0069760

SAF-RC-008
ERDF Groundwater Well Samples
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Jim Rugg	T2-03	___NB 4/24/06___ INITIAL/DATE
Jeanette Duncan	H9-02	__NB 4/24/06 INITIAL/DATE

COMMENTS:

SDG __K0254____ SAF-RC-008

Rad only X Chem only Rad & Chem

X Complete Partial

RECEIVED
JUN 0 1 2006
EDMC

LIONVILLE LABORATORY INC.

RECEIVED
APR 2006

19 April 2006

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

Subject: Analytical Data Package

Dear Ms. Kessner:

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

LvLI Batch #	0603L422
SDG #	K0254
SAF #	RC-008
Date Received	3/4/06
# Samples	7
Mat\rix	WATER
Volatiles	X
Semivolatiles	
Pest/PCB	
PAH	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	X

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

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

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

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

RECEIVED
APR 2006

Lionville Laboratory, Inc.
VOA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-008 K0254

DATE RECEIVED: 03/04/06 LVL LOT # :0603L422

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B1HRF5	002	W	06LVX058	03/03/06	N/A	03/16/06
B1HRF8	004	W	06LVX058	03/03/06	N/A	03/16/06
B1HRJ8	006	W	06LVX058	03/03/06	N/A	03/16/06
B1HV49	007	W	06LVX058	03/03/06	N/A	03/16/06

LAB QC:

VBLKTE	MB1	W	06LVX058	N/A	N/A	03/16/06
VBLKTE	MB1 BS	W	06LVX058	N/A	N/A	03/16/06

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-008
LVL #: 0603L422
SDG/SAF # K0254/RC-008

W.O. #: 11343-606-001-9999-00
Date Received: 03-04-2006

GC/MS VOLATILE

Four (4) water samples were collected on 03-03-2006.

The samples and their associated QC samples were analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8260B for TCL volatile target compounds on 03-16-2006.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy with the exception of a discrepancy, which was documented on the Sample Receipt Checklist.
2. Samples were analyzed within required holding time.
3. Non-target compounds were detected in the samples.
4. All surrogate recoveries were within acceptance criteria.
5. Matrix spike analyses were inadvertently not performed. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
6. All blank spike recoveries were within acceptance criteria.
7. The method blank contained the common laboratory contaminant Methylene Chloride at a level less than 2x the CRQL.
8. Internal standard area and retention time criteria were met.
9. Manual integrations are performed according to SOP QA-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").
10. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
11. "I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

4/19/06
Date

som\group\data\voa\tnu-hanford\0603-422.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 1 8 pages.

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

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 06VT042

Initiator: B. Rubino
Date: 3/31/06
Client: TNU Hanford RC-008

Batch: 06031422
Samples: ms/msd
Method: SW846/MCAWW/CLP/

Parameter: MS VOA
Matrix: water
Prep Batch: _____

1. Reason for SDR

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

b. General Discrepancy

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

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

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

A ms/msd was inadvertantly not analyzed. Samples are now out of hold.

2. Known or Probable Causes(s)

Analyst error

3. Discussion and Proposed Action

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

Other Description:

Please advise
Narrate + report

4. Project Manager Instructions...signature/date: [signature] 3/31/06

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

5. Final Action...signature/date: [signature] 4/18/06

Other Explanation:

__ Verified re-[log][leach][extract][digest][analysis] (circle)
X 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
2	X Initiator Rubino	__	__ Metals: Beegle
__	X Lab General Manager: M. Taylor	__	__ Inorganic: Perrone
1	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

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.

Volatiles by GC/MS, HSL List

Report Date: 04/19/06 11:42

RFW Batch Number: 0603L422 Client: **TNUHANFORD RC-008 K0254** Work Order: 11343606001 Page: 1a

000000007

	Cust ID:	B1HRF5	B1HRF8	B1HRJ8	B1HV49	VBLKTE	VBLKTE BS
Sample Information	RFW#:	002	004	006	007	06LVX058-MB1	06LVX058-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Surrogate Recovery	Toluene-d8	96 %	94 %	92 %	94 %	94 %	95 %
	Bromofluorobenzene	90 %	90 %	96 %	94 %	95 %	97 %
	1,2-Dichloroethane-d4	91 %	91 %	95 %	95 %	86 %	96 %
Chloromethane		10 U	10 U	10 U	10 U	10 U	101 %
Bromomethane		10 U	10 U	10 U	10 U	10 U	107 %
Vinyl Chloride		10 U	10 U	10 U	10 U	10 U	101 %
Chloroethane		10 U	10 U	10 U	10 U	10 U	120 %
Methylene Chloride		5 B	4 JB	16 B	5 JB	5	94 %
Acetone		10 U	10 U	10 U	10 U	10 U	75 %
Carbon Disulfide		5 U	5 U	5 U	5 U	5 U	133 %
1,1-Dichloroethene		5 U	5 U	5 U	5 U	5 U	115 %
1,1-Dichloroethane		5 U	5 U	5 U	5 U	5 U	115 %
1,2-Dichloroethene (total)		5 U	5 U	5 U	5 U	5 U	111 %
Chloroform		1 J	1 J	2 J	5 U	5 U	114 %
1,2-Dichloroethane		5 U	5 U	5 U	5 U	5 U	104 %
2-Butanone		10 U	10 U	10 U	10 U	10 U	88 %
1,1,1-Trichloroethane		5 U	5 U	5 U	5 U	5 U	116 %
Carbon Tetrachloride		1 J	1 J	10	5 U	5 U	119 %
Bromodichloromethane		5 U	5 U	5 U	5 U	5 U	120 %
1,2-Dichloropropane		5 U	5 U	5 U	5 U	5 U	111 %
cis-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U	109 %
Trichloroethene		5 U	5 U	5 U	5 U	5 U	109 %
Dibromochloromethane		5 U	5 U	5 U	5 U	5 U	120 %
1,1,2-Trichloroethane		5 U	5 U	5 U	5 U	5 U	104 %
Benzene		5 U	5 U	5 U	5 U	5 U	107 %
Trans-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U	103 %
Bromoform		5 U	5 U	5 U	5 U	5 U	124 %
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U	10 U	91 %
2-Hexanone		10 U	10 U	10 U	10 U	10 U	87 %
Tetrachloroethene		5 U	5 U	5 U	5 U	5 U	109 %
1,1,2,2-Tetrachloroethane		5 U	5 U	5 U	5 U	5 U	100 %
Toluene		5 U	5 U	5 U	5 U	5 U	102 %

*= Outside of EPA CLP QC limits.

RFW Batch Number: 0603L422 Client: TNUHANFORD RC-008 K0254 Work Order: 11343606001 Page: 1b

Cust ID:	B1HRF5	B1HRF8	B1HRJ8	B1HV49	VBLKTE	VBLKTE BS
RFW#:	002	004	006	007	06LVX058-MB1	06LVX058-MB1
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	100 %
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	103 %
Styrene	5 U	5 U	5 U	5 U	5 U	109 %
Xylene (total)	5 U	5 U	5 U	5 U	5 U	102 %
cis-1,2-dichloroethene	5 U	5 U	5 U	5 U	5 U	110 %
trans-1,2-dichloroethene	5 U	5 U	5 U	5 U	5 U	111 %

*= Outside of EPA CLP QC limits.

000000008

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B1HRF5

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 0603L422-002

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: x031609

Level: (low/med) LOW Date Received: 03/04/06

% Moisture: not dec. _____ Date Analyzed: 03/16/06

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	11.509	6	J
2.	SILOXANE	16.808	20	J
3.	SILOXANE	20.120	200	J

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B1HRF8

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 0603L422-004

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: x031610

Level: (low/med) LOW Date Received: 03/04/06

% Moisture: not dec. _____ Date Analyzed: 03/16/06

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	16.823	100	J
2.	SILOXANE	20.135	200	J
3.	SILOXANE	22.784	9	J

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B1HRJ8

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 0603L422-006

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: x031611

Level: (low/med) LOW Date Received: 03/04/06

% Moisture: not dec. _____ Date Analyzed: 03/16/06

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	16.808	20	J
2.	SILOXANE	20.137	30	J
3.	SILOXANE	22.769	20	J

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B1HV49

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 0603L422-007

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: x031612

Level: (low/med) LOW Date Received: 03/04/06

% Moisture: not dec. _____ Date Analyzed: 03/16/06

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 67630	ISOPROPYL ALCOHOL	8.509	6	NJ
2.	SILOXANE	16.823	30	J
3.	SILOXANE	20.188	100	J
4.	SILOXANE	22.767	10	J

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKTE

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 06LVX058-MB1

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: x031605

Level: (low/med) LOW Date Received: 03/16/06

% Moisture: not dec. _____ Date Analyzed: 03/16/06

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 0

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

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

FORM 1 VOA-TIC 1/87 Rev.

Lionville Laboratory Use Only

06036422

Custody Transfer Record/Lab Work Request

Page 1 of 1

See SRC

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU-HANFORD SAFE RC008

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: Spec Del: Std TAT: 30 Days

Date Rec'd: 3/4/06 Date Due: 4/3/06

		A-C					D		E		F	G	H	I
Refrigerator #		1					1		2		2	2	2	2
#/Type Container	Liquid	6					6	1	1		1	1	1	1
	Solid													
Volume	Liquid	40					6	1	500		500	500	250	500
	Solid													
Preservatives		HCL					H2SO4	1	HNO3		H2O2	—	—	H2SO4
ANALYSES REQUESTED →		ORGANIC: VOA	BNA	Pest/PCB	Herb		TOX		INORG: Total Metal	CN	IC Anions	TDS	ALK	NO2 NO3

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	06244					ITOX	METALS (1) SOLUBLE	METALS (1) TOTAL	IC (1)	ITDS	IALKL	IN3N2
001	B1HRF4(F)			W	3-3-06	0934						1	1	✓ JP 3/4/06 NL				
002	F5					⊥	3					1		1	1	1	1	1
003	F7 (F)					0934							1	✓ JP 3/4/06 NL				
004	F8					⊥	3					1		1	1	1	1	1
005	J7 (F)					1158							1	✓ JP 3/4/06 NL				
006	J8					⊥	3					1		1	1	1	1	1
007	B1HV49			⊥		0800	3											

Special Instructions:

METALS (1) = Al, Ag, Ba, Be, Cd, Ca, Co, Cr, Cu, Fe, K, Mg, Mn, Na, Ni, Sb, V, Zn

IC (1) = IC - Cl, Br, Fl, NO3, NO2, PO4, SO4

RUN MATRIX QC

DATE/REVISIONS:

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

Relinquished by	Received by	Date	Time
FedEx	[signature]	3/4/06	1000

Relinquished by	Received by	Date	Time

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

0000000814

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-008-3

Collector DURATEK D.E. PARCHEN	Contact/Requester J Kessner	Telephone No. 509-375-4688 MSIN FAX
SAF No. RC-008	Sampling Origin Hanford Site	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	DTS · SAWS - H104	Ice Chest No. SAND-335 Temp.
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No. 7926 7630 4049
Protocol GPP	Priority: 45 Days	Offsite Property No. 16983

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1HRF4 (F)		W	3-3-06	0934	1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2
B1HRF5		W			3x40-mL aGs*	VOA - 8260B (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B1HRF5		W			1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2
B1HRF5		W			1x500-mL P @ 3-3-06	IC Anions - 300.0	Cool 4C
B1HRF5		W			1x~~500~~-mL G/P 250	Alkalinity - 310.1	Cool 4C
B1HRF5		W			1x~~500~~-mL G/P 500 @ 3-3-06	NO2/NO3 - 353.2	H2SO4 to pH <2 Cool 4C
B1HRF5		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B1HRF5		W			1x~~500~~-mL aGs* 100 @ 3-3-06	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
DURATEK D.E. PARCHEN			3-3-06 1400 MAR 04 2006	Fed Ex			
Relinquished By			Date/Time 3-4-06 1000	Received By			Date/Time 3-4-06 1000
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # RC-008-4

Page 1 of 1

Collector DURATEK ~~D.E. PARCHEN~~	Contact/Requester J Kessner	Telephone No. 509-375-4688 MSIN FAX
SAF No. RC-008	Sampling Origin Hanford Site	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	DTS SAWS-H104	Ice Chest No. SAWS-335 Temp.
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No. 7926 7630 4049
Protocol GPP	Priority: 45 Days	Offsite Property No. 16983

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1HRF7 (F)		W	3-3-06	0934	1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2
B1HRF8		W	3-3-06		3x40-mL aGs*	VOA - 8260B (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B1HRF8		W			1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2
B1HRF8		W			1x500-mL P @ 3-3-06	IC Anions - 300.0	Cool 4C
B1HRF8		W			1x~~500~~ 250-mL G/P	Alkalinity - 310.1	Cool 4C
B1HRF8		W			1x~~500~~ 500-mL G/P @ 3-3-06	NO2/NO3 - 353.2	H2SO4 to pH <2 Cool 4C
B1HRF8		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B1HRF8		W			1x~~500~~ 1000-mL aGs* @ 3-3-06	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
DURATEK D.E. PARCHEN			1400 3-3-06 MAR 04 2006	Fed Ex			
Relinquished By			Date/Time	Received By			Date/Time
FedEx			3/4/06 1000			3-4-06	1000
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

FINAL SAMPLE DISPOSITION | Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # RC-008-22

Collector DURATEK D. E. PARCHEN	Contact/Requester J Kessner	Telephone No. 509-375-4688 MSIN FAX
SAF No. RC-008	Sampling Origin Hanford Site 03-3-06	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	DTS-C02-SAWS-H109	Ice Chest No. SAWS-335 Temp. 57
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No. 7926 7830 4049
Protocol GPP	Priority: 45 Days	Offsite Property No. 16953

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1HV49		W	3-3-06	0900	3x40-mL aGs*	VOA - 8260B (TCL)	HCl or H2SO4 to pH <2 Cool 4C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
DURATEK D. E. PARCHEN			MAR 03 2006 1400	Fed Ex			
Relinquished By			Date/Time	Received By			Date/Time
Fed Ex		3-4-06	1000				3-4-06 1000
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: The Hartford

Date: 3-4-06

Purchase Order / Project# / SAF# / SOW# / Release #: RC-008

LvLI Batch # : 0603L422

Sample Custodian: V. Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier FedEx		Airbill# 7926 7630 4049	
2.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ No Seals	Comments
3.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No		
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No		
5.	Samples received cooled or ambient?	Temp 3.1	°C	Cooler # SAWS-335	
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	#005 006 Samples no COC.	
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 Air Bubble	
14.	QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A	
15.	Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)	☐ Yes	☑ No		
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☑ Yes	☐ No	☐ No Discrepancies	

SR-002-B

LVLI LIONVILLE LABORATORY INC

RECEIVED
APR 2006

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-008 K0254

DATE RECEIVED: 03/04/06 LVL LOT # :0603L422

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B1HRF4						
SILVER, SOLUBLE	001	W	06L0165	03/03/06	03/15/06	03/29/06
SILVER, SOLUBLE	001 REP	W	06L0165	03/03/06	03/15/06	03/29/06
SILVER, SOLUBLE	001 MS	W	06L0165	03/03/06	03/15/06	03/29/06
ALUMINUM, SOLUBLE	001	W	06L0165	03/03/06	03/15/06	03/29/06
ALUMINUM, SOLUBLE	001 REP	W	06L0165	03/03/06	03/15/06	03/29/06
ALUMINUM, SOLUBLE	001 MS	W	06L0165	03/03/06	03/15/06	03/29/06
BARIUM, SOLUBLE	001	W	06L0165	03/03/06	03/15/06	03/29/06
BARIUM, SOLUBLE	001 REP	W	06L0165	03/03/06	03/15/06	03/29/06
BARIUM, SOLUBLE	001 MS	W	06L0165	03/03/06	03/15/06	03/29/06
BERYLLIUM, SOLUBLE	001	W	06L0165	03/03/06	03/15/06	03/29/06
BERYLLIUM, SOLUBLE	001 REP	W	06L0165	03/03/06	03/15/06	03/29/06
BERYLLIUM, SOLUBLE	001 MS	W	06L0165	03/03/06	03/15/06	03/29/06
CALCIUM, SOLUBLE	001	W	06L0165	03/03/06	03/15/06	03/29/06
CALCIUM, SOLUBLE	001 REP	W	06L0165	03/03/06	03/15/06	03/29/06
CALCIUM, SOLUBLE	001 MS	W	06L0165	03/03/06	03/15/06	03/29/06
CADMIUM, SOLUBLE	001	W	06L0165	03/03/06	03/15/06	03/29/06
CADMIUM, SOLUBLE	001 REP	W	06L0165	03/03/06	03/15/06	03/29/06
CADMIUM, SOLUBLE	001 MS	W	06L0165	03/03/06	03/15/06	03/29/06
COBALT, SOLUBLE	001	W	06L0165	03/03/06	03/15/06	03/29/06
COBALT, SOLUBLE	001 REP	W	06L0165	03/03/06	03/15/06	03/29/06
COBALT, SOLUBLE	001 MS	W	06L0165	03/03/06	03/15/06	03/29/06
CHROMIUM, SOLUBLE	001	W	06L0165	03/03/06	03/15/06	03/29/06
CHROMIUM, SOLUBLE	001 REP	W	06L0165	03/03/06	03/15/06	03/29/06
CHROMIUM, SOLUBLE	001 MS	W	06L0165	03/03/06	03/15/06	03/29/06
COPPER, SOLUBLE	001	W	06L0165	03/03/06	03/15/06	03/29/06
COPPER, SOLUBLE	001 REP	W	06L0165	03/03/06	03/15/06	03/29/06
COPPER, SOLUBLE	001 MS	W	06L0165	03/03/06	03/15/06	03/29/06
IRON, SOLUBLE	001	W	06L0165	03/03/06	03/15/06	03/29/06
IRON, SOLUBLE	001 REP	W	06L0165	03/03/06	03/15/06	03/29/06
IRON, SOLUBLE	001 MS	W	06L0165	03/03/06	03/15/06	03/29/06
POTASSIUM, SOLUBLE	001	W	06L0165	03/03/06	03/15/06	03/29/06
POTASSIUM, SOLUBLE	001 REP	W	06L0165	03/03/06	03/15/06	03/29/06
POTASSIUM, SOLUBLE	001 MS	W	06L0165	03/03/06	03/15/06	03/29/06
MAGNESIUM, SOLUBLE	001	W	06L0165	03/03/06	03/15/06	03/29/06
MAGNESIUM, SOLUBLE	001 REP	W	06L0165	03/03/06	03/15/06	03/29/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-008 K0254

DATE RECEIVED: 03/04/06 LVL LOT # :0603L422

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, SOLUBLE	001 MS	W	06L0165	03/03/06	03/15/06	03/29/06
MANGANESE, SOLUBLE	001	W	06L0165	03/03/06	03/15/06	03/29/06
MANGANESE, SOLUBLE	001 REP	W	06L0165	03/03/06	03/15/06	03/29/06
MANGANESE, SOLUBLE	001 MS	W	06L0165	03/03/06	03/15/06	03/29/06
SODIUM, SOLUBLE	001	W	06L0165	03/03/06	03/15/06	03/29/06
SODIUM, SOLUBLE	001 REP	W	06L0165	03/03/06	03/15/06	03/29/06
SODIUM, SOLUBLE	001 MS	W	06L0165	03/03/06	03/15/06	03/29/06
NICKEL, SOLUBLE	001	W	06L0165	03/03/06	03/15/06	03/29/06
NICKEL, SOLUBLE	001 REP	W	06L0165	03/03/06	03/15/06	03/29/06
NICKEL, SOLUBLE	001 MS	W	06L0165	03/03/06	03/15/06	03/29/06
ANTIMONY, SOLUBLE	001	W	06L0165	03/03/06	03/15/06	03/29/06
ANTIMONY, SOLUBLE	001 REP	W	06L0165	03/03/06	03/15/06	03/29/06
ANTIMONY, SOLUBLE	001 MS	W	06L0165	03/03/06	03/15/06	03/29/06
VANADIUM, SOLUBLE	001	W	06L0165	03/03/06	03/15/06	03/29/06
VANADIUM, SOLUBLE	001 REP	W	06L0165	03/03/06	03/15/06	03/29/06
VANADIUM, SOLUBLE	001 MS	W	06L0165	03/03/06	03/15/06	03/29/06
ZINC, SOLUBLE	001	W	06L0165	03/03/06	03/15/06	03/29/06
ZINC, SOLUBLE	001 REP	W	06L0165	03/03/06	03/15/06	03/29/06
ZINC, SOLUBLE	001 MS	W	06L0165	03/03/06	03/15/06	03/29/06
B1HRF5						
SILVER, TOTAL	002	W	06L0165	03/03/06	03/15/06	03/29/06
ALUMINUM, TOTAL	002	W	06L0165	03/03/06	03/15/06	03/29/06
BARIUM, TOTAL	002	W	06L0165	03/03/06	03/15/06	03/29/06
BERYLLIUM, TOTAL	002	W	06L0165	03/03/06	03/15/06	03/29/06
CALCIUM, TOTAL	002	W	06L0165	03/03/06	03/15/06	03/29/06
CADMIUM, TOTAL	002	W	06L0165	03/03/06	03/15/06	03/29/06
COBALT, TOTAL	002	W	06L0165	03/03/06	03/15/06	03/29/06
CHROMIUM, TOTAL	002	W	06L0165	03/03/06	03/15/06	03/29/06
COPPER, TOTAL	002	W	06L0165	03/03/06	03/15/06	03/29/06
IRON, TOTAL	002	W	06L0165	03/03/06	03/15/06	03/29/06
POTASSIUM, TOTAL	002	W	06L0165	03/03/06	03/15/06	03/29/06
MAGNESIUM, TOTAL	002	W	06L0165	03/03/06	03/15/06	03/29/06
MANGANESE, TOTAL	002	W	06L0165	03/03/06	03/15/06	03/29/06
SODIUM, TOTAL	002	W	06L0165	03/03/06	03/15/06	03/29/06
NICKEL, TOTAL	002	W	06L0165	03/03/06	03/15/06	03/29/06
ANTIMONY, TOTAL	002	W	06L0165	03/03/06	03/15/06	03/29/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-008 K0254

DATE RECEIVED: 03/04/06 LVL LOT # :0603L422

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
VANADIUM, TOTAL	002	W	06L0165	03/03/06	03/15/06	03/29/06
ZINC, TOTAL	002	W	06L0165	03/03/06	03/15/06	03/29/06
B1HRF7						
SILVER, SOLUBLE	003	W	06L0165	03/03/06	03/15/06	03/29/06
ALUMINUM, SOLUBLE	003	W	06L0165	03/03/06	03/15/06	03/29/06
BARIUM, SOLUBLE	003	W	06L0165	03/03/06	03/15/06	03/29/06
BERYLLIUM, SOLUBLE	003	W	06L0165	03/03/06	03/15/06	03/29/06
CALCIUM, SOLUBLE	003	W	06L0165	03/03/06	03/15/06	03/29/06
CADMIUM, SOLUBLE	003	W	06L0165	03/03/06	03/15/06	03/29/06
COBALT, SOLUBLE	003	W	06L0165	03/03/06	03/15/06	03/29/06
CHROMIUM, SOLUBLE	003	W	06L0165	03/03/06	03/15/06	03/29/06
COPPER, SOLUBLE	003	W	06L0165	03/03/06	03/15/06	03/29/06
IRON, SOLUBLE	003	W	06L0165	03/03/06	03/15/06	03/29/06
POTASSIUM, SOLUBLE	003	W	06L0165	03/03/06	03/15/06	03/29/06
MAGNESIUM, SOLUBLE	003	W	06L0165	03/03/06	03/15/06	03/29/06
MANGANESE, SOLUBLE	003	W	06L0165	03/03/06	03/15/06	03/29/06
SODIUM, SOLUBLE	003	W	06L0165	03/03/06	03/15/06	03/29/06
NICKEL, SOLUBLE	003	W	06L0165	03/03/06	03/15/06	03/29/06
ANTIMONY, SOLUBLE	003	W	06L0165	03/03/06	03/15/06	03/29/06
VANADIUM, SOLUBLE	003	W	06L0165	03/03/06	03/15/06	03/29/06
ZINC, SOLUBLE	003	W	06L0165	03/03/06	03/15/06	03/29/06
B1HRF8						
SILVER, TOTAL	004	W	06L0165	03/03/06	03/15/06	03/29/06
ALUMINUM, TOTAL	004	W	06L0165	03/03/06	03/15/06	03/29/06
BARIUM, TOTAL	004	W	06L0165	03/03/06	03/15/06	03/29/06
BERYLLIUM, TOTAL	004	W	06L0165	03/03/06	03/15/06	03/29/06
CALCIUM, TOTAL	004	W	06L0165	03/03/06	03/15/06	03/29/06
CADMIUM, TOTAL	004	W	06L0165	03/03/06	03/15/06	03/29/06
COBALT, TOTAL	004	W	06L0165	03/03/06	03/15/06	03/29/06
CHROMIUM, TOTAL	004	W	06L0165	03/03/06	03/15/06	03/29/06
COPPER, TOTAL	004	W	06L0165	03/03/06	03/15/06	03/29/06
IRON, TOTAL	004	W	06L0165	03/03/06	03/15/06	03/29/06
POTASSIUM, TOTAL	004	W	06L0165	03/03/06	03/15/06	03/29/06
MAGNESIUM, TOTAL	004	W	06L0165	03/03/06	03/15/06	03/29/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-008 K0254

DATE RECEIVED: 03/04/06 LVL LOT # :0603L422

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MANGANESE, TOTAL	004	W	06L0165	03/03/06	03/15/06	03/29/06
SODIUM, TOTAL	004	W	06L0165	03/03/06	03/15/06	03/29/06
NICKEL, TOTAL	004	W	06L0165	03/03/06	03/15/06	03/29/06
ANTIMONY, TOTAL	004	W	06L0165	03/03/06	03/15/06	03/29/06
VANADIUM, TOTAL	004	W	06L0165	03/03/06	03/15/06	03/29/06
ZINC, TOTAL	004	W	06L0165	03/03/06	03/15/06	03/29/06
B1HRJ7						
SILVER, SOLUBLE	005	W	06L0165	03/03/06	03/15/06	03/29/06
ALUMINUM, SOLUBLE	005	W	06L0165	03/03/06	03/15/06	03/29/06
BARIUM, SOLUBLE	005	W	06L0165	03/03/06	03/15/06	03/29/06
BERYLLIUM, SOLUBLE	005	W	06L0165	03/03/06	03/15/06	03/29/06
CALCIUM, SOLUBLE	005	W	06L0165	03/03/06	03/15/06	03/29/06
CADMIUM, SOLUBLE	005	W	06L0165	03/03/06	03/15/06	03/29/06
COBALT, SOLUBLE	005	W	06L0165	03/03/06	03/15/06	03/29/06
CHROMIUM, SOLUBLE	005	W	06L0165	03/03/06	03/15/06	03/29/06
COPPER, SOLUBLE	005	W	06L0165	03/03/06	03/15/06	03/29/06
IRON, SOLUBLE	005	W	06L0165	03/03/06	03/15/06	03/29/06
POTASSIUM, SOLUBLE	005	W	06L0165	03/03/06	03/15/06	03/29/06
MAGNESIUM, SOLUBLE	005	W	06L0165	03/03/06	03/15/06	03/29/06
MANGANESE, SOLUBLE	005	W	06L0165	03/03/06	03/15/06	03/29/06
SODIUM, SOLUBLE	005	W	06L0165	03/03/06	03/15/06	03/29/06
NICKEL, SOLUBLE	005	W	06L0165	03/03/06	03/15/06	03/29/06
ANTIMONY, SOLUBLE	005	W	06L0165	03/03/06	03/15/06	03/29/06
VANADIUM, SOLUBLE	005	W	06L0165	03/03/06	03/15/06	03/29/06
ZINC, SOLUBLE	005	W	06L0165	03/03/06	03/15/06	03/29/06
B1HRJ8						
SILVER, TOTAL	006	W	06L0165	03/03/06	03/15/06	03/29/06
ALUMINUM, TOTAL	006	W	06L0165	03/03/06	03/15/06	03/29/06
BARIUM, TOTAL	006	W	06L0165	03/03/06	03/15/06	03/29/06
BERYLLIUM, TOTAL	006	W	06L0165	03/03/06	03/15/06	03/29/06
CALCIUM, TOTAL	006	W	06L0165	03/03/06	03/15/06	03/29/06
CADMIUM, TOTAL	006	W	06L0165	03/03/06	03/15/06	03/29/06
COBALT, TOTAL	006	W	06L0165	03/03/06	03/15/06	03/29/06
CHROMIUM, TOTAL	006	W	06L0165	03/03/06	03/15/06	03/29/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-008 K0254

DATE RECEIVED: 03/04/06 LVL LOT # :0603L422

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER, TOTAL	006	W	06L0165	03/03/06	03/15/06	03/29/06
IRON, TOTAL	006	W	06L0165	03/03/06	03/15/06	03/29/06
POTASSIUM, TOTAL	006	W	06L0165	03/03/06	03/15/06	03/29/06
MAGNESIUM, TOTAL	006	W	06L0165	03/03/06	03/15/06	03/29/06
MANGANESE, TOTAL	006	W	06L0165	03/03/06	03/15/06	03/29/06
SODIUM, TOTAL	006	W	06L0165	03/03/06	03/15/06	03/29/06
NICKEL, TOTAL	006	W	06L0165	03/03/06	03/15/06	03/29/06
ANTIMONY, TOTAL	006	W	06L0165	03/03/06	03/15/06	03/29/06
VANADIUM, TOTAL	006	W	06L0165	03/03/06	03/15/06	03/29/06
ZINC, TOTAL	006	W	06L0165	03/03/06	03/15/06	03/29/06

LAB QC:

SILVER LABORATORY	LC1 BS	W	06L0165	N/A	03/15/06	03/29/06
SILVER, TOTAL	MB1	W	06L0165	N/A	03/15/06	03/29/06
ALUMINUM LABORTORY	LC1 BS	W	06L0165	N/A	03/15/06	03/29/06
ALUMINUM, TOTAL	MB1	W	06L0165	N/A	03/15/06	03/29/06
BARIUM LABORATORY	LC1 BS	W	06L0165	N/A	03/15/06	03/29/06
BARIUM, TOTAL	MB1	W	06L0165	N/A	03/15/06	03/29/06
BERYLLIUM LABORATORY	LC1 BS	W	06L0165	N/A	03/15/06	03/29/06
BERYLLIUM, TOTAL	MB1	W	06L0165	N/A	03/15/06	03/29/06
CALCIUM LABORATORY	LC1 BS	W	06L0165	N/A	03/15/06	03/29/06
CALCIUM, TOTAL	MB1	W	06L0165	N/A	03/15/06	03/29/06
CADMIUM LABORATORY	LC1 BS	W	06L0165	N/A	03/15/06	03/29/06
CADMIUM, TOTAL	MB1	W	06L0165	N/A	03/15/06	03/29/06
COBALT LABORATORY	LC1 BS	W	06L0165	N/A	03/15/06	03/29/06
COBALT, TOTAL	MB1	W	06L0165	N/A	03/15/06	03/29/06
CHROMIUM LABORATORY	LC1 BS	W	06L0165	N/A	03/15/06	03/29/06
CHROMIUM, TOTAL	MB1	W	06L0165	N/A	03/15/06	03/29/06
COPPER LABORATORY	LC1 BS	W	06L0165	N/A	03/15/06	03/29/06
COPPER, TOTAL	MB1	W	06L0165	N/A	03/15/06	03/29/06
IRON LABORATORY	LC1 BS	W	06L0165	N/A	03/15/06	03/29/06
IRON, TOTAL	MB1	W	06L0165	N/A	03/15/06	03/29/06
POTASSIUM LABORATORY	LC1 BS	W	06L0165	N/A	03/15/06	03/29/06
POTASSIUM, TOTAL	MB1	W	06L0165	N/A	03/15/06	03/29/06
MAGNESIUM LABORATORY	LC1 BS	W	06L0165	N/A	03/15/06	03/29/06
MAGNESIUM, TOTAL	MB1	W	06L0165	N/A	03/15/06	03/29/06
MANGANESE LABORATORY	LC1 BS	W	06L0165	N/A	03/15/06	03/29/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-008 K0254

DATE RECEIVED: 03/04/06 LVL LOT # :0603L422

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MANGANESE, TOTAL	MB1	W	06L0165	N/A	03/15/06	03/29/06
SODIUM LABORATORY	LC1 BS	W	06L0165	N/A	03/15/06	03/29/06
SODIUM, TOTAL	MB1	W	06L0165	N/A	03/15/06	03/29/06
NICKEL LABORATORY	LC1 BS	W	06L0165	N/A	03/15/06	03/29/06
NICKEL, TOTAL	MB1	W	06L0165	N/A	03/15/06	03/29/06
ANTIMONY LABORATORY	LC1 BS	W	06L0165	N/A	03/15/06	03/29/06
ANTIMONY, TOTAL	MB1	W	06L0165	N/A	03/15/06	03/29/06
VANADIUM LABORATORY	LC1 BS	W	06L0165	N/A	03/15/06	03/29/06
VANADIUM, TOTAL	MB1	W	06L0165	N/A	03/15/06	03/29/06
ZINC LABORATORY	LC1 BS	W	06L0165	N/A	03/15/06	03/29/06
ZINC, TOTAL	MB1	W	06L0165	N/A	03/15/06	03/29/06

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-008
LVL#: 0603L422
SDG/SAF#: K0254/RC-008

W.O.#: 11343-606-001-9999-00
Date Received: 03-04-06

METALS CASE NARRATIVE

1. This narrative covers the analyses of 6 water samples.

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

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

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

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

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

7. The preparation/method blank for 1 analyte was outside 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.

   a). The MB result for Zinc was greater than the Practical Quantitation Limit (PQL) {3 x the (IDL) Instrument Detection Level} and all samples read less than 20 times the MB concentration. However, no corrective action criteria for MBs were provided in SW846 method 6010B. The sample results were reported herein "uncorrected" for the levels found in the MB.

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

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

10. All matrix spike (MS) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy Report.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 22 pages.

11. The duplicate analyses for 2 analytes were 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.

for Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

4/10/06
Date

jjw/m03-422

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#: 0603L422

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

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

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	X6010B		__200.7				__99
Antimony	X6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	__6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	X6010B		__200.7				__99
Beryllium	X6010B		__200.7				__99
Bismuth	__6010B [1]		__200.7 [1]			__1620	__99
Boron	__6010B		__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	__6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	__6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	X6010B		__200.7				__99
Manganese	X6010B		__200.7				__99
Mercury	__7470A [3]	__7471A [3]	__245.1 [3]	__245.5 [3]			__99
Molybdenum	__6010B		__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	__6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	__6010B [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	__6010B		__200.7				__99
Thallium	__6010B	__7841 [5]	__200.7	__279.2__200.9			__99
Tin	__6010B		__200.7				__99
Titanium	__6010B		__200.7				__99
Uranium	__6010B [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:_____ Method:_____

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

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

3. Flame AA.

4. Graphite Furnace AA.

L-WI-033/N-04/98

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/07/06

CLIENT: TNUHANFORD RC-008 K0254 LVL LOT #: 0603L422

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B1HRF4	Silver, Soluble	5.6	u	UG/L	5.6	1.0
		Aluminum, Soluble	23.6	u	UG/L	23.6	1.0
		Barium, Soluble	35.4		UG/L	3.0	1.0
		Beryllium, Soluble	0.20	u	UG/L	0.20	1.0
		Calcium, Soluble	38200		UG/L	21.9	1.0
		Cadmium, Soluble	4.2	u	UG/L	4.2	1.0
		Cobalt, Soluble	5.5	u	UG/L	5.5	1.0
		Chromium, Soluble	14.6		UG/L	6.4	1.0
		Copper, Soluble	2.2	u	UG/L	2.2	1.0
		Iron, Soluble	11.7		UG/L	5.4	1.0
		Potassium, Soluble	4510		UG/L	771	1.0
		Magnesium, Soluble	11200		UG/L	39.1	1.0
		Manganese, Soluble	3.2	u	UG/L	3.2	1.0
		Sodium, Soluble	18000		UG/L	25.1	1.0
		Nickel, Soluble	8.9	u	UG/L	8.9	1.0
		Antimony, Soluble	31.6	u	UG/L	31.6	1.0
		Vanadium, Soluble	25.3		UG/L	3.1	1.0
		Zinc, Soluble	9.0		UG/L	1.6	1.0
-002	B1HRF5	Silver, Total	5.6	u	UG/L	5.6	1.0
		Aluminum, Total	29.3		UG/L	23.6	1.0
		Barium, Total	38.6		UG/L	3.0	1.0
		Beryllium, Total	0.20	u	UG/L	0.20	1.0
		Calcium, Total	40900		UG/L	21.9	1.0
		Cadmium, Total	4.2	u	UG/L	4.2	1.0
		Cobalt, Total	5.5	u	UG/L	5.5	1.0
		Chromium, Total	15.1		UG/L	6.4	1.0
		Copper, Total	2.2	u	UG/L	2.2	1.0
		Iron, Total	102		UG/L	5.4	1.0
		Potassium, Total	5000		UG/L	771	1.0
		Magnesium, Total	12200		UG/L	39.1	1.0
		Manganese, Total	4.2		UG/L	3.2	1.0
		Sodium, Total	19900		UG/L	25.1	1.0
		Nickel, Total	8.9	u	UG/L	8.9	1.0
		Antimony, Total	31.6	u	UG/L	31.6	1.0
		Vanadium, Total	25.7		UG/L	3.1	1.0
		Zinc, Total	8.6		UG/L	1.6	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/07/06

CLIENT: TNUHANFORD RC-008 K0254 LVL LOT #: 0603L422

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B1HRF7	Silver, Soluble	5.6	u	UG/L	5.6	1.0
		Aluminum, Soluble	23.6	u	UG/L	23.6	1.0
		Barium, Soluble	38.1		UG/L	3.0	1.0
		Beryllium, Soluble	0.20	u	UG/L	0.20	1.0
		Calcium, Soluble	40400		UG/L	21.9	1.0
		Cadmium, Soluble	4.2	u	UG/L	4.2	1.0
		Cobalt, Soluble	5.5	u	UG/L	5.5	1.0
		Chromium, Soluble	15.8		UG/L	6.4	1.0
		Copper, Soluble	2.2	u	UG/L	2.2	1.0
		Iron, Soluble	5.8		UG/L	5.4	1.0
		Potassium, Soluble	5010		UG/L	771	1.0
		Magnesium, Soluble	12000		UG/L	39.1	1.0
		Manganese, Soluble	3.2	u	UG/L	3.2	1.0
		Sodium, Soluble	19600		UG/L	25.1	1.0
		Nickel, Soluble	8.9	u	UG/L	8.9	1.0
		Antimony, Soluble	31.6	u	UG/L	31.6	1.0
		Vanadium, Soluble	27.1		UG/L	3.1	1.0
		Zinc, Soluble	15.9		UG/L	1.6	1.0
-004	B1HRF8	Silver, Total	5.6	u	UG/L	5.6	1.0
		Aluminum, Total	23.6	u	UG/L	23.6	1.0
		Barium, Total	39.2		UG/L	3.0	1.0
		Beryllium, Total	0.20	u	UG/L	0.20	1.0
		Calcium, Total	42400		UG/L	21.9	1.0
		Cadmium, Total	4.2	u	UG/L	4.2	1.0
		Cobalt, Total	5.5	u	UG/L	5.5	1.0
		Chromium, Total	18.2		UG/L	6.4	1.0
		Copper, Total	2.2	u	UG/L	2.2	1.0
		Iron, Total	115		UG/L	5.4	1.0
		Potassium, Total	5070		UG/L	771	1.0
		Magnesium, Total	12500		UG/L	39.1	1.0
		Manganese, Total	4.9		UG/L	3.2	1.0
		Sodium, Total	20100		UG/L	25.1	1.0
		Nickel, Total	8.9	u	UG/L	8.9	1.0
		Antimony, Total	31.6	u	UG/L	31.6	1.0
		Vanadium, Total	27.1		UG/L	3.1	1.0
		Zinc, Total	9.9		UG/L	1.6	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/07/06

CLIENT: TNUHANFORD RC-008 K0254 LVL LOT #: 0603L422

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	B1HRJ7	Silver, Soluble	5.6	u	UG/L	5.6	1.0
		Aluminum, Soluble	23.6	u	UG/L	23.6	1.0
		Barium, Soluble	64.5		UG/L	3.0	1.0
		Beryllium, Soluble	0.20	u	UG/L	0.20	1.0
		Calcium, Soluble	58700		UG/L	21.9	1.0
		Cadmium, Soluble	4.2	u	UG/L	4.2	1.0
		Cobalt, Soluble	5.5	u	UG/L	5.5	1.0
		Chromium, Soluble	6.4	u	UG/L	6.4	1.0
		Copper, Soluble	2.2	u	UG/L	2.2	1.0
		Iron, Soluble	19.7		UG/L	5.4	1.0
		Potassium, Soluble	5620		UG/L	771	1.0
		Magnesium, Soluble	19100		UG/L	39.1	1.0
		Manganese, Soluble	3.2	u	UG/L	3.2	1.0
		Sodium, Soluble	20000		UG/L	25.1	1.0
		Nickel, Soluble	9.2		UG/L	8.9	1.0
		Antimony, Soluble	31.6	u	UG/L	31.6	1.0
		Vanadium, Soluble	22.9		UG/L	3.1	1.0
		Zinc, Soluble	12.4		UG/L	1.6	1.0
-006	B1HRJ8	Silver, Total	5.6	u	UG/L	5.6	1.0
		Aluminum, Total	60.6		UG/L	23.6	1.0
		Barium, Total	64.5		UG/L	3.0	1.0
		Beryllium, Total	0.20	u	UG/L	0.20	1.0
		Calcium, Total	59700		UG/L	21.9	1.0
		Cadmium, Total	4.2	u	UG/L	4.2	1.0
		Cobalt, Total	5.5	u	UG/L	5.5	1.0
		Chromium, Total	17.9		UG/L	6.4	1.0
		Copper, Total	2.2	u	UG/L	2.2	1.0
		Iron, Total	458		UG/L	5.4	1.0
		Potassium, Total	5540		UG/L	771	1.0
		Magnesium, Total	19500		UG/L	39.1	1.0
		Manganese, Total	4.6		UG/L	3.2	1.0
		Sodium, Total	20500		UG/L	25.1	1.0
		Nickel, Total	8.9	u	UG/L	8.9	1.0
		Antimony, Total	31.6	u	UG/L	31.6	1.0
		Vanadium, Total	26.5		UG/L	3.1	1.0
		Zinc, Total	59.4		UG/L	1.6	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/07/06

CLIENT: TNUHANFORD RC-008 K0254 LVL LOT #: 0603L422

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	06L0165-MB1	Silver, Total	5.6	u	UG/L	5.6	1.0
		Aluminum, Total	23.6	u	UG/L	23.6	1.0
		Barium, Total	3.0	u	UG/L	3.0	1.0
		Beryllium, Total	0.20	u	UG/L	0.20	1.0
		Calcium, Total	22.4		UG/L	21.9	1.0
		Cadmium, Total	4.2	u	UG/L	4.2	1.0
		Cobalt, Total	5.5	u	UG/L	5.5	1.0
		Chromium, Total	6.4	u	UG/L	6.4	1.0
		Copper, Total	2.2	u	UG/L	2.2	1.0
		Iron, Total	5.4	u	UG/L	5.4	1.0
		Potassium, Total	771	u	UG/L	771	1.0
		Magnesium, Total	39.1	u	UG/L	39.1	1.0
		Manganese, Total	3.2	u	UG/L	3.2	1.0
		Sodium, Total	25.1	u	UG/L	25.1	1.0
		Nickel, Total	8.9	u	UG/L	8.9	1.0
		Antimony, Total	31.6	u	UG/L	31.6	1.0
		Vanadium, Total	3.1	u	UG/L	3.1	1.0
		Zinc, Total	13.7		UG/L	1.6	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 04/07/06

CLIENT: TNUHANFORD RC-008 K0254

LVL LOT #: 0603L422

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B1HRF4	Silver, Soluble	51.3	5.6 u	50.0	102.6	1.0
		Aluminum, Soluble	2010	23.6 u	2000	100.4	1.0
		Barium, Soluble	1970	35.4	2000	96.5	1.0
		Beryllium, Soluble	48.1	0.20u	50.0	96.2	1.0
		Calcium, Soluble	65200	38200	25000	107.8	1.0
		Cadmium, Soluble	48.8	4.2 u	50.0	97.6	1.0
		Cobalt, Soluble	490	5.5 u	500	97.9	1.0
		Chromium, Soluble	214	14.6	200	99.5	1.0
		Copper, Soluble	248	2.2 u	250	99.0	1.0
		Iron, Soluble	987	11.7	1000	97.5	1.0
		Potassium, Soluble	29200	4510	25000	98.9	1.0
		Magnesium, Soluble	36700	11200	25000	102.0	1.0
		Manganese, Soluble	482	3.2 u	500	96.3	1.0
		Sodium, Soluble	44400	18000	25000	105.5	1.0
		Nickel, Soluble	490	8.9 u	500	98.0	1.0
		Antimony, Soluble	478	31.6 u	500	95.6	1.0
		Vanadium, Soluble	489	25.3	500	92.7	1.0
		Zinc, Soluble	489	9.0	500	95.9	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 04/07/06

CLIENT: TNUHANFORD RC-008 K0254 LVL LOT #: 0603L422

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B1HRF4	Silver, Soluble	5.6 u	5.6 u	NC	1.0
		Aluminum, Soluble	23.6 u	23.6 u	NC	1.0
		Barium, Soluble	35.4	38.7	8.9	1.0
		Beryllium, Soluble	0.20u	0.20u	NC	1.0
		Calcium, Soluble	38200	41300	7.8	1.0
		Cadmium, Soluble	4.2 u	4.2 u	NC	1.0
		Cobalt, Soluble	5.5 u	5.5 u	NC	1.0
		Chromium, Soluble	14.6	14.9	2.0	1.0
		Copper, Soluble	2.2 u	2.2 u	NC	1.0
		Iron, Soluble	11.7	6.2	61.5	1.0
		Potassium, Soluble	4510	4900	8.1	1.0
		Magnesium, Soluble	11200	12400	9.4	1.0
		Manganese, Soluble	3.2 u	3.2 u	NC	1.0
		Sodium, Soluble	18000	20200	11.3	1.0
		Nickel, Soluble	8.9 u	8.9 u	NC	1.0
		Antimony, Soluble	31.6 u	31.6 u	NC	1.0
		Vanadium, Soluble	25.3	27.7	9.1	1.0
		Zinc, Soluble	9.0	6.2	36.8	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 04/07/06

CLIENT: TNUHANFORD RC-008 K0254 LVL LOT #: 0603L422

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	06L0165-LC1	Silver, LCS	486	500	UG/L	97.2
		Aluminum, LCS	5060	5000	UG/L	101.2
		Barium, LCS	4890	5000	UG/L	97.7
		Beryllium, LCS	239	250	UG/L	95.6
		Calcium, LCS	24500	25000	UG/L	98.0
		Cadmium, LCS	244	250	UG/L	97.6
		Cobalt, LCS	2470	2500	UG/L	98.8
		Chromium, LCS	485	500	UG/L	96.9
		Copper, LCS	1240	1250	UG/L	98.9
		Iron, LCS	4920	5000	UG/L	98.5
		Potassium, LCS	24200	25000	UG/L	96.8
		Magnesium, LCS	24600	25000	UG/L	98.6
		Manganese, LCS	727	750	UG/L	97.0
		Sodium, LCS	24700	25000	UG/L	98.7
		Nickel, LCS	1950	2000	UG/L	97.4
		Antimony, LCS	2830	3000	UG/L	94.5
		Vanadium, LCS	2340	2500	UG/L	93.6
		Zinc, LCS	993	1000	UG/L	99.3

Lionville Laboratory Use Only

06031422

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

See SRC

Client TNA-HANFORD SAFE RC008

Est. Final Proj. Sampling Date

Project # 11343-606-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager OJ

QC Spec Del Std TAT 30DAYA

Date Rec'd 3/4/06 Date Due 4/3/06

		A					D		E		F	G	H	I	
Refrigerator #		1					1		2		2	2	2	2	
#/Type Container	Liquid	G					G	1	P		P	P	P	P	
	Solid														
Volume	Liquid	40					C	1	500		500	500	250	500	
	Solid														
Preservatives		HCl					H2SO4	1	HNO3		H2O2	—	—	H2SO4	
ANALYSES REQUESTED →		ORGANIC							INORG						
		VOA	BNA	Pest/PCB	Herb		TOX		Metal	CN	IC Anions	TDS	ALK	NO2 NO3	

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	002444					ITOX	METALS(1) SOLUBLE	METALS(1) TOTAL	IC(1)	ITDS	IALKL	IN3N2	
001	B1HRF4 (F)			W	3-3-06	0934							1	✓ JP 3/4 NCNL					
002	F5					↓	3					1		1	1	1	1	1	
003	F7 (F)					0934							1	✓ JP 3/4 NCNL					
004	F8					↓	3					1		1	1	1	1	1	
005	J7 (F)					1158							1	✓ JP 3/4 NCNL					
006	J8					↓	3					1		1	1	1	1	1	
007	B1HV49					0800	3												

Special Instructions:

METALS(1) = Al, Ag, Ba, Be, Cd, Ca, Co, Cr, Cu, Fe, K, Mg, Mn, Na, Ni, Sb, V, Zn

IC(1) = IC - Cl, Br, Fl, NO3, NO2, PO4, SO4

RUN MATRIX QC

DATE/REVISIONS:

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

Relinquished by	Received by	Date	Time
FedEx	[signature]	3/4/06	1000

Relinquished by	Received by	Date	Time

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

0000000018

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-008-3

Collector DURATEK ~~D.E. PARCHEN~~	Contact/Requester J Kessner	Telephone No. 509-375-4688 MSIN FAX
SAF No. RC-008	Sampling Origin Hanford Site	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	DTS-SHW3-H104	Ice Chest No. SAND-335 Temp.
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No. 7926 7630 4049
Protocol GPP	Priority: 45 Days	Offsite Property No. 16483

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1HRF4 (F)		W	3-3-06	0934	1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2
B1HRF5		W			3x40-mL aGs*	VOA - 8260B (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B1HRF5		W			1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2
B1HRF5		W			1x500-mL P 2 3-3-06	IC Anions - 300.0	Cool 4C
B1HRF5		W			1x~~200~~-mL G/P 250	Alkalinity - 310.1	Cool 4C
B1HRF5		W			1x~~800~~-mL G/P 500 2 3-3-06	NO2/NO3 - 353.2	H2SO4 to pH <2 Cool 4C
B1HRF5		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B1HRF5		W			1x~~500~~-mL aGs* 1000 2 3-3-06	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
DURATEK ~~D.E. PARCHEN~~			1400 3-3-06 MAR 04 2006	Fed Ex			
Relinquished By			Date/Time 3-4-06 1000	Received By		3-4-06	Date/Time 1000
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # RC-008-4

Collector DURATEK ~~D.E. PARCHEN~~	Contact/Requester J Kessner	Telephone No. 509-375-4688 MSIN FAX
SAF No. RC-008	Sampling Origin Hanford Site	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	DTS 5A00-H104	Ice Chest No. 5A00S-335 Temp.
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No. 7926 7670 4449
Protocol GPP	Priority: 45 Days	Offsite Property No. 16483

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1HRF7 (F)		W	3-3-06	0994	1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2
B1HRF8		W	3-3-06		3x40-mL aGs*	VOA - 8260B (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B1HRF8		W			1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2
B1HRF8		W			1x500-mL P 03-3-06	IC Anions - 300.0	Cool 4C
B1HRF8		W			1x~~200~~-mL G/P 250	Alkalinity - 310.1	Cool 4C
B1HRF8		W			1x~~500~~-mL G/P 500 03-3-06	NO2/NO3 - 353.2	H2SO4 to pH <2 Cool 4C
B1HRF8		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B1HRF8		W			1x~~500~~-mL aGs* 1000 03-3-06	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
~~DURATEK~~ D.E. PARCHEN			MAR 04 2006 3-3-06 1400	Fed Ex			
Relinquished By Fed Ex			3/4/06 1000	Received By			3-4-06 1000
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-008-22

Collector DURATEK D. E. PARCHEN	Contact/Requester J Kessner	Telephone No. 509-375-4688 MSIN FAX
SAF No. RC-008	Sampling Origin Hanford Site 03-3-06	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	DTS-002-SAMJ-H109	Ice Chest No. SHWS-335 Temp. 57
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No. 7926 7630 4049
Protocol GPP	Priority: 45 Days	Offsite Property No. 16953

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1HV49		W	3-3-06	0900	3x40-mL aGs*	VOA - 8260B (TCL)	HCl or H2SO4 to pH <2 Cool 4C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
DURATEK D. E. PARCHEN			1400 MAR 03 2006	Fed Ex			
Relinquished By			Date/Time	Received By			Date/Time
Fed Ex			3-4-06 1000				3-4-06 1000
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

FINAL SAMPLE DISPOSITION | Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time

120000000

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: THE HANFORD

Date: 3-4-06

Purchase Order / Project# / SAF# / SOW# / Release #: RC-008

LvLI Batch # : 0603L422

Sample Custodian: V. Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier FedEx		Airbill# 7926 7630 4049	
2.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ No Seals	Comments
3.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No		
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No		
5.	Samples received cooled or ambient?	Temp 3.1	°C	Cooler # SAWS-335	
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	#005 006 Samples no COC.	
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 Air Bubble	
14.	QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A	
15.	Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)	☐ Yes	☑ No		
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☑ Yes	☐ No	☐ No Discrepancies	

SR-002-B

LvLI LIONVILLE LABORATORY INC.

RECEIVED
APR 2006

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-008 K0254

DATE RECEIVED: 03/04/06 LVL LOT # :0603L422

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	ANALYSIS TIME
B1HRF5							
ALKALINITY	002	W	06LAK018	03/03/06	03/17/06	03/17/06	
BROMIDE BY IC	002	W	06LICB27	03/03/06	03/07/06	03/08/06	
CHLORIDE BY IC	002	W	06LICC29	03/03/06	03/09/06	03/10/06	
CHLORIDE BY IC	002 REP	W	06LICC29	03/03/06	03/09/06	03/10/06	
CHLORIDE BY IC	002 MS	W	06LICC29	03/03/06	03/09/06	03/10/06	
FLUORIDE BY IC	002	W	06LICB29	03/03/06	03/09/06	03/10/06	
FLUORIDE BY IC	002 REP	W	06LICB29	03/03/06	03/09/06	03/10/06	
FLUORIDE BY IC	002 MS	W	06LICB29	03/03/06	03/09/06	03/10/06	
NITRITE BY IC	002	W	06LICB27	03/03/06	03/07/06	03/08/06	1300
NITRATE BY IC	002	W	06LICB27	03/03/06	03/07/06	03/08/06	1110
PHOSPHATE BY IC	002	W	06LICB27	03/03/06	03/07/06	03/08/06	1200
SULFATE BY IC	002	W	06LICB27	03/03/06	03/07/06	03/08/06	
NITRATE NITRITE	002	W	06LN3018	03/03/06	03/23/06	03/23/06	
TOTAL DISSOLVED SOLI	002	W	06LSSA24	03/03/06	03/07/06	03/07/06	
TOTAL ORGANIC HALIDE	002	W	06LX002	03/03/06	03/13/06	03/14/06	
B1HRF8							
ALKALINITY	004	W	06LAK018	03/03/06	03/17/06	03/17/06	
BROMIDE BY IC	004	W	06LICB27	03/03/06	03/07/06	03/08/06	
CHLORIDE BY IC	004	W	06LICC29	03/03/06	03/09/06	03/10/06	
FLUORIDE BY IC	004	W	06LICB29	03/03/06	03/09/06	03/10/06	
NITRITE BY IC	004	W	06LICB27	03/03/06	03/07/06	03/08/06	1217
NITRATE BY IC	004	W	06LICB27	03/03/06	03/07/06	03/08/06	1127
PHOSPHATE BY IC	004	W	06LICB27	03/03/06	03/07/06	03/08/06	1217
SULFATE BY IC	004	W	06LICB27	03/03/06	03/07/06	03/08/06	
NITRATE NITRITE	004	W	06LN3018	03/03/06	03/23/06	03/23/06	
TOTAL DISSOLVED SOLI	004	W	06LSSA24	03/03/06	03/07/06	03/07/06	
TOTAL ORGANIC HALIDE	004	W	06LX002	03/03/06	03/13/06	03/14/06	
B1HRJ8							
ALKALINITY	006	W	06LAK018	03/03/06	03/17/06	03/17/06	
BROMIDE BY IC	006	W	06LICB27	03/03/06	03/07/06	03/08/06	
CHLORIDE BY IC	006	W	06LICC29	03/03/06	03/09/06	03/10/06	

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-008 K0254

DATE RECEIVED: 03/04/06 LVL LOT # :0603L422

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	ANALYSIS TIME
FLUORIDE BY IC	006	W	06LICB29	03/03/06	03/09/06	03/10/06	
NITRITE BY IC	006	W	06LICB27	03/03/06	03/07/06	03/08/06	1307
NITRATE BY IC	006	W	06LICE29	03/03/06	03/09/06	03/10/06	0924
PHOSPHATE BY IC	006	W	06LICB27	03/03/06	03/07/06	03/08/06	1307
SULFATE BY IC	006	W	06LICB27	03/03/06	03/07/06	03/08/06	
NITRATE NITRITE	006	W	06LN3018	03/03/06	03/23/06	03/23/06	
NITRATE NITRITE	006 REP	W	06LN3018	03/03/06	03/23/06	03/23/06	
NITRATE NITRITE	006 MS	W	06LN3018	03/03/06	03/23/06	03/23/06	
TOTAL DISSOLVED SOLI	006	W	06LSSA24	03/03/06	03/07/06	03/07/06	
TOTAL ORGANIC HALIDE	006	W	06LX002	03/03/06	03/13/06	03/14/06	
TOTAL ORGANIC HALIDE	006 REP	W	06LX002	03/03/06	03/13/06	03/14/06	
TOTAL ORGANIC HALIDE	006 MS	W	06LX002	03/03/06	03/13/06	03/14/06	

LAB QC:

ALKALINITY	MB1	W	06LAK018	N/A	03/17/06	03/17/06
ALKALINITY	MB1 BS	W	06LAK018	N/A	03/17/06	03/17/06
ALKALINITY	MB1 BSD	W	06LAK018	N/A	03/17/06	03/17/06
BROMIDE BY IC	MB1	W	06LICB27	N/A	03/07/06	03/07/06
BROMIDE BY IC	MB1 BS	W	06LICB27	N/A	03/07/06	03/07/06
CHLORIDE BY IC	MB1	W	06LICC29	N/A	03/09/06	03/09/06
CHLORIDE BY IC	MB1 BS	W	06LICC29	N/A	03/09/06	03/09/06
FLUORIDE BY IC	MB1	W	06LICB29	N/A	03/09/06	03/09/06
FLUORIDE BY IC	MB1 BS	W	06LICB29	N/A	03/09/06	03/09/06
NITRITE BY IC	MB1	W	06LICB27	N/A	03/07/06	03/07/06
NITRITE BY IC	MB1 BS	W	06LICB27	N/A	03/07/06	03/07/06
NITRATE BY IC	MB1	W	06LICB27	N/A	03/07/06	03/07/06
NITRATE BY IC	MB1 BS	W	06LICB27	N/A	03/07/06	03/07/06
PHOSPHATE BY IC	MB1	W	06LICB27	N/A	03/07/06	03/07/06
PHOSPHATE BY IC	MB1 BS	W	06LICB27	N/A	03/07/06	03/07/06
SULFATE BY IC	MB1	W	06LICB27	N/A	03/07/06	03/07/06
SULFATE BY IC	MB1 BS	W	06LICB27	N/A	03/07/06	03/07/06
NITRATE NITRITE	MB1	W	06LN3018	N/A	03/23/06	03/23/06
NITRATE NITRITE	MB1 BS	W	06LN3018	N/A	03/23/06	03/23/06
TOTAL DISSOLVED SOLI	MB1	W	06LSSA24	N/A	03/07/06	03/07/06
TOTAL DISSOLVED SOLI	MB1 BS	W	06LSSA24	N/A	03/07/06	03/07/06
TOTAL DISSOLVED SOLI	MB1 BSD	W	06LSSA24	N/A	03/07/06	03/07/06
TOTAL ORGANIC HALIDE	MB1	W	06LX002	N/A	03/13/06	03/13/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-008 K0254

DATE RECEIVED: 03/04/06 LVL LOT # :0603L422

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
TOTAL ORGANIC HALIDE	MB1 BS	W	06LX002	N/A	03/13/06	03/13/06
NITRATE BY IC	MB1	W	06LICE29	N/A	03/09/06	03/09/06
NITRATE BY IC	MB1 BS	W	06LICE29	N/A	03/09/06	03/09/06

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-008 K0254
LVL#: 0603L422

W.O.#: 11343-606-001-9999-00
Date Received: 03-04-06

INORGANIC NARRATIVE

1. This narrative covers the analyses of 3 water samples.

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

   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 with the exception of Nitrite, Nitrate and Phosphate (see the sample chronology summary for analyses times for short hold samples).

4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy with the exception of Total Organic Halides (TOX) as noted on the Sample Receipt Checklist.

5. The method blanks were within the method criteria with the exception of MB 06LX002-MB1 for TOX that above the reporting limit of 5.2 ug/L at 7.5 ug/L.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS for Alkalinity and Total Dissolved Solids (TDS) were within the 20% Relative Percent Difference (RPD) control limit.

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

8. The replicate analyses for Chloride, Fluoride, Nitrate Nitrite and TOX were within the 20% RPD control limit.

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 17 pages.

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

9. Matrix quality control analyses for Bromide, Nitrite, Nitrate, Phosphate and Sulfate were not reported due to the necessity of multiple re-analyses due to poor calibrations and continuing calibration verification samples and the subsequent depletion of the sample volume. Replicate analysis for Alkalinity was not performed due to insufficient sample volume.

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

4/12/06
Date

njp\i03-422

LVLI
LIONVILLE LABORATORY INC.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR WATER SAMPLE ANALYSIS

	EPA /600	SW846	OTHER
Acidity	✓ 305.1		
✓ Alkalinity ___ Bicarbonate ___ Carbonate	✓ 310.1		
BOD	___ 405.1		___ 5210B (b)
Ion Chromatography:			
✓ Bromide ✓ Chloride ✓ Fluoride	✓ 300.0	___ 9056	
✓ Nitrate ✓ Nitrite ✓ Phosphate	✓ 300.0	___ 9056	
✓ Sulfate ___ Formate ___ Acetate ___ Oxalate	✓ 300.0	___ 9056	
Chloride	___ 325.2	___ 9251	
Chorine, Residual	___ 330.5 (mod)		
Cyanide, Amenable to Chlorination	___ 335.2	___ 9010B	
Cyanide, Total	___ 335.2	___ 9010B ___ 9014	___ ILMO4.0 (e)
Cyanide, Weak Acid Dissociable		___	___ 412 (a) ___ 4500CN-I (b
COD	___ 410.4(mod)		___ 5220C (b)
Color	___ 110.2		
Corrosivity by Coupon		___ 1110(mod)	
Chromium VI		___ 7196A	___ 3500Cr-D (b)
Fluoride	___ 340.2		___ 4500-FC
Hardness, Calcium	___ 215.2		
Hardness, Total	___ 130.2		
Iodide			___ ASTM D19P202 (1)
Surfactant	✓ 425.1		
✓ Nitrate-Nitrite ___ Nitrate ___ Nitrite	✓ 353.2		
Ammonia	___ 350.3		
Total___ Kjeldahl ___ Organic Nitrogen	___ 351.3		
Total___ Organic ___ Inorganic Carbon	___ 415.1	___ 9060	
Oil & Grease	___ 413.1	___ 9070	
___ pH ___ pH; paper	___ 150.1	___ 9040B ___ 9041A	
Petroleum Hydrocarbons, Total Recoverable	___ 418.1		
Phenol	___ 420.1 ___ 420.2	___ 9065 ___ 9066	
___ Ortho ___ Total Phosphate	___ 365.2		___ 4500-P B ___ C
Salinity			___ 210A (a) ___ 2520 (b)
Settleable Solids	___ 160.5		
Sulfide	___ 376.1	___ 9030B/9034 (acid soluble)	
Reactive ___ Cyanide ___ Sulfide		___ Section 7.3 (___9014___9030B)	
Silica	___ 370.1		
Sulfite	___ 377.1		
Sulfate	___ 375.4	___ 9038	
Specific Conductance	___ 120.1	___ 9050A	
Specific Gravity			___ D5057-90 ___ 213E (a)
Synthetic Precipitation Leach		___ 1312	
Total ✓ Dissolved ___ Suspended ___ Solids	160 ✓.1	___.2 ___.3	
Total Organic Halides	___ 450.1	✓ 9020B	
Turbidity	___ 180.1		
Volatile Solids:			
___ Total ___ Dissolved ___ Suspended	___ 160.4		
Other:		Method:	

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 03/23/06

CLIENT: TNUHANFORD RC-008 K0254 LVL LOT #: 0603L422

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B1HRF5	Alkalinity	139	MG/L	1.0	1.0
		Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	13.2	MG/L	2.5	10.0
		Fluoride by IC	0.27	MG/L	0.25	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	20.8	MG/L	2.50	10.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	27.3	MG/L	2.5	10.0
		Nitrate Nitrite	4.6	MG/L	0.10	5.0
		Total Dissolved Solids	274	MG/L	5.00	1.0
		Total Organic Halides	5.2 u	UG/L	5.2	1.0
-004	B1HRF8	Alkalinity	139	MG/L	1.0	1.0
		Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	13.9	MG/L	1.2	5.0
		Fluoride by IC	0.30	MG/L	0.25	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	23.1	MG/L	2.50	10.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	27.4	MG/L	2.5	10.0
		Nitrate Nitrite	4.6	MG/L	0.10	5.0
		Total Dissolved Solids	269	MG/L	5.00	1.0
		Total Organic Halides	15.9	UG/L	5.2	1.0
-006	B1HRJ8	Alkalinity	128	MG/L	1.0	1.0
		Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	20.6	MG/L	5.0	20.0
		Fluoride by IC	0.26	MG/L	0.25	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	104	MG/L	5.00	20.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	30.9	MG/L	2.5	10.0
		Nitrate Nitrite	23.7	MG/L	0.50	25.0
		Total Dissolved Solids	391	MG/L	5.00	1.0
		Total Organic Halides	10.6	UG/L	5.2	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/23/06

CLIENT: TNUHANFORD RC-008 K0254 LVL LOT #: 0603L422
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	06LAK018-MB1	Alkalinity	0.50 u	MG/L	0.50	1.0
BLANK10	06LICB27-MB1	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	0.25 u	MG/L	0.25	1.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	0.25 u	MG/L	0.25	1.0
BLANK10	06LICC29-MB1	Chloride by IC	0.25 u	MG/L	0.25	1.0
BLANK10	06LICB29-MB1	Fluoride by IC	0.25 u	MG/L	0.25	1.0
BLANK10	06LN3018-MB1	Nitrate Nitrite	0.020u	MG/L	0.020	1.0
BLANK10	06LSSA24-MB1	Total Dissolved Solids	5.00 u	MG/L	5.00	1.0
BLANK1	06LX002-MB1	Total Organic Halides	7.5	UG/L	5.2	1.0
BLANK10	06LICE29-MB1	Nitrate by IC	0.25 u	MG/L	0.25	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 03/23/06

CLIENT: TNUHANFORD RC-008 K0254 LVL LOT #: 0603L422

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	B1HRF5	Chloride by IC	114	13.2	100	101.0	20.0
		Fluoride by IC	10.0	0.27	10.0	97.7	2.0
-006	B1HRJ8	Nitrate Nitrite	47.2	23.7	25.0	94.1	50.0
		Total Organic Halides	59.7	10.7	50.0	98.0	1.0
BLANK10	06LAK018-MB1	Alkalinity	102	0.50u	100	101.6	1.0
		Alkalinity MSD	102	0.50u	100	101.6	1.0
BLANK10	06LICB27-MB1	Bromide by IC	5.0	0.25u	5.0	100	1.0
		Nitrite by IC	5.12	0.25u	5.00	102.4	1.0
		Nitrate by IC	4.89	0.25u	5.00	97.8	1.0
		Phosphate by IC	5.3	0.25u	5.0	105.4	1.0
		Sulfate by IC	4.7	0.25u	5.0	94.7	1.0
BLANK10	06LICC29-MB1	Chloride by IC	4.6	0.25u	5.0	92.2	1.0
BLANK10	06LICB29-MB1	Fluoride by IC	4.9	0.25u	5.0	97.4	1.0
BLANK10	06LN3018-MB1	Nitrate Nitrite	0.50	0.02u	0.50	99.4	1.0
BLANK10	06LSSA24-MB1	Total Dissolved Solids	96.0	5.00u	100	96.0	1.0
		Total Dissolved Solids	97.0	5.00u	100	97.0	1.0
BLANK1	06LX002-MB1	Total Organic Halides	50.5	0.0	50.0	101.0	1.0
BLANK10	06LICE29-MB1	Nitrate by IC	4.78	0.25u	5.00	95.6	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 03/23/06

CLIENT: TNUHANFORD RC-008 K0254 LVL LOT #: 0603L422

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	06LAK018-MB1	Alkalinity	101.6	101.6	0.00
BLANK10	06LSSA24-MB1	Total Dissolved Solids	96.0	97.0	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 03/23/06

CLIENT: TNUHANFORD RC-008 K0254 LVL LOT #: 0603L422

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-002REP	B1HRF5	Chloride by IC	13.2	14.4	8.6	10.0
		Fluoride by IC	0.27	0.30	10.7	1.0
-006REP	B1HRJ8	Nitrate Nitrite	23.7	22.3	6.0	25.0
		Total Organic Halides	10.7	10.3	4.4	1.0

Lionville Laboratory Use Only

06036422

Custody Transfer Record/Lab Work Request

Page 1 of 1

See SRC

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client TNU-HANFORD SAFE-RC008

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 3/4/06 Date Due 4/3/06

		A-C					D		E		F	G	H	I	
Refrigerator #		1					1		2		2	2	2	2	
#/Type Container	Liquid	G					G	1	P		P	P	P	P	
	Solid														
Volume	Liquid	40					C	1	500		500	500	250	500	
	Solid														
Preservatives		HCl					H_2SO_4	1	HNO_3		H_2SO_4	—	—	H_2SO_4	
ANALYSES REQUESTED		ORGANIC							INORG						
		VOA	BNA	Pest/PCB	Herb		TOX		ICP Metal	CN	IC Anions	TDS	ALK	NO2 NO3	

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

Lionville Laboratory Use Only

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	06244					ITOX	METALS(1) SOLUBLE	METALS(1) TOTAL	IC(1)	ITDS	IALK	IN3N2	
001	B1HRF4(F)			W	3-3-06	0934							1	✓ JP 3/4/06					
002	F5					1	3					1		1	1	1	1	1	
003	F7 (F)					0934							1	✓ JP 3/4/06					
004	F8					1	3					1		1	1	1	1	1	
005	T7 (F)					1158							1	✓ JP 3/4/06					
006	T8					1	3					1		1	1	1	1	1	
007	B1HV49					0800	3												

Special Instructions:

RUN MATRIX QC

METALS(1) = Al, Ag, Ba, Be, Cd, Ca, Co, Cr, Cu, Fe, K, Mg, Mn, Na, Ni, Sb, V, Zn

IC(1) = IC - Cl, Br, Fl, NO_3, NO_2, PO_4, SO_4

DATE/REVISIONS:

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

Relinquished by	Received by	Date	Time
FedEx	[signature]	3/4/06	1000

Relinquished by	Received by	Date	Time

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

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # RC-008-3

Page 1 of 1

Collector DURATEK D.E. PARCHEN	Contact/Requester J Kessner	Telephone No. 509-375-4688 MSIN FAX
SAF No. RC-008	Sampling Origin Hanford Site	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	DTS-SAWS-H104	Ice Chest No. SAND-335 Temp.
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No. 7426 7630 4049
Protocol GPP	Priority: 45 Days	Offsite Property No. 16483

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1HRF4 (F)		W	3-3-06	0934	1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2
B1HRF5		W			3x40-mL aGs*	VOA - 8260B (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B1HRF5		W			1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2
B1HRF5		W			1x500-mL P @ 3-3-06	IC Anions - 300.0	Cool 4C
B1HRF5		W			1x~~200~~-mL G/P 250	Alkalinity - 310.1	Cool 4C
B1HRF5		W			1x~~600~~-mL G/P 500 @ 3-3-06	NO2/NO3 - 353.2	H2SO4 to pH <2 Cool 4C
B1HRF5		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B1HRF5		W			1x~~500~~-mL aGs* 1000 @ 3-3-06	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
DURATEK D.E. PARCHEN			1400 3-3-06 MAR 04 2006	Fed Ex			
Relinquished By			Date/Time 3-4-06 1000	Received By			Date/Time 3-4-06 1000
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # RC-008-4

Page 1 of 1

Collector DURATEK ~~D. E. PARCHEN~~	Contact/Requester J Kessner	Telephone No. 509-375-4688 MSIN FAX
SAF No. RC-008	Sampling Origin Hanford Site	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	DTS SAWS-H104	Ice Chest No. SAWS-335 Temp.
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No. 7926 7670 4049
Protocol GPP	Priority: 45 Days	Offsite Property No. 16983

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1HRF7 (F)		W	3-3-06	0934	1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2
B1HRF8		W	03-3-06		3x40-mL aGs*	VOA - 8260B (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B1HRF8		W			1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2
B1HRF8		W			1x500-mL P 03-3-06	IC Anions - 300.0	Cool 4C
B1HRF8		W			1x~~500~~-mL G/P 250	Alkalinity - 310.1	Cool 4C
B1HRF8		W			1x~~500~~-mL G/P 500 03-3-06	NO2/NO3 - 353.2	H2SO4 to pH <2 Cool 4C
B1HRF8		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B1HRF8		W			1x~~500~~-mL aGs* 1000 03-3-06	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
DURATEK D. E. PARCHEN			1400 03-3-06 MAR 04 2006	Fed Ex			
Relinquished By Fed Ex			3/4/06 1000	Received By			3-4-06 1000
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-008-22

Page 1 of 1

Collector DURATEK D. E. PARCHEN	Contact/Requester J Kessner	Telephone No. 509-375-4688 MSIN FAX
SAF No. RC-008	Sampling Origin Hanford Site 03-3-06	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	DTS-~~602~~ SAWS-H109	Ice Chest No. SAWS-335 Temp. 57
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No. 7926 7630 4049
Protocol GPP	Priority: 45 Days	Offsite Property No. 16283

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1HV49		W	3-3-06	0900	3x40-mL aG6*	VOA - 8260B (TCL)	HCl or H2SO4 to pH <2 Cool 4C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
DURATEK D. E. PARCHEN			1400 MAR 0 3 2006	Fed Ex			
Relinquished By Fed Ex			3-4-06 1000	Received By			3-4-06 1000
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: THE HANFORD

Date: 3-4-06

Purchase Order / Project# / SAF# / SOW# / Release #: RC-008

LvLI Batch # : 0603L422

Sample Custodian: V. Newman

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier FedEx	Airbill# 7926 7630 4049	
2.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ No Seals Comments
3.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No	
5.	Samples received cooled or ambient?	Temp 3.1 °C		Cooler # SAWS-335
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	#005 006 Samples no QC-
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 Air Bubble
14.	QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15.	Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)	☐ Yes	☑ No	
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☑ Yes	☐ No	☐ No Discrepancies

SR-002-B

LVLI LIONVILLE LABORATORY INC.