

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD I05-005 H2869

DATE RECEIVED: 11/30/04

LVL LOT # :0411L299

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	ANALYSIS TIME
B1BK41							
BROMIDE BY IC	001	W	04LIC070	11/29/04	11/30/04	11/30/04	
CHLORIDE BY IC	001	W	04LIC070	11/29/04	11/30/04	12/01/04	
FLUORIDE BY IC	001	W	04LIC070	11/29/04	11/30/04	11/30/04	
NITRITE BY IC	001	W	04LIC070	11/29/04	11/30/04	11/30/04	1714
NITRATE BY IC	001	W	04LIC070	11/29/04	11/30/04	12/01/04	1123
PHOSPHATE BY IC	001	W	04LIC070	11/29/04	11/30/04	11/30/04	1714
SULFATE BY IC	001	W	04LIC070	11/29/04	11/30/04	12/01/04	
B1BK42							
BROMIDE BY IC	003	W	04LIC070	11/29/04	11/30/04	11/30/04	
BROMIDE BY IC	003 REP	W	04LIC070	11/29/04	11/30/04	11/30/04	
BROMIDE BY IC	003 MS	W	04LIC070	11/29/04	11/30/04	11/30/04	
CHLORIDE BY IC	003	W	04LIC070	11/29/04	11/30/04	12/01/04	
CHLORIDE BY IC	003 REP	W	04LIC070	11/29/04	11/30/04	12/01/04	
CHLORIDE BY IC	003 MS	W	04LIC070	11/29/04	11/30/04	12/01/04	
FLUORIDE BY IC	003	W	04LIC070	11/29/04	11/30/04	11/30/04	
FLUORIDE BY IC	003 REP	W	04LIC070	11/29/04	11/30/04	11/30/04	
FLUORIDE BY IC	003 MS	W	04LIC070	11/29/04	11/30/04	11/30/04	
NITRITE BY IC	003	W	04LIC070	11/29/04	11/30/04	11/30/04	1731
NITRITE BY IC	003 REP	W	04LIC070	11/29/04	11/30/04	11/30/04	1747
NITRITE BY IC	003 MS	W	04LIC070	11/29/04	11/30/04	11/30/04	1803
NITRATE BY IC	003	W	04LIC070	11/29/04	11/30/04	12/01/04	1156
NITRATE BY IC	003 REP	W	04LIC070	11/29/04	11/30/04	12/01/04	1228
NITRATE BY IC	003 MS	W	04LIC070	11/29/04	11/30/04	12/01/04	1301
PHOSPHATE BY IC	003	W	04LIC070	11/29/04	11/30/04	11/30/04	1731
PHOSPHATE BY IC	003 REP	W	04LIC070	11/29/04	11/30/04	11/30/04	1747
PHOSPHATE BY IC	003 MS	W	04LIC070	11/29/04	11/30/04	11/30/04	1803
SULFATE BY IC	003	W	04LIC070	11/29/04	11/30/04	12/01/04	
SULFATE BY IC	003 REP	W	04LIC070	11/29/04	11/30/04	12/01/04	
SULFATE BY IC	003 MS	W	04LIC070	11/29/04	11/30/04	12/01/04	

LAB QC:

BROMIDE BY IC	MB1	W	04LIC070	N/A	11/30/04	11/30/04	
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TNUHANFORD I05-005 H2869

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LVL LOT # :0411L299

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BROMIDE BY IC	MB1 BS	W	04LIC070	N/A	11/30/04	11/30/04
CHLORIDE BY IC	MB1	W	04LIC070	N/A	11/30/04	11/30/04
CHLORIDE BY IC	MB1 BS	W	04LIC070	N/A	11/30/04	11/30/04
FLUORIDE BY IC	MB1	W	04LIC070	N/A	11/30/04	11/30/04
FLUORIDE BY IC	MB1 BS	W	04LIC070	N/A	11/30/04	11/30/04
NITRITE BY IC	MB1	W	04LIC070	N/A	11/30/04	11/30/04
NITRITE BY IC	MB1 BS	W	04LIC070	N/A	11/30/04	11/30/04
NITRATE BY IC	MB1	W	04LIC070	N/A	11/30/04	11/30/04
NITRATE BY IC	MB1 BS	W	04LIC070	N/A	11/30/04	11/30/04
PHOSPHATE BY IC	MB1	W	04LIC070	N/A	11/30/04	11/30/04
PHOSPHATE BY IC	MB1 BS	W	04LIC070	N/A	11/30/04	11/30/04
SULFATE BY IC	MB1	W	04LIC070	N/A	11/30/04	11/30/04
SULFATE BY IC	MB1 BS	W	04LIC070	N/A	11/30/04	11/30/04



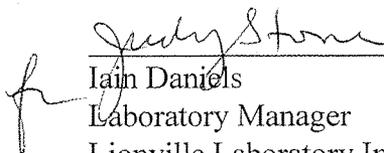
Analytical Report

Client: TNU-HANFORD I05-005 H2869
LVL#: 0411L299

W.O.#: 11343-606-001-9999-00
Date Received: 11-30-04

INORGANIC NARRATIVE

1. This narrative covers the analyses of 2 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 Nitrate (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, Nitrite, Nitrate, 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

12/30/04
Date

njpl11-299

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 13 pages.

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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-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:	

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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.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/08/04

CLIENT: TNUHANFORD I05-005 H2869
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0411L299

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	B1BK41	Bromide by IC	0.25	u MG/L	0.25	1.0
		Chloride by IC	16.8	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	39.8	MG/L	2.50	10.0
		Phosphate by IC	0.25	u MG/L	0.25	1.0
		Sulfate by IC	82.1	MG/L	2.5	10.0
-003	B1BK42	Bromide by IC	0.25	u MG/L	0.25	1.0
		Chloride by IC	23.4	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	51.0	MG/L	2.50	10.0
		Phosphate by IC	0.25	u MG/L	0.25	1.0
		Sulfate by IC	112	MG/L	5.0	20.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/08/04

CLIENT: TNUHANFORD I05-005 H2869
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0411L299

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK10	04LIC070-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 12/08/04

CLIENT: TNUHANFORD I05-005 H2869
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0411L299

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-003	B1BK42	Bromide by IC	17.9	0.16	16.6	106.6	2.0
		Chloride by IC	128	23.4	100	104.8	20.0
		Fluoride by IC	18.1	0.11	16.7	108.2	2.0
		Nitrite by IC	20.0	0.25u	16.6	120.2	2.0
		Nitrate by IC	157	51.0	100	106.4	20.0
		Phosphate by IC	16.0	0.25u	16.6	96.7	2.0
		Sulfate by IC	387	112	250	109.7	50.0
BLANK10	04LIC070-MB1	Bromide by IC	5.1	0.25u	5.0	102.1	1.0
		Chloride by IC	4.9	0.25u	5.0	98.2	1.0
		Fluoride by IC	5.0	0.25u	5.0	100.1	1.0
		Nitrite by IC	4.85	0.25u	5.00	97.0	1.0
		Nitrate by IC	5.15	0.25u	5.00	103.0	1.0
		Phosphate by IC	4.9	0.25u	5.0	98.7	1.0
		Sulfate by IC	5.0	0.25u	5.0	99.4	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 12/08/04

CLIENT: TNUHANFORD I05-005 H2869
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0411L299

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE	RPD	
-003REP	B1BK42	Bromide by IC	0.25u	0.26	NC	1.0
		Chloride by IC	23.4	22.8	2.7	10.0
		Fluoride by IC	0.25u	0.25u	NC	1.0
		Nitrite by IC	0.25u	0.25u	NC	1.0
		Nitrate by IC	51.0	50.2	1.5	10.0
		Phosphate by IC	0.25u	0.25u	NC	1.0
		Sulfate by IC	112	116	3.4	20.0

PNNL	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # 105-005-272
		Page 1 of 1

Collector R.T. SICKLE	Contact/Requester DL STEWART	Telephone No. MSIN FAX 509-376-5056
SAF No. 105-005	Sampling Origin HANEFORD SITE	Purchase Order/Charge Code
Project Title CERCLA 100HR3IAM (1&2) GW MONITORING, NOVEMBER 2004	DTS - SAMS H 83	Ice Chest No. Temp. SAWS-1000
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment GOVT VEHICLE	Bill of Lading/Air Bill No. 791400712512
Protocol CERCLA	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"/> TOTAL ACTIVITY EXEMPTION APPLIES UNLESS OTHERWISE STATED. Batch all PNNL GW samples submitted under "105" SAF's into one SDG, not to exceed SDG closure of 14 days. Submit invoices & deliverables to DL Stewart, PNNL
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1BK41		W	11-29-04	0944	1x500-mL G/P	ICP Metals - 6010A (TAL)	HNO3 to pH <2
B1BK41		W	↓	↓	1x500-mL P	IC Anions - 300.0	Cool 4C
B1BK41		W	↓	↓	1x20-mL P	Activity Scan	None
B1BK93 (F)		W	↓	↓	1x500-mL G/P	ICP Metals - 6010A (TAL)	HNO3 to pH <2

Relinquished By R.T. SICKLE <i>[Signature]</i>	Print	Sign	Date/Time NOV 29 2004	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 bleed Ex			Date/Time 11-30-04 / 11:20	Received By <i>[Signature]</i>			Date/Time 11-30-04 / 11:20	
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. # 105-005-273
		Page <u>1</u> of <u>1</u>

Collector R.T. SICKLE	Contact/Requester DL STEWART	Telephone No. MSIN FAX 509-376-5056
SAF No. 105-005	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title CERCLA 100HR3IAM (1&2) GW MONITORING, NOVEMBER 2004	DTS-SAWS HB3	Ice Chest No. 5 SAWS-1000 Temp.
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 791400712512
Protocol CERCLA	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"/> TOTAL ACTIVITY EXEMPTION APPLIES UNLESS OTHERWISE STATED. Batch all PNNL GW samples submitted under "105" SAF's into one SDG, not to exceed SDG closure of 14 days. Submit invoices & deliverables to DL Stewart, PNNL
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1BK42		W	11-29-04	0855	1x500-mL G/P	ICP Metals - 6010A (TAL)	HNO3 to pH <2
B1BK42		W	↓	↓	1x500-mL P	IC Anions - 300.0	Cool 4C
B1BK42		W	↓	↓	1x20-mL P	Activity Scan	None
B1BKD5 (F)		W	↓	↓	1x500-mL G/P	ICP Metals - 6010A (TAL)	HNO3 to pH <2

Relinquished By R.T. SICKLE <small>Print Sign</small>	Date/Time 11/29/04	Received By FED EX <small>Print Sign</small>	Date/Time	Matrix * S = Soil DS = Drum Solid SF = Sediment DL = Drum Limb SO = Solid T = Tissue SL = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By <i>[Signature]</i>	Date/Time NOV 29 2004	Received By <i>[Signature]</i>	Date/Time	
Relinquished By <i>[Signature]</i>	Date/Time 11-30-04 / 11:20	Received By <i>[Signature]</i>	Date/Time 11-30-04 / 11:20	
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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Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hamford

Date: 11.30.04

Purchase Order / Project# /
 SAF# / SOW# / Release #: 105-005

LvLI Batch #:

0411L299

Sample Custodian:

D. Smith

NOTE: EXPLAIN ALL DISCREPANCIES

- | | | | |
|---|---|-----------------------------|--|
| 1. Samples Hand Delivered or <u>Shipped</u> | Carrier <i>Fed Ex</i> | | Airbill# 7914 0071 2512 |
| 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 <u>cooled</u> or ambient? | Temp 3.3 °C | | Cooler # SAWS-1000 |
| 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 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 type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
| 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 type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> No Discrepancies |

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD I05-005 H2869

DATE RECEIVED: 11/30/04

LVL LOT # :0411L299

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B1BK41						
SILVER, TOTAL	001	W	04L0779	11/29/04	12/29/04	12/29/04
SILVER, TOTAL	001 REP	W	04L0779	11/29/04	12/29/04	12/29/04
SILVER, TOTAL	001 MS	W	04L0779	11/29/04	12/29/04	12/29/04
ALUMINUM, TOTAL	001	W	04L0779	11/29/04	12/29/04	12/29/04
ALUMINUM, TOTAL	001 REP	W	04L0779	11/29/04	12/29/04	12/29/04
ALUMINUM, TOTAL	001 MS	W	04L0779	11/29/04	12/29/04	12/29/04
BARIUM, TOTAL	001	W	04L0779	11/29/04	12/29/04	12/29/04
BARIUM, TOTAL	001 REP	W	04L0779	11/29/04	12/29/04	12/29/04
BARIUM, TOTAL	001 MS	W	04L0779	11/29/04	12/29/04	12/29/04
BERYLLIUM, TOTAL	001	W	04L0779	11/29/04	12/29/04	12/29/04
BERYLLIUM, TOTAL	001 REP	W	04L0779	11/29/04	12/29/04	12/29/04
BERYLLIUM, TOTAL	001 MS	W	04L0779	11/29/04	12/29/04	12/29/04
CALCIUM, TOTAL	001	W	04L0779	11/29/04	12/29/04	12/29/04
CALCIUM, TOTAL	001 REP	W	04L0779	11/29/04	12/29/04	12/29/04
CALCIUM, TOTAL	001 MS	W	04L0779	11/29/04	12/29/04	12/29/04
CADMIUM, TOTAL	001	W	04L0779	11/29/04	12/29/04	12/29/04
CADMIUM, TOTAL	001 REP	W	04L0779	11/29/04	12/29/04	12/29/04
CADMIUM, TOTAL	001 MS	W	04L0779	11/29/04	12/29/04	12/29/04
COBALT, TOTAL	001	W	04L0779	11/29/04	12/29/04	12/29/04
COBALT, TOTAL	001 REP	W	04L0779	11/29/04	12/29/04	12/29/04
COBALT, TOTAL	001 MS	W	04L0779	11/29/04	12/29/04	12/29/04
CHROMIUM, TOTAL	001	W	04L0779	11/29/04	12/29/04	12/29/04
CHROMIUM, TOTAL	001 REP	W	04L0779	11/29/04	12/29/04	12/29/04
CHROMIUM, TOTAL	001 MS	W	04L0779	11/29/04	12/29/04	12/29/04
COPPER, TOTAL	001	W	04L0779	11/29/04	12/29/04	12/29/04
COPPER, TOTAL	001 REP	W	04L0779	11/29/04	12/29/04	12/29/04
COPPER, TOTAL	001 MS	W	04L0779	11/29/04	12/29/04	12/29/04
IRON, TOTAL	001	W	04L0779	11/29/04	12/29/04	12/29/04
IRON, TOTAL	001 REP	W	04L0779	11/29/04	12/29/04	12/29/04
IRON, TOTAL	001 MS	W	04L0779	11/29/04	12/29/04	12/29/04
POTASSIUM, TOTAL	001	W	04L0779	11/29/04	12/29/04	12/29/04
POTASSIUM, TOTAL	001 REP	W	04L0779	11/29/04	12/29/04	12/29/04
POTASSIUM, TOTAL	001 MS	W	04L0779	11/29/04	12/29/04	12/29/04
MAGNESIUM, TOTAL	001	W	04L0779	11/29/04	12/29/04	12/29/04
MAGNESIUM, TOTAL	001 REP	W	04L0779	11/29/04	12/29/04	12/29/04

Lionville Laboratory, Inc.
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 TNUHANFORD I05-005 H2869

DATE RECEIVED: 11/30/04

LVL LOT # :0411L299

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	001 MS	W	04L0779	11/29/04	12/29/04	12/29/04
MANGANESE, TOTAL	001	W	04L0779	11/29/04	12/29/04	12/29/04
MANGANESE, TOTAL	001 REP	W	04L0779	11/29/04	12/29/04	12/29/04
MANGANESE, TOTAL	001 MS	W	04L0779	11/29/04	12/29/04	12/29/04
SODIUM, TOTAL	001	W	04L0779	11/29/04	12/29/04	12/29/04
SODIUM, TOTAL	001 REP	W	04L0779	11/29/04	12/29/04	12/29/04
SODIUM, TOTAL	001 MS	W	04L0779	11/29/04	12/29/04	12/29/04
NICKEL, TOTAL	001	W	04L0779	11/29/04	12/29/04	12/29/04
NICKEL, TOTAL	001 REP	W	04L0779	11/29/04	12/29/04	12/29/04
NICKEL, TOTAL	001 MS	W	04L0779	11/29/04	12/29/04	12/29/04
ANTIMONY, TOTAL	001	W	04L0779	11/29/04	12/29/04	12/29/04
ANTIMONY, TOTAL	001 REP	W	04L0779	11/29/04	12/29/04	12/29/04
ANTIMONY, TOTAL	001 MS	W	04L0779	11/29/04	12/29/04	12/29/04
VANADIUM, TOTAL	001	W	04L0779	11/29/04	12/29/04	12/29/04
VANADIUM, TOTAL	001 REP	W	04L0779	11/29/04	12/29/04	12/29/04
VANADIUM, TOTAL	001 MS	W	04L0779	11/29/04	12/29/04	12/29/04
ZINC, TOTAL	001	W	04L0779	11/29/04	12/29/04	12/29/04
ZINC, TOTAL	001 REP	W	04L0779	11/29/04	12/29/04	12/29/04
ZINC, TOTAL	001 MS	W	04L0779	11/29/04	12/29/04	12/29/04

B1BK93

SILVER, SOLUBLE	002	W	04L0779	11/29/04	12/29/04	12/29/04
ALUMINUM, SOLUBLE	002	W	04L0779	11/29/04	12/29/04	12/29/04
BARIUM, SOLUBLE	002	W	04L0779	11/29/04	12/29/04	12/29/04
BERYLLIUM, SOLUBLE	002	W	04L0779	11/29/04	12/29/04	12/29/04
CALCIUM, SOLUBLE	002	W	04L0779	11/29/04	12/29/04	12/29/04
CADMIUM, SOLUBLE	002	W	04L0779	11/29/04	12/29/04	12/29/04
COBALT, SOLUBLE	002	W	04L0779	11/29/04	12/29/04	12/29/04
CHROMIUM, SOLUBLE	002	W	04L0779	11/29/04	12/29/04	12/29/04
COPPER, SOLUBLE	002	W	04L0779	11/29/04	12/29/04	12/29/04
IRON, SOLUBLE	002	W	04L0779	11/29/04	12/29/04	12/29/04
POTASSIUM, SOLUBLE	002	W	04L0779	11/29/04	12/29/04	12/29/04
MAGNESIUM, SOLUBLE	002	W	04L0779	11/29/04	12/29/04	12/29/04
MANGANESE, SOLUBLE	002	W	04L0779	11/29/04	12/29/04	12/29/04
SODIUM, SOLUBLE	002	W	04L0779	11/29/04	12/29/04	12/29/04
NICKEL, SOLUBLE	002	W	04L0779	11/29/04	12/29/04	12/29/04
ANTIMONY, SOLUBLE	002	W	04L0779	11/29/04	12/29/04	12/29/04

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD I05-005 H2869

DATE RECEIVED: 11/30/04

LVL LOT # :0411L299

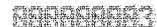
CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
VANADIUM, SOLUBLE	002	W	04L0779	11/29/04	12/29/04	12/29/04
ZINC, SOLUBLE	002	W	04L0779	11/29/04	12/29/04	12/29/04

B1BK42

SILVER, TOTAL	003	W	04L0779	11/29/04	12/29/04	12/29/04
ALUMINUM, TOTAL	003	W	04L0779	11/29/04	12/29/04	12/29/04
BARIUM, TOTAL	003	W	04L0779	11/29/04	12/29/04	12/29/04
BERYLLIUM, TOTAL	003	W	04L0779	11/29/04	12/29/04	12/29/04
CALCIUM, TOTAL	003	W	04L0779	11/29/04	12/29/04	12/29/04
CADMIUM, TOTAL	003	W	04L0779	11/29/04	12/29/04	12/29/04
COBALT, TOTAL	003	W	04L0779	11/29/04	12/29/04	12/29/04
CHROMIUM, TOTAL	003	W	04L0779	11/29/04	12/29/04	12/29/04
COPPER, TOTAL	003	W	04L0779	11/29/04	12/29/04	12/29/04
IRON, TOTAL	003	W	04L0779	11/29/04	12/29/04	12/29/04
POTASSIUM, TOTAL	003	W	04L0779	11/29/04	12/29/04	12/29/04
MAGNESIUM, TOTAL	003	W	04L0779	11/29/04	12/29/04	12/29/04
MANGANESE, TOTAL	003	W	04L0779	11/29/04	12/29/04	12/29/04
SODIUM, TOTAL	003	W	04L0779	11/29/04	12/29/04	12/29/04
NICKEL, TOTAL	003	W	04L0779	11/29/04	12/29/04	12/29/04
ANTIMONY, TOTAL	003	W	04L0779	11/29/04	12/29/04	12/29/04
VANADIUM, TOTAL	003	W	04L0779	11/29/04	12/29/04	12/29/04
ZINC, TOTAL	003	W	04L0779	11/29/04	12/29/04	12/29/04

B1BKD5

SILVER, SOLUBLE	004	W	04L0779	11/29/04	12/29/04	12/29/04
ALUMINUM, SOLUBLE	004	W	04L0779	11/29/04	12/29/04	12/29/04
BARIUM, SOLUBLE	004	W	04L0779	11/29/04	12/29/04	12/29/04
BERYLLIUM, SOLUBLE	004	W	04L0779	11/29/04	12/29/04	12/29/04
CALCIUM, SOLUBLE	004	W	04L0779	11/29/04	12/29/04	12/29/04
CADMIUM, SOLUBLE	004	W	04L0779	11/29/04	12/29/04	12/29/04
COBALT, SOLUBLE	004	W	04L0779	11/29/04	12/29/04	12/29/04
CHROMIUM, SOLUBLE	004	W	04L0779	11/29/04	12/29/04	12/29/04
COPPER, SOLUBLE	004	W	04L0779	11/29/04	12/29/04	12/29/04
IRON, SOLUBLE	004	W	04L0779	11/29/04	12/29/04	12/29/04
POTASSIUM, SOLUBLE	004	W	04L0779	11/29/04	12/29/04	12/29/04
MAGNESIUM, SOLUBLE	004	W	04L0779	11/29/04	12/29/04	12/29/04



Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD I05-005 H2869

DATE RECEIVED: 11/30/04

LVL LOT # :0411L299

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MANGANESE, SOLUBLE	004	W	04L0779	11/29/04	12/29/04	12/29/04
SODIUM, SOLUBLE	004	W	04L0779	11/29/04	12/29/04	12/29/04
NICKEL, SOLUBLE	004	W	04L0779	11/29/04	12/29/04	12/29/04
ANTIMONY, SOLUBLE	004	W	04L0779	11/29/04	12/29/04	12/29/04
VANADIUM, SOLUBLE	004	W	04L0779	11/29/04	12/29/04	12/29/04
ZINC, SOLUBLE	004	W	04L0779	11/29/04	12/29/04	12/29/04

LAB QC:

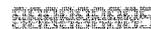
SILVER LABORATORY	LC1 BS	W	04L0779	N/A	12/29/04	12/29/04
SILVER, TOTAL	MB1	W	04L0779	N/A	12/29/04	12/29/04
ALUMINUM LABORTORY	LC1 BS	W	04L0779	N/A	12/29/04	12/29/04
ALUMINUM, TOTAL	MB1	W	04L0779	N/A	12/29/04	12/29/04
BARIUM LABORATORY	LC1 BS	W	04L0779	N/A	12/29/04	12/29/04
BARIUM, TOTAL	MB1	W	04L0779	N/A	12/29/04	12/29/04
BERYLLIUM LABORATORY	LC1 BS	W	04L0779	N/A	12/29/04	12/29/04
BERYLLIUM, TOTAL	MB1	W	04L0779	N/A	12/29/04	12/29/04
CALCIUM LABORATORY	LC1 BS	W	04L0779	N/A	12/29/04	12/29/04
CALCIUM, TOTAL	MB1	W	04L0779	N/A	12/29/04	12/29/04
CADMIUM LABORATORY	LC1 BS	W	04L0779	N/A	12/29/04	12/29/04
CADMIUM, TOTAL	MB1	W	04L0779	N/A	12/29/04	12/29/04
COBALT LABORATORY	LC1 BS	W	04L0779	N/A	12/29/04	12/29/04
COBALT, TOTAL	MB1	W	04L0779	N/A	12/29/04	12/29/04
CHROMIUM LABORATORY	LC1 BS	W	04L0779	N/A	12/29/04	12/29/04
CHROMIUM, TOTAL	MB1	W	04L0779	N/A	12/29/04	12/29/04
COPPER LABORATORY	LC1 BS	W	04L0779	N/A	12/29/04	12/29/04
COPPER, TOTAL	MB1	W	04L0779	N/A	12/29/04	12/29/04
IRON LABORATORY	LC1 BS	W	04L0779	N/A	12/29/04	12/29/04
IRON, TOTAL	MB1	W	04L0779	N/A	12/29/04	12/29/04
POTASSIUM LABORATORY	LC1 BS	W	04L0779	N/A	12/29/04	12/29/04
POTASSIUM, TOTAL	MB1	W	04L0779	N/A	12/29/04	12/29/04
MAGNESIUM LABORATORY	LC1 BS	W	04L0779	N/A	12/29/04	12/29/04
MAGNESIUM, TOTAL	MB1	W	04L0779	N/A	12/29/04	12/29/04
MANGANESE LABORATORY	LC1 BS	W	04L0779	N/A	12/29/04	12/29/04
MANGANESE, TOTAL	MB1	W	04L0779	N/A	12/29/04	12/29/04
SODIUM LABORATORY	LC1 BS	W	04L0779	N/A	12/29/04	12/29/04
SODIUM, TOTAL	MB1	W	04L0779	N/A	12/29/04	12/29/04
NICKEL LABORATORY	LC1 BS	W	04L0779	N/A	12/29/04	12/29/04

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD I05-005 H2869

DATE RECEIVED: 11/30/04

LVL LOT # :0411L299

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NICKEL, TOTAL	MB1	W	04L0779	N/A	12/29/04	12/29/04
ANTIMONY LABORATORY	LC1 BS	W	04L0779	N/A	12/29/04	12/29/04
ANTIMONY, TOTAL	MB1	W	04L0779	N/A	12/29/04	12/29/04
VANADIUM LABORATORY	LC1 BS	W	04L0779	N/A	12/29/04	12/29/04
VANADIUM, TOTAL	MB1	W	04L0779	N/A	12/29/04	12/29/04
ZINC LABORATORY	LC1 BS	W	04L0779	N/A	12/29/04	12/29/04
ZINC, TOTAL	MB1	W	04L0779	N/A	12/29/04	12/29/04





Analytical Report

Client: TNU-HANFORD I05-005
LVL#: 0411L299
SDG/SAF#: H2869/I05-005

W.O.#: 11343-606-001-9999-00
Date Received: 11-30-04

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.
3. All analyses were performed within the required holding times.
4. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits.
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
8. All ICP Interference Check Standards were within control limits.
9. All laboratory control samples (LCS) were within the 80-120% control limits. 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.
11. The duplicate analyses for 3 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

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 19 pages.



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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

1/12/05
Date

jjw/m11-299

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Lot#: 0411L299

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 <u> </u> 7041 ⁵	200.7 <u> </u> 204.2			99
Arsenic	<u> </u> 6010B <u> </u> 7060A ⁵	200.7 <u> </u> 206.2	<u> </u> 3113B		99
Barium	<input checked="" type="checkbox"/> 6010B	200.7			99
Beryllium	<input checked="" type="checkbox"/> 6010B	200.7			99
Bismuth	<u> </u> 6010B ¹	200.7 ¹		<u> </u> 1620	99
Boron	<u> </u> 6010B	200.7			99
Cadmium	<input checked="" type="checkbox"/> 6010B <u> </u> 7131A ⁵	200.7 <u> </u> 213.2			99
Calcium	<input checked="" type="checkbox"/> 6010B	200.7			99
Chromium	<input checked="" type="checkbox"/> 6010B <u> </u> 7191 ⁵	200.7 <u> </u> 218.2			SS17
Cobalt	<input checked="" type="checkbox"/> 6010B	200.7			99
Copper	<input checked="" type="checkbox"/> 6010B <u> </u> 7211 ⁵	200.7 <u> </u> 220.2			99
Iron	<input checked="" type="checkbox"/> 6010B	200.7			99
Lead	<u> </u> 6010B <u> </u> 7421 ⁵	200.7 <u> </u> 239.2	<u> </u> 3113B		99
Lithium	<u> </u> 6010B <u> </u> 7430 ⁴	200.7		<u> </u> 1620	99
Magnesium	<input checked="" type="checkbox"/> 6010B	200.7			99
Manganese	<input checked="" type="checkbox"/> 6010B	200.7			99
Mercury	<u> </u> 7470A ³ <u> </u> 7471A ³	245.1 ² <u> </u> 245.5 ²			99
Molybdenum	<u> </u> 6010B	200.7			99
Nickel	<input checked="" type="checkbox"/> 6010B	200.7			99
Potassium	<input checked="" type="checkbox"/> 6010B <u> </u> 7610 ⁴	200.7 <u> </u> 258.1 ⁴			99
Rare Earths	<u> </u> 6010B ¹	200.7 ¹		<u> </u> 1620	99
Selenium	<u> </u> 6010B <u> </u> 7740 ⁵	200.7 <u> </u> 270.2	<u> </u> 3113B		99
Silicon	<u> </u> 6010B ¹	200.7		<u> </u> 1620	99
Silica	<u> </u> 6010B	200.7		<u> </u> 1620	99
Silver	<input checked="" type="checkbox"/> 6010B <u> </u> 7761 ⁵	200.7 <u> </u> 272.2			99
Sodium	<input checked="" type="checkbox"/> 6010B <u> </u> 7770 ⁴	200.7 <u> </u> 273.1 ⁴			99
Strontium	<u> </u> 6010B	200.7			99
Thallium	<u> </u> 6010B <u> </u> 7841 ⁵	200.7 <u> </u> 279.2 <u> </u> 200.9			99
Tin	<u> </u> 6010B	200.7			99
Titanium	<u> </u> 6010B	200.7			99
Uranium	<u> </u> 6010B ¹	200.7 ¹		<u> </u> 1620	99
Vanadium	<input checked="" type="checkbox"/> 6010B	200.7			99
Zinc	<input checked="" type="checkbox"/> 6010B	200.7			99
Zirconium	<u> </u> 6010B ¹	200.7 ¹		<u> </u> 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 01/11/05

CLIENT: TNUHANFORD I05-005 H2869

LVL LOT #: 0411L299

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	B1BK41	Silver, Total	1.0	u UG/L	1.0	1.0
		Aluminum, Total	42.8	UG/L	31.3	1.0
		Barium, Total	70.7	UG/L	0.40	1.0
		Beryllium, Total	0.10	UG/L	0.10	1.0
		Calcium, Total	65400	UG/L	27.9	1.0
		Cadmium, Total	0.30	u UG/L	0.30	1.0
		Cobalt, Total	0.70	u UG/L	0.70	1.0
		Chromium, Total	350	UG/L	0.80	1.0
		Copper, Total	1.4	u UG/L	1.4	1.0
		Iron, Total	46.6	UG/L	27.9	1.0
		Potassium, Total	4110	UG/L	18.9	1.0
		Magnesium, Total	15500	UG/L	6.9	1.0
		Manganese, Total	1.6	UG/L	0.30	1.0
		Sodium, Total	8190	UG/L	5.1	1.0
		Nickel, Total	1.2	u UG/L	1.2	1.0
		Antimony, Total	2.8	u UG/L	2.8	1.0
		Vanadium, Total	7.3	UG/L	0.70	1.0
		Zinc, Total	33.4	UG/L	1.3	1.0
-002	B1BK93	Silver, Soluble	1.0	u UG/L	1.0	1.0
		Aluminum, Soluble	54.3	UG/L	31.3	1.0
		Barium, Soluble	69.8	UG/L	0.40	1.0
		Beryllium, Soluble	0.12	UG/L	0.10	1.0
		Calcium, Soluble	64800	UG/L	27.9	1.0
		Cadmium, Soluble	0.30	u UG/L	0.30	1.0
		Cobalt, Soluble	0.70	u UG/L	0.70	1.0
		Chromium, Soluble	348	UG/L	0.80	1.0
		Copper, Soluble	1.4	u UG/L	1.4	1.0
		Iron, Soluble	42.7	UG/L	27.9	1.0
		Potassium, Soluble	4080	UG/L	18.9	1.0
		Magnesium, Soluble	15200	UG/L	6.9	1.0
		Manganese, Soluble	0.30	u UG/L	0.30	1.0
		Sodium, Soluble	8030	UG/L	5.1	1.0
		Nickel, Soluble	1.6	UG/L	1.2	1.0
		Antimony, Soluble	2.8	u UG/L	2.8	1.0
		Vanadium, Soluble	7.6	UG/L	0.70	1.0
		Zinc, Soluble	36.1	UG/L	1.3	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/11/05

CLIENT: TNUHANFORD I05-005 H2869

LVL LOT #: 0411L299

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK1	04L0779-MB1	Silver, Total	1.0	u UG/L	1.0	1.0
		Aluminum, Total	31.3	u UG/L	31.3	1.0
		Barium, Total	0.40	u UG/L	0.40	1.0
		Beryllium, Total	0.10	u UG/L	0.10	1.0
		Calcium, Total	27.9	u UG/L	27.9	1.0
		Cadmium, Total	0.30	u UG/L	0.30	1.0
		Cobalt, Total	0.70	u UG/L	0.70	1.0
		Chromium, Total	0.80	u UG/L	0.80	1.0
		Copper, Total	1.4	u UG/L	1.4	1.0
		Iron, Total	27.9	u UG/L	27.9	1.0
		Potassium, Total	18.9	u UG/L	18.9	1.0
		Magnesium, Total	6.9	u UG/L	6.9	1.0
		Manganese, Total	0.30	u UG/L	0.30	1.0
		Sodium, Total	69.5	UG/L	5.1	1.0
		Nickel, Total	1.2	u UG/L	1.2	1.0
		Antimony, Total	2.8	u UG/L	2.8	1.0
		Vanadium, Total	0.70	u UG/L	0.70	1.0
		Zinc, Total	1.3	UG/L	1.3	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/11/05

CLIENT: TNUHANFORD I05-005 H2869
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0411L299

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-001	B1BK41	Silver, Total	49.6	1.0 u	50.0	99.2	1.0
		Aluminum, Total	2090	42.8	2000	102.4	1.0
		Barium, Total	2100	70.7	2000	101.7	1.0
		Beryllium, Total	51.1	0.10	50.0	102.0	1.0
		Calcium, Total	91700	65400	25000	105.1	1.0
		Cadmium, Total	50.3	0.30u	50.0	100.6	1.0
		Cobalt, Total	503	0.70u	500	100.7	1.0
		Chromium, Total	554	350	200	101.9	1.0
		Copper, Total	251	1.4 u	250	100.4	1.0
		Iron, Total	1090	46.6	1000	104.2	1.0
		Potassium, Total	31100	4110	25000	108.1	1.0
		Magnesium, Total	41500	15500	25000	104.0	1.0
		Manganese, Total	525	1.6	500	104.7	1.0
		Sodium, Total	33400	8190	25000	100.7	1.0
		Nickel, Total	506	1.2 u	500	101.2	1.0
		Antimony, Total	513	2.8 u	500	102.7	1.0
		Vanadium, Total	507	7.3	500	100	1.0
		Zinc, Total	542	33.4	500	101.8	1.0



Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/11/05

CLIENT: TNUHANFORD I05-005 H2869

LVL LOT #: 0411L299

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

SAMPLE	SITE ID	ANALYTE	SPIKED		UNITS	%RECOV
			SAMPLE	AMOUNT		
=====	=====	=====	=====	=====	=====	=====
LCS1	04L0779-LC1	Silver, LCS	487	500	UG/L	97.4
		Aluminum, LCS	5080	5000	UG/L	101.6
		Barium, LCS	4900	5000	UG/L	98.1
		Beryllium, LCS	242	250	UG/L	96.6
		Calcium, LCS	25000	25000	UG/L	100.1
		Cadmium, LCS	245	250	UG/L	97.9
		Cobalt, LCS	2480	2500	UG/L	99.3
		Chromium, LCS	491	500	UG/L	98.2
		Copper, LCS	1230	1250	UG/L	98.7
		Iron, LCS	4930	5000	UG/L	98.7
		Potassium, LCS	26700	25000	UG/L	106.7
		Magnesium, LCS	25200	25000	UG/L	100.8
		Manganese, LCS	765	750	UG/L	101.9
		Sodium, LCS	25600	25000	UG/L	102.5
		Nickel, LCS	1980	2000	UG/L	98.9
		Antimony, LCS	3020	3000	UG/L	100.8
		Vanadium, LCS	2450	2500	UG/L	97.8
		Zinc, LCS	994	1000	UG/L	99.4

PNNL	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # 105-005-272
		Page 1 of 1

Collector R.T. SICKLE	Contact/Requester DL STEWART	Telephone No. MSIN FAX 509-376-5056
SAF No. 105-005	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title CERCLA 100HR3IAM (1&2) GW MONITORING NOVEMBER 2004	DTS - SAW 1 H 83	Ice Chest No. SAWS-1000 Temp.
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment GOVT VEHICLE	Bill of Lading/Air Bill No. 791400712512
Protocol CERCLA	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"/> TOTAL ACTIVITY EXEMPTION APPLIES UNLESS OTHERWISE STATED. Batch all PNNL GW samples submitted under "105" SAF's into one SDG, not to exceed SDG closure of 14 days. Submit invoices & deliverables to DL Stewart, PNNL
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1BK41		W	11-29-04	0944	1x500-mL G/P	ICP Metals - 6010A (TAL)	HNO3 to pH <2
B1BK41		W	↓	↓	1x500-mL P	IC Anions - 300.0	Cool 4C
B1BK41		W	↓	↓	1x20-mL P	Activity Scan	None
B1BK93 (F)		W	↓	↓	1x500-mL G/P	ICP Metals - 6010A (TAL)	HNO3 to pH <2

Relinquished By R.T. SICKLE	Print	Sign	Date/Time 11/29/04	Received By FED EX	Print	Sign	Date/Time	Matrix * S = Soil DS = Drum Solid SF = Sediment DL = Drum Liquid SO = Solid T = Tissue SL = Sludge WT = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By bleedex			Date/Time 11-30-04 / 11:20	Received By <i>[Signature]</i>			Date/Time 11-30-04 / 11:20	
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 Hamford

Date: 11-30-04

Purchase Order / Project# /
 SAF# / SOW# / Release #: 105-005

LvLI Batch #:

04111299

Sample Custodian:

D. Smith

NOTE: EXPLAIN ALL DISCREPANCIES

- | | | |
|---|---|--|
| 1. Samples Hand Delivered or <u>Shipped</u> | Carrier <i>Fed Ex</i> | Airbill# <i>7914 0071 2512</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 <u>cooled</u> or ambient? | Temp <i>3.3 °C</i> | Cooler # <i>SAWS-1000</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 type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
| 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 type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> No Discrepancies |