.AC.ZZ

Site Number: Upland Backfill Low - 116 - DR - 1 & 2

Tray #: 55 Tare Weight: 1465 gm.

Sample #: J10DR4 Total Dry Weight: 4244.3 gm.

Net Dry Sample Weight: 2779.3 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	16:19	500	500.4	ET
Rad Str	16:19	30	30.15	ET
ICP Met	16:19	30	30.04	ET
Hex Cr	16:19	30	30.14	ET
Semi VOA	16:19	30	30.20	ET
PAHs	16:19	30	30.15	ET
Pest	16:19	30	30.01	ET
PCBs	16:19	30	30.15	ET

Comments:

Name (print): Elizabeth M Tepper Signature: Elizabeth M Tepper

Sub-Sampled Date: 11/15/05

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford **Date:** 11-17-05

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

LvLI Batch # : 05111L758 **Sample Custodian:**

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier FedEx		Airbill# 6595 0629 0092	
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?	Temp 14.1 °C		Cooler # N/A	
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		
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	☐ No		
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☐ Yes	☐ No	☑ No Discrepancies	

SR-002-B

LVLI

RECEIVED
JAN 2006

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :0511L758

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J10DR0	001	S	05LE0917	11/15/05	11/19/05	11/22/05
J10DR1	002	S	05LE0917	11/15/05	11/19/05	11/22/05
J10DR2	003	S	05LE0917	11/15/05	11/19/05	11/22/05
J10DR3	004	S	05LE0917	11/15/05	11/19/05	11/22/05
J10DR3	004 MS	S	05LE0917	11/15/05	11/19/05	11/22/05
J10DR3	004 MSD	S	05LE0917	11/15/05	11/19/05	11/22/05
J10DR4	005	S	05LE0917	11/15/05	11/19/05	11/22/05

LAB QC:

PBLKWR	MB1	S	05LE0917	N/A	11/19/05	11/21/05
PBLKWR	MB1 BS	S	05LE0917	N/A	11/19/05	11/21/05

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-051
LVL #: 0511L758
SDG/SAF # K0120/RC-051

W.O. #: 11343-606-001-9999-00
Date Received: 11-17-2005

PCB

Five (5) soil samples were collected on 11-15-2005.

The samples and their associated QC samples were extracted on 11-19-2005 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 11-21,22-2005. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8082.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy, with the exception of some discrepancies, which have been recorded on the Sample Receipt Checklist.
2. The samples were extracted and analyzed within required holding time.
3. 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. Two (2) of four (4) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report has been enclosed.
8. The initial calibrations associated with this data set were within acceptance criteria.
9. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
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.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

12/20/05
Date

kim\r:\group\data\pest\tnu hanford\0511-758.pcbs
The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 14 pages.

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR # 056609

Initiator: DC
Date: 12/20/05
Client: INV

Batch: 05IL758
Samples: MSD
Method: SW846/MCAWW/CLP/

Parameter: OPCB
Matrix: Soil
Prep Batch: 05LE0917

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) It appears that the MSD was Double Spiked 101-180%. 1260-188%. MS/BS Acceptable. Narrate?

2. Known or Probable Causes(s)

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)

4. Project Manager Instructions...signature/date: _____ 12/20/05

__ 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: _____ 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.

PCBs by GC

Report Date: 12/17/05 15:46

RFW Batch Number: 0511L758 Client: TNUHANFORD RC-051 K0120 Work Order: 11343606001 Page: 1

000000005

	Cust ID:	J10DR0	J10DR1	J10DR2	J10DR3	J10DR3	J10DR3
Sample Information	RFW#:	001	002	003	004	004 MS	004 MSD
	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	68 %	78 %	88 %	78 %	91 %	89 %
	Decachlorobiphenyl	65 %	82 %	89 %	78 %	85 %	87 %
Aroclor-1016		13 U	13 U	13 U	13 U	107 %	180 * %
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	7.5 J	13 U	13 U	108 %	188 * %

	Cust ID:	J10DR4	PBLKWR	PBLKWR BS
Sample Information	RFW#:	005	05LE0917-MB1	05LE0917-MB1
	Matrix:	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	84 %	82 %	84 %
	Decachlorobiphenyl	89 %	87 %	89 %
Aroclor-1016		13 U	13 U	107 %
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	109 %

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

05IIL758

Custody Transfer Record/Lab Work Request

Page 1 of 1

See SRC

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU Hanford RC-051

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: Dr Lotte Johnson

QC: Spec Del: Std TAT: 30 Days

Date Rec'd: 11-17-05 Date Due: 12/17/05

	A-C	D-F	G-I	J-L	M-O	P-R
Refrigerator #	5	5	5	5	5	5
#/Type Container: Solid	9	9	9	9	9	9
Volume: Solid	30g	30g	30g	30g	30g	30g
Preservatives	–	–	–	–	–	–

ANALYSES REQUESTED →

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	PCBs			(3) Metal	CN	Hex Chrome		PAHs			
								ORGANIC						INORG							
								Lionville Laboratory Use Only													
								0625H	0608H		0PCB			Metals①		ZCRC		08310			
001	J10DR0	✓	✓	S	11.15.05	1457		1	1		1			3		1		1			
002	J10DR1	✓	✓			1650		3	1		1			1		3		1			
003	J10DR2	✓	✓			1900		1	3		1			1		1		3			
004	J10DR3	✓	✓			1720		1	1		3			1		1		1			
005	J10DR4					1619		1	1		1			1		1		1			

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

Special Instructions: See attached special instructions

001 - QC on Metals
002 - QC on BNA, CR6
003 - QC on Pest, PAH
004 - QC on PCB
~~005 - QC on NONE~~ Millinios

NON-RAD per OJ / Client

DATE/REVISIONS:

1. Metals① = HSL+ Bi, B, Li, Mo, P, Si, Sr, Sn, U (No Hg)
2. 0608Hj
3. 0PCB R
4. 08310F
5.
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11-17-05	0915

Relinquished by	Received by	Date	Time

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

000000006

FOR 05110758

For Sample prep (which includes the sample, MS, and MSD) use ALL of the volume sent for each assigned test/Lionville sample#; even if the amount sent is greater than the method requirement. With this approach metals and cr6 samples will require multiple digestions.

Separate sample jars are provided for MS and MSD analyses; matrix QC is designated as ~~follows:~~ on the COC

Metals matrix QC must be spike with mercury @ 20 ppb. We are not performing the mercury analysis. A metals digestate aliquot will be sent to STL for mercury by ICP/MS. Please record the mercury spike amounts in the narrative.

%Solids are NOT required.

Samples are nonrad per client.

If you have any questions please ask.

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-051-13	Page 1 of 1

Collector L. COLLOM	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 Upland Backfill Low-116-DR-1&2		SAF No. RC-051	Air Quality	
Ice Chest No.	Field Logbook No. EL-1596	COA BESRAS6520	Method of Shipment FED EX		
Shipped To LIONVILLE	Offsite Property No. A060151		Bill of Lading/Air Bill No.		

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

NONE

Preservation	None	None	None	None	None	None	None	None		
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG	aG		
No. of Container(s)			7	7	7	7	7	7		
Volume	500g	30g	30g	30g	30g	30g	30g	30g		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Chromium Hex - 7196	Semi-VOA - 8270A (TCL)	PAHs - 8310	Pesticides - 8081	PCBs - 8082		

Sample No.	Matrix *	Sample Date	Sample Time										
110DR0	SOIL	11/15/05	14:57			3	1	1	1	1	1		
110DR1	SOIL	11/15/05	16:50			1	3	3	1	1	1		
110DR2	SOIL	11/15/05	19:00			1	1	1	3	3	1		
110DR3	SOIL	11/15/05	17:20			1	1	1	1	1	3		
110DR4	SOIL	11/15/05	16:19			1	1	1	1	1	1		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Elizabeth Tepper	15:00	NA	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Dalth Lupp	11/16/05	Fed ex	15:00 11-16-05
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex	11.17.05 0915	W. Dutch	
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

This chain of custody form documents the transfer of bulk field collected soils to the CH2M Hill Corvallis laboratory for incremental preparation and aliquoting.

(1) Gamma Spec - (Full List) (Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-226, Radium-228)
(2) Strontium-89,90 – Total Sr; Isotopic Thorium (Thorium-232); Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Isotopic Plutonium
(3) 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

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

0000000008

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.A0.ZZ

Site Number: Upland Backfill Low - 116 - DR - 1 & 2

Tray #: 51 Tare Weight: 1454 gm.

Sample #: J10DR0 Total Dry Weight: 5323.1 gm.

Net Dry Sample Weight: 3869.1 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	14:57	500	500.77	AW
Rad Str		30	30.01	AW
ICP Met		30	30.09	AW
Hex Cr		30	30.16	AW
Semi VOA		30	30.10	AW
PAHs		30	30.11	AW
Pest		30	30.43	AW
PCBs		30	30.36	AW
Rad Str MS		30	30.09	AW
Rad Str MSD		30	30.22	AW
ICP Met MS		30	30.14	AW
ICP Met MSD		30	30.62	AW

Comments:

Name (print): Ashley Wille Signature: [illegible]

Sub-Sampled Date: 11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.AC.22

Site Number: Upland Backfill Low - 116 - DR - 1 & 2

Tray #: 34 Tare Weight: 1452 gm.

Sample #: J10DR1 Total Dry Weight: 5265.8 gm.

Net Dry Sample Weight: 3813.8 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	16:50	500	501.05	AW
Rad Str		30	30.05	AW
ICP Met		30	30.02	AW
Hex Cr		30	30.06	AW
Semi VOA		30	30.10	AW
PAHs		30	30.17	AW
Pest		30	30.12	AW
PCBs		30	30.33	AW
Hex Cr MS		30	30.42	AW
Hex Cr MSD		30	30.16	AW
Semi VOA MS		30	30.05	AW
Semi VOA MSD		30	30.07	AW

Comments:

Name (print): Ashley Wille Signature: [illegible]

Sub-Sampled Date: 11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.AO.ZZ

Site Number: Upland Backfill Low - 116 - DR - 1 2 2

Tray #: 56 Tare Weight: 1453 gm.

Sample #: J10DR2 Total Dry Weight: 4549.2 gm.

Net Dry Sample Weight: 3096.2 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	19:00	500	502.3	ET
Rad Str	19:00	30	30.10	ET
ICP Met	19:00	30	30.04	ET
Hex Cr	19:00	30	30.19	ET
Semi VOA	19:00	30	30.01	ET
PAHs	19:00	30	30.10	ET
Pest	19:00	30	30.01	ET
PCBs	19:00	30	30.03	ET
PAHs MS	19:00	30	30.15	ET
PAHs MSD	19:00	30	30.05	ET
Pest MS	19:00	30	30.02	ET
Pest MSD	19:00	30	30.03	ET

Comments:

Name (print): E Teppers Signature: Elizabeth Teppers

Sub-Sampled Date:

11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: KCBRANTIS Project Number: 334247.AO 22

Site Number: Upland Backfill Low - 116 - DR - 1 & 2

Tray #: 33 Tare Weight: 1451 gm.

Sample #: J10DR3 Total Dry Weight: 4507.6 gm.

Net Dry Sample Weight: 3456.6 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	17:20	500	504.4	ET
Rad Str	17:20	30	30.20	ET
ICP Met	17:20	30	30.03	ET
Hex Cr	17:20	30	30.01	ET
Semi VOA	17:20	30	30.05	ET
PAHs	17:20	30	30.07	ET
Pest	17:20	30	30.05	ET
PCBs	17:20	30	30.10	ET
PCB MS	17:20	30	30.10	ET
PCB MSD	17:20	30	30.08	ET

Comments:

Name (print): Elizabeth M Tepper Signature: Elizabeth M Tepper

Sub-Sampled Date:

11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.AO 22

Site Number: Upland Backfill Low - 116 - DR - 1 & 2

Tray #: 55 Tare Weight: 1465 gm.

Sample #: J10DR4 Total Dry Weight: 4244.3 gm.

Net Dry Sample Weight: 2779.3 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	16:19	500	500.4	ET
Rad Str	16:19	30	30.15	ET
ICP Met	16:19	30	30.04	ET
Hex Cr	16:19	30	30.14	ET
Semi VOA	16:19	30	30.20	ET
PAHs	16:19	30	30.15	ET
Pest	16:19	30	30.01	ET
PCBs	16:19	30	30.15	ET

Comments:

Name (print): Elizabeth M Tepper Signature: Elizabeth M Tepper

Sub-Sampled Date: 11/15/05

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford **Date:** 11-17-05

Purchase Order / Project# / SAF# / SOW# / Release #: RC051

LvLI Batch # : 05111L758 **Sample Custodian:**

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier Fed Ex		Airbill# 6595 0629 0092	
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?	Temp 14.1 °C		Cooler # N/A	
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		
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	☐ No		
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☐ Yes	☐ No	☑ No Discrepancies	

SR-002-B

LVLI

RECEIVED
JAN 2006

Lionville Laboratory, Inc.
8310 ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :0511L758

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J10DR0	001	S	05LE0923	11/15/05	11/21/05	12/27/05
J10DR1	002	S	05LE0923	11/15/05	11/21/05	12/27/05
J10DR2	003	S	05LE0923	11/15/05	11/21/05	12/27/05
J10DR2	003 MS	S	05LE0923	11/15/05	11/21/05	12/27/05
J10DR2	003 MSD	S	05LE0923	11/15/05	11/21/05	12/27/05
J10DR3	004	S	05LE0923	11/15/05	11/21/05	12/27/05
J10DR4	005	S	05LE0923	11/15/05	11/21/05	12/28/05

LAB QC:

BLK	MB1	S	05LE0923	N/A	11/21/05	12/22/05
BLK	MB1 BS	S	05LE0923	N/A	11/21/05	12/22/05

12/29/05

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-051
LVL #: 0511L758
SDG/SAF # K0120/RC-051

W.O. #: 11343-606-001-9999-00
Date Received: 11-17-2005

POLYAROMATIC HYDROCARBONS

Five (5) soil samples were collected on 11-15-2005.

The samples and their associated QC samples were extracted on 11-21-2005 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 12-22,27,28-2005. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8310.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from a sample that met LvLI's sample acceptance policy, with the exception of some discrepancies, which have been recorded on the Sample Receipt Checklist.
2. The samples were extracted and analyzed within required holding time.
3. The method blank was below the reporting limits for all target compounds.
4. All obtainable surrogate recoveries were within acceptance criteria.
5. All blank spike recoveries were within acceptance criteria.
6. All matrix spike recoveries were within acceptance criteria.
7. The initial calibrations associated with this data set were within acceptance criteria.
8. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. 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.
10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

12/29/05
Date

kim\r:\group\data\pest\tnu hanford\0511-758.8310

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 1 4 pages.

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

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

Lionville Laboratory, Inc.

PAH'S by HPLC / Method 8310

Report Date: 12/29/05 09:44

RFW Batch Number: 0511L758 Client: TNUHANFORD RC-051 K0120 Work Order: 11343606001 Page: 1

000000004

	Cust ID:	J10DR0		J10DR1		J10DR2		J10DR2		J10DR2		J10DR3	
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	
Triphenylene		103	%	116	%	118	%	126	%	118	%	110	%
==========			fl		fl		fl		fl		fl		fl
Naphthalene		33.5	U	33.5	U	33.5	U	111	%	104	%	33.5	U
Acenaphthylene		33.5	U	33.5	U	33.5	U	69	%	72	%	33.5	U
Acenaphthene		33.5	U	33.5	U	33.5	U	89	%	88	%	33.5	U
Fluorene		3.35	U	3.35	U	3.35	U	106	%	100	%	3.35	U
Phenanthrene		5.2		5.6		3.5		109	%	103	%	3.8	
Anthracene		3.35	U	3.35	U	3.35	U	114	%	109	%	3.35	U
Fluoranthene		23		18		12		125	%	127	%	10	
Pyrene		16		12		7.5		131	%	120	%	6.70	U
Benzo(a)anthracene		8.8		6.6		4.6		120	%	125	%	4.5	
Chrysene		10		6.2		5.8		127	%	112	%	6.0	
Benzo(b)fluoranthrene		19		7.0		6.1		116	%	126	%	4.6	
Benzo(k)fluoranthrene		4.9		3.2	J	3.35	U	127	%	115	%	0.00	
Benzo(a)pyrene		7.4		6.2		3.6		122	%	112	%	3.5	
Dibenzo(a,h)anthracene		3.35	U	3.35	U	3.35	U	122	%	115	%	3.35	U
Benzo(ghi)perylene		6.7		4.3		3.4		122	%	113	%	3.35	U
Indeno(1,2,3-cd)pyrene		3.4		3.35	U	3.35	U	134	%	124	%	3.2	J

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, Inc.

PAH'S by HPLC / Method 8310

Report Date: 12/29/05 09:44

RFW Batch Number: 0511L758 Client: TNUHANFORD RC-051 K0120 Work Order: 11343606001 Page: 2

000000005

	Cust ID:	J10DR4		BLK		BLK BS	
Sample Information	RFW#:	005		05LE0923-MB1		05LE0923-MB1	
	Matrix:	SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg	
Triphenylene		111	%	112	%	108	%
Naphthalene		33.6	U	33.3	U	105	%
Acenaphthylene		33.6	U	33.3	U	93	%
Acenaphthene		33.6	U	33.3	U	99	%
Fluorene		3.36	U	3.33	U	103	%
Phenanthrene		3.36	U	3.33	U	105	%
Anthracene		3.36	U	3.33	U	108	%
Fluoranthene		12		6.67	U	104	%
Pyrene		6.72	U	6.67	U	105	%
Benzo(a)anthracene		5.6		3.33	U	144	%
Chrysene		3.8		3.33	U	122	%
Benzo(b)fluoranthrene		3.5		3.33	U	107	%
Benzo(k)fluoranthrene		3.36	U	3.33	U	104	%
Benzo(a)pyrene		3.36	U	3.33	U	108	%
Dibenzo(a,h)anthracene		3.36	U	3.33	U	109	%
Benzo(ghi)perylene		3.4		3.33	U	106	%
Indeno(1,2,3-cd)pyrene		3.36	U	3.33	U	112	%

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

0511L758

Custody Transfer Record/Lab Work Request

Page 1 of 1

See SRC

LVLI

'FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU Hanford RC-051

Est. Final Proj. Sampling Date:

Project #: 11343-006-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: Dr Lotti Johnson

QC: Spec Del: Std TAT: 30 Days

Date Rec'd: 11-17-05 Date Due: 12/17/05

		A-C	D-F	G-I	J-L	M-O	P-R
Refrigerator #		5	5	5	5	5	5
#/Type Container	Liquid						
	Solid	9	9	9	9	9	9
Volume	Liquid						
	Solid	30g	30g	30g	30g	30g	30g
Preservatives		—	—	—	—	—	—

ANALYSES REQUESTED →

ORGANIC					INORG		
VOA	BNA	Pest/PCB	Herb	PCBs	(3) Metal	CN	Hex Chrome	PAHs

Lionville Laboratory Use Only

								06258	0608H		OPCB			Metals①		ICP6		08310

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														
001	J10DR0	✓	✓	S	11-15-05	1457		1	1		1			3		1		1		
002	J10DR1	✓	✓			1650		3	1		1			1		3		1		
003	J10DR2	✓	✓			1900		1	3		1			1		1		3		
004	J10DR3	✓	✓			1720		1	1		3			1		1		1		
005	J10DR4					1619		1	1		1			1		1		1		

Special Instructions: See attached special instructions

001 - QC on metals
002 - QC on BNA, CRL6
003 - QC on Pest. PAH
004 - QC on PCB
~~005 QC on Hone~~ Philmlos

NON-RAD per OJ / Client

DATE/REVISIONS:
1. Metals① = HSL+ Bi, B, Li, Mo, P, Si, Sr, Sn, U (No Hg)
2. 0608HJ
3. OPCB R
4. 08310F
5.
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11-17-05	0915

Relinquished by	Received by	Date	Time

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

000000006

FOR 05111758

For Sample prep (which includes the sample, MS, and MSD) use ALL of the volume sent for each assigned test/Lionville sample#; even if the amount sent is greater than the method requirement. With this approach metals and cr6 samples will require multiple digestions.

Separate sample jars are provided for MS and MSD analyses; matrix QC is designated as ~~follows:~~ on the COC

Metals matrix QC must be spike with mercury @ 20 ppb. We are not performing the mercury analysis. A metals digestate aliquot will be sent to STL for mercury by ICP/MS. Please record the mercury spike amounts in the narrative.

%Solids are NOT required.

Samples are nonrad per client.

If you have any questions please ask.

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-051-13	Page 1 of 1

Collector L. COLLOM	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH
Price Code 8L	Data Turnaround 45 Days	Air Quality	
Project Designation 100 & 300 Area Component of the RCBRA - Incremental So	Sampling Location Upland Backfill Low-116-DR-1&2		SAF No. RC-051
Ice Chest No.	Field Logbook No. EL-1596	COA BESRAS6520	Method of Shipment FED EX
Shipped To LIONVILLE	Offsite Property No. A060151		Bill of Lading/Air Bill No.

POSSIBLE SAMPLE HAZARDS/REMARKS
NONE

Special Handling and/or Storage
NONE

Preservation	None	None	None	None	None	None	None	None		
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG	aG		
No. of Container(s)			7	7	7	7	7	7		
Volume	500g	30g	30g	30g	30g	30g	30g	30g		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Chromium Rex - 7196	Semi-VOA - 8270A (TCL)	PAHs - 8310	Pesticides - 8081	PCBs - 8082		

Sample No.	Matrix *	Sample Date	Sample Time										
J10DR0	SOIL	11/15/05	14:57			3	1	1	1	1	1		
J10DR1	SOIL	11/15/05	16:50			1	3	3	1	1	1		
J10DR2	SOIL	11/15/05	19:00			1	1	1	3	3	1		
J10DR3	SOIL	11/15/05	17:20			1	1	1	1	1	3		
J10DR4	SOIL	11/15/05	16:19			1	1	1	1	1	1		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Elizabeth Tepper	15:00	NA	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Daleth Lipps	11/16/05	Fed ex	15:00 11-16-05
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[illegible]	11.17.05 0915	[illegible]	
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
This chain of custody form documents the transfer of bulk field collected soils to the CH2M Hill Corvallis laboratory for incremental preparation and aliquoting.

(1) Gamma Spec - (Full List) {Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-226, Radium-228}
(2) Strontium-89,90 – Total Sr; Isotopic Thorium {Thorium-232}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Isotopic Plutonium
(3) 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)

00000008

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.A0.ZZ

Site Number: Upland Backfill Low - 116 - DR - 1 & 2

Tray #: 51 Tare Weight: 1454 gm.

Sample #: J10DR0 Total Dry Weight: 5323.1 gm.

Net Dry Sample Weight: 3869.1 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	14:57	500	500.77	AW
Rad Str		30	30.01	AW
ICP Met		30	30.09	AW
Hex Cr		30	30.16	AW
Semi VOA		30	30.10	AW
PAHs		30	30.11	AW
Pest		30	30.43	AW
PCBs		30	30.36	AW
Rad Str MS		30	30.09	AW
Rad Str MSD		30	30.22	AW
ICP Met MS		30	30.14	AW
ICP Met MSD		30	30.62	AW

Comments:

Name (print): Ashley Wille Signature: [illegible]

Sub-Sampled Date: 11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.AO.ZZ

Site Number: Upland Backfill Low - 116 - DR - 122

Tray #: 34 Tare Weight: 1452 gm.

Sample #: J10DR1 Total Dry Weight: 5265.8 gm.

Net Dry Sample Weight: 3813.8 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	16:50	500	501.05	AW
Rad Str		30	30.05	AW
ICP Met		30	30.02	AW
Hex Cr		30	30.06	AW
Semi VOA		30	30.10	AW
PAHs		30	30.17	AW
Pest		30	30.12	AW
PCBs		30	30.33	AW
Hex Cr MS		30	30.42	AW
Hex Cr MSD		30	30.16	AW
Semi VOA MS		30	30.05	AW
Semi VOA MSD		30	30.07	AW

Comments:

Name (print): Ashley Wille Signature: [illegible]

Sub-Sampled Date: 11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.AC.ZZ

Site Number: Upland Backfill Low - 116 - DR - 1 2 2

Tray #: 56 Tare Weight: 1453 gm.

Sample #: J10DR2 Total Dry Weight: 4549.2 gm.

Net Dry Sample Weight: 3096.2 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	19:00	500	502.3	ET
Rad Str	19:00	30	30.10	ET
ICP Met	19:00	30	30.04	ET
Hex Cr	19:00	30	30.19	ET
Semi VOA	19:00	30	30.01	ET
PAHs	19:00	30	30.10	ET
Pest	19:00	30	30.01	ET
PCBs	19:00	30	30.03	ET
PAHs MS	19:00	30	30.15	ET
PAHs MSD	19:00	30	30.05	ET
Pest MS	19:00	30	30.02	ET
Pest MSD	19:00	30	30.03	ET

Comments:

Name (print): E Tepper Signature: Deborah Tepper

Sub-Sampled Date:
11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.A0.22.

Site Number: Upland Backfill Low - 116 - DR - 122

Tray #: 33 Tare Weight: 1451 gm.

Sample #: J10DR3 Total Dry Weight: 4907.6 gm.

Net Dry Sample Weight: 3456.6 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	17:20	500	504.4	ET
Rad Str	17:20	30	30.20	ET
ICP Met	17:20	30	30.03	ET
Hex Cr	17:20	30	30.01	ET
Semi VOA	17:20	30	30.05	ET
PAHs	17:20	30	30.07	ET
Pest	17:20	30	30.05	ET
PCBs	17:20	30	30.10	ET
PCB MS	17:20	30	30.10	ET
PCB MSD	17:20	30	30.08	ET

Comments:

Name (print): Elizabeth M Tepper Signature: Elizabeth M Tepper

Sub-Sampled Date:

11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247. AC 22

Site Number: Upland Backfill Low - 116 - DR - 1 & 2

Tray #: 55 Tare Weight: 1465 gm.

Sample #: J10DR4 Total Dry Weight: 4244.3 gm.

Net Dry Sample Weight: 2779.3 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	16:19	500	500.4	ET
Rad Str	16:19	30	30.15	ET
ICP Met	16:19	30	30.04	ET
Hex Cr	16:19	30	30.14	ET
Semi VOA	16:19	30	30.20	ET
PAHs	16:19	30	30.15	ET
Pest	16:19	30	30.01	ET
PCBs	16:19	30	30.15	ET

Comments:

Name (print): Elizabeth M Tepper Signature: Elizabeth M Tepper

Sub-Sampled Date: 11/15/05

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford **Date:** 11.17.05

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

LvLI Batch # : 05111L758 **Sample Custodian:**

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier FedEx		Airbill# 6595 0629 0092	
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?	Temp 14.1 °C		Cooler # N/A	
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		
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	☐ No		
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☐ Yes	☐ No	☑ No Discrepancies	

SR-002-B

LvLI

RECEIVED
JAN 2006

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :0511L758

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J10DR0						
SILVER, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
SILVER, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
SILVER, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
ALUMINUM, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
ALUMINUM, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
ALUMINUM, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
ARSENIC, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
ARSENIC, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
ARSENIC, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
BORON, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
BORON, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
BORON, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
BARIUM, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
BARIUM, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
BARIUM, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
BERYLLIUM, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
BERYLLIUM, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
BERYLLIUM, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
BISMUTH, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
BISMUTH, TOTAL REP	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
BISMUTH, TOTAL SPIKE	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
CALCIUM, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
CALCIUM, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
CALCIUM, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
CADMIUM, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
CADMIUM, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
CADMIUM, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
COBALT, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
COBALT, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
COBALT, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
CHROMIUM, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
CHROMIUM, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
CHROMIUM, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
COPPER, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
COPPER, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :0511L758

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
IRON, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
IRON, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
IRON, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
POTASSIUM, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
POTASSIUM, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
POTASSIUM, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
LITHIUM, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
LITHIUM, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
LITHIUM, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
MAGNESIUM, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
MAGNESIUM, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
MAGNESIUM, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
MANGANESE, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
MANGANESE, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
MANGANESE, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
MOLYBDENUM, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
MOLYBDENUM, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
MOLYBDENUM, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
SODIUM, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
SODIUM, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
SODIUM, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
NICKEL, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
NICKEL, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
NICKEL, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
PHOSPHORUS, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/04/06
PHOSPHORUS, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/04/06
PHOSPHORUS, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/04/06
LEAD, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
LEAD, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
LEAD, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
ANTIMONY, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
ANTIMONY, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
ANTIMONY, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
SELENIUM, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
SELENIUM, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
SELENIUM, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
SILICON, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :0511L758

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SILICON, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
SILICON, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
TIN, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
TIN, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
TIN, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
STRONTIUM, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
STRONTIUM, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
STRONTIUM, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
THALLIUM, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
THALLIUM, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
THALLIUM, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
URANIUM, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
URANIUM, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
URANIUM, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
VANADIUM, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
VANADIUM, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
VANADIUM, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
ZINC, TOTAL	001	S	06L0004	11/15/05	01/04/06	01/06/06
ZINC, TOTAL	001 REP	S	06L0004	11/15/05	01/04/06	01/06/06
ZINC, TOTAL	001 MS	S	06L0004	11/15/05	01/04/06	01/06/06
J10DR1						
SILVER, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
ALUMINUM, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
ARSENIC, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
BORON, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
BARIUM, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
BERYLLIUM, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
BISMUTH, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
CALCIUM, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
CADMIUM, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
COBALT, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
CHROMIUM, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
COPPER, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
IRON, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
POTASSIUM, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
LITHIUM, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :0511L758

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
MANGANESE, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
MOLYBDENUM, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
SODIUM, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
NICKEL, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
PHOSPHORUS, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/04/06
LEAD, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
ANTIMONY, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
SELENIUM, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
SILICON, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
TIN, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
STRONTIUM, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
THALLIUM, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
URANIUM, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
VANADIUM, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
ZINC, TOTAL	002	S	05L0766	11/15/05	12/30/05	01/06/06
J10DR2						
SILVER, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
ALUMINUM, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
ARSENIC, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
BORON, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
BARIUM, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
BERYLLIUM, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
BISMUTH, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
CALCIUM, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
CADMIUM, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
COBALT, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
CHROMIUM, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
COPPER, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
IRON, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
POTASSIUM, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
LITHIUM, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
MAGNESIUM, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
MANGANESE, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
MOLYBDENUM, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
SODIUM, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :0511L758

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NICKEL, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
PHOSPHORUS, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/04/06
LEAD, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
ANTIMONY, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
SELENIUM, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
SILICON, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
TIN, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
STRONTIUM, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
THALLIUM, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
URANIUM, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
VANADIUM, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
ZINC, TOTAL	003	S	05L0766	11/15/05	12/30/05	01/06/06
J10DR3						
SILVER, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
ALUMINUM, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
ARSENIC, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
BORON, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
BARIUM, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
BERYLLIUM, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
BISMUTH, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
CALCIUM, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
CADMIUM, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
COBALT, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
CHROMIUM, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
COPPER, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
IRON, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
POTASSIUM, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
LITHIUM, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
MAGNESIUM, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
MANGANESE, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
MOLYBDENUM, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
SODIUM, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
NICKEL, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
PHOSPHORUS, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/09/06
LEAD, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
ANTIMONY, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :0511L758

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
SILICON, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
TIN, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
STRONTIUM, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
THALLIUM, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
URANIUM, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
VANADIUM, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
ZINC, TOTAL	004	S	06L0007	11/15/05	01/05/06	01/06/06
J10DR4						
SILVER, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
ALUMINUM, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
ARSENIC, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
BORON, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
BARIUM, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
BERYLLIUM, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
BISMUTH, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
CALCIUM, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
CADMIUM, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
COBALT, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
CHROMIUM, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
COPPER, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
IRON, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
POTASSIUM, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
LITHIUM, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
MAGNESIUM, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
MANGANESE, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
MOLYBDENUM, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
SODIUM, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
NICKEL, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
PHOSPHORUS, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/09/06
LEAD, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
ANTIMONY, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
SELENIUM, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
SILICON, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
TIN, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
STRONTIUM, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :0511L758

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
THALLIUM, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
URANIUM, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
VANADIUM, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06
ZINC, TOTAL	005	S	06L0007	11/15/05	01/05/06	01/06/06

LAB QC:

SILVER LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
SILVER, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
ALUMINUM LABORTORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
ALUMINUM, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
ARSENIC LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
ARSENIC, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
BORON LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
BORON, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
BARIUM LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
BARIUM, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
BERYLLIUM LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
BERYLLIUM, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
BISMUTH, LCS	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
BISMUTH, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
CALCIUM LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
CALCIUM, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
CADMIUM LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
CADMIUM, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
COBALT LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
COBALT, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
CHROMIUM LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
CHROMIUM, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
COPPER LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
COPPER, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
IRON LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
IRON, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
POTASSIUM LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
POTASSIUM, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
LITHIUM LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
LITHIUM, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
MAGNESIUM LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :0511L758

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
MANGANESE LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
MANGANESE, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
MOLYBDENUM LABORATOR	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
MOLYBDENUM, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
SODIUM LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
SODIUM, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
NICKEL LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
NICKEL, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
PHOSPHORUS LCS	LC1 BS	S	06L0004	N/A	01/04/06	01/04/06
PHOSPHORUS, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/04/06
LEAD LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
LEAD, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
ANTIMONY LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
ANTIMONY, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
SELENIUM LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
SELENIUM, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
SILICON LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
SILICON, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
TIN LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
TIN, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
STRONTIUM LCS STANDA	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
STRONTIUM, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
THALLIUM LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
THALLIUM, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
URANIUM LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
URANIUM, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
VANADIUM LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
VANADIUM, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
ZINC LABORATORY	LC1 BS	S	06L0004	N/A	01/04/06	01/06/06
ZINC, TOTAL	MB1	S	06L0004	N/A	01/04/06	01/06/06
SILVER LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
SILVER, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
ALUMINUM LABORTORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
ALUMINUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
ARSENIC LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
ARSENIC, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
BORON LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06

Lionville Laboratory, Inc.
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BORON, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
BARIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
BARIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
BERYLLIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
BERYLLIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
BISMUTH, LCS	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
BISMUTH, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
CALCIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
CALCIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
CADMIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
CADMIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
COBALT LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
COBALT, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
CHROMIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
CHROMIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
COPPER LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
COPPER, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
IRON LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
IRON, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
POTASSIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
POTASSIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
LITHIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
LITHIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
MAGNESIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
MAGNESIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
MANGANESE LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
MANGANESE, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
MOLYBDENUM LABORATOR	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
MOLYBDENUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
SODIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
SODIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
NICKEL LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
NICKEL, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
PHOSPHORUS LCS	LC1 BS	S	05L0766	N/A	12/30/05	01/04/06
PHOSPHORUS, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/04/06
LEAD LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
LEAD, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
ANTIMONY LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06

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ANTIMONY, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
SELENIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
SELENIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
SILICON LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
SILICON, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
TIN LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
TIN, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
STRONTIUM LCS STANDA	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
STRONTIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
THALLIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
THALLIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
URANIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
URANIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
VANADIUM LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
VANADIUM, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
ZINC LABORATORY	LC1 BS	S	05L0766	N/A	12/30/05	01/06/06
ZINC, TOTAL	MB1	S	05L0766	N/A	12/30/05	01/06/06
SILVER LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
SILVER, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
ALUMINUM LABORTORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
ALUMINUM, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
ARSENIC LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
ARSENIC, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
BORON LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
BORON, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
BARIUM LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
BARIUM, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
BERYLLIUM LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
BERYLLIUM, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
BISMUTH, LCS	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
BISMUTH, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
CALCIUM LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
CALCIUM, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
CADMIUM LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
CADMIUM, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
COBALT LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
COBALT, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
CHROMIUM LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06

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CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
COPPER LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
COPPER, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
IRON LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
IRON, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
POTASSIUM LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
POTASSIUM, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
LITHIUM LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
LITHIUM, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
MAGNESIUM LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
MAGNESIUM, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
MANGANESE LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
MANGANESE, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
MOLYBDENUM LABORATOR	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
MOLYBDENUM, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
SODIUM LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
SODIUM, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
NICKEL LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
NICKEL, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
PHOSPHORUS LCS	LC1 BS	S	06L0007	N/A	01/05/06	01/09/06
PHOSPHORUS, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/09/06
LEAD LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
LEAD, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
ANTIMONY LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
ANTIMONY, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
SELENIUM LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
SELENIUM, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
SILICON LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
SILICON, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
TIN LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
TIN, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
STRONTIUM LCS STANDA	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
STRONTIUM, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
THALLIUM LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
THALLIUM, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
URANIUM LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
URANIUM, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
VANADIUM LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06

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VANADIUM, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06
ZINC LABORATORY	LC1 BS	S	06L0007	N/A	01/05/06	01/06/06
ZINC, TOTAL	MB1	S	06L0007	N/A	01/05/06	01/06/06

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-051
LVL#: 0511L758
SDG/SAF#: K0120/RC-051

W.O.#: 11343-606-001-9999-00
Date Received: 11-17-05

METALS CASE NARRATIVE

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. Aliquots of the resulting digestates were composited to represent each sample for analysis.

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

4. All results presented in this report are derived from samples that met 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 in 05L0766-LC1 (41.1%), 06L0004-LC1 (30.1%), and 06L0007-LC1 (73.4%). Refer to the Inorganics Laboratory Control Standards Report. Associated smaple results may be biased low.

10. The matrix spike (MS) recoveries for 5 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

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 38 pages.

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dilution are performed. A PDS was prepared at meaningful concentration level for the following analytes:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J10DR0	Aluminum	66,000	90.8
	Calcium	66,000	91.2
	Iron	66,000	87.3
	Manganese	3,000	101.7
	Antimony	300	99.5

12. The duplicate analyses for 2 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.

Judy Stone

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

1/10/06
Date

jjw/m11-758

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METALS METHOD GLOSSARY

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

Lot#: 0511L758

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	X 6010B		__200.7				__99
Antimony	X 6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	X 6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	X 6010B		__200.7				__99
Beryllium	X 6010B		__200.7				__99
Bismuth	X 6010B [1]		__200.7 [1]			__1620	__99
Boron	X 6010B		__200.7				__99
Cadmium	X 6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	X 6010B		__200.7				__99
Chromium	X 6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	X 6010B		__200.7				__99
Copper	X 6010B	__7211 [5]	__200.7	__220.2			__99
Iron	X 6010B		__200.7				__99
Lead	X 6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	X 6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	X 6010B		__200.7				__99
Manganese	X 6010B		__200.7				__99
Mercury	__7470A [3]	__7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	X 6010B		__200.7				__99
Nickel	X 6010B		__200.7				__99
Potassium	X 6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	X 6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	X 6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	X 6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	X 6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	X 6010B		__200.7				__99
Thallium	X 6010B	__7841 [5]	__200.7	__279.2 __200.9			__99
Tin	X 6010B		__200.7				__99
Titanium	__6010B		__200.7				__99
Uranium	X 6010B [1]		__200.7 [1]			__1620	__99
Vanadium	X 6010B		__200.7				__99
Zinc	X 6010B		__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.

L-WI-033/N-04/98

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/10/06

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L758

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J10DR0	Silver, Total	0.22 u	MG/KG	0.22	3.0
		Aluminum, Total	5190	MG/KG	2.8	3.0
		Arsenic, Total	2.0	MG/KG	0.53	3.0
		Boron, Total	1.3	MG/KG	0.42	3.0
		Barium, Total	69.2	MG/KG	0.03	3.0
		Beryllium, Total	0.40	MG/KG	0.02	3.0
		Bismuth, Total	1.3	MG/KG	0.95	3.0
		Calcium, Total	5490	MG/KG	1.8	3.0
		Cadmium, Total	0.11 u	MG/KG	0.11	3.0
		Cobalt, Total	7.2	MG/KG	0.19	3.0
		Chromium, Total	8.0	MG/KG	0.25	3.0
		Copper, Total	15.5	MG/KG	0.19	3.0
		Iron, Total	20300	MG/KG	5.0	3.0
		Potassium, Total	1160	MG/KG	8.6	3.0
		Lithium, Total	6.0	MG/KG	0.05	3.0
		Magnesium, Total	4170	MG/KG	2.1	3.0
		Manganese, Total	315	MG/KG	0.03	3.0
		Molybdenum, Total	0.31	MG/KG	0.20	3.0
		Sodium, Total	144	MG/KG	0.26	3.0
		Nickel, Total	10.7	MG/KG	0.20	3.0
		Phosphorus, Total	991	MG/KG	0.43	1.0
		Lead, Total	5.5	MG/KG	0.48	3.0
		Antimony, Total	0.62 u	MG/KG	0.62	3.0
		Selenium, Total	0.56 u	MG/KG	0.56	3.0
		Silicon, Total	262	MG/KG	1.3	3.0
		Tin, Total	0.81 u	MG/KG	0.81	3.0
		Strontium, Total	24.7	MG/KG	0.02	3.0
		Thallium, Total	0.99 u	MG/KG	0.99	3.0
		Uranium, Total	3.2 u	MG/KG	3.2	3.0
		Vanadium, Total	47.9	MG/KG	0.14	3.0
		Zinc, Total	41.5	MG/KG	0.08	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/10/06

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L758

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J10DR1	Silver, Total	0.22 u	MG/KG	0.22	3.0
		Aluminum, Total	5010	MG/KG	2.9	3.0
		Arsenic, Total	2.3	MG/KG	0.53	3.0
		Boron, Total	1.7	MG/KG	0.42	3.0
		Barium, Total	68.0	MG/KG	0.03	3.0
		Beryllium, Total	0.41	MG/KG	0.02	3.0
		Bismuth, Total	0.95 u	MG/KG	0.95	3.0
		Calcium, Total	5560	MG/KG	1.9	3.0
		Cadmium, Total	0.11 u	MG/KG	0.11	3.0
		Cobalt, Total	7.5	MG/KG	0.19	3.0
		Chromium, Total	8.2	MG/KG	0.25	3.0
		Copper, Total	14.3	MG/KG	0.19	3.0
		Iron, Total	20400	MG/KG	5.0	3.0
		Potassium, Total	1090	MG/KG	8.7	3.0
		Lithium, Total	5.7	MG/KG	0.05	3.0
		Magnesium, Total	4140	MG/KG	2.1	3.0
		Manganese, Total	322	MG/KG	0.03	3.0
		Molybdenum, Total	0.29	MG/KG	0.20	3.0
		Sodium, Total	161	MG/KG	0.27	3.0
		Nickel, Total	10.9	MG/KG	0.20	3.0
		Phosphorus, Total	1020	MG/KG	0.43	1.0
		Lead, Total	4.8	MG/KG	0.48	3.0
		Antimony, Total	0.63 u	MG/KG	0.63	3.0
		Selenium, Total	0.56 u	MG/KG	0.56	3.0
		Silicon, Total	395	MG/KG	1.3	3.0
		Tin, Total	1.4	MG/KG	0.81	3.0
		Strontium, Total	24.0	MG/KG	0.02	3.0
		Thallium, Total	1.0 u	MG/KG	1.0	3.0
		Uranium, Total	3.2 u	MG/KG	3.2	3.0
		Vanadium, Total	47.2	MG/KG	0.14	3.0
		Zinc, Total	41.4	MG/KG	0.08	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/10/06

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L758

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	J10DR2	Silver, Total	0.22 u	MG/KG	0.22	3.0
		Aluminum, Total	5270	MG/KG	2.9	3.0
		Arsenic, Total	2.1	MG/KG	0.53	3.0
		Boron, Total	1.4	MG/KG	0.42	3.0
		Barium, Total	70.1	MG/KG	0.03	3.0
		Beryllium, Total	0.40	MG/KG	0.02	3.0
		Bismuth, Total	0.96 u	MG/KG	0.96	3.0
		Calcium, Total	5650	MG/KG	1.9	3.0
		Cadmium, Total	0.11 u	MG/KG	0.11	3.0
		Cobalt, Total	7.8	MG/KG	0.19	3.0
		Chromium, Total	7.6	MG/KG	0.25	3.0
		Copper, Total	13.8	MG/KG	0.19	3.0
		Iron, Total	21100	MG/KG	5.0	3.0
		Potassium, Total	1120	MG/KG	8.7	3.0
		Lithium, Total	5.9	MG/KG	0.05	3.0
		Magnesium, Total	4200	MG/KG	2.1	3.0
		Manganese, Total	326	MG/KG	0.03	3.0
		Molybdenum, Total	0.20 u	MG/KG	0.20	3.0
		Sodium, Total	158	MG/KG	0.27	3.0
		Nickel, Total	10.3	MG/KG	0.20	3.0
		Phosphorus, Total	989	MG/KG	0.43	1.0
		Lead, Total	5.0	MG/KG	0.49	3.0
		Antimony, Total	0.63 u	MG/KG	0.63	3.0
		Selenium, Total	0.56 u	MG/KG	0.56	3.0
		Silicon, Total	431	MG/KG	1.3	3.0
		Tin, Total	0.81 u	MG/KG	0.81	3.0
		Strontium, Total	24.1	MG/KG	0.02	3.0
		Thallium, Total	1.0 u	MG/KG	1.0	3.0
		Uranium, Total	3.2 u	MG/KG	3.2	3.0
		Vanadium, Total	48.7	MG/KG	0.14	3.0
		Zinc, Total	42.3	MG/KG	0.08	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/10/06

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L758

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	J10DR3	Silver, Total	0.22 u	MG/KG	0.22	3.0
		Aluminum, Total	5450	MG/KG	2.8	3.0
		Arsenic, Total	2.4	MG/KG	0.53	3.0
		Boron, Total	2.0	MG/KG	0.42	3.0
		Barium, Total	69.9	MG/KG	0.03	3.0
		Beryllium, Total	0.57	MG/KG	0.02	3.0
		Bismuth, Total	0.94 u	MG/KG	0.94	3.0
		Calcium, Total	5750	MG/KG	1.8	3.0
		Cadmium, Total	0.11 u	MG/KG	0.11	3.0
		Cobalt, Total	7.0	MG/KG	0.19	3.0
		Chromium, Total	7.7	MG/KG	0.25	3.0
		Copper, Total	14.9	MG/KG	0.19	3.0
		Iron, Total	20900	MG/KG	5.0	3.0
		Potassium, Total	1150	MG/KG	8.6	3.0
		Lithium, Total	6.2	MG/KG	0.05	3.0
		Magnesium, Total	4220	MG/KG	2.1	3.0
		Manganese, Total	309	MG/KG	0.03	3.0
		Molybdenum, Total	0.47	MG/KG	0.20	3.0
		Sodium, Total	165	MG/KG	0.26	3.0
		Nickel, Total	9.6	MG/KG	0.20	3.0
		Phosphorus, Total	992	MG/KG	0.43	1.0
		Lead, Total	4.1	MG/KG	0.48	3.0
		Antimony, Total	0.62 u	MG/KG	0.62	3.0
		Selenium, Total	0.56 u	MG/KG	0.56	3.0
		Silicon, Total	279	MG/KG	1.3	3.0
		Tin, Total	0.80 u	MG/KG	0.80	3.0
		Strontium, Total	25.6	MG/KG	0.02	3.0
		Thallium, Total	0.99 u	MG/KG	0.99	3.0
		Uranium, Total	3.2 u	MG/KG	3.2	3.0
		Vanadium, Total	50.4	MG/KG	0.14	3.0
		Zinc, Total	41.0	MG/KG	0.08	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/10/06

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L758

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	J10DR4	Silver, Total	0.21 u	MG/KG	0.21	3.0
		Aluminum, Total	5420	MG/KG	2.8	3.0
		Arsenic, Total	2.8	MG/KG	0.52	3.0
		Boron, Total	1.8	MG/KG	0.41	3.0
		Barium, Total	68.3	MG/KG	0.03	3.0
		Beryllium, Total	0.54	MG/KG	0.02	3.0
		Bismuth, Total	0.94 u	MG/KG	0.94	3.0
		Calcium, Total	5680	MG/KG	1.8	3.0
		Cadmium, Total	0.11 u	MG/KG	0.11	3.0
		Cobalt, Total	6.9	MG/KG	0.18	3.0
		Chromium, Total	8.3	MG/KG	0.25	3.0
		Copper, Total	15.9	MG/KG	0.18	3.0
		Iron, Total	20700	MG/KG	4.9	3.0
		Potassium, Total	1110	MG/KG	8.5	3.0
		Lithium, Total	6.1	MG/KG	0.05	3.0
		Magnesium, Total	4210	MG/KG	2.1	3.0
		Manganese, Total	305	MG/KG	0.03	3.0
		Molybdenum, Total	0.34	MG/KG	0.20	3.0
		Sodium, Total	156	MG/KG	0.26	3.0
		Nickel, Total	10.0	MG/KG	0.20	3.0
		Phosphorus, Total	984	MG/KG	0.42	1.0
		Lead, Total	5.7	MG/KG	0.48	3.0
		Antimony, Total	0.61 u	MG/KG	0.61	3.0
		Selenium, Total	0.55 u	MG/KG	0.55	3.0
		Silicon, Total	266	MG/KG	1.3	3.0
		Tin, Total	2.0	MG/KG	0.80	3.0
		Strontium, Total	25.9	MG/KG	0.02	3.0
		Thallium, Total	1.0	MG/KG	0.98	3.0
		Uranium, Total	3.2 u	MG/KG	3.2	3.0
		Vanadium, Total	50.3	MG/KG	0.14	3.0
		Zinc, Total	41.3	MG/KG	0.08	3.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/10/06

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L758

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	06L0004-MB1	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	2.9	MG/KG	0.92	1.0
		Arsenic, Total	0.17 u	MG/KG	0.17	1.0
		Boron, Total	0.14 u	MG/KG	0.14	1.0
		Barium, Total	0.01 u	MG/KG	0.01	1.0
		Beryllium, Total	0.006	MG/KG	0.005	1.0
		Bismuth, Total	0.30 u	MG/KG	0.30	1.0
		Calcium, Total	0.79	MG/KG	0.60	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Cobalt, Total	0.06 u	MG/KG	0.06	1.0
		Chromium, Total	0.08 u	MG/KG	0.08	1.0
		Copper, Total	0.06 u	MG/KG	0.06	1.0
		Iron, Total	1.6 u	MG/KG	1.6	1.0
		Potassium, Total	2.8 u	MG/KG	2.8	1.0
		Lithium, Total	0.02 u	MG/KG	0.02	1.0
		Magnesium, Total	0.68 u	MG/KG	0.68	1.0
		Manganese, Total	0.01 u	MG/KG	0.01	1.0
		Molybdenum, Total	0.11	MG/KG	0.06	1.0
		Sodium, Total	0.26	MG/KG	0.08	1.0
		Nickel, Total	0.13	MG/KG	0.06	1.0
		Phosphorus, Total	0.42 u	MG/KG	0.42	1.0
		Lead, Total	0.16 u	MG/KG	0.16	1.0
		Antimony, Total	0.20 u	MG/KG	0.20	1.0
		Selenium, Total	0.18 u	MG/KG	0.18	1.0
		Silicon, Total	0.41 u	MG/KG	0.41	1.0
		Tin, Total	0.60	MG/KG	0.26	1.0
		Strontium, Total	0.005u	MG/KG	0.005	1.0
		Thallium, Total	0.32 u	MG/KG	0.32	1.0
		Uranium, Total	1.0 u	MG/KG	1.0	1.0
		Vanadium, Total	0.04 u	MG/KG	0.04	1.0
		Zinc, Total	0.02 u	MG/KG	0.02	1.0
BLANK1	05L0766-MB1	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	1.6	MG/KG	0.92	1.0
		Arsenic, Total	0.17 u	MG/KG	0.17	1.0
		Boron, Total	0.14 u	MG/KG	0.14	1.0
		Barium, Total	0.01 u	MG/KG	0.01	1.0
		Beryllium, Total	0.005u	MG/KG	0.005	1.0
		Bismuth, Total	0.30 u	MG/KG	0.30	1.0
		Calcium, Total	0.74	MG/KG	0.60	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/10/06

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L758

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	05L0766-MB1	Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Cobalt, Total	0.06 u	MG/KG	0.06	1.0
		Chromium, Total	0.08 u	MG/KG	0.08	1.0
		Copper, Total	0.06 u	MG/KG	0.06	1.0
		Iron, Total	1.6 u	MG/KG	1.6	1.0
		Potassium, Total	2.8 u	MG/KG	2.8	1.0
		Lithium, Total	0.02 u	MG/KG	0.02	1.0
		Magnesium, Total	0.68 u	MG/KG	0.68	1.0
		Manganese, Total	0.01 u	MG/KG	0.01	1.0
		Molybdenum, Total	0.08	MG/KG	0.06	1.0
		Sodium, Total	0.16	MG/KG	0.08	1.0
		Nickel, Total	0.06 u	MG/KG	0.06	1.0
		Phosphorus, Total	0.62	MG/KG	0.42	1.0
		Lead, Total	0.16 u	MG/KG	0.16	1.0
		Antimony, Total	0.20 u	MG/KG	0.20	1.0
		Selenium, Total	0.18 u	MG/KG	0.18	1.0
		Silicon, Total	0.41 u	MG/KG	0.41	1.0
		Tin, Total	0.50	MG/KG	0.26	1.0
		Strontium, Total	0.005u	MG/KG	0.005	1.0
		Thallium, Total	0.32 u	MG/KG	0.32	1.0
		Uranium, Total	1.0 u	MG/KG	1.0	1.0
		Vanadium, Total	0.04 u	MG/KG	0.04	1.0
		Zinc, Total	0.02 u	MG/KG	0.02	1.0
BLANK1	06L0007-MB1	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	0.92 u	MG/KG	0.92	1.0
		Arsenic, Total	0.17 u	MG/KG	0.17	1.0
		Boron, Total	0.14 u	MG/KG	0.14	1.0
		Barium, Total	0.01 u	MG/KG	0.01	1.0
		Beryllium, Total	0.005u	MG/KG	0.005	1.0
		Bismuth, Total	0.3 ~~0.6~~ u	MG/KG	~~0.6~~ 0.3	1.0
		Calcium, Total	0.95	MG/KG	0.60	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Cobalt, Total	0.06 u	MG/KG	0.06	1.0
		Chromium, Total	0.08 u	MG/KG	0.08	1.0
		Copper, Total	0.06	MG/KG	0.06	1.0
		Iron, Total	1.6 u	MG/KG	1.6	1.0
		Potassium, Total	2.8 u	MG/KG	2.8	1.0
		Lithium, Total	0.02 u	MG/KG	0.02	1.0
		Magnesium, Total	0.68 u	MG/KG	0.68	1.0

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Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/10/06

CLIENT: TNUHANFORD RC-051 K0120

LVL LOT #: 0511L758

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	06L0007-MB1	Manganese, Total	0.02	MG/KG	0.01	1.0
		Molybdenum, Total	0.15	MG/KG	0.06	1.0
		Sodium, Total	0.56	MG/KG	0.08	1.0
		Nickel, Total	0.06 u	MG/KG	0.06	1.0
		Phosphorus, Total	0.63	MG/KG	0.42	1.0
		Lead, Total	0.16 u	MG/KG	0.16	1.0
		Antimony, Total	0.20 u	MG/KG	0.20	1.0
		Selenium, Total	0.18 u	MG/KG	0.18	1.0
		Silicon, Total	0.41 u	MG/KG	0.41	1.0
		Tin, Total	0.62	MG/KG	0.26	1.0
		Strontium, Total	0.005u	MG/KG	0.005	1.0
		Thallium, Total	0.32 u	MG/KG	0.32	1.0
		Uranium, Total	1.0 u	MG/KG	1.0	1.0
		Vanadium, Total	0.04 u	MG/KG	0.04	1.0
		Zinc, Total	0.02 u	MG/KG	0.02	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/10/06

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L758

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J10DR0	Silver, Total	2.2	0.22u	2.5	88.0	3.0
		Aluminum, Total	5880	5190	100	691.1*	3.0
		Arsenic, Total	99.1	2.0	100	96.7	3.0
		Boron, Total	47.3	1.3	50.2	91.6	3.0
		Barium, Total	163	69.2	100	93.3	3.0
		Beryllium, Total	3.0	0.40	2.5	104.0	3.0
		Bismuth, Total	47.7	1.3	50.2	92.4	3.0
		Calcium, Total	7080	5490	1260	126.9*	3.0
		Cadmium, Total	2.4	0.11u	2.5	96.0	3.0
		Cobalt, Total	32.5	7.2	25.1	100.8	3.0
		Chromium, Total	18.7	8.0	10.0	107.0	3.0
		Copper, Total	27.0	15.5	12.6	91.3	3.0
		Iron, Total	22300	20300	50.2	3991 *	3.0
		Potassium, Total	2260	1160	1260	87.3	3.0
		Lithium, Total	55.4	6.0	50.2	98.4	3.0
		Magnesium, Total	5510	4170	1260	106.3	3.0
		Manganese, Total	366	315	25.1	201.2*	3.0
		Molybdenum, Total	47.0	0.31	50.2	93.0	3.0
		Sodium, Total	1310	144	1260	92.9	3.0
		Nickel, Total	35.9	10.7	25.1	100.4	3.0
		Phosphorus, Total	1230	991	251	93.5	1.0
		Lead, Total	30.3	5.5	25.1	98.8	3.0
		Antimony, Total	9.9	0.62u	25.1	39.4	3.0
		Selenium, Total	94.6	0.56u	100	94.2	3.0
		Silicon, Total	306	262	50.2	88.2*	3.0
		Tin, Total	48.6	0.81u	50.2	96.8	3.0
		Strontium, Total	71.2	24.7	50.2	92.6	3.0
		Thallium, Total	94.9	0.99u	100	94.5	3.0
		Uranium, Total	42.6	3.2 u	50.2	84.9	3.0
		Vanadium, Total	76.9	47.9	25.1	115.5	3.0
		Zinc, Total	69.1	41.5	25.1	110.0	3.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/10/06

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L758

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J10DR0	Silver, Total	0.22u	0.22u	NC	3.0
		Aluminum, Total	5190	5110	1.4	3.0
		Arsenic, Total	2.0	2.3	14.0	3.0
		Boron, Total	1.3	1.3	0.00	3.0
		Barium, Total	69.2	70.4	1.7	3.0
		Beryllium, Total	0.40	0.41	2.5	3.0
		Bismuth, Total	1.3	0.94u	~~NC~~	3.0
		Calcium, Total	5490	5640	2.7	3.0
		Cadmium, Total	0.11u	0.11u	NC	3.0
		Cobalt, Total	7.2	7.5	4.1	3.0
		Chromium, Total	8.0	8.2	2.5	3.0
		Copper, Total	15.5	15.4	0.65	3.0
		Iron, Total	20300	20900	3.4	3.0
		Potassium, Total	1160	1150	1.5	3.0
		Lithium, Total	6.0	5.9	1.7	3.0
		Magnesium, Total	4170	4160	0.30	3.0
		Manganese, Total	315	326	3.3	3.0
		Molybdenum, Total	0.31	0.25	21.2	3.0
		Sodium, Total	144	142	0.91	3.0
		Nickel, Total	10.7	10.7	0.00	3.0
		Phosphorus, Total	991	995	0.40	1.0
		Lead, Total	5.5	5.5	0.00	3.0
		Antimony, Total	0.62u	0.62u	NC	3.0
		Selenium, Total	0.56u	0.55u	NC	3.0
		Silicon, Total	262	266	1.5	3.0
		Tin, Total	0.81u	0.80u	NC	3.0
		Strontium, Total	24.7	24.7	0.00	3.0
		Thallium, Total	0.99u	0.98u	NC	3.0
		Uranium, Total	3.2 u	3.2 u	NC	3.0
		Vanadium, Total	47.9	49.5	3.3	3.0
		Zinc, Total	41.5	42.8	3.1	3.0

JWW 1/10/06

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/10/06

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L758

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	06L0004-LC1	Silver, LCS	24.4	25.0	MG/KG	97.6
		Aluminum, LCS	243	250	MG/KG	97.2
		Arsenic, LCS	470	500	MG/KG	94.1
		Boron, LCS	235	250	MG/KG	93.8
		Barium, LCS	244	250	MG/KG	97.8
		Beryllium, LCS	12.6	12.5	MG/KG	100.8
		Bismuth, LCS	48.8	50.0	MG/KG	97.7
		Calcium, LCS	1250	1250	MG/KG	99.8
		Cadmium, LCS	12.6	12.5	MG/KG	100.8
		Cobalt, LCS	126	125	MG/KG	101.0
		Chromium, LCS	25.6	25.0	MG/KG	102.4
		Copper, LCS	61.3	62.5	MG/KG	98.1
		Iron, LCS	253	250	MG/KG	101.1
		Potassium, LCS	1140	1250	MG/KG	90.9
		Lithium, LCS	257	250	MG/KG	102.9
		Magnesium, LCS	1190	1250	MG/KG	95.5
		Manganese, LCS	38.4	37.5	MG/KG	102.4
		Molybdenum, LCS	248	250	MG/KG	99.4
		Sodium, LCS	1170	1250	MG/KG	93.3
		Nickel, LCS	99.7	100	MG/KG	99.7
		Phosphorus, LCS	222	250	MG/KG	89.0
		Lead, LCS	124	125	MG/KG	99.0
		Antimony, LCS	143	150	MG/KG	95.5
		Selenium, LCS	453	500	MG/KG	90.6
		Silicon, LCS	75.2	250	MG/KG	30.1
		Tin, LCS	247	250	MG/KG	98.9
		Strontium, LCS	244	250	MG/KG	97.8
		Thallium, LCS	495	500	MG/KG	99.1
		Uranium, LCS	48.8	50.0	MG/KG	97.6
		Vanadium, LCS	124	125	MG/KG	99.4
		Zinc, LCS	49.1	50.0	MG/KG	98.2
LCS1	05L0766-LC1	Silver, LCS	24.6	25.0	MG/KG	98.4
		Aluminum, LCS	247	250	MG/KG	98.8
		Arsenic, LCS	500	500	MG/KG	99.9
		Boron, LCS	248	250	MG/KG	99.1
		Barium, LCS	245	250	MG/KG	97.9
		Beryllium, LCS	13.4	12.5	MG/KG	107.2
		Bismuth, LCS	49.4	50.0	MG/KG	98.7
		Calcium, LCS	1310	1250	MG/KG	104.5

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/10/06

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L758

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	05L0766-LC1	Cadmium, LCS	13.4	12.5	MG/KG	107.2
		Cobalt, LCS	131	125	MG/KG	104.9
		Chromium, LCS	26.5	25.0	MG/KG	106.0
		Copper, LCS	61.9	62.5	MG/KG	99.0
		Iron, LCS	261	250	MG/KG	104.4
		Potassium, LCS	1120	1250	MG/KG	89.7
		Lithium, LCS	260	250	MG/KG	104.1
		Magnesium, LCS	1220	1250	MG/KG	97.6
		Manganese, LCS	39.9	37.5	MG/KG	106.4
		Molybdenum, LCS	258	250	MG/KG	103.0
		Sodium, LCS	1170	1250	MG/KG	93.5
		Nickel, LCS	105	100	MG/KG	104.7
		Phosphorus, LCS	228	250	MG/KG	91.0
		Lead, LCS	129	125	MG/KG	103.4
		Antimony, LCS	148	150	MG/KG	98.7
		Selenium, LCS	482	500	MG/KG	96.3
		Silicon, LCS	103	250	MG/KG	41.1
		Tin, LCS	259	250	MG/KG	103.6
		Strontium, LCS	246	250	MG/KG	98.4
		Thallium, LCS	511	500	MG/KG	102.2
		Uranium, LCS	48.7	50.0	MG/KG	97.4
		Vanadium, LCS	128	125	MG/KG	102.2
		Zinc, LCS	51.1	50.0	MG/KG	102.2
LCS1	06L0007-LC1	Silver, LCS	24.9	25.0	MG/KG	99.7
		Aluminum, LCS	250	250	MG/KG	100.2
		Arsenic, LCS	475	500	MG/KG	94.9
		Boron, LCS	241	250	MG/KG	96.3
		Barium, LCS	250	250	MG/KG	100
		Beryllium, LCS	12.6	12.5	MG/KG	100.6
		Bismuth, LCS	48.6	50.0	MG/KG	97.1
		Calcium, LCS	1260	1250	MG/KG	100.6
		Cadmium, LCS	12.6	12.5	MG/KG	100.7
		Cobalt, LCS	127	125	MG/KG	101.2
		Chromium, LCS	25.6	25.0	MG/KG	102.4
		Copper, LCS	63.7	62.5	MG/KG	101.9
		Iron, LCS	255	250	MG/KG	102.0
		Potassium, LCS	1150	1250	MG/KG	92.2
		Lithium, LCS	262	250	MG/KG	104.7
		Magnesium, LCS	1230	1250	MG/KG	98.6

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/10/06

CLIENT: TNUHANFORD RC-051 K0120 LVL LOT #: 0511L758

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	06L0007-LC1	Manganese, LCS	38.9	37.5	MG/KG	103.6
		Molybdenum, LCS	250	250	MG/KG	99.8
		Sodium, LCS	1190	1250	MG/KG	95.2
		Nickel, LCS	99.8	100	MG/KG	99.8
		Phosphorus, LCS	229	250	MG/KG	91.6
		Lead, LCS	124	125	MG/KG	99.1
		Antimony, LCS	144	150	MG/KG	95.7
		Selenium, LCS	451	500	MG/KG	90.2
		Silicon, LCS	184	250	MG/KG	73.4
		Tin, LCS	249	250	MG/KG	99.5
		Strontium, LCS	249	250	MG/KG	99.6
		Thallium, LCS	491	500	MG/KG	98.1
		Uranium, LCS	50.4	50.0	MG/KG	100.7
		Vanadium, LCS	127	125	MG/KG	101.5
		Zinc, LCS	49.4	50.0	MG/KG	98.8

Lionville Laboratory Use Only

0511L758

Custody Transfer Record/Lab Work Request

Page 1 of 1

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: Dr Lotte Johnson

QC: Spec Del: Std TAT: 30 Days

Date Rec'd: 11.17.05 Date Due: 12/17/05

		A-C	D-F	G-I			J-L		M-O		P-R			
Refrigerator #		5	5	5			5		5		5			
#/Type Container	Liquid													
	Solid	9	9	9			9		9		9			
Volume	Liquid													
	Solid	30g	30g	30g			30g		30g		30g			
Preservatives		—	—	—			—		—		—			
ANALYSES REQUESTED →		ORGANIC					INORG							
		VOA	BNA	Pest/PCB	Herb	PCBs			(3) Metal	CN	Hex Chrome		PAHs			
		Lionville Laboratory Use Only												
			0425H	0408H		0PCB			Metals①		ZCRL		0810			

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														
001	J10DR0	✓	✓	S	11.15.05	1457		1	1		1			3		1		1		
002	J10DR1	✓	✓			1650		3	1		1			1		3		1		
003	J10DR2	✓	✓			1900		1	3		1			1		1		3		
004	J10DR3	✓	✓			1720		1	1		3			1		1		1		
005	J10DR4					1619		1	1		1			1		1		1		

Special Instructions: See attached special instructions

001 - QC on metals
002 - QC on BNA, CRL6
003 - QC on Pest, PAH
004 - QC on PCB
~~005 - QC on NONE~~ Pulmlos

NON-RAD per OJ / client

DATE/REVISIONS:
1. Metals① = HSL+ Bi, B, Li, Mo, P, Si, Sr, Sn, U (No Hg)
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11.17.05	0915

Relinquished by	Received by	Date	Time

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

000000030

FOR 0511L758

For Sample prep (which includes the sample, MS, and MSD) use ALL of the volume sent for each assigned test/Lionville sample#; even if the amount sent is greater than the method requirement. With this approach metals and cr6 samples will require multiple digestions.

Separate sample jars are provided for MS and MSD analyses; matrix QC is designated as ~~follows:~~ on the COC

Metals matrix QC must be spike with mercury @ 20 ppb. We are not performing the mercury analysis. A metals digestate aliquot will be sent to STL for mercury by ICP/MS. Please record the mercury spike amounts in the narrative.

%Solids are NOT required.

Samples are nonrad per client.

If you have any questions please ask.

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-051-13	Page 1 of 1

Collector L. COLLOM	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH
Price Code 8L	Data Turnaround 45 Days	Air Quality	
Project Designation 100 & 300 Area Component of the RCBRA - Incremental So	Sampling Location Upland Backfill Low-116-DR-1&2		SAF No. RC-051
Ice Chest No.	Field Logbook No. EL-1596	COA BESRAS6520	Method of Shipment FED EX
Shipped To LIONVILLE	Offsite Property No. A060151		Bill of Lading/Air Bill No.

00000032

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

NONE

Preservation	None	None	None	None	None	None	None	None		
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG	aG		
No. of Container(s)			7	7	7	7	7	7		
Volume	500g	30g	30g	30g	30g	30g	30g	30g		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Chromium Hex - 7196	Semi-VOA - 8270A (TCL)	PAHs - 8310	Pesticides - 8081	PCBs - 8082		

Sample No.	Matrix *	Sample Date	Sample Time										
J10DR0	SOIL	11/15/05	14:57			3	1	1	1	1	1		
J10DR1	SOIL	11/15/05	16:50			1	3	3	1	1	1		
J10DR2	SOIL	11/15/05	19:00			1	1	1	3	3	1		
J10DR3	SOIL	11/15/05	17:20			1	1	1	1	1	3		
J10DR4	SOIL	11/15/05	16:19			1	1	1	1	1	1		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Elizabeth Tepper	15:00	NA	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Daleth Tepper	11/16/05	Fed ex	15:00 11-16-05
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed ex	11.17.05 0915	[illegible]	
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

This chain of custody form documents the transfer of bulk field collected soils to the CH2M Hill Corvallis laboratory for incremental preparation and aliquoting.

(1) Gamma Spec - (Full List) {Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-226, Radium-228}
(2) Strontium-89,90 – Total Sr; Isotopic Thorium {Thorium-232}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Isotopic Plutonium
(3) 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
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

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

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.A0.ZZ

Site Number: Upland Backfill Low - 116 - DR - 1 & 2

Tray #: 51 Tare Weight: 1454 gm.

Sample #: J10DR0 Total Dry Weight: 5323.1 gm.

Net Dry Sample Weight: 3869.1 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	14:57	500	500.77	AW
Rad Str		30	30.01	AW
ICP Met		30	30.09	AW
Hex Cr		30	30.16	AW
Semi VOA		30	30.10	AW
PAHs		30	30.11	AW
Pest		30	30.43	AW
PCBs		30	30.36	AW
Rad Str MS		30	30.09	AW
Rad Str MSD		30	30.22	AW
ICP Met MS		30	30.14	AW
ICP Met MSD		30	30.62	AW

Comments:

Name (print): Ashley Wille Signature: [illegible]

Sub-Sampled Date: 11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMTS Project Number: 334247.AC.22

Site Number: Upland Backfill Low - 116 - DR - 1 & 2

Tray #: 34 Tare Weight: 1452 gm.

Sample #: J10DR1 Total Dry Weight: 5265.8 gm.

Net Dry Sample Weight: 3813.8 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	16:50	500	501.05	AW
Rad Str		30	30.05	AW
ICP Met		30	30.02	AW
Hex Cr		30	30.06	AW
Semi VOA		30	30.10	AW
PAHs		30	30.17	AW
Pest		30	30.12	AW
PCBs		30	30.33	AW
Hex Cr MS		30	30.42	AW
Hex Cr MSD		30	30.16	AW
Semi VOA MS		30	30.05	AW
Semi VOA MSD		30	30.07	AW

Comments:

Name (print): Ashley Wille Signature: [illegible]

Sub-Sampled Date: 11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.AC.ZZ

Site Number: Upland Backfill Low - 116 - DR - 1 & 2

Tray #: 56 Tare Weight: 1453 gm.

Sample #: J10DR2 Total Dry Weight: 4549.2 gm.

Net Dry Sample Weight: 3096.2 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	19:00	500	502.3	ET
Rad Str	19:00	30	30.10	ET
ICP Met	19:00	30	30.04	ET
Hex Cr	19:00	30	30.19	ET
Semi VOA	19:00	30	30.01	ET
PAHs	19:00	30	30.10	ET
Pest	19:00	30	30.01	ET
PCBs	19:00	30	30.03	ET
PAHs MS	19:00	30	30.15	ET
PAHs MSD	19:00	30	30.05	ET
Pest MS	19:00	30	30.02	ET
Pest MSD	19:00	30	30.03	ET

Comments:

Name (print): E Tepper Signature: Deborah Tepper

Sub-Sampled Date:

11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.AO.ZZ

Site Number: Upland Backfill Low - 116 - DR - 1 2 2

Tray #: 33 Tare Weight: 1451 gm.

Sample #: J10DR3 Total Dry Weight: 4907.6 gm.

Net Dry Sample Weight: 3456.6 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	17:20	500	504.4	ET
Rad Str	17:20	30	30.20	ET
ICP Met	17:20	30	30.03	ET
Hex Cr	17:20	30	30.01	ET
Semi VOA	17:20	30	30.05	ET
PAHs	17:20	30	30.07	ET
Pest	17:20	30	30.05	ET
PCBs	17:20	30	30.10	ET
PCB MS	17:20	30	30.10	ET
PCB MSD	17:20	30	30.08	ET

Comments:

Name (print): Elizabeth M Tepper Signature: Elizabeth M Tepper

Sub-Sampled Date:
11/15/05

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.AC.ZZ

Site Number: Upland Backfill Low - 116 - DR - 1 & 2

Tray #: 55 Tare Weight: 1465 gm.

Sample #: J10DR4 Total Dry Weight: 4244.3 gm.

Net Dry Sample Weight: 2779.3 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	16:19	500	500.4	ET
Rad Str	16:19	30	30.15	ET
ICP Met	16:19	30	30.04	ET
Hex Cr	16:19	30	30.14	ET
Semi VOA	16:19	30	30.20	ET
PAHs	16:19	30	30.15	ET
Pest	16:19	30	30.01	ET
PCBs	16:19	30	30.15	ET

Comments:

Name (print): Elizabeth M Tepper Signature: Elizabeth M Tepper

Sub-Sampled Date: 11/15/05

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford **Date:** 11-17-05

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

LvLI Batch # : 0511L758 **Sample Custodian:**

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier FedEx		Airbill# 6595 0629 0096	
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?	Temp 14.1 °C		Cooler # N/A	
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		
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	☐ No		
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☐ Yes	☐ No	☑ No Discrepancies	

SR-002-B

LvLI

RECEIVED
JAN 2006

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0120

DATE RECEIVED: 11/17/05 LVL LOT # :0511L758

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J10DR0						
CHROMIUM VI	001	S	05LVI087	11/15/05	11/29/05	11/29/05
J10DR1						
CHROMIUM VI	002	S	05LVI087	11/15/05	11/29/05	11/29/05
CHROMIUM VI	002 REP	S	05LVI087	11/15/05	11/29/05	11/29/05
CHROMIUM VI	002 MS	S	05LVI087	11/15/05	11/29/05	11/29/05
J10DR2						
CHROMIUM VI	003	S	05LVI087	11/15/05	11/29/05	11/29/05
J10DR3						
CHROMIUM VI	004	S	05LVI087	11/15/05	11/29/05	11/29/05
J10DR4						
CHROMIUM VI	005	S	05LVI087	11/15/05	11/29/05	11/29/05

LAB QC:

CHROMIUM VI	MB1	S	05LVI087	N/A	11/29/05	11/29/05
CHROMIUM VI	MB1 BS	S	05LVI087	N/A	11/29/05	11/29/05
CHROMIUM VI	MB1 BSD	S	05LVI087	N/A	11/29/05	11/29/05

01
~~II~~

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-051 K0120
LVL#: 0511L758

W.O.#: 11343-606-001-9999-00
Date Received: 11-17-05

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. The total sample volume 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. The sample weight were as follows:

LvLI Sample	Site ID	Total sample weight, g
0511L758-001	J10DR0	27.518
0511L758-002	J10DR1	30.072
0511L758-002 duplicate	J10DR1	30.141
0511L758-002 spike	J10DR1	27.901
0511L758-003	J10DR2	27.099
0511L758-004	J10DR3	28.077
0511L758-005	JMDR4	27.706

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.

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 18 pages.

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

7. The matrix spike recovery for Soluble Chromium VI was within the 75-125% control limits.

8. The replicate analysis for Chromium VI was within the 20% Relative Percent Difference (RPD) control limit.

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

Judy Stone

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

1/3/06
Date

njp\11-758

LVLI
LIONVILLE LABORATORY INC.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

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

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

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

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

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

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

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

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

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

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

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

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/02/05

CLIENT: TNU-HANFORD RC-051 K0120 LVL LOT #: 0511L758
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J10DR0	Chromium VI	0.40 u	MG/KG	0.40	2.0
-002	J10DR1	Chromium VI	0.40 u	MG/KG	0.40	2.0
-003	J10DR2	Chromium VI	0.32	MG/KG	0.20	1.0
-004	J10DR3	Chromium VI	0.20 u	MG/KG	0.20	1.0
-005	J10DR4	Chromium VI	0.32	MG/KG	0.20	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/02/05

CLIENT: TNU-HANFORD RC-051 K0120 LVL LOT #: 0511L758

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	05LVI087-MB1	Chromium VI	0.20 u	MG/KG	0.20	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 12/02/05

CLIENT: TNU-HANFORD RC-051 K0120 LVL LOT #: 0511L758

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	J10DR1	Soluble Chromium VI	4.1	0.20u	3.9	108.9	2.0
BLANK10	05LVI087-MB1	Soluble Chromium VI	3.9	0.20u	4.0	97.1	1.0
		Insoluble Chromium VI	1050	0.20u	979	107.7	100

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 12/02/05

CLIENT: TNU-HANFORD RC-051 K0120 LVL LOT #: 0511L758

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-002REP	J10DR1	Chromium VI	0.40u	0.40u	NC	2.0

Lionville Laboratory Use Only

05IIL758

Custody Transfer Record/Lab Work Request

Page 1 of 1

See SRC

VLI

*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: Dr Lotta Johnson

QC: Spec Del: Std TAT: 30 Days

Date Rec'd: 11.17.05 Date Due: 12/17/05

		A-C	D-F	G-I			J-L		M-O		P-R			
Refrigerator #		5	5	5			5		5		5			
#/Type Container	Liquid													
	Solid	9	9	9			9		9		9			
Volume	Liquid													
	Solid	30g	30g	30g			30g		30g		30g			
Preservatives		—	—	—			—		—		—			
ANALYSES REQUESTED →		ORGANIC					INORG							
		VOA	BNA	Pest/PCB	Herb	PCBs			(3) Metal	CN	Hex Chrom	PAHs		
Lionville Laboratory Use Only			01-25H	0008H		0PCB			Metals①		ZCRL	08010		

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														
001	J10DR0	✓	✓	S	11.15.05	1457		1	1		1			3		1		1		
002	J10DR1	✓	✓			1650		3	1		1			1		3		1		
003	J10DR2	✓	✓			1900		1	3		1			1		1		3		
004	J10DR3	✓	✓			1720		1	1		3			1		1		1		
005	J10DR4					1619		1	1		1			1		1		1		

Special Instructions: See attached special instructions

001 - QC on metals
002 - QC on BNA, CRL
003 - QC on Pest. PAH
004 - QC on PCB
~~005 - QC on Hom~~ JPullinlos

NON-RAD per OJ / Client

DATE/REVISIONS:

1. Metals① = HSL + Bi, B, Li, Mo, P, Si, Sr, Sn, U (No Hg)
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11.17.05	0915

Relinquished by	Received by	Date	Time

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

FOR 05111758

For Sample prep (which includes the sample, MS, and MSD) use ALL of the volume sent for each assigned test/Lionville sample#; even if the amount sent is greater than the method requirement. With this approach metals and cr6 samples will require multiple digestions.

Separate sample jars are provided for MS and MSD analyses; matrix QC is designated as ~~follows:~~ on the COC

Metals matrix QC must be spike with mercury @ 20 ppb. We are not performing the mercury analysis. A metals digestate aliquot will be sent to STL for mercury by ICP/MS. Please record the mercury spike amounts in the narrative.

%Solids are NOT required.

Samples are nonrad per client.

If you have any questions please ask.

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-051-13	Page 1 of 1 2

Collector L. COLLOM	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH
Price Code 8L	Data Turnaround 45 Days	Air Quality [ ]	
Project Designation 100 & 300 Area Component of the RCBRA - Incremental So	Sampling Location Upland Backfill Low-116-DR-1&2		SAF No. RC-051
Ice Chest No.	Field Logbook No. EL-1596	COA BESRAS6520	Method of Shipment FED EX
Shipped To LIONVILLE	Offsite Property No. A060151		Bill of Lading/Air Bill No.

POSSIBLE SAMPLE HAZARDS/REMARKS
NONE

Special Handling and/or Storage
NONE

Preservation	None	None	None	None	None	None	None	None		
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG	aG		
No. of Container(s)			7	7	7	7	7	7		
Volume	500g	30g	30g	30g	30g	30g	30g	30g		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Chromium Hex - 7196	Semi-VOA - 8270A (TCL)	PAHs - 8310	Pesticides - 8081	PCBs - 8082		

Sample No.	Matrix *	Sample Date	Sample Time										
J10DR0	SOIL	11/15/05	14:57			3	1	1	1	1	1		
J10DR1	SOIL	11/15/05	16:50			1	3	3	1	1	1		
J10DR2	SOIL	11/15/05	19:00			1	1	1	3	3	1		
J10DR3	SOIL	11/15/05	17:20			1	1	1	1	1	3		
J10DR4	SOIL	11/15/05	16:19			1	1	1	1	1	1		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Elizabeth Tepper	15:00	NA	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Dalth Lipp	11/16/05	Fed ex	15:00 11-16-05
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[illegible]	11-17-05 0915	[illegible]	
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

This chain of custody form documents the transfer of bulk field collected soils to the CH2M Hill Corvallis laboratory for incremental preparation and aliquoting.

(1) Gamma Spec - (Full List) (Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-226, Radium-228)
(2) Strontium-89,90 – Total Sr; Isotopic Thorium (Thorium-232); Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Isotopic Plutonium
(3) 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

Project Name: RCBRAMIS Project Number: 334247.A0.22

Site Number: Upland Backfill Low - 116 - DR - 1 & 2

Tray #: 51 Tare Weight: 1454 gm.

Sample #: J10DR0 Total Dry Weight: 5323.1 gm.

Net Dry Sample Weight: 3869.1 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	14:57	500	500.77	AW
Rad Str		30	30.01	AW
ICP Met		30	30.09	AW
Hex Cr		30	30.16	AW
Semi VOA		30	30.10	AW
PAHs		30	30.11	AW
Pest		30	30.43	AW
PCBs		30	30.36	AW
Rad Str MS		30	30.09	AW
Rad Str MSD		30	30.22	AW
ICP Met MS		30	30.14	AW
ICP Met MSD		30	30.62	AW

Comments:

Name (print): Ashley Wille Signature: [illegible]

Sub-Sampled Date: 11/15/05

13

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.AC.22

Site Number: Upland Backfill Low - 116 - DR - 1 & 2

Tray #: 34 Tare Weight: 1452 gm.

Sample #: J10DR1 Total Dry Weight: 5265.8 gm.

Net Dry Sample Weight: 3813.8 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	16:50	500	501.05	AW
Rad Str		30	30.05	AW
ICP Met		30	30.02	AW
Hex Cr		30	30.06	AW
Semi VOA		30	30.10	AW
PAHs		30	30.17	AW
Pest		30	30.12	AW
PCBs		30	30.33	AW
Hex Cr MS		30	30.42	AW
Hex Cr MSD		30	30.16	AW
Semi VOA MS		30	30.05	AW
Semi VOA MSD		30	30.07	AW

Comments:

Name (print): Ashley Wille Signature: [illegible]

Sub-Sampled Date: 11/15/05

14
~~16~~
m

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.AC.ZZ

Site Number: Upland Backfill Low - 116 - DR - 1 2 2

Tray #: 56 Tare Weight: 1453 gm.

Sample #: J10DR2 Total Dry Weight: 4549.2 gm.

Net Dry Sample Weight: 3096.2 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	19:00	500	502.3	ET
Rad Str	19:00	30	30.10	ET
ICP Met	19:00	30	30.04	ET
Hex Cr	19:00	30	30.19	ET
Semi VOA	19:00	30	30.01	ET
PAHs	19:00	30	30.10	ET
Pest	19:00	30	30.01	ET
PCBs	19:00	30	30.03	ET
PAHs MS	19:00	30	30.15	ET
PAHs MSD	19:00	30	30.05	ET
Pest MS	19:00	30	30.02	ET
Pest MSD	19:00	30	30.03	ET

Comments:

Name (print): E Tepper Signature: Deborah Tepper

Sub-Sampled Date:
11/15/05

15
17

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.AO.ZZ

Site Number: Upland Backfill Low - 116 - DR - 1 2 2

Tray #: 33 Tare Weight: 1451 gm.

Sample #: J10DR3 Total Dry Weight: 4907.6 gm.

Net Dry Sample Weight: 3456.6 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	17:20	500	504.4	ET
Rad Str	17:20	30	30.20	ET
ICP Met	17:20	30	30.03	ET
Hex Cr	17:20	30	30.01	ET
Semi VOA	17:20	30	30.05	ET
PAHs	17:20	30	30.07	ET
Pest	17:20	30	30.05	ET
PCBs	17:20	30	30.10	ET
PCB MS	17:20	30	30.10	ET
PCB MSD	17:20	30	30.08	ET

Comments:

Name (print): Elizabeth M Tepper Signature: Elizabeth M Tepper

Sub-Sampled Date:

11/15/05

16
~~18~~

CH2M HILL Soil Sampling Bench Sheet

Project Name: RCBRAMIS Project Number: 334247.AC.ZZ

Site Number: Upland Backfill Low - 116 - DR - 1 & 2

Tray #: 55 Tare Weight: 1465 gm.

Sample #: J10DR4 Total Dry Weight: 4244.3 gm.

Net Dry Sample Weight: 2779.3 gm.

All samples collected below consist of 50 sample increments.

Analyte	Sample Time	Grams of Sample Needed	Grams of Sample Collected	Initials
GEA	16:19	500	500.4	ET
Rad Str	16:19	30	30.15	ET
ICP Met	16:19	30	30.04	ET
Hex Cr	16:19	30	30.14	ET
Semi VOA	16:19	30	30.20	ET
PAHs	16:19	30	30.15	ET
Pest	16:19	30	30.01	ET
PCBs	16:19	30	30.15	ET

Comments:

Name (print): Elizabeth M Tepper Signature: Elizabeth M Tepper

Sub-Sampled Date: 11/15/05

17
~~18~~

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford **Date:** 11.17.05

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

LvLI Batch # : 05111L758 **Sample Custodian:** D. Smith

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier FedEx		Airbill# 6595 0629 0092	
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?	Temp 14.1 °C		Cooler # N/A	
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		
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	☑ No	See #14 (temp > 6°C)	
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☐ Yes	☐ No	☑ No Discrepancies	

SR-002-B

LvLI

18 ~~20~~

EBERLINE
SERVICES

RECEIVED
JAN 2006

January 13, 2006

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

Reference: **P.O. #630**
Eberline Services R5-11-206-7344, SDG K0120

Dear Ms. Kessner:

Enclosed is the data report for ten solid samples designated under SAF No. RC-051 received at Eberline Services on November 17, 2005. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion
Senior Program Manager

MCM/

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 K0120 was composed of ten solid samples designated under SAF No. RC-051 with a Project Designation of: 100 & 300 Area Component of the RCBRA – Incremental So.

The total strontium, thorium, uranium and plutonium aliquots were taken from a 30-gram leachate of sample and not a full dissolution. The gamma spectroscopy analysis was performed from received sample.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to WCH via e-mail on January 10, 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 Isotopic Plutonium Analysis

No problems were encountered during the course of the analyses.

2.5 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 — 1/13/6

Melissa C. Mannion
Senior Program Manager

Date

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP K0120

SDG 7344	Client Hanford
Contact Melissa C. Mannion	Contract No. 630
	Case no SDG_K0120

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

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

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Melissa Mann
Prepared by

Melissa Mann
Reviewed by

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	01/10/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

SDG 7344
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_K0120

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 01/10/06

SDG 7344
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG K0120

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.

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

SDG 7344
Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford
Contract No. 630
Case no SDG K0120

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R511206-01	J10DR0	Upland-Low-116-DR-1&2	SOLID		RC-051	RC-051-13	11/15/05 14:57
R511206-02	J10DR1	Upland-Low-116-DR-1&2	SOLID		RC-051	RC-051-13	11/15/05 16:50
R511206-03	J10DR2	Upland-Low-116-DR-1&2	SOLID		RC-051	RC-051-13	11/15/05 19:00
R511206-04	J10DR3	Upland-Low-116-DR-1&2	SOLID		RC-051	RC-051-13	11/15/05 17:20
R511206-05	J10DR4	Upland-Low-116-DR-1&2	SOLID		RC-051	RC-051-13	11/15/05 16:19
R511206-06	J10DR5	Upland Native Ref.-Centr	SOLID		RC-051	RC-051-14	11/15/05 09:02
R511206-07	J10DR6	Upland Native Ref.-Centr	SOLID		RC-051	RC-051-14	11/15/05 08:39
R511206-08	J10DR7	Upland Native Ref.-Centr	SOLID		RC-051	RC-051-14	11/15/05 10:51
R511206-09	J10DR8	Upland Native Ref.-Centr	SOLID		RC-051	RC-051-14	11/15/05 14:08
R511206-10	J10DR9	Upland Native Ref.-Centr	SOLID		RC-051	RC-051-14	11/15/05 09:43
R511206-11	Lab Control Sample		SOLID		RC-051		
R511206-12	Method Blank		SOLID		RC-051		
R511206-13	Duplicate (R511206-01)	Upland-Low-116-DR-1&2	SOLID		RC-051		11/15/05 14:57

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 01/10/06

EBERLINE SERVICES/RICHMOND

SDG 7344
Contact Melissa C. Mannion

SAMPLE DELIVERY GROUP K0120

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG K0120

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
7344	RC-051-13	J10DR0	SOLID	100.0	591.0 g		11/17/05	2	R511206-01	7344-001
		J10DR1	SOLID	100.0	531.0 g		11/17/05	2	R511206-02	7344-002
		J10DR2	SOLID	100.0	529.0 g		11/17/05	2	R511206-03	7344-003
		J10DR3	SOLID	100.0	501.0 g		11/17/05	2	R511206-04	7344-004
		J10DR4	SOLID	100.0	530.0 g		11/17/05	2	R511206-05	7344-005
	RC-051-14	J10DR5	SOLID	100.0	530.0 g		11/17/05	2	R511206-06	7344-006
		J10DR6	SOLID	100.0	533.0 g		11/17/05	2	R511206-07	7344-007
		J10DR7	SOLID	100.0	530.0 g		11/17/05	2	R511206-08	7344-008
		J10DR8	SOLID	100.0	529.0 g		11/17/05	2	R511206-09	7344-009
		J10DR9	SOLID	100.0	593.0 g		11/17/05	2	R511206-10	7344-010
		Method Blank	SOLID						R511206-12	7344-012
		Lab Control Sample	SOLID						R511206-11	7344-011
		Duplicate (R511206-01)	SOLID	100.0	591.0 g		11/17/05	2	R511206-13	7344-013

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 01/10/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

SDG 7344
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG K0120

TEST	MATRIX	METHOD	PREPARATION ERROR BATCH	2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
PU	SOLID	Plutonium, Isotopic in Solids	7148-196	5.0	10			1	1	1/1		
TH	SOLID	Thorium, Isotopic in Solids	7148-196	5.0	10			1	1	1/1		
U	SOLID	Uranium, Isotopic in Solids	7148-196	5.0	10			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Solids	7148-196	10.0	10			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	7148-196	15.0	10			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.

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

SDG 7344
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG K0120

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R511206-01	J10DR0			7344-001	GAM		01/03/06	01/09/06	MWT	Gamma Scan
11/15/05	Upland-Low-116-DR-1&2		SOLID	7344-001	PU		01/03/06	01/09/06	MWT	Plutonium, Isotopic in Solids
11/17/05	RC-051-13	RC-051		7344-001	SR		12/28/05	01/09/06	MWT	Total Strontium in Solids
				7344-001	TH		12/29/05	01/09/06	MWT	Thorium, Isotopic in Solids
				7344-001	U		12/28/05	01/09/06	MWT	Uranium, Isotopic in Solids
R511206-02	J10DR1			7344-002	GAM		12/30/05	01/09/06	MWT	Gamma Scan
11/15/05	Upland-Low-116-DR-1&2		SOLID	7344-002	PU		01/03/06	01/09/06	MWT	Plutonium, Isotopic in Solids
11/17/05	RC-051-13	RC-051		7344-002	SR		12/28/05	01/09/06	MWT	Total Strontium in Solids
				7344-002	TH		12/29/05	01/09/06	MWT	Thorium, Isotopic in Solids
				7344-002	U		12/28/05	01/09/06	MWT	Uranium, Isotopic in Solids
R511206-03	J10DR2			7344-003	GAM		12/30/05	01/09/06	MWT	Gamma Scan
11/15/05	Upland-Low-116-DR-1&2		SOLID	7344-003	PU		01/04/06	01/09/06	MWT	Plutonium, Isotopic in Solids
11/17/05	RC-051-13	RC-051		7344-003	SR		12/28/05	01/09/06	MWT	Total Strontium in Solids
				7344-003	TH		12/29/05	01/09/06	MWT	Thorium, Isotopic in Solids
				7344-003	U		12/28/05	01/09/06	MWT	Uranium, Isotopic in Solids
R511206-04	J10DR3			7344-004	GAM		12/30/05	01/09/06	MWT	Gamma Scan
11/15/05	Upland-Low-116-DR-1&2		SOLID	7344-004	PU		01/04/06	01/09/06	MWT	Plutonium, Isotopic in Solids
11/17/05	RC-051-13	RC-051		7344-004	SR		12/28/05	01/09/06	MWT	Total Strontium in Solids
				7344-004	TH		12/29/05	01/09/06	MWT	Thorium, Isotopic in Solids
				7344-004	U		12/28/05	01/09/06	MWT	Uranium, Isotopic in Solids
R511206-05	J10DR4			7344-005	GAM		12/30/05	01/09/06	MWT	Gamma Scan
11/15/05	Upland-Low-116-DR-1&2		SOLID	7344-005	PU		01/04/06	01/09/06	MWT	Plutonium, Isotopic in Solids
11/17/05	RC-051-13	RC-051		7344-005	SR		12/28/05	01/09/06	MWT	Total Strontium in Solids
				7344-005	TH		12/29/05	01/09/06	MWT	Thorium, Isotopic in Solids
				7344-005	U		12/28/05	01/09/06	MWT	Uranium, Isotopic in Solids
R511206-06	J10DR5			7344-006	GAM		12/30/05	01/09/06	MWT	Gamma Scan
11/15/05	Upland Native Ref.-Centr		SOLID	7344-006	PU		01/04/06	01/09/06	MWT	Plutonium, Isotopic in Solids
11/17/05	RC-051-14	RC-051		7344-006	SR		12/28/05	01/09/06	MWT	Total Strontium in Solids
				7344-006	TH		12/29/05	01/09/06	MWT	Thorium, Isotopic in Solids
				7344-006	U		12/28/05	01/09/06	MWT	Uranium, Isotopic in Solids

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

SDG 7344
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG K0120

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R511206-07	J10DR6			7344-007	GAM		01/03/06	01/09/06	MWT	Gamma Scan
11/15/05	Upland Native Ref.-Centr		SOLID	7344-007	PU		01/04/06	01/09/06	MWT	Plutonium, Isotopic in Solids
11/17/05	RC-051-14	RC-051		7344-007	SR		12/28/05	01/09/06	MWT	Total Strontium in Solids
				7344-007	TH		12/29/05	01/09/06	MWT	Thorium, Isotopic in Solids
				7344-007	U		12/28/05	01/09/06	MWT	Uranium, Isotopic in Solids
R511206-08	J10DR7			7344-008	GAM		12/30/05	01/09/06	MWT	Gamma Scan
11/15/05	Upland Native Ref.-Centr		SOLID	7344-008	PU		01/04/06	01/09/06	MWT	Plutonium, Isotopic in Solids
11/17/05	RC-051-14	RC-051		7344-008	SR		12/28/05	01/09/06	MWT	Total Strontium in Solids
				7344-008	TH		12/29/05	01/09/06	MWT	Thorium, Isotopic in Solids
				7344-008	U		12/28/05	01/09/06	MWT	Uranium, Isotopic in Solids
R511206-09	J10DR8			7344-009	GAM		12/30/05	01/09/06	MWT	Gamma Scan
11/15/05	Upland Native Ref.-Centr		SOLID	7344-009	PU		01/04/06	01/09/06	MWT	Plutonium, Isotopic in Solids
11/17/05	RC-051-14	RC-051		7344-009	SR		12/28/05	01/09/06	MWT	Total Strontium in Solids
				7344-009	TH		12/29/05	01/09/06	MWT	Thorium, Isotopic in Solids
				7344-009	U		12/28/05	01/09/06	MWT	Uranium, Isotopic in Solids
R511206-10	J10DR9			7344-010	GAM		12/30/05	01/09/06	MWT	Gamma Scan
11/15/05	Upland Native Ref.-Centr		SOLID	7344-010	PU		01/04/06	01/09/06	MWT	Plutonium, Isotopic in Solids
11/17/05	RC-051-14	RC-051		7344-010	SR		12/28/05	01/09/06	MWT	Total Strontium in Solids
				7344-010	TH		01/03/06	01/09/06	MWT	Thorium, Isotopic in Solids
				7344-010	U		12/28/05	01/09/06	MWT	Uranium, Isotopic in Solids
R511206-11	Lab Control Sample			7344-011	GAM		12/30/05	01/09/06	MWT	Gamma Scan
			SOLID	7344-011	PU		01/04/06	01/09/06	MWT	Plutonium, Isotopic in Solids
		RC-051		7344-011	SR		12/28/05	01/09/06	MWT	Total Strontium in Solids
				7344-011	TH		12/29/05	01/09/06	MWT	Thorium, Isotopic in Solids
				7344-011	U		12/28/05	01/09/06	MWT	Uranium, Isotopic in Solids
R511206-12	Method Blank			7344-012	GAM		12/30/05	01/09/06	MWT	Gamma Scan
			SOLID	7344-012	PU		01/04/06	01/09/06	MWT	Plutonium, Isotopic in Solids
		RC-051		7344-012	SR		12/28/05	01/09/06	MWT	Total Strontium in Solids
				7344-012	TH		12/29/05	01/09/06	MWT	Thorium, Isotopic in Solids
				7344-012	U		12/28/05	01/09/06	MWT	Uranium, Isotopic in Solids

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 01/10/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

SDG 7344
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG K0120

LAB SAMPLE / COLLECTED / RECEIVED	CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R511206-13	Duplicate (R511206-01)			7344-013	GAM		01/03/06	01/09/06	MWT	Gamma Scan
11/15/05	Upland-Low-116-DR-1&2		SOLID	7344-013	PU		01/05/06	01/09/06	MWT	Plutonium, Isotopic in Solids
11/17/05		RC-051		7344-013	SR		12/28/05	01/09/06	MWT	Total Strontium in Solids
				7344-013	TH		12/29/05	01/09/06	MWT	Thorium, Isotopic in Solids
				7344-013	U		12/28/05	01/09/06	MWT	Uranium, Isotopic in Solids

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	10			1	1	1	13
PU	RC-051	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	10			1	1	1	13
SR	RC-051	Total Strontium in Solids	SRTOT_SEP_PRECIP_GPC	10			1	1	1	13
TH	RC-051	Thorium, Isotopic in Solids	THISO_IE_PLATE_AEA	10			1	1	1	13
U	RC-051	Uranium, Isotopic in Solids	UISO_PLATE_AEA	10			1	1	1	13
TOTALS				50			5	5	5	65

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

7344-012 **Method Blank**

METHOD BLANK

SDG	7344	Client/Case no	Hanford	SDG K0120	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R511206-12	Client sample id	Method Blank		
Dept sample id	7344-012	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	-0.003	0.11	0.23	1.0	U	SR
Thorium 228	14274-82-9	0.115	0.15	0.29	1.0	U	TH
Thorium 230	14269-63-7	-0.076	0.15	0.29	1.0	U	TH
Thorium 232	TH-232	-0.038	0.076	0.29	1.0	U	TH
Uranium 233/234	U-233/234	0	0.065	0.25	1.0	U	U
Uranium 235	15117-96-1	0.039	0.078	0.30	1.0	U	U
Uranium 238	U-238	0	0.065	0.25	1.0	U	U
Plutonium 238	13981-16-3	0	0.067	0.26	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.067	0.26	1.0	U	PU
Potassium 40	13966-00-2	U		1.9		U	GAM
Cobalt 60	10198-40-0	U		0.088	0.050	U	GAM
Cesium 137	10045-97-3	U		0.058	0.10	U	GAM
Radium 226	13982-63-3	U		0.14	0.10	U	GAM
Radium 228	15262-20-1	U		0.49	0.20	U	GAM
Europium 152	14683-23-9	U		0.14	0.10	U	GAM
Europium 154	15585-10-1	U		0.20	0.10	U	GAM
Europium 155	14391-16-3	U		0.18	0.10	U	GAM
Thorium 228	14274-82-9	U		0.090		U	GAM
Thorium 232	TH-232	U		0.49		U	GAM
Uranium 235	15117-96-1	U		0.23		U	GAM
Uranium 238	U-238	U		7.8		U	GAM
Americium 241	14596-10-2	U		0.20		U	GAM
Cesium 134	13967-70-9	U		0.075		U	GAM

100 & 300 Area Component - RCBRA

QC-BLANK 55349

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/10/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

7344-011

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7344

Contact Melissa C. Mannion

Client/Case no Hanford SDG K0120

Contract No. 630

Lab sample id R511206-11

Dept sample id 7344-011

Client sample id Lab Control Sample

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	10.1	0.49	0.18	1.0		SR	9.88	0.40	102	82-118	80-120
Thorium 230	43.2	4.2	0.26	1.0		TH	42.0	1.7	103	82-118	80-120
Uranium 233/234	19.9	2.2	0.99	1.0		U	18.6	0.74	107	80-120	80-120
Uranium 235	15.6	1.9	0.25	1.0		U	15.1	0.60	103	79-121	80-120
Uranium 238	19.4	2.2	0.95	1.0		U	20.2	0.81	96	81-119	80-120
Plutonium 238	21.4	2.6	0.29	1.0		PU	23.8	0.95	90	81-119	80-120
Plutonium 239/240	22.2	2.7	0.29	1.0		PU	26.4	1.1	84	82-118	80-120
Cobalt 60	1.71	0.15	0.088	0.050		GAM	1.80	0.072	95	75-125	80-120
Cesium 137	1.75	0.12	0.095	0.10		GAM	1.81	0.072	97	75-125	80-120

100 & 300 Area Component - RCBRA

QC-LCS 55348

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 01/10/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

7344-013 J10DR0

DUPLICATE

SDG	7344			Client/Case no	Hanford SDG K0120
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R511206-13	Lab sample id	R511206-01	Client sample id	J10DR0
Dept sample id	7344-013	Dept sample id	7344-001	Location/Matrix	Upland-Low-116-DR-1&2 SOLID
		Received	11/17/05	Collected/Weight	11/15/05 14:57 591.0 g
% solids	100.0	% solids	100.0	Custody/SAF No	RC-051-13 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	-0.080	0.069	0.16	1.0	U	SR	-0.009	0.089	0.18	U	-		1.3
Thorium 228	0.282	0.21	0.27	1.0		TH	0.486	0.25	0.31		53	128	1.2
Thorium 230	0.281	0.28	0.27	1.0		TH	0.121	0.24	0.31	U	80	275	0.9
Thorium 232	0.351	0.21	0.27	1.0		TH	0.404	0.24	0.31		14	127	0.3
Uranium 233/234	0.144	0.14	0.28	1.0	U	U	0.194	0.11	0.14		30	158	0.6
Uranium 235	0.044	0.087	0.33	1.0	U	U	0.043	0.043	0.16	U	-		0
Uranium 238	0.180	0.15	0.28	1.0	U	U	0.177	0.11	0.14		2	157	0
Plutonium 238	0	0.068	0.26	1.0	U	PU	-0.030	0.060	0.23	U	-		0.7
Plutonium 239/240	0.034	0.068	0.26	1.0	U	PU	0	0.060	0.23	U	-		0.7
Potassium 40	7.50	6.5	0.84			GAM	10.6	1.3	0.90		34	114	0.9
Cobalt 60	U		0.083	0.050	U	GAM	U		0.087	U	-		0.1
Cesium 137	0.131	0.082	0.083	0.10		GAM	0.207	0.079	0.085		45	106	1.3
Radium 226	0.359	0.30	0.14	0.10		GAM	0.484	0.14	0.15		30	122	0.7
Radium 228	0.582	0.40	0.28	0.20		GAM	0.674	0.33	0.31		15	128	0.3
Europium 152	0.263	0.12	0.16	0.10		GAM	0.315	0.15	0.20		18	105	0.5
Europium 154	U		0.24	0.10	U	GAM	U		0.25	U	-		0.1
Europium 155	U		0.19	0.10	U	GAM	U		0.25	U	-		0.4
Thorium 228	0.436	0.14	0.077			GAM	0.632	0.090	0.11		37	57	1.9
Thorium 232	0.582	0.40	0.28			GAM	0.674	0.33	0.31		15	128	0.3
Uranium 235	U		0.24		U	GAM	U		0.33	U	-		0.4
Uranium 238	U		7.7		U	GAM	U		9.7	U	-		0.3
Americium 241	U		0.23		U	GAM	U		0.34	U	-		0.5
Cesium 134	U		0.14		U	GAM	U		0.095	U	-		0.5

100 & 300 Area Component - RCBRA

QC-DUP#1 55350

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

SAMPLE DELIVERY GROUP K0120

7344-001 J10DR0

DATA SHEET

SDG	7344	Client/Case no	Hanford SDG K0120
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511206-01	Client sample id	J10DR0
Dept sample id	7344-001	Location/Matrix	Upland-Low-116-DR-1&2 SOLID
Received	11/17/05	Collected/Weight	11/15/05 14:57 591.0 g
% solids	100.0	Custody/SAF No	RC-051-13 RC-051

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	-0.009	0.089	0.18	1.0	U	SR
Thorium 228	14274-82-9	0.486	0.25	0.31	1.0		TH
Thorium 230	14269-63-7	0.121	0.24	0.31	1.0	U	TH
Thorium 232	TH-232	0.404	0.24	0.31	1.0		TH
Uranium 233/234	U-233/234	0.194	0.11	0.14	1.0		U
Uranium 235	15117-96-1	0.043	0.043	0.16	1.0	U	U
Uranium 238	U-238	0.177	0.11	0.14	1.0		U
Plutonium 238	13981-16-3	-0.030	0.060	0.23	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.060	0.23	1.0	U	PU
Potassium 40	13966-00-2	10.6	1.3	0.90			GAM
Cobalt 60	10198-40-0	U		0.087	0.050	U	GAM
Cesium 137	10045-97-3	0.207	0.079	0.085	0.10		GAM
Radium 226	13982-63-3	0.484	0.14	0.15	0.10		GAM
Radium 228	15262-20-1	0.674	0.33	0.31	0.20		GAM
Europium 152	14683-23-9	0.315	0.15	0.20	0.10		GAM
Europium 154	15585-10-1	U		0.25	0.10	U	GAM
Europium 155	14391-16-3	U		0.25	0.10	U	GAM
Thorium 228	14274-82-9	0.632	0.090	0.11			GAM
Thorium 232	TH-232	0.674	0.33	0.31			GAM
Uranium 235	15117-96-1	U		0.33		U	GAM
Uranium 238	U-238	U		9.7		U	GAM
Americium 241	14596-10-2	U		0.34		U	GAM
Cesium 134	13967-70-9	U		0.095		U	GAM

100 & 300 Area Component - RCBRA

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

SAMPLE DELIVERY GROUP K0120

7344-002 J10DR1

DATA SHEET

SDG	7344	Client/Case no	Hanford	SDG K0120	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R511206-02	Client sample id	J10DR1		
Dept sample id	7344-002	Location/Matrix	Upland-Low-116-DR-1&2	SOLID	
Received	11/17/05	Collected/Weight	11/15/05 16:50	531.0 g	
% solids	100.0	Custody/SAF No	RC-051-13	RC-051	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	-0.031	0.12	0.25	1.0	U	SR
Thorium 228	14274-82-9	0.523	0.33	0.31	1.0		TH
Thorium 230	14269-63-7	0.241	0.24	0.31	1.0	U	TH
Thorium 232	TH-232	0.281	0.24	0.31	1.0	U	TH
Uranium 233/234	U-233/234	0.077	0.077	0.15	1.0	U	U
Uranium 235	15117-96-1	0.023	0.047	0.18	1.0	U	U
Uranium 238	U-238	0.115	0.077	0.15	1.0	U	U
Plutonium 238	13981-16-3	0	0.057	0.22	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.057	0.22	1.0	U	PU
Potassium 40	13966-00-2	5.48	1.3	0.85			GAM
Cobalt 60	10198-40-0	U		0.087	0.050	U	GAM
Cesium 137	10045-97-3	U		0.10	0.10	U	GAM
Radium 226	13982-63-3	0.252	0.13	0.15	0.10		GAM
Radium 228	15262-20-1	U		0.39	0.20	U	GAM
Europium 152	14683-23-9	U		0.26	0.10	U	GAM
Europium 154	15585-10-1	U		0.29	0.10	U	GAM
Europium 155	14391-16-3	U		0.19	0.10	U	GAM
Thorium 228	14274-82-9	U		0.15		U	GAM
Thorium 232	TH-232	U		0.39		U	GAM
Uranium 235	15117-96-1	U		0.30		U	GAM
Uranium 238	U-238	U		10		U	GAM
Americium 241	14596-10-2	U		0.17		U	GAM
Cesium 134	13967-70-9	U		0.099		U	GAM

100 & 300 Area Component - RCBRA

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

7344-003 J10DR2

DATA SHEET

SDG	7344	Client/Case no	Hanford	SDG K0120	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R511206-03	Client sample id	J10DR2		
Dept sample id	7344-003	Location/Matrix	Upland-Low-116-DR-1&2	SOLID	
Received	11/17/05	Collected/Weight	11/15/05 19:00	529.0 g	
% solids	100.0	Custody/SAF No	RC-051-13	RC-051	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	-0.065	0.13	0.29	1.0	U	SR
Thorium 228	14274-82-9	0.545	0.29	0.28	1.0		TH
Thorium 230	14269-63-7	0.218	0.22	0.28	1.0	U	TH
Thorium 232	TH-232	0.472	0.29	0.28	1.0		TH
Uranium 233/234	U-233/234	0.228	0.15	0.19	1.0		U
Uranium 235	15117-96-1	0.031	0.061	0.24	1.0	U	U
Uranium 238	U-238	0.178	0.15	0.19	1.0	U	U
Plutonium 238	13981-16-3	0	0.032	0.12	1.0	U	PU
Plutonium 239/240	PU-239/240	0.049	0.065	0.12	1.0	U	PU
Potassium 40	13966-00-2	9.62	1.0	0.51			GAM
Cobalt 60	10198-40-0	U		0.062	0.050	U	GAM
Cesium 137	10045-97-3	0.139	0.057	0.067	0.10		GAM
Radium 226	13982-63-3	0.299	0.097	0.11	0.10		GAM
Radium 228	15262-20-1	0.700	0.22	0.21	0.20		GAM
Europium 152	14683-23-9	0.219	0.11	0.16	0.10		GAM
Europium 154	15585-10-1	U		0.19	0.10	U	GAM
Europium 155	14391-16-3	U		0.14	0.10	U	GAM
Thorium 228	14274-82-9	0.534	0.087	0.099			GAM
Thorium 232	TH-232	0.700	0.22	0.21			GAM
Uranium 235	15117-96-1	U		0.21		U	GAM
Uranium 238	U-238	U		7.2		U	GAM
Americium 241	14596-10-2	U		0.28		U	GAM
Cesium 134	13967-70-9	U		0.061		U	GAM

100 & 300 Area Component - RCBRA

Lab id	EBRLNE
Protocol	Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

7344-004 J10DR3

DATA SHEET

SDG	7344	Client/Case no	Hanford	SDG K0120	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R511206-04	Client sample id	J10DR3		
Dept sample id	7344-004	Location/Matrix	Upland-Low-116-DR-1&2	SOLID	
Received	11/17/05	Collected/Weight	11/15/05 17:20	501.0 g	
% solids	100.0	Custody/SAF No	RC-051-13	RC-051	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	0.060	0.13	0.25	1.0	U	SR
Thorium 228	14274-82-9	0.620	0.34	0.32	1.0		TH
Thorium 230	14269-63-7	0.372	0.33	0.32	1.0		TH
Thorium 232	TH-232	0.124	0.17	0.32	1.0	U	TH
Uranium 233/234	U-233/234	0.257	0.16	0.20	1.0		U
Uranium 235	15117-96-1	0.031	0.062	0.24	1.0	U	U
Uranium 238	U-238	0.051	0.051	0.20	1.0	U	U
Plutonium 238	13981-16-3	0	0.084	0.32	1.0	U	PU
Plutonium 239/240	PU-239/240	0.042	0.084	0.32	1.0	U	PU
Potassium 40	13966-00-2	8.32	1.6	0.57			GAM
Cobalt 60	10198-40-0	U		0.080	0.050	U	GAM
Cesium 137	10045-97-3	U		0.082	0.10	U	GAM
Radium 226	13982-63-3	0.332	0.13	0.11	0.10		GAM
Radium 228	15262-20-1	U		0.35	0.20	U	GAM
Europium 152	14683-23-9	0.758	0.21	0.22	0.10		GAM
Europium 154	15585-10-1	U		0.28	0.10	U	GAM
Europium 155	14391-16-3	U		0.13	0.10	U	GAM
Thorium 228	14274-82-9	0.580	0.10	0.093			GAM
Thorium 232	TH-232	U		0.35		U	GAM
Uranium 235	15117-96-1	U		0.23		U	GAM
Uranium 238	U-238	U		9.2		U	GAM
Americium 241	14596-10-2	U		0.071		U	GAM
Cesium 134	13967-70-9	U		0.096		U	GAM

100 & 300 Area Component - RCBRA

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

7344-005 J10DR4

DATA SHEET

SDG	7344	Client/Case no	Hanford SDG K0120
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511206-05	Client sample id	J10DR4
Dept sample id	7344-005	Location/Matrix	Upland-Low-116-DR-1&2 SOLID
Received	11/17/05	Collected/Weight	11/15/05 16:19 530.0 g
% solids	100.0	Custody/SAF No	RC-051-13 RC-051

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	0.008	0.13	0.27	1.0	U	SR
Thorium 228	14274-82-9	0.225	0.23	0.29	1.0	U	TH
Thorium 230	14269-63-7	0.187	0.22	0.29	1.0	U	TH
Thorium 232	TH-232	0.299	0.23	0.29	1.0		TH
Uranium 233/234	U-233/234	0.097	0.097	0.19	1.0	U	U
Uranium 235	15117-96-1	0.059	0.059	0.22	1.0	U	U
Uranium 238	U-238	0.194	0.15	0.19	1.0		U
Plutonium 238	13981-16-3	0.031	0.062	0.24	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.062	0.24	1.0	U	PU
Potassium 40	13966-00-2	8.26	2.6	0.64			GAM
Cobalt 60	10198-40-0	U		0.060	0.050	U	GAM
Cesium 137	10045-97-3	0.156	0.042	0.043	0.10		GAM
Radium 226	13982-63-3	0.466	0.12	0.10	0.10		GAM
Radium 228	15262-20-1	0.539	0.21	0.20	0.20		GAM
Europium 152	14683-23-9	U		0.15	0.10	U	GAM
Europium 154	15585-10-1	U		0.17	0.10	U	GAM
Europium 155	14391-16-3	U		0.14	0.10	U	GAM
Thorium 228	14274-82-9	0.410	0.059	0.060			GAM
Thorium 232	TH-232	0.539	0.21	0.20			GAM
Uranium 235	15117-96-1	U		0.18		U	GAM
Uranium 238	U-238	U		6.6		U	GAM
Americium 241	14596-10-2	U		0.18		U	GAM
Cesium 134	13967-70-9	U		0.089		U	GAM

100 & 300 Area Component - RCBRA

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

7344-006 J10DR5

DATA SHEET

SDG	7344	Client/Case no	Hanford SDG_K0120
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511206-06	Client sample id	J10DR5
Dept sample id	7344-006	Location/Matrix	Upland Native Ref.-Centr SOLID
Received	11/17/05	Collected/Weight	11/15/05 09:02 530.0 g
% solids	100.0	Custody/SAF No	RC-051-14 RC-051

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	0.130	0.15	0.27	1.0	U	SR
Thorium 228	14274-82-9	0.549	0.34	0.32	1.0		TH
Thorium 230	14269-63-7	0.380	0.34	0.32	1.0		TH
Thorium 232	TH-232	0.380	0.26	0.32	1.0		TH
Uranium 233/234	U-233/234	0.212	0.14	0.27	1.0	U	U
Uranium 235	15117-96-1	0	0.086	0.33	1.0	U	U
Uranium 238	U-238	0.106	0.14	0.27	1.0	U	U
Plutonium 238	13981-16-3	0.220	0.22	0.42	1.0	U	PU
Plutonium 239/240	PU-239/240	0.384	0.33	0.42	1.0	U	PU
Potassium 40	13966-00-2	12.4	2.7	0.54			GAM
Cobalt 60	10198-40-0	U		0.083	0.050	U	GAM
Cesium 137	10045-97-3	U		0.11	0.10	U	GAM
Radium 226	13982-63-3	0.530	0.11	0.089	0.10		GAM
Radium 228	15262-20-1	0.700	0.25	0.24	0.20		GAM
Europium 152	14683-23-9	U		0.13	0.10	U	GAM
Europium 154	15585-10-1	U		0.17	0.10	U	GAM
Europium 155	14391-16-3	U		0.16	0.10	U	GAM
Thorium 228	14274-82-9	0.725	0.099	0.10			GAM
Thorium 232	TH-232	0.700	0.25	0.24			GAM
Uranium 235	15117-96-1	U		0.19		U	GAM
Uranium 238	U-238	U		6.9		U	GAM
Americium 241	14596-10-2	U		0.20		U	GAM
Cesium 134	13967-70-9	U		0.069		U	GAM

100 & 300 Area Component - RCBRA

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

SAMPLE DELIVERY GROUP K0120

7344-007 J10DR6

DATA SHEET

SDG	7344	Client/Case no	Hanford SDG_K0120
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511206-07	Client sample id	J10DR6
Dept sample id	7344-007	Location/Matrix	Upland Native Ref.-Centr SOLID
Received	11/17/05	Collected/Weight	11/15/05 08:39 533.0 g
% solids	100.0	Custody/SAF No	RC-051-14 RC-051

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	0.061	0.12	0.24	1.0	U	SR
Thorium 228	14274-82-9	0.517	0.32	0.30	1.0		TH
Thorium 230	14269-63-7	0.199	0.24	0.30	1.0	U	TH
Thorium 232	TH-232	0.516	0.32	0.30	1.0		TH
Uranium 233/234	U-233/234	0.294	0.22	0.28	1.0		U
Uranium 235	15117-96-1	0	0.089	0.34	1.0	U	U
Uranium 238	U-238	0.220	0.15	0.28	1.0	U	U
Plutonium 238	13981-16-3	0	0.11	0.43	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.11	0.43	1.0	U	PU
Potassium 40	13966-00-2	8.87	1.7	0.81			GAM
Cobalt 60	10198-40-0	U		0.10	0.050	U	GAM
Cesium 137	10045-97-3	U		0.11	0.10	U	GAM
Radium 226	13982-63-3	0.464	0.17	0.15	0.10		GAM
Radium 228	15262-20-1	0.907	0.38	0.36	0.20		GAM
Europium 152	14683-23-9	U		0.31	0.10	U	GAM
Europium 154	15585-10-1	U		0.36	0.10	U	GAM
Europium 155	14391-16-3	U		0.23	0.10	U	GAM
Thorium 228	14274-82-9	0.872	0.15	0.15			GAM
Thorium 232	TH-232	0.907	0.38	0.36			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		0.22		U	GAM
Cesium 134	13967-70-9	U		0.12		U	GAM

100 & 300 Area Component - RCBRA

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

7344-008 J10DR7

DATA SHEET

SDG	7344	Client/Case no	Hanford SDG K0120
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511206-08	Client sample id	J10DR7
Dept sample id	7344-008	Location/Matrix	Upland Native Ref.-Centr SOLID
Received	11/17/05	Collected/Weight	11/15/05 10:51 530.0 g
% solids	100.0	Custody/SAF No	RC-051-14 RC-051

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	-0.052	0.12	0.25	1.0	U	SR
Thorium 228	14274-82-9	0.607	0.29	0.27	1.0		TH
Thorium 230	14269-63-7	0.392	0.29	0.27	1.0		TH
Thorium 232	TH-232	0.357	0.22	0.27	1.0		TH
Uranium 233/234	U-233/234	0.505	0.29	0.28	1.0		U
Uranium 235	15117-96-1	0.044	0.087	0.33	1.0	U	U
Uranium 238	U-238	0.144	0.14	0.28	1.0	U	U
Plutonium 238	13981-16-3	0	0.041	0.16	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.041	0.16	1.0	U	PU
Potassium 40	13966-00-2	7.41	1.3	1.1			GAM
Cobalt 60	10198-40-0	U		0.12	0.050	U	GAM
Cesium 137	10045-97-3	U		0.12	0.10	U	GAM
Radium 226	13982-63-3	0.885	0.39	0.28	0.10		GAM
Radium 228	15262-20-1	U		0.54	0.20	U	GAM
Europium 152	14683-23-9	U		0.34	0.10	U	GAM
Europium 154	15585-10-1	U		0.41	0.10	U	GAM
Europium 155	14391-16-3	U		0.27	0.10	U	GAM
Thorium 228	14274-82-9	0.534	0.14	0.15			GAM
Thorium 232	TH-232	U		0.54		U	GAM
Uranium 235	15117-96-1	U		0.39		U	GAM
Uranium 238	U-238	U		13		U	GAM
Americium 241	14596-10-2	U		0.23		U	GAM
Cesium 134	13967-70-9	U		0.14		U	GAM

100 & 300 Area Component - RCBRA

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/10/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

7344-009 J10DR8

DATA SHEET

SDG	7344	Client/Case no	Hanford SDG K0120
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511206-09	Client sample id	J10DR8
Dept sample id	7344-009	Location/Matrix	Upland Native Ref.-Centr SOLID
Received	11/17/05	Collected/Weight	11/15/05 14:08 529.0 g
% solids	100.0	Custody/SAF No	RC-051-14 RC-051

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	0.070	0.13	0.24	1.0	U	SR
Thorium 228	14274-82-9	0.548	0.30	0.28	1.0		TH
Thorium 230	14269-63-7	0.255	0.29	0.28	1.0	U	TH
Thorium 232	TH-232	0.583	0.30	0.28	1.0		TH
Uranium 233/234	U-233/234	0.294	0.22	0.28	1.0		U
Uranium 235	15117-96-1	0.044	0.089	0.34	1.0	U	U
Uranium 238	U-238	0.073	0.074	0.28	1.0	U	U
Plutonium 238	13981-16-3	0	0.084	0.32	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.084	0.32	1.0	U	PU
Potassium 40	13966-00-2	10.7	1.3	0.80			GAM
Cobalt 60	10198-40-0	U		0.078	0.050	U	GAM
Cesium 137	10045-97-3	U		0.085	0.10	U	GAM
Radium 226	13982-63-3	0.441	0.14	0.14	0.10		GAM
Radium 228	15262-20-1	0.727	0.26	0.22	0.20		GAM
Europium 152	14683-23-9	U		0.18	0.10	U	GAM
Europium 154	15585-10-1	U		0.23	0.10	U	GAM
Europium 155	14391-16-3	U		0.18	0.10	U	GAM
Thorium 228	14274-82-9	0.777	0.14	0.14			GAM
Thorium 232	TH-232	0.727	0.26	0.22			GAM
Uranium 235	15117-96-1	U		0.28		U	GAM
Uranium 238	U-238	U		7.2		U	GAM
Americium 241	14596-10-2	U		0.36		U	GAM
Cesium 134	13967-70-9	U		0.087		U	GAM

100 & 300 Area Component - RCBRA

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/10/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

7344-010 **J10DR9**

DATA SHEET

SDG	7344	Client/Case no	Hanford SDG K0120
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R511206-10	Client sample id	J10DR9
Dept sample id	7344-010	Location/Matrix	Upland Native Ref.-Centr SOLID
Received	11/17/05	Collected/Weight	11/15/05 09:43 593.0 g
% solids	100.0	Custody/SAF No	RC-051-14 RC-051

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	0.146	0.13	0.24	1.0	U	SR
Thorium 228	14274-82-9	0.353	0.28	0.27	1.0		TH
Thorium 230	14269-63-7	0.035	0.21	0.27	1.0	U	TH
Thorium 232	TH-232	0.316	0.21	0.27	1.0		TH
Uranium 233/234	U-233/234	0.224	0.17	0.21	1.0		U
Uranium 235	15117-96-1	0	0.068	0.26	1.0	U	U
Uranium 238	U-238	0.224	0.17	0.21	1.0		U
Plutonium 238	13981-16-3	0	0.071	0.27	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.071	0.27	1.0	U	PU
Potassium 40	13966-00-2	5.90	1.2	0.88			GAM
Cobalt 60	10198-40-0	U		0.12	0.050	U	GAM
Cesium 137	10045-97-3	U		0.11	0.10	U	GAM
Radium 226	13982-63-3	0.418	0.19	0.18	0.10		GAM
Radium 228	15262-20-1	U		0.51	0.20	U	GAM
Europium 152	14683-23-9	U		0.34	0.10	U	GAM
Europium 154	15585-10-1	U		0.32	0.10	U	GAM
Europium 155	14391-16-3	U		0.19	0.10	U	GAM
Thorium 228	14274-82-9	0.792	0.16	0.15			GAM
Thorium 232	TH-232	U		0.51		U	GAM
Uranium 235	15117-96-1	U		0.31		U	GAM
Uranium 238	U-238	U		13		U	GAM
Americium 241	14596-10-2	U		0.10		U	GAM
Cesium 134	13967-70-9	U		0.14		U	GAM

100 & 300 Area Component - RCBRA

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/10/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

Test PU Matrix SOLID
SDG 7344
Contact Melissa C. Mannion

LAB METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG K0120

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Plutonium 238		Plutonium 239/240	
Preparation batch 7148-196								
R511206-01			7344-001	J10DR0	U		U	
R511206-02			7344-002	J10DR1	U		U	
R511206-03			7344-003	J10DR2	U		U	
R511206-04			7344-004	J10DR3	U		U	
R511206-05			7344-005	J10DR4	U		U	
R511206-06			7344-006	J10DR5	U		U	
R511206-07			7344-007	J10DR6	U		U	
R511206-08			7344-008	J10DR7	U		U	
R511206-09			7344-009	J10DR8	U		U	
R511206-10			7344-010	J10DR9	U		U	
R511206-11			7344-011	LCS (QC ID=55348)	ok		ok	
R511206-12			7344-012	BLK (QC ID=55349)	U		U	
R511206-13			7344-013	Duplicate (R511206-01)	-	U	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.0		1.0	
100 & 300 Area Component - RCBRA								

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 01/10/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

Test PU Matrix SOLID
SDG 7344
Contact Melissa C. Mannion

LAB METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG K0120

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7148-196			2σ prep error 5.0 %		Reference Lab Notebook #7148, pg. 196											
R511206-01			J10DR0	0.23	0.500			50		182			49	12/30/05	01/03	SS-066
R511206-02			J10DR1	0.22	0.500			58		181			49	12/30/05	01/03	SS-063
R511206-03			J10DR2	0.12	0.500			76		212			50	12/30/05	01/04	SS-055
R511206-04			J10DR3	0.32	0.500			68		105			50	12/30/05	01/04	SS-063
R511206-05			J10DR4	0.24	0.500			83		105			50	12/30/05	01/04	SS-064
R511206-06			J10DR5	0.42	0.500			48		105			50	12/30/05	01/04	SS-065
R511206-07			J10DR6	0.43	0.500			46		105			50	12/30/05	01/04	SS-066
R511206-08			J10DR7	0.16	0.500			61		210			50	12/30/05	01/04	SS-032
R511206-09			J10DR8	0.32	0.500			67		105			50	12/30/05	01/04	SS-063
R511206-10			J10DR9	0.27	0.500			72		105			50	12/30/05	01/04	SS-064
R511206-11			LCS (QC ID=55348)	0.29	0.500			71		105				12/30/05	01/04	SS-065
R511206-12			BLK (QC ID=55349)	0.26	0.500			78		105				12/30/05	01/04	SS-066
R511206-13			Duplicate (R511206-01) (QC ID=55350)	0.26	0.500			72		109			51	12/30/05	01/05	SS-031
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

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

AVERAGES ± 2 SD FOR 13 SAMPLES	MDA	0.27	± 0.18
	YIELD	65	± 24

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 01/10/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

Test TH Matrix SOLID
SDG 7344
Contact Melissa C. Mannion

LAB METHOD SUMMARY

THORIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG K0120

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Thorium 230
Preparation batch 7148-196					
R511206-01			7344-001	J10DR0	U
R511206-02			7344-002	J10DR1	U
R511206-03			7344-003	J10DR2	U
R511206-04			7344-004	J10DR3	0.372
R511206-05			7344-005	J10DR4	U
R511206-06			7344-006	J10DR5	0.380
R511206-07			7344-007	J10DR6	U
R511206-08			7344-008	J10DR7	0.392
R511206-09			7344-009	J10DR8	U
R511206-10			7344-010	J10DR9	U
R511206-11			7344-011	LCS (QC ID=55348)	ok
R511206-12			7344-012	BLK (QC ID=55349)	U
R511206-13			7344-013	Duplicate (R511206-01)	ok

Nominal values and limits from method RDLs (pCi/g) 1.0
100 & 300 Area Component - RCBRA

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 01/10/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

Test TH Matrix SOLID
SDG 7344
Contact Melissa C. Mannion

LAB METHOD SUMMARY

THORIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG K0120

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7148-196			2σ prep error 5.0 %		Reference Lab Notebook #7148, pg. 196											
R511206-01			J10DR0	0.31	0.250			88		155			44	12/29/05	12/29	SS-057
R511206-02			J10DR1	0.31	0.250			87		155			44	12/29/05	12/29	SS-058
R511206-03			J10DR2	0.28	0.250			94		155			44	12/29/05	12/29	SS-056
R511206-04			J10DR3	0.32	0.250			88		154			44	12/29/05	12/29	SS-059
R511206-05			J10DR4	0.29	0.250			88		154			44	12/29/05	12/29	SS-060
R511206-06			J10DR5	0.32	0.250			83		154			44	12/29/05	12/29	SS-061
R511206-07			J10DR6	0.30	0.250			88		154			44	12/29/05	12/29	SS-062
R511206-08			J10DR7	0.27	0.250			88		176			44	12/29/05	12/29	SS-057
R511206-09			J10DR8	0.28	0.250			85		176			44	12/29/05	12/29	SS-058
R511206-10			J10DR9	0.27	0.250			87		178			49	12/29/05	01/03	SS-058
R511206-11			LCS (QC ID=55348)	0.26	0.250			86		175				12/29/05	12/29	SS-060
R511206-12			BLK (QC ID=55349)	0.29	0.250			81		175				12/29/05	12/29	SS-061
R511206-13			Duplicate (R511206-01) (QC ID=55350)	0.27	0.250			88		175			44	12/29/05	12/29	SS-062
Nominal values and limits from method				1.0	0.250			20-105		150			180			

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

AVERAGES ± 2 SD FOR 13 SAMPLES
MDA 0.29 ± 0.041
YIELD 87 ± 6

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 01/10/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

Test U Matrix SOLID
SDG 7344
Contact Melissa C. Mannion

LAB METHOD SUMMARY

URANIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG K0120

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	1: Uranium 233/234	2: Uranium 235	3: Uranium 238	RESULT RATIOS (%) 1+3	2σ	2+3	2σ
Preparation batch 7148-196											
R511206-01			7344-001	J10DR0	0.194	U	0.177	110	92	24	29
R511206-02			7344-002	J10DR1	U	U	U				
R511206-03			7344-003	J10DR2	0.228	U	U				
R511206-04			7344-004	J10DR3	0.257	U	U				
R511206-05			7344-005	J10DR4	U	U	0.194	50	63	30	38
R511206-06			7344-006	J10DR5	U	U	U				
R511206-07			7344-007	J10DR6	0.294	U	U				
R511206-08			7344-008	J10DR7	0.505	U	U				
R511206-09			7344-009	J10DR8	0.294	U	U				
R511206-10			7344-010	J10DR9	0.224	U	0.224	100	107	0	30
R511206-11			7344-011	LCS (QC ID=55348)	ok	ok	ok				
R511206-12			7344-012	BLK (QC ID=55349)	U	U	U				
R511206-13			7344-013	Duplicate (R511206-01)	ok U	- U	ok U				
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0	1.0	100		4	
100 & 300 Area Component - RCBRA								Averages 87		18	

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 01/10/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

Test U Matrix SOLID
SDG 7344
Contact Melissa C. Mannion

LAB METHOD SUMMARY

URANIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG K0120

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7148-196			2σ prep error 5.0 %		Reference Lab Notebook #7148, pg. 196											
R511206-01			J10DR0	0.16	0.500			72		181			43	12/28/05	12/28	SS-035
R511206-02			J10DR1	0.18	0.500			64		181			43	12/28/05	12/28	SS-036
R511206-03			J10DR2	0.24	0.500			59		181			43	12/28/05	12/28	SS-039
R511206-04			J10DR3	0.24	0.500			66		181			43	12/28/05	12/28	SS-040
R511206-05			J10DR4	0.22	0.500			63		181			43	12/28/05	12/28	SS-042
R511206-06			J10DR5	0.33	0.500			72		102			43	12/28/05	12/28	SS-055
R511206-07			J10DR6	0.34	0.500			71		102			43	12/28/05	12/28	SS-056
R511206-08			J10DR7	0.33	0.500			75		102			43	12/28/05	12/28	SS-057
R511206-09			J10DR8	0.34	0.500			73		102			43	12/28/05	12/28	SS-058
R511206-10			J10DR9	0.26	0.500			98		102			43	12/28/05	12/28	SS-059
R511206-11			LCS (QC ID=55348)	0.99	0.500			93		102				12/28/05	12/28	SS-060
R511206-12			BLK (QC ID=55349)	0.30	0.500			82		102				12/28/05	12/28	SS-061
R511206-13			Duplicate (R511206-01) (QC ID=55350)	0.33	0.500			73		102			43	12/28/05	12/28	SS-062
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

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

AVERAGES ± 2 SD FOR 13 SAMPLES				
MDA	0.33	±	0.42
YIELD	74	±	23

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 01/10/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

Test SR Matrix SOLID
SDG 7344
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOLIDS

BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG K0120

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Total Strontium	
Preparation batch 7148-196						
R511206-01			7344-001	J10DR0	U	
R511206-02			7344-002	J10DR1	U	
R511206-03			7344-003	J10DR2	U	
R511206-04			7344-004	J10DR3	U	
R511206-05			7344-005	J10DR4	U	
R511206-06			7344-006	J10DR5	U	
R511206-07			7344-007	J10DR6	U	
R511206-08			7344-008	J10DR7	U	
R511206-09			7344-009	J10DR8	U	
R511206-10			7344-010	J10DR9	U	
R511206-11			7344-011	LCS (QC ID=55348)	ok	
R511206-12			7344-012	BLK (QC ID=55349)	U	
R511206-13			7344-013	Duplicate (R511206-01)	-	U

Nominal values and limits from method RDLs (pCi/g) 1.0
100 & 300 Area Component - RCBRA

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 01/10/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

Test SR Matrix SOLID
SDG 7344
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOLIDS

BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG K0120

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7148-196			2σ prep error 10.0 % Reference Lab Notebook #7148, pg. 196													
R511206-01			J10DR0	0.18	1.00			94		120			43	12/28/05	12/28	GRB-201
R511206-02			J10DR1	0.25	1.00			95		100			43	12/28/05	12/28	GRB-230
R511206-03			J10DR2	0.29	1.00			91		100			43	12/28/05	12/28	GRB-231
R511206-04			J10DR3	0.25	1.00			96		100			43	12/28/05	12/28	GRB-232
R511206-05			J10DR4	0.27	1.00			91		100			43	12/28/05	12/28	GRB-201
R511206-06			J10DR5	0.27	1.00			85		100			43	12/28/05	12/28	GRB-202
R511206-07			J10DR6	0.24	1.00			95		100			43	12/28/05	12/28	GRB-203
R511206-08			J10DR7	0.25	1.00			96		100			43	12/28/05	12/28	GRB-204
R511206-09			J10DR8	0.24	1.00			94		100			43	12/28/05	12/28	GRB-217
R511206-10			J10DR9	0.24	1.00			99		100			43	12/28/05	12/28	GRB-218
R511206-11			LCS (QC ID=55348)	0.18	1.00			99		100				12/28/05	12/28	GRB-230
R511206-12			BLK (QC ID=55349)	0.23	1.00			96		100				12/28/05	12/28	GRB-220
R511206-13			Duplicate (R511206-01) (QC ID=55350)	0.16	1.00			98		120			43	12/28/05	12/28	GRB-202
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 13 SAMPLES
MDA 0.23 ± 0.077
YIELD 95 ± 8

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 01/10/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

Test GAM Matrix SOLID
SDG 7344
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG K0120

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60	Cesium 137
Preparation batch 7148-196						
R511206-01			7344-001	J10DR0	U	0.207
R511206-02			7344-002	J10DR1	U	U
R511206-03			7344-003	J10DR2	U	0.139
R511206-04			7344-004	J10DR3	U	U
R511206-05			7344-005	J10DR4	U	0.156
R511206-06			7344-006	J10DR5	U	U
R511206-07			7344-007	J10DR6	U	U
R511206-08			7344-008	J10DR7	U	U
R511206-09			7344-009	J10DR8	U	U
R511206-10			7344-010	J10DR9	U	U
R511206-11			7344-011	LCS (QC ID=55348)	ok	ok
R511206-12			7344-012	BLK (QC ID=55349)	U	U
R511206-13			7344-013	Duplicate (R511206-01)	- U	ok
Nominal values and limits from method				RDLs (pCi/g)	0.050	0.10
100 & 300 Area Component - RCBRA						

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 01/10/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

Test GAM Matrix SOLID
SDG 7344
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG K0120

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7148-196			2σ prep error 15.0 %	Reference Lab Notebook #7148, pg. 196												
R511206-01			J10DR0	18	244					121			49	12/13/05	01/03	JR,05,00
R511206-02			J10DR1	18	254					156			45	12/13/05	12/30	JR,04,00
R511206-03			J10DR2	12	256					156			45	12/13/05	12/30	JR,05,00
R511206-04			J10DR3	15	250					174			45	12/13/05	12/30	JR,07,00
R511206-05			J10DR4	13	249					174			45	12/13/05	12/30	JR,08,00
R511206-06			J10DR5	13	243					174			45	12/13/05	12/30	JR,02,00
R511206-07			J10DR6	20	247					121			49	12/13/05	01/03	JR,04,00
R511206-08			J10DR7	22	242					102			45	12/13/05	12/30	JR,04,00
R511206-09			J10DR8	16	247					102			45	12/13/05	12/30	JR,05,00
R511206-10			J10DR9	21	241					102			45	12/13/05	12/30	JR,07,00
R511206-11			LCS (QC ID=55348)	0.088	241					102				12/13/05	12/30	JR,08,00
R511206-12			BLK (QC ID=55349)	16	241					102				12/13/05	12/30	JR,02,00
R511206-13			Duplicate (R511206-01) (QC ID=55350)	16	244					110			49	12/13/05	01/03	JR,08,00
Nominal values and limits from method				0.050	241					100			180			

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

AVERAGES ± 2 SD MDA 15 ± 11
FOR 13 SAMPLES YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 01/10/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

SDG	7344
Contact	Melissa C. Mannion

REPORT GUIDE

Client	Hanford
Contract	No. 630
Case no	SDG K0120

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	01/10/06

SDG 7344
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_K0120

PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

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

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

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

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

  These qualifiers should be reviewed as follows:

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

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

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

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

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0120

SDG 7344
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_K0120

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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SDG 7344
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REPORT GUIDE

Client Hanford
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DATA SHEET

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

The following notes apply to this report:

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

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

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

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

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

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

The following qualifiers are defined by the DVD system:

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

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DATA SHEET

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

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

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

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

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

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

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

P The RESULT is 'preliminary'.

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

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

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

The following values are underlined to indicate possible problems:

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

SDG 7344
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GUIDE, cont.

Client Hanford
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Case no SDG K0120

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

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LAB CONTROL SAMPLE

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

The following notes apply to this report:

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

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

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REPORT GUIDE

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Case no SDG_K0120

DUPLICATE

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

The following notes apply to this report:

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

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

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

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

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

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

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

  This value reported for this limit is at most 999.

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

  1. A fixed percentage specified in the protocol.

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DUPLICATE

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

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

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

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

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

SDG 7344
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K0120

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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Protocol Hanford
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Form DVD-RG
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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.

SDG 7344
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K0120

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.

METHOD SUMMARY

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

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

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

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

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

K0121

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-051-13	Page 1 of 1

Collector L. COLLOM	Company Contact JOAN KESSNER Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code ~~8L~~ 8N Data Turnaround 45 Days
Project Designation 100 & 300 Area Component of the RCBRA - Incremental So	Sampling Location Upland Backfill Low-116-DR-1&2 K0120 (7344)	SAF No. RC-051	Air Quality
Ice Chest No.	Field Logbook No. EL-1596 COA BESRAS6520	Method of Shipment FED EX	
Shipped To EBERLINE SERVICES	Offsite Property No. A060151	Bill of Lading/Air Bill No.	

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

NONE

Preservation	None	None	None	None	None	None	None	None		
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG	aG		
No. of Container(s)	5	7								
Volume	500g	30g	30g	30g	30g	30g	30g	30g		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Chromium Hex - 7196	Semi-VOA - 8270A (TCL)	PAHs - 8310	Pesticides - 8081	PCBs - 8082		

Sample No.	Matrix *	Sample Date	Sample Time										
J10DR0	SOIL	11/15/05	14:57	1	3								
J10DR1	SOIL	11/15/05	16:50	1	1								
J10DR2	SOIL	11/15/05	19:00	1	1								
J10DR3	SOIL	11/15/05	17:20	1	1								
J10DR4	SOIL	11/15/05	16:19	1	1								

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Elizabeth Tepper	11/16/05	N/A	
Elizabeth Tepper CH2MHill	15:00	Fed Ex	15:00 11/16/05
FED EX	11/17/05	MFW	11/17/05 9:30

SPECIAL INSTRUCTIONS

This chain of custody form documents the transfer of bulk field collected soils to the CH2M Hill Corvallis laboratory for incremental preparation and aliquoting.

(1) Gamma Spec - (Full List) {Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-226, Radium-228}
(2) Strontium-89,90 -- Total Sr; Isotopic Thorium {Thorium-232}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Isotopic Plutonium
(3) 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
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

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-051-14	Page 1 of 1

Collector L. COLLOM	Company Contact JOAN KESSNER Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8K 8N Data Turnaround 45 Days Air Quality ☐
Project Designation 100 & 300 Area Component of the RCBRA - Incremental So	Sampling Location Upland Native Reference-Central Plateau K0120 (7344)	SAF No. RC-051	
Ice Chest No.	Field Logbook No. EL-1596 COA BESRAS6520	Method of Shipment	
Shipped To EBERLINE SERVICES	Offsite Property No. A060151	Bill of Lading/Air Bill No.	

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

NONE

Preservation	None	None	None	None	None	None	None	None		
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG	aG		
No. of Container(s)	5	7								
Volume	500g	30g	30g	30g	30g	30g	30g	30g		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Chromium Hex - 7196	Semi-VOA - 8270A (TCL)	PAHs - 8310	Pesticides - 8081	PCBs - 8082		

Sample No.	Matrix *	Sample Date	Sample Time										
J10DR5	SOIL	11-15-05	0902	1	1								
J10DR6	SOIL		0839	1	1								
J10DR7	SOIL		10:51	1	1								
J10DR8	SOIL		14:08	1	1								
J10DR9	SOIL		09:43	1	3								

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Elizabeth Tepper	11-16-05	NA	
Elizabeth Tepper	15:00	Fed Ex	11/16/05 15:00
Fed Ex	11/17/05	MFW	11/17/05 9:30
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

This chain of custody form documents the transfer of bulk field collected soils to the CH2M Hill Corvallis laboratory for incremental preparation and aliquoting.

(1) Gamma Spec - (Full List) {Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-226, Radium-228}
(2) Strontium-89,90 -- Total Sr; Isotopic Thorium {Thorium-232}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Isotopic Plutonium
(3) 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
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

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

EBERLINE SERVICES

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Client: W.C. HANFORD City RICHLAND State WA

Date/Time received 11/17/05 9:30 CoC No. RC-051-13

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

INSPECTION

1. Custody seals on shipping container intact? Yes [X] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [X] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [ ] 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 [ ]
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 MFW Date: 11/17/05 Time: 11:50

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 _____

EBERLINE SERVICES

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Client: W.C. HANFORD City RICHLAND State WA

Date/Time received 11/17/05 9:30 CoC No. RC-051-14

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

INSPECTION

1. Custody seals on shipping container intact? Yes [X] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [X] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [ ] 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 MCW Date: 11/17/05 Time: 11:15

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 _____