Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD I04-002 H2393

DATE RECEIVED: 10/17/03 LVL LOT # :0310L836

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B17MR9						
SILVER, TOTAL	001	W	03L0677	10/15/03	11/10/03	11/11/03
SILVER, TOTAL	001 REP	W	03L0677	10/15/03	11/10/03	11/11/03
ALUMINUM, TOTAL	001	W	03L0677	10/15/03	11/10/03	11/12/03
ALUMINUM, TOTAL	001 REP	W	03L0677	10/15/03	11/10/03	11/12/03
BARIUM, TOTAL	001	W	03L0677	10/15/03	11/10/03	11/11/03
BARIUM, TOTAL	001 REP	W	03L0677	10/15/03	11/10/03	11/11/03
BERYLLIUM, TOTAL	001	W	03L0677	10/15/03	11/10/03	11/11/03
BERYLLIUM, TOTAL	001 REP	W	03L0677	10/15/03	11/10/03	11/11/03
CALCIUM, TOTAL	001	W	03L0677	10/15/03	11/10/03	11/11/03
CALCIUM, TOTAL	001 REP	W	03L0677	10/15/03	11/10/03	11/11/03
CADMIUM, TOTAL	001	W	03L0677	10/15/03	11/10/03	11/11/03
CADMIUM, TOTAL	001 REP	W	03L0677	10/15/03	11/10/03	11/11/03
COBALT, TOTAL	001	W	03L0677	10/15/03	11/10/03	11/11/03
COBALT, TOTAL	001 REP	W	03L0677	10/15/03	11/10/03	11/11/03
CHROMIUM, TOTAL	001	W	03L0677	10/15/03	11/10/03	11/11/03
CHROMIUM, TOTAL	001 REP	W	03L0677	10/15/03	11/10/03	11/11/03
COPPER, TOTAL	001	W	03L0677	10/15/03	11/10/03	11/12/03
COPPER, TOTAL	001 REP	W	03L0677	10/15/03	11/10/03	11/12/03
IRON, TOTAL	001	W	03L0677	10/15/03	11/10/03	11/11/03
IRON, TOTAL	001 REP	W	03L0677	10/15/03	11/10/03	11/11/03
POTASSIUM, TOTAL	001	W	03L0677	10/15/03	11/10/03	11/11/03
POTASSIUM, TOTAL	001 REP	W	03L0677	10/15/03	11/10/03	11/11/03
MAGNESIUM, TOTAL	001	W	03L0677	10/15/03	11/10/03	11/11/03
MAGNESIUM, TOTAL	001 REP	W	03L0677	10/15/03	11/10/03	11/11/03
MANGANESE, TOTAL	001	W	03L0677	10/15/03	11/10/03	11/11/03
MANGANESE, TOTAL	001 REP	W	03L0677	10/15/03	11/10/03	11/11/03
SODIUM, TOTAL	001	W	03L0677	10/15/03	11/10/03	11/11/03
SODIUM, TOTAL	001 REP	W	03L0677	10/15/03	11/10/03	11/11/03
NICKEL, TOTAL	001	W	03L0677	10/15/03	11/10/03	11/11/03
NICKEL, TOTAL	001 REP	W	03L0677	10/15/03	11/10/03	11/11/03
ANTIMONY, TOTAL	001	W	03L0677	10/15/03	11/10/03	11/11/03
ANTIMONY, TOTAL	001 REP	W	03L0677	10/15/03	11/10/03	11/11/03
STRONTIUM, TOTAL	001	W	03L0677	10/15/03	11/10/03	11/11/03
STRONTIUM, TOTAL	001 REP	W	03L0677	10/15/03	11/10/03	11/11/03
VANADIUM, TOTAL	001	W	03L0677	10/15/03	11/10/03	11/11/03

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD I04-002 H2393

DATE RECEIVED: 10/17/03 LVL LOT # :0310L836

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
VANADIUM, TOTAL	001 REP	W	03L0677	10/15/03	11/10/03	11/11/03
ZINC, TOTAL	001	W	03L0677	10/15/03	11/10/03	11/11/03
ZINC, TOTAL	001 REP	W	03L0677	10/15/03	11/10/03	11/11/03
B17MT4						
SILVER, SOLUBLE	002	W	03L0677	10/15/03	11/10/03	11/11/03
SILVER, SOLUBLE	002 MS	W	03L0677	10/15/03	11/10/03	11/11/03
ALUMINUM, SOLUBLE	002	W	03L0677	10/15/03	11/10/03	11/12/03
ALUMINUM, SOLUBLE	002 MS	W	03L0677	10/15/03	11/10/03	11/12/03
BARIUM, SOLUBLE	002	W	03L0677	10/15/03	11/10/03	11/11/03
BARIUM, SOLUBLE	002 MS	W	03L0677	10/15/03	11/10/03	11/11/03
BERYLLIUM, SOLUBLE	002	W	03L0677	10/15/03	11/10/03	11/11/03
BERYLLIUM, SOLUBLE	002 MS	W	03L0677	10/15/03	11/10/03	11/11/03
CALCIUM, SOLUBLE	002	W	03L0677	10/15/03	11/10/03	11/11/03
CALCIUM, SOLUBLE	002 MS	W	03L0677	10/15/03	11/10/03	11/11/03
CADMIUM, SOLUBLE	002	W	03L0677	10/15/03	11/10/03	11/11/03
CADMIUM, SOLUBLE	002 MS	W	03L0677	10/15/03	11/10/03	11/11/03
COBALT, SOLUBLE	002	W	03L0677	10/15/03	11/10/03	11/11/03
COBALT, SOLUBLE	002 MS	W	03L0677	10/15/03	11/10/03	11/11/03
CHROMIUM, SOLUBLE	002	W	03L0677	10/15/03	11/10/03	11/11/03
CHROMIUM, SOLUBLE	002 MS	W	03L0677	10/15/03	11/10/03	11/11/03
COPPER, SOLUBLE	002	W	03L0677	10/15/03	11/10/03	11/12/03
COPPER, SOLUBLE	002 MS	W	03L0677	10/15/03	11/10/03	11/12/03
IRON, SOLUBLE	002	W	03L0677	10/15/03	11/10/03	11/11/03
IRON, SOLUBLE	002 MS	W	03L0677	10/15/03	11/10/03	11/11/03
POTASSIUM, SOLUBLE	002	W	03L0677	10/15/03	11/10/03	11/11/03
POTASSIUM, SOLUBLE	002 MS	W	03L0677	10/15/03	11/10/03	11/11/03
MAGNESIUM, SOLUBLE	002	W	03L0677	10/15/03	11/10/03	11/11/03
MAGNESIUM, SOLUBLE	002 MS	W	03L0677	10/15/03	11/10/03	11/11/03
MANGANESE, SOLUBLE	002	W	03L0677	10/15/03	11/10/03	11/11/03
MANGANESE, SOLUBLE	002 MS	W	03L0677	10/15/03	11/10/03	11/11/03
SODIUM, SOLUBLE	002	W	03L0677	10/15/03	11/10/03	11/11/03
SODIUM, SOLUBLE	002 MS	W	03L0677	10/15/03	11/10/03	11/11/03
NICKEL, SOLUBLE	002	W	03L0677	10/15/03	11/10/03	11/11/03
NICKEL, SOLUBLE	002 MS	W	03L0677	10/15/03	11/10/03	11/11/03
ANTIMONY, SOLUBLE	002	W	03L0677	10/15/03	11/10/03	11/11/03
ANTIMONY, SOLUBLE	002 MS	W	03L0677	10/15/03	11/10/03	11/11/03

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD I04-002 H2393

DATE RECEIVED: 10/17/03 LVL LOT # :0310L836

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STRONTIUM, SOLUBLE	002	W	03L0677	10/15/03	11/10/03	11/11/03
STRONTIUM, SOLUBLE	002 MS	W	03L0677	10/15/03	11/10/03	11/11/03
VANADIUM, SOLUBLE	002	W	03L0677	10/15/03	11/10/03	11/11/03
VANADIUM, SOLUBLE	002 MS	W	03L0677	10/15/03	11/10/03	11/11/03
ZINC, SOLUBLE	002	W	03L0677	10/15/03	11/10/03	11/11/03
ZINC, SOLUBLE	002 MS	W	03L0677	10/15/03	11/10/03	11/11/03
B17MT9						
SILVER, SOLUBLE	003	W	03L0677	10/15/03	11/10/03	11/11/03
ALUMINUM, SOLUBLE	003	W	03L0677	10/15/03	11/10/03	11/12/03
BARIUM, SOLUBLE	003	W	03L0677	10/15/03	11/10/03	11/11/03
BERYLLIUM, SOLUBLE	003	W	03L0677	10/15/03	11/10/03	11/11/03
CALCIUM, SOLUBLE	003	W	03L0677	10/15/03	11/10/03	11/11/03
CADMIUM, SOLUBLE	003	W	03L0677	10/15/03	11/10/03	11/11/03
COBALT, SOLUBLE	003	W	03L0677	10/15/03	11/10/03	11/11/03
CHROMIUM, SOLUBLE	003	W	03L0677	10/15/03	11/10/03	11/11/03
COPPER, SOLUBLE	003	W	03L0677	10/15/03	11/10/03	11/12/03
IRON, SOLUBLE	003	W	03L0677	10/15/03	11/10/03	11/11/03
POTASSIUM, SOLUBLE	003	W	03L0677	10/15/03	11/10/03	11/11/03
MAGNESIUM, SOLUBLE	003	W	03L0677	10/15/03	11/10/03	11/11/03
MANGANESE, SOLUBLE	003	W	03L0677	10/15/03	11/10/03	11/11/03
SODIUM, SOLUBLE	003	W	03L0677	10/15/03	11/10/03	11/11/03
NICKEL, SOLUBLE	003	W	03L0677	10/15/03	11/10/03	11/11/03
ANTIMONY, SOLUBLE	003	W	03L0677	10/15/03	11/10/03	11/11/03
STRONTIUM, SOLUBLE	003	W	03L0677	10/15/03	11/10/03	11/11/03
VANADIUM, SOLUBLE	003	W	03L0677	10/15/03	11/10/03	11/11/03
ZINC, SOLUBLE	003	W	03L0677	10/15/03	11/10/03	11/11/03
B17MV4						
SILVER, TOTAL	004	W	03L0677	10/15/03	11/10/03	11/11/03
ALUMINUM, TOTAL	004	W	03L0677	10/15/03	11/10/03	11/12/03
BARIUM, TOTAL	004	W	03L0677	10/15/03	11/10/03	11/11/03
BERYLLIUM, TOTAL	004	W	03L0677	10/15/03	11/10/03	11/11/03
CALCIUM, TOTAL	004	W	03L0677	10/15/03	11/10/03	11/11/03
CADMIUM, TOTAL	004	W	03L0677	10/15/03	11/10/03	11/11/03
COBALT, TOTAL	004	W	03L0677	10/15/03	11/10/03	11/11/03

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD I04-002 H2393

DATE RECEIVED: 10/17/03 LVL LOT # :0310L836

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	004	W	03L0677	10/15/03	11/10/03	11/11/03
COPPER, TOTAL	004	W	03L0677	10/15/03	11/10/03	11/12/03
IRON, TOTAL	004	W	03L0677	10/15/03	11/10/03	11/11/03
POTASSIUM, TOTAL	004	W	03L0677	10/15/03	11/10/03	11/11/03
MAGNESIUM, TOTAL	004	W	03L0677	10/15/03	11/10/03	11/11/03
MANGANESE, TOTAL	004	W	03L0677	10/15/03	11/10/03	11/11/03
SODIUM, TOTAL	004	W	03L0677	10/15/03	11/10/03	11/11/03
NICKEL, TOTAL	004	W	03L0677	10/15/03	11/10/03	11/11/03
ANTIMONY, TOTAL	004	W	03L0677	10/15/03	11/10/03	11/11/03
STRONTIUM, TOTAL	004	W	03L0677	10/15/03	11/10/03	11/11/03
VANADIUM, TOTAL	004	W	03L0677	10/15/03	11/10/03	11/11/03
ZINC, TOTAL	004	W	03L0677	10/15/03	11/10/03	11/11/03

LAB QC:

SILVER LABORATORY	LC1 BS	W	03L0677	N/A	11/10/03	11/11/03
SILVER, TOTAL	MB1	W	03L0677	N/A	11/10/03	11/11/03
ALUMINUM LABORTORY	LC1 BS	W	03L0677	N/A	11/10/03	11/12/03
ALUMINUM, TOTAL	MB1	W	03L0677	N/A	11/10/03	11/12/03
BARIUM LABORATORY	LC1 BS	W	03L0677	N/A	11/10/03	11/11/03
BARIUM, TOTAL	MB1	W	03L0677	N/A	11/10/03	11/11/03
BERYLLIUM LABORATORY	LC1 BS	W	03L0677	N/A	11/10/03	11/11/03
BERYLLIUM, TOTAL	MB1	W	03L0677	N/A	11/10/03	11/11/03
CALCIUM LABORATORY	LC1 BS	W	03L0677	N/A	11/10/03	11/11/03
CALCIUM, TOTAL	MB1	W	03L0677	N/A	11/10/03	11/11/03
CADMIUM LABORATORY	LC1 BS	W	03L0677	N/A	11/10/03	11/11/03
CADMIUM, TOTAL	MB1	W	03L0677	N/A	11/10/03	11/11/03
COBALT LABORATORY	LC1 BS	W	03L0677	N/A	11/10/03	11/11/03
COBALT, TOTAL	MB1	W	03L0677	N/A	11/10/03	11/11/03
CHROMIUM LABORATORY	LC1 BS	W	03L0677	N/A	11/10/03	11/11/03
CHROMIUM, TOTAL	MB1	W	03L0677	N/A	11/10/03	11/11/03
COPPER LABORATORY	LC1 BS	W	03L0677	N/A	11/10/03	11/12/03
COPPER, TOTAL	MB1	W	03L0677	N/A	11/10/03	11/12/03
IRON LABORATORY	LC1 BS	W	03L0677	N/A	11/10/03	11/11/03
IRON, TOTAL	MB1	W	03L0677	N/A	11/10/03	11/11/03
POTASSIUM LABORATORY	LC1 BS	W	03L0677	N/A	11/10/03	11/11/03
POTASSIUM, TOTAL	MB1	W	03L0677	N/A	11/10/03	11/11/03
MAGNESIUM LABORATORY	LC1 BS	W	03L0677	N/A	11/10/03	11/11/03

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TNUHANFORD I04-002 H2393

DATE RECEIVED: 10/17/03 LVL LOT # :0310L836

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	MB1	W	03L0677	N/A	11/10/03	11/11/03
MANGANESE LABORATORY	LC1 BS	W	03L0677	N/A	11/10/03	11/11/03
MANGANESE, TOTAL	MB1	W	03L0677	N/A	11/10/03	11/11/03
SODIUM LABORATORY	LC1 BS	W	03L0677	N/A	11/10/03	11/11/03
SODIUM, TOTAL	MB1	W	03L0677	N/A	11/10/03	11/11/03
NICKEL LABORATORY	LC1 BS	W	03L0677	N/A	11/10/03	11/11/03
NICKEL, TOTAL	MB1	W	03L0677	N/A	11/10/03	11/11/03
ANTIMONY LABORATORY	LC1 BS	W	03L0677	N/A	11/10/03	11/11/03
ANTIMONY, TOTAL	MB1	W	03L0677	N/A	11/10/03	11/11/03
STRONTIUM LCS STANDA	LC1 BS	W	03L0677	N/A	11/10/03	11/11/03
STRONTIUM, TOTAL	MB1	W	03L0677	N/A	11/10/03	11/11/03
VANADIUM LABORATORY	LC1 BS	W	03L0677	N/A	11/10/03	11/11/03
VANADIUM, TOTAL	MB1	W	03L0677	N/A	11/10/03	11/11/03
ZINC LABORATORY	LC1 BS	W	03L0677	N/A	11/10/03	11/11/03
ZINC, TOTAL	MB1	W	03L0677	N/A	11/10/03	11/11/03

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD I04-002
LVL#: 0310L836
SDG/SAF#: H2393/I04-002

W.O.#: 11343-606-001-9999-00
Date Received: 10-17-03

METALS CASE NARRATIVE

1. This narrative covers the analyses of 4 water samples.

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

   The samples were rerun for Aluminum and Copper due to out of control CCBs in the original run.

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

4. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.

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

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

7. The preparation/method blank for 1 analyte was outside method criteria. {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

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

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

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

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

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

11. The duplicate analyses for 2 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

11-19-03
Date

gmb/m10-836

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METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Lot#: 0310L836

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

Other:_____ **Method:**_____

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

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

3. Flame AA.

4. Graphite Furnace AA.

L-WI-033/N-04/98

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 11/19/03

CLIENT: TNUHANFORD I04-002 H2393 LVL LOT #: 0310L836

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B17MR9	Silver, Total	0.80 u	UG/L	0.80	1.0
		Aluminum, Total	35.6	UG/L	17.3	1.0
		Barium, Total	46.4	UG/L	0.20	1.0
		Beryllium, Total	0.40 u	UG/L	0.40	1.0
		Calcium, Total	82700	UG/L	31.0	1.0
		Cadmium, Total	0.40 u	UG/L	0.40	1.0
		Cobalt, Total	1.2 u	UG/L	1.2	1.0
		Chromium, Total	123	UG/L	1.0	1.0
		Copper, Total	1.8 u	UG/L	1.8	1.0
		Iron, Total	122	UG/L	19.8	1.0
		Potassium, Total	4770	UG/L	23.5	1.0
		Magnesium, Total	13100	UG/L	7.0	1.0
		Manganese, Total	2.7	UG/L	0.30	1.0
		Sodium, Total	5500	UG/L	7.1	1.0
		Nickel, Total	2.0 u	UG/L	2.0	1.0
		Antimony, Total	2.9 u	UG/L	2.9	1.0
		Strontium, Total	366	UG/L	0.10	1.0
		Vanadium, Total	8.1	UG/L	0.90	1.0
		Zinc, Total	58.4	UG/L	2.6	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 11/19/03

CLIENT: TNUHANFORD I04-002 H2393 LVL LOT #: 0310L836

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B17MT4	Silver, Soluble	0.80 u	UG/L	0.80	1.0
		Aluminum, Soluble	19.8	UG/L	17.3	1.0
		Barium, Soluble	42.1	UG/L	0.20	1.0
		Beryllium, Soluble	0.40 u	UG/L	0.40	1.0
		Calcium, Soluble	73500	UG/L	31.0	1.0
		Cadmium, Soluble	0.40 u	UG/L	0.40	1.0
		Cobalt, Soluble	1.2 u	UG/L	1.2	1.0
		Chromium, Soluble	110	UG/L	1.0	1.0
		Copper, Soluble	1.8 u	UG/L	1.8	1.0
		Iron, Soluble	32.9	UG/L	19.8	1.0
		Potassium, Soluble	4340	UG/L	23.5	1.0
		Magnesium, Soluble	11800	UG/L	7.0	1.0
		Manganese, Soluble	0.83	UG/L	0.30	1.0
		Sodium, Soluble	5040	UG/L	7.1	1.0
		Nickel, Soluble	2.0 u	UG/L	2.0	1.0
		Antimony, Soluble	2.9 u	UG/L	2.9	1.0
		Strontium, Soluble	329	UG/L	0.10	1.0
		Vanadium, Soluble	7.4	UG/L	0.90	1.0
		Zinc, Soluble	33.9	UG/L	2.6	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 11/19/03

CLIENT: TNUHANFORD I04-002 H2393 LVL LOT #: 0310L836

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B17MT9	Silver, Soluble	0.80 u	UG/L	0.80	1.0
		Aluminum, Soluble	28.1	UG/L	17.3	1.0
		Barium, Soluble	62.7	UG/L	0.20	1.0
		Beryllium, Soluble	0.40 u	UG/L	0.40	1.0
		Calcium, Soluble	25800	UG/L	31.0	1.0
		Cadmium, Soluble	0.40 u	UG/L	0.40	1.0
		Cobalt, Soluble	1.2 u	UG/L	1.2	1.0
		Chromium, Soluble	8.6	UG/L	1.0	1.0
		Copper, Soluble	1.8 u	UG/L	1.8	1.0
		Iron, Soluble	32.1	UG/L	19.8	1.0
		Potassium, Soluble	4560	UG/L	23.5	1.0
		Magnesium, Soluble	14900	UG/L	7.0	1.0
		Manganese, Soluble	0.71	UG/L	0.30	1.0
		Sodium, Soluble	27400	UG/L	7.1	1.0
		Nickel, Soluble	3.3	UG/L	2.0	1.0
		Antimony, Soluble	2.9 u	UG/L	2.9	1.0
		Strontium, Soluble	444	UG/L	0.10	1.0
		Vanadium, Soluble	5.0	UG/L	0.90	1.0
		Zinc, Soluble	5.1	UG/L	2.6	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 11/19/03

CLIENT: TNUHANFORD I04-002 H2393 LVL LOT #: 0310L836

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	B17MV4	Silver, Total	0.80 u	UG/L	0.80	1.0
		Aluminum, Total	57.6	UG/L	17.3	1.0
		Barium, Total	62.5	UG/L	0.20	1.0
		Beryllium, Total	0.40 u	UG/L	0.40	1.0
		Calcium, Total	26000	UG/L	31.0	1.0
		Cadmium, Total	0.40 u	UG/L	0.40	1.0
		Cobalt, Total	1.2 u	UG/L	1.2	1.0
		Chromium, Total	27.7	UG/L	1.0	1.0
		Copper, Total	1.8 u	UG/L	1.8	1.0
		Iron, Total	119	UG/L	19.8	1.0
		Potassium, Total	4530	UG/L	23.5	1.0
		Magnesium, Total	14800	UG/L	7.0	1.0
		Manganese, Total	2.9	UG/L	0.30	1.0
		Sodium, Total	27200	UG/L	7.1	1.0
		Nickel, Total	12.0	UG/L	2.0	1.0
		Antimony, Total	2.9 u	UG/L	2.9	1.0
		Strontium, Total	440	UG/L	0.10	1.0
		Vanadium, Total	5.1	UG/L	0.90	1.0
		Zinc, Total	6.7	UG/L	2.6	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/19/03

CLIENT: TNUHANFORD I04-002 H2393 LVL LOT #: 0310L836

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	03L0677-MB1	Silver, Total	0.80	u	UG/L	0.80	1.0
		Aluminum, Total	17.8		UG/L	17.3	1.0
		Barium, Total	0.25		UG/L	0.20	1.0
		Beryllium, Total	0.40	u	UG/L	0.40	1.0
		Calcium, Total	66.3		UG/L	31.0	1.0
		Cadmium, Total	0.40	u	UG/L	0.40	1.0
		Cobalt, Total	1.2	u	UG/L	1.2	1.0
		Chromium, Total	1.0	u	UG/L	1.0	1.0
		Copper, Total	1.8	u	UG/L	1.8	1.0
		Iron, Total	19.8	u	UG/L	19.8	1.0
		Potassium, Total	23.5	u	UG/L	23.5	1.0
		Magnesium, Total	16.9		UG/L	7.0	1.0
		Manganese, Total	0.30	u	UG/L	0.30	1.0
		Sodium, Total	70.4		UG/L	7.1	1.0
		Nickel, Total	2.0	u	UG/L	2.0	1.0
		Antimony, Total	2.9	u	UG/L	2.9	1.0
		Strontium, Total	0.18		UG/L	0.10	1.0
		Vanadium, Total	0.90	u	UG/L	0.90	1.0
		Zinc, Total	12.3		UG/L	2.6	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 11/19/03

CLIENT: TNUHANFORD I04-002 H2393

LVL LOT #: 0310L836

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	B17MT4	Silver, Soluble	44.2	0.80u	50.0	88.4	1.0
		Aluminum, Soluble	1810	19.8	2000	89.3	1.0
		Barium, Soluble	1890	42.1	2000	92.6	1.0
		Beryllium, Soluble	44.7	0.40u	50.0	89.4	1.0
		Calcium, Soluble	94500	73500	25000	84.1	1.0
		Cadmium, Soluble	43.6	0.40u	50.0	87.2	1.0
		Cobalt, Soluble	433	1.2 u	500	86.5	1.0
		Chromium, Soluble	279	110	200	84.8	1.0
		Copper, Soluble	219	1.8 u	250	87.5	1.0
		Iron, Soluble	902	32.9	1000	87.0	1.0
		Potassium, Soluble	28800	4340	25000	97.8	1.0
		Magnesium, Soluble	34500	11800	25000	90.8	1.0
		Manganese, Soluble	451	0.83	500	90.0	1.0
		Sodium, Soluble	28000	5040	25000	91.8	1.0
		Nickel, Soluble	439	2.0 u	500	87.8	1.0
		Antimony, Soluble	466	2.9 u	500	93.2	1.0
		Strontium, Soluble	1230	329	1000	90.4	1.0
		Vanadium, Soluble	438	7.4	500	86.2	1.0
		Zinc, Soluble	493	33.9	500	91.8	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 11/19/03

CLIENT: TNUHANFORD I04-002 H2393 LVL LOT #: 0310L836

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B17MR9	Silver, Total	0.80u	0.80u	NC	1.0
		Aluminum, Total	35.6	50.8	35.2	1.0
		Barium, Total	46.4	46.0	0.87	1.0
		Beryllium, Total	0.40u	0.40u	NC	1.0
		Calcium, Total	82700	81100	2.0	1.0
		Cadmium, Total	0.40u	0.40u	NC	1.0
		Cobalt, Total	1.2 u	1.2 u	NC	1.0
		Chromium, Total	123	122	1.2	1.0
		Copper, Total	1.8 u	1.8 u	NC	1.0
		Iron, Total	122	140	13.1	1.0
		Potassium, Total	4770	4700	1.5	1.0
		Magnesium, Total	13100	12900	1.5	1.0
		Manganese, Total	2.7	2.8	3.6	1.0
		Sodium, Total	5500	5420	1.5	1.0
		Nickel, Total	2.0 u	2.0 u	NC	1.0
		Antimony, Total	2.9 u	2.9 u	NC	1.0
		Strontium, Total	366	360	1.4	1.0
		Vanadium, Total	8.1	8.4	3.6	1.0
		Zinc, Total	58.4	39.0	39.8	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 11/19/03

CLIENT: TNUHANFORD I04-002 H2393 LVL LOT #: 0310L836

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	03L0677-LC1	Silver, LCS	500	500	UG/L	100.0
		Aluminum, LCS	5050	5000	UG/L	101.0
		Barium, LCS	5020	5000	UG/L	100.4
		Beryllium, LCS	246	250	UG/L	98.4
		Calcium, LCS	25400	25000	UG/L	101.4
		Cadmium, LCS	247	250	UG/L	98.8
		Cobalt, LCS	2470	2500	UG/L	98.8
		Chromium, LCS	491	500	UG/L	98.1
		Copper, LCS	1250	1250	UG/L	100.1
		Iron, LCS	4900	5000	UG/L	97.9
		Potassium, LCS	26000	25000	UG/L	104.0
		Magnesium, LCS	24700	25000	UG/L	98.9
		Manganese, LCS	760	750	UG/L	101.3
		Sodium, LCS	24900	25000	UG/L	99.6
		Nickel, LCS	2000	2000	UG/L	100.2
		Antimony, LCS	3070	3000	UG/L	102.4
		Strontium, LCS	4920	5000	UG/L	98.5
		Vanadium, LCS	2410	2500	UG/L	96.5
		Zinc, LCS	1000	1000	UG/L	100.5

Lionville Laboratory Use Only

Q3101836

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI LIONVILLE LABORATORY INC.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client TNU-HANFORD SAF# I04-002

Est. Final Proj. Sampling Date

Project # 11343-606-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager 05

QC SPEC Del STD TAT 30 days

Date Rec'd 10-17-03 Date Due 11-16-03

		A	B	C
Refrigerator #		5	5	5
#/Type Container	Liquid	IPL	IPL	IPL
	Solid			
Volume	Liquid	500	500	500
	Solid			
Preservatives		HNO3	—	HNO3
ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb				
INORG: Metal				
INORG: CN				
INORG: IC Anions			IC	IC
INORG: ICP Met				ICP Met

Lionville Laboratory Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Tot Met ①	IC ①	Sol Met ①
001	B17MR9			W	10-15-03	1235	1	1	
002	T4 (F) on 10/16/03				↓	↓			1
003	T9 (F)				10-15-03	1100			1
004	V4				↓	↓	1	1	

Special Instructions: SAF # I04-002
Run Matrix QC

Met ① - Al, Ag, Ba, Be, Ca, Cd, Cr, Co, Cu, Fe, K, Mg, Mn, Ni, Na, Sb, Sr, V, Zn

IC ① - Br, Cl, F, NO_3, NO_2, PO_4, SO_4

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

Lionville Laboratory Use Only

Samples were:
1) ~~Shipped~~ ___ or ~~Hand Delivered~~ ___
Airbill #
2) ~~Ambient~~ or ~~Chilled~~
3) ~~Received in Good~~ Condition Y or N
4) Samples Properly Preserved Y or N
5) Received Within Holding Times Y or N

Tamper Resistant Seal was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. ____ °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time
[signature]	[signature]	10/17/03	1020

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

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # I04-002-106

Page 1 of 1

Collector: D. R. BREWINGTON	Contact/Requester: DL STEWART	Telephone No.: 509-376-5056 MSIN FAX
SAF No.: I04-002	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: CERCLA 100KR4 IAM (1&2) GW MONITORING, OCTOBER 2003	Logbook No.: DFSNW-SAWS-H67	Ice Chest No.: GWS116 Temp.
Shipped To (Lab): EBERLINE SERVICES (Formerly TMA)	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 790 3247 3142
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Batch all samples submitted under "I04" SAF's into one SDG, not to exceed SDG closure of 14 days.FAX copies of log-ins and submit invoices & deliverables to DL Stewart (372-1704).

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B17MR9 A		W	10-15-03	1235	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B17MR9 B		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B17MR9		W			1x20-mL P	Activity Scan	None
B17MR9		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B17MR9		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B17MR9		W			1x1000-mL G/P	Gamma Spectroscopy	HNO3 to pH <2
B17MR9		W			1x125-mL P	Tritium - H3	None
B17MT4 (F) C		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2

Relinquished By	Received By
Print: D. R. BREWINGTON Sign: D.R. Brewington Date/Time: 1400 OCT 15 2003	Print: Sign: Date/Time: Fed Ex
Relinquished By: Fed ex Date/Time:	Received By: [signature] Date/Time: 10-16-03 1000
Relinquished By: [signature] Date/Time: 10.16.03 1600	Received By: Date/Time:
Relinquished By: [signature] Date/Time: 10-17-03 1020	Received By: [signature] Date/Time: 10-17-03 1020

Matrix *

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

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

Disposed By: Date/Time

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # I04-002-107

Collector: D.R. BREWINGTON	Contact/Requester: DL STEWART	Telephone No.: 509-376-5056 MSIN FAX
SAF No.: I04-002	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: CERCLA 100KR4 JAM (1&2) GW MONITORING, OCTOBER 2003	Logbook No.: DFSNW SAWS-1767	Ice Chest No.: GWS-116 Temp.
Shipped To (Lab): EBERLINE SERVICES (Formerly TMA)	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 7910 3247 3142
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐
Batch all samples submitted under "I04" SAF's into one SDG, not to exceed SDG closure of 14 days.FAX copies of log-ins and submit invoices & deliverables to DL Stewart (372-1704).

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B17MT9 (F) C		W	10-15-03	1100	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B17MV4 A		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B17MV4 B		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B17MV4		W			1x20-mL P	Activity Scan	None
B17MV4		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B17MV4		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B17MV4		W			1x1000-mL G/P	Gamma Spectroscopy	HNO3 to pH <2
B17MV4		W			1x125-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D.R. BREWINGTON	D.R.	[signature]	OCT 15 2003 1400	Fed Ex			OCT 15 2003
Relinquished By: FED EX			Date/Time	Received By: [signature]			Date/Time: 10-18-03 1000
Relinquished By: [signature]			Date/Time: 10-16-03 1600	Received By			Date/Time
Relinquished By: [signature]			Date/Time: 10-17-03 1020	Received By: [signature]			Date/Time: 10-17-03 1020

Matrix *

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

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

PNNL

DURATEK

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # I04-002-111

Page 1 of 1

Collector K. J. YOUNG	Contact/Requester DL STEWART	Telephone No. 509-376-5056 MSIN FAX
SAF No. I04-002	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title CERCLA 100KR4 IAM (1&2) GW MONITORING, OCTOBER 2003	Logbook No. SAWS-H67	Ice Chest No. GWS-116 Temp.
Shipped To (Lab) EBERLINE SERVICES (Formerly TMA)	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 7910 3247 3142
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Batch all samples submitted under "I04" SAF's into one SDG, not to exceed SDG closure of 14 days.FAX copies of log-ins and submit invoices & deliverables to DL Stewart (372-1704).

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B17N44		W	10-14-03	1224	1x20-mL P	Activity Scan	None
B17N44		W	↓	↓	1x125-mL P	Tritium - H3	None
B17N44		W	↓	↓	2x1000-mL G/P	Strontium-89,90 -- Sr-90	HNO3 to pH <2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
DURATEK K. J. YOUNG	[signature]	[signature]	OCT 14 2003 10/15/03 1400	Fed Ex			
Fed ex				[signature]			10-16-03 1000
[signature]			10-16-03 1600				
[signature]			10-17-03 1020	[signature]			10-17-03 1020

Matrix *

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

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

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TWL- HANFORD **Date:** 10-17-03

Purchase Order / Project# / SAF# / SOW# / Release #: I04-002

LvLI Batch # : 0310C836 **Sample Custodian:** V. Kennedy

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier FED EX		Airbill# 791034102659	
2.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ No Seals	Comments
3.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No		
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No		
5.	Samples received cooled or ambient?	Temp 4.2 °C		Cooler # GWS116	
6.	Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals	
7.	coc signed and dated?	☑ Yes	☐ No		
8.	Sample containers are intact?	☑ Yes	☐ No		
9.	All samples on coc received? All samples received on coc?	☑ Yes	☐ No		
10.	All sample label information matches coc?	☑ Yes	☐ No		
11.	Samples properly preserved?	☑ Yes	☐ No		
12.	Samples received within hold times? Short holds taken to wet lab?	☑ Yes	☐ No		
13.	VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A	
14.	QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A	
15.	Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)	☑ Yes	☐ No		
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☐ Yes	☐ No	☑ No Discrepancies	

SR-002/00BfigB/09-15-03

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD I04-002 H2393
LVL#: 0310L836

W.O.#: 11343-606-001-9999-00
Date Received: 10-17-03

INORGANIC NARRATIVE

1. This narrative covers the analyses of 2 water samples.

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

   Elevated reporting limits for Nitrite sample B17MR9 is the result of the necessity to dilute the sample to diminish co-elution effects.

3. Sample holding times as required by the method and/or contract were met with the exception of Nitrite, Nitrate and Phosphate (see the sample chronology summary for analyses times for short hold samples).

4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.

5. The method blanks were within the method criteria.

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

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

8. The replicate analyses for Bromide, Chloride, Fluoride, Nitrite, Nitrate, Phosphate and Sulfate were within the 20% Relative Percent Difference (RPD) control limit.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

Date

njp\i10- 836

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 15 pages.

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

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD I04-002 H2393

DATE RECEIVED: 10/17/03 LVL LOT # :0310L836

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	ANALYSIS TIME
B17MR9							
BROMIDE BY IC	001	W	03LIC068	10/15/03	10/17/03	10/17/03	
CHLORIDE BY IC	001	W	03LIC068	10/15/03	10/17/03	10/17/03	
FLUORIDE BY IC	001	W	03LIC068	10/15/03	10/17/03	10/17/03	
NITRITE BY IC	001	W	03LIC068	10/15/03	10/17/03	10/17/03	1721
NITRATE BY IC	001	W	03LIC068	10/15/03	10/17/03	10/17/03	1736
PHOSPHATE BY IC	001	W	03LIC068	10/15/03	10/17/03	10/17/03	1706
SULFATE BY IC	001	W	03LIC068	10/15/03	10/17/03	10/17/03	
B17MV4							
BROMIDE BY IC	004	W	03LIC068	10/15/03	10/17/03	10/17/03	
BROMIDE BY IC	004 REP	W	03LIC068	10/15/03	10/17/03	10/17/03	
BROMIDE BY IC	004 MS	W	03LIC068	10/15/03	10/17/03	10/17/03	
CHLORIDE BY IC	004	W	03LIC068	10/15/03	10/17/03	10/17/03	
CHLORIDE BY IC	004 REP	W	03LIC068	10/15/03	10/17/03	10/17/03	
CHLORIDE BY IC	004 MS	W	03LIC068	10/15/03	10/17/03	10/17/03	
FLUORIDE BY IC	004	W	03LIC068	10/15/03	10/17/03	10/17/03	
FLUORIDE BY IC	004 REP	W	03LIC068	10/15/03	10/17/03	10/17/03	
FLUORIDE BY IC	004 MS	W	03LIC068	10/15/03	10/17/03	10/17/03	
NITRITE BY IC	004	W	03LIC068	10/15/03	10/17/03	10/17/03	1751
NITRITE BY IC	004 REP	W	03LIC068	10/15/03	10/17/03	10/17/03	1806
NITRITE BY IC	004 MS	W	03LIC068	10/15/03	10/17/03	10/17/03	1821
NITRATE BY IC	004	W	03LIC068	10/15/03	10/17/03	10/17/03	1950
NITRATE BY IC	004 REP	W	03LIC068	10/15/03	10/17/03	10/17/03	2003
NITRATE BY IC	004 MS	W	03LIC068	10/15/03	10/17/03	10/17/03	2020
PHOSPHATE BY IC	004	W	03LIC068	10/15/03	10/17/03	10/17/03	1751
PHOSPHATE BY IC	004 REP	W	03LIC068	10/15/03	10/17/03	10/17/03	1806
PHOSPHATE BY IC	004 MS	W	03LIC068	10/15/03	10/17/03	10/17/03	1821
SULFATE BY IC	004	W	03LIC068	10/15/03	10/17/03	10/17/03	
SULFATE BY IC	004 REP	W	03LIC068	10/15/03	10/17/03	10/17/03	
SULFATE BY IC	004 MS	W	03LIC068	10/15/03	10/17/03	10/17/03	

LAB QC:

BROMIDE BY IC	MB1	W	03LIC068	N/A	10/17/03	10/17/03

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD I04-002 H2393

DATE RECEIVED: 10/17/03 LVL LOT # :0310L836

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BROMIDE BY IC	MB1 BS	W	03LIC068	N/A	10/17/03	10/17/03
CHLORIDE BY IC	MB1	W	03LIC068	N/A	10/17/03	10/17/03
CHLORIDE BY IC	MB1 BS	W	03LIC068	N/A	10/17/03	10/17/03
FLUORIDE BY IC	MB1	W	03LIC068	N/A	10/17/03	10/17/03
FLUORIDE BY IC	MB1 BS	W	03LIC068	N/A	10/17/03	10/17/03
NITRITE BY IC	MB1	W	03LIC068	N/A	10/17/03	10/17/03
NITRITE BY IC	MB1 BS	W	03LIC068	N/A	10/17/03	10/17/03
NITRATE BY IC	MB1	W	03LIC068	N/A	10/17/03	10/17/03
NITRATE BY IC	MB1 BS	W	03LIC068	N/A	10/17/03	10/17/03
PHOSPHATE BY IC	MB1	W	03LIC068	N/A	10/17/03	10/17/03
PHOSPHATE BY IC	MB1 BS	W	03LIC068	N/A	10/17/03	10/17/03
SULFATE BY IC	MB1	W	03LIC068	N/A	10/17/03	10/17/03
SULFATE BY IC	MB1 BS	W	03LIC068	N/A	10/17/03	10/17/03

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD 104-002 H2393
LVL#: 0310L836

W.O.#: 11343-606-001-9999-00
Date Received: 10-17-03

INORGANIC NARRATIVE

1. This narrative covers the analyses of 2 water samples.

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

   Elevated reporting limits for Nitrite sample B17MR9 is the result of the necessity to dilute the sample to diminish co-elution effects.

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4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.

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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

11-11-03
Date

njp\i10- 836

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 15 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR WATER SAMPLE ANALYSIS

	EPA /600	SW846	OTHER
Acidity	___ 305.1		
___Alkalinity ___Bicarbonate ___Carbonate	___ 310.1		
BOD	___ 405.1		___ 5210B (b)
Ion Chromatography:			
✓ Bromide ✓ Chloride ✓ Fluoride	✓ 300.0	___ 9056	
✓ Nitrate ✓ Nitrite ✓ Phosphate	✓ 300.0	___ 9056	
✓ Sulfate ___Formate ___Acetate ___Oxalate	✓ 300.0	___ 9056	
Chloride	___ 325.2	___ 9251	
Chorine, Residual	___ 330.5 (mod)		
Cyanide, Amenable to Chlorination	___ 335.2	___ 9010B	
Cyanide, Total	___ 335.2	___ 9010B ___ 9014	___ ILMO4.0 (e)
Cyanide, Weak Acid Dissociable		___	___ 412 (a) ___ 4500CN-I (b
COD	___ 410.4(mod)		___ 5220C (b)
Color	___ 110.2		
Corrosivity by Coupon		___ 1110(mod)	
Chromium VI		___ 7196A	___ 3500Cr-D (b)
Fluoride	___ 340.2		___ 4500-FC
Hardness, Calcium	___ 215.2		
Hardness, Total	___ 130.2		
Iodide			___ ASTM D19P202 (1)
Surfactant	___ 425.1		
___Nitrate-Nitrite ___Nitrate ___Nitrite	___ 353.2		
Ammonia	___ 350.3		
Total___ Kjeldahl ___ Organic Nitrogen	___ 351.3		
Total___ Organic ___ Inorganic Carbon	___ 415.1	___ 9060	
Oil & Grease	___ 413.1	___ 9070	
___ pH ____ pH; paper	___ 150.1	___ 9040B ___ 9041A	
Petroleum Hydrocarbons, Total Recoverable	___ 418.1		
Phenol	___ 420.1 ___ 420.2	___ 9065 ___ 9066	
___Ortho ___Total Phosphate	___ 365.2		___ 4500-P B ___ C
Salinity			___ 210A (a) ___ 2520 (b)
Settleable Solids	___ 160.5		
Sulfide	___ 376.1	___ 9030B/9034 (acid soluble)	
Reactive ___Cyanide ___Sulfide		___ Section 7.3 (__9014__9030B)	
Silica	___ 370.1		
Sulfite	___ 377.1		
Sulfate	___ 375.4	___ 9038	
Specific Conductance	___ 120.1	___ 9050A	
Specific Gravity			___ D5057-90 ___ 213E (a)
Synthetic Precipitation Leach	___ 1312		
Total ___Dissolved __Suspended ___Solids	160 ___.1 ___.2 ___.3		
Total Organic Halides	___ 450.1	___ 9020B	
Turbidity	___ 180.1		
Volatile Solids:			
__Total __Dissolved __Suspended	___ 160.4		

Other: **Method:**

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

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

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

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

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

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

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

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

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

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

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 10/22/03

CLIENT: TNUHANFORD I04-002 H2393 LVL LOT #: 0310L836

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B17MR9	Bromide by IC	0.40	MG/L	0.25	1.0
		Chloride by IC	25.5	MG/L	1.2	5.0
		Fluoride by IC	0.25 u	MG/L	0.25	1.0
		Nitrite by IC	1.25 u	MG/L	1.25	5.0
		Nitrate by IC	98.8	MG/L	5.00	20.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	101	MG/L	5.0	20.0
-004	B17MV4	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	4.5	MG/L	0.25	1.0
		Fluoride by IC	0.28	MG/L	0.25	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	9.24	MG/L	1.25	5.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	36.8	MG/L	2.5	10.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 10/22/03

CLIENT: TNUHANFORD I04-002 H2393 LVL LOT #: 0310L836

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	03LIC068-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
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	0.25 u	MG/L	0.25	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 10/22/03

CLIENT: TNUHANFORD I04-002 H2393 LVL LOT #: 0310L836

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-004	B17MV4	Bromide by IC	5.1	0.00	5.0	102.8	1.0
		Chloride by IC	29.8	4.5	25.0	101.1	5.0
		Fluoride by IC	5.3	0.28	5.0	100.4	1.0
		Nitrite by IC	5.28	0.25u	5.00	105.7	1.0
		Nitrate by IC	36.1	9.24	25.0	107.4	5.0
		Phosphate by IC	4.5	0.25u	5.0	89.7	1.0
		Sulfate by IC	89.8	36.8	50.0	106.0	10.0
BLANK10	03LIC068-MB1	Bromide by IC	4.9	0.25u	5.0	98.7	1.0
		Chloride by IC	4.9	0.25u	5.0	97.0	1.0
		Fluoride by IC	4.9	0.25u	5.0	97.0	1.0
		Nitrite by IC	4.81	0.25u	5.00	96.3	1.0
		Nitrate by IC	4.99	0.25u	5.00	99.8	1.0
		Phosphate by IC	4.6	0.25u	5.0	92.9	1.0
		Sulfate by IC	4.9	0.25u	5.0	98.3	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 10/22/03

CLIENT: TNUHANFORD I04-002 H2393 LVL LOT #: 0310L836

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-004REP	B17MV4	Bromide by IC	0.25u	0.25u	NC	1.0
		Chloride by IC	4.5	4.5	0.98	1.0
		Fluoride by IC	0.28	0.28	2.2	1.0
		Nitrite by IC	0.25u	0.25u	NC	1.0
		Nitrate by IC	9.24	9.59	3.7	5.0
		Phosphate by IC	0.25u	0.25u	NC	1.0
		Sulfate by IC	36.8	37.1	0.82	10.0

Lionville Laboratory Use Only

Q3102836

Custody Transfer Record/Lab Work Request

Page 1 of 1

LIONVILLE LABORATORY INC.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU-HANFORD SAF# I04-002

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: 05

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 10-17-03 Date Due: 11-16-03

		A	B	C
Refrigerator #				
#/Type Container	Liquid	5	5	5
	Solid	IPL	IPL	IPL
Volume	Liquid	500	500	500
	Solid			
Preservatives		HNO3	—	HNO3
ANALYSES REQUESTED	ORGANIC: VOA, BNA, Pest/PCB, Herb			
	INORG: Metal, CN		IC Anions	ICP Met

Lionville Laboratory Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Tot Met (1)	IC (1)	Sol Met (1)
001	B17MR9			GW	10-15-03	1235	1	1	
002	T4 (F)				⊥	⊥			1
003	T9 (F)				10-15-03	1100			1
004	V4				⊥	⊥	1	1	

Special Instructions: SAF # I04-002
Run Matrix QC

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

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

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

Lionville Laboratory Use Only

Samples were:
1) Shipped ____ or Hand Delivered ____
Airbill #
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Samples Properly Preserved Y or N
5) Received Within Holding Times Y or N

Tamper Resistant Seal was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. ____ °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time
[signature]	[signature]	10/17/3	1020

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

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # I04-002-106

Page 1 of 1

Collector D. R. BREWINGTON	**Contact/Requester** DL STEWART	**Telephone No.** 509-376-5056 **MSIN** **FAX**
SAF No. I04-002	**Sampling Origin** HANFORD SITE	**Purchase Order/Charge Code**
Project Title CERCLA 100KR4 IAM (1&2) GW MONITORING, OCTOBER 2003	**Logbook No.** DFSNW-SAWS-H67	**Ice Chest No.** GWS116 **Temp.**
Shipped To (Lab) EBERLINE SERVICES (Formerly TMA)	**Method of Shipment** GOVT. VEHICLE	**Bill of Lading/Air Bill No.** 7910 3247 3142
Protocol CERCLA	**Data Turnaround** 45 Days	**Offsite Property No.**

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐
Batch all samples submitted under "I04" SAF's into one SDG, not to exceed SDG closure of 14 days.FAX copies of log-ins and submit invoices & deliverables to DL Stewart (372-1704).

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B17MR9 A		W	10-15-03	1235	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B17MR9 B		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B17MR9		W			1x20-mL P	Activity Scan	None
B17MR9		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B17MR9		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B17MR9		W			1x1000-mL G/P	Gamma Spectroscopy	HNO3 to pH <2
B17MR9		W			1x125-mL P	Tritium - H3	None
B17MT4 (F) C		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. R. BREWINGTON	D.R. Brewington		OCT 15 2003 1400	Fed Ex			
Fed ex							
							10-16-03 1000
			10.16.03 1600				
			10-17-03 1020				10-17-03 1020

Matrix *

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

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

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # I04-002-107

Collector: D.R. BREWINGTON	Contact/Requester: DL STEWART	Telephone No.: 509-376-5056 MSIN FAX
SAF No.: I04-002	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: CERCLA 100KR4 IAM (1&2) GW MONITORING, OCTOBER 2003	Logbook No.: DFSNW SAWS-1767	Ice Chest No.: GWS-116 Temp.
Shipped To (Lab): EBERLINE SERVICES (Formerly TMA)	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 7910 3247 3142
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐
Batch all samples submitted under "I04" SAF's into one SDG, not to exceed SDG closure of 14 days.FAX copies of log-ins and submit invoices & deliverables to DL Stewart (372-1704).

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B17MT9 (F) C		W	10/15-03	1100	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B17MV4 A		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B17MV4 B		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B17MV4		W			1x20-mL P	Activity Scan	None
B17MV4		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B17MV4		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B17MV4		W			1x1000-mL G/P	Gamma Spectroscopy	HNO3 to pH <2
B17MV4		W			1x125-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D.R. BREWINGTON	D.R. Brewington		OCT 15 2003 1400	Fed Ex			OCT 15 2003
Fed Ex							10-18-03 1000
			10-16-03 1600				
Fed Ex			10-17-03 1020				10-17-03 1020

Matrix *

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

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

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # I04-002-111

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Collector DURATEK K. J. YOUNG	Contact/Requester DL STEWART	Telephone No. 509-376-5056 MSIN FAX
SAF No. I04-002	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title CERCLA 100KR4 IAM (1&2) GW MONITORING, OCTOBER 2003	Logbook No. SAWS-H67	Ice Chest No. GWS-116 Temp.
Shipped To (Lab) EBERLINE SERVICES (Formerly TMA)	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 7910 3247 3142
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B17N44		W	10-14-03	1224	1x20-mL P	Activity Scan	None
B17N44		W	↓	↓	1x125-mL P	Tritium - H3	None
B17N44		W	↓	↓	2x1000-mL G/P	Strontium-89,90 -- Sr-90	HNO3 to pH <2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
DURATEK K. J. YOUNG	[signature]	[signature]	OCT 14 2003 10/15/03 1400	Fed Ex			
Fed ex				[signature]			10-16-03 1000
[signature]			10-16-03 1600				
[signature]			10-17-03 1020	[signature]			10-17-03 1020

Matrix *

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A	= Air	X	= Other

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

SDG# H2393

Eberline Srvces CHAIN OF CUSTODY ORD # R3-10-084

10/16/03 14:57:12 WORK ID: SAF# I04-002 SDG H2393

RCVD: 10/16/03 DUE: 11/30/03 KEEP: 11/29/04 DISP: S

DASH	SAMPLE IDENTIFICATION	STORED	TESTS
01A-W	B17MT9 (F)	LION	DISPOS E011
01B-W	B17MT9 (F) MS	LION	E011
01C-W	B17MT9 (F) DUP	LION	E011
02A-W	B17MV4	LION	DISPOS E011 E258
02B-W	B17MV4 MS	LION	E011 E258
02C-W	B17MV4 DUP	LION	E011 E258
03A-W	B17MT4 (F)	LION	DISPOS E011
04A-W	B17MR9	LION	DISPOS E011 E258

RELEASED BY	DATE	TRANSFERRED TO	DATE	RECEIVED BY	DATE
[illegible]	10-16-03	LIONVILLE	10-16-03		

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD **Date:** 10-17-03

Purchase Order / Project# / ~~SAF~~# / SOW# / Release #: I04-002

LvLI Batch # : 0310C836 **Sample Custodian:** V. Kennedy

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier FED EX	Airbill# 791034102659	
2.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ No Seals Comments
3.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No	
5.	Samples received cooled or ambient?	Temp 4.2 °C		Cooler # GWS116
6.	Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7.	coc signed and dated?	☑ Yes	☐ No	
8.	Sample containers are intact?	☑ Yes	☐ No	
9.	All samples on coc received? All samples received on coc?	☑ Yes	☐ No	
10.	All sample label information matches coc?	☑ Yes	☐ No	
11.	Samples properly preserved?	☑ Yes	☐ No	
12.	Samples received within hold times? Short holds taken to wet lab?	☑ Yes	☐ No	
13.	VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14.	QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15.	Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)	☑ Yes	☐ No	
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☐ Yes	☐ No	☑ No Discrepancies

SR-002/00BfigB/09-15-03