



1 June 2005



Joan Kessner
Bechtel-Hanford, Inc.
3190 Washington Way
MSIN H9-03
Richland, WA 99352

**Subject: Contract No. 630
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 #	0503L066 0503L080
SDG #	H3095
SAF #	B03-018
Date Received	3/24-25/05
# Samples	15
Matrix	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

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

Lionville Laboratory, Inc.
 VOA ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B03-018 H3100- H3095 5/5/05

DATE RECEIVED: 03/24/05

LVL LOT # :0503L066

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B1CCY4	002	W	05LVX047	03/23/05	N/A	03/28/05
B1CCY7	004	W	05LVX047	03/23/05	N/A	03/28/05
B1CD15	005	W	05LVX047	03/23/05	N/A	03/28/05
B1CD08	007	W	05LVX047	03/23/05	N/A	03/28/05
B1CD08	007 MS	W	05LVX047	03/23/05	N/A	03/28/05
B1CD08	007 MSD	W	05LVX047	03/23/05	N/A	03/28/05
B1CD05	009	W	05LVX047	03/23/05	N/A	03/28/05
B1CD14	011	W	05LVX047	03/23/05	N/A	03/28/05
B1CD13	012	W	05LVX047	03/23/05	N/A	03/28/05

LAB QC:

VBLKMY	MB1	W	05LVX047	N/A	N/A	03/28/05
VBLKMY	MB1 BS	W	05LVX047	N/A	N/A	03/28/05



Case Narrative

Client: TNU HANFORD B03-018

LVL#: 0503L066

SDG/SAF#: H3100/B03-018

GC/MS VOLATILE

H3095 5/5/05

enj

W.O.#: 11343-606-001-9999-00

Date Received: 03-24-2005

Seven (7) water samples were collected on 03-23-2005.

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 03-28-2005.

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.
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. All matrix spike recoveries were within acceptance criteria.
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 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. "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
Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

5/4/05
Date

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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 27 pages.

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.

sb\10-03\gloss.doc



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TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

- MP** - **Missed Peak:** Manually added peak not found by automatic quan program.
- PA** - **Peak Assignment:** Quan report was changed to reflect correct peak assignment.
- RI** - **Routine Integration:** Routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the Dichlorobenzene isomers on the VOA packed column and Benzo (b) fluoranthene /Benzo (k) fluoranthene which are poorly resolve on the BNA column.
- SP** - **Split Peak:** The automatic integration improperly split the peak; a manual integration was performed to get the correct area.
- CB** - **Co-elution/ Background:** Peak was manually integrated to eliminate contribution from co-eluting compounds, background signal, or other interference.
- PI** - **Proper Integration:** A peak with poor or inconsistent integration (i.e., excessive tail) was properly integrated manually.

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



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Lionville Laboratory, Inc.
 Volatiles by GC/MS, HSL List

Report Date: 04/13/05 10:26

RFW Batch Number: 0503L066

Client: TNUHANFORD B03-018 H3100 Work Order: 11343606001 Page: 1a

Sample Information	Cust ID:	B1CCY4	B1CCY7	B1CD15	B1CD08	B1CD08	B1CD08
	RFW#:	002	004	005	007	007 MS	007 MSD
	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	Toluene-d8	110 %	110 %	105 %	108 %	108 %	111 %
Recovery	Bromofluorobenzene	110 %	109 %	105 %	107 %	111 %	111 %
	1,2-Dichloroethane-d4	102 %	100 %	101 %	100 %	102 %	102 %

	====-f1						
Chloromethane	10 U						
Bromomethane	10 U						
Vinyl Chloride	10 U						
Chloroethane	10 U						
Methylene Chloride	2 JB	3 JB	3 JB				
Acetone	10 U	10 U	5 J	3 J	10 U	10 U	10 U
Carbon Disulfide	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5 U	5 U	5 U	5 U	5 U	110 %	115 %
1,1-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	1 J	1 J	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10 U						
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	1 J	1 J	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5 U	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5 U	5 U	5 U	5 U	5 U	106 %	109 %
Dibromochloromethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5 U	5 U	5 U	5 U	5 U	106 %	108 %
Trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone	10 U						
2-Hexanone	10 U						
Tetrachloroethene	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5 U	5 U	5 J	5 U	5 U	105 %	107 %

*= Outside of EPA CLP QC limits.

RECEIVED

	Cust ID:	B1CCY4	B1CCY7	B1CD15	B1CD08	B1CD08	B1CD08
	RFW#:	002	004	005	007	007 MS	007 MSD
Chlorobenzene		5 U	5 U	5 U	5 U	105 %	109 %
Ethylbenzene		5 U	5 U	5 U	5 U	5 U	5 U
Styrene		5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)		5 U	5 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

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Lionville Laboratory, Inc.
 Volatiles by GC/MS, HSL List

Report Date: 04/13/05 10:26

RFW Batch Number: 0503L066

Client: TNUHANFORD B03-018 H3100 Work Order: 11343606001 Page: 2a

Sample Information	Cust ID:	B1CD05	B1CD14	B1CD13	VBLKMY	VBLKMY BS
	RFW#:	009	011	012	05LVX047-MB1	05LVX047-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L
Surrogate	Toluene-d8	109 %	108 %	108 %	103 %	104 %
Recovery	Bromofluorobenzene	108 %	108 %	103 %	102 %	106 %
	1,2-Dichloroethane-d4	101 %	103 %	97 %	92 %	97 %
=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====						
Chloromethane		10 U	10 U	10 U	10 U	10 U
Bromomethane		10 U	10 U	10 U	10 U	10 U
Vinyl Chloride		10 U	10 U	10 U	10 U	10 U
Chloroethane		10 U	10 U	10 U	10 U	10 U
Methylene Chloride		2 JB	4 JB	4 JB	3 J	4 JB
Acetone		10 U	10 U	10 U	10 U	10 U
Carbon Disulfide		5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene		5 U	5 U	5 U	5 U	114 %
1,1-Dichloroethane		5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)		5 U	5 U	5 U	5 U	5 U
Chloroform		1 J	5 U	1 J	5 U	5 U
1,2-Dichloroethane		5 U	5 U	5 U	5 U	5 U
2-Butanone		10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane		5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride		7	5 U	6	5 U	5 U
Bromodichloromethane		5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane		5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U
Trichloroethene		5 U	5 U	5 U	5 U	106 %
Dibromochloromethane		5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane		5 U	5 U	5 U	5 U	5 U
Benzene		5 U	5 U	5 U	5 U	103 %
Trans-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U
Bromoform		5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U	10 U
2-Hexanone		10 U	10 U	10 U	10 U	10 U
Tetrachloroethene		5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane		5 U	5 U	5 U	5 U	5 U
Toluene		5 U	5 U	5 U	5 U	99 %

*= Outside of EPA CLP QC limits.

RECEIVED

Cust ID: BICD05 BICD14 BICD13 VBLKMY VBLKMY BS

RFW#: 009 011 012 05LVX047-MB1 05LVX047-MB1

	009	011	012	05LVX047-MB1	05LVX047-MB1	
Chlorobenzene	5 U	5 U	5 U	5 U	103	%
Ethylbenzene	5 U	5 U	5 U	5 U	5	U
Styrene	5 U	5 U	5 U	5 U	5	U
Xylene (total)	5 U	5 U	5 U	5 U	5	U

*= Outside of EPA CLP QC limits.

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1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B1CCY4

Lab Name: Lionville Labs, Inc. Contract: 11343606001

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

Matrix: (soil/water) WATER Lab Sample ID: 0503L066-002

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: x032810

Level: (low/med) LOW Date Received: 03/24/05

% Moisture: not dec. _____ Date Analyzed: 03/28/05

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

Number TICs found: 2 CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	7.174	6	J
2.	SILOXANE	21.806	6	J

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B1CCY7

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: _____

SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER

Lab Sample ID: 0503L066-004

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: x032811

Level: (low/med) LOW

Date Received: 03/24/05

% Moisture: not dec. _____

Date Analyzed: 03/28/05

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.				

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B1CD15

Lab Name: Lionville Labs, Inc. Contract: 11343606001

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

Matrix: (soil/water) WATER Lab Sample ID: 0503L066-005

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: x032812

Level: (low/med) LOW Date Received: 03/24/05

% Moisture: not dec. _____ Date Analyzed: 03/28/05

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.				

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B1CD08

Lab Name: Lionville Labs, Inc. Contract: 11343606001

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

Matrix: (soil/water) WATER Lab Sample ID: 0503L066-007

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: x032813

Level: (low/med) LOW Date Received: 03/24/05

% Moisture: not dec. _____ Date Analyzed: 03/28/05

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

Number TICs found: 1 CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	7.174	5	J

1E
 VOLATILE ORGANICS ANALYSIS SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B1CD05

Lab Name: Lionville Labs, Inc. Contract: 11343606001

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

Matrix: (soil/water) WATER Lab Sample ID: 0503L066-009

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: x032816

Level: (low/med) LOW Date Received: 03/24/05

% Moisture: not dec. _____ Date Analyzed: 03/28/05

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.				

1E
 VOLATILE ORGANICS ANALYSIS SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B1CD14

Lab Name: Lionville Labs, Inc. Contract: 11343606001

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

Matrix: (soil/water) WATER Lab Sample ID: 0503L066-011

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: x032817

Level: (low/med) LOW Date Received: 03/24/05

% Moisture: not dec. _____ Date Analyzed: 03/28/05

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.				

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B1CD13

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: _____

SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER

Lab Sample ID: 0503L066-012

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: x032818

Level: (low/med) LOW

Date Received: 03/24/05

% Moisture: not dec. _____

Date Analyzed: 03/28/05

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.				

1E
 VOLATILE ORGANICS ANALYSIS SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKMY

Lab Name: Lionville Labs, Inc. Contract: 11343606001

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

Matrix: (soil/water) WATER Lab Sample ID: 05LVX047-MB1

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: x032804

Level: (low/med) LOW Date Received: 03/28/05

% Moisture: not dec. _____ Date Analyzed: 03/28/05

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.				

PNNL **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** C.O.C. # **B03-018-100**

Page 1 of 1

Collector R.T. SICKLE	Contact/Requester JH KESSNER	Telephone No. 509-375-4688	MSIN	FAX
SAF No. B03-018	Sampling Origin HANFORD SITE	Purchase Order/Charge Code		
Project Title ERDE Groundwater Well Samples	DTS-SAWS-H89	Ice Chest No. SAW 115	Temp.	
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment	Bill of Lading/Air Bill No. 7904-6602-0450	Offsite Property No.	
Protocol GPP	Priority: 45 Days			

POSSIBLE SAMPLE HAZARDS/REMARKS
* *

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes No
Batch all PNNL GW samples submitted under this SAF into one SDG, not to exceed SDG closure of 14 days.
Submit invoices & deliverables to JH Kessner (fax 509-372-9609)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1CCY3 (F)		W	3-23-05	1031	1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2
B1CCY4		W			1x500-mL G/P	TDS - 180.1	Cool 4C
B1CCY4		W			3x40-mL aGs*	VOA - 8260B (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B1CCY4		W			1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2
B1CCY4		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B1CCY4		W			1x250-mL G/P	Alkalinity - 310.1	Cool 4C
B1CCY4		W			1x500-mL G/P	NO2/NO3 - 353.2	H2SO4 to pH <2 Cool 4C
B1CCY4		W			1x20-mL P	Activity Scan	None
B1CCY4		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By R.T. SICKLE	Print	Sign	Date/Time MAR 23 2005	Received By <i>Fed Ex</i>	Print	Sign	Date/Time	Matrix * S = Soil DS = Drum Solid SF = Sediment DI = Drum Liner SO = Solid T = Tissue SL = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By <i>Fed Ex</i>			Date/Time 3-24-05 0935	Received By <i>Fed Ex</i>			Date/Time 3-24-05 0935	
Relinquished By			Date/Time	Received By			Date/Time	
Relinquished By			Date/Time	Received By			Date/Time	
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. # B03-018-101
		Page 1 of 1

Collector R.T. SICKLE	Contact/Requester JH KESSNER	Telephone No. 509-375-4688 MSIN FAX
SAF No. B03-018	Sampling Origin HANEFORD SITE	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	<i>DTS-SAWS-H88</i>	Ice Chest No. 54W6-115 Temp.
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment	Bill of Lading/Air Bill No. 790466020450
Protocol GPP	Priority: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS	SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Batch all PNNL GW samples submitted under this SAF into one SDG, not to exceed SDG closure of 14 days. Submit invoices & deliverables to JH Kessner (fax 509-372-9609)
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1CCY6 (F)		W	<i>3-23-05</i>	<i>1031</i>	1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2
B1CCY7		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B1CCY7		W			3x40-mL aGs*	VOA - 8260B (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B1CCY7		W			1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2
B1CCY7		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B1CCY7		W			1x250-mL G/P	Alkalinity - 310.1	Cool 4C
B1CCY7		W			1x500-mL G/P	NO2/NO3 - 353.2	H2SO4 to pH <2 Cool 4C
B1CCY7		W			1x20-mL P	Activity Scan	None
B1CCY7		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By R.T. SICKLE	Print	Sign	Date/Time <i>1400</i>	Received By <i>Fel Ep</i>	Print	Sign	Date/Time	Matrix * S = Soil DS = Drum Solid SF = Sediment DL = Drum Liquid SO = Solid T = Tissue SL = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By <i>Fel Ep</i>			Date/Time <i>3-24-05 0935</i>	Received By <i>[Signature]</i>			Date/Time <i>3-24-05 0935</i>	
Relinquished By			Date/Time	Received By			Date/Time	
Relinquished By			Date/Time	Received By			Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g. Return to customer, per lab procedure, used in process)			Disposed By			Date/Time	

1-2-2005-101

PNNL	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # B03-018-104
		Page 1 of 1

Collector R.T. SICKLE	Contact/Requester JH KESSNER	Telephone No. 509-375-4688 MSIN FAX
SAF No. B03-018	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	DTS - SAWJ - 1189	Ice Chest No. SMC 526 Temp.
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment	Bill of Lading/Air Bill No. 79095794 9706
Protocol GPP	Priority: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS	SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Batch all PNNL GW samples submitted under this SAF into one SDG, not to exceed SDG closure of 14 days. Submit invoices & deliverables to JH Kessner (fax 509-372-9609)
--	---

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative	
B1CD04 (F)		W	3-23-05	0909	1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2	
B1CD05		W	↓	↓	1x500-mL G/P	TDS - 180.1	Cool 4C	
B1CD05		W			3x40-mL aGs*	VOA - 8280B (TCL)	HCl or H2SO4 to pH <2 Cool 4C	
B1CD05		W			1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2	
B1CD05		W			1x500-mL P	IC Anions - 300.0	Cool 4C	
B1CD05		W			1x250-mL G/P	Alkalinity - 310.1	Cool 4C	
B1CD05		W			1x500-mL G/P	NO2/NO3 - 353.2	H2SO4 to pH <2 Cool 4C	
B1CD05		W			1x20-mL P	Activity Scan	None	
B1CD05		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C	

Relinquished By R.T. SICKLE Print Sign	Date/Time MAR 23 2005	Received By FedEx Print Sign	Date/Time	Matrix * S = Soil DS = Drum Solid SF = Sediment DI = Drum Liner SO = Solid T = Tissue SL = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By FedEx	Date/Time 3-24-05 0935	Received By <i>[Signature]</i>	Date/Time 3-24-05 0935	
Relinquished By	Date/Time	Received By	Date/Time	
Relinquished By	Date/Time	Received By	Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)		Disposed By	Date/Time

000000024

PNNL	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # B03-018-107
		Page 1 of 1

Collector R.T. SICKLE	Contact/Requester JH KESSNER	Telephone No. 509-375-4688 MSIN FAX
SAF No. B03-018	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDE Groundwater Well Samples	DTS - SAWS - H89	Ice Chest No. SML-526 Temp.
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment	Bill of Lading/Air Bill No. 790957949706
Protocol GPP	Priority: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS ** **	SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Batch all PNNL GW samples submitted under this SAF into one SDG, not to exceed SDG closure of 14 days. Submit invoices & deliverables to JH Kessner (fax 509-372-9609)
---	---

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1CD14		W	3-23-05	0745	3x40-mL aGs*	VOA - 8280B (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B1CD14		W	↓	0745	1x20-mL P	Activity Scan	None

Relinquished By R.T. SICKLE	Print	Date/Time MAR 23 2005	Signature	Received By <i>Fed Ex</i>	Print	Date/Time	Matrix * S = Soil DS = Drum Solid SF = Sediment DL = Drum Liquid SO = Solid T = Tissue SL = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By <i>Fed Ex</i>		Date/Time 3-24-05 0935	Signature	Received By <i>[Signature]</i>		Date/Time 3-24-05 0935	
Relinquished By		Date/Time	Signature	Received By		Date/Time	
Relinquished By		Date/Time	Signature	Received By		Date/Time	

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
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R000000025

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: *TNU HANFORD*

Date: *3/24/05*

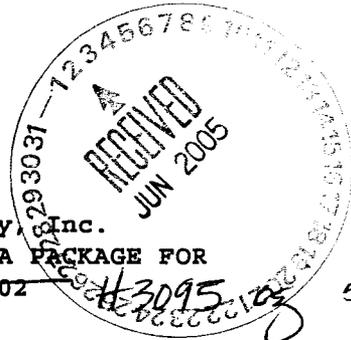
Purchase Order / Project# /
 SAF# / SOW# / Release #: *B03-018*

LvLI Batch #: *05032066*

Sample Custodian: *J. Kennedy*

NOTE: EXPLAIN ALL DISCREPANCIES

- | | | |
|---|--|--|
| 1. Samples Hand Delivered <u>or Shipped</u> | Carrier <i>FedEx</i> | Airbill# <i>790466020450</i>
<i>79095794 9706</i> |
| 2. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals Comments |
| 3. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 5. Samples received cooled or ambient? | Temp <i>2.1</i> °C
<i>3.9</i> | Cooler # <i>SAWS-115</i>
<i>SMAL 726</i> |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals |
| 7. coc signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 8. Sample containers are intact? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 9. All samples on coc received? All samples received on coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 10. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 11. Samples properly preserved? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 12. Samples received within hold times? Short holds taken to wet lab? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 13. VOA, TOC, <u>FOX</u> free of headspace? | <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No | <input type="checkbox"/> N/A <i># 007,009,012 Air Bubble</i> |
| 14. QC stickers placed on bottles designated by client? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Discrepancies |



Lionville Laboratory, Inc.
VOA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B03-018 H3102

DATE RECEIVED: 03/25/05

LVL LOT # :0503L080

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B1CD11	002	W	05LVX050	03/24/05	N/A	03/29/05
B1CD16	003	W	05LVX050	03/24/05	N/A	03/29/05
B1CD16	003 MS	W	05LVX050	03/24/05	N/A	03/29/05
B1CD16	003 MSD	W	05LVX050	03/24/05	N/A	03/29/05

LAB QC:

VBLKNV	MB1	W	05LVX050	N/A	N/A	03/29/05
VBLKNV	MB1 BS	W	05LVX050	N/A	N/A	03/29/05



Case Narrative

Client: TNU HANFORD B03-018

LVL#: 0503L080

SDG/SAF#: H3102/B03-018

GC/MS VOLATILE *H3095 by 5/5/05*

W.O.#: 11343-606-001-9999-00

Date Received: 03-55-2005

Two (2) water samples were collected on 03-24-2005.

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 03-29-2005.

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.
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. All matrix spike recoveries were within acceptance criteria.
6. All blank spike recoveries were within acceptance criteria.
7. The method blank contained the common laboratory contaminant Methylene Chloride and the target compound Toluene at levels less than the CRQL.
8. Internal standard area and retention time criteria were met.
9. Manual integrations are performed according to SOP QA-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").
10. "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."

[Signature]

 Iain Daniels
 Laboratory Manager
 Lionville Laboratory Incorporated

5/5/05

 Date

som\group\data\voa\tnu-hanford\0503-080.doc

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

GLOSSARY

ABBREVIATIONS

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

TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

- MP** - **Missed Peak:** Manually added peak not found by automatic quan program.
- PA** - **Peak Assignment:** Quan report was changed to reflect correct peak assignment.
- RI** - **Routine Integration:** Routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the Dichlorobenzene isomers on the VOA packed column and Benzo (b) fluoranthene /Benzo (k) fluoranthene which are poorly resolve on the BNA column.
- SP** - **Split Peak:** The automatic integration improperly split the peak; a manual integration was performed to get the correct area.
- CB** - **Co-elution/ Background:** Peak was manually integrated to eliminate contribution from co-eluting compounds, background signal, or other interference.
- PI** - **Proper Integration:** A peak with poor or inconsistent integration (i.e., excessive tail) was properly integrated manually.

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

Lionville Laboratory, Inc.

Volatiles by GC/MS, HSL List

Report Date: 04/13/05 12:48

RFW Batch Number: 0503L080

Client: TNUHANFORD B03-018 H3102 Work Order: 11343606001 Page: 1a

Sample Information	Cust ID:	B1CD11	B1CD16	B1CD16	B1CD16	VBLKNV	VBLKNV BS
	RFW#:	002	003	003 MS	003 MSD	05LVX050-MB1	05LVX050-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	Toluene-d8	106 %	96 %	106 %	104 %	104 %	107 %
Recovery	Bromofluorobenzene	107 %	96 %	109 %	106 %	105 %	109 %
	1,2-Dichloroethane-d4	99 %	93 %	100 %	99 %	100 %	96 %
=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====							
Chloromethane		10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane		10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride		10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride		3 JB	5 B	5 JB	5 JB	3 J	3 JB
Acetone		10 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide		5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene		5 U	5 U	108 %	105 %	5 U	110 %
1,1-Dichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)		5 U	5 U	5 U	5 U	5 U	5 U
Chloroform		1 J	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone		10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride		8	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane		5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane		5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene		5 U	5 U	111 %	106 %	5 U	108 %
Dibromochloromethane		5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
Benzene		5 U	5 U	103 %	102 %	5 U	104 %
Trans-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U	5 U
Bromoform		5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone		10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene		5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane		5 U	5 U	5 U	5 U	5 U	5 U
Toluene		5 U	5 U	103 %	99 %	2 J	100 %

*= Outside of EPA CLP QC limits.

05032080

Custody Transfer Record/Lab Work Request Page 1 of 1



FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

See SRC See SP

Client <u>AWL - HANFORD SAF# B03-018</u>	Refrigerator # <u>Ac</u>	D	E	F	G	H
Est. Final Proj. Sampling Date	#/Type Container	Liquid	S	S	S	S
Project # <u>11343-6006-001-999900</u>	Liquid	6	10	7	7	7
Project Contact/Phone #	Solid					
Lionville Laboratory Project Manager <u>OJ</u>	Volume	40	500	500	500	500
QC Spec <u>Del Std</u> TAT <u>30 days</u>	Preservatives	<u>Hex</u>	<u>Hex</u>	<u>Hex</u>	<u>Hex</u>	<u>Hex</u>
Date Rec'd <u>3-25-05</u> Date Due <u>4-24-05</u>	ANALYSES REQUESTED	ORGANIC	INORG			
		VOA	BNA	Pest/PCB	Herb	

MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum DL - Drum L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only														
			MS	MSD				ITOX	met①	Total	ITDS	ICD	ITALK	ITCUI								
	001	BICD10(F)			W	3/24/05	0958															
	002	BICD11			L																	
	003	B1 CD 16			L		0710															

Special Instructions: Run Matrix QC SAF B03-018

ICD = Br, Cl, FL, NO₂, NO₃, PO₄, SO₄

met① = Al, Ag, Ba, Be, Cd, Ca, Co, Cr, Cu, Fe, K, Mg, Mn, Na, Ni, Sb, V, Zn

DATE/REVISIONS:

- _____ 1. _____
- _____ 2. _____
- _____ 3. _____
- _____ 4. _____
- _____ 5. _____
- _____ 6. _____

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
<u>Fred Ex</u>	<u>V. Hernandez</u>	<u>3-25-05</u>	<u>0950</u>								
	<u>Transferred by TX</u>										

ORIGINAL REWRITTEN **"COMPOSITE WASTE"**

PNNL **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** **C.O.C. # B03-018-106**

Collector R.T. SICKLE	Contact/Requester JH KESSNER	Telephone No. 509-375-4688 MSIN FAX
SAF No. B03-018	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	23-24-05 DTS-SAWS-2051489	Ice Chest No. 5923-200 Temp.
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment	Bill of Lading/Air Bill No. 7928-7964-2237
Protocol GPP	Priority: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS * *	SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Batch all PNNL GW samples submitted under this SAF into one SDG, not to exceed SDG closure of 14 days. Submit invoices & deliverables to JH Kessner (fax 509-372-9609)
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1CD10 (F)		W	3-24-05	0930	1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2
B1CD11		W			1x500-mL G/P	TDS - 100.1	Cool 4C
B1CD11		W			3x40-mL aGs*	VOA - 8260B (TCL)	HCl or H2SO4 to pH <2
B1CD11		W			1x500-mL G/P	ICP Metals - 6010B (TAL)	Cool 4C
B1CD11		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B1CD11		W			1x250-mL G/P	Alkalinity - 310.1	Cool 4C
B1CD11		W			1x500-mL G/P	NO2/NO3 - 353.2	H2SO4 to pH <2
B1CD11		W			1x20-mL P	Activity Scan	Cool 4C
B1CD11		W			1x500-mL aGs*	TOX - 9020	None

Relinquished By R.T. SICKLE <i>[Signature]</i>	Date/Time MAR 24 2005	Received By Fed Ex	Date/Time	Matrix * S = Soil DS = Drum Solid SE = Sediment DI = Drum Liner SO = Solid T = Tissue SL = Sludge WI = Wine W = Water I = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By Fed Ex	Date/Time 3-25-05 0930	Received By T. Sherman	Date/Time 3-25-05 0930	
Relinquished By	Date/Time	Received By	Date/Time	
Relinquished By	Date/Time	Received By	Date/Time	

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: *TNU- HANFORD*

Date: *3-25-05*

Purchase Order / Project# /
 SAF# / SOW# / Release #: *B03-018*

LvLI Batch #: *05036080*

Sample Custodian: *[Signature]*

NOTE: EXPLAIN ALL DISCREPANCIES

- | | | |
|---|--|---|
| 1. Samples Hand Delivered or <u>Shipped</u> | Carrier <i>Fed Ex</i> | Airbill# <i>7928 7964 2237</i> |
| 2. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals Comments |
| 3. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 5. Samples received cooled or ambient? | Temp <i>3.3</i> °C | Cooler # <i>SPWS-200</i> |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals <i>5</i> |
| 7. coc signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 8. Sample containers are intact? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 9. All samples on coc received? All samples received on coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 10. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 11. Samples properly preserved? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 12. Samples received within hold times? Short holds taken to wet lab? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 13. VOA, TOC, <u>TOX</u> free of headspace? | <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No | <input type="checkbox"/> N/A <i>air bubble</i> |
| 14. QC stickers placed on bottles designated by client? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> <i>3-25-05</i>
Discrepancies |

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B03-018 H3095



DATE RECEIVED: 03/24/05

LVL LOT # : 05021066

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
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B1CCY3

SILVER, SOLUBLE	001	W	05L0210	03/23/05	04/20/05	04/21/05
ALUMINUM, SOLUBLE	001	W	05L0210	03/23/05	04/20/05	04/21/05
BARIUM, SOLUBLE	001	W	05L0210	03/23/05	04/20/05	04/21/05
BERYLLIUM, SOLUBLE	001	W	05L0210	03/23/05	04/20/05	04/21/05
CALCIUM, SOLUBLE	001	W	05L0210	03/23/05	04/20/05	04/21/05
CADMIUM, SOLUBLE	001	W	05L0210	03/23/05	04/20/05	04/21/05
COBALT, SOLUBLE	001	W	05L0210	03/23/05	04/20/05	04/21/05
CHROMIUM, SOLUBLE	001	W	05L0210	03/23/05	04/20/05	04/21/05
COPPER, SOLUBLE	001	W	05L0210	03/23/05	04/20/05	04/21/05
IRON, SOLUBLE	001	W	05L0210	03/23/05	04/20/05	04/21/05
POTASSIUM, SOLUBLE	001	W	05L0210	03/23/05	04/20/05	04/21/05
MAGNESIUM, SOLUBLE	001	W	05L0210	03/23/05	04/20/05	04/21/05
MANGANESE, SOLUBLE	001	W	05L0210	03/23/05	04/20/05	04/21/05
SODIUM, SOLUBLE	001	W	05L0210	03/23/05	04/20/05	04/21/05
NICKEL, SOLUBLE	001	W	05L0210	03/23/05	04/20/05	04/21/05
ANTIMONY, SOLUBLE	001	W	05L0210	03/23/05	04/20/05	04/21/05
VANADIUM, SOLUBLE	001	W	05L0210	03/23/05	04/20/05	04/21/05
ZINC, SOLUBLE	001	W	05L0210	03/23/05	04/20/05	04/21/05

B1CCY4

SILVER, TOTAL	002	W	05L0210	03/23/05	04/20/05	04/21/05
SILVER, TOTAL	002 REP	W	05L0210	03/23/05	04/20/05	04/21/05
SILVER, TOTAL	002 MS	W	05L0210	03/23/05	04/20/05	04/21/05
ALUMINUM, TOTAL	002	W	05L0210	03/23/05	04/20/05	04/21/05
ALUMINUM, TOTAL	002 REP	W	05L0210	03/23/05	04/20/05	04/21/05
ALUMINUM, TOTAL	002 MS	W	05L0210	03/23/05	04/20/05	04/21/05
BARIUM, TOTAL	002	W	05L0210	03/23/05	04/20/05	04/21/05
BARIUM, TOTAL	002 REP	W	05L0210	03/23/05	04/20/05	04/21/05
BARIUM, TOTAL	002 MS	W	05L0210	03/23/05	04/20/05	04/21/05
BERYLLIUM, TOTAL	002	W	05L0210	03/23/05	04/20/05	04/21/05
BERYLLIUM, TOTAL	002 REP	W	05L0210	03/23/05	04/20/05	04/21/05
BERYLLIUM, TOTAL	002 MS	W	05L0210	03/23/05	04/20/05	04/21/05
CALCIUM, TOTAL	002	W	05L0210	03/23/05	04/20/05	04/21/05
CALCIUM, TOTAL	002 REP	W	05L0210	03/23/05	04/20/05	04/21/05

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B03-018 H3095

DATE RECEIVED: 03/24/05

LVL LOT # :0503L066

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CALCIUM, TOTAL	002 MS	W	05L0210	03/23/05	04/20/05	04/21/05
CADMIUM, TOTAL	002	W	05L0210	03/23/05	04/20/05	04/21/05
CADMIUM, TOTAL	002 REP	W	05L0210	03/23/05	04/20/05	04/21/05
CADMIUM, TOTAL	002 MS	W	05L0210	03/23/05	04/20/05	04/21/05
COBALT, TOTAL	002	W	05L0210	03/23/05	04/20/05	04/21/05
COBALT, TOTAL	002 REP	W	05L0210	03/23/05	04/20/05	04/21/05
COBALT, TOTAL	002 MS	W	05L0210	03/23/05	04/20/05	04/21/05
CHROMIUM, TOTAL	002	W	05L0210	03/23/05	04/20/05	04/21/05
CHROMIUM, TOTAL	002 REP	W	05L0210	03/23/05	04/20/05	04/21/05
CHROMIUM, TOTAL	002 MS	W	05L0210	03/23/05	04/20/05	04/21/05
COPPER, TOTAL	002	W	05L0210	03/23/05	04/20/05	04/21/05
COPPER, TOTAL	002 REP	W	05L0210	03/23/05	04/20/05	04/21/05
COPPER, TOTAL	002 MS	W	05L0210	03/23/05	04/20/05	04/21/05
IRON, TOTAL	002	W	05L0210	03/23/05	04/20/05	04/21/05
IRON, TOTAL	002 REP	W	05L0210	03/23/05	04/20/05	04/21/05
IRON, TOTAL	002 MS	W	05L0210	03/23/05	04/20/05	04/21/05
POTASSIUM, TOTAL	002	W	05L0210	03/23/05	04/20/05	04/21/05
POTASSIUM, TOTAL	002 REP	W	05L0210	03/23/05	04/20/05	04/21/05
POTASSIUM, TOTAL	002 MS	W	05L0210	03/23/05	04/20/05	04/21/05
MAGNESIUM, TOTAL	002	W	05L0210	03/23/05	04/20/05	04/21/05
MAGNESIUM, TOTAL	002 REP	W	05L0210	03/23/05	04/20/05	04/21/05
MAGNESIUM, TOTAL	002 MS	W	05L0210	03/23/05	04/20/05	04/21/05
MANGANESE, TOTAL	002	W	05L0210	03/23/05	04/20/05	04/21/05
MANGANESE, TOTAL	002 REP	W	05L0210	03/23/05	04/20/05	04/21/05
MANGANESE, TOTAL	002 MS	W	05L0210	03/23/05	04/20/05	04/21/05
SODIUM, TOTAL	002	W	05L0210	03/23/05	04/20/05	04/21/05
SODIUM, TOTAL	002 REP	W	05L0210	03/23/05	04/20/05	04/21/05
SODIUM, TOTAL	002 MS	W	05L0210	03/23/05	04/20/05	04/21/05
NICKEL, TOTAL	002	W	05L0210	03/23/05	04/20/05	04/21/05
NICKEL, TOTAL	002 REP	W	05L0210	03/23/05	04/20/05	04/21/05
NICKEL, TOTAL	002 MS	W	05L0210	03/23/05	04/20/05	04/21/05
ANTIMONY, TOTAL	002	W	05L0210	03/23/05	04/20/05	04/21/05
ANTIMONY, TOTAL	002 REP	W	05L0210	03/23/05	04/20/05	04/21/05
ANTIMONY, TOTAL	002 MS	W	05L0210	03/23/05	04/20/05	04/21/05
VANADIUM, TOTAL	002	W	05L0210	03/23/05	04/20/05	04/21/05
VANADIUM, TOTAL	002 REP	W	05L0210	03/23/05	04/20/05	04/21/05
VANADIUM, TOTAL	002 MS	W	05L0210	03/23/05	04/20/05	04/21/05
ZINC, TOTAL	002	W	05L0210	03/23/05	04/20/05	04/21/05

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B03-018 H3095

DATE RECEIVED: 03/24/05

LVL LOT # :0503L066

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZINC, TOTAL	002 REP	W	05L0210	03/23/05	04/20/05	04/21/05
ZINC, TOTAL	002 MS	W	05L0210	03/23/05	04/20/05	04/21/05

B1CCY6

SILVER, SOLUBLE	003	W	05L0210	03/23/05	04/20/05	04/21/05
ALUMINUM, SOLUBLE	003	W	05L0210	03/23/05	04/20/05	04/21/05
BARIUM, SOLUBLE	003	W	05L0210	03/23/05	04/20/05	04/21/05
BERYLLIUM, SOLUBLE	003	W	05L0210	03/23/05	04/20/05	04/21/05
CALCIUM, SOLUBLE	003	W	05L0210	03/23/05	04/20/05	04/21/05
CADMIUM, SOLUBLE	003	W	05L0210	03/23/05	04/20/05	04/21/05
COBALT, SOLUBLE	003	W	05L0210	03/23/05	04/20/05	04/21/05
CHROMIUM, SOLUBLE	003	W	05L0210	03/23/05	04/20/05	04/21/05
COPPER, SOLUBLE	003	W	05L0210	03/23/05	04/20/05	04/21/05
IRON, SOLUBLE	003	W	05L0210	03/23/05	04/20/05	04/21/05
POTASSIUM, SOLUBLE	003	W	05L0210	03/23/05	04/20/05	04/21/05
MAGNESIUM, SOLUBLE	003	W	05L0210	03/23/05	04/20/05	04/21/05
MANGANESE, SOLUBLE	003	W	05L0210	03/23/05	04/20/05	04/21/05
SODIUM, SOLUBLE	003	W	05L0210	03/23/05	04/20/05	04/21/05
NICKEL, SOLUBLE	003	W	05L0210	03/23/05	04/20/05	04/21/05
ANTIMONY, SOLUBLE	003	W	05L0210	03/23/05	04/20/05	04/21/05
VANADIUM, SOLUBLE	003	W	05L0210	03/23/05	04/20/05	04/21/05
ZINC, SOLUBLE	003	W	05L0210	03/23/05	04/20/05	04/21/05

B1CCY7

SILVER, TOTAL	004	W	05L0210	03/23/05	04/20/05	04/21/05
ALUMINUM, TOTAL	004	W	05L0210	03/23/05	04/20/05	04/21/05
BARIUM, TOTAL	004	W	05L0210	03/23/05	04/20/05	04/21/05
BERYLLIUM, TOTAL	004	W	05L0210	03/23/05	04/20/05	04/21/05
CALCIUM, TOTAL	004	W	05L0210	03/23/05	04/20/05	04/21/05
CADMIUM, TOTAL	004	W	05L0210	03/23/05	04/20/05	04/21/05
COBALT, TOTAL	004	W	05L0210	03/23/05	04/20/05	04/21/05
CHROMIUM, TOTAL	004	W	05L0210	03/23/05	04/20/05	04/21/05
COPPER, TOTAL	004	W	05L0210	03/23/05	04/20/05	04/21/05
IRON, TOTAL	004	W	05L0210	03/23/05	04/20/05	04/21/05
POTASSIUM, TOTAL	004	W	05L0210	03/23/05	04/20/05	04/21/05
MAGNESIUM, TOTAL	004	W	05L0210	03/23/05	04/20/05	04/21/05

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B03-018 H3095

DATE RECEIVED: 03/24/05

LVL LOT # :0503L066

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MANGANESE, TOTAL	004	W	05L0210	03/23/05	04/20/05	04/21/05
SODIUM, TOTAL	004	W	05L0210	03/23/05	04/20/05	04/21/05
NICKEL, TOTAL	004	W	05L0210	03/23/05	04/20/05	04/21/05
ANTIMONY, TOTAL	004	W	05L0210	03/23/05	04/20/05	04/21/05
VANADIUM, TOTAL	004	W	05L0210	03/23/05	04/20/05	04/21/05
ZINC, TOTAL	004	W	05L0210	03/23/05	04/20/05	04/21/05

B1CD07

SILVER, SOLUBLE	006	W	05L0210	03/23/05	04/20/05	04/21/05
ALUMINUM, SOLUBLE	006	W	05L0210	03/23/05	04/20/05	04/21/05
BARIUM, SOLUBLE	006	W	05L0210	03/23/05	04/20/05	04/21/05
BERYLLIUM, SOLUBLE	006	W	05L0210	03/23/05	04/20/05	04/21/05
CALCIUM, SOLUBLE	006	W	05L0210	03/23/05	04/20/05	04/21/05
CADMIUM, SOLUBLE	006	W	05L0210	03/23/05	04/20/05	04/21/05
COBALT, SOLUBLE	006	W	05L0210	03/23/05	04/20/05	04/21/05
CHROMIUM, SOLUBLE	006	W	05L0210	03/23/05	04/20/05	04/21/05
COPPER, SOLUBLE	006	W	05L0210	03/23/05	04/20/05	04/21/05
IRON, SOLUBLE	006	W	05L0210	03/23/05	04/20/05	04/21/05
POTASSIUM, SOLUBLE	006	W	05L0210	03/23/05	04/20/05	04/21/05
MAGNESIUM, SOLUBLE	006	W	05L0210	03/23/05	04/20/05	04/21/05
MANGANESE, SOLUBLE	006	W	05L0210	03/23/05	04/20/05	04/21/05
SODIUM, SOLUBLE	006	W	05L0210	03/23/05	04/20/05	04/21/05
NICKEL, SOLUBLE	006	W	05L0210	03/23/05	04/20/05	04/21/05
ANTIMONY, SOLUBLE	006	W	05L0210	03/23/05	04/20/05	04/21/05
VANADIUM, SOLUBLE	006	W	05L0210	03/23/05	04/20/05	04/21/05
ZINC, SOLUBLE	006	W	05L0210	03/23/05	04/20/05	04/21/05

B1CD08

SILVER, TOTAL	007	W	05L0210	03/23/05	04/20/05	04/21/05
ALUMINUM, TOTAL	007	W	05L0210	03/23/05	04/20/05	04/21/05
BARIUM, TOTAL	007	W	05L0210	03/23/05	04/20/05	04/21/05
BERYLLIUM, TOTAL	007	W	05L0210	03/23/05	04/20/05	04/21/05
CALCIUM, TOTAL	007	W	05L0210	03/23/05	04/20/05	04/21/05
CADMIUM, TOTAL	007	W	05L0210	03/23/05	04/20/05	04/21/05
COBALT, TOTAL	007	W	05L0210	03/23/05	04/20/05	04/21/05
CHROMIUM, TOTAL	007	W	05L0210	03/23/05	04/20/05	04/21/05

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Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B03-018 H3095

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CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER, TOTAL	007	W	05L0210	03/23/05	04/20/05	04/21/05
IRON, TOTAL	007	W	05L0210	03/23/05	04/20/05	04/21/05
POTASSIUM, TOTAL	007	W	05L0210	03/23/05	04/20/05	04/21/05
MAGNESIUM, TOTAL	007	W	05L0210	03/23/05	04/20/05	04/21/05
MANGANESE, TOTAL	007	W	05L0210	03/23/05	04/20/05	04/21/05
SODIUM, TOTAL	007	W	05L0210	03/23/05	04/20/05	04/21/05
NICKEL, TOTAL	007	W	05L0210	03/23/05	04/20/05	04/21/05
ANTIMONY, TOTAL	007	W	05L0210	03/23/05	04/20/05	04/21/05
VANADIUM, TOTAL	007	W	05L0210	03/23/05	04/20/05	04/21/05
ZINC, TOTAL	007	W	05L0210	03/23/05	04/20/05	04/21/05

B1CD04

SILVER, SOLUBLE	008	W	05L0210	03/23/05	04/20/05	04/21/05
ALUMINUM, SOLUBLE	008	W	05L0210	03/23/05	04/20/05	04/21/05
BARIUM, SOLUBLE	008	W	05L0210	03/23/05	04/20/05	04/21/05
BERYLLIUM, SOLUBLE	008	W	05L0210	03/23/05	04/20/05	04/21/05
CALCIUM, SOLUBLE	008	W	05L0210	03/23/05	04/20/05	04/21/05
CADMIUM, SOLUBLE	008	W	05L0210	03/23/05	04/20/05	04/21/05
COBALT, SOLUBLE	008	W	05L0210	03/23/05	04/20/05	04/21/05
CHROMIUM, SOLUBLE	008	W	05L0210	03/23/05	04/20/05	04/21/05
COPPER, SOLUBLE	008	W	05L0210	03/23/05	04/20/05	04/21/05
IRON, SOLUBLE	008	W	05L0210	03/23/05	04/20/05	04/21/05
POTASSIUM, SOLUBLE	008	W	05L0210	03/23/05	04/20/05	04/21/05
MAGNESIUM, SOLUBLE	008	W	05L0210	03/23/05	04/20/05	04/21/05
MANGANESE, SOLUBLE	008	W	05L0210	03/23/05	04/20/05	04/21/05
SODIUM, SOLUBLE	008	W	05L0210	03/23/05	04/20/05	04/21/05
NICKEL, SOLUBLE	008	W	05L0210	03/23/05	04/20/05	04/21/05
ANTIMONY, SOLUBLE	008	W	05L0210	03/23/05	04/20/05	04/21/05
VANADIUM, SOLUBLE	008	W	05L0210	03/23/05	04/20/05	04/21/05
ZINC, SOLUBLE	008	W	05L0210	03/23/05	04/20/05	04/21/05

B1CD05

SILVER, TOTAL	009	W	05L0210	03/23/05	04/20/05	04/21/05
ALUMINUM, TOTAL	009	W	05L0210	03/23/05	04/20/05	04/21/05
BARIUM, TOTAL	009	W	05L0210	03/23/05	04/20/05	04/21/05
BERYLLIUM, TOTAL	009	W	05L0210	03/23/05	04/20/05	04/21/05

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Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B03-018 H3095

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LVL LOT # :0503L066

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CALCIUM, TOTAL	009	W	05L0210	03/23/05	04/20/05	04/21/05
CADMIUM, TOTAL	009	W	05L0210	03/23/05	04/20/05	04/21/05
COBALT, TOTAL	009	W	05L0210	03/23/05	04/20/05	04/21/05
CHROMIUM, TOTAL	009	W	05L0210	03/23/05	04/20/05	04/21/05
COPPER, TOTAL	009	W	05L0210	03/23/05	04/20/05	04/21/05
IRON, TOTAL	009	W	05L0210	03/23/05	04/20/05	04/21/05
POTASSIUM, TOTAL	009	W	05L0210	03/23/05	04/20/05	04/21/05
MAGNESIUM, TOTAL	009	W	05L0210	03/23/05	04/20/05	04/21/05
MANGANESE, TOTAL	009	W	05L0210	03/23/05	04/20/05	04/21/05
SODIUM, TOTAL	009	W	05L0210	03/23/05	04/20/05	04/21/05
NICKEL, TOTAL	009	W	05L0210	03/23/05	04/20/05	04/21/05
ANTIMONY, TOTAL	009	W	05L0210	03/23/05	04/20/05	04/21/05
VANADIUM, TOTAL	009	W	05L0210	03/23/05	04/20/05	04/21/05
ZINC, TOTAL	009	W	05L0210	03/23/05	04/20/05	04/21/05

B1CCY9

SILVER, SOLUBLE	010	W	05L0210	03/23/05	04/20/05	04/21/05
ALUMINUM, SOLUBLE	010	W	05L0210	03/23/05	04/20/05	04/21/05
BARIUM, SOLUBLE	010	W	05L0210	03/23/05	04/20/05	04/21/05
BERYLLIUM, SOLUBLE	010	W	05L0210	03/23/05	04/20/05	04/21/05
CALCIUM, SOLUBLE	010	W	05L0210	03/23/05	04/20/05	04/21/05
CADMIUM, SOLUBLE	010	W	05L0210	03/23/05	04/20/05	04/21/05
COBALT, SOLUBLE	010	W	05L0210	03/23/05	04/20/05	04/21/05
CHROMIUM, SOLUBLE	010	W	05L0210	03/23/05	04/20/05	04/21/05
COPPER, SOLUBLE	010	W	05L0210	03/23/05	04/20/05	04/21/05
IRON, SOLUBLE	010	W	05L0210	03/23/05	04/20/05	04/21/05
POTASSIUM, SOLUBLE	010	W	05L0210	03/23/05	04/20/05	04/21/05
MAGNESIUM, SOLUBLE	010	W	05L0210	03/23/05	04/20/05	04/21/05
MANGANESE, SOLUBLE	010	W	05L0210	03/23/05	04/20/05	04/21/05
SODIUM, SOLUBLE	010	W	05L0210	03/23/05	04/20/05	04/21/05
NICKEL, SOLUBLE	010	W	05L0210	03/23/05	04/20/05	04/21/05
ANTIMONY, SOLUBLE	010	W	05L0210	03/23/05	04/20/05	04/21/05
VANADIUM, SOLUBLE	010	W	05L0210	03/23/05	04/20/05	04/21/05
ZINC, SOLUBLE	010	W	05L0210	03/23/05	04/20/05	04/21/05

B1CD13

SILVER, TOTAL	012	W	05L0210	03/23/05	04/20/05	04/21/05
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Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B03-018 H3095

DATE RECEIVED: 03/24/05

LVL LOT # :0503L066

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	012	W	05L0210	03/23/05	04/20/05	04/21/05
BARIUM, TOTAL	012	W	05L0210	03/23/05	04/20/05	04/21/05
BERYLLIUM, TOTAL	012	W	05L0210	03/23/05	04/20/05	04/21/05
CALCIUM, TOTAL	012	W	05L0210	03/23/05	04/20/05	04/21/05
CADMIUM, TOTAL	012	W	05L0210	03/23/05	04/20/05	04/21/05
COBALT, TOTAL	012	W	05L0210	03/23/05	04/20/05	04/21/05
CHROMIUM, TOTAL	012	W	05L0210	03/23/05	04/20/05	04/21/05
COPPER, TOTAL	012	W	05L0210	03/23/05	04/20/05	04/21/05
IRON, TOTAL	012	W	05L0210	03/23/05	04/20/05	04/21/05
POTASSIUM, TOTAL	012	W	05L0210	03/23/05	04/20/05	04/21/05
MAGNESIUM, TOTAL	012	W	05L0210	03/23/05	04/20/05	04/21/05
MANGANESE, TOTAL	012	W	05L0210	03/23/05	04/20/05	04/21/05
SODIUM, TOTAL	012	W	05L0210	03/23/05	04/20/05	04/21/05
NICKEL, TOTAL	012	W	05L0210	03/23/05	04/20/05	04/21/05
ANTIMONY, TOTAL	012	W	05L0210	03/23/05	04/20/05	04/21/05
VANADIUM, TOTAL	012	W	05L0210	03/23/05	04/20/05	04/21/05
ZINC, TOTAL	012	W	05L0210	03/23/05	04/20/05	04/21/05

LAB QC:

SILVER LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
SILVER, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
ALUMINUM LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
ALUMINUM, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
BARIUM LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
BARIUM, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
BERYLLIUM LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
BERYLLIUM, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
CALCIUM LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
CALCIUM, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
CADMIUM LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
CADMIUM, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
COBALT LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
COBALT, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
CHROMIUM LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
CHROMIUM, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
COPPER LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
COPPER, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05

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TNUHANFORD B03-018 H3095

DATE RECEIVED: 03/24/05

LVL LOT # :0503L066

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
IRON LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
IRON, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
POTASSIUM LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
POTASSIUM, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
MAGNESIUM LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
MAGNESIUM, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
MANGANESE LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
MANGANESE, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
SODIUM LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
SODIUM, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
NICKEL LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
NICKEL, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
ANTIMONY LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
ANTIMONY, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
VANADIUM LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
VANADIUM, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
ZINC LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
ZINC, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B03-018 H3095

DATE RECEIVED: 03/25/05

LVL LOT # :0503L080

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BICD10(F)						
SILVER, SOLUBLE	001	W	05L0210	03/24/05	04/20/05	04/21/05
SILVER, SOLUBLE	001 REP	W	05L0210	03/24/05	04/20/05	04/21/05
SILVER, SOLUBLE	001 MS	W	05L0210	03/24/05	04/20/05	04/21/05
ALUMINUM, SOLUBLE	001	W	05L0210	03/24/05	04/20/05	04/21/05
ALUMINUM, SOLUBLE	001 REP	W	05L0210	03/24/05	04/20/05	04/21/05
ALUMINUM, SOLUBLE	001 MS	W	05L0210	03/24/05	04/20/05	04/21/05
BARIUM, SOLUBLE	001	W	05L0210	03/24/05	04/20/05	04/21/05
BARIUM, SOLUBLE	001 REP	W	05L0210	03/24/05	04/20/05	04/21/05
BARIUM, SOLUBLE	001 MS	W	05L0210	03/24/05	04/20/05	04/21/05
BERYLLIUM, SOLUBLE	001	W	05L0210	03/24/05	04/20/05	04/21/05
BERYLLIUM, SOLUBLE	001 REP	W	05L0210	03/24/05	04/20/05	04/21/05
BERYLLIUM, SOLUBLE	001 MS	W	05L0210	03/24/05	04/20/05	04/21/05
CALCIUM, SOLUBLE	001	W	05L0210	03/24/05	04/20/05	04/21/05
CALCIUM, SOLUBLE	001 REP	W	05L0210	03/24/05	04/20/05	04/21/05
CALCIUM, SOLUBLE	001 MS	W	05L0210	03/24/05	04/20/05	04/21/05
CADMIUM, SOLUBLE	001	W	05L0210	03/24/05	04/20/05	04/21/05
CADMIUM, SOLUBLE	001 REP	W	05L0210	03/24/05	04/20/05	04/21/05
CADMIUM, SOLUBLE	001 MS	W	05L0210	03/24/05	04/20/05	04/21/05
COBALT, SOLUBLE	001	W	05L0210	03/24/05	04/20/05	04/21/05
COBALT, SOLUBLE	001 REP	W	05L0210	03/24/05	04/20/05	04/21/05
COBALT, SOLUBLE	001 MS	W	05L0210	03/24/05	04/20/05	04/21/05
CHROMIUM, SOLUBLE	001	W	05L0210	03/24/05	04/20/05	04/21/05
CHROMIUM, SOLUBLE	001 REP	W	05L0210	03/24/05	04/20/05	04/21/05
CHROMIUM, SOLUBLE	001 MS	W	05L0210	03/24/05	04/20/05	04/21/05
COPPER, SOLUBLE	001	W	05L0210	03/24/05	04/20/05	04/21/05
COPPER, SOLUBLE	001 REP	W	05L0210	03/24/05	04/20/05	04/21/05
COPPER, SOLUBLE	001 MS	W	05L0210	03/24/05	04/20/05	04/21/05
IRON, SOLUBLE	001	W	05L0210	03/24/05	04/20/05	04/21/05
IRON, SOLUBLE	001 REP	W	05L0210	03/24/05	04/20/05	04/21/05
IRON, SOLUBLE	001 MS	W	05L0210	03/24/05	04/20/05	04/21/05
POTASSIUM, SOLUBLE	001	W	05L0210	03/24/05	04/20/05	04/21/05
POTASSIUM, SOLUBLE	001 REP	W	05L0210	03/24/05	04/20/05	04/21/05
POTASSIUM, SOLUBLE	001 MS	W	05L0210	03/24/05	04/20/05	04/21/05
MAGNESIUM, SOLUBLE	001	W	05L0210	03/24/05	04/20/05	04/21/05
MAGNESIUM, SOLUBLE	001 REP	W	05L0210	03/24/05	04/20/05	04/21/05

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 TNUHANFORD B03-018 H3095

DATE RECEIVED: 03/25/05

LVL LOT # :0503L080

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, SOLUBLE	001 MS	W	05L0210	03/24/05	04/20/05	04/21/05
MANGANESE, SOLUBLE	001	W	05L0210	03/24/05	04/20/05	04/21/05
MANGANESE, SOLUBLE	001 REP	W	05L0210	03/24/05	04/20/05	04/21/05
MANGANESE, SOLUBLE	001 MS	W	05L0210	03/24/05	04/20/05	04/21/05
SODIUM, SOLUBLE	001	W	05L0210	03/24/05	04/20/05	04/21/05
SODIUM, SOLUBLE	001 REP	W	05L0210	03/24/05	04/20/05	04/21/05
SODIUM, SOLUBLE	001 MS	W	05L0210	03/24/05	04/20/05	04/21/05
NICKEL, SOLUBLE	001	W	05L0210	03/24/05	04/20/05	04/21/05
NICKEL, SOLUBLE	001 REP	W	05L0210	03/24/05	04/20/05	04/21/05
NICKEL, SOLUBLE	001 MS	W	05L0210	03/24/05	04/20/05	04/21/05
ANTIMONY, SOLUBLE	001	W	05L0210	03/24/05	04/20/05	04/21/05
ANTIMONY, SOLUBLE	001 REP	W	05L0210	03/24/05	04/20/05	04/21/05
ANTIMONY, SOLUBLE	001 MS	W	05L0210	03/24/05	04/20/05	04/21/05
VANADIUM, SOLUBLE	001	W	05L0210	03/24/05	04/20/05	04/21/05
VANADIUM, SOLUBLE	001 REP	W	05L0210	03/24/05	04/20/05	04/21/05
VANADIUM, SOLUBLE	001 MS	W	05L0210	03/24/05	04/20/05	04/21/05
ZINC, SOLUBLE	001	W	05L0210	03/24/05	04/20/05	04/21/05
ZINC, SOLUBLE	001 REP	W	05L0210	03/24/05	04/20/05	04/21/05
ZINC, SOLUBLE	001 MS	W	05L0210	03/24/05	04/20/05	04/21/05

B1CD11

SILVER, TOTAL	002	W	05L0210	03/24/05	04/20/05	04/21/05
ALUMINUM, TOTAL	002	W	05L0210	03/24/05	04/20/05	04/21/05
BARIUM, TOTAL	002	W	05L0210	03/24/05	04/20/05	04/21/05
BERYLLIUM, TOTAL	002	W	05L0210	03/24/05	04/20/05	04/21/05
CALCIUM, TOTAL	002	W	05L0210	03/24/05	04/20/05	04/21/05
CADMIUM, TOTAL	002	W	05L0210	03/24/05	04/20/05	04/21/05
COBALT, TOTAL	002	W	05L0210	03/24/05	04/20/05	04/21/05
CHROMIUM, TOTAL	002	W	05L0210	03/24/05	04/20/05	04/21/05
COPPER, TOTAL	002	W	05L0210	03/24/05	04/20/05	04/21/05
IRON, TOTAL	002	W	05L0210	03/24/05	04/20/05	04/21/05
POTASSIUM, TOTAL	002	W	05L0210	03/24/05	04/20/05	04/21/05
MAGNESIUM, TOTAL	002	W	05L0210	03/24/05	04/20/05	04/21/05
MANGANESE, TOTAL	002	W	05L0210	03/24/05	04/20/05	04/21/05
SODIUM, TOTAL	002	W	05L0210	03/24/05	04/20/05	04/21/05
NICKEL, TOTAL	002	W	05L0210	03/24/05	04/20/05	04/21/05
ANTIMONY, TOTAL	002	W	05L0210	03/24/05	04/20/05	04/21/05

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Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B03-018 H3095

DATE RECEIVED: 03/25/05

LVL LOT # :0503L080

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
VANADIUM, TOTAL	002	W	05L0210	03/24/05	04/20/05	04/21/05
ZINC, TOTAL	002	W	05L0210	03/24/05	04/20/05	04/21/05

LAB QC:

SILVER LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
SILVER, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
ALUMINUM LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
ALUMINUM, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
BARIUM LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
BARIUM, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
BERYLLIUM LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
BERYLLIUM, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
CALCIUM LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
CALCIUM, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
CADMIUM LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
CADMIUM, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
COBALT LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
COBALT, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
CHROMIUM LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
CHROMIUM, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
COPPER LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
COPPER, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
IRON LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
IRON, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
POTASSIUM LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
POTASSIUM, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
MAGNESIUM LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
MAGNESIUM, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
MANGANESE LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
MANGANESE, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
SODIUM LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
SODIUM, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
NICKEL LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
NICKEL, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
ANTIMONY LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
ANTIMONY, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
VANADIUM LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B03-018 H3095

DATE RECEIVED: 03/25/05

LVL LOT # :0503L080

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
VANADIUM, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05
ZINC LABORATORY	LC1 BS	W	05L0210	N/A	04/20/05	04/21/05
ZINC, TOTAL	MB1	W	05L0210	N/A	04/20/05	04/21/05



Analytical Report

Client: TNU-HANFORD B03-018
LVL#: 0503L066/0503L080
SDG/SAF#: H3095/B03-018

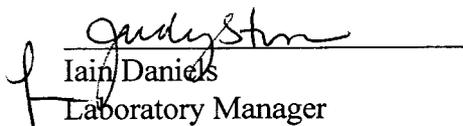
W.O.#: 11343-606-001-9999-00
Date Received: 03-24/25-05

METALS CASE NARRATIVE

1. This narrative covers the analyses of 12 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 Sodium was greater than the Practical Quantitation Limit (PQL) {3 x the (IDL) Instrument Detection Level} and samples B1CD07 and B1CD08 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 42 pages.

11. The duplicate analyses for 2 analytes on sample B1CCY4, and 1 analyte on sample B1CD10 (F), 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. 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

5/4/05
Date

jjw/m03-066/080



METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Lot#: 0503L066/0503L080

Leaching Procedure: 1310 1311 1312 Other: _____

CLP Metals Digestion and Analysis Methods: ILM03.0 ILM04.0

Metals Digestion Methods: 3005A 3010A 3015 3020A 3050B 3051 200.7 SS17
 Other: _____

Metals Analysis Methods

	SW846	EPA	STD MTD	EPA OSWR	USATHAMA
Aluminum	<input checked="" type="checkbox"/> 6010B	200.7			99
Antimony	<input checked="" type="checkbox"/> 6010B 7041 ⁵	200.7	204.2		99
Arsenic	<input type="checkbox"/> 6010B 7060A ⁵	200.7	206.2	3113B	99
Barium	<input checked="" type="checkbox"/> 6010B	200.7			99
Beryllium	<input checked="" type="checkbox"/> 6010B	200.7			99
Bismuth	<input type="checkbox"/> 6010B ¹	200.7 ¹		1620	99
Boron	<input type="checkbox"/> 6010B	200.7			99
Cadmium	<input checked="" type="checkbox"/> 6010B 7131A ⁵	200.7	213.2		99
Calcium	<input checked="" type="checkbox"/> 6010B	200.7			99
Chromium	<input checked="" type="checkbox"/> 6010B 7191 ⁵	200.7	218.2		SS17
Cobalt	<input checked="" type="checkbox"/> 6010B	200.7			99
Copper	<input checked="" type="checkbox"/> 6010B 7211 ⁵	200.7	220.2		99
Iron	<input checked="" type="checkbox"/> 6010B	200.7			99
Lead	<input type="checkbox"/> 6010B 7421 ⁵	200.7	239.2	3113B	99
Lithium	<input type="checkbox"/> 6010B 7430 ⁴	200.7		1620	99
Magnesium	<input checked="" type="checkbox"/> 6010B	200.7			99
Manganese	<input checked="" type="checkbox"/> 6010B	200.7			99
Mercury	<input type="checkbox"/> 7470A ³ <input type="checkbox"/> 7471A ³	245.1 ² 245.5 ²			99
Molybdenum	<input type="checkbox"/> 6010B	200.7			99
Nickel	<input checked="" type="checkbox"/> 6010B	200.7			99
Potassium	<input checked="" type="checkbox"/> 6010B 7610 ⁴	200.7	258.1 ⁴		99
Rare Earths	<input type="checkbox"/> 6010B ¹	200.7 ¹		1620	99
Selenium	<input type="checkbox"/> 6010B 7740 ⁵	200.7	270.2	3113B	99
Silicon	<input type="checkbox"/> 6010B ¹	200.7		1620	99
Silica	<input type="checkbox"/> 6010B	200.7		1620	99
Silver	<input checked="" type="checkbox"/> 6010B 7761 ⁵	200.7	272.2		99
Sodium	<input checked="" type="checkbox"/> 6010B 7770 ⁴	200.7	273.1 ⁴		99
Strontium	<input type="checkbox"/> 6010B	200.7			99
Thallium	<input type="checkbox"/> 6010B 7841 ⁵	200.7	279.2 200.9		99
Tin	<input type="checkbox"/> 6010B	200.7			99
Titanium	<input type="checkbox"/> 6010B	200.7			99
Uranium	<input type="checkbox"/> 6010B ¹	200.7 ¹		1620	99
Vanadium	<input checked="" type="checkbox"/> 6010B	200.7			99
Zinc	<input checked="" type="checkbox"/> 6010B	200.7			99
Zirconium	<input type="checkbox"/> 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-W1-033/N-04/98

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/29/05

CLIENT: TNUHANFORD B03-018 H3095

LVL LOT #: 0503L066

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	B1CCY3	Silver, Soluble	5.3	u UG/L	5.3	1.0
		Aluminum, Soluble	20.8	u UG/L	20.8	1.0
		Barium, Soluble	39.3	UG/L	2.6	1.0
		Beryllium, Soluble	0.20	u UG/L	0.20	1.0
		Calcium, Soluble	41900	UG/L	23.7	1.0
		Cadmium, Soluble	4.1	u UG/L	4.1	1.0
		Cobalt, Soluble	6.4	u UG/L	6.4	1.0
		Chromium, Soluble	15.9	UG/L	9.7	1.0
		Copper, Soluble	2.3	u UG/L	2.3	1.0
		Iron, Soluble	57.9	UG/L	21.1	1.0
		Potassium, Soluble	5360	UG/L	428	1.0
		Magnesium, Soluble	12200	UG/L	38.1	1.0
		Manganese, Soluble	2.2	u UG/L	2.2	1.0
		Sodium, Soluble	19800	UG/L	18.5	1.0
		Nickel, Soluble	18.0	u UG/L	18.0	1.0
		Antimony, Soluble	22.9	u UG/L	22.9	1.0
		Vanadium, Soluble	25.8	UG/L	3.1	1.0
		Zinc, Soluble	29.6	UG/L	1.4	1.0
-002	B1CCY4	Silver, Total	5.3	u UG/L	5.3	1.0
		Aluminum, Total	20.8	u UG/L	20.8	1.0
		Barium, Total	41.1	UG/L	2.6	1.0
		Beryllium, Total	0.20	u UG/L	0.20	1.0
		Calcium, Total	42500	UG/L	23.7	1.0
		Cadmium, Total	4.1	u UG/L	4.1	1.0
		Cobalt, Total	6.4	u UG/L	6.4	1.0
		Chromium, Total	15.6	UG/L	9.7	1.0
		Copper, Total	2.3	u UG/L	2.3	1.0
		Iron, Total	80.1	UG/L	21.1	1.0
		Potassium, Total	5760	UG/L	428	1.0
		Magnesium, Total	12300	UG/L	38.1	1.0
		Manganese, Total	6.9	UG/L	2.2	1.0
		Sodium, Total	19400	UG/L	18.5	1.0
		Nickel, Total	18.0	u UG/L	18.0	1.0
		Antimony, Total	22.9	u UG/L	22.9	1.0
		Vanadium, Total	26.6	UG/L	3.1	1.0
		Zinc, Total	6.9	UG/L	1.4	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/29/05

CLIENT: TNUHANFORD B03-018 H3095

LVL LOT #: 0503L066

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-003	B1CCY6	Silver, Soluble	5.3	u UG/L	5.3	1.0
		Aluminum, Soluble	20.8	u UG/L	20.8	1.0
		Barium, Soluble	39.5	UG/L	2.6	1.0
		Beryllium, Soluble	0.20	u UG/L	0.20	1.0
		Calcium, Soluble	42400	UG/L	23.7	1.0
		Cadmium, Soluble	4.1	u UG/L	4.1	1.0
		Cobalt, Soluble	7.6	UG/L	6.4	1.0
		Chromium, Soluble	17.1	UG/L	9.7	1.0
		Copper, Soluble	2.6	UG/L	2.3	1.0
		Iron, Soluble	21.1	u UG/L	21.1	1.0
		Potassium, Soluble	5780	UG/L	428	1.0
		Magnesium, Soluble	12400	UG/L	38.1	1.0
		Manganese, Soluble	5.3	UG/L	2.2	1.0
		Sodium, Soluble	20200	UG/L	18.5	1.0
		Nickel, Soluble	18.0	u UG/L	18.0	1.0
		Antimony, Soluble	22.9	u UG/L	22.9	1.0
		Vanadium, Soluble	27.4	UG/L	3.1	1.0
		Zinc, Soluble	5.6	UG/L	1.4	1.0
-004	B1CCY7	Silver, Total	5.3	u UG/L	5.3	1.0
		Aluminum, Total	53.9	UG/L	20.8	1.0
		Barium, Total	39.4	UG/L	2.6	1.0
		Beryllium, Total	0.20	u UG/L	0.20	1.0
		Calcium, Total	41800	UG/L	23.7	1.0
		Cadmium, Total	4.1	u UG/L	4.1	1.0
		Cobalt, Total	6.4	u UG/L	6.4	1.0
		Chromium, Total	18.0	UG/L	9.7	1.0
		Copper, Total	2.3	u UG/L	2.3	1.0
		Iron, Total	126	UG/L	21.1	1.0
		Potassium, Total	6130	UG/L	428	1.0
		Magnesium, Total	12200	UG/L	38.1	1.0
		Manganese, Total	8.5	UG/L	2.2	1.0
		Sodium, Total	19600	UG/L	18.5	1.0
		Nickel, Total	18.0	u UG/L	18.0	1.0
		Antimony, Total	22.9	u UG/L	22.9	1.0
		Vanadium, Total	25.3	UG/L	3.1	1.0
		Zinc, Total	12.5	UG/L	1.4	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/29/05

CLIENT: TNUHANFORD B03-018 H3095

LVL LOT #: 0503L066

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-006	B1CD07	Silver, Soluble	5.3	u UG/L	5.3	1.0
		Aluminum, Soluble	30.3	UG/L	20.8	1.0
		Barium, Soluble	2.6	u UG/L	2.6	1.0
		Beryllium, Soluble	0.20	u UG/L	0.20	1.0
		Calcium, Soluble	49.9	UG/L	23.7	1.0
		Cadmium, Soluble	4.1	u UG/L	4.1	1.0
		Cobalt, Soluble	6.4	u UG/L	6.4	1.0
		Chromium, Soluble	9.7	u UG/L	9.7	1.0
		Copper, Soluble	2.3	u UG/L	2.3	1.0
		Iron, Soluble	21.1	u UG/L	21.1	1.0
		Potassium, Soluble	428	u UG/L	428	1.0
		Magnesium, Soluble	38.1	u UG/L	38.1	1.0
		Manganese, Soluble	2.2	u UG/L	2.2	1.0
		Sodium, Soluble	116	UG/L	18.5	1.0
		Nickel, Soluble	18.0	u UG/L	18.0	1.0
		Antimony, Soluble	22.9	u UG/L	22.9	1.0
		Vanadium, Soluble	3.1	u UG/L	3.1	1.0
		Zinc, Soluble	12.5	UG/L	1.4	1.0
-007	B1CD08	Silver, Total	5.3	u UG/L	5.3	1.0
		Aluminum, Total	24.7	UG/L	20.8	1.0
		Barium, Total	2.6	u UG/L	2.6	1.0
		Beryllium, Total	0.20	u UG/L	0.20	1.0
		Calcium, Total	60.9	UG/L	23.7	1.0
		Cadmium, Total	4.1	u UG/L	4.1	1.0
		Cobalt, Total	6.4	u UG/L	6.4	1.0
		Chromium, Total	9.7	u UG/L	9.7	1.0
		Copper, Total	2.3	u UG/L	2.3	1.0
		Iron, Total	37.8	UG/L	21.1	1.0
		Potassium, Total	428	u UG/L	428	1.0
		Magnesium, Total	53.1	UG/L	38.1	1.0
		Manganese, Total	2.2	u UG/L	2.2	1.0
		Sodium, Total	89.2	UG/L	18.5	1.0
		Nickel, Total	18.0	u UG/L	18.0	1.0
		Antimony, Total	22.9	u UG/L	22.9	1.0
		Vanadium, Total	3.1	u UG/L	3.1	1.0
		Zinc, Total	10.9	UG/L	1.4	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/29/05

CLIENT: TNUHANFORD B03-018 H3095

LVL LOT #: 0503L066

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-008	B1CD04	Silver, Soluble	5.3	u UG/L	5.3	1.0
		Aluminum, Soluble	39.9	UG/L	20.8	1.0
		Barium, Soluble	60.4	UG/L	2.6	1.0
		Beryllium, Soluble	0.20	u UG/L	0.20	1.0
		Calcium, Soluble	51400	UG/L	23.7	1.0
		Cadmium, Soluble	4.1	u UG/L	4.1	1.0
		Cobalt, Soluble	6.4	u UG/L	6.4	1.0
		Chromium, Soluble	9.7	u UG/L	9.7	1.0
		Copper, Soluble	2.3	u UG/L	2.3	1.0
		Iron, Soluble	29.8	UG/L	21.1	1.0
		Potassium, Soluble	4930	UG/L	428	1.0
		Magnesium, Soluble	16000	UG/L	38.1	1.0
		Manganese, Soluble	2.2	u UG/L	2.2	1.0
		Sodium, Soluble	18000	UG/L	18.5	1.0
		Nickel, Soluble	18.0	u UG/L	18.0	1.0
		Antimony, Soluble	22.9	u UG/L	22.9	1.0
		Vanadium, Soluble	25.9	UG/L	3.1	1.0
		Zinc, Soluble	3.8	UG/L	1.4	1.0
-009	B1CD05	Silver, Total	5.3	u UG/L	5.3	1.0
		Aluminum, Total	32.1	UG/L	20.8	1.0
		Barium, Total	63.7	UG/L	2.6	1.0
		Beryllium, Total	0.20	u UG/L	0.20	1.0
		Calcium, Total	53800	UG/L	23.7	1.0
		Cadmium, Total	4.1	u UG/L	4.1	1.0
		Cobalt, Total	6.4	u UG/L	6.4	1.0
		Chromium, Total	31.9	UG/L	9.7	1.0
		Copper, Total	2.3	u UG/L	2.3	1.0
		Iron, Total	149	UG/L	21.1	1.0
		Potassium, Total	5390	UG/L	428	1.0
		Magnesium, Total	16600	UG/L	38.1	1.0
		Manganese, Total	3.4	UG/L	2.2	1.0
		Sodium, Total	18700	UG/L	18.5	1.0
		Nickel, Total	18.0	u UG/L	18.0	1.0
		Antimony, Total	22.9	u UG/L	22.9	1.0
		Vanadium, Total	27.1	UG/L	3.1	1.0
		Zinc, Total	14.1	UG/L	1.4	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/29/05

CLIENT: TNUHANFORD B03-018 H3095

LVL LOT #: 0503L066

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-010	B1CCY9	Silver, Soluble	5.3	u UG/L	5.3	1.0
		Aluminum, Soluble	20.8	u UG/L	20.8	1.0
		Barium, Soluble	56.4	UG/L	2.6	1.0
		Beryllium, Soluble	0.20	u UG/L	0.20	1.0
		Calcium, Soluble	51200	UG/L	23.7	1.0
		Cadmium, Soluble	4.1	u UG/L	4.1	1.0
		Cobalt, Soluble	6.4	u UG/L	6.4	1.0
		Chromium, Soluble	9.7	u UG/L	9.7	1.0
		Copper, Soluble	2.3	u UG/L	2.3	1.0
		Iron, Soluble	23.6	UG/L	21.1	1.0
		Potassium, Soluble	5740	UG/L	428	1.0
		Magnesium, Soluble	15800	UG/L	38.1	1.0
		Manganese, Soluble	2.2	u UG/L	2.2	1.0
		Sodium, Soluble	21300	UG/L	18.5	1.0
		Nickel, Soluble	18.0	u UG/L	18.0	1.0
		Antimony, Soluble	22.9	u UG/L	22.9	1.0
		Vanadium, Soluble	25.1	UG/L	3.1	1.0
		Zinc, Soluble	316	UG/L	1.4	1.0
-012	B1CD13	Silver, Total	5.3	u UG/L	5.3	1.0
		Aluminum, Total	86.5	UG/L	20.8	1.0
		Barium, Total	57.7	UG/L	2.6	1.0
		Beryllium, Total	0.20	u UG/L	0.20	1.0
		Calcium, Total	50600	UG/L	23.7	1.0
		Cadmium, Total	4.1	u UG/L	4.1	1.0
		Cobalt, Total	6.4	u UG/L	6.4	1.0
		Chromium, Total	9.7	u UG/L	9.7	1.0
		Copper, Total	2.3	u UG/L	2.3	1.0
		Iron, Total	391	UG/L	21.1	1.0
		Potassium, Total	5440	UG/L	428	1.0
		Magnesium, Total	15500	UG/L	38.1	1.0
		Manganese, Total	5.3	UG/L	2.2	1.0
		Sodium, Total	21000	UG/L	18.5	1.0
		Nickel, Total	18.0	u UG/L	18.0	1.0
		Antimony, Total	22.9	u UG/L	22.9	1.0
		Vanadium, Total	25.8	UG/L	3.1	1.0
		Zinc, Total	344	UG/L	1.4	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/29/05

CLIENT: TNUHANFORD B03-018 H3095

LVL LOT #: 0503L080

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	B1CD10(F)	Silver, Soluble	5.3	u UG/L	5.3	1.0
		Aluminum, Soluble	20.8	u UG/L	20.8	1.0
		Barium, Soluble	61.6	UG/L	2.6	1.0
		Beryllium, Soluble	0.20	u UG/L	0.20	1.0
		Calcium, Soluble	61100	UG/L	23.7	1.0
		Cadmium, Soluble	4.1	u UG/L	4.1	1.0
		Cobalt, Soluble	6.4	u UG/L	6.4	1.0
		Chromium, Soluble	9.7	u UG/L	9.7	1.0
		Copper, Soluble	2.3	u UG/L	2.3	1.0
		Iron, Soluble	56.4	UG/L	21.1	1.0
		Potassium, Soluble	5480	UG/L	428	1.0
		Magnesium, Soluble	18500	UG/L	38.1	1.0
		Manganese, Soluble	2.2	u UG/L	2.2	1.0
		Sodium, Soluble	18600	UG/L	18.5	1.0
		Nickel, Soluble	18.0	u UG/L	18.0	1.0
		Antimony, Soluble	22.9	u UG/L	22.9	1.0
		Vanadium, Soluble	23.3	UG/L	3.1	1.0
		Zinc, Soluble	15.4	UG/L	1.4	1.0
-002	B1CD11	Silver, Total	5.3	u UG/L	5.3	1.0
		Aluminum, Total	61.8	UG/L	20.8	1.0
		Barium, Total	63.0	UG/L	2.6	1.0
		Beryllium, Total	0.20	u UG/L	0.20	1.0
		Calcium, Total	58400	UG/L	23.7	1.0
		Cadmium, Total	4.1	u UG/L	4.1	1.0
		Cobalt, Total	6.4	u UG/L	6.4	1.0
		Chromium, Total	18.3	UG/L	9.7	1.0
		Copper, Total	2.3	u UG/L	2.3	1.0
		Iron, Total	264	UG/L	21.1	1.0
		Potassium, Total	5720	UG/L	428	1.0
		Magnesium, Total	18300	UG/L	38.1	1.0
		Manganese, Total	4.2	UG/L	2.2	1.0
		Sodium, Total	18600	UG/L	18.5	1.0
		Nickel, Total	18.0	u UG/L	18.0	1.0
		Antimony, Total	22.9	u UG/L	22.9	1.0
		Vanadium, Total	23.5	UG/L	3.1	1.0
		Zinc, Total	29.6	UG/L	1.4	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/29/05

CLIENT: TNUHANFORD B03-018 H3095
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L066 / 0503L080

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK1	05L0210-MB1	Silver, Total	5.3	u UG/L	5.3	1.0
		Aluminum, Total	20.8	u UG/L	20.8	1.0
		Barium, Total	2.6	u UG/L	2.6	1.0
		Beryllium, Total	0.20	u UG/L	0.20	1.0
		Calcium, Total	23.7	u UG/L	23.7	1.0
		Cadmium, Total	4.1	u UG/L	4.1	1.0
		Cobalt, Total	6.4	u UG/L	6.4	1.0
		Chromium, Total	9.7	u UG/L	9.7	1.0
		Copper, Total	2.3	u UG/L	2.3	1.0
		Iron, Total	21.1	u UG/L	21.1	1.0
		Potassium, Total	428	u UG/L	428	1.0
		Magnesium, Total	38.1	u UG/L	38.1	1.0
		Manganese, Total	2.2	u UG/L	2.2	1.0
		Sodium, Total	57.2	UG/L	18.5	1.0
		Nickel, Total	18.0	u UG/L	18.0	1.0
		Antimony, Total	22.9	u UG/L	22.9	1.0
		Vanadium, Total	3.1	u UG/L	3.1	1.0
		Zinc, Total	3.0	UG/L	1.4	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 04/29/05

CLIENT: TNUHANFORD B03-018 H3095

LVL LOT #: 0503L066

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-002	B1CCY4	Silver, Total	53.5	5.3 u	50.0	107.0	1.0
		Aluminum, Total	2110	20.8 u	2000	105.6	1.0
		Barium, Total	2090	41.1	2000	102.3	1.0
		Beryllium, Total	48.1	0.20u	50.0	96.2	1.0
		Calcium, Total	70700	42500	25000	113.0	1.0
		Cadmium, Total	52.4	4.1 u	50.0	104.8	1.0
		Cobalt, Total	523	6.4 u	500	104.6	1.0
		Chromium, Total	230	15.6	200	107.2	1.0
		Copper, Total	253	2.3 u	250	101.1	1.0
		Iron, Total	1150	80.1	1000	106.5	1.0
		Potassium, Total	31000	5760	25000	100.9	1.0
		Magnesium, Total	37900	12300	25000	102.5	1.0
		Manganese, Total	526	6.9	500	103.8	1.0
		Sodium, Total	44500	19400	25000	100.4	1.0
		Nickel, Total	518	18.0 u	500	103.6	1.0
		Antimony, Total	514	22.9 u	500	102.8	1.0
		Vanadium, Total	533	26.6	500	101.2	1.0
		Zinc, Total	526	6.9	500	103.8	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 04/29/05

CLIENT: TNUHANFORD B03-018 H3095

LVL LOT #: 0503L080

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B1CD10(F)	Silver, Soluble	41.9	5.3 u	50.0	83.8	1.0
		Aluminum, Soluble	1850	20.8 u	2000	92.7	1.0
		Barium, Soluble	1920	61.6	2000	93.2	1.0
		Beryllium, Soluble	45.2	0.20u	50.0	90.4	1.0
		Calcium, Soluble	80600	61100	25000	78.1	1.0
		Cadmium, Soluble	42.9	4.1 u	50.0	85.8	1.0
		Cobalt, Soluble	463	6.4 u	500	92.6	1.0
		Chromium, Soluble	190	9.7 u	200	95.0	1.0
		Copper, Soluble	227	2.3 u	250	90.9	1.0
		Iron, Soluble	959	56.4	1000	90.2	1.0
		Potassium, Soluble	28200	5480	25000	90.8	1.0
		Magnesium, Soluble	41000	18500	25000	89.9	1.0
		Manganese, Soluble	463	2.2 u	500	92.7	1.0
		Sodium, Soluble	41100	18600	25000	90.0	1.0
		Nickel, Soluble	462	18.0 u	500	92.3	1.0
		Antimony, Soluble	454	22.9 u	500	90.7	1.0
		Vanadium, Soluble	469	23.3	500	89.2	1.0
		Zinc, Soluble	471	15.4	500	91.0	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 04/29/05

CLIENT: TNUHANFORD B03-018 H3095

LVL LOT #: 0503L066

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

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (RBP)
			RESULT	REPLICATE	RPD	
-002REP	B1CCY4	Silver, Total	5.3 u	5.3 u	NC	1.0
		Aluminum, Total	20.8 u	20.8 u	NC	1.0
		Barium, Total	41.1	39.0	5.2	1.0
		Beryllium, Total	0.20u	0.20u	NC	1.0
		Calcium, Total	42500	41700	1.8	1.0
		Cadmium, Total	4.1 u	4.1 u	NC	1.0
		Cobalt, Total	6.4 u	6.4 u	NC	1.0
		Chromium, Total	15.6	15.9	1.9	1.0
		Copper, Total	2.3 u	2.3 u	NC	1.0
		Iron, Total	80.1	113	34.1	1.0
		Potassium, Total	5760	5830	1.3	1.0
		Magnesium, Total	12300	12200	0.59	1.0
		Manganese, Total	6.9	6.6	4.4	1.0
		Sodium, Total	19400	19300	0.53	1.0
		Nickel, Total	18.0 u	18.0 u	NC	1.0
		Antimony, Total	22.9 u	22.9 u	NC	1.0
		Vanadium, Total	26.6	26.8	0.75	1.0
		Zinc, Total	6.9	12.5	57.7	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 04/29/05

CLIENT: TNUHANFORD B03-018 H3095
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L080

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE	RPD	
-001REP	B1CD10(F)	Silver, Soluble	5.3 u	5.3 u	NC	1.0
		Aluminum, Soluble	20.8 u	20.8 u	NC	1.0
		Barium, Soluble	61.6	61.5	0.16	1.0
		Beryllium, Soluble	0.20u	0.20u	NC	1.0
		Calcium, Soluble	61100	58200	4.8	1.0
		Cadmium, Soluble	4.1 u	4.1 u	NC	1.0
		Cobalt, Soluble	6.4 u	6.4 u	NC	1.0
		Chromium, Soluble	9.7 u	9.7 u	NC	1.0
		Copper, Soluble	2.3 u	2.3 u	NC	1.0
		Iron, Soluble	56.4	35.6	45.2	1.0
		Potassium, Soluble	5480	5510	0.53	1.0
		Magnesium, Soluble	18500	18200	1.8	1.0
		Manganese, Soluble	2.2 u	2.2 u	NC	1.0
		Sodium, Soluble	18600	18500	0.30	1.0
		Nickel, Soluble	18.0 u	18.0 u	NC	1.0
		Antimony, Soluble	22.9 u	22.9 u	NC	1.0
		Vanadium, Soluble	23.3	22.3	4.4	1.0
		Zinc, Soluble	15.4	16.1	4.4	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 04/29/05

CLIENT: TNUHANFORD B03-018 H3095
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L066 / 0503L080

SAMPLE	SITE ID	ANALYTE	SPIKED	SPIKED	UNITS	%RECOV
			SAMPLE	AMOUNT		
=====	=====	=====	=====	=====	=====	=====
LCS1	05L0210-LC1	Silver, LCS	483	500	UG/L	96.6
		Aluminum, LCS	5040	5000	UG/L	100.8
		Barium, LCS	4980	5000	UG/L	99.6
		Beryllium, LCS	240	250	UG/L	96.2
		Calcium, LCS	24300	25000	UG/L	97.1
		Cadmium, LCS	249	250	UG/L	99.4
		Cobalt, LCS	2480	2500	UG/L	99.1
		Chromium, LCS	496	500	UG/L	99.3
		Copper, LCS	1220	1250	UG/L	98.0
		Iron, LCS	4920	5000	UG/L	98.5
		Potassium, LCS	24900	25000	UG/L	99.7
		Magnesium, LCS	24300	25000	UG/L	97.2
		Manganese, LCS	730	750	UG/L	97.3
		Sodium, LCS	24700	25000	UG/L	98.9
		Nickel, LCS	2010	2000	UG/L	100.4
		Antimony, LCS	2890	3000	UG/L	96.5
		Vanadium, LCS	2390	2500	UG/L	95.6
		Zinc, LCS	979	1000	UG/L	97.9



0503L 066

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

See SRC

Client TNU - HANFORD SAF & B03-018
 Est. Final Proj. Sampling Date _____
 Project # 11343-006-001-9999-00
 Project Contact/Phone # _____
 Lionville Laboratory Project Manager 01
 QC Spec Del Std TAT 30 days
 Date Rec'd 3/24/05 Date Due 4/23/05

Refrigerator #	AC		D	E	F	G	H	I
#/Type Container	Liquid	Solid	6	5	5	5	5	5
Volume	Liquid	Solid	60	500	500	500	500	500
Preservatives	HCL		H2SO4	HNO3	-	-	-	H2SO4
ANALYSES REQUESTED	ORGANIC				INORG			
	VOA	BNA	Pest/PCB	Herb	TR	Metal	As	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 (✓)		Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only													
		MS	MSD				ITOX	METD50	METD10	ITDS	ICD	TALK	IN3NF							
001	B1CCY3 (F)			W	3/23/05	1031														
002	4			L																
003	6 (F)			L																
004	7			L																
005	BICD15			L		0745														
006	BICD07 (F)			W	3/23/05	0745														
007	BICD08			L																
008	BICD04 (F)			L		0909														
009	BICD05			L																
010	B1CCY9 (F)			L		1227														

Special Instructions:
 METD = AL, Ag, Ba, Be, Cd, Ca, Co, Cr, Cu, Fe, K, Mg, Mn, Na, Ni, Sb, V, Zn
 ICD = CL, PL, SOLT, PD4, NO3, NO2, Br

DATE/REVISIONS:

- _____ 1. _____
- _____ 2. _____
- _____ 3. _____
- _____ 4. _____
- _____ 5. _____
- _____ 6. _____

ED) RUN MATRIX QC

Relinquished by	Received by	Date	Time
Fed Ep	V. King	3/24/05	0935

Relinquished by	Received by	Date	Time

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



05036066

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client <u>TNU HANFORD B03-019</u>	Refrigerator #	<u>1</u>	<u>AC</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>	<u>I</u>
Est. Final Proj. Sampling Date	#/Type Container	Liquid <u>G</u>		<u>C</u>	<u>P</u>	<u>P</u>	<u>P</u>	<u>P</u>	<u>P</u>
Project #	Volume	Liquid <u>4</u>		<u>500</u>	<u>500</u>	<u>500</u>	<u>500</u>	<u>500</u>	<u>500</u>
Project Contact/Phone # <u>all pg 1</u>	Preservatives	<u>KEL</u>		<u>HASN</u>	<u>HAS</u>				<u>H2SO4</u>
Lionville Laboratory Project Manager	ANALYSES REQUESTED	ORGANIC			INORG				
QC _____ Del _____ TAT _____		VOA	BNA	Pest/PCB	Herb	<u>TK</u>	<u>TAL</u>	<u>IC</u>	<u>ALK</u>

Date Rec'd _____ Date Due _____

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 (✓)		Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only												
			MS	MSD				ITOX	MET@	ITDS	IC@	IALK	INBN							
	011	BICD14			Water	7/23/05	0745	3												
	012	BICD13			L	L	1227	3												

Special Instructions:

MET@ = Al, Ag, Ba, Be, Cd, Ca, Co, Cr, Cu, Fe, K, Mg, Mn, Na, Ni, Sb, V, Zn
 IC@ = Cl, F, S, O₄, P, O₄, NO₃, NO₂, Br

DATE/REVISIONS:

- _____ 1. _____
- _____ 2. _____
- _____ 3. _____
- _____ 4. _____
- _____ 5. _____
- _____ 6. _____

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
<u>FE</u>	<u>Hand</u>	<u>7/24/05</u>	<u>0935</u>								



0503L080

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

See SRC See SRC

Client: <u>ALL - HANFORD SAF# B03-018</u>	Refrigerator #	<u>Ac</u>	<u>D</u>	<u>I-E</u>	<u>I</u>	<u>F</u>	<u>G</u>	<u>H</u>				
Est. Final Proj. Sampling Date	#/Type Container	Liquid: <u>6</u>	<u>S</u>	<u>ST</u>	<u>S</u>	<u>S</u>	<u>S</u>	<u>S</u>				
Project # <u>11343 Core-mil-999900</u>	Volume	Liquid: <u>40</u>	<u>500</u>	<u>200</u>	<u>500</u>	<u>500</u>	<u>250</u>	<u>200</u>				
Project Contact/Phone #	Preservatives	<u>Hel</u>	<u>None</u>	<u>None</u>	<u>None</u>	<u>None</u>	<u>None</u>	<u>None</u>				
Lionville Laboratory Project Manager <u>OS</u>	ANALYSES REQUESTED →	ORGANIC				INORG						
QC <u>Spec</u> Del <u>Std</u> TAT <u>30 day</u>		VOA	BNA	Pest/PCB	Herb	Metal	CN	TDS	IC Analysis	ALK	NO2 NO3	
Date Rec'd <u>3-25-05</u> Date Due <u>4-24-05</u>	Lionville Laboratory Use Only											

MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum DL - Drum L - Liquids EP/TCLP L - Leachate WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only														
			MS	MSD				ITOX	SO ₄	Total	ITDS	ICD	ITALK	INOR								
	001	BICD10(F)			W	3/24/05	0958															
	002	BICD11			L																	
	003	B1 CD 16			L		0710															

Special Instructions: Run matrix QC Saf B03-018

ICD - Br, Cl, FL, NO₂, NO₃, PO₄, SO₄

met① - Al, Ag, Ba, Be, Cd, Ca, Co, Cr, Cu, Fe, K, Mg, Mn, Na, Ni, Sb, V, Zn

DATE/REVISIONS:

- _____
- _____
- _____
- _____
- _____
- _____

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
Fed Ex	V. Hernandez	3-25-05	0950								
	Transcribed by T. Koppel							ORIGINAL			
								REWRITTEN			"COMPOSITE WASTE"

PNNL **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** C.O.C. # **B03-018-101**

Collector R.T. SICKLE	Contact/Requester JH KESSNER	Telephone No. MSIN FAX 509-375-4688
SAF No. B03-018	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDE Groundwater Well Samples	<i>DTS-SAWS-HPT</i>	Ice Chest No. 54WS-115 Temp.
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment	Bill of Lading/Air Bill No. <i>790466020450</i>
Protocol GPP	Priority: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes No
 Batch all PNNL GW samples submitted under this SAF into one SDG, not to exceed SDG closure of 14 days.
 Submit invoices & deliverables to JH Kessner (fax 509-372-9609)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1CCY6 (F)		W	<i>3-23-05</i>	<i>1031</i>	1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2
B1CCY7		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B1CCY7		W			3x40-mL aGs*	VOA - 8260B (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B1CCY7		W			1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2
B1CCY7		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B1CCY7		W			1x250-mL G/P	Alkalinity - 310.1	Cool 4C
B1CCY7		W			1x500-mL G/P	NO2/NO3 - 353.2	H2SO4 to pH <2 Cool 4C
B1CCY7		W			1x20-mL P	Activity Scan	None
B1CCY7		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By R.T. SICKLE	Print	Sign	Date/Time MAR 23 2005	Received By <i>Fel</i>	Print	Sign	Date/Time	Matrix * S = Soil DS = Drum Solid SF = Sediment DI = Drum Liquid SO = Solid T = Tissue SL = Sludge WI = Wine W = Water L = Lignid O = Oil V = Vegetation A = Air X = Other
Relinquished By <i>ROE</i>			Date/Time <i>3-24-05 0935</i>	Received By <i>ROE</i>			Date/Time <i>3-24-05 0935</i>	
Relinquished By			Date/Time	Received By			Date/Time	
Relinquished By			Date/Time	Received By			Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)						Disposed By	Date/Time

0000000033

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #

B03-018-105

Page 1 of 1

B03-018-105

Collector R.T. SICKLE		Contact/Requester JH KESSNER	Telephone No. 509-375-4688	MSIN	FAX
SAF No. B03-018		Sampling Origin HANFORD SITE	Purchase Order/Charge Code		
Project Title ERDF Groundwater Well Samples		DTS - SAWs 1489	Ice Chest No. SML 526 Temp.		
Shipped To (Lab) Lionville Laboratory Incorporated		Method of Shipment	Bill of Lading/Air Bill No. 7909-5794 9706		
Protocol GPP		Priority: 45 Days		Offsite Property No.	

POSSIBLE SAMPLE HAZARDS/REMARKS	SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Batch all PNNL GW samples submitted under this SAF into one SDG, not to exceed SDG closure of 14 days. Submit invoices & deliverables to JH Kessner (fax 509-372-9609)
---	--

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1CD07 (F)		W	3-23-05	0745	1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2
B1CD08		W			1x500-mL G/P	TDS - 180.1	Cool 4C
B1CD08		W			3x40-mL aGs*	VOA - 8280B (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B1CD08		W			1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2
B1CD08		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B1CD08		W			1x250-mL G/P	Alkalinity - 310.1	Cool 4C
B1CD08		W			1x500-mL G/P	NO2/NO3 - 353.2	H2SO4 to pH <2 Cool 4C
B1CD08		W			1x20-mL P	Activity Scan	None
B1CD08		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By R.T. SICKLE Print Sign Date/Time MAR 23 2005 1400	Received By Fed Ex Print Sign Date/Time	Matrix * S = Soil DS = Drum Solid SF = Sediment DI = Drum Liquid SO = Solid T = Tissue SL = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other		
Relinquished By FQ Print Sign Date/Time 3-24-05 0935	Received By [Signature] Print Sign Date/Time 3-24-05 0935			
Relinquished By Print Sign Date/Time	Received By Print Sign Date/Time			
Relinquished By Print Sign Date/Time	Received By Print Sign Date/Time			
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. #

B03-018-104

Page 1 of 1

Collector R.T. SICKLE	Contact/Requester JH KESSNER	Telephone No. 509-375-4688 MSIN FAX
SAF No. B03-018	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	DTS - SAMS - 1189	Ice Chest No. SMC 526 Temp.
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment	Bill of Lading/Air Bill No. 79095794 9706
Protocol GPP	Priority: 45 Days	Offsite Property No.

<p>POSSIBLE SAMPLE HAZARDS/REMARKS</p>	<p>SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Batch all PNNL GW samples submitted under this SAF into one SDG, not to exceed SDG closure of 14 days. Submit invoices & deliverables to JH Kessner (fax 509-372-9609)</p>
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative	
B1CD04 (F)		W	3-23-05	0909	1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2	
B1CD05		W	↓	↓	1x500-mL G/P	TDS - 160.1	Cool 4C	
B1CD05		W			3x40-mL aGs*	VOA - 8280B (TCL)	HCl or H2SO4 to pH <2 Cool 4C	
B1CD05		W			1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2	
B1CD05		W			1x500-mL P	IC Anions - 300.0	Cool 4C	
B1CD05		W			1x250-mL G/P	Alkalinity - 310.1	Cool 4C	
B1CD05		W			1x500-mL G/P	NO2/NO3 - 353.2	H2SO4 to pH <2 Cool 4C	
B1CD05		W			1x20-mL P	Activity Scan	None	
B1CD05		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C	

Relinquished By R.T. SICKLE	Date/Time MAR 23 2005	Received By <i>Fel Ex</i>	Date/Time	<p>Matrix *</p> <p>S = Soil DS = Drum Solid SF = Sediment DI = Drum Liner SO = Solid T = Tissue SL = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other</p>
Relinquished By <i>Red</i>	Date/Time 3-24-05 0935	Received By <i>[Signature]</i>	Date/Time 3-24-05 0935	
Relinquished By	Date/Time	Received By	Date/Time	
Relinquished By	Date/Time	Received By	Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)		Disposed By	Date/Time

PNNL-104

PNNL	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # B03-018-106
		Page 1 of 1

Collector R.T. SICKLE	Contact/Requester JH KESSNER	Telephone No. 509-375-4688 MSIN FAX
SAF No. B03-018	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	DTS-SAWS-805189	Ice Chest No. 5A23-203 Temp.
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment	Bill of Lading/Air Bill No. 7928-7964-2237
Protocol GPP	Priority: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS	SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Batch all PNNL GW samples submitted under this SAF into one SDG, not to exceed SDG closure of 14 days. Submit invoices & deliverables to JH Kessner (fax 509-372-9609)
---	--

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1CD10 (F)		W	3-24-05	0950	1x500-mL G/P	ICP Metals - 8010B (TAL)	HNO3 to pH <2
B1CD11		W	↓	↓	1x500-mL G/P	TDS - 180.1	Cool 4C
B1CD11		W			3x40-mL aGs*	VOA - 8280B (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B1CD11		W			1x500-mL G/P	ICP Metals - 8010B (TAL)	HNO3 to pH <2
B1CD11		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B1CD11		W			1x250-mL G/P	Alkalinity - 310.1	Cool 4C
B1CD11		W			1x500-mL G/P	NO2/NO3 - 353.2	H2SO4 to pH <2 Cool 4C
B1CD11		W			1x20-mL P	Activity Scan	None
B1CD11		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By R.T. SICKLE	Print	Sign	Date/Time MAR 24 2005	Received By <i>Fed Ex</i>	Print	Sign	Date/Time	Matrix * S = Soil DS = Drum Solid SE = Sediment DI = Drum Liquid SO = Solid T = Tissue SI = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By <i>Fed Ex</i>			Date/Time 3-25-05 0950	Received By <i>T. Kessner</i>			Date/Time 3-25-05 0950	
Relinquished By			Date/Time	Received By			Date/Time	
Relinquished By			Date/Time	Received By			Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By			Date/Time	

20050324

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: *TNU HANFORD*

Date: *3/24/05*

Purchase Order / Project# /

SAF# / SOW# / Release #: *B03-018*

LvLI Batch #: *05832066*

Sample Custodian: *J. Almond*

NOTE: EXPLAIN ALL DISCREPANCIES

- | | | | |
|---|--|--|---------------------------------|
| 1. Samples Hand Delivered or Shipped | Carrier <i>Fed Ex</i> | Airbill# <i>790466020450</i>
<i>99095794 9706</i> | |
| 2. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals | Comments |
| 3. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | |
| 4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | |
| 5. Samples received cooled or ambient? | Temp <i>2.1</i> °C
<i>3.9</i> | Cooler # <i>SAWS-115</i>
<i>SMAL 726</i> | |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals | |
| 7. coc signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | |
| 8. Sample containers are intact? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | |
| 9. All samples on coc received? All samples received on coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | |
| 10. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | |
| 11. Samples properly preserved? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | |
| 12. Samples received within hold times? Short holds taken to wet lab? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | |
| 13. VOA, TOC, FOX free of headspace? | <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No | <input type="checkbox"/> N/A | <i># 007,009,012 air Bubble</i> |
| 14. QC stickers placed on bottles designated by client? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | |
| 16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Discrepancies | |

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: *TRU-HANFORD*

Date: *3-25-05*

Purchase Order / Project# /
 (SAF#) / SOW# / Release #: *B03-018*

LvLI Batch #: *0503L080*

Sample Custodian: *[Signature]*

NOTE: EXPLAIN ALL DISCREPANCIES

- | | | |
|---|--|--|
| 1. Samples Hand Delivered or <u>Shipped</u> | Carrier <i>Fed Ex</i> | Airbill# <i>7928 7964 2237</i> |
| 2. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals Comments |
| 3. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 5. Samples received cooled or ambient? | Temp <i>3.3</i> °C | Cooler # <i>SAWS-200</i> |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals <i>5</i> |
| 7. coc signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 8. Sample containers are intact? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 9. All samples on coc received? All samples received on coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 10. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 11. Samples properly preserved? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 12. Samples received within hold times? Short holds taken to wet lab? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 13. VOA, TOC, <u>TOX free</u> of headspace? | <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No | <input type="checkbox"/> N/A <i>air bubble</i> |
| 14. QC stickers placed on bottles designated by client? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> No <i>3-25-05</i>
Discrepancies |

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B03-018 H3095

DATE RECEIVED: 03/25/05

LVL LOT # :0503L080

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BROMIDE BY IC	MB1	W	05LICB20	N/A	04/04/05	04/04/05
BROMIDE BY IC	MB1 BS	W	05LICB20	N/A	04/04/05	04/04/05
CHLORIDE BY IC	MB1	W	05LICA20	N/A	04/04/05	04/04/05
CHLORIDE BY IC	MB1 BS	W	05LICA20	N/A	04/04/05	04/04/05
FLUORIDE BY IC	MB1	W	05LIC020	N/A	04/04/05	04/04/05
FLUORIDE BY IC	MB1 BS	W	05LIC020	N/A	04/04/05	04/04/05
NITRITE BY IC	MB1	W	05LICB20	N/A	04/04/05	04/04/05
NITRITE BY IC	MB1 BS	W	05LICB20	N/A	04/04/05	04/04/05
NITRATE BY IC	MB1	W	05LICC20	N/A	04/04/05	04/04/05
NITRATE BY IC	MB1 BS	W	05LICC20	N/A	04/04/05	04/04/05
NITRATE BY IC	MB1	W	05LICA21	N/A	04/07/05	04/07/05
NITRATE BY IC	MB1 BS	W	05LICA21	N/A	04/07/05	04/07/05
PHOSPHATE BY IC	MB1	W	05LICD20	N/A	04/04/05	04/04/05
PHOSPHATE BY IC	MB1 BS	W	05LICD20	N/A	04/04/05	04/04/05
SULFATE BY IC	MB1	W	05LICE20	N/A	04/04/05	04/04/05
SULFATE BY IC	MB1 BS	W	05LICE20	N/A	04/04/05	04/04/05
NITRATE NITRITE	MB1	W	05LN3023	N/A	04/15/05	04/15/05
NITRATE NITRITE	MB1 BS	W	05LN3023	N/A	04/15/05	04/15/05
TOTAL DISSOLVED SOLI	MB1	W	05LSS037	N/A	03/30/05	03/30/05
TOTAL DISSOLVED SOLI	MB1 BS	W	05LSS037	N/A	03/30/05	03/30/05
TOTAL DISSOLVED SOLI	MB1 BSD	W	05LSS037	N/A	03/30/05	03/30/05
TOTAL ORGANIC HALIDE	MB1	W	05LX002	N/A	04/08/05	04/08/05
TOTAL ORGANIC HALIDE	MB1 BS	W	05LX002	N/A	04/08/05	04/08/05



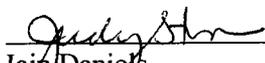
Analytical Report

Client: TNU-HANFORD B03-018 H3095
LVL#: 0503L080

W.O.#: 11343-606-001-9999-00
Date Received: 03-25-05

INORGANIC NARRATIVE

1. This narrative covers the analyses of 1 water sample.
2. The sample was prepared and analyzed in accordance with the methods checked on the attached glossary.
3. Sample holding times as required by the method and/or contract were met with the exception of Phosphate, Nitrite and Nitrate that were analyzed past hold (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.
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 (RDP) control limit.
7. The matrix spike recoveries for Bromide, Chloride, Fluoride, Nitrite, Nitrate, Phosphate, Sulfate and Nitrate Nitrite were within the 75-125% control limits. The matrix spike analysis associated with this LvLI batch for TOX is found in LvLI batch 0503L066.
8. The replicate analyses for Bromide, Chloride, Fluoride, Nitrite, Nitrate, Phosphate, Sulfate, Nitrate Nitrite and TDS were within the 20% RPD control limit however replicate analysis for TOX was outside the control limit that may be attributed to sample inhomogeneity. Replicate analysis for associated with this LvLI batch for Alkalinity is found in LvLI batch 0503L066.
9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

5/4/05
Date

njpl03-080

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 16 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR WATER SAMPLE ANALYSIS

	<u>EPA /600</u>	<u>SW846</u>	<u>OTHER</u>
Acidity	<input checked="" type="checkbox"/> 305.1		
<input checked="" type="checkbox"/> Alkalinity <input type="checkbox"/> Bicarbonate <input type="checkbox"/> Carbonate	<input checked="" type="checkbox"/> 310.1		
BOD	<input type="checkbox"/> 405.1		<input type="checkbox"/> 5210B (b)
Ion Chromatography:			
<input checked="" type="checkbox"/> Bromide <input checked="" type="checkbox"/> Chloride <input checked="" type="checkbox"/> Fluoride	<input checked="" type="checkbox"/> 300.0	<input type="checkbox"/> 9056	
<input checked="" type="checkbox"/> Nitrate <input checked="" type="checkbox"/> Nitrite <input checked="" type="checkbox"/> Phosphate	<input checked="" type="checkbox"/> 300.0	<input type="checkbox"/> 9056	
<input checked="" type="checkbox"/> Sulfate <input type="checkbox"/> Formate <input type="checkbox"/> Acetate <input type="checkbox"/> Oxalate	<input checked="" type="checkbox"/> 300.0	<input type="checkbox"/> 9056	
Chloride	<input type="checkbox"/> 325.2	<input type="checkbox"/> 9251	
Chlorine, Residual	<input type="checkbox"/> 330.5 (mod)		
Cyanide, Amenable to Chlorination	<input type="checkbox"/> 335.2	<input type="checkbox"/> 9010B	
Cyanide, Total	<input type="checkbox"/> 335.2	<input type="checkbox"/> 9010B	<input type="checkbox"/> 9014 <input type="checkbox"/> ILMO4.0 (e)
Cyanide, Weak Acid Dissociable			<input type="checkbox"/> 412 (a) <input type="checkbox"/> 4500CN-1 (b)
COD	<input type="checkbox"/> 410.4(mod)		<input type="checkbox"/> 5220C (b)
Color	<input type="checkbox"/> 110.2		
Corrosivity by Coupon		<input type="checkbox"/> 1110(mod)	
Chromium VI		<input type="checkbox"/> 7196A	<input type="checkbox"/> 3500Cr-D (b)
Fluoride	<input type="checkbox"/> 340.2		<input type="checkbox"/> 4500-FC
Hardness, Calcium	<input type="checkbox"/> 215.2		
Hardness, Total	<input type="checkbox"/> 130.2		
Iodide			<input type="checkbox"/> ASTM D19P202 (1)
Surfactant	<input type="checkbox"/> 425.1		
<input checked="" type="checkbox"/> Nitrate-Nitrite <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite	<input checked="" type="checkbox"/> 353.2		
Ammonia	<input type="checkbox"/> 350.3		
Total <input type="checkbox"/> Kjeldahl <input type="checkbox"/> Organic Nitrogen	<input type="checkbox"/> 351.3		
Total <input type="checkbox"/> Organic <input type="checkbox"/> Inorganic Carbon	<input type="checkbox"/> 415.1	<input type="checkbox"/> 9060	
Oil & Grease	<input type="checkbox"/> 413.1	<input type="checkbox"/> 9070	
<input type="checkbox"/> pH <input type="checkbox"/> pH; paper	<input type="checkbox"/> 150.1	<input type="checkbox"/> 9040B <input type="checkbox"/> 9041A	
Petroleum Hydrocarbons, Total Recoverable	<input type="checkbox"/> 418.1		
Phenol	<input type="checkbox"/> 420.1	<input type="checkbox"/> 420.2 <input type="checkbox"/> 9065 <input type="checkbox"/> 9066	
<input type="checkbox"/> Ortho <input type="checkbox"/> Total Phosphate	<input type="checkbox"/> 365.2		<input type="checkbox"/> 4500-P B <input type="checkbox"/> C
Salinity			<input type="checkbox"/> 210A (a) <input type="checkbox"/> 2520 (b)
Settleable Solids	<input type="checkbox"/> 160.5		
Sulfide	<input type="checkbox"/> 376.1		<input type="checkbox"/> 9030B/9034 (acid soluble)
Reactive <input type="checkbox"/> Cyanide <input type="checkbox"/> Sulfide		<input type="checkbox"/> Section 7.3 <input type="checkbox"/> (9014_9030B)	
Silica	<input type="checkbox"/> 370.1		
Sulfite	<input type="checkbox"/> 377.1		
Sulfate	<input type="checkbox"/> 375.4	<input type="checkbox"/> 9038	
Specific Conductance	<input type="checkbox"/> 120.1	<input type="checkbox"/> 9050A	
Specific Gravity			<input type="checkbox"/> D5057-90 <input type="checkbox"/> 213E (a)
Synthetic Precipitation Leach		<input type="checkbox"/> 1312	
Total <input checked="" type="checkbox"/> Dissolved <input type="checkbox"/> Suspended <input type="checkbox"/> Solids	<input type="checkbox"/> 160 <input checked="" type="checkbox"/> .1 <input type="checkbox"/> .2 <input type="checkbox"/> .3		
Total Organic Halides	<input type="checkbox"/> 450.1	<input checked="" type="checkbox"/> 9020B	
Turbidity	<input type="checkbox"/> 180.1		
Volatile Solids:			
<input type="checkbox"/> Total <input type="checkbox"/> Dissolved <input type="checkbox"/> Suspended	<input type="checkbox"/> 160.4		
Other:		Method:	

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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.

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INORGANICS DATA SUMMARY REPORT 04/29/05

CLIENT: TNUHANFORD B03-018 H3095
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L080

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
-002	B1CD11	Alkalinity	130	MG/L	2.0	1.0
		Bromide by IC	0.25	u MG/L	0.25	1.0
		Chloride by IC	19.0	MG/L	2.5	10.0
		Fluoride by IC	0.29	MG/L	0.25	1.0
		Nitrite by IC	0.25	u MG/L	0.25	1.0
		Nitrate by IC	94.9	MG/L	2.50	10.0
		Phosphate by IC	0.25	u MG/L	0.25	1.0
		Sulfate by IC	24.0	MG/L	2.5	10.0
		Nitrate Nitrite	25.8	MG/L	1.0	50.0
		Total Dissolved Solids	386	MG/L	5.00	1.0
		Total Organic Halides	11.4	UG/L	5.0	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/29/05

CLIENT: TNUHANFORD B03-018 H3095
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L080

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK10	05LAK014-MB1	Alkalinity	0.50 u	MG/L	0.50	1.0
BLANK10	05LICB20-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
BLANK10	05LICA20-MB1	Chloride by IC	0.25 u	MG/L	0.25	1.0
BLANK10	05LIC020-MB1	Fluoride by IC	0.25 u	MG/L	0.25	1.0
BLANK10	05LICC20-MB1	Nitrate by IC	0.25 u	MG/L	0.25	1.0
BLANK10	05LICA21-MB1	Nitrate by IC	0.25 u	MG/L	0.25	1.0
BLANK10	05LICD20-MB1	Phosphate by IC	0.25 u	MG/L	0.25	1.0
BLANK10	05LICE20-MB1	Sulfate by IC	0.25 u	MG/L	0.25	1.0
BLANK10	05LN3023-MB1	Nitrate Nitrite	0.020u	MG/L	0.020	1.0
BLANK10	05LSS037-MB1	Total Dissolved Solids	5.00 u	MG/L	5.00	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/29/05

CLIENT: TNUHANFORD B03-018 H3095
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L080

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK1	05LX002-MB1	Total Organic Halides	5.0	u UG/L	5.0	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 04/29/05

CLIENT: TNUHANFORD B03-018 H3095
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L080

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-002	B1CD11	Bromide by IC	5.0	0.00	5.0	99.0	1.0
		Chloride by IC	121	19.0	100	102.3	20.0
		Fluoride by IC	5.2	0.29	5.0	97.4	1.0
		Nitrite by IC	5.14	0.25u	5.00	102.8	1.0
		Nitrate by IC	379	94.9	250	113.5	50.0
		Phosphate by IC	4.6	0.25u	5.0	91.2	1.0
		Sulfate by IC	128	24.0	100	104.4	20.0
		Nitrate Nitrite	77.0	25.8	50.0	102.5	100
BLANK10	05LAK014-MB1	Alkalinity	101	0.50u	100	100.7	1.0
		Alkalinity MSD	97.0	0.50u	100	97.0	1.0
BLANK10	05LICB20-MB1	Bromide by IC	4.9	0.25u	5.0	97.7	1.0
		Nitrite by IC	4.91	0.25u	5.00	98.3	1.0
BLANK10	05LICA20-MB1	Chloride by IC	4.8	0.25u	5.0	96.5	1.0
BLANK10	05LIC020-MB1	Fluoride by IC	4.9	0.25u	5.0	97.3	1.0
BLANK10	05LICCC20-MB1	Nitrate by IC	4.84	0.25u	5.00	96.7	1.0
BLANK10	05LICA21-MB1	Nitrate by IC	4.84	0.25u	5.00	96.9	1.0
BLANK10	05LICD20-MB1	Phosphate by IC	4.9	0.25u	5.0	97.2	1.0
BLANK10	05LICE20-MB1	Sulfate by IC	4.8	0.25u	5.0	96.9	1.0
BLANK10	05LN3023-MB1	Nitrate Nitrite	0.52	0.02u	0.50	103.0	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 04/29/05

CLIENT: TNUHANFORD B03-018 H3095
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L080

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
BLANK10	05LSS037-MB1	Total Dissolved Solids	83.0	5.00u	100	83.0	1.0
		Total Dissolved Solids	90.0	5.00u	100	90.0	1.0
BLANK1	05LX002-MB1	Total Organic Halides	51.8	5.0 u	50.0	103.5	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 04/29/05

CLIENT: TNUHANFORD B03-018 H3095
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L080

SAMPLE	SITE ID	ANALYTE	SPIKE#1 SPIKE#2		%DIFF
			%RECOV	%RECOV	
BLANK10	05LAK014-MB1	Alkalinity	100.7	97.0	3.8
BLANK10	05LSS037-MB1	Total Dissolved Solids	83.0	90.0	8.1

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 04/29/05

CLIENT: TNUHANFORD B03-018 H3095
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L080

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-002REP	B1CD11	Bromide by IC	0.25u	0.25u	NC	1.0
		Chloride by IC	19.0	18.0	5.6	10.0
		Fluoride by IC	0.29	0.32	11.2	1.0
		Nitrite by IC	0.25u	0.25u	NC	1.0
		Nitrate by IC	94.9	93.5	1.5	10.0
		Phosphate by IC	0.25u	0.25u	NC	1.0
		Sulfate by IC	24.0	24.9	3.6	10.0
		Nitrate Nitrite	25.8	26.0	0.77	50.0
		Total Dissolved Solids	386	385	0.26	1.0
		Total Organic Halides	11.4	17.8	44.5	1.0

PNNL **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** **C.O.C.#**
B03-018-106

Collector **R.T. SICKLE** Contact/Requester **JH KESSNER** Telephone No. **509-375-4688** MSIN **FAX**

SAF No. **B03-018** Sampling Origin **HANFORD SITE** Purchase Order/Charge Code

Project Title **ERDF Groundwater Well Samples** *23-24-06* Ice Chest No. **5423-200** Temp.

Shipped To (Lab) **Lionville Laboratory Incorporated** *DTS-SAWS-2051489* Method of Shipment Bill of Lading/Air Bill No. **7928-7964-2237**

Protocol **GPP** Priority: **45 Days** Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS **SPECIAL INSTRUCTIONS** **Hold Time** **Total Activity Exemption: Yes** **No**

Batch all PNNL GW samples submitted under this SAF into one SDG, not to exceed SDG closure of 14 days. Submit invoices & deliverables to JH Kessner (fax 509-372-9609)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative	
B1CD10 (F)		W	<i>3-24-05</i>	<i>0950</i>	1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2	
B1CD11		W			1x500-mL G/P	TDS - 160.1	Cool 4C	
B1CD11		W			3x40-mL aGs*	VOA - 8260B (TCL)	HCl or H2SO4 to pH <2 Cool 4C	
B1CD11		W			1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2	
B1CD11		W			1x500-mL P	IC Anions - 300.0	Cool 4C	
B1CD11		W			1x250-mL G/P	Alkalinity - 310.1	Cool 4C	
B1CD11		W			1x500-mL G/P	NO2/NO3 - 353.2	H2SO4 to pH <2 Cool 4C	
B1CD11		W			1x20-mL P	Activity Scan	None	
B1CD11		W			1x500-mL aGs*	TOX - 8020	H2SO4 to pH <2 Cool 4C	

Relinquished By R.T. SICKLE <small>Print Sign</small> MAR 24 2005 <small>Date/Time</small>	Received By Fed Ex <small>Print Sign</small> MAR 24 2005 <small>Date/Time</small>	Matrix * S = Soil DS = Drum Solid SF = Sediment DI = Drum Liner SO = Solid T = Tissue SL = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other	
Relinquished By Fed Ex <small>Print Sign</small> 3-25-05 0950 <small>Date/Time</small>	Received By T. Sherman <small>Print Sign</small> 3-25-05 0950 <small>Date/Time</small>		
Relinquished By <small>Print Sign</small> 3-25-05 0950 <small>Date/Time</small>	Received By <small>Print Sign</small> 3-25-05 0950 <small>Date/Time</small>		
Relinquished By <small>Print Sign</small> 3-25-05 0950 <small>Date/Time</small>	Received By <small>Print Sign</small> 3-25-05 0950 <small>Date/Time</small>		
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. # B03-018-109
Page 1 of 1		

Collector R.T. SICKLE	Contact/Requester JH KESSNER	Telephone No. 509-375-4688 MSIN FAX
SAF No. B03-018	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	DTS-SAWS-1489	Ice Chest No. SAWS-200 Temp.
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment	Bill of Lading/Air Bill No. 7928-7964-2237
Protocol GPP	Priority: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS ** **	SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Batch all PNNL GW samples submitted under this SAF into one SDG, not to exceed SDG closure of 14 days. Submit invoices & deliverables to JH Kessner (fax 509-372-9609)
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1CD16		W	3-24-05	0710	3x40-mL aGs*	VOA - 8280B (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B1CD16		W	↓	↓	1x20-mL P	Activity Scan	None

Relinquished By R.T. SICKLE	Print <i>[Signature]</i>	Date/Time MAR 24 2005	Received By <i>[Signature]</i>	Print	Sign	Date/Time	Matrix * S = Soil DS = Drum Solid SF = Sediment DI = Drum Liquid SO = Solid T = Tissue SI = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By <i>[Signature]</i>	Date/Time 3-25-05	Date/Time 0950	Received By <i>[Signature]</i>	Date/Time 3-25-05	Date/Time 0950		
Relinquished By	Date/Time	Date/Time	Received By	Date/Time	Date/Time		
Relinquished By	Date/Time	Date/Time	Received By	Date/Time	Date/Time		
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: *TNU- HANFORD*

Date: *3-25-05*

Purchase Order / Project# /

SAF# / SOW# / Release #: *B03-018*

LvLI Batch #: *0503L080*

Sample Custodian: *[Signature]*

NOTE: EXPLAIN ALL DISCREPANCIES

- | | | |
|---|--|--|
| 1. Samples Hand Delivered or <u>Shipped</u> | Carrier <i>Fed Ex</i> | Airbill# <i>7928 7964 2237</i> |
| 2. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals Comments |
| 3. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 5. Samples received cooled or ambient? | Temp <i>3.3</i> °C | Cooler # <i>SAWS-200</i> |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals <i>5</i> |
| 7. coc signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 8. Sample containers are intact? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 9. All samples on coc received? All samples received on coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 10. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 11. Samples properly preserved? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 12. Samples received within hold times? Short holds taken to wet lab? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 13. VOA, TOC, <u>TOX free</u> of headspace? | <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No | <input type="checkbox"/> N/A <i>air bubble</i> |
| 14. QC stickers placed on bottles designated by client? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> No <i>3-25-05</i>
Discrepancies |

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B03-018 H3095



DATE RECEIVED: 03/24/05

LVL LOT # : 05031066

CLIENT ID / ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	ANALYSIS TIME
B1CCY4							
ALKALINITY	002	W	05LAK014	03/23/05	04/06/05	04/06/05	
ALKALINITY	002 REP	W	05LAK014	03/23/05	04/06/05	04/06/05	
BROMIDE BY IC	002	W	05LIC019	03/23/05	03/24/05	03/24/05	
BROMIDE BY IC	002 REP	W	05LIC019	03/23/05	03/24/05	03/24/05	
BROMIDE BY IC	002 MS	W	05LIC019	03/23/05	03/24/05	03/24/05	
CHLORIDE BY IC	002	W	05LIC019	03/23/05	03/24/05	03/24/05	
CHLORIDE BY IC	002 REP	W	05LIC019	03/23/05	03/24/05	03/24/05	
CHLORIDE BY IC	002 MS	W	05LIC019	03/23/05	03/24/05	03/24/05	
FLUORIDE BY IC	002	W	05LIC019	03/23/05	03/24/05	03/24/05	
FLUORIDE BY IC	002 REP	W	05LIC019	03/23/05	03/24/05	03/24/05	
FLUORIDE BY IC	002 MS	W	05LIC019	03/23/05	03/24/05	03/24/05	
NITRITE BY IC	002	W	05LIC019	03/23/05	03/24/05	03/24/05	
NITRITE BY IC	002 REP	W	05LIC019	03/23/05	03/24/05	03/24/05	
NITRITE BY IC	002 MS	W	05LIC019	03/23/05	03/24/05	03/24/05	
NITRATE BY IC	002	W	05LIC019	03/23/05	03/24/05	03/24/05	
NITRATE BY IC	002 REP	W	05LIC019	03/23/05	03/24/05	03/24/05	
NITRATE BY IC	002 MS	W	05LIC019	03/23/05	03/24/05	03/24/05	
PHOSPHATE BY IC	002	W	05LICD20	03/23/05	04/04/05	04/04/05	
PHOSPHATE BY IC	002 REP	W	05LICD20	03/23/05	04/04/05	04/04/05	
PHOSPHATE BY IC	002 MS	W	05LICD20	03/23/05	04/04/05	04/04/05	
SULFATE BY IC	002	W	05LICA19	03/23/05	03/24/05	03/24/05	
SULFATE BY IC	002 REP	W	05LICA19	03/23/05	03/24/05	03/24/05	
SULFATE BY IC	002 MS	W	05LICA19	03/23/05	03/24/05	03/24/05	
NITRATE NITRITE	002	W	05LN3023	03/23/05	04/15/05	04/15/05	
TOTAL DISSOLVED SOLI	002	W	05LSSA36	03/23/05	03/25/05	03/25/05	
TOTAL ORGANIC HALIDE	002	W	05LX002	03/23/05	04/08/05	04/08/05	
TOTAL ORGANIC HALIDE	002 REP	W	05LX002	03/23/05	04/08/05	04/08/05	
B1CCY7							
ALKALINITY	004	W	05LAK014	03/23/05	04/06/05	04/06/05	
BROMIDE BY IC	004	W	05LIC019	03/23/05	03/24/05	03/24/05	
CHLORIDE BY IC	004	W	05LIC019	03/23/05	03/24/05	03/24/05	
FLUORIDE BY IC	004	W	05LIC019	03/23/05	03/24/05	03/24/05	
NITRITE BY IC	004	W	05LIC019	03/23/05	03/24/05	03/24/05	2018

1739
 1852
 1935
 1754
 1906
 1948
 1601
 1615
 1629

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B03-018 H3095

DATE RECEIVED: 03/24/05

LVL LOT # :0503L066

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	ANALYSIS Time
NITRATE BY IC	004	W	05LIC019	03/23/05	03/24/05	03/24/05	2032
PHOSPHATE BY IC	004	W	05LICD20	03/23/05	04/04/05	04/04/05	1713
SULFATE BY IC	004	W	05LICA19	03/23/05	03/24/05	03/24/05	
NITRATE NITRITE	004	W	05LN3023	03/23/05	04/15/05	04/15/05	
TOTAL DISSOLVED SOLI	004	W	05LSSA36	03/23/05	03/25/05	03/25/05	
TOTAL ORGANIC HALIDE	004	W	05LX002	03/23/05	04/08/05	04/08/05	
B1CD08							
ALKALINITY	007	W	05LAK014	03/23/05	04/06/05	04/06/05	
BROMIDE BY IC	007	W	05LICB20	03/23/05	04/04/05	04/04/05	
CHLORIDE BY IC	007	W	05LICA20	03/23/05	04/04/05	04/04/05	
FLUORIDE BY IC	007	W	05LIC020	03/23/05	04/04/05	04/04/05	
NITRITE BY IC	007	W	05LICB20	03/23/05	04/04/05	04/04/05	1727
NITRATE BY IC	007	W	05LICC20	03/23/05	04/04/05	04/04/05	1727
PHOSPHATE BY IC	007	W	05LICD20	03/23/05	04/04/05	04/04/05	1727
SULFATE BY IC	007	W	05LICE20	03/23/05	04/04/05	04/04/05	
NITRATE NITRITE	007	W	05LN3023	03/23/05	04/15/05	04/15/05	
NITRATE NITRITE	007 REP	W	05LN3023	03/23/05	04/15/05	04/15/05	
NITRATE NITRITE	007 MS	W	05LN3023	03/23/05	04/15/05	04/15/05	
TOTAL DISSOLVED SOLI	007	W	05LSSA36	03/23/05	03/25/05	03/25/05	
TOTAL ORGANIC HALIDE	007	W	05LX002	03/23/05	04/08/05	04/08/05	
TOTAL ORGANIC HALIDE	007 MS	W	05LX002	03/23/05	04/08/05	04/08/05	
B1CD05							
ALKALINITY	009	W	05LAK014	03/23/05	04/06/05	04/06/05	
BROMIDE BY IC	009	W	05LIC019	03/23/05	03/24/05	03/24/05	
CHLORIDE BY IC	009	W	05LIC019	03/23/05	03/24/05	03/24/05	
FLUORIDE BY IC	009	W	05LIC019	03/23/05	03/24/05	03/24/05	
NITRITE BY IC	009	W	05LIC019	03/23/05	03/24/05	03/24/05	
NITRATE BY IC	009	W	05LIC019	03/23/05	03/24/05	03/24/05	
PHOSPHATE BY IC	009	W	05LICD20	03/23/05	04/04/05	04/04/05	
SULFATE BY IC	009	W	05LICA19	03/23/05	03/24/05	03/24/05	
NITRATE NITRITE	009	W	05LN3023	03/23/05	04/15/05	04/15/05	
TOTAL DISSOLVED SOLI	009	W	05LSSA36	03/23/05	03/25/05	03/25/05	
TOTAL ORGANIC HALIDE	009	W	05LX002	03/23/05	04/08/05	04/13/05	
B1CD13							
ALKALINITY	012	W	05LAK014	03/23/05	04/06/05	04/06/05	

imp 5-4-05
~~1742~~ 2213
~~1742~~ 2228
 1742

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B03-018 H3095

DATE RECEIVED: 03/24/05

LVL LOT # :0503L066

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	ANALYSIS TIME
BROMIDE BY IC	012	W	05LIC019	03/23/05	03/24/05	03/24/05	
CHLORIDE BY IC	012	W	05LIC019	03/23/05	03/24/05	03/24/05	
FLUORIDE BY IC	012	W	05LIC019	03/23/05	03/24/05	03/24/05	
NITRITE BY IC	012	W	05LIC019	03/23/05	03/24/05	03/24/05	2257
NITRATE BY IC	012	W	05LIC019	03/23/05	03/24/05	03/24/05	2311
PHOSPHATE BY IC	012	W	05LICD20	03/23/05	04/04/05	04/04/05	1756
SULFATE BY IC	012	W	05LICA19	03/23/05	03/24/05	03/24/05	
NITRATE NITRITE	012	W	05LN3023	03/23/05	04/15/05	04/15/05	
TOTAL DISSOLVED SOLI	012	W	05LSSA36	03/23/05	03/25/05	03/25/05	
TOTAL ORGANIC HALIDE	012	W	05LX002	03/23/05	04/08/05	04/13/05	

LAB QC:

ALKALINITY	MB1	W	05LAK014	N/A	04/06/05	04/06/05	
ALKALINITY	MB1 BS	W	05LAK014	N/A	04/06/05	04/06/05	
ALKALINITY	MB1 BSD	W	05LAK014	N/A	04/06/05	04/06/05	
BROMIDE BY IC	MB1	W	05LIC019	N/A	03/24/05	03/24/05	
BROMIDE BY IC	MB1 BS	W	05LIC019	N/A	03/24/05	03/24/05	
CHLORIDE BY IC	MB1	W	05LIC019	N/A	03/24/05	03/24/05	
CHLORIDE BY IC	MB1 BS	W	05LIC019	N/A	03/24/05	03/24/05	
FLUORIDE BY IC	MB1	W	05LIC019	N/A	03/24/05	03/24/05	
FLUORIDE BY IC	MB1 BS	W	05LIC019	N/A	03/24/05	03/24/05	
NITRITE BY IC	MB1	W	05LIC019	N/A	03/24/05	03/24/05	
NITRITE BY IC	MB1 BS	W	05LIC019	N/A	03/24/05	03/24/05	
NITRATE BY IC	MB1	W	05LIC019	N/A	03/24/05	03/24/05	
NITRATE BY IC	MB1 BS	W	05LIC019	N/A	03/24/05	03/24/05	
PHOSPHATE BY IC	MB1	W	05LICD20	N/A	04/04/05	04/04/05	
PHOSPHATE BY IC	MB1 BS	W	05LICD20	N/A	04/04/05	04/04/05	
SULFATE BY IC	MB1	W	05LICA19	N/A	03/24/05	03/24/05	
SULFATE BY IC	MB1 BS	W	05LICA19	N/A	03/24/05	03/24/05	
NITRATE NITRITE	MB1	W	05LN3023	N/A	04/15/05	04/15/05	
NITRATE NITRITE	MB1 BS	W	05LN3023	N/A	04/15/05	04/15/05	
TOTAL DISSOLVED SOLI	MB1	W	05LSSA36	N/A	03/25/05	03/25/05	
TOTAL DISSOLVED SOLI	MB1 BS	W	05LSSA36	N/A	03/25/05	03/25/05	
TOTAL DISSOLVED SOLI	MB1 BSD	W	05LSSA36	N/A	03/25/05	03/25/05	
TOTAL ORGANIC HALIDE	MB1	W	05LX002	N/A	04/08/05	04/08/05	
TOTAL ORGANIC HALIDE	MB1 BS	W	05LX002	N/A	04/08/05	04/08/05	
BROMIDE BY IC	MB1	W	05LICB20	N/A	04/04/05	04/04/05	

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B03-018 H3095

DATE RECEIVED: 03/24/05

LVL LOT # :0503L066

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BROMIDE BY IC	MB1 BS	W	05LICB20	N/A	04/04/05	04/04/05
CHLORIDE BY IC	MB1	W	05LICA20	N/A	04/04/05	04/04/05
CHLORIDE BY IC	MB1 BS	W	05LICA20	N/A	04/04/05	04/04/05
FLUORIDE BY IC	MB1	W	05LIC020	N/A	04/04/05	04/04/05
FLUORIDE BY IC	MB1 BS	W	05LIC020	N/A	04/04/05	04/04/05
NITRITE BY IC	MB1	W	05LICB20	N/A	04/04/05	04/04/05
NITRITE BY IC	MB1 BS	W	05LICB20	N/A	04/04/05	04/04/05
NITRATE BY IC	MB1	W	05LICC20	N/A	04/04/05	04/04/05
NITRATE BY IC	MB1 BS	W	05LICC20	N/A	04/04/05	04/04/05
SULFATE BY IC	MB1	W	05LICE20	N/A	04/04/05	04/04/05
SULFATE BY IC	MB1 BS	W	05LICE20	N/A	04/04/05	04/04/05



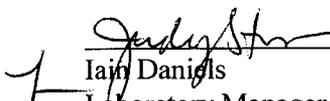
Analytical Report

Client: TNU-HANFORD B03-018 H3095
LVL#: 0503L066

W.O.#: 11343-606-001-9999-00
Date Received: 03-24-05

INORGANIC NARRATIVE

1. This narrative covers the analyses of 5 water samples.
2. The samples were prepared and analyzed in accordance with the methods checked on the attached glossary.
3. Sample holding times as required by the method and/or contract were met with the exception of Phosphate samples and Nitrite and Nitrate sample B1CD08 that were analyzed past hold (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) samples B1CD08, B1CD05 and B1CD13 as noted on the Sample Receipt Checklist.
5. The method blanks were within the method criteria.
6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS for Alkalinity and Total Dissolved Solids (TDS) were within the 20% Relative Percent Difference (RDP) control limit.
7. The matrix spike (MS) recoveries for Bromide, Chloride, Fluoride, Nitrite, Nitrate, Phosphate, Sulfate and TOX were within the 75-125% control limits however MS recovery for Nitrate Nitrite was above the control limit at 132.3% that may be attributed to sample inhomogeneity.
8. The replicate analyses for Alkalinity, Bromide, Chloride, Fluoride, Nitrite, Nitrate, Phosphate, Sulfate, TOX and Nitrate Nitrite were within the 20% RPD control limit. Replicate analysis for associated with this LvLI batch for TDS is found in LvLI batch 0503L080.
9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.



Jany Danigls
Laboratory Manager
Lionville Laboratory Incorporated

5/4/05
Date

njp\i03-066

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 25 pages.

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Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR WATER SAMPLE ANALYSIS

	<u>EPA /600</u>	<u>SW846</u>	<u>OTHER</u>
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	
Chlorine, 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-1 (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 05/04/05

CLIENT: TNUHANFORD B03-018 H3095
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L066

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-002	B1CCY4	Alkalinity	142	MG/L	2.0	1.0
		Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	20.7	MG/L	2.5	10.0
		Fluoride by IC	0.25	MG/L	0.25	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	21.8	MG/L	2.50	10.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	27.7	MG/L	2.5	10.0
		Nitrate Nitrite	5.1	MG/L	0.20	10.0
		Total Dissolved Solids	205	MG/L	5.00	1.0
		Total Organic Halides	5.0 u	UG/L	5.0	1.0
-004	B1CCY7	Alkalinity	138	MG/L	2.0	1.0
		Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	20.1	MG/L	2.5	10.0
		Fluoride 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	21.0	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	5.1	MG/L	0.20	10.0
		Total Dissolved Solids	253	MG/L	5.00	1.0
		Total Organic Halides	6.3	UG/L	5.0	1.0
-007	B1CD08	Alkalinity	2.0 u	MG/L	2.0	1.0
		Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	0.25 u	MG/L	0.25	1.0
		Fluoride 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
		Nitrate Nitrite	0.020u	MG/L	0.020	1.0
		Total Dissolved Solids	9.00	MG/L	5.00	1.0
		Total Organic Halides	5.0 u	UG/L	5.0	1.0
-009	B1CD05	Alkalinity	128	MG/L	2.0	1.0
		Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	22.5	MG/L	2.5	10.0
		Fluoride by IC	0.28	MG/L	0.25	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/04/05

CLIENT: TNUHANFORD B03-018 H3095
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L066

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-009	B1CD05	Nitrite by IC	0.25	u MG/L	0.25	1.0
		Nitrate by IC	66.7	MG/L	2.50	10.0
		Phosphate by IC	0.25	u MG/L	0.25	1.0
		Sulfate by IC	33.0	MG/L	2.5	10.0
		Nitrate Nitrite	15.6	MG/L	0.40	20.0
		Total Dissolved Solids	339	MG/L	5.00	1.0
		Total Organic Halides	12.8	UG/L	5.0	1.0
-012	B1CD13	Alkalinity	128	MG/L	2.0	1.0
		Bromide by IC	0.25	u MG/L	0.25	1.0
		Chloride by IC	27.7	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	60.5	MG/L	2.50	10.0
		Phosphate by IC	0.25	u MG/L	0.25	1.0
		Sulfate by IC	32.7	MG/L	2.5	10.0
		Nitrate Nitrite	14.3	MG/L	0.40	20.0
		Total Dissolved Solids	278	MG/L	5.00	1.0
Total Organic Halides	8.1	UG/L	5.0	1.0		

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/04/05

CLIENT: TNUHANFORD B03-018 H3095
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L066

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK10	05LAK014-MB1	Alkalinity	0.50 u	MG/L	0.50	1.0
BLANK10	05LIC019-MB1	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	0.25 u	MG/L	0.25	1.0
		Fluoride 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
BLANK10	05LICD20-MB1	Phosphate by IC	0.25 u	MG/L	0.25	1.0
BLANK10	05LICA19-MB1	Sulfate by IC	0.25 u	MG/L	0.25	1.0
BLANK10	05LN3023-MB1	Nitrate Nitrite	0.020u	MG/L	0.020	1.0
BLANK10	05LSSA36-MB1	Total Dissolved Solids	5.00 u	MG/L	5.00	1.0
BLANK1	05LX002-MB1	Total Organic Halides	5.0 u	UG/L	5.0	1.0
BLANK10	05LICB20-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
BLANK10	05LICA20-MB1	Chloride by IC	0.25 u	MG/L	0.25	1.0
BLANK10	05LIC020-MB1	Fluoride by IC	0.25 u	MG/L	0.25	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/04/05

CLIENT: TNUHANFORD B03-018 H3095
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L066

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK10	05LIC20-MB1	Nitrate by IC	0.25 u	MG/L	0.25	1.0
BLANK10	05LICE20-MB1	Sulfate by IC	0.25 u	MG/L	0.25	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 05/04/05

CLIENT: TNUHANFORD B03-018 H3095
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L066

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-002	B1CCY4	Bromide by IC	9.4	0.00	10.0	93.8	2.0
		Chloride by IC	122	20.7	100	101.7	20.0
		Fluoride by IC	9.5	0.25	10.0	92.9	2.0
		Nitrite by IC	9.76	0.25u	10.0	97.6	2.0
		Nitrate by IC	119	21.8	100	97.6	20.0
		Phosphate by IC	5.3	0.25u	5.0	105.4	1.0
		Sulfate by IC	130	27.7	100	101.9	20.0
-007	B1CD08	Nitrate Nitrite	0.66	0.02u	0.50	132.8	1.0
		Total Organic Halides	49.4	-3.	50.0	104.3	1.0
BLANK10	05LAK014-MB1	Alkalinity	101	0.50u	100	100.7	1.0
		Alkalinity MSD	97.0	0.50u	100	97.0	1.0
BLANK10	05LIC019-MB1	Bromide by IC	5.0	0.25u	5.0	99.8	1.0
		Chloride by IC	4.7	0.25u	5.0	94.9	1.0
		Fluoride by IC	4.9	0.25u	5.0	97.2	1.0
		Nitrite by IC	4.99	0.25u	5.00	99.8	1.0
		Nitrate by IC	4.97	0.25u	5.00	99.5	1.0
BLANK10	05LICD20-MB1	Phosphate by IC	4.9	0.25u	5.0	97.2	1.0
BLANK10	05LICA19-MB1	Sulfate by IC	4.9	0.25u	5.0	98.0	1.0
BLANK10	05LN3023-MB1	Nitrate Nitrite	0.52	0.02u	0.50	103.0	1.0
BLANK10	05LSSA36-MB1	Total Dissolved Solids	97.0	5.00u	100	97.0	1.0
		Total Dissolved Solids	103	5.00u	100	103.0	1.0
BLANK1	05LX002-MB1	Total Organic Halides	51.8	5.0 u	50.0	103.5	1.0
BLANK10	05LICB20-MB1	Bromide by IC	4.9	0.25u	5.0	97.7	1.0
		Nitrite by IC	4.91	0.25u	5.00	98.3	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 05/04/05

CLIENT: TNUHANFORD B03-018 H3095
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L066

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
BLANK10	05LICA20-MB1	Chloride by IC	4.8	0.25u	5.0	96.5	1.0
BLANK10	05LIC020-MB1	Fluoride by IC	4.9	0.25u	5.0	97.3	1.0
BLANK10	05LIC20-MB1	Nitrate by IC	4.84	0.25u	5.00	96.7	1.0
BLANK10	05LICE20-MB1	Sulfate by IC	4.8	0.25u	5.0	96.9	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 05/04/05

CLIENT: TNUHANFORD B03-018 H3095
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L066

SAMPLE	SITE ID	ANALYTE	SPIKE#1	SPIKE#2	%DIFF
			%RECOV	%RECOV	
BLANK10	05LAK014-MB1	Alkalinity	100.7	97.0	3.8
BLANK10	05LSSA36-MB1	Total Dissolved Solids	97.0	103.0	6.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 05/04/05

CLIENT: TNUHANFORD B03-018 H3095
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L066

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE	RPD	
-002REP	B1CCY4	Alkalinity	142	133	6.3	1.0
		Bromide by IC	0.25u	0.25u	NC	1.0
		Chloride by IC	20.7	19.1	7.8 <i>to 5.4-05</i>	10.0
		Fluoride by IC	0.25	0.25u	NC 6.6	1.0
		Nitrite by IC	0.25u	0.25u	NC	1.0
		Nitrate by IC	21.8	20.1	8.3	10.0
		Phosphate by IC	0.25u	0.25u	NC	1.0
		Sulfate by IC	27.7	26.6	4.0	10.0
		Total Organic Halides	5.0 u	5.0 u	NC	1.0
-007REP	B1CD08	Nitrate Nitrite	0.02u	0.02u	NC	1.0



0503L 066

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

See SRC

Client <u>TNU - HANFORD SAF # B03-018</u>	Refrigerator # <u>AC</u>	D	E	F	G	H	I
Est. Final Proj. Sampling Date	#/Type Container	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid
Project # <u>11343-606-001-9999-00</u>	Volume	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid
Project Contact/Phone #	Preservatives	Solid	Solid	Solid	Solid	Solid	Solid
Lionville Laboratory Project Manager <u>01</u>	ANALYSES REQUESTED	ORGANIC	INORG	IC	IC	IC	IC
QC <u>Spec</u> Del <u>Std</u> TAT <u>30 days</u>	VOA	BNA	Pest/PCB	Herb	IC	IC	IC
Date Rec'd <u>3/24/05</u> Date Due <u>4/23/05</u>							

MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum DL - Drum L - Liquids EP/TCLP Leachate WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (S)		Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only													
			MS	MSD				ITOX	METD50	METD10	ITDS	ICD	IALL	IN3NF							
	001	BICCY3 (F)			W	3/25/05	6031														
	002	4			L			3													
	003	6 (F)			L																
	004	7			L			3													
	005	BICD15			L			3													
	006	BICD07 (F)			W	3/23/05	0745														
	007	BICD08			L			3													
	008	BICD04 (F)			L																
	009	BICD05			L			3													
	010	BICCY9 (F)			L																

Special Instructions:

DATE/REVISIONS:

METD = AL, Ag, Ba, Be, Cd, Ca, Co, Cr, Cu, Fe, K, Mg, Mn, Na, Ni, Sb, V, Zn

ICD = CL, FL, Sulf, PO4, NO3, NO2, Br

EDD RUN MATRIX QC

- _____
- _____
- _____
- _____
- _____
- _____

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
<u>FE/EP</u>	<u>[Signature]</u>	<u>3/24/05</u>	<u>0935</u>								

"COMPOSITE WASTE" ORIGINAL REWRITTEN



17

05031066

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client <u>TNU HANFORD</u> <u>B03-019</u>	Refrigerator #	<u>AC</u>	<u>1</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>	<u>I</u>
Est. Final Proj. Sampling Date	#/Type Container	Liquid	<u>G</u>	<u>C</u>	<u>P</u>	<u>P</u>	<u>P</u>	<u>P</u>	<u>P</u>
Project #	Volume	Liquid	<u>4L</u>	<u>300</u>	<u>500</u>	<u>500</u>	<u>500</u>	<u>500</u>	<u>500</u>
Project Contact/Phone # <u>ALL PG 1</u>	Preservatives	Solid							
Lionville Laboratory Project Manager			<u>HEL</u>	<u>H2SO4</u>	<u>H2SO4</u>				<u>H2SO4</u>
QC _____ Del _____ TAT _____									

Date Rec'd _____ Date Due _____	ANALYSES REQUESTED	ORGANIC	INORG									
	VOA	BNA	Pest/PCB	Herb	TK	TAL	Metal	IC	IC	ALK	NO ₂	NO 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	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only																
			MS	MSD				ITOX	MET(0)	ITDS	IC(0)	ITALK	ITIN2											
	011	BICD14			Water	7/23/05	0745	3																
	012	BICD13			L	L	1227	3																

Special Instructions:

MET(0) = Al, Ag, Ba, Be, Cd, Ca, Co, Cr, Cu, Fe, K, Mg, Mn, Na, Ni, Sb, V, Zn
 IC(0) = Cl, F, S, O₄, P, O₄, NO₃, NO₂, Br

DATE/REVISIONS:

- _____ 1. _____
- _____ 2. _____
- _____ 3. _____
- _____ 4. _____
- _____ 5. _____
- _____ 6. _____

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
<u>FED Ep 1</u>	<u>[Signature]</u>	<u>7/24/05</u>	<u>0935</u>								

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #
B03-018-100

Page 1 of 1

Collector R.T. SICKLE	Contact/Requester JH KESSNER	Telephone No. MSIN FAX 509-375-4688
SAF No. B03-018	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	DTS-SAWS-H89	Ice Chest No. 54W115 Temp.
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment	Bill of Lading/Air Bill No. 7904-4602-0450
Protocol GPP	Priority: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
* * *

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes No
 Batch all PNNL GW samples submitted under this SAF into one SDG, not to exceed SDG closure of 14 days.
 Submit invoices & deliverables to JH Kessner (fax 509-372-9609)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1CCY3 (F)		W	3-23-05	1031	1x500-mL G/P	ICP Metals - 8010B (TAL)	HNO3 to pH <2
B1CCY4		W			1x500-mL G/P	TDS - 180.1	Cool 4C
B1CCY4		W			3x40-mL aGs*	VOA - 8280B (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B1CCY4		W			1x500-mL G/P	ICP Metals - 8010B (TAL)	HNO3 to pH <2
B1CCY4		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B1CCY4		W			1x250-mL G/P	Alkalinity - 310.1	Cool 4C
B1CCY4		W			1x500-mL G/P	NO2/NO3 - 353.2	H2SO4 to pH <2 Cool 4C
B1CCY4		W			1x20-mL P	Activity Scan	None
B1CCY4		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By R.T. SICKLE	Print	Sign	Date/Time MAR 23 2005	Received By <i>Fed Ex</i>	Print	Sign	Date/Time	Matrix * S = Soil DS = Drum Solid SF = Sediment DI = Drum Liquid SO = Solid T = Tissue SL = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other		
Relinquished By <i>Fed Ex</i>			Date/Time 3-24-05 0935	Received By <i>[Signature]</i>			Date/Time 3-24-05 0935			
Relinquished By			Date/Time	Received By			Date/Time			
Relinquished By			Date/Time	Received By			Date/Time			
FINAL SAMPLE DISPOSITION								Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

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PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #

B03-018-101

Page 1 of 1

Collector R.T. SICKLE	Contact/Requester JH KESSNER	Telephone No. MSIN FAX 509-375-4688
SAF No. B03-018	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDE Groundwater Well Samples	DTS - SAWS - HFT	Ice Chest No. 54W6-115 Temp.
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment	Bill of Lading/Air Bill No. 790466020450
Protocol GPP	Priority: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
* * *

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes No
 Batch all PNNL GW samples submitted under this SAF into one SDG, not to exceed SDG closure of 14 days.
 Submit invoices & deliverables to JH Kessner (fax 509-372-9609)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1CCY6 (F)		W	3-23-05	1031	1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2
B1CCY7		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B1CCY7		W			3x40-mL aGs*	VOA - 8260B (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B1CCY7		W			1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2
B1CCY7		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B1CCY7		W			1x250-mL G/P	Alkalinity - 310.1	Cool 4C
B1CCY7		W			1x500-mL G/P	NO2/NO3 - 353.2	H2SO4 to pH <2 Cool 4C
B1CCY7		W			1x20-mL P	Activity Scan	None
B1CCY7		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By R.T. SICKLE	Print	Sign	Date/Time MAR 23 2005	Received By <i>Fel</i>	Print	Sign	Date/Time	Matrix * S = Soil DS = Drum Solid SF = Sediment DI = Drum Lids SO = Solid T = Tissue SL = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By <i>RTE</i>			Date/Time 3-24-05 0935	Received By <i>[Signature]</i>			Date/Time 3-24-05 0935	
Relinquished By			Date/Time	Received By			Date/Time	
Relinquished By			Date/Time	Received By			Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)						Disposed By	Date/Time

101

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **B03-018-105**

Page 1 of 1

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Collector R.T. SICKLE		Contact/Requester JH KESSNER	Telephone No. 509-375-4688	MSIN	FAX
SAF No. B03-018		Sampling Origin HANFORD SITE	Purchase Order/Charge Code		
Project Title ERDF Groundwater Well Samples		Method of Shipment DTS-SAWS 1489	Ice Chest No. SML 526 Temp.		
Shipped To (Lab) Lionville Laboratory Incorporated		Priority: 45 Days	Bill of Lading/Air Bill No. 7909-5794 9706		
Protocol GPP		Offsite Property No.			

POSSIBLE SAMPLE HAZARDS/REMARKS	SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Batch all PNNL GW samples submitted under this SAF into one SDG, not to exceed SDG closure of 14 days. Submit invoices & deliverables to JH Kessner (fax 509-372-9609)
---	--

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1CD07 (F)		W	3-23-05	0745	1x500-mL G/P	ICP Metals - 8010B (TAL)	HNO3 to pH <2
B1CD08		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B1CD08		W			3x40-mL aGs*	VOA - 8280B (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B1CD08		W			1x500-mL G/P	ICP Metals - 8010B (TAL)	HNO3 to pH <2
B1CD08		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B1CD08		W			1x250-mL G/P	Alkalinity - 310.1	Cool 4C
B1CD08		W			1x500-mL G/P	NO2/NO3 - 353.2	H2SO4 to pH <2 Cool 4C
B1CD08		W			1x20-mL P	Activity Scan	None
B1CD08		W			1x500-mL aGs*	TOX - 8020	H2SO4 to pH <2 Cool 4C

Relinquished By Print Sign R.T. SICKLE	Date/Time 1405 MAR 23 2005	Received By Print Sign Felix	Date/Time 0935	Matrix * S = Soil DS = Drum Solid SF = Sediment DI = Drum Ligni SO = Solid T = Tissue SL = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By Print Sign FQ	Date/Time 3-24-05 0935	Received By Print Sign 	Date/Time 0935	
Relinquished By Print Sign 	Date/Time 	Received By Print Sign 	Date/Time 	
Relinquished By Print Sign 	Date/Time 	Received By Print Sign 	Date/Time 	
FINAL SAMPLE DISPOSITION		Disposed By		Date/Time

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. #
B03-018-104

Page 1 of 1

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Collector R.T. SICKLE	Contact/Requester JH KESSNER	Telephone No. MSIN FAX 509-375-4688
SAF No. B03-018	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	DTS - SAMS - 1189	Ice Chest No. SMC 526 Temp.
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment	Bill of Lading/Air Bill No. 79095794 9706
Protocol GPP	Priority: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
.. ..

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes No
Batch all PNNL GW samples submitted under this SAF into one SDG, not to exceed SDG closure of 14 days.
Submit invoices & deliverables to JH Kessner (fax 509-372-9609)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative	
B1CD04 (F)		W	3-23-05	0909	1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2	
B1CD05		W	↓	↓	1x500-mL G/P	TDS - 160.1	Cool 4C	
B1CD05		W			3x40-mL aGs*	VOA - 8260B (TCL)	HCl or H2SO4 to pH <2 Cool 4C	
B1CD05		W			1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2	
B1CD05		W			1x500-mL P	IC Anions - 300.0	Cool 4C	
B1CD05		W			1x250-mL G/P	Alkalinity - 310.1	Cool 4C	
B1CD05		W			1x500-mL G/P	NO2/NO3 - 353.2	H2SO4 to pH <2 Cool 4C	
B1CD05		W			1x20-mL P	Activity Scan	None	
B1CD05		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C	

Relinquished By R.T. SICKLE	Print	Sign	Date/Time MAR 23 2005	Received By FedEx	Print	Sign	Date/Time
Relinquished By FedEx			Date/Time 3-24-05 0935	Received By <i>[Signature]</i>			Date/Time 3-24-05 0935
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

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

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

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #

B03-018-107

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Collector R.T. SICKLE	Contact/Requester JH KESSNER	Telephone No. 509-375-4688
SAF No. B03-018	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	Method of Shipment DTS-SAWs-HPS	Ice Chest No. SML-526 Temp.
Shipped To (Lab) Lionville Laboratory Incorporated	Priority: 45 Days	Bill of Lading/Air Bill No. 790957949706
Protocol GPP		Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS	SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Batch all PNNL GW samples submitted under this SAF into one SDG, not to exceed SDG closure of 14 days. Submit invoices & deliverables to JH Kessner (fax 509-372-9609)
---	--

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1CD14		W	3-23-05	0745	3x40-mL aGs*	VOA - 8280B (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B1CD14		W	↓	0745	1x20-mL P	Activity Scan	None

Relinquished By R.T. SICKLE	Print 	Date/Time MAR 23 2005 1403	Received By Fed Ex	Print 	Sign 	Date/Time 3-24-05 0935	Matrix * S = Soil DS = Drum Solid SE = Sediment DI = Drum Liquid SO = Solid T = Tissue SL = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By Fed Ex		Date/Time 3-24-05 0935	Received By 			Date/Time 3-24-05 0935	
Relinquished By		Date/Time	Received By			Date/Time	
Relinquished By		Date/Time	Received By			Date/Time	
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. #

03-018-102

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Collector R.T. SICKLE	Contact/Requester JH KESSNER	Telephone No. 509-375-4688 MSIN FAX
SAF No. B03-018	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	DTI-SAWS-1489	Ice Chest No. SMC 526 Temp.
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment	Bill of Lading/Air Bill No. 79095794 9706
Protocol GPP	Priority: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
.. ..

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes No
 Batch all PNNL GW samples submitted under this SAF into one SDG, not to exceed SDG closure of 14 days.
 Submit invoices & deliverables to JH Kessner (fax 509-372-9609)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1CCY9 (F)		W	3-23-05	1227	1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2
B1CD13		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B1CD13		W			3x40-mL aGs*	VOA - 8280B (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B1CD13		W			1x500-mL G/P	ICP Metals - 6010B (TAL)	HNO3 to pH <2
B1CD13		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B1CD13		W			1x250-mL G/P	Alkalinity - 310.1	Cool 4C
B1CD13		W			1x500-mL G/P	NO2/NO3 - 353.2	H2SO4 to pH <2 Cool 4C
B1CD13		W			1x20-mL P	Activity Scan	None
B1CD13		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By R.T. SICKLE	Print	Sign	Date/Time MAR 23 2005	Received By Fel EX	Print	Sign	Date/Time	Matrix * S = Soil DS = Drum Solid SF = Sediment DI. = Drum Liquid SO = Solid T = Tissue SL = Sludge WT = Wine W = Water L. = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By Fel EX			Date/Time 3-24-05 0935	Received By V. New			Date/Time 3-24-05 0935	
Relinquished By			Date/Time	Received By			Date/Time	
Relinquished By			Date/Time	Received By			Date/Time	
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: *TNU HANFORD*

Date: *3/24/05*

Purchase Order / Project# /
SAF# / SOW# / Release #: *B03-018*

LvLI Batch #: *05032066*

Sample Custodian: *J. Almond*

NOTE: EXPLAIN ALL DISCREPANCIES

- | | | |
|---|---|---|
| 1. Samples Hand Delivered or Shipped | Carrier <i>FedEx</i> | Airbill# <i>T90466020450
99095794 9706</i> |
| 2. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals Comments |
| 3. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 5. Samples received cooled or ambient? | Temp <i>2.1</i> °C
<i>3.9</i> | Cooler # <i>SAWS-115
SMAL 726</i> |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals |
| 7. coc signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 8. Sample containers are intact? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 9. All samples on coc received? All samples received on coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 10. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 11. Samples properly preserved? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 12. Samples received within hold times? Short holds taken to wet lab? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 13. VOA, TOC, TOX free of headspace? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> N/A <i># 00709012 Air Bubble</i> |
| 14. QC stickers placed on bottles designated by client? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Discrepancies |



EBERLINE
SERVICES



May 20, 2005

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

Reference: **P.O. #630**
Eberline Services R5-03-194-7258, SDG H3095

Dear Ms. Kessner:

Enclosed is the data report for six water samples designated under SAF No. B03-018 received at Eberline Services on March 24, 2005. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion
Senior Program Manager

MCM/

Enclosure: Data Package

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

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H3095 was composed of six water samples designated under SAF No. B03-018 with a Project Designation of: ERDF Groundwater Well Samples.

The samples were received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-mail on May 16, 2005.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

No problems were encountered during the course of the analyses.

2.2 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.3 Iodine-129 Analyses

No problems were encountered during the course of the analyses.

2.4 Total Radium Analyses

No problems were encountered during the course of the analyses.

2.5 Technetium-99 Analyses

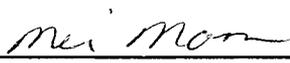
No problems were encountered during the course of the analyses.

2.6 Total Uranium Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

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



Melissa C. Mannion
Senior Program Manager

5/20/05

Date

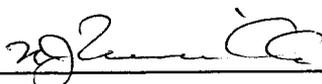
EBRLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H3095

SDG 7258
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG_H3095

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

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Prepared by _____


Reviewed by _____

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-TOC
Version 3.06
Report date 05/16/05

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H3095

SDG 7258

Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford

Contract No. 630

Case no SDG H3095

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

REPORT GUIDES

Page 1

SUMMARY DATA SECTION

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Lab id EBRLNE

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H3095

SDG 7258
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H3095

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

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

MATRIX SPIKES

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

DATA SHEETS

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

METHOD SUMMARIES

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

REPORT GUIDES

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

REPORT GUIDES

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SUMMARY DATA SECTION

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3095

SDG 7258
 Contact Melissa C. Mannion

SAMPLE SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H3095

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B1CCY5	ERDF Grndwater Well Samp	WATER		R503194-05	B03-018	B03-018-111	03/23/05 10:31
B1CCY8	ERDF Grndwater Well Samp	WATER		R503194-06	B03-018	B03-018-112	03/23/05 10:31
B1CD00	ERDF Grndwater Well Samp	WATER		R503194-01	B03-018	B03-018-113	03/23/05 12:27
B1CD06	ERDF Grndwater Well Samp	WATER		R503194-02	B03-018	B03-018-115	03/23/05 09:09
B1CD09	ERDF Grndwater Well Samp	WATER		R503194-03	B03-018	B03-018-116	03/23/05 07:45
B1CD12	ERDF Grndwater Well Samp	WATER		R503194-04	B03-018	B03-018-117	03/24/05 09:58
Method Blank		WATER		R503194-08	B03-018		
Lab Control Sample		WATER		R503194-07	B03-018		
Duplicate (R503194-01)	ERDF Grndwater Well Samp	WATER		R503194-09	B03-018		03/23/05 12:27
Spike (R503194-01)	ERDF Grndwater Well Samp	WATER		R503194-10	B03-018		03/23/05 12:27

SAMPLE SUMMARY

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SUMMARY DATA SECTION

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3095

SDG 7258
 Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H3095

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
'258	B03-018-111	B1CCY5	WATER		7.40 L		03/25/05	2	R503194-05	7258-005
	B03-018-112	B1CCY8	WATER		7.39 L		03/25/05	2	R503194-06	7258-006
	B03-018-113	B1CD00	WATER		7.40 L		03/24/05	1	R503194-01	7258-001
	B03-018-115	B1CD06	WATER		7.40 L		03/24/05	1	R503194-02	7258-002
	B03-018-116	B1CD09	WATER		7.40 L		03/24/05	1	R503194-03	7258-003
	B03-018-117	B1CD12	WATER		7.38 L		03/25/05	1	R503194-04	7258-004
		Method Blank	WATER						R503194-08	7258-008
		Lab Control Sample	WATER						R503194-07	7258-007
		Duplicate (R503194-01)	WATER		7.40 L		03/24/05	1	R503194-09	7258-009
		Spike (R503194-01)	WATER		7.40 L		03/24/05	1	R503194-10	7258-010

QC SUMMARY

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SUMMARY DATA SECTION

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3095

SDG 7258
 Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H3095

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED				QUALI-	
			BATCH	2σ %	CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG
Beta Counting										
TC	WATER	Technetium 99 in Water	7132-067	10.0	6			1	1	1/1
Gas Proportional Counting										
RAT	WATER	Total Alpha Radium in Water	7132-067	5.0	6			1	1	1/1
Gas Proportional Counting										
93A	WATER	Gross Alpha in Water	7132-067	20.0	6			1	1	1/1
93B	WATER	Gross Beta in Water	7132-067	15.0	6			1	1	1/1
Gamma Spectroscopy										
I	WATER	Iodine 129 in Water	7132-067	5.0	6			1	1	1/1
Kinetic Phosphorimetry (KPA)										
U_T	WATER	Uranium, Total in Water	7132-067	9.0	6			1	1	1/1
Liquid Scintillation Counting										
C	WATER	Carbon 14 in Water	7132-067	10.0	6			1	1	1/1 1/1 X

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

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-PBS
 Version 3.06
 Report date 05/16/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3095

SDG 7258
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Case no SDG H3095

WORK SUMMARY

CLIENT SAMPLE ID	LAB SAMPLE ID									
LOCATION	MATRIX	COLLECTED		SUF-						
CUSTODY	SAF No	RECEIVED	PLANCHET	TEST	FIX	ANALYZED	REVIEWED	BY	METHOD	
B1CCY5		R503194-05	7258-005	93A/93		04/08/05	04/13/05	MWT	Gross Alpha in Water	
ERDF Grndwater Well Samp	WATER	03/23/05	7258-005	93B/93		04/08/05	04/13/05	MWT	Gross Beta in Water	
B03-018-111	B03-018	03/25/05	7258-005	C		05/04/05	05/10/05	MWT	Carbon 14 in Water	
			7258-005	I		05/02/05	05/06/05	MWT	Iodine 129 in Water	
			7258-005	RAT		04/18/05	04/21/05	MWT	Total Alpha Radium in Water	
			7258-005	TC		04/26/05	04/28/05	MWT	Technetium 99 in Water	
			7258-005	U_T		04/15/05	04/15/05	MWT	Uranium, Total in Water	
B1CCY8		R503194-06	7258-006	93A/93		04/08/05	04/13/05	MWT	Gross Alpha in Water	
ERDF Grndwater Well Samp	WATER	03/23/05	7258-006	93B/93		04/08/05	04/13/05	MWT	Gross Beta in Water	
B03-018-112	B03-018	03/25/05	7258-006	C		05/04/05	05/10/05	MWT	Carbon 14 in Water	
			7258-006	I		05/03/05	05/06/05	MWT	Iodine 129 in Water	
			7258-006	RAT		04/20/05	04/21/05	MWT	Total Alpha Radium in Water	
			7258-006	TC		04/26/05	04/28/05	MWT	Technetium 99 in Water	
			7258-006	U_T		04/15/05	04/15/05	MWT	Uranium, Total in Water	
B1CD00		R503194-01	7258-001	93A/93		04/08/05	04/13/05	MWT	Gross Alpha in Water	
ERDF Grndwater Well Samp	WATER	03/23/05	7258-001	93B/93		04/08/05	04/13/05	MWT	Gross Beta in Water	
B03-018-113	B03-018	03/24/05	7258-001	C		05/04/05	05/10/05	MWT	Carbon 14 in Water	
			7258-001	I		05/03/05	05/06/05	MWT	Iodine 129 in Water	
			7258-001	RAT		04/20/05	04/21/05	MWT	Total Alpha Radium in Water	
			7258-001	TC		04/25/05	04/28/05	MWT	Technetium 99 in Water	
			7258-001	U_T		04/15/05	04/15/05	MWT	Uranium, Total in Water	
B1CD06		R503194-02	7258-002	93A/93		04/08/05	04/13/05	MWT	Gross Alpha in Water	
ERDF Grndwater Well Samp	WATER	03/23/05	7258-002	93B/93		04/08/05	04/13/05	MWT	Gross Beta in Water	
B03-018-115	B03-018	03/24/05	7258-002	C		05/04/05	05/10/05	MWT	Carbon 14 in Water	
			7258-002	I		04/29/05	05/06/05	MWT	Iodine 129 in Water	
			7258-002	RAT		04/18/05	04/21/05	MWT	Total Alpha Radium in Water	
			7258-002	TC		04/25/05	04/28/05	MWT	Technetium 99 in Water	
			7258-002	U_T		04/15/05	04/15/05	MWT	Uranium, Total in Water	
B1CD09		R503194-03	7258-003	93A/93		04/08/05	04/13/05	MWT	Gross Alpha in Water	
ERDF Grndwater Well Samp	WATER	03/23/05	7258-003	93B/93		04/08/05	04/13/05	MWT	Gross Beta in Water	
B03-018-116	B03-018	03/24/05	7258-003	C		05/04/05	05/10/05	MWT	Carbon 14 in Water	
			7258-003	I		04/29/05	05/06/05	MWT	Iodine 129 in Water	
			7258-003	RAT		04/20/05	04/21/05	MWT	Total Alpha Radium in Water	
			7258-003	TC		04/27/05	04/28/05	MWT	Technetium 99 in Water	
			7258-003	U_T		04/15/05	04/15/05	MWT	Uranium, Total in Water	

WORK SUMMARY

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SUMMARY DATA SECTION

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Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CWS
 Version 3.06
 Report date 05/16/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3095

SDG 7258

Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford

Contract No. 630

Case no SDG H3095

CLIENT SAMPLE ID	LAB SAMPLE ID									
LOCATION	MATRIX	COLLECTED	SUF-							
USTODY	SAF No	RECEIVED	PLANCHET	TEST	FIX	ANALYZED	REVIEWED	BY	METHOD	
1CD12		R503194-04	7258-004	93A/93		04/08/05	04/13/05	MWT	Gross Alpha in Water	
RDF Grndwater Well Samp	WATER	03/24/05	7258-004	93B/93		04/08/05	04/13/05	MWT	Gross Beta in Water	
03-018-117	B03-018	03/25/05	7258-004	C		05/04/05	05/10/05	MWT	Carbon 14 in Water	
			7258-004	I		05/02/05	05/06/05	MWT	Iodine 129 in Water	
			7258-004	RAT		04/18/05	04/21/05	MWT	Total Alpha Radium in Water	
			7258-004	TC		04/25/05	04/28/05	MWT	Technetium 99 in Water	
			7258-004	U_T		04/15/05	04/15/05	MWT	Uranium, Total in Water	
Method Blank		R503194-08	7258-008	93A/93		04/08/05	04/13/05	MWT	Gross Alpha in Water	
	WATER		7258-008	93B/93		04/08/05	04/13/05	MWT	Gross Beta in Water	
	B03-018		7258-008	C		05/04/05	05/10/05	MWT	Carbon 14 in Water	
			7258-008	I		05/04/05	05/06/05	MWT	Iodine 129 in Water	
			7258-008	RAT		04/18/05	04/21/05	MWT	Total Alpha Radium in Water	
			7258-008	TC		04/25/05	04/28/05	MWT	Technetium 99 in Water	
			7258-008	U_T		04/15/05	04/15/05	MWT	Uranium, Total in Water	
Lab Control Sample		R503194-07	7258-007	93A/93		04/08/05	04/13/05	MWT	Gross Alpha in Water	
	WATER		7258-007	93B/93		04/08/05	04/13/05	MWT	Gross Beta in Water	
	B03-018		7258-007	C		05/04/05	05/10/05	MWT	Carbon 14 in Water	
			7258-007	I		05/03/05	05/06/05	MWT	Iodine 129 in Water	
			7258-007	RAT		04/18/05	04/21/05	MWT	Total Alpha Radium in Water	
			7258-007	TC		04/25/05	04/28/05	MWT	Technetium 99 in Water	
			7258-007	U_T		04/15/05	04/15/05	MWT	Uranium, Total in Water	
Duplicate (R503194-01)		R503194-09	7258-009	93A/93		04/08/05	04/13/05	MWT	Gross Alpha in Water	
ERDF Grndwater Well Samp	WATER	03/23/05	7258-009	93B/93		04/08/05	04/13/05	MWT	Gross Beta in Water	
	B03-018	03/24/05	7258-009	C		05/04/05	05/10/05	MWT	Carbon 14 in Water	
			7258-009	I		05/04/05	05/06/05	MWT	Iodine 129 in Water	
			7258-009	RAT		04/21/05	04/21/05	MWT	Total Alpha Radium in Water	
			7258-009	TC		04/27/05	04/28/05	MWT	Technetium 99 in Water	
			7258-009	U_T		04/15/05	04/15/05	MWT	Uranium, Total in Water	
Spike (R503194-01)		R503194-10	7258-010	C		05/04/05	05/10/05	MWT	Carbon 14 in Water	
ERDF Grndwater Well Samp	WATER	03/23/05								
	B03-018	03/24/05								

WORK SUMMARY

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3095

SDG 7258
 Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
 Contract No. 630
 Case no SDG H3095

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
93A/93	B03-018	Gross Alpha in Water	900.0_ALPHABETA_GPC	6			1	1	1		9
93B/93	B03-018	Gross Beta in Water	900.0_ALPHABETA_GPC	6			1	1	1		9
C	B03-018	Carbon 14 in Water	C14_CHEM_LSC	6			1	1	1	1	10
I	B03-018	Iodine 129 in Water	I129_SEP_LEPS_GS	6			1	1	1		9
RAT	B03-018	Total Alpha Radium in Water	RATOT_GPC	6			1	1	1		9
TC	B03-018	Technetium 99 in Water	TC99_TR_SEP_LSC	6			1	1	1		9
U_T	B03-018	Uranium, Total in Water	UTOT_KPA	6			1	1	1		9
TOTALS				42			7	7	7	1	64

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H3095

R503194-08

Method Blank

METHOD BLANK

SDG <u>7258</u>	Client/Case no <u>Hanford</u>	<u>SDG H3095</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R503194-08</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7258-008</u>	Material/Matrix <u>WATER</u>	
	SAF No <u>B03-018</u>	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	0.148	0.58	1.2	3.0	U	93A
Gross Beta	12587-47-2	-0.149	1.0	1.8	4.0	U	93B
Carbon 14	14762-75-5	26.7	33	54	200	U	C
Technetium 99	14133-76-7	0.077	1.8	5.0	15	U	TC
Total Uranium (ug/L)	7440-61-1	0	0.010	0.022	0.10	U	U_T
Total Radium	ALPHA-RA	-0.031	0.081	0.37	1.0	U	RAT
Iodine 129	15046-84-1	0.127	1.6	3.6	5.0	U	I

HANFORD SITE

QC-BLANK 52378

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Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3095

R503194-07

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7258</u> Contact <u>Melissa C. Mannion</u>	Client/Case no <u>Hanford</u> <u>SDG H3095</u> Contract <u>No. 630</u>
Lab sample id <u>R503194-07</u> Dept sample id <u>7258-007</u>	Client sample id <u>Lab Control Sample</u> Material/Matrix _____ <u>WATER</u> SAF No <u>B03-018</u>

ANALYTE	RESULT	2σ ERR	MDA	RDL	QUALI-	ADDED	2σ ERR	REC	3σ LMIS	PROTOCOL
	pCi/L	(COUNT)	pCi/L	pCi/L	FIERS TEST	pCi/L	pCi/L	%	(TOTAL)	LIMITS
Gross Alpha	40.6	4.5	1.2	3.0	93A	37.3	1.5	109	62-138	70-130
Gross Beta	43.7	2.9	1.9	4.0	93B	40.3	1.6	108	73-127	80-120
Carbon 14	9490	320	130	200	C	9570	380	99	83-117	80-120
Technetium 99	1200	31	5.2	15	TC	1200	48	100	83-117	80-120
Total Uranium (ug/L)	92.5	11	<u>0.22</u>	0.10	U_T	90.5	3.6	102	76-124	80-120
Total Radium	59.3	2.6	0.70	1.0	RAT	61.5	2.5	96	89-111	80-120
Iodine 129	512	7.9	<u>14</u>	5.0	I	508	20	101	90-110	80-120

HANFORD SITE

QC-LCS 52377

LAB CONTROL SAMPLES

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SAMPLE DELIVERY GROUP H3095

R503194-09

B1CD00

DUPLICATE

<u>SDG 7258</u>	<u>Client/Case no Hanford</u>	<u>SDG H3095</u>
<u>Contact Melissa C. Mannion</u>	<u>Contract No. 630</u>	
DUPLICATE	ORIGINAL	
<u>Lab sample id R503194-09</u>	<u>Lab sample id R503194-01</u>	<u>Client sample id B1CD00</u>
<u>Dept sample id 7258-009</u>	<u>Dept sample id 7258-001</u>	<u>Location/Matrix ERDF Grndwater Well Samp WATER</u>
	<u>Received 03/24/05</u>	<u>Collected/Volume 03/23/05 12:27 7.40 L</u>
		<u>Custody/SAF No B03-018-113 B03-018</u>

ANALYTE	DUPLICATE		MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ORIGINAL		MDA pCi/L	QUALI- FIERS	RPD %	3σ TOT	PROT LIMIT
	pCi/L	2σ ERR (COUNT)					pCi/L	2σ ERR (COUNT)					
Gross Alpha	1.35	1.1	1.1	3.0		93A	1.33	1.1	1.3		1	179	
Gross Beta	32.0	2.4	1.8	4.0		93B	32.9	2.4	1.9		3	35	
Carbon 14	36.2	32	53	200	U	C	38.6	33	54	U	-		
Technetium 99	61.2	5.8	6.0	15		TC	66.2	4.9	5.8		8	28	
Total Uranium (ug/L)	2.15	0.24	0.022	0.10		U_T	2.14	0.24	0.022		0	30	
Total Radium	0.034	0.10	0.36	1.0	U	RAT	0.089	0.11	0.37	U	-		
Iodine 129	14.4	4.5	<u>9.9</u>	5.0		I	15.5	1.6	3.1		7	49	

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QC-DUP#1 52379

DUPLICATES

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Protocol <u>Hanford</u>
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3095

R503194-10

BICD00

MATRIX SPIKE

SDG <u>7258</u>	Client/Case no <u>Hanford</u>	<u>SDG H3095</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
MATRIX SPIKE	ORIGINAL	
Lab sample id <u>R503194-10</u>	Lab sample id <u>R503194-01</u>	Client sample id <u>BICD00</u>
Dept sample id <u>7258-010</u>	Dept sample id <u>7258-001</u>	Location/Matrix <u>ERDF Grndwater Well Samp WATER</u>
	Received <u>03/24/05</u>	Collected/Volume <u>03/23/05 12:27 7.40 L</u>
		Custody/SAF No <u>B03-018-113 B03-018</u>

ANALYTE	SPIKE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS TEST	ADDED pCi/L	2σ ERR pCi/L	ORIGINAL pCi/L	2σ ERR (COUNT)	REC 3σ % (TOTAL)	LMTS (TOTAL)	PROTOCOL LIMITS
Carbon 14	46200	1500	<u>370</u>	200	X C	52700	2100	38.6	33	88	85-115	60-140

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MATRIX SPIKES

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**EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H3095**

R503194-05

B1CCY5

D A T A S H E E T

SDG <u>7258</u>	Client/Case no <u>Hanford</u>	<u>SDG_H3095</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R503194-05</u>	Client sample id <u>B1CCY5</u>	
Dept sample id <u>7258-005</u>	Location/Matrix <u>ERDF Grndwater Well Samp WATER</u>	
Received <u>03/25/05</u>	Collected/Volume <u>03/23/05 10:31 7.40 L</u>	
	Custody/SAF No <u>B03-018-111</u>	<u>B03-018</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	1.53	1.3	1.5	3.0		93A
Gross Beta	12587-47-2	41.4	2.7	1.9	4.0		93B
Carbon 14	14762-75-5	11.8	32	53	200	U	C
Technetium 99	14133-76-7	68.6	4.9	5.5	15		TC
Total Uranium (ug/L)	7440-61-1	2.26	0.25	0.022	0.10		U_T
Total Radium	ALPHA-RA	0.144	0.16	0.39	1.0	U	RAT
Iodine 129	15046-84-1	5.25	4.2	<u>9.6</u>	5.0	U	I

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H3095

R503194-06

B1CCY8

DATA SHEET

SDG <u>7258</u>	Client/Case no <u>Hanford</u>	SDG <u>H3095</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R503194-06</u>	Client sample id <u>B1CCY8</u>	
Dept sample id <u>7258-006</u>	Location/Matrix <u>ERDF Grndwater Well Samp WATER</u>	
Received <u>03/25/05</u>	Collected/Volume <u>03/23/05 10:31 7.39'L</u>	
	Custody/SAF No <u>B03-018-112 B03-018</u>	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	0.817	0.99	1.1	3.0	U	93A
Gross Beta	12587-47-2	38.4	2.6	1.8	4.0		93B
Carbon 14	14762-75-5	42.2	32	52	200	U	C
Technetium 99	14133-76-7	78.4	5.6	6.0	15		TC
Total Uranium (ug/L)	7440-61-1	2.30	0.26	0.022	0.10		U_T
Total Radium	ALPHA-RA	-0.045	0.060	0.39	1.0	U	RAT
Iodine 129	15046-84-1	3.66	4.4	<u>10</u>	5.0	U	I

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H3095

R503194-01

B1CD00

DATA SHEET

<u>SDG 7258</u>	<u>Client/Case no Hanford</u>	<u>SDG H3095</u>
<u>Contact Melissa C. Mannion</u>	<u>Contract No. 630</u>	
<u>Lab sample id R503194-01</u>	<u>Client sample id B1CD00</u>	
<u>Dept sample id 7258-001</u>	<u>Location/Matrix ERDF Grndwater Well Samp WATER</u>	
<u>Received 03/24/05</u>	<u>Collected/Volume 03/23/05 12:27 7.40 L</u>	
	<u>Custody/SAF No B03-018-113 B03-018</u>	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	1.33	1.1	1.3	3.0		93A
Gross Beta	12587-47-2	32.9	2.4	1.9	4.0		93B
Carbon 14	14762-75-5	38.6	33	54	200	U	C
Technetium 99	14133-76-7	66.2	4.9	5.8	15		TC
Total Uranium (ug/L)	7440-61-1	2.14	0.24	0.022	0.10		U_T
Total Radium	ALPHA-RA	0.089	0.11	0.37	1.0	U	RAT
Iodine 129	15046-84-1	15.5	1.6	3.1	5.0		I

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H3095

R503194-02

B1CD06

DATA SHEET

SDG <u>7258</u>	Client/Case no <u>Hanford</u>	<u>SDG H3095</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R503194-02</u>	Client sample id <u>B1CD06</u>	
Dept sample id <u>7258-002</u>	Location/Matrix <u>ERDF Grndwater Well Samp</u>	<u>WATER</u>
Received <u>03/24/05</u>	Collected/Volume <u>03/23/05 09:09</u>	<u>7.40 L</u>
	Custody/SAF No <u>B03-018-115</u>	<u>B03-018</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	0.913	0.94	1.1	3.0	U	93A
Gross Beta	12587-47-2	33.2	2.4	1.8	4.0		93B
Carbon 14	14762-75-5	17.8	32	54	200	U	C
Technetium 99	14133-76-7	57.2	4.6	5.3	15		TC
Total Uranium (ug/L)	7440-61-1	2.86	0.32	0.022	0.10		U_T
Total Radium	ALPHA-RA	0.037	0.11	0.46	1.0	U	RAT
Iodine 129	15046-84-1	10.6	2.0	4.0	5.0		I

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H3095

R503194-03

B1CD09

D A T A S H E E T

SDG <u>7258</u>	Client/Case no <u>Hanford</u>	SDG <u>H3095</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R503194-03</u>	Client sample id <u>B1CD09</u>	
Dept sample id <u>7258-003</u>	Location/Matrix <u>ERDF Grndwater Well Samp WATER</u>	
Received <u>03/24/05</u>	Collected/Volume <u>03/23/05 07:45</u> <u>7.40 L</u>	
	Custody/SAF No <u>B03-018-116</u> <u>B03-018</u>	

ANALYTE	CAS NO	RESULT pCi/L	2 σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	-0.206	0.36	0.89	3.0	U	93A
Gross Beta	12587-47-2	0.072	0.99	1.8	4.0	U	93B
Carbon 14	14762-75-5	34.7	34	55	200	U	C
Technetium 99	14133-76-7	1.17	2.7	5.7	15	U	TC
Total Uranium (ug/L)	7440-61-1	0.006	0.010	0.022	0.10	U	U_T
Total Radium	ALPHA-RA	-0.027	0.065	0.38	1.0	U	RAT
Iodine 129	15046-84-1	-0.944	1.3	2.9	5.0	U	I

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H3095

R503194-04

B1CD12

DATA SHEET

SDG <u>7258</u>	Client/Case no <u>Hanford</u>	SDG <u>H3095</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R503194-04</u>	Client sample id <u>B1CD12</u>	
Dept sample id <u>7258-004</u>	Location/Matrix <u>ERDF Grndwater Well Samp WATER</u>	
Received <u>03/25/05</u>	Collected/Volume <u>03/24/05 09:58</u> <u>7.38 L</u>	
	Custody/SAF No <u>B03-018-117</u> <u>B03-018</u>	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	1.68	1.3	1.3	3.0		93A
Gross Beta	12587-47-2	36.9	2.5	1.9	4.0		93B
Carbon 14	14762-75-5	28.9	33	55	200	U	C
Technetium 99	14133-76-7	65.5	4.7	5.3	15		TC
Total Uranium (ug/L)	7440-61-1	2.85	1.5	0.022	0.10		U_T
Total Radium	ALPHA-RA	-0.058	0.094	0.40	1.0	U	RAT
Iodine 129	15046-84-1	-1.61	6.2	<u>14</u>	5.0	U	I

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3095

METHOD SUMMARY

TECHNETIUM 99 IN WATER

BETA COUNTING

Test TC Matrix WATER
SDG 7258
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H3095

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Technetium 99
Preparation batch 7132-067					
11CCY5	R503194-05			7258-005	68.6
11CCY8	R503194-06			7258-006	78.4
11CD00	R503194-01			7258-001	66.2
11CD06	R503194-02			7258-002	57.2
11CD09	R503194-03			7258-003	U
11CD12	R503194-04			7258-004	65.5
BLK (QC ID=52378)	R503194-08			7258-008	U
LCS (QC ID=52377)	R503194-07			7258-007	ok
Duplicate (R503194-01)	R503194-09			7258-009	ok
Nominal values and limits from method		RDLs (pCi/L)		15	
HANFORD SITE					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 7132-067 2σ prep error 10.0 % Reference Lab Notebook 7132 pg. 67																
11CCY5	R503194-05			5.5	0.100			95		50			34	04/22/05	04/26	GRB-202
11CCY8	R503194-06			6.0	0.100			84		50			34	04/22/05	04/26	GRB-203
11CD00	R503194-01			5.8	0.100			90		50			33	04/22/05	04/25	GRB-221
11CD06	R503194-02			5.3	0.100			93		50			33	04/22/05	04/25	GRB-222
11CD09	R503194-03			5.7	0.100			92		50			35	04/22/05	04/27	GRB-227
11CD12	R503194-04			5.3	0.100			96		50			32	04/22/05	04/25	GRB-224
BLK (QC ID=52378)	R503194-08			5.0	0.100			101		50				04/22/05	04/25	GRB-228
LCS (QC ID=52377)	R503194-07			5.2	0.100			100		50				04/22/05	04/25	GRB-227
Duplicate (R503194-01)	R503194-09			6.0	0.100			88		50			35	04/22/05	04/27	GRB-232
(QC ID=52379)																
Nominal values and limits from method				15	0.100			20-105		50			180			

METHOD SUMMARIES

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3095

Test TC Matrix WATER

SDG 7258

Contact Melissa C. Mannion

METHOD SUMMARY, cont.

TECHNETIUM 99 IN WATER

BETA COUNTING

Client Hanford

Contract No. 630

Contract SDG H3095

PROCEDURES	REFERENCE	TC99_TR_SEP_LSC
	CP-431	Technetium-99 Purification of Soil or Resin by Extraction Chromatography, rev 2
	CP-008	Heavy Element Electroplating, rev 9

AVERAGES \pm 2 SD	MDA	<u>5.5</u>	\pm	<u>0.72</u>
FOR 9 SAMPLES	YIELD	<u>93</u>	\pm	<u>11</u>

METHOD SUMMARIES

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3095

Test RAT Matrix WATER

SDG 7258

Contact Melissa C. Mannion

METHOD SUMMARY

TOTAL ALPHA RADIUM IN WATER

GAS PROPORTIONAL COUNTING

Client Hanford

Contract No. 630

Contract SDG H3095

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- PLANCHET	Total Radium
------------------	---------------	--------------	---------------	--------------

Preparation batch 7132-067

1CCY5	R503194-05		7258-005	U
1CCY8	R503194-06		7258-006	U
1CD00	R503194-01		7258-001	U
1CD06	R503194-02		7258-002	U
1CD09	R503194-03		7258-003	U
1CD12	R503194-04		7258-004	U
1LK (QC ID=52378)	R503194-08		7258-008	U
1CS (QC ID=52377)	R503194-07		7258-007	ok
Duplicate (R503194-01)	R503194-09		7258-009	- U

Nominal values and limits from method RDLs (pCi/L) 1.0

HANFORD SITE

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
------------------	---------------	--------------	----------------	--------	----------	------------	---------	-------	-----------	----------	-----------	-----------	----------------	------	----------

Preparation batch 7132-067 2σ prep error 5.0 % Reference Lab Notebook 7132 pg. 67

1CCY5	R503194-05		0.39	0.200			96	100				26	04/14/05	04/18	GAW-214
1CCY8	R503194-06		0.39	0.200			93	100				28	04/14/05	04/20	GAW-111
1CD00	R503194-01		0.37	0.200			97	100				28	04/14/05	04/20	GAW-114
1CD06	R503194-02		0.46	0.200			98	100				26	04/14/05	04/18	GAW-210
1CD09	R503194-03		0.38	0.200			96	100				28	04/14/05	04/20	GAW-109
1CD12	R503194-04		0.40	0.200			97	100				25	04/14/05	04/18	GAW-213
1LK (QC ID=52378)	R503194-08		0.37	0.200			96	100					04/14/05	04/18	GAW-114
1CS (QC ID=52377)	R503194-07		0.70	0.200			96	<u>38</u>					04/14/05	04/18	GAW-105
Duplicate (R503194-01)	R503194-09		0.36	0.200			96	100				29	04/14/05	04/21	GAW-213
	(QC ID=52379)														

Nominal values and limits from method 1.0 0.200 20-105 100 180

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3095

Test RAT Matrix WATER

SDG 7258

Contact Melissa C. Mannion

METHOD SUMMARY, cont.

TOTAL ALPHA RADIUM IN WATER

GAS PROPORTIONAL COUNTING

Client Hanford

Contract No. 630

Contract SDG H3095

PROCEDURES REFERENCE RATOT_GPC
DWP-880 Total Radium in Drinking Water, rev 0

AVERAGES \pm 2 SD MDA 0.42 \pm 0.21
FOR 9 SAMPLES YIELD 96 \pm 3

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Form DVD-CMS
Version 3.06
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3095

Test 93A Matrix WATER
 SDG 7258
 Contact Melissa C. Mannion

METHOD SUMMARY

GROSS ALPHA IN WATER
 GAS PROPORTIONAL COUNTING

Client Hanford
 Contract No. 630
 Contract SDG H3095

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Gross Alpha
Preparation batch 7132-067					
31CCY5	R503194-05	93		7258-005	1.53
31CCY8	R503194-06	93		7258-006	U
31CD00	R503194-01	93		7258-001	1.33
31CD06	R503194-02	93		7258-002	U
31CD09	R503194-03	93		7258-003	U
31CD12	R503194-04	93		7258-004	1.68
3LK (QC ID=52378)	R503194-08	93		7258-008	U
LCS (QC ID=52377)	R503194-07	93		7258-007	ok
Duplicate (R503194-01)	R503194-09	93		7258-009	ok

Nominal values and limits from method RDLs (pCi/L) 3.0
 HANFORD SITE

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR
Preparation batch 7132-067 2σ prep error 20.0 % Reference Lab Notebook 7132 pg. 67															
B1CCY5	R503194-05	93		1.5	0.300			61		100			16	04/07/05	04/08 GRB-213
B1CCY8	R503194-06	93		1.1	0.300			66		100			16	04/07/05	04/08 GRB-214
B1CD00	R503194-01	93		1.3	0.300			72		100			16	04/07/05	04/08 GRB-210
B1CD06	R503194-02	93		1.1	0.300			67		100			16	04/07/05	04/08 GRB-211
B1CD09	R503194-03	93		0.89	0.300			0		100			16	04/07/05	04/08 GRB-213
B1CD12	R503194-04	93		1.3	0.300			84		100			15	04/07/05	04/08 GRB-214
BLK (QC ID=52378)	R503194-08	93		1.2	0.300			63		100				04/07/05	04/08 GRB-210
LCS (QC ID=52377)	R503194-07	93		1.2	0.300			63		100				04/07/05	04/08 GRB-105
Duplicate (R503194-01)	R503194-09	93		1.1	0.300			74		100			16	04/07/05	04/08 GRB-211
	(QC ID=52379)														

Nominal values and limits from method 3.0 0.300 5-250 100 180

METHOD SUMMARIES

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3095

METHOD SUMMARY, cont.

GROSS ALPHA IN WATER
GAS PROPORTIONAL COUNTING

Test 93A Matrix WATER
SDG 7258
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H3095

PROCEDURES REFERENCE 900.0_ALPHABETA_GPC
CP-120 Gross Alpha and Gross Beta in Water, rev 6

AVERAGES \pm 2 SD MDA 1.2 \pm 0.34
FOR 9 SAMPLES RESIDUE 61 \pm 48

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 05/16/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3095

METHOD SUMMARY

GROSS BETA IN WATER
GAS PROPORTIONAL COUNTING

Test 93B Matrix WATER
SDG 7258
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H3095

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Gross Beta
Preparation batch 7132-067					
31CCY5	R503194-05	93		7258-005	41.4
31CCY8	R503194-06	93		7258-006	38.4
31CD00	R503194-01	93		7258-001	32.9
31CD06	R503194-02	93		7258-002	33.2
31CD09	R503194-03	93		7258-003	U
31CD12	R503194-04	93		7258-004	36.9
3LK (QC ID=52378)	R503194-08	93		7258-008	U
LCS (QC ID=52377)	R503194-07	93		7258-007	ok
Duplicate (R503194-01)	R503194-09	93		7258-009	ok

Nominal values and limits from method RDLs (pCi/L) 4.0
HANFORD SITE

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR
Preparation batch 7132-067 2σ prep error 15.0 % Reference Lab Notebook 7132 pg. 67															
B1CCY5	R503194-05	93		1.9	0.300			61		100			16	04/07/05	04/08 GRB-213
B1CCY8	R503194-06	93		1.8	0.300			66		100			16	04/07/05	04/08 GRB-214
B1CD00	R503194-01	93		1.9	0.300			72		100			16	04/07/05	04/08 GRB-210
B1CD06	R503194-02	93		1.8	0.300			67		100			16	04/07/05	04/08 GRB-211
B1CD09	R503194-03	93		1.8	0.300			0		100			16	04/07/05	04/08 GRB-213
B1CD12	R503194-04	93		1.9	0.300			84		100			15	04/07/05	04/08 GRB-214
BLK (QC ID=52378)	R503194-08	93		1.8	0.300			63		100				04/07/05	04/08 GRB-210
LCS (QC ID=52377)	R503194-07	93		1.9	0.300			63		100				04/07/05	04/08 GRB-105
Duplicate (R503194-01) (QC ID=52379)	R503194-09	93		1.8	0.300			74		100			16	04/07/05	04/08 GRB-211

Nominal values and limits from method 4.0 0.300 5-250 100 180

METHOD SUMMARIES

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3095

Test 93B Matrix WATER
SDG 7258
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

GROSS BETA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H3095

PROCEDURES REFERENCE 900.0_ALPHABETA_GPC
CP-120 Gross Alpha and Gross Beta in Water, rev 6

AVERAGES \pm 2 SD MDA 1.8 \pm 0.11
FOR 9 SAMPLES RESIDUE 61 \pm 48

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 05/16/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3095

Test I Matrix WATER
 SDG 7258
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Contract SDG H3095

METHOD SUMMARY

IODINE 129 IN WATER
 GAMMA SPECTROSCOPY

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Iodine 129
Preparation batch 7132-067					
31CCY5	R503194-05	7258-005			5.25 U
31CCY8	R503194-06	7258-006			U
31CD00	R503194-01	7258-001			15.5
31CD06	R503194-02	7258-002			10.6
31CD09	R503194-03	7258-003			U
31CD12	R503194-04	7258-004			U
3LK (QC ID=52378)	R503194-08	7258-008			U
LCS (QC ID=52377)	R503194-07	7258-007			ok
Duplicate (R503194-01)	R503194-09	7258-009			ok

Nominal values and limits from method RDLs (pCi/L) 5.0
 HANFORD SITE

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR
Preparation batch 7132-067 2σ prep error 5.0 % Reference Lab Notebook 7132 pg. 67															
B1CCY5	R503194-05			<u>9.6</u>	0.250			80		619			40	04/27/05	05/02 XSPEC-016
B1CCY8	R503194-06			<u>10</u>	0.250			75		607			41	04/27/05	05/03 XSPEC-016
B1CD00	R503194-01			3.1	0.250			75		920			41	04/27/05	05/03 XSPEC-004
B1CD06	R503194-02			4.0	0.250			87		606			37	04/27/05	04/29 XSPEC-004
B1CD09	R503194-03			2.9	0.250			83		1003			37	04/27/05	04/29 XSPEC-004
B1CD12	R503194-04			<u>14</u>	0.250			56		607			39	04/27/05	05/02 XSPEC-016
BLK (QC ID=52378)	R503194-08			3.6	0.250			82		601				04/27/05	05/04 XSPEC-004
LCS (QC ID=52377)	R503194-07			<u>14</u>	0.250			81		806				04/27/05	05/03 XSPEC-016
Duplicate (R503194-01)	R503194-09			<u>9.9</u>	0.250			77		601			42	04/27/05	05/04 XSPEC-016
	(QC ID=52379)														

Nominal values and limits from method 5.0 0.250 20-105 300 100 180

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3095

Test I Matrix WATER

SDG 7258

Contact Melissa C. Mannion

METHOD SUMMARY, cont.

IODINE 129 IN WATER

GAMMA SPECTROSCOPY

Client Hanford

Contract No. 630

Contract SDG H3095

PROCEDURES	REFERENCE	I129_SEP_LEPS_GS
	CP-024	Iodine-129, Sample Dissolution, rev 5
	CP-530	Iodine-129 Purification, rev 1

AVERAGES ± 2 SD	MDA	<u>7.9</u>	±	<u>9.2</u>
FOR 9 SAMPLES	YIELD	<u>77</u>	±	<u>18</u>

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3095

METHOD SUMMARY

URANIUM, TOTAL IN WATER
KINETIC PHOSPHORIMETRY (KPA)

Test U T Matrix WATER
SDG 7258
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H3095

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	Total Uranium
Preparation batch 7132-067				
B1CCY5	R503194-05	7258-005		2.26
B1CCY8	R503194-06	7258-006		2.30
B1CD00	R503194-01	7258-001		2.14
B1CD06	R503194-02	7258-002		2.86
B1CD09	R503194-03	7258-003		U
B1CD12	R503194-04	7258-004		2.85
BLK (QC ID=52378)	R503194-08	7258-008		U
LCS (QC ID=52377)	R503194-07	7258-007		ok
Duplicate (R503194-01)	R503194-09	7258-009		ok

Nominal values and limits from method RDLs (ug/L) 0.10
HANFORD SITE

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA ug/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR
Preparation batch 7132-067 2σ prep error 9.0 % Reference Lab Notebook 7132 pg. 67															
B1CCY5	R503194-05			0.022	0.0200								23	04/04/05	04/15 KPA-001
B1CCY8	R503194-06			0.022	0.0200								23	04/04/05	04/15 KPA-001
B1CD00	R503194-01			0.022	0.0200								23	04/04/05	04/15 KPA-001
B1CD06	R503194-02			0.022	0.0200								23	04/04/05	04/15 KPA-001
B1CD09	R503194-03			0.022	0.0200								23	04/04/05	04/15 KPA-001
B1CD12	R503194-04			0.022	0.0200								22	04/04/05	04/15 KPA-001
BLK (QC ID=52378)	R503194-08			0.022	0.0200									04/04/05	04/15 KPA-001
LCS (QC ID=52377)	R503194-07			0.22	0.0200									04/04/05	04/15 KPA-001
Duplicate (R503194-01)	R503194-09			0.022	0.0200								23	04/04/05	04/15 KPA-001
	(QC ID=52379)														

Nominal values and limits from method 0.10 0.0200 180

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3095

Test U T Matrix WATER
SDG 7258
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

URANIUM, TOTAL IN WATER
KINETIC PHOSPHORIMETRY (KPA)

Client Hanford
Contract No. 630
Contract SDG H3095

PROCEDURES	REFERENCE	UTOT_KPA
	CP-044	Sample Preparation for Total Uranium by Kinetic Phosphorimetry, rev 6
	CP-929	Calibration of the Kinetic Phosphorimeter, rev 9

AVERAGES \pm 2 SD	MDA <u>0.044</u> \pm <u>0.13</u>
FOR 9 SAMPLES	YIELD _____ \pm _____

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3095

Test C Matrix WATER
 SDG 7258
 Contact Melissa C. Mannion

METHOD SUMMARY

CARBON 14 IN WATER
 LIQUID SCINTILLATION COUNTING

Client Hanford
 Contract No. 630
 Contract SDG H3095

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Carbon 14
Preparation batch 7132-067					
31CCY5	R503194-05			7258-005	U
31CCY8	R503194-06			7258-006	U
31CD00	R503194-01			7258-001	U
31CD06	R503194-02			7258-002	U
31CD09	R503194-03			7258-003	U
31CD12	R503194-04			7258-004	U
3LK (QC ID=52378)	R503194-08			7258-008	U
LCS (QC ID=52377)	R503194-07			7258-007	ok
Duplicate (R503194-01)	R503194-09			7258-009	- U
Spike (R503194-01)	R503194-10			7258-010	ok X

Nominal values and limits from method RDLs (pCi/L) 200
 HANFORD SITE

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR
Preparation batch 7132-067 2σ prep error 10.0 % Reference Lab Notebook 7132 pg. 67															
31CCY5	R503194-05			53	0.0300			100		50			42	05/04/05	LSC-004
31CCY8	R503194-06			52	0.0300			100		50			42	05/04/05	LSC-004
31CD00	R503194-01			54	0.0300			100		50			42	05/04/05	LSC-004
31CD06	R503194-02			54	0.0300			100		50			42	05/04/05	LSC-004
31CD09	R503194-03			55	0.0300			100		50			42	05/04/05	LSC-004
31CD12	R503194-04			55	0.0300			100		50			41	05/04/05	LSC-004
3LK (QC ID=52378)	R503194-08			54	0.0300			100		50				05/04/05	LSC-004
LCS (QC ID=52377)	R503194-07			130	0.0300			100		<u>8</u>				05/04/05	LSC-004
Duplicate (R503194-01)	R503194-09			53	0.0300			100		50			42	05/04/05	LSC-004
(QC ID=52379)															
Spike (R503194-01)	R503194-10			<u>370</u>	<u>0.0200</u>			100		<u>2</u>			42	05/04/05	LSC-004
(QC ID=52380)															

Nominal values and limits from method 200 0.0300 50 180

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 Form DVD-CMS
 Version 3.06
 Report date 05/16/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3095

METHOD SUMMARY, cont.

CARBON 14 IN WATER

LIQUID SCINTILLATION COUNTING

Test C Matrix WATER

SDG 7258

Contact Melissa C. Mannion

Client Hanford

Contract No. 630

Contract SDG H3095

PROCEDURES REFERENCE C14_CHEM_LSC

CP-241 Carbon-14 in Aqueous Samples, rev 6

AVERAGES \pm 2 SD

MDA 93 \pm 200

FOR 10 SAMPLES

YIELD 100 \pm 0

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-CMS

Version 3.06

Report date 05/16/05

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H3095

SDG 7258
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H3095

SAMPLE SUMMARY

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

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

The following notes apply to these reports:

- * LAB SAMPLE ID is the lab's primary identification for a sample.
- * DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- * CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- * QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

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

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

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Form DVD-RG
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SAMPLE DELIVERY GROUP H3095

SDG 7258
Contact Melissa C. Mannion

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PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

- * The preparation batches are shown in the same order as the Method Summary Reports are printed.
- * Only analyses of planchets relevant to the SDG are included.
- * Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- * The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

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

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Contact Melissa C. Mannion

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WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- * TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- * SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- * The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- * PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- * For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- * The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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DATA SHEET

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

The following notes apply to this report:

- * TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- * The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

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

- * ERRORS can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- * A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- * When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

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

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D A T A S H E E T

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

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

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

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

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

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

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

P The RESULT is 'preliminary'.

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

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

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

The following values are underlined to indicate possible problems:

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

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DATA SHEET

- * An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.
- * A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- * When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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LAB CONTROL SAMPLE

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

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- * An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

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

- * REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 1. The error of RESULT, including that introduced by rounding the result prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.
 2. The error of ADDED.
 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits for the recovery.
- * The recovery is underlined if it is outside either of these ranges.

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D U P L I C A T E

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

The following notes apply to this report:

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

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

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

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

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

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

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

This value reported for this limit is at most 999.

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

1. A fixed percentage specified in the protocol.

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DUPLICATE

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

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

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

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

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MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

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

- * The first, computed limits for the recovery reflect:

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

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

2. The error of ADDED.

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

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

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MATRIX SPIKE

for the recovery.

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

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

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METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

- * Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- * Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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METHOD SUMMARY

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

- * Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
- * If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

MDAs are underlined if greater than the printed RDL.

- * Aliquots are underlined if less than the nominal value specified for the method.
- * Preparation factors are underlined if greater than the nominal value specified for the method.
- * Dilution factors are underlined if greater than the nominal value specified for the method.
- * Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
- * Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
- * Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

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METHOD SUMMARY

- * Count times are underlined if less than the nominal value specified for the method.
- * Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- * Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- * Days Held are underlined if greater than the holding time specified in the protocol.
- * Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

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

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

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

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

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

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 Contact Melissa C. Mannion

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Client Hanford
 Contract No. 630
 Case no SDG_H3095

METHOD SUMMARY

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

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

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

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

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PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #

B03-018-113

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Collector R.T. SICKLE	Contact/Requester JH KESSNER	Telephone No. 509-375-4688	MSIN FAX
SAF No. B03-018	Sampling Origin HANFORD SITE H3095 (7258)	Purchase Order/Charge Code	
Project Title ERDF Groundwater Well Samples	DTS-SAWS-489	Ice Chest No. SMC 452	Temp.
Shipped To (Lab) Eberline Services	Method of Shipment	Bill of Lading/Air Bill No. 7909 5793 2906	
Protocol GPP	Priority: 45 Days	Offsite Property No.	

POSSIBLE SAMPLE HAZARDS/REMARKS
* * *

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes No
 Batch all PNNL GW samples submitted under this SAF into one SDG, not to exceed SDG closure of 14 days.
 Submit invoices & deliverables to JH Kessner (fax 509-372-9609)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1CD00		W	3-23-05	1227	1x20-mL P	Activity Scan	None
B1CD00		W			2x1000-mL G/P	Gross Alpha; Gross Beta	HNO3 to pH <2
B1CD00		W			1x125-mL G/P	Carbon-14	None
B1CD00		W			4x1000-mL G/P	Iodine-129	None
B1CD00		W			1x1000-mL G/P	Total Radium	HNO3 to pH <2
B1CD00		W			1x250-mL G/P	Technetium-99	HCl to pH <2
B1CD00		W			1x100-mL G/P 125 3-23-05	Total Uranium	HNO3 to pH <2

Relinquished By R.T. SICKLE	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time MAR 23 2005	Received By Fed EX	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time 03/24/05 10:30 AM	Matrix * S = Soil DS = Drum Solid SF = Sediment DI = Drum L.ioni SO = Solid T = Tissue SL = Sludge WI = Wine W = Water L = L.iquid O = Oil V = Vegetation A = Air X = Other
Relinquished By Fed EX	Date/Time	Received By SON THAI	Date/Time					
Relinquished By	Date/Time	Received By	Date/Time					
Relinquished By	Date/Time	Received By	Date/Time					

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

Collector R.T. SICKLE	Contact/Requester JH KESSNER H3095 (7258)	Telephone No. 509-375-4688 MSIN FAX
SAF No. B03-018	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	DTS-SAWJ-H89	Ice Chest No. 5ML452 Temp.
Shipped To (Lab) Eberline Services	Method of Shipment	Bill of Lading/Air Bill No. 7909 5793 2906
Protocol GPP	Priority: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
* * *

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes No
Batch all PNNL GW samples submitted under this SAF into one SDG, not to exceed SDG closure of 14 days.
Submit invoices & deliverables to JH Kessner (fax 509-372-9609)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1CD06		W	3-23-05	0809	1x20-mL P	Activity Scan	None
B1CD06		W	↓	↓	2x1000-mL G/P	Gross Alpha; Gross Beta	HNO3 to pH <2
B1CD06		W			1x125-mL G/P	Carbon-14	None
B1CD06		W			4x1000-mL G/P	Iodine-129	None
B1CD06		W			1x1000-mL G/P	Total Radium	HNO3 to pH <2
B1CD06		W			1x250-mL G/P	Technetium-99	HCl to pH <2
B1CD06		W			1x100-mL G/P	Total Uranium	HNO3 to pH <2

Relinquished By R.T. SICKLE	Print	Sign	Date/Time MAR 23 2005	Received By Fed Ex	Print	Sign	Date/Time	Matrix * S = Soil DS = Drum Solid SF = Sediment DI = Drum Liquid SO = Solid T = Tissue SL = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By Fed Ex			Date/Time	Received By SON THAI			Date/Time 03/24/05 10:00 AM	
Relinquished By			Date/Time	Received By			Date/Time	
Relinquished By			Date/Time	Received By			Date/Time	

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

Collector R.T. SICKLE	Contact/Requester JH KESSNER <i>H3095 (7258)</i>	Telephone No. MSIN FAX 509-375-4688
SAF No. B03-018	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	<i>DTD - SAWS H89</i>	Ice Chest No. <i>5011</i> Temp. <i>45</i>
Shipped To (Lab) Eberline Services	Method of Shipment	Bill of Lading/Air Bill No. <i>7909 5793 2906</i>
Protocol GPP	Priority: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
* * *

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes No
 Batch all PNNL GW samples submitted under this SAF into one SDG, not to exceed SDG closure of 14 days.
 Submit invoices & deliverables to JH Kessner (fax 509-372-9609)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1CD09		W	<i>3-23-05</i>	<i>0745</i>	1x20-mL P	Activity Scan	None
B1CD09		W	↓	↓	2x1000-mL G/P	Gross Alpha; Gross Beta	HNO3 to pH <2
B1CD09		W			1x125-mL G/P	Carbon-14	None
B1CD09		W			4x1000-mL G/P	Iodine-129	None
B1CD09		W			1x1000-mL G/P	Total Radium	HNO3 to pH <2
B1CD09		W			1x250-mL G/P	Technetium-99	HCl to pH <2
B1CD09		W			1x100-mL G/P	Total Uranium	HNO3 to pH <2

Relinquished By R.T. SICKLE <i>[Signature]</i>	Print	Sign	Date/Time <i>1/10</i>	Received By <i>[Signature]</i>	Print	Sign	Date/Time	Matrix * S = Soil DS = Drum Solid SE = Sediment DI = Drum Liquid SO = Solid T = Tissue SI = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By <i>Fed EX</i>			MAR 23 2005	Received By <i>SON THAI</i>			<i>03/24/05 10:00 AM</i>	
Relinquished By			Date/Time	Received By			Date/Time	
Relinquished By			Date/Time	Received By			Date/Time	

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

Collector R.T. SICKLE	Contact/Requester JH KESSNER	Telephone No. 509-375-4688 MSIN FAX
SAF No. B03-018	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	DTS - SAWS - HP9	Ice Chest No. SAWS-111 Temp.
Shipped To (Lab) Eberline Services	Method of Shipment	Bill of Lading/Air Bill No. 7928 79650614
Protocol GPP	Priority: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS ** **	SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Batch all PNNL GW samples submitted under this SAF into one SDG, not to exceed SDG closure of 14 days. Submit invoices & deliverables to JH Kessner (fax 509-372-9609)
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1CD12		W	3-24-05	095F	1x20-mL P	Activity Scan	None
B1CD12		W			2x1000-mL G/P	Gross Alpha; Gross Beta	HNO3 to pH <2
B1CD12		W			1x125-mL G/P	Carbon-14	None
B1CD12		W			4x1000-mL G/P	Iodine-129	None
B1CD12		W			1x1000-mL G/P	Total Radium	HNO3 to pH <2
B1CD12		W			1x250-mL G/P	Technetium-99	HCl to pH <2
B1CD12		W			1x100-mL G/P	Total Uranium	HNO3 to pH <2

Relinquished By R.T. SICKLE Print Sign Date/Time MAR 24 2005	Received By Fed Ex Print Sign Date/Time	Matrix * S = Soil DS = Drum Solid SF = Sediment DI = Drum Liquid SO = Solid T = Tissue SL = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By Fed Ex Date/Time	Received By SON THAI Date/Time 03/25/05 10:30 AM	
Relinquished By Date/Time	Received By Date/Time	
Relinquished By Date/Time	Received By Date/Time	

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
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Collector R.T. SICKLE	Contact/Requester JH KESSNER	Telephone No. 509-375-4688 MSIN FAX
SAF No. B03-018	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDE Groundwater Well Samples	D.T.S - SAWS - HP9	Ice Chest No. 5012550 Temp.
Shipped To (Lab) Eberline Services	Method of Shipment	Bill of Lading/Air Bill No. 7909 5793 2928
Protocol GPP	Priority: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS ** **	SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Batch all PNNL GW samples submitted under this SAF into one SDG, not to exceed SDG closure of 14 days. Submit invoices & deliverables to JH Kessner (fax 509-372-9609)
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1CCY5		W	3-23-05	1031	1x20-mL P	Activity Scan	None
B1CCY5		W	↓	↓	2x1000-mL G/P	Gross Alpha; Gross Beta	HNO3 to pH <2
B1CCY5		W			1x125-mL G/P	Carbon-14	None
B1CCY5		W			4x1000-mL G/P	Iodine-129	None
B1CCY5		W			1x1000-mL G/P	Total Radium	HNO3 to pH <2
B1CCY5		W			1x250-mL G/P	Technetium-99	HCl to pH <2
B1CCY5		W			1x100-mL G/P	Total Uranium	HNO3 to pH <2

Relinquished By R.T. SICKLE	Print	Sign	Date/Time MAR 23 2005	Received By Fred EX	Print	Sign	Date/Time	Matrix * S = Soil DS = Drum Solid SF = Sediment DI = Drum Liquid SO = Solid T = Tissue SI = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By Fred EX			Date/Time	Received By SON THAI			Date/Time 03/25/05 10:30 AM	
Relinquished By			Date/Time	Received By			Date/Time	
Relinquished By			Date/Time	Received By			Date/Time	

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
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PNNL	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # B03-018-112
		Page 1 of 1

Collector R.T. SICKLE	Contact/Requester JH KESSNER	Telephone No. MSIN FAX 509-375-4688
SAF No. B03-018	Sampling Origin HANEFORD SITE	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	<i>DTS - SAWS - HF9</i>	Ice Chest No. <i>SML 550</i> Temp.
Shipped To (Lab) Eberline Services	Method of Shipment	Bill of Lading/Air Bill No. <i>7909 5793 2928</i>
Protocol GPP	Priority: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS ** **	SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Batch all PNNL GW samples submitted under this SAF into one SDG, not to exceed SDG closure of 14 days. Submit invoices & deliverables to JH Kessner (fax 509-372-9609)
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1CCY8		W	<i>3-23-05</i>	<i>1031</i>	1x20-mL P	Activity Scan	None
B1CCY8		W			2x1000-mL G/P	Gross Alpha; Gross Beta	HNO3 to pH <2
B1CCY8		W			1x125-mL G/P	Carbon-14	None
B1CCY8		W			4x1000-mL G/P	Iodine-129	None
B1CCY8		W			1x1000-mL G/P	Total Radium	HNO3 to pH <2
B1CCY8		W			1x250-mL G/P	Technetium-99	HCl to pH <2
B1CCY8		W			1x100-mL G/P <i>SD 125 7-23-05</i>	Total Uranium	HNO3 to pH <2

Relinquished By R.T. SICKLE	Print	Date/Time MAR 23 2005	Received By <i>Fel et</i>	Print	Date/Time	Matrix * S = Soil DS = Drum Solid SF = Sediment DI = Drum Liquid SO = Solid T = Tissue SL = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By <i>Fed EX</i>		Date/Time	Received By <i>SON THAI</i>		Date/Time <i>3/25/05 10:30 AM</i>	
Relinquished By		Date/Time	Received By		Date/Time	
Relinquished By		Date/Time	Received By		Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By		Date/Time

