0069282

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

RECEIVED
JUN 2 2 2006
EDMC

COMPLETE COPY OF DATA PACKAGE TO:

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

COMMENTS:

SDG K0304 SAF-RC-051

Rad only X Chem only Rad & Chem

X Complete Partial

Waste Site: Upriver Riparian #16

LIONVILLE LABORATORY INC.

7 June 2006

Joan Kessner
WC-Hanford
3190 Washington Way
MSIN H9-03
Richland, WA 99354

RECEIVED JUN 2006

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 #	0604L772
SDG #	K0304
SAF #	RC-051
Date Received	4/13/06
# Samples	5
Mat\rix	Soil
Volatiles	
Semivolatiles	X
Pest/PCB	X
PAH	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	X

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

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

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

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JUN 2006

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0304

DATE RECEIVED: 04/13/06 LVL LOT # :0604L772

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J11JN2	001	S	06LE0316	04/11/06	04/24/06	04/30/06
J11JN3	002	S	06LE0316	04/11/06	04/24/06	04/30/06
J11JN3	002 MS	S	06LE0316	04/11/06	04/24/06	05/01/06
J11JN3	002 MSD	S	06LE0316	04/11/06	04/24/06	05/01/06
J11JN4	003	S	06LE0316	04/11/06	04/24/06	05/01/06
J11JN5	004	S	06LE0316	04/11/06	04/24/06	05/01/06
J11JN6	005	S	06LE0316	04/11/06	04/24/06	05/01/06

LAB QC:

SBLKWU	MB1	S	06LE0316	N/A	04/24/06	04/30/06
SBLKWU	MB1 BS	S	06LE0316	N/A	04/24/06	05/01/06

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-051
LVL #: 0604L772
SDG/SAF # K0304/RC-051

W.O. #: 11343-606-001-9999-00
Date Received: 04-13-2006

SEMIVOLATILE

Five (5) soil samples were collected on 04-11-2006.

The samples and their associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3540C on 04-24-2006 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 04-30-2006 and 05-01-2006.

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

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

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

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

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

5. Six (6) of fifty-four (54) surrogate recoveries were outside acceptance criteria. The analysis of associated matrix spike duplicate fulfills the reanalysis requirement of sample J11JN3 MS. The low recoveries were attributed to the loss during extraction. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

6. Seventy-nine (79) of one hundred twenty-eight (128) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

7. One (1) of sixty-four (64) blank spike recoveries was outside acceptance criteria.

8. The method blank contained the common laboratory contaminants Bis (2-Ethylhexyl) phthalate and Di-n-butylphthalate at levels less than the CRQL.

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 2 5 pages.

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LIONVILLE LABORATORY INC.

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

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

11. LvLI is NELAP accredited by the state of Pennsylvania 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

5/9/02
Date

som\gorup\data\bna\tnu-hanford\0604-772.doc

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Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 06 M1144

Initiator: Sharon Saylor
Date: 5-2-06
Client: TRU

Batch: 06 04 L 372
Samples: 002ms, 002msd, BS
Method: ~~SW846~~ MCAWW/CLP/

Parameter: 8270
Matrix: SOLID
Prep Batch: 06 E0 316

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 low recovery of all surrogates & spikes in J11JN3ms
② low recovery of several analytes in J11JN3msd
③ <10% recovery 2,4-dinitrophenol in blank spike

2. Known or Probable Causes(s)

① loss during extraction
2+ ③ loss due to highly erratic chromatographic behavior of compounds

3. Discussion and Proposed Action Other Description:

narrate

__ 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: 5/4/06

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

5. Final Action...signature/date: 5/9/06 Other Explanation:

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

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

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

QA-105-A-0805

GLOSSARY

DATA QUALIFIERS

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

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

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

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

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

I = Interference.

NQ = Result qualitatively confirmed but not able to quantify.

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

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

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

GLOSSARY

ABBREVIATIONS

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

TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

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

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

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

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

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

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

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 05/05/06 10:59

RFW Batch Number: 0604L772 Client: TNUHANFORD RC-051 K0304 Work Order: 11343606001 Page: 1a

000000008

	Cust ID:	J11JN2		J11JN3		J11JN3		J11JN3		J11JN4		J11JN5	
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	66	%	72	%	9 *	%	52	%	51	%	48	%
	2-Fluorobiphenyl	72	%	79	%	9 *	%	56	%	52	%	49	%
	Terphenyl-d14	89	%	94	%	10 *	%	61	%	66	%	67	%
	Phenol-d5	65	%	71	%	7 *	%	46	%	42	%	38	%
	2-Fluorophenol	59	%	66	%	6 *	%	38	%	39	%	32	%
	2,4,6-Tribromophenol	88	%	84	%	8 *	%	57	%	53	%	56	%
Phenol		24	J	24	J	7 *	%	49 *	%	330	U	330	U
bis(2-Chloroethyl)ether		330	U	330	U	9 *	%	49 *	%	330	U	330	U
2-Chlorophenol		330	U	330	U	8 *	%	49 *	%	330	U	330	U
1,3-Dichlorobenzene		330	U	330	U	9 *	%	48 *	%	330	U	330	U
1,4-Dichlorobenzene		330	U	330	U	8 *	%	48 *	%	330	U	330	U
1,2-Dichlorobenzene		330	U	330	U	8 *	%	52	%	330	U	330	U
2-Methylphenol		330	U	330	U	9 *	%	53 *	%	330	U	330	U
2,2'-oxybis(1-Chloropropane)		330	U	330	U	9 *	%	48 *	%	330	U	330	U
4-Methylphenol		330	U	330	U	9 *	%	53 *	%	330	U	330	U
N-Nitroso-di-n-propylamine		330	U	330	U	11 *	%	61	%	330	U	330	U
Hexachloroethane		330	U	330	U	9 *	%	45 *	%	330	U	330	U
Nitrobenzene		330	U	330	U	11 *	%	56	%	330	U	330	U
Isophorone		330	U	330	U	11 *	%	60	%	330	U	330	U
2-Nitrophenol		330	U	330	U	8 *	%	52	%	330	U	330	U
2,4-Dimethylphenol		330	U	330	U	9 *	%	54	%	330	U	330	U
bis(2-Chloroethoxy)methane		330	U	330	U	9 *	%	52	%	330	U	330	U
2,4-Dichlorophenol		330	U	330	U	9 *	%	55	%	330	U	330	U
1,2,4-Trichlorobenzene		330	U	330	U	10 *	%	54 *	%	330	U	330	U
Naphthalene		330	U	330	U	9 *	%	52	%	330	U	330	U
4-Chloroaniline		330	U	330	U	8 *	%	37	%	330	U	330	U
Hexachlorobutadiene		330	U	330	U	12 *	%	62	%	330	U	330	U
4-Chloro-3-methylphenol		330	U	330	U	9 *	%	61	%	330	U	330	U
2-Methylnaphthalene		330	U	330	U	10 *	%	58 *	%	330	U	330	U
Hexachlorocyclopentadiene		330	U	330	U	3 *	%	30	%	330	U	330	U
2,4,6-Trichlorophenol		330	U	330	U	9 *	%	64	%	330	U	330	U
2,4,5-Trichlorophenol		830	U	830	U	9 *	%	65	%	830	U	830	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 0604L772 Client: TNUHANFORD RC-051 K0304 Work Order: 11343606001 Page: 1b

Cust ID:	J11JN2		J11JN3		J11JN3	J11JN3	J11JN4		J11JN5	
RFW#:	001		002		002 MS	002 MSD	003		004	
2-Chloronaphthalene	330	U	330	U	9 * %	59 %	330	U	330	U
2-Nitroaniline	830	U	830	U	11 * %	65 %	830	U	830	U
Dimethylphthalate	330	U	330	U	10 * %	63 %	330	U	330	U
Acenaphthylene	330	U	330	U	9 * %	61 %	330	U	330	U
2,6-Dinitrotoluene	330	U	330	U	10 * %	60 %	330	U	330	U
3-Nitroaniline	830	U	830	U	9 * %	59 %	830	U	830	U
Acenaphthene	330	U	330	U	9 * %	61 %	330	U	330	U
2,4-Dinitrophenol	830	U	830	U	0 * %	22 %	830	U	830	U
4-Nitrophenol	830	U	830	U	2 * %	67 %	830	U	830	U
Dibenzofuran	330	U	330	U	10 * %	64 %	330	U	330	U
2,4-Dinitrotoluene	330	U	330	U	10 * %	65 %	330	U	330	U
Diethylphthalate	330	U	330	U	11 * %	65 %	330	U	330	U
4-Chlorophenyl-phenylether	330	U	330	U	10 * %	65 %	330	U	330	U
Fluorene	330	U	330	U	10 * %	62 %	330	U	330	U
4-Nitroaniline	830	U	830	U	7 * %	48 * %	830	U	830	U
4,6-Dinitro-2-methylphenol	830	U	830	U	7 * %	61 %	830	U	830	U
N-Nitrosodiphenylamine (1)	330	U	330	U	8 * %	53 %	330	U	330	U
4-Bromophenyl-phenylether	330	U	330	U	9 * %	58 %	330	U	330	U
Hexachlorobenzene	330	U	330	U	10 * %	66 %	330	U	330	U
Pentachlorophenol	830	U	830	U	7 * %	68 %	830	U	830	U
Phenanthrene	330	U	330	U	9 * %	64 %	330	U	330	U
Anthracene	330	U	330	U	10 * %	64 %	330	U	330	U
Carbazole	330	U	330	U	9 * %	57 * %	330	U	330	U
Di-n-butylphthalate	17	JB	37	JB	8 * %	59 %	330	U	330	U
Fluoranthene	330	U	330	U	10 * %	61 %	330	U	330	U
Pyrene	330	U	330	U	11 * %	69 %	330	U	330	U
Butylbenzylphthalate	330	U	330	U	11 * %	67 %	330	U	330	U
3,3'-Dichlorobenzidine	330	U	330	U	7 * %	39 %	330	U	330	U
Benzo(a)anthracene	330	U	330	U	11 * %	63 %	330	U	330	U
Chrysene	330	U	330	U	10 * %	59 %	330	U	330	U
bis(2-Ethylhexyl)phthalate	31	JB	22	JB	9 * %	61 %	330	U	330	U
Di-n-octyl phthalate	330	U	330	U	10 * %	66 %	330	U	330	U
Benzo(b)fluoranthene	330	U	330	U	10 * %	69 %	330	U	330	U
Benzo(k)fluoranthene	330	U	330	U	11 * %	59 %	330	U	330	U
Benzo(a)pyrene	330	U	330	U	10 * %	60 %	330	U	330	U
Indeno(1,2,3-cd)pyrene	330	U	330	U	10 * %	55 * %	330	U	330	U
Dibenz(a,h)anthracene	330	U	330	U	9 * %	55 %	330	U	330	U
Benzo(g,h,i)perylene	330	U	330	U	9 * %	49 * %	330	U	330	U

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

000000009

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 05/05/06 10:59

RFW Batch Number: **0604L772** Client: **TNUHANFORD RC-051 K0304** Work Order: 11343606001 Page: 2a

	Cust ID:	J11JN6		SBLKWU		SBLKWU BS	
Sample Information	RFW#:	005		06LE0316-MB1		06LE0316-MB1	
	Matrix:	SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	56	%	89	%	64	%
	2-Fluorobiphenyl	56	%	87	%	67	%
	Terphenyl-d14	76	%	112	%	74	%
	Phenol-d5	45	%	82	%	61	%
	2-Fluorophenol	41	%	79	%	56	%
	2,4,6-Tribromophenol	68	%	59	%	70	%
		fl		fl		fl	
Phenol		330	U	330	U	67	%
bis(2-Chloroethyl)ether		330	U	330	U	72	%
2-Chlorophenol		330	U	330	U	67	%
1,3-Dichlorobenzene		330	U	330	U	69	%
1,4-Dichlorobenzene		330	U	330	U	68	%
1,2-Dichlorobenzene		330	U	330	U	74	%
2-Methylphenol		330	U	330	U	70	%
2,2'-oxybis(1-Chloropropane)		330	U	330	U	65	%
4-Methylphenol		330	U	330	U	70	%
N-Nitroso-di-n-propylamine		330	U	330	U	82	%
Hexachloroethane		330	U	330	U	69	%
Nitrobenzene		330	U	330	U	70	%
Isophorone		330	U	330	U	79	%
2-Nitrophenol		330	U	330	U	67	%
2,4-Dimethylphenol		330	U	330	U	57	%
bis(2-Chloroethoxy)methane		330	U	330	U	70	%
2,4-Dichlorophenol		330	U	330	U	69	%
1,2,4-Trichlorobenzene		330	U	330	U	72	%
Naphthalene		330	U	330	U	68	%
4-Chloroaniline		330	U	330	U	77	%
Hexachlorobutadiene		330	U	330	U	82	%
4-Chloro-3-methylphenol		330	U	330	U	73	%
2-Methylnaphthalene		330	U	330	U	76	%
Hexachlorocyclopentadiene		330	U	330	U	63	%
2,4,6-Trichlorophenol		330	U	330	U	77	%
2,4,5-Trichlorophenol		830	U	830	U	74	%

*= Outside of EPA CLP QC limits.

000000010

Cust ID:	J11JN6		SBLKWU		SBLKWU BS	
RFW#:	005		06LE0316-MB1		06LE0316-MB1	
2-Chloronaphthalene	330	U	330	U	74	%
2-Nitroaniline	830	U	830	U	78	%
Dimethylphthalate	330	U	330	U	78	%
Acenaphthylene	330	U	330	U	75	%
2,6-Dinitrotoluene	330	U	330	U	75	%
3-Nitroaniline	830	U	830	U	89	%
Acenaphthene	330	U	330	U	75	%
2,4-Dinitrophenol	830	U	830	U	3 *	%
4-Nitrophenol	830	U	830	U	75	%
Dibenzofuran	330	U	330	U	79	%
2,4-Dinitrotoluene	330	U	330	U	80	%
Diethylphthalate	330	U	330	U	80	%
4-Chlorophenyl-phenylether	330	U	330	U	80	%
Fluorene	330	U	330	U	77	%
4-Nitroaniline	830	U	830	U	72	%
4,6-Dinitro-2-methylphenol	830	U	830	U	54	%
N-Nitrosodiphenylamine (1)	330	U	330	U	64	%
4-Bromophenyl-phenylether	330	U	330	U	71	%
Hexachlorobenzene	330	U	330	U	81	%
Pentachlorophenol	830	U	830	U	63	%
Phenanthrene	330	U	330	U	81	%
Anthracene	330	U	330	U	83	%
Carbazole	330	U	330	U	77	%
Di-n-butylphthalate	330	U	42	J	84	%
Fluoranthene	330	U	330	U	90	%
Pyrene	330	U	330	U	86	%
Butylbenzylphthalate	330	U	330	U	83	%
3,3'-Dichlorobenzidine	330	U	330	U	95	%
Benzo(a)anthracene	330	U	330	U	79	%
Chrysene	330	U	330	U	79	%
bis(2-Ethylhexyl)phthalate	18	JB	22	J	79	%
Di-n-octyl phthalate	330	U	330	U	80	%
Benzo(b)fluoranthene	330	U	330	U	75	%
Benzo(k)fluoranthene	330	U	330	U	82	%
Benzo(a)pyrene	330	U	330	U	73	%
Indeno(1,2,3-cd)pyrene	330	U	330	U	69	%
Dibenz(a,h)anthracene	330	U	330	U	69	%
Benzo(g,h,i)perylene	330	U	330	U	63	%

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

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J11JN2

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

Client: TNUHANFORD RC-051 K0304

Matrix: (soil/water) SOIL

Lab Sample ID: 0604L772-001

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

Lab File ID: N043012

Level: (low/med) LOW

Date Received: 04/13/06

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

Date Extracted: 04/24/06

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 04/30/06

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	23.952	1000	J
2.	ALKANE	24.289	2000	J
3.	UNKNOWN	24.393	2000	J
4.	ALKANE	25.938	1000	J
5.	UNKNOWN	30.040	1000	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J11JN3

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

Client: TNUHANFORD RC-051 K0304

Matrix: (soil/water) SOIL

Lab Sample ID: 0604L772-002

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

Lab File ID: N043013

Level: (low/med) LOW

Date Received: 04/13/06

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

Date Extracted: 04/24/06

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 04/30/06

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: _____

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALKANE	23.102	1000	J
2.	ALKANE	24.294	2000	J
3.	UNKNOWN	24.389	2000	J
4.	ALKANE	25.943	1000	J
5.	UNKNOWN	30.036	1000	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J11JN4

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

Client: TNUHANFORD RC-051 K0304

Matrix: (soil/water) SOIL

Lab Sample ID: 0604L772-003

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

Lab File ID: J050109

Level: (low/med) LOW

Date Received: 04/13/06

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

Date Extracted: 04/24/06

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/01/06

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 110-82-7	CYCLOHEXANE	4.803	1000	JN
2.	UNKNOWN	13.076	700	J
3.	ALKANE	28.339	600	J
4.	ALKANE	30.989	2000	J
5.	ALKANE	34.810	800	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J11JN5

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

Client: TNUHANFORD RC-051 K0304

Matrix: (soil/water) SOIL

Lab Sample ID: 0604L772-004

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

Lab File ID: J050110

Level: (low/med) LOW

Date Received: 04/13/06

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

Date Extracted: 04/24/06

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/01/06

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 110-82-7	CYCLOHEXANE	4.813	1000	JN
2.	ALKANE	28.338	900	J
3.	UNKNOWN	30.275	900	J
4.	ALKANE	31.000	3000	J
5.	ALKANE	34.810	1000	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J11JN6

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

Client: TNUHANFORD RC-051 K0304

Matrix: (soil/water) SOIL

Lab Sample ID: 0604L772-005

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

Lab File ID: J050111

Level: (low/med) LOW

Date Received: 04/13/06

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

Date Extracted: 04/24/06

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/01/06

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 110-82-7	CYCLOHEXANE	4.803	1000	JN
2.	ALKANE	28.339	900	J
3.	UNKNOWN	30.275	1000	J
4.	ALKANE	30.989	3000	J
5.	ALKANE	34.180	1000	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKWU

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

Client: TNUHANFORD RC-051 K0304

Matrix: (soil/water) SOIL

Lab Sample ID: 06LE0316-MB1

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

Lab File ID: N043008

Level: (low/med) LOW

Date Received: 04/24/06

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

Date Extracted: 04/24/06

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 04/30/06

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

0604L772

Custody Transfer Record/Lab Work Request

Page 1 of 1

See SRC

VLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client JNL-HANFORD RC-051

Est. Final Proj. Sampling Date

Project # 11343-1006-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager OJ

QC Spec Del Std TAT 30 Days

Date Rec'd 4/13/06 Date Due 5/13/06

		A-C	D-F		G-I			J-L		M-O	P-R	S-U			
Refrigerator #		2	2		2			2		2	2	2			
#/Type Container	Liquid / Solid	G	G		G			G		G	G	G			
Volume	Liquid / Solid														
Preservatives		—	—		—			—		—	—	—			
ANALYSES REQUESTED		ORGANIC						INORG							
		VOA	BNA	Pest/PCB	Herb	PCB			Metal	CN	IC Anions	NH3 NO3	HG CrVI		

Lionville Laboratory Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA (062584)	Pest/PCB (060884)	Herb	PCB (OPCB)			Metal (METALSD)	CN	IC Anions (ICAN03)	NH3 NO3 (FN3N2)	HG CrVI (ICR6)			
001	J11JN2	✓	✓	Soil	4/11/06	0914		1	1		1			3		1	1	1			
002	3	✓	✓			0940		3	1		1			1		1	1	3			
003	4	✓	✓			1101		1	3		3			1		1	1	1			
004	5	✓	✓			1400		1	1		1			1		3	3	1			
005	6					1441		1	1		1			3		1	1	3			

Special Instructions:

No % SOLIDS

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

NON-RAD, Del OJ

DATE/REVISIONS:

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

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	4/13/06	0920

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
"COMPOSITE WASTE"			

ORIGINAL REWRITTEN

0000000018

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-051-132	Page 2 of 3

Collector STANKOVICH, M.	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8L Data Turnaround 45 Days
Project Designation 100 & 300 Area Component of the RCBRA - Incremental So	Sampling Location UPRIVER RIPARIAN #16		SAF No. RC-051	Air Quality ☐
Ice Chest No.	Field Logbook No. EL-1596-1	COA BESRAS6520	Method of Shipment FED EX	
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A060151		Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

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

Preservation	None	None	None	None	None	None	None	None	None	None
Type of Container	G/P	G/P	aG	aG	aG	aG	G/P	G/P	^	^
No. of Container(s)	9	9	7		7	7	7	7	0	0
Volume	30g	30g	30g	30g	30g	30g	30g	30g	1^	1^
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	Semi-VOA - 8270A (TCL)	PAHs - 8310	Pesticides - 8081	PCBs - 8082	IC Anions - 300.0 (Nitrate)	NO2/NO3 - 353.2 (Nitrogen in Nitrite and Nitrate)	~	~~
Sample No. / Matrix * / Sample Date / Sample Time										
J11JN2 / SOIL / 4-11-06 / 0914	3	1	1		1	1	1	1		
J11JN3 /	1	3	3		1	1	1	1		
J11JN4 /	1	1	1		3	3	1	1		
J11JN5 / 1400	1	1	1		1	1	3	3		
J11JN6 / 1441	3	3	1		1	1	1	1		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Elizabeth M Tepper		CH2M Hill →	
Elizabeth M Tepper	4-12-06 11:30	Fed EX	4-12-06
[illegible]	4-13-06 0920	[illegible]	4-13-06 0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

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

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

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

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

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

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

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #16

Sample # J11JN2

Tray # 12

Tare Wt. 1460 gm.

Total Dry Wt. 4485.3 gm.

Net Dry Wt. 3025.3 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	0914	400 g	400.5	KE
RAD STR	↓	30 g	30.1	↓
ICP MET	↓	30 g	30.4	↓
HEX CR	↓	30 g	30.0	↓
SEMI VOA	↓	30 g	30.2	↓
PEST	↓	30 g	30.3	↓
PCB	↓	30 g	30.5	↓
IC ANION	↓	30 g	30.1	↓
NO2/NO3	↓	30 g	30.2	↓
RAD STR MS	↓	30 g	30.3	↓
RAD STR MSD	↓	30 g	30.6	↓
ICP MET MS	↓	30 g	30.0	↓
ICP MET MSD	↓	30 g	30.2	↓

Comments:

Name (print): Kelly Ensor

Signature: Kelly Ensor

Sub-Sampled Date: 04/11/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #16

Sample # J11JN4

Tray # 24

Tare Wt. 1450 gm.

Total Dry Wt. 4785.1 gm.

Net Dry Wt. 3350.9 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	1101	400 g	400.2	KE
RAD STR		30 g	30.1	
ICP MET		30 g	30.0	
HEX CR		30 g	30.1	
SEMI VOA		30 g	30.2	
PEST		30 g	30.2	
PCB		30 g	30.0	
IC ANION		30 g	30.1	
NO2/NO3		30 g	30.0	
PEST MS		30 g	30.2	
PEST MSD		30 g	30.1	
PCB MS		30 g	30.1	
PCB MSD		30 g	30.0	

Comments:

Name (print): Kelly Knorr

Signature: [illegible]

Sub-Sampled Date: 04/11/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #16

Sample # J11JN3

Tray # 68

Tare Wt. 1460 gm.

Total Dry Wt. 4590.9 gm.

Net Dry Wt. 3130.9 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	9:40	400 g	400.17	TG
RAD STR		30 g	30.17	TG
ICP MET		30 g	30.26	TG
HEX CR		30 g	30.36	TG
SEMI VOA		30 g	30.39	TG
PEST		30 g	30.40	TG
PCB		30 g	30.10	TG
IC ANION		30 g	30.37	TG
NO2/NO3		30 g	30.04	TG
HEX CR MS		30 g	~~30.15~~ 30.15	TG
HEX CR MSD		30 g	~~30.05~~ 30.05	TG
SEMI VOA MS		30 g	30.32	TG
SEMI VOA MSD		30 g	30.19	TG

Comments:

Name (print): Elizabeth Tepper

Signature: Elizabeth M Tepper

Sub-Sampled Date: 04/11/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #16

Sample # J11JN5

Tray # 23

Tare Wt. 1450 gm.

Total Dry Wt. 4800.9 gm.

Net Dry Wt. 3350.9 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
			ET 4-11-06	
GEA	14:00	400 g	~~400~~ 401.90g	ET
RAD STR		30 g	30.15	
ICP MET		30 g	30.86	
HEX CR		30 g	30.64	
SEMI VOA		30 g	30.18	
PEST		30 g	30.55	
PCB		30 g	30.81	
IC ANION		30 g	30.21	
NO2/NO3		30 g	31.11	
IC ANION MS		30 g	30.71	
IC ANION MSD		30 g	31.30	
NO2/NO3 MS		30 g	30.91	
NO2/NO3 MSD		30 g	30.11	

Comments:

Name (print): Elizabeth Tapper

Signature: Elizabeth M Tapper

Sub-Sampled Date: 04/11/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #16

Sample # J11JN6

Tray # 39

Tare Wt. 1460 gm.

Total Dry Wt. 6101.1 gm.

Net Dry Wt. 4641.1 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	1441	400 g	400.6	KE
RAD STR		30 g	30.3	
ICP MET		30 g	30.2	
HEX CR		30 g	30.1	
SEMI VOA		30 g	30.1	
PEST		30 g	30.6	
PCB		30 g	30.2	
IC ANION		30 g	30.1	
NO2/NO3		30 g	30.4	
ICP MET MS		30 g	30.3	
ICP MET MSD		30 g	30.1	
HEX CR MS		30 g	30.4	
HEX CR MSD		30 g	30.3	

Comments:

Name (print): Kelly Enzor

Signature: Kelly Enzor

Sub-Sampled Date: 04/11/2006

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU-HANFORD

Date: 4/13/06

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

LvLI Batch # : 0604L772

Sample Custodian: P. Nieman

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped — Carrier FED EXP — Airbill# 6595 0631 3877

2. Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ No Seals	Comments
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No		
4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No		
5. Samples received cooled or ambient? IR	Temp 12-7 °C		Cooler # NA	
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	Temp	
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
TNUHANFORD RC-051 K0304

RECEIVED JUN 2006

DATE RECEIVED: 04/13/06 LVL LOT # :0604D772

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J11JN2	001	S	06LE0319	04/11/06	04/25/06	05/05/06
J11JN3	002	S	06LE0319	04/11/06	04/25/06	05/05/06
J11JN4	003	S	06LE0319	04/11/06	04/25/06	05/05/06
J11JN4	003 MS	S	06LE0319	04/11/06	04/25/06	05/07/06
J11JN4	003 MSD	S	06LE0319	04/11/06	04/25/06	05/07/06
J11JN5	004	S	06LE0319	04/11/06	04/25/06	05/05/06
J11JN6	005	S	06LE0319	04/11/06	04/25/06	05/05/06

LAB QC:

PBLKGF	MB1	S	06LE0319	N/A	04/25/06	05/04/06
PBLKGF	MB1 BS	S	06LE0319	N/A	04/25/06	05/04/06

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-051
LVL #: 0604L772
SDG/SAF # K0304/RC-051

W.O. #: 11343-606-001-9999-00
Date Received: 04-13-2006

CHLORINATED PESTICIDES

Five (5) soil samples was collected on 04-11-2006.

The samples and their associated QC samples were extracted on 04-25-2006 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 05-04,05,07-2006. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8081. All soil samples are reported on a dry weight base unless requested by the client, required by the method or noted otherwise.

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

1. Discrepancies from the Sample acceptance policy have been recorded on the Sample Receipt Check list.

2. The samples were extracted and analyzed within required holding time.

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

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

5. Six (6) of eighteen (18) surrogate recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 06GC149) has been enclosed.

6. The blank spike recoveries were within acceptance criteria.

7. Eighteen (18) of forty (40) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 06GC149) has been enclosed.

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

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

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

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

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

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

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

for

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

5/11/06
Date

kim\r:\group\data\pest\tnu hanford\0604-772.pst

LVLI
LIONVILLE LABORATORY INC.

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 066C 149

Initiator: KBM
Date: 5/11/96
Client: TNV

Batch: 06042772
Samples: 003ms 003msd, 004, 005
Method: SW846/MCAWW/CLP/

Parameter: PEST
Matrix: SOIL
Prep Batch: OLLE-0319

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) Surrogate recoveries were high in samples 003ms, 003msd, 004 and 005.
(2) Matrix spike recoveries were high in 003msd.

2. Known or Probable Causes(s)

3. Discussion and Proposed Action Other Description: Narrate

__ 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.

Pesticide/PCBs by GC, CLP List

Report Date: 05/10/06 15:00

RFW Batch Number: **0604L772** Client: **TNUHANFORD RC-051 K0304** Work Order: 11343606001 Page: 1

000000006

	Cust ID:	J11JN2	J11JN3	J11JN4	J11JN4	J11JN4	J11JN5
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	102 %	104 %	96 %	121 * %	151 * %	126 * %
	Decachlorobiphenyl	104 %	114 %	95 %	136 * %	165 * %	115 %
		fl	fl	fl	fl	fl	fl
Alpha-BHC		1.3 U	1.3 U	1.3 U	106 %	145 * %	1.3 U
gamma-BHC (Lindane)		1.3 U	1.3 U	1.3 U	110 %	149 * %	1.3 U
Beta-BHC		1.3 U	1.3 U	1.3 U	113 %	152 * %	1.3 U
Heptachlor		1.3 U	1.3 U	1.3 U	106 %	155 * %	1.3 U
Delta-BHC		1.3 U	1.3 U	1.3 U	86 %	127 * %	1.3 U
Aldrin		1.3 U	1.3 U	1.3 U	102 %	147 * %	1.3 U
Heptachlor epoxide		1.3 U	1.3 U	1.3 U	106 %	152 * %	1.3 U
gamma-Chlordane		1.3 U	1.3 U	1.3 U	104 %	149 * %	0.37 J
Endosulfan I		0.97 J	1.3 U	1.3 U	105 %	150 * %	1.3 U
alpha-Chlordane		1.3 U	1.3 U	1.3 U	106 %	151 * %	1.3 U
4,4'-DDE		0.67 J	0.73 J	0.67 J	101 %	149 * %	0.93 J
Dieldrin		1.3 U	1.3 U	1.3 U	100 %	149 * %	1.3 U
Endrin		1.3 U	1.3 U	1.3 U	100 %	154 * %	1.3 U
4,4'-DDD		1.3 U	1.3 U	1.3 U	107 %	150 * %	1.3 U
Endosulfan II		1.3 U	1.3 U	1.3 U	102 %	148 * %	1.3 U
4,4'-DDT		1.3 U	1.3 U	1.3 U	72 %	141 %	1.3 U
Endrin aldehyde		1.3 U	1.3 U	1.3 U	100 %	147 * %	1.3 U
Endosulfan sulfate		1.3 U	1.3 U	1.3 U	98 %	144 * %	1.3 U
Methoxychlor		1.3 U	1.3 U	1.3 U	92 %	156 %	1.3 U
Endrin ketone		1.3 U	1.3 U	1.3 U	107 %	155 * %	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: 05/10/06 15:00

RFW Batch Number: **0604L772** Client: **TNUHANFORD RC-051 K0304** Work Order: 11343606001 Page: 2

000000007

	Cust ID:	J11JN6	PBLKGF	PBLKGF BS
Sample Information	RFW#:	005	06LK0319-MB1	06LK0319-MB1
	Matrix:	SOIL	SOIL	SOIL
	D.F.:	4.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG

Surrogate:	Tetrachloro-m-xylene	126	*	%	116		%	114		%							
	Decachlorobiphenyl	117		%	102		%	98		%							
				fl			fl			fl			fl			fl	
Alpha-BHC		1.3		U	0.33		U	114		%							
gamma-BHC (Lindane)		1.3		U	0.33		U	111		%							
Beta-BHC		1.3		U	0.33		U	106		%							
Heptachlor		1.3		U	0.33		U	105		%							
Delta-BHC		0.97		J	0.33		U	98		%							
Aldrin		1.3		U	0.33		U	78		%							
Heptachlor epoxide		1.3		U	0.33		U	105		%							
gamma-Chlordane		0.33		J	0.33		U	104		%							
Endosulfan I		0.73		J	0.33		U	106		%							
alpha-Chlordane		1.3		U	0.33		U	104		%							
4,4'-DDE		1.7			0.33		U	107		%							
Dieldrin		1.3		U	0.33		U	109		%							
Endrin		1.3		U	0.33		U	111		%							
4,4'-DDD		1.3		U	0.33		U	112		%							
Endosulfan II		1.3		U	0.33		U	104		%							
4,4'-DDT		1.2		J	0.33		U	97		%							
Endrin aldehyde		1.3		U	0.33		U	96		%							
Endosulfan sulfate		1.3		U	0.33		U	100		%							
Methoxychlor		1.3		U	0.33		U	100		%							
Endrin ketone		1.3		U	0.33		U	101		%							
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

0604L772

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 # 11343-6006-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager OJ

QC Spec Del Std TAT 30 Days

Date Rec'd 4/13/06 Date Due 5/13/06

		A-C	D-F	G-I	J-L	M-O	P-R	S-U
Refrigerator #		2	2	2	2	2	2	2
#/Type Container	Liquid / Solid	G	G	G	G	G	G	G
Volume	Liquid / Solid							
Preservatives		—	—	—	—	—	—	—
ANALYSES REQUESTED →		ORGANIC: VOA, BNA, Pest/PCB, Herb			INORG: Metal, CN	IC Anions	NH3 NO3	Hg Cl Sulf

Lionville Laboratory Use Only

Lab ID	Client ID/Description	MS	MSD	Matrix	Date Collected	Time Collected		062514	060814		OPCB			METALS		ICN03	IN3N2	ICR6
001	J11JN2	✓	✓	Soil	4/11/06	0914		1	1		1			3		1	1	1
002	3	✓	✓			0940		3	1		1			1		1	1	3
003	4	✓	✓			1107		1	3		3			1		1	1	1
004	5	✓	✓			1400		1	1		1			1		3	3	1
005	6					1441		1	1		1			3		1	1	3

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:

No % SOLIDS

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

NON-RAD, Del OJ

DATE/REVISIONS:

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

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	4/13/06	0920

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
"COMPOSITE WASTE"			

ORIGINAL REWRITTEN

0000000008

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-051-132	Page 2 of 3

Collector STANKOVICH, M.	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 UPRIVER RIPARIAN #16		SAF No. RC-051
Ice Chest No.	Field Logbook No. EL-1596-1	COA BESRAS6520	Method of Shipment FED EX
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A060151		Bill of Lading/Air Bill No. SEE OSPC

Price Code 8L

Air Quality ☐

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

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

Preservation	None	None	None	None	None	None	None	None	None	None
Type of Container	G/P	G/P	aG	aG	aG	aG	G/P	G/P	^	^
No. of Container(s)	9	9	7		7	7	7	7	0	0
Volume	30g	30g	30g	30g	30g	30g	30g	30g	1^	1^
SAMPLE ANALYSIS	See item (1) in Special Instructions	Chromium Hex - 7196	Semi-VOA - 8270A (TCL)	PAHs - 8310	Pesticides - 8081	PCBs - 8082	IC Anions - 300.0 (Nitrate)	NO2/NO3 - 353.2 (Nitrogen in Nitrite and Nitrate)	~	~~

Sample No.	Matrix *	Sample Date	Sample Time										
J11JN2	SOIL	4-11-06	0914	3	1	1		1	1	1	1		
J11JN3			0940	1	3	3		1	1	1	1		
J11JN4			1101	1	1	1		3	3	1	1		
J11JN5			1400	1	1	1		1	1	3	3		
J11JN6			1441	3	3	1		1	1	1	1		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Elizabeth M Tepper		CH2M Hill →	
Elizabeth M Tepper	11:30 4-12-06	Fed EX	4-12-06
Fed Ex	4-13-06 0920	[illegible]	4-13-06 0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

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

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

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

Matrix *

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

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

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

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #16

Sample # J11JN2

Tray # 12

Tare Wt. 1460 gm.

Total Dry Wt. 4485.3 gm.

Net Dry Wt. 3025.3 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	0914	400 g	400.5	[illegible]
RAD STR	↓	30 g	30.1	↓
ICP MET	↓	30 g	30.4	↓
HEX CR	↓	30 g	30.0	↓
SEMI VOA	↓	30 g	30.2	↓
PEST	↓	30 g	30.3	↓
PCB	↓	30 g	30.5	↓
IC ANION	↓	30 g	30.1	↓
NO2/NO3	↓	30 g	30.2	↓
RAD STR MS	↓	30 g	30.3	↓
RAD STR MSD	↓	30 g	30.6	↓
ICP MET MS	↓	30 g	30.0	↓
ICP MET MSD	↓	30 g	30.2	↓

Comments:

Name (print): Kelly Ensor

Signature: Kelly Ensor

Sub-Sampled Date: 04/11/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #16

Sample # J11JN4

Tray # 24

Tare Wt. 1450 gm.

Total Dry Wt. 4785.1 gm.

Net Dry Wt. 3350.9 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	1101	400 g	400.2	kee
RAD STR		30 g	30.1	
ICP MET		30 g	30.0	
HEX CR		30 g	30.1	
SEMI VOA		30 g	30.2	
PEST		30 g	30.2	
PCB		30 g	30.0	
IC ANION		30 g	30.1	
NO2/NO3		30 g	30.0	
PEST MS		30 g	30.2	
PEST MSD		30 g	30.1	
PCB MS		30 g	30.1	
PCB MSD		30 g	30.0	

Comments:

Name (print): Kelly Knox

Signature: [illegible]

Sub-Sampled Date: 04/11/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #16

Sample # J11JN3

Tray # 68

Tare Wt. 1460 gm.

Total Dry Wt. 4590.9 gm.

Net Dry Wt. 3130.9 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	9:40	400 g	400.17	TG
RAD STR		30 g	30.17	TG
ICP MET		30 g	30.26	TG
HEX CR		30 g	30.36	TG
SEMI VOA		30 g	30.39	TG
PEST		30 g	30.40	TG
PCB		30 g	30.10	TG
IC ANION		30 g	30.37	TG
NO2/NO3		30 g	30.04	TG
HEX CR MS		30 g	~~30.15~~ 30.15	TG
HEX CR MSD		30 g	~~30.05~~ 30.05	TG
SEMI VOA MS		30 g	30.32	TG
SEMI VOA MSD		30 g	30.19	TG

Comments:

Name (print): Elizabeth Tepper

Signature: Elizabeth M Tepper

Sub-Sampled Date: 04/11/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #16

Sample # J11JN5

Tray # 23

Tare Wt. 1450 gm.

Total Dry Wt. 4800.9 gm.

Net Dry Wt. 3 350.9 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	14:00	400 g	ET 4-11-06 ~~400~~ 401.90g	ET
RAD STR		30 g	30.15	
ICP MET		30 g	30.86	
HEX CR		30 g	30.64	
SEMI VOA		30 g	30.18	
PEST		30 g	30.55	
PCB		30 g	30.81	
IC ANION		30 g	30.21	
NO2/NO3		30 g	31.11	
IC ANION MS		30 g	30.71	
IC ANION MSD		30 g	31.30	
NO2/NO3 MS		30 g	30.91	
NO2/NO3 MSD		30 g	30.11	

Comments:

Name (print): Elizabeth Tapper

Signature: Elizabeth M Tapper

Sub-Sampled Date: 04/11/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #16

Sample # J11JN6

Tray # 39

Tare Wt. 1460 gm.

Total Dry Wt. 6101.1 gm.

Net Dry Wt. 4641.1 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	1441	400 g	400.6	KE
RAD STR		30 g	30.3	
ICP MET		30 g	30.2	
HEX CR		30 g	30.1	
SEMI VOA		30 g	30.1	
PEST		30 g	30.6	
PCB		30 g	30.2	
IC ANION		30 g	30.1	
NO2/NO3		30 g	30.4	
ICP MET MS		30 g	30.3	
ICP MET MSD		30 g	30.1	
HEX CR MS		30 g	30.4	
HEX CR MSD		30 g	30.3	

Comments:

Name (print): Kelly Enzor

Signature: Kelly Enzor

Sub-Sampled Date: 04/11/2006

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNC-HANFORD

Date: 4/13/06

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

LvLI Batch # : 0604L772

Sample Custodian: P. Nuxoll

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier Fed Ex		Airbill# 6595 0631 3877	
2.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ No Seals	Comments
3.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No		
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No		
5.	Samples received cooled or ambient? IR	Temp 12-7 °C		Cooler # NA	
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	Temp	
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☑ Yes	☐ No	☐ No Discrepancies	

SR-002-B

LVLI

RECEIVED
JUN 2006

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0304

DATE RECEIVED: 04/13/06 LVL LOT # :0604L772

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J11JN2	001	S	06LE0320	04/11/06	04/25/06	05/03/06
J11JN3	002	S	06LE0320	04/11/06	04/25/06	05/03/06
J11JN4	003	S	06LE0320	04/11/06	04/25/06	05/03/06
J11JN4	003 MS	S	06LE0320	04/11/06	04/25/06	05/03/06
J11JN4	003 MSD	S	06LE0320	04/11/06	04/25/06	05/03/06
J11JN5	004	S	06LE0320	04/11/06	04/25/06	05/03/06
J11JN6	005	S	06LE0320	04/11/06	04/25/06	05/03/06
LAB QC:						
PBLKGA	MB1	S	06LE0320	N/A	04/25/06	05/03/06
PBLKGA	MB1 BS	S	06LE0320	N/A	04/25/06	05/03/06
PBLKGA	MB1 BSD	S	06LE0320	N/A	04/25/06	05/03/06

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-051
LVL #: 0604L772
SDG/SAF # K0304/RC-051

W.O. #: 11343-606-001-9999-00
Date Received: 04-13-2006

PCB

Five (5) soil samples were collected on 04-11-2006.

The samples and their associated QC samples were extracted on 04-25-2006 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 05-03-2006. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8082. All soil samples are reported on a dry weight base unless requested by the client, required by the method or noted otherwise.

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

1. Discrepancies from the Sample acceptance policy have been recorded on the Sample Receipt Check list.

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

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

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

5. All surrogate recoveries were within acceptance criteria.

6. The blank spike recoveries were within acceptance criteria.

7. All matrix spike recoveries were within acceptance criteria.

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

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

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

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

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

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

for Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

5/11/06
Date

kim\r:\group\data\pest\tmu hanford\0604-772.pcbs

LvLI
LIONVILLE LABORATORY INC.

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 05/11/06 13:43

RFW Batch Number: 0604L772 Client: TNUHANFORD RC-051 K0304 Work Order: 11343606001 Page: 1

000000005

	Cust ID:	J11JN2	J11JN3	J11JN4	J11JN4	J11JN4	J11JN5
Sample Information	RFW#:	001	002	003	003 MS	003 MSD	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	100 %	99 %	100 %	97 %	103 %	92 %
	Decachlorobiphenyl	111 %	108 %	108 %	104 %	113 %	101 %
Aroclor-1016		13 U	13 U	13 U	90 %	101 %	13 U
Aroclor-1221		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1232		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1242		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1248		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1254		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1260		13 U	13 U	13 U	91 %	104 %	13 U

	Cust ID:	J11JN6	PBLKGA	PBLKGA BS	PBLKGA BSD
Sample Information	RFW#:	005	06LE0320-MB1	06LE0320-MB1	06LE0320-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	94 %	102 %	95 %	97 %
	Decachlorobiphenyl	101 %	110 %	100 %	102 %
Aroclor-1016		13 U	13 U	84 %	89 %
Aroclor-1221		13 U	13 U	13 U	13 U
Aroclor-1232		13 U	13 U	13 U	13 U
Aroclor-1242		13 U	13 U	13 U	13 U
Aroclor-1248		13 U	13 U	13 U	13 U
Aroclor-1254		13 U	13 U	13 U	13 U
Aroclor-1260		13 U	13 U	86 %	91 %

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

0604772

Custody Transfer Record/Lab Work Request

Page 1 of 1

See SRC

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client JNA - HANFORD RC-051

Est. Final Proj. Sampling Date

Project # 11343-6006-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager DJ

QC Spec Del Std TAT 30 Days

Date Rec'd 4/13/06 Date Due 5/13/06

		A-C	D-F	G-I	J-L	M-O	P-R	S-U
Refrigerator #		2	2	2	2	2	2	2
#/Type Container	Liquid / Solid	G	G	G	G	G	G	G
Volume	Liquid / Solid							
Preservatives		—	—	—	—	—	—	—
ANALYSES REQUESTED →		ORGANIC: VOA	BNA	Pest/PCB	Herb	OPCB	INORG: Metal	CN	Anions	NH3 NO3	Hg Cyanide
Lionville Laboratory Use Only			0625H	0608H		OPCB	METALS(3)		ICN03	IN3N2	ICR6

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0625H	0608H	OPCB	METALS(3)	ICN03	IN3N2	ICR6
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	J11JN2	✓	✓	Soil	4/11/06	0914	1	1	1	3	1	1	1
	002	3	✓	✓			0940	3	1	1	1	1	1	3
	003	4	✓	✓			1101	1	3	3	1	1	1	1
	004	5	✓	✓			1100	1	1	1	1	3	3	1
	005	6					1141	1	1	1	3	1	1	3

Special Instructions:

No % SOLIDS

METALS(3) = HSL + Bi, B, Li, Mo, P, Si, Sr, Sn, U (No Hg)

NON-RAD, PCL QJ

DATE/REVISIONS:

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

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	4/13/06	0920

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
"COMPOSITE WASTE"			

ORIGINAL REWRITTEN

000000006

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-051-132	Page 2 of 3

Collector STANKOVICH, M.	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 UPRIVER RIPARIAN #16		SAF No. RC-051
Ice Chest No.	Field Logbook No. EL-1596-1	COA BESRAS6520	Method of Shipment FED EX
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A060151		Bill of Lading/Air Bill No. SEE OSPC

Price Code 8L

Air Quality ☐

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

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

Preservation	None	None	None	None	None	None	None	None	None	None
Type of Container	G/P	G/P	aG	aG	aG	aG	G/P	G/P	^	^
No. of Container(s)	9	9	7		7	7	7	7	0	0
Volume	30g	30g	30g	30g	30g	30g	30g	30g	1^	1^
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	Semi-VOA - 8270A (TCL)	PAHs - 8310	Pesticides - 8081	PCBs - 8082	IC Anions - 300.0 (Nitrate)	NO2/NO3 - 353.2 (Nitrogen in Nitrite and Nitrate)	~	~~

Sample No.	Matrix *	Sample Date	Sample Time										
J11JN2	SOIL	4-11-06	0914	3	1	1		1	1	1	1		
J11JN3			0940	1	3	3		1	1	1	1		
J11JN4			1101	1	1	1		3	3	1	1		
J11JN5			1400	1	1	1		1	1	3	3		
J11JN6			1441	3	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 M Tepper		Received By/Stored In: CH2M Hill →	
Relinquished By/Removed From: Elizabeth M Tepper	11:30 4-12-06	Received By/Stored In: Fed EX	4-12-06
Relinquished By/Removed From: Fed Ex	4-13-06 0920	Received By/Stored In: [signature]	4-13-06 0920
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

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

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

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

Matrix *

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

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

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

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #16

Sample # J11JN2

Tray # 12

Tare Wt. 1460 gm.

Total Dry Wt. 4485.3 gm.

Net Dry Wt. 3025.3 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	0914	400 g	400.5	[illegible]
RAD STR		30 g	30.1	
ICP MET		30 g	30.4	
HEX CR		30 g	30.0	
SEMI VOA		30 g	30.2	
PEST		30 g	30.3	
PCB		30 g	30.5	
IC ANION		30 g	30.1	
NO2/NO3		30 g	30.2	
RAD STR MS		30 g	30.3	
RAD STR MSD		30 g	30.6	
ICP MET MS		30 g	30.0	
ICP MET MSD	✓	30 g	30.2	✓

Comments:

Name (print): Kelly Ensor

Signature: Kelly Ensor

Sub-Sampled Date: 04/11/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #16

Sample # J11JN4

Tray # 24

Tare Wt. 1450 gm.

Total Dry Wt. 4785.1 gm.

Net Dry Wt. 3350.9 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	1101	400 g	400.2	KE
RAD STR		30 g	30.1	
ICP MET		30 g	30.0	
HEX CR		30 g	30.1	
SEMI VOA		30 g	30.2	
PEST		30 g	30.2	
PCB		30 g	30.0	
IC ANION		30 g	30.1	
NO2/NO3		30 g	30.0	
PEST MS		30 g	30.2	
PEST MSD		30 g	30.1	
PCB MS		30 g	30.1	
PCB MSD		30 g	30.0	

Comments:

Name (print): Kelly Knox

Signature: [illegible]

Sub-Sampled Date: 04/11/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #16

Sample # J11JN3

Tray # 68

Tare Wt. 1460 gm.

Total Dry Wt. 4590.9 gm.

Net Dry Wt. 3130.9 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	9:40	400 g	400.17	TG
RAD STR		30 g	30.17	TG
ICP MET		30 g	30.26	TG
HEX CR		30 g	30.360	TG
SEMI VOA		30 g	30.39	TG
PEST		30 g	30.40	TG
PCB		30 g	30.10	TG
IC ANION		30 g	30.37	TG
NO2/NO3		30 g	30.04	TG
HEX CR MS		30 g	~~30.15~~ 30.15	TG
HEX CR MSD		30 g	~~30.05~~ 30.05	TG
SEMI VOA MS		30 g	30.32	TG
SEMI VOA MSD		30 g	30.19	TG

Comments:

Name (print): Elizabeth Tepper

Signature: Elizabeth M Tepper

Sub-Sampled Date: 04/11/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #16

Sample # J11JN5

Tray # 23

Tare Wt. 1450 gm.

Total Dry Wt. 4800.9 gm.

Net Dry Wt. 3 350.9 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
			ET 4-11-06	
GEA	14:00	400 g	~~400~~ 401.90g	ET
RAD STR		30 g	30.15	
ICP MET		30 g	30.86	
HEX CR		30 g	30.64	
SEMI VOA		30 g	30.18	
PEST		30 g	30.55	
PCB		30 g	30.81	
IC ANION		30 g	30.21	
NO2/NO3		30 g	31.11	
IC ANION MS		30 g	30.71	
IC ANION MSD		30 g	31.30	
NO2/NO3 MS		30 g	30.91	
NO2/NO3 MSD		30 g	30.11	

Comments:

Name (print): Elizabeth Tepper

Signature: Elizabeth M Tepper

Sub-Sampled Date: 04/11/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #16

Sample # J11JN6

Tray # 39

Tare Wt. 1460 gm.

Total Dry Wt. 6101.1 gm.

Net Dry Wt. 4641.1 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	1441	400 g	400.6	KE
RAD STR		30 g	30.3	
ICP MET		30 g	30.2	
HEX CR		30 g	30.1	
SEMI VOA		30 g	30.1	
PEST		30 g	30.6	
PCB		30 g	30.2	
IC ANION		30 g	30.1	
NO2/NO3		30 g	30.4	
ICP MET MS		30 g	30.3	
ICP MET MSD		30 g	30.1	
HEX CR MS		30 g	30.4	
HEX CR MSD		30 g	30.3	

Comments:

Name (print): Kelly Enzor

Signature: Kelly Enzor

Sub-Sampled Date: 04/11/2006

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU-HANFORD

Date: 4/13/06

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

LvLI Batch # : 0604L772

Sample Custodian: P. Nuzzaro

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier FED EX		Airbill# 6595 0631 3877	
2.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ No Seals	Comments
3.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No		
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No		
5.	Samples received cooled or ambient? IR	Temp 12-7 °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~~ 47520	☑ No	Temp	
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☑ Yes	☐ No	☐ No Discrepancies	

SR-002-B

LvLI

RECEIVED
JUN 2006

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0304

DATE RECEIVED: 04/13/06 LVL LOT # :0604L772

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J11JN2						
SILVER, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
SILVER, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
SILVER, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
ALUMINUM, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
ALUMINUM, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
ALUMINUM, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
ARSENIC, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
ARSENIC, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
ARSENIC, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
BORON, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
BORON, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
BORON, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
BARIUM, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
BARIUM, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
BARIUM, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
BERYLLIUM, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/06/06
BERYLLIUM, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/06/06
BERYLLIUM, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/06/06
BISMUTH, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
BISMUTH, TOTAL REP	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
BISMUTH, TOTAL SPIKE	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
CALCIUM, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
CALCIUM, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
CALCIUM, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
CADMIUM, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
CADMIUM, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
CADMIUM, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
COBALT, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
COBALT, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
COBALT, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
CHROMIUM, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
CHROMIUM, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
CHROMIUM, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
COPPER, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
COPPER, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0304

DATE RECEIVED: 04/13/06 LVL LOT # :0604L772

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
IRON, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
IRON, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
IRON, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
POTASSIUM, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
POTASSIUM, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
POTASSIUM, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
LITHIUM, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
LITHIUM, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
LITHIUM, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
MAGNESIUM, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
MAGNESIUM, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
MAGNESIUM, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
MANGANESE, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
MANGANESE, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
MANGANESE, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
MOLYBDENUM, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
MOLYBDENUM, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
MOLYBDENUM, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
SODIUM, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
SODIUM, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
SODIUM, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
NICKEL, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
NICKEL, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
NICKEL, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
PHOSPHORUS, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/06/06
PHOSPHORUS, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/06/06
PHOSPHORUS, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/06/06
LEAD, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
LEAD, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
LEAD, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
ANTIMONY, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
ANTIMONY, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
ANTIMONY, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
SELENIUM, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
SELENIUM, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
SELENIUM, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
SILICON, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0304

DATE RECEIVED: 04/13/06 LVL LOT # :0604L772

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SILICON, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
SILICON, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
TIN, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
TIN, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
TIN, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
STRONTIUM, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
STRONTIUM, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
STRONTIUM, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
THALLIUM, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
THALLIUM, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
THALLIUM, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
URANIUM, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
URANIUM, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
URANIUM, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
VANADIUM, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
VANADIUM, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
VANADIUM, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
ZINC, TOTAL	001	S	06L0269	04/11/06	05/02/06	05/03/06
ZINC, TOTAL	001 REP	S	06L0269	04/11/06	05/02/06	05/03/06
ZINC, TOTAL	001 MS	S	06L0269	04/11/06	05/02/06	05/03/06
J11JN3						
SILVER, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
ALUMINUM, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
ARSENIC, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
BORON, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
BARIUM, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
BERYLLIUM, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/06/06
BISMUTH, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
CALCIUM, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
CADMIUM, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
COBALT, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
CHROMIUM, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
COPPER, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
IRON, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
POTASSIUM, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
LITHIUM, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0304

DATE RECEIVED: 04/13/06 LVL LOT # :0604L772

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
MANGANESE, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
MOLYBDENUM, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
SODIUM, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
NICKEL, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
PHOSPHORUS, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/06/06
LEAD, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
ANTIMONY, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
SELENIUM, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
SILICON, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
TIN, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
STRONTIUM, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
THALLIUM, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
URANIUM, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
VANADIUM, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
ZINC, TOTAL	002	S	06L0269	04/11/06	05/02/06	05/03/06
J11JN4						
SILVER, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
ALUMINUM, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
ARSENIC, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
BORON, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
BARIUM, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
BERYLLIUM, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/06/06
BISMUTH, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
CALCIUM, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
CADMIUM, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
COBALT, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
CHROMIUM, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
COPPER, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
IRON, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
POTASSIUM, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
LITHIUM, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
MAGNESIUM, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
MANGANESE, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
MOLYBDENUM, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
SODIUM, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0304

DATE RECEIVED: 04/13/06 LVL LOT # :0604L772

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NICKEL, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
PHOSPHORUS, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/06/06
LEAD, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
ANTIMONY, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
SELENIUM, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
SILICON, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
TIN, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
STRONTIUM, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
THALLIUM, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
URANIUM, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
VANADIUM, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
ZINC, TOTAL	003	S	06L0269	04/11/06	05/02/06	05/03/06
J11JN5						
SILVER, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
ALUMINUM, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
ARSENIC, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
BORON, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
BARIUM, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
BERYLLIUM, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/06/06
BISMUTH, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
CALCIUM, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
CADMIUM, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
COBALT, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
CHROMIUM, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
COPPER, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
IRON, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
POTASSIUM, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
LITHIUM, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
MAGNESIUM, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
MANGANESE, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
MOLYBDENUM, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
SODIUM, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
NICKEL, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
PHOSPHORUS, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/06/06
LEAD, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
ANTIMONY, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0304

DATE RECEIVED: 04/13/06 LVL LOT # :0604L772

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
SILICON, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
TIN, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
STRONTIUM, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
THALLIUM, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
URANIUM, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
VANADIUM, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
ZINC, TOTAL	004	S	06L0269	04/11/06	05/02/06	05/03/06
J11JN6						
SILVER, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
ALUMINUM, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
ARSENIC, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
BORON, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
BARIUM, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
BERYLLIUM, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/06/06
BISMUTH, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
CALCIUM, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
CADMIUM, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
COBALT, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
CHROMIUM, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
COPPER, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
IRON, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
POTASSIUM, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
LITHIUM, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
MAGNESIUM, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
MANGANESE, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
MOLYBDENUM, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
SODIUM, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
NICKEL, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
PHOSPHORUS, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/06/06
LEAD, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
ANTIMONY, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
SELENIUM, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
SILICON, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
TIN, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
STRONTIUM, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0304

DATE RECEIVED: 04/13/06 LVL LOT # :0604L772

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
THALLIUM, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
URANIUM, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
VANADIUM, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06
ZINC, TOTAL	005	S	06L0269	04/11/06	05/02/06	05/03/06

LAB QC:

SILVER LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
SILVER, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
ALUMINUM LABORTORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
ALUMINUM, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
ARSENIC LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
ARSENIC, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
BORON LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
BORON, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
BARIUM LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
BARIUM, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
BERYLLIUM LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/06/06
BERYLLIUM, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/06/06
BISMUTH, LCS	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
BISMUTH, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
CALCIUM LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
CALCIUM, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
CADMIUM LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
CADMIUM, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
COBALT LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
COBALT, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
CHROMIUM LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
CHROMIUM, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
COPPER LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
COPPER, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
IRON LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
IRON, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
POTASSIUM LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
POTASSIUM, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
LITHIUM LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
LITHIUM, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
MAGNESIUM LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0304

DATE RECEIVED: 04/13/06 LVL LOT # :0604L772

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
MANGANESE LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
MANGANESE, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
MOLYBDENUM LABORATOR	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
MOLYBDENUM, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
SODIUM LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
SODIUM, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
NICKEL LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
NICKEL, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
PHOSPHORUS LCS	LC1 BS	S	06L0269	N/A	05/02/06	05/06/06
PHOSPHORUS, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/06/06
LEAD LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
LEAD, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
ANTIMONY LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
ANTIMONY, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
SELENIUM LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
SELENIUM, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
SILICON LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
SILICON, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
TIN LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
TIN, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
STRONTIUM LCS STANDA	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
STRONTIUM, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
THALLIUM LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
THALLIUM, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
URANIUM LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
URANIUM, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
VANADIUM LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
VANADIUM, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06
ZINC LABORATORY	LC1 BS	S	06L0269	N/A	05/02/06	05/03/06
ZINC, TOTAL	MB1	S	06L0269	N/A	05/02/06	05/03/06

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-051
LVL#: 0604L772
SDG/SAF#: K0304/RC-051

W.O.#: 11343-606-001-9999-00
Date Received: 04-13-06

METALS CASE NARRATIVE

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

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

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

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

   The samples were rerun for Beryllium due to sample matrix.

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

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

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

6. 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.

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

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 29 pages.

8. All laboratory control samples (LCS) were within the 80-120% control limits with the exception of Silicon at 70.9%. Refer to the Inorganics Laboratory Control Standards Report. Associated sample results may be biased low.

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

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

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J11JN2	Aluminum	66,000	87.5
	Iron	66,000	76.0
	Antimony	300	100.1
	Silicon	6,300	94.1

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

12. 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.

13. 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.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

5/26/10
Date

jjw/m04-772

LVLI
LIONVILLE LABORATORY INC

METALS METHOD GLOSSARY

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

Lot#: 0604L772

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

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

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	X6010B		__200.7				__99
Antimony	X6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	X6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	X6010B		__200.7				__99
Beryllium	X6010B		__200.7				__99
Bismuth	X6010B [1]		__200.7 [1]			__1620	__99
Boron	X6010B		__200.7				__99
Cadmium	X6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	X6010B		__200.7				__99
Chromium	X6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	X6010B		__200.7				__99
Copper	X6010B	__7211 [5]	__200.7	__220.2			__99
Iron	X6010B		__200.7				__99
Lead	X6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	X6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	X6010B		__200.7				__99
Manganese	X6010B		__200.7				__99
Mercury	__7470A [3]	X 7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	X6010B	N/A for solids	__200.7				__99
Nickel	X6010B		__200.7				__99
Potassium	X6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	X6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	X6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	X6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	X6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	X6010B		__200.7				__99
Thallium	X6010B	__7841 [5]	__200.7	__279.2 __200.9			__99
Tin	X6010B		__200.7				__99
Titanium	__6010B		__200.7				__99
Uranium	X6010B [1]		__200.7 [1]			__1620	__99
Vanadium	X6010B		__200.7				__99
Zinc	X6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

Other: 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 05/25/06

CLIENT: TNUHANFORD RC-051 K0304 LVL LOT #: 0604L772

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J11JN2	Silver, Total	0.10 u	MG/KG	0.10	3.0
		Aluminum, Total	8290	MG/KG	4.3	3.0
		Arsenic, Total	6.6	MG/KG	0.91	3.0
		Boron, Total	0.71	MG/KG	0.36	3.0
		Barium, Total	78.0	MG/KG	0.03	3.0
		Beryllium, Total	0.25	MG/KG	0.03	3.0
		Bismuth, Total	0.76 u	MG/KG	0.76	3.0
		Calcium, Total	4600	MG/KG	2.5	3.0
		Cadmium, Total	0.78	MG/KG	0.10	3.0
		Cobalt, Total	6.5	MG/KG	0.21	3.0
		Chromium, Total	19.1	MG/KG	0.19	3.0
		Copper, Total	20.5	MG/KG	0.18	3.0
		Iron, Total	17600	MG/KG	5.2	3.0
		Potassium, Total	939	MG/KG	3.4	3.0
		Lithium, Total	11.2	MG/KG	0.04	3.0
		Magnesium, Total	4810	MG/KG	1.4	3.0
		Manganese, Total	285	MG/KG	0.04	3.0
		Molybdenum, Total	0.43 u	MG/KG	0.43	3.0
		Sodium, Total	147	MG/KG	1.1	3.0
		Nickel, Total	17.9	MG/KG	0.36	3.0
		Phosphorus, Total	886	MG/KG	1.3	3.0
		Lead, Total	25.4	MG/KG	0.46	3.0
		Antimony, Total	0.66 u	MG/KG	0.66	3.0
		Selenium, Total	0.70 u	MG/KG	0.70	3.0
		Silicon, Total	341	MG/KG	3.4	3.0
		Tin, Total	2.8	MG/KG	1.6	3.0
		Strontium, Total	29.6	MG/KG	0.01	3.0
		Thallium, Total	1.0 u	MG/KG	1.0	3.0
		Uranium, Total	2.3	MG/KG	1.3	3.0
		Vanadium, Total	35.3	MG/KG	0.13	3.0
		Zinc, Total	162	MG/KG	0.24	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/25/06

CLIENT: TNUHANFORD RC-051 K0304 LVL LOT #: 0604L772

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J11JN3	Silver, Total	0.10 u	MG/KG	0.10	3.0
		Aluminum, Total	7960	MG/KG	4.3	3.0
		Arsenic, Total	6.5	MG/KG	0.91	3.0
		Boron, Total	1.0	MG/KG	0.36	3.0
		Barium, Total	75.8	MG/KG	0.03	3.0
		Beryllium, Total	0.26	MG/KG	0.03	3.0
		Bismuth, Total	0.76 u	MG/KG	0.76	3.0
		Calcium, Total	4370	MG/KG	2.5	3.0
		Cadmium, Total	0.76	MG/KG	0.10	3.0
		Cobalt, Total	6.5	MG/KG	0.21	3.0
		Chromium, Total	20.1	MG/KG	0.19	3.0
		Copper, Total	27.9	MG/KG	0.18	3.0
		Iron, Total	17800	MG/KG	5.2	3.0
		Potassium, Total	910	MG/KG	3.4	3.0
		Lithium, Total	10.8	MG/KG	0.04	3.0
		Magnesium, Total	4690	MG/KG	1.4	3.0
		Manganese, Total	278	MG/KG	0.04	3.0
		Molybdenum, Total	0.62	MG/KG	0.43	3.0
		Sodium, Total	143	MG/KG	1.1	3.0
		Nickel, Total	18.3	MG/KG	0.36	3.0
		Phosphorus, Total	851	MG/KG	1.3	3.0
		Lead, Total	27.4	MG/KG	0.46	3.0
		Antimony, Total	0.66 u	MG/KG	0.66	3.0
		Selenium, Total	0.70 u	MG/KG	0.70	3.0
		Silicon, Total	339	MG/KG	3.4	3.0
		Tin, Total	6.2	MG/KG	1.6	3.0
		Strontium, Total	28.5	MG/KG	0.01	3.0
		Thallium, Total	1.0 u	MG/KG	1.0	3.0
		Uranium, Total	1.3 u	MG/KG	1.3	3.0
		Vanadium, Total	36.0	MG/KG	0.13	3.0
		Zinc, Total	168	MG/KG	0.24	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/25/06

CLIENT: TNUHANFORD RC-051 K0304 LVL LOT #: 0604L772

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	J11JN4	Silver, Total	0.11 u	MG/KG	0.11	3.0
		Aluminum, Total	8580	MG/KG	4.3	3.0
		Arsenic, Total	6.4	MG/KG	0.92	3.0
		Boron, Total	0.91	MG/KG	0.36	3.0
		Barium, Total	80.4	MG/KG	0.03	3.0
		Beryllium, Total	0.27	MG/KG	0.03	3.0
		Bismuth, Total	0.77 u	MG/KG	0.77	3.0
		Calcium, Total	4340	MG/KG	2.5	3.0
		Cadmium, Total	0.73	MG/KG	0.11	3.0
		Cobalt, Total	6.8	MG/KG	0.21	3.0
		Chromium, Total	21.9	MG/KG	0.20	3.0
		Copper, Total	28.7	MG/KG	0.18	3.0
		Iron, Total	18100	MG/KG	5.2	3.0
		Potassium, Total	967	MG/KG	3.4	3.0
		Lithium, Total	11.8	MG/KG	0.05	3.0
		Magnesium, Total	4870	MG/KG	1.5	3.0
		Manganese, Total	496	MG/KG	0.05	3.0
		Molybdenum, Total	0.59	MG/KG	0.44	3.0
		Sodium, Total	149	MG/KG	1.1	3.0
		Nickel, Total	20.0	MG/KG	0.36	3.0
		Phosphorus, Total	853	MG/KG	1.4	3.0
		Lead, Total	27.7	MG/KG	0.47	3.0
		Antimony, Total	0.66 u	MG/KG	0.66	3.0
		Selenium, Total	0.71 u	MG/KG	0.71	3.0
		Silicon, Total	288	MG/KG	3.4	3.0
		Tin, Total	7.1	MG/KG	1.6	3.0
		Strontium, Total	29.0	MG/KG	0.02	3.0
		Thallium, Total	1.1 u	MG/KG	1.1	3.0
		Uranium, Total	3.2	MG/KG	1.3	3.0
		Vanadium, Total	36.6	MG/KG	0.14	3.0
		Zinc, Total	172	MG/KG	0.24	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/25/06

CLIENT: TNUHANFORD RC-051 K0304 LVL LOT #: 0604L772

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	J11JN5	Silver, Total	0.10 u	MG/KG	0.10	3.0
		Aluminum, Total	8330	MG/KG	4.2	3.0
		Arsenic, Total	6.6	MG/KG	0.89	3.0
		Boron, Total	1.1	MG/KG	0.35	3.0
		Barium, Total	79.4	MG/KG	0.03	3.0
		Beryllium, Total	0.27	MG/KG	0.03	3.0
		Bismuth, Total	0.75 u	MG/KG	0.75	3.0
		Calcium, Total	4700	MG/KG	2.4	3.0
		Cadmium, Total	0.82	MG/KG	0.10	3.0
		Cobalt, Total	6.7	MG/KG	0.20	3.0
		Chromium, Total	19.8	MG/KG	0.19	3.0
		Copper, Total	20.9	MG/KG	0.18	3.0
		Iron, Total	18300	MG/KG	5.1	3.0
		Potassium, Total	945	MG/KG	3.3	3.0
		Lithium, Total	11.3	MG/KG	0.04	3.0
		Magnesium, Total	4880	MG/KG	1.4	3.0
		Manganese, Total	286	MG/KG	0.04	3.0
		Molybdenum, Total	0.48	MG/KG	0.42	3.0
		Sodium, Total	149	MG/KG	1.1	3.0
		Nickel, Total	18.3	MG/KG	0.35	3.0
		Phosphorus, Total	856	MG/KG	1.3	3.0
		Lead, Total	25.1	MG/KG	0.45	3.0
		Antimony, Total	0.64 u	MG/KG	0.64	3.0
		Selenium, Total	0.69 u	MG/KG	0.69	3.0
		Silicon, Total	291	MG/KG	3.3	3.0
		Tin, Total	3.3	MG/KG	1.6	3.0
		Strontium, Total	29.9	MG/KG	0.01	3.0
		Thallium, Total	1.0 u	MG/KG	1.0	3.0
		Uranium, Total	5.0	MG/KG	1.3	3.0
		Vanadium, Total	37.0	MG/KG	0.13	3.0
		Zinc, Total	162	MG/KG	0.23	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/25/06

CLIENT: TNUHANFORD RC-051 K0304 LVL LOT #: 0604L772

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	J11JN6	Silver, Total	0.10 u	MG/KG	0.10	3.0
		Aluminum, Total	8690	MG/KG	4.3	3.0
		Arsenic, Total	7.6	MG/KG	0.91	3.0
		Boron, Total	0.84	MG/KG	0.36	3.0
		Barium, Total	82.5	MG/KG	0.03	3.0
		Beryllium, Total	0.28	MG/KG	0.03	3.0
		Bismuth, Total	0.76 u	MG/KG	0.76	3.0
		Calcium, Total	4680	MG/KG	2.4	3.0
		Cadmium, Total	0.94	MG/KG	0.10	3.0
		Cobalt, Total	7.1	MG/KG	0.21	3.0
		Chromium, Total	22.0	MG/KG	0.19	3.0
		Copper, Total	25.1	MG/KG	0.18	3.0
		Iron, Total	19300	MG/KG	5.2	3.0
		Potassium, Total	970	MG/KG	3.4	3.0
		Lithium, Total	11.7	MG/KG	0.04	3.0
		Magnesium, Total	5020	MG/KG	1.4	3.0
		Manganese, Total	332	MG/KG	0.04	3.0
		Molybdenum, Total	0.49	MG/KG	0.43	3.0
		Sodium, Total	152	MG/KG	1.1	3.0
		Nickel, Total	20.2	MG/KG	0.36	3.0
		Phosphorus, Total	865	MG/KG	1.3	3.0
		Lead, Total	29.2	MG/KG	0.46	3.0
		Antimony, Total	0.66 u	MG/KG	0.66	3.0
		Selenium, Total	0.70 u	MG/KG	0.70	3.0
		Silicon, Total	296	MG/KG	3.4	3.0
		Tin, Total	3.6	MG/KG	1.6	3.0
		Strontium, Total	30.3	MG/KG	0.01	3.0
		Thallium, Total	1.0 u	MG/KG	1.0	3.0
		Uranium, Total	4.0	MG/KG	1.3	3.0
		Vanadium, Total	39.3	MG/KG	0.13	3.0
		Zinc, Total	177	MG/KG	0.24	3.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/25/06

CLIENT: TNUHANFORD RC-051 K0304 LVL LOT #: 0604L772

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	06L0269-MB1	Silver, Total	0.04 u	MG/KG	0.04	1.0
		Aluminum, Total	1.4 u	MG/KG	1.4	1.0
		Arsenic, Total	0.30 u	MG/KG	0.30	1.0
		Boron, Total	0.17	MG/KG	0.12	1.0
		Barium, Total	0.01 u	MG/KG	0.01	1.0
		Beryllium, Total	0.01 u	MG/KG	0.01	1.0
		Bismuth, Total	0.26 u	MG/KG	0.26	1.0
		Calcium, Total	0.82 u	MG/KG	0.82	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Cobalt, Total	0.07 u	MG/KG	0.07	1.0
		Chromium, Total	0.06 u	MG/KG	0.06	1.0
		Copper, Total	0.06 u	MG/KG	0.06	1.0
		Iron, Total	1.7 u	MG/KG	1.7	1.0
		Potassium, Total	1.1 u	MG/KG	1.1	1.0
		Lithium, Total	0.02	MG/KG	0.02	1.0
		Magnesium, Total	0.48 u	MG/KG	0.48	1.0
		Manganese, Total	0.02 u	MG/KG	0.02	1.0
		Molybdenum, Total	0.14 u	MG/KG	0.14	1.0
		Sodium, Total	0.38 u	MG/KG	0.38	1.0
		Nickel, Total	0.12 u	MG/KG	0.12	1.0
		Phosphorus, Total	0.45 u	MG/KG	0.45	1.0
		Lead, Total	0.16 u	MG/KG	0.16	1.0
		Antimony, Total	0.22 u	MG/KG	0.22	1.0
		Selenium, Total	0.24 u	MG/KG	0.24	1.0
		Silicon, Total	1.1 u	MG/KG	1.1	1.0
		Tin, Total	0.57	MG/KG	0.54	1.0
		Strontium, Total	0.005u	MG/KG	0.005	1.0
		Thallium, Total	0.35 u	MG/KG	0.35	1.0
		Uranium, Total	0.44 u	MG/KG	0.44	1.0
		Vanadium, Total	0.04 u	MG/KG	0.04	1.0
		Zinc, Total	0.08 u	MG/KG	0.08	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 05/25/06

CLIENT: TNUHANPORD RC-051 K0304 LVL LOT #: 0604L772

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J11JN2	Silver, Total	2.3	0.10u	2.5	92.0	3.0
		Aluminum, Total	8790	8290	99.0	506.8*	3.0
		Arsenic, Total	103	6.6	99.0	97.7	3.0
		Boron, Total	46.5	0.71	49.5	92.5	3.0
		Barium, Total	173	78.0	99.0	96.2	3.0
		Beryllium, Total	2.7	0.25	49.5 2.5	97.9	3.0
		Bismuth, Total	52.0	0.76u	~~[illegible]~~	~~[illegible]~~ 105.0	3.0
		Calcium, Total	5920	4600	1240	106.7	3.0
		Cadmium, Total	3.2	0.78	2.5	96.8	3.0
		Cobalt, Total	30.7	6.5	24.8	97.6	3.0
		Chromium, Total	28.8	19.1	9.9	98.0	3.0
		Copper, Total	32.3	20.5	12.4	95.2	3.0
		Iron, Total	17400	17600	49.5	-450. *	3.0
		Potassium, Total	2100	939	1240	93.7	3.0
		Lithium, Total	62.6	11.2	49.5	103.8	3.0
		Magnesium, Total	6110	4810	1240	104.6	3.0
		Manganese, Total	309	285	24.8	93.5*	3.0
		Molybdenum, Total	47.4	0.43u	49.5	95.8	3.0
		Sodium, Total	1330	147	1240	95.9	3.0
		Nickel, Total	42.6	17.9	24.8	99.6	3.0
		Phosphorus, Total	1100	886	248	85.7	3.0
		Lead, Total	50.1	25.4	24.8	99.6	3.0
		Antimony, Total	8.0	0.66u	24.8	32.3	3.0
		Selenium, Total	96.6	0.70u	99.0	97.6	3.0
		Silicon, Total	584	341	49.5	491.1*	3.0
		Tin, Total	47.6	2.8	49.5	90.5	3.0
		Strontium, Total	77.9	29.6	49.5	97.6	3.0
		Thallium, Total	98.1	1.0 u	49.5 99.0	99.1	3.0
		Uranium, Total	47.2	2.3	~~[illegible]~~	~~[illegible]~~ 90.7	3.0
		Vanadium, Total	58.9	35.3	24.8	95.2	3.0
		Zinc, Total	184	162	24.8	90.7*	3.0

corrected entry NW 5/26/06

corrected entry NW 5/26/06

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 05/25/06

CLIENT: TNUHANFORD RC-051 K0304 LVL LOT #: 0604L772

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J11JN2	Silver, Total	0.10u	0.11u	NC	3.0
		Aluminum, Total	8290	8240	0.66	3.0
		Arsenic, Total	6.6	6.3	4.7	3.0
		Boron, Total	0.71	0.81	13.1	3.0
		Barium, Total	78.0	76.6	1.8	3.0
		Beryllium, Total	0.25	0.26	1.6	3.0
		Bismuth, Total	0.76u	0.77u	NC	3.0
		Calcium, Total	4600	4560	0.87	3.0
		Cadmium, Total	0.78	0.75	4.3	3.0
		Cobalt, Total	6.5	6.4	1.6	3.0
		Chromium, Total	19.1	18.9	1.1	3.0
		Copper, Total	20.5	19.9	3.0	3.0
		Iron, Total	17600	17400	0.92	3.0
		Potassium, Total	939	926	1.4	3.0
		Lithium, Total	11.2	11.2	0.00	3.0
		Magnesium, Total	4810	4790	0.48	3.0
		Manganese, Total	285	282	1.0	3.0
		Molybdenum, Total	0.43u	0.44u	NC	3.0
		Sodium, Total	147	148	0.88	3.0
		Nickel, Total	17.9	17.7	1.1	3.0
		Phosphorus, Total	886	869	2.0	3.0
		Lead, Total	25.4	25.1	1.2	3.0
		Antimony, Total	0.66u	0.66u	NC	3.0
		Selenium, Total	0.70u	0.71u	NC	3.0
		Silicon, Total	341	318	7.0	3.0
		Tin, Total	2.8	2.0	33.3	3.0
		Strontium, Total	29.6	29.4	0.68	3.0
		Thallium, Total	1.0 u	1.1 u	NC	3.0
		Uranium, Total	2.3	2.6	12.2	3.0
		Vanadium, Total	35.3	35.2	0.28	3.0
		Zinc, Total	162	159	1.3	3.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 05/25/06

CLIENT: TNUHANFORD RC-051 K0304 LVL LOT #: 0604L772

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	06L0269-LC1	Silver, LCS	23.7	25.0	MG/KG	94.8
		Aluminum, LCS	238	250	MG/KG	95.2
		Arsenic, LCS	466	500	MG/KG	93.2
		Boron, LCS	234	250	MG/KG	93.7
		Barium, LCS	237	250	MG/KG	94.8
		Beryllium, LCS	11.6	12.5	MG/KG	92.8
		Bismuth, LCS	52.0 50	~~250~~ *	MG/KG *	~~80.8~~ 104.1
		Calcium, LCS	1230	1250	MG/KG	98.0
		Cadmium, LCS	12.1	12.5	MG/KG	96.8
		Cobalt, LCS	120	125	MG/KG	96.1
		Chromium, LCS	24.4	25.0	MG/KG	97.6
		Copper, LCS	59.6	62.5	MG/KG	95.4
		Iron, LCS	243	250	MG/KG	97.4
		Potassium, LCS	1090	1250	MG/KG	87.6
		Lithium, LCS	249	250	MG/KG	99.4
		Magnesium, LCS	1200	1250	MG/KG	96.2
		Manganese, LCS	36.8	37.5	MG/KG	98.1
		Molybdenum, LCS	244	250	MG/KG	97.5
		Sodium, LCS	1120	1250	MG/KG	89.3
		Nickel, LCS	96.8	100	MG/KG	96.8
		Phosphorus, LCS	220	250	MG/KG	87.8
		Lead, LCS	121	125	MG/KG	97.0
		Antimony, LCS	142	150	MG/KG	94.8
		Selenium, LCS	454	500	MG/KG	90.9
		Silicon, LCS	177	250	MG/KG	70.9
		Tin, LCS	244	250	MG/KG	97.5
		Strontium, LCS	240	250	MG/KG	96.0
		Thallium, LCS	482	500	MG/KG	96.5
		Uranium, LCS	46.4 50	~~250~~ *	MG/KG *	~~46.6~~ 92.7
		Vanadium, LCS	119	125	MG/KG	95.4
		Zinc, LCS	47.4	50.0	MG/KG	94.8

* corrected entries PW 5/25/06

Lionville Laboratory Use Only

0604L772

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 DJ

QC Spec Del Std TAT 30 Days

Date Rec'd 4/13/06 Date Due 5/13/06

		A-C	D-F		G-I			J-L		M-O	P-R	S-U			
Refrigerator #		2	2		2			2		2	2	2			
#/Type Container	Liquid														
	Solid	G	G		G			G		G	G	G			
Volume	Liquid														
	Solid														
Preservatives		—	—		—			—		—	—	—			
ANALYSES REQUESTED →		ORGANIC						INORG							
		VOA	BNA	Pest/PCB	Herb	GC			Metal	CN	IC Anions	UV NO3	Hg Chlorine		
		↓ Lionville Laboratory Use Only ↓													
		0625H	0608H		OPCB			METALS(1)		ICN03	IN3N2	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	VOA	BNA	Pest/PCB	Herb	GC			Metal	CN	IC Anions	UV NO3	Hg Chlorine			
001	T11JN2	✓	✓	Soil	4/4/06	0914		1	1		1			3		1	1	1			
002	3	✓	✓			0940		3	1		1			1		1	1	3			
003	4	✓	✓			1101		1	3		3			1		1	1	1			
004	5	✓	✓			1400		1	1		1			1		3	3	1			
005	6					1441		1	1		1			3		1	1	3			

Special Instructions:

No % SOLIDS

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

NON-RAD, DLL DJ

DATE/REVISIONS:

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

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	4/13/06	0920

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
COMPOSITE WASTE			

ORIGINAL DOWNITTEN

0000000022

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-051-132	Page 2 of 2

Collector STANKOVICH, M.	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 UPRIVER RIPARIAN #16		SAF No. RC-051
Ice Chest No.	Field Logbook No. EL-1596-1	COA BESRAS6520	Method of Shipment FED EX
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A060151		Bill of Lading/Air Bill No. SEE OSPC

Price Code 8L

Air Quality ☐

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

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

Preservation	None	None	None	None	None	None	None	None	None	None
Type of Container	G/P	G/P	aG	aG	aG	aG	G/P	G/P	^	^
No. of Container(s)	9	9	7		7	7	7	7	0	0
Volume	30g	30g	30g	30g	30g	30g	30g	30g	1^	1^
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	Semi-VOA - 8270A (TCL)	PAHs - 8310	Pesticides - 8081	PCBs - 8082	IC Anions - 300.0 (Nitrate)	NO2/NO3 - 353.2 (Nitrogen in Nitrite and Nitrate)	~	~

Sample No.	Matrix *	Sample Date	Sample Time									
J11JN2	SOIL	4-11-06	0914	3	1	1		1	1	1	1	
J11JN3			0940	1	3	3		1	1	1	1	
J11JN4			1101	1	1	1		3	3	1	1	
J11JN5			1400	1	1	1		1	1	3	3	
J11JN6			1441	3	3	1		1	1	1	1	

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Elizabeth M Tepper		CH2M Hill →	
Relinquished By/Removed From	Elizabeth M Tepper	4-12-06 11:30	Received By/Stored In: Fed EX	4-12-06
Relinquished By/Removed From	[illegible]	4-13-06 0920	Received By/Stored In	4-13-06 0920
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

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

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

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

Matrix *

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

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

0000000023

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

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #16

Sample # J11JN2

Tray # 12

Tare Wt. 1460 gm.

Total Dry Wt. 4485.3 gm.

Net Dry Wt. 3025.3 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	0914	400 g	400.5	[illegible]
RAD STR		30 g	30.1	
ICP MET		30 g	30.4	
HEX CR		30 g	30.0	
SEMI VOA		30 g	30.2	
PEST		30 g	30.3	
PCB		30 g	30.5	
IC ANION		30 g	30.1	
NO2/NO3		30 g	30.2	
RAD STR MS		30 g	30.3	
RAD STR MSD		30 g	30.6	
ICP MET MS		30 g	30.0	
ICP MET MSD		30 g	30.2	

Comments:

Name (print): Kelly Ensor

Signature: Kelly Ensor

Sub-Sampled Date: 04/11/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #16

Sample # J11JN4

Tray # 24

Tare Wt. 1450 gm.

Total Dry Wt. 4785.1 gm.

Net Dry Wt. 3350.9 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	1101	400 g	400.2	KE
RAD STR		30 g	30.1	
ICP MET		30 g	30.0	
HEX CR		30 g	30.1	
SEMI VOA		30 g	30.2	
PEST		30 g	30.2	
PCB		30 g	30.0	
IC ANION		30 g	30.1	
NO2/NO3		30 g	30.0	
PEST MS		30 g	30.2	
PEST MSD		30 g	30.1	
PCB MS		30 g	30.1	
PCB MSD		30 g	30.0	

Comments:

Name (print): Kelly Enser

Signature: [illegible]

Sub-Sampled Date: 04/11/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #16

Sample # J11JN3

Tray # 68

Tare Wt. 1460 gm.

Total Dry Wt. 4590.9 gm.

Net Dry Wt. 3130.9 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	9:40	400 g	400.17	TG
RAD STR		30 g	30.17	TG
ICP MET		30 g	30.26	TG
HEX CR		30 g	30.36	TG
SEMI VOA		30 g	30.39	TG
PEST		30 g	30.40	TG
PCB		30 g	30.10	TG
IC ANION		30 g	30.37	TG
NO2/NO3		30 g	30.04	TG
HEX CR MS		30 g	~~30.15~~ 30.15	TG
HEX CR MSD		30 g	~~30.05~~ 30.05	TG
SEMI VOA MS		30 g	30.32	TG
SEMI VOA MSD		30 g	30.19	TG

Comments:

Name (print): Elizabeth Tepper

Signature: Elizabeth M Tepper

Sub-Sampled Date: 04/11/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #16

Sample # J11JN5

Tray # 23

Tare Wt. 1450 gm.

Total Dry Wt. 4800.9 gm.

Net Dry Wt. 3350.9 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	14:00	400 g	ET 4-11-06 ~~400~~ 401.9g	ET
RAD STR		30 g	30.15 g	
ICP MET		30 g	30.86	
HEX CR		30 g	30.64	
SEMI VOA		30 g	30.18	
PEST		30 g	30.55	
PCB		30 g	30.81	
IC ANION		30 g	30.21	
NO2/NO3		30 g	31.11	
IC ANION MS		30 g	30.71	
IC ANION MSD		30 g	31.30	
NO2/NO3 MS		30 g	30.91	
NO2/NO3 MSD		30 g	30.11	

Comments:

Name (print): Elizabeth Topper

Signature: Elizabeth M Topper

Sub-Sampled Date: 04/11/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #16

Sample # J11JN6

Tray # 39

Tare Wt. 1460 gm.

Total Dry Wt. 6101.1 gm.

Net Dry Wt. 4641.1 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	1441	400 g	400.6	KE
RAD STR		30 g	30.3	
ICP MET		30 g	30.2	
HEX CR		30 g	30.1	
SEMI VOA		30 g	30.1	
PEST		30 g	30.6	
PCB		30 g	30.2	
IC ANION		30 g	30.1	
NO2/NO3		30 g	30.4	
ICP MET MS		30 g	30.3	
ICP MET MSD		30 g	30.1	
HEX CR MS		30 g	30.4	
HEX CR MSD		30 g	30.3	

Comments:

Name (print): Kelly Enzor

Signature: Kelly Enzor

Sub-Sampled Date: 04/11/2006

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU-HANFORD

Date: 4/13/06

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

LvLI Batch # : 0604L772

Sample Custodian: P. Nuzzaro

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier Fed Ex		Airbill# 6595 0631 3877	
2.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ No Seals	Comments
3.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No		
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No		
5.	Samples received cooled or ambient? IR	Temp 12-7 °C		Cooler # NA	
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	Temp	
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☑ Yes	☐ No	☐ No Discrepancies	

SR-002-B

LvLI

RECEIVED
JUN 2006

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0304

DATE RECEIVED: 04/13/06 LVL LOT # :0604L772

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J11JN2						
NITRATE BY IC	001	S	06LICD52	04/11/06	05/30/06	05/31/06
CHROMIUM VI	001	S	06LVI030	04/11/06	04/25/06	04/25/06
NITRATE NITRITE	001	S	06LN3044	04/11/06	06/01/06	06/01/06
J11JN3						
NITRATE BY IC	002	S	06LICD52	04/11/06	05/30/06	05/31/06
CHROMIUM VI	002	S	06LVI030	04/11/06	04/25/06	04/25/06
CHROMIUM VI	002 REP	S	06LVI030	04/11/06	04/25/06	04/25/06
CHROMIUM VI	002 MS	S	06LVI030	04/11/06	04/25/06	04/25/06
NITRATE NITRITE	002	S	06LN3044	04/11/06	06/01/06	06/01/06
J11JN4						
NITRATE BY IC	003	S	06LICD52	04/11/06	05/30/06	05/31/06
CHROMIUM VI	003	S	06LVI030	04/11/06	04/25/06	04/25/06
NITRATE NITRITE	003	S	06LN3044	04/11/06	06/01/06	06/01/06
J11JN5						
NITRATE BY IC	004	S	06LICD52	04/11/06	05/30/06	05/31/06
NITRATE BY IC	004 REP	S	06LICD52	04/11/06	05/30/06	05/31/06
NITRATE BY IC	004 MS	S	06LICD52	04/11/06	05/30/06	05/31/06
CHROMIUM VI	004	S	06LVI030	04/11/06	04/25/06	04/25/06
NITRATE NITRITE	004	S	06LN3044	04/11/06	06/01/06	06/01/06
NITRATE NITRITE	004 REP	S	06LN3044	04/11/06	06/01/06	06/01/06
NITRATE NITRITE	004 MS	S	06LN3044	04/11/06	06/01/06	06/01/06
J11JN6						
NITRATE BY IC	005	S	06LICD52	04/11/06	05/30/06	05/31/06
CHROMIUM VI	005	S	06LVI030	04/11/06	04/25/06	04/25/06
NITRATE NITRITE	005	S	06LN3044	04/11/06	06/01/06	06/01/06

LAB QC:

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

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-051 K0304

DATE RECEIVED: 04/13/06 LVL LOT # :0604L772

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRATE BY IC	MB1 BS	S	06LICD52	N/A	05/30/06	05/30/06
CHROMIUM VI	MB1	S	06LVI030	N/A	04/25/06	04/25/06
CHROMIUM VI	MB1 BS	S	06LVI030	N/A	04/25/06	04/25/06
CHROMIUM VI	MB1 BSD	S	06LVI030	N/A	04/25/06	04/25/06
NITRATE NITRITE	MB1	S	06LN3044	N/A	06/01/06	06/01/06
NITRATE NITRITE	MB1 BS	S	06LN3044	N/A	06/01/06	06/01/06

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-051 K0304
LVL#: 0604L772

W.O.#: 11343-606-001-9999-00
Date Received: 04-13-06

INORGANIC NARRATIVE

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

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

LvLI Sample	Site ID	Cr6+ sample wt,g	Nitrate-Nitrite IC Nitrate sample wt,g
0604L772-001	J11JN2	29.990	30.145
0604L772-002	J11JN3	30.350	NA
0604L772-002 dup	J11JN3	29.997	NA
0604L772-002 spk	J11JN3	30.122	30.370
0604L772-003	J11JN4	30.118	30.165
0604L772-004	J11JN5	30.614	31.311
0604L772-004 dup	J11JN5	NA	30.771
0604L772-004 spk	J11JN5	NA	30.206
0604L772-005	J11JN6	30.063	30.091

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

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

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

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

4. The results presented in this report are derived from samples that did not meet LvLI's sample acceptance policy as noted on the Sample Receipt Checklist.

5. The method blanks were within the method criteria.

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

7. The matrix spike (MS) recovery for Nitrate was within the 75-125% control limits however MS recovery for Soluble Chromium VI and Nitrate Nitrite were above the control limits at 134.5% and 125.9%, respectively; above range MS recoveries may be attributed to sample inhomogeneity.

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

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

6/5/06
Date

njp\04-772

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: Nitrate **Method:** EPA 300.0K 6-2-02

Other: Nitrate Nitrite **Method** EPA 353.2(mod.)

NT 6-2-0
~~03~~
05

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 06/02/06

CLIENT: TNUHANFORD RC-051 K0304 LVL LOT #: 0604L772
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J11JN2	Nitrate by IC	40.3	MG/KG	2.49	1.0
		Chromium VI	0.20 u	MG/KG	0.20	1.0
		Nitrate Nitrite	8.5	MG/KG	0.40	2.0
-002	J11JN3	Nitrate by IC	32.2	MG/KG	2.47	1.0
		Chromium VI	0.20 u	MG/KG	0.20	1.0
		Nitrate Nitrite	3.1	MG/KG	0.20	1.0
-003	J11JN4	Nitrate by IC	19.3	MG/KG	2.49	1.0
		Chromium VI	0.20 u	MG/KG	0.20	1.0
		Nitrate Nitrite	1.6	MG/KG	0.20	1.0
-004	J11JN5	Nitrate by IC	39.5	MG/KG	2.40	1.0
		Chromium VI	0.20 u	MG/KG	0.20	1.0
		Nitrate Nitrite	1.9	MG/KG	0.38	2.0
-005	J11JN6	Nitrate by IC	22.8	MG/KG	2.49	1.0
		Chromium VI	0.20 u	MG/KG	0.20	1.0
		Nitrate Nitrite	1.8	MG/KG	0.20	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 06/02/06

CLIENT: TNUHANFORD RC-051 K0304 LVL LOT #: 0604L772
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	06LICD52-MB1	Nitrate by IC	2.50 u	MG/KG	2.50	1.0
BLANK10	06LVI030-MB1	Chromium VI	0.20 u	MG/KG	0.20	1.0
BLANK10	06LN3044-MB1	Nitrate Nitrite	0.20 u	MG/KG	0.20	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 06/02/06

CLIENT: TNUHANFORD RC-051 K0304 LVL LOT #: 0604L772

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	J11JN3	Soluble Chromium VI	5.2	0.20u	4.0	134.5	1.0
-004	J11JN5	Nitrate by IC	88.0	39.5	50.0	97.0	1.0
		Nitrate Nitrite	14.4	1.9	9.9	125.9	2.0
BLANK10	06LICD52-MB1	Nitrate by IC	48.8	2.50u	50.0	97.6	1.0
BLANK10	06LVI030-MB1	Soluble Chromium VI	4.0	0.20u	4.0	99.2	1.0
		Insoluble Chromium VI	1130	0.20u	1080	105.0	100
BLANK10	06LN3044-MB1	Nitrate Nitrite	5.3	0.20u	5.0	105.2	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 06/02/06

CLIENT: TNUHANFORD RC-051 K0304 LVL LOT #: 0604L772

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-002REP	J11JN3	Chromium VI	0.20u	0.20u	NC	1.0
-004REP	J11JN5	Nitrate by IC	39.5	36.1	9.0	1.0
		Nitrate Nitrite	1.9	1.8	4.9	1.0

Lionville Laboratory Use Only

0604L772

Custody Transfer Record/Lab Work Request

Page 1 of 1

See SRC

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client TNX-HANFORD RC-051

Est. Final Proj. Sampling Date

Project # 11343-6006-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager DJ

QC Spec Del Std TAT 30 Days

Date Rec'd 4/15/06 Date Due 5/13/06

Refrigerator #			A-C 2	D-F 2		G-I 2			J-L 2		M-O 2	P-R 2	S-U 2				
#/Type Container	Liquid / Solid		G	G		G			G		G	G	G				
Volume	Liquid / Solid																
Preservatives			—	—		—			—		—	—	—				
ANALYSES REQUESTED →		ORGANIC: VOA	BNA	Pest/PCB	Herb	PCB			INORG: Metal	CN	IC Anions	NH3 NO3	Hg CrHex				
		↓ Lionville Laboratory Use Only ↓	0625H	0608H		OPCB			METALS(1)		ICN03	FN3N2	ICR6				

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	PCB			Metal	CN	IC Anions	NH3 NO3	Hg CrHex			
001	J11JN2	✓	✓	Soil	4/11/06	0914		1	1		1			3		1	1	1			
002	3	✓	✓			0940		3	1		1			1		1	1	3			
003	4	✓	✓			1101		1	3		3			1		1	1	1			
004	5	✓	✓			1400		1	1		1			1		3	3	1			
005	6					1441		1	1		1			3		1	1	3			

Special Instructions:

No % SOLIDS

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

NON-RAD, Del DJ

DATE/REVISIONS:

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

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	4/13/06	0920

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-051-132	Page 2 of 3

Collector STANKOVICH, M.	Company Contact JOAN KESSNER Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8L Data Turnaround 45 Days
Project Designation 100 & 300 Area Component of the RCBRA - Incremental So	Sampling Location UPRIVER RIPARIAN #16	SAF No. RC-051	Air Quality ☐
Ice Chest No.	Field Logbook No. EL-1596-1 COA BESRAS6520	Method of Shipment FED EX	
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A060151	Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

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

SAMPLE ANALYSIS													
Preservation				None	None	None	None	None	None	None	None	None	None
Type of Container				G/P	G/P	aG	aG	aG	aG	G/P	G/P	^	^
No. of Container(s)				9	9	7		7	7	7	7	0	0
Volume				30g	30g	30g	30g	30g	30g	30g	30g	1^	1^
				See item (1) in Special Instructions.	Chromium Hex - 7196	Semi-VOA - 8270A (TCL)	PAHs - 8310	Pesticides - 8081	PCBs - 8082	IC Anions - 300.0 (Nitrate)	NO2/NO3 - 353.2 (Nitrogen in Nitrite and Nitrate)	-	--
Sample No.	Matrix *	Sample Date	Sample Time										
J11JN2	SOIL	4-11-06	0914	3	1	1		1	1	1	1		
J11JN3			0940	1	3	3		1	1	1	1		
J11JN4			1101	1	1	1		3	3	1	1		
J11JN5			1400	1	1	1		1	1	3	3		
J11JN6			1441	3	3	1		1	1	1	1		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Elizabeth M Tepper		CH2M Hill →	
Relinquished By/Removed From	Date/Time 11:30	Received By/Stored In	Date/Time
Elizabeth M Tepper	4-12-06	Fed EX	4-12-06
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[illegible]	4-13-06 0920	[illegible]	4-13-06 0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

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

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

Contact Joan Kessner for any questions.

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

Matrix *

SeSoil
SEsediment
SOsolid
SLsludge
W = Water
O=Oil
A=Air
DSDrum Solids
DLDrum Liquids
TuTissue
WIWipe
L=Liquid
VeVegetation
X=Other

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

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

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #16

Sample # J11JN2

Tray # 12

Tare Wt. 1460 gm.

Total Dry Wt. 4485.3 gm.

Net Dry Wt. 3025.3 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	0914	400 g	400.5	[illegible]
RAD STR	↓	30 g	30.1	↓
ICP MET	↓	30 g	30.4	↓
HEX CR	↓	30 g	30.0	↓
SEMI VOA	↓	30 g	30.2	↓
PEST	↓	30 g	30.3	↓
PCB	↓	30 g	30.5	↓
IC ANION	↓	30 g	30.1	↓
NO2/NO3	↓	30 g	30.2	↓
RAD STR MS	↓	30 g	30.3	↓
RAD STR MSD	↓	30 g	30.6	↓
ICP MET MS	↓	30 g	30.0	↓
ICP MET MSD	↓	30 g	30.2	↓

Comments:

Name (print): Kelly Ensor

Signature: Kelly Ensor

Sub-Sampled Date: 04/11/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #16

Sample # J11JN4

Tray # 24

Tare Wt. 1450 gm.

Total Dry Wt. 4785.1 gm.

Net Dry Wt. 3350.9 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	1101	400 g	400.2	kee
RAD STR		30 g	30.1	
ICP MET		30 g	30.0	
HEX CR		30 g	30.1	
SEMI VOA		30 g	30.2	
PEST		30 g	30.2	
PCB		30 g	30.0	
IC ANION		30 g	30.1	
NO2/NO3		30 g	30.0	
PEST MS		30 g	30.2	
PEST MSD		30 g	30.1	
PCB MS		30 g	30.1	
PCB MSD		30 g	30.0	

Comments:

Name (print): Kelly Eaton

Signature: [illegible]

Sub-Sampled Date: 04/11/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

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

Site # Upriver Riparian #16 **Sample #** J11JN3

Tray # 68 **Tare Wt.** 1460 gm.

Total Dry Wt. 4590.9 gm. **Net Dry Wt.** 3130.9 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	9:40	400 g	400.17	TG
RAD STR		30 g	30.17	TG
ICP MET		30 g	30.26	TG
HEX CR		30 g	30.36	TG
SEMI VOA		30 g	30.39	TG
PEST		30 g	30.40	TG
PCB		30 g	30.10	TG
IC ANION		30 g	30.37	TG
NO2/NO3		30 g	30.04	TG
HEX CR MS		30 g	~~30.15~~ 30.15	TG
HEX CR MSD		30 g	~~30.05~~ 30.05	TG
SEMI VOA MS		30 g	30.32	TG
SEMI VOA MSD		30 g	30.19	TG

Comments:

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

Sub-Sampled Date: 04/11/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #16

Sample # J11JN5

Tray # 23

Tare Wt. 1450 gm.

Total Dry Wt. 4800.9 gm.

Net Dry Wt. 3 350.9 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
			ET 4-11-06	
GEA	14:00	400 g	~~400~~ 401.90g	ET
RAD STR		30 g	30.15 g	
ICP MET		30 g	30.86	
HEX CR		30 g	30.64	
SEMI VOA		30 g	30.18	
PEST		30 g	30.55	
PCB		30 g	30.81	
IC ANION		30 g	30.21	
NO2/NO3		30 g	31.11	
IC ANION MS		30 g	30.71	
IC ANION MSD		30 g	31.30	
NO2/NO3 MS		30 g	30.91	
NO2/NO3 MSD		30 g	30.11	

Comments:

Name (print): Elizabeth Topper

Signature: Elizabeth M Topper

Sub-Sampled Date: 04/11/2006

CH2M HILL Soil Sampling Bench Sheet
Spring 2006

Project ID WCH

Project # 336761.AO.ZZ

Site # Upriver Riparian #16

Sample # J11JN6

Tray # 39

Tare Wt. 1460 gm.

Total Dry Wt. 6101.1 gm.

Net Dry Wt. 4641.1 gm.

ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS

Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	1441	400 g	400.6	kre
RAD STR		30 g	30.3	
ICP MET		30 g	30.2	
HEX CR		30 g	30.1	
SEMI VOA		30 g	30.1	
PEST		30 g	30.6	
PCB		30 g	30.2	
IC ANION		30 g	30.1	
NO2/NO3		30 g	30.4	
ICP MET MS		30 g	30.3	
ICP MET MSD		30 g	30.1	
HEX CR MS		30 g	30.4	
HEX CR MSD		30 g	30.3	

Comments:

Name (print): Kelly Enzor

Signature: Kelly Enzor

Sub-Sampled Date: 04/11/2006

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU-HANFORD

Date: 4/13/06

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

LvLI Batch # : 0604L772

Sample Custodian: P. Nuxoll

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier Fed Ex		Airbill# 6595 0631 3877	
2.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ No Seals	Comments
3.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No		
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No		
5.	Samples received cooled or ambient? IR	Temp 12-7 °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	Temp	
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☑ Yes	☐ No	☐ No Discrepancies	

SR-002-B

LvLI