

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD I05-020 H3047

DATE RECEIVED: 02/23/05

LVL LOT # :0502L857

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B1C5D0						
SULFATE BY IC	001	W	05LICA14	02/22/05	03/11/05	03/11/05
SULFATE BY IC	001 REP	W	05LICA13	02/22/05	03/09/05	03/09/05
SULFATE BY IC	001 MS	W	05LICA13	02/22/05	03/09/05	03/09/05

LAB QC:

SULFATE BY IC	MB1	W	05LICA14	N/A	03/11/05	03/11/05
SULFATE BY IC	MB1 BS	W	05LICA14	N/A	03/11/05	03/11/05
SULFATE BY IC	MB1	W	05LICA13	N/A	03/09/05	03/09/05
SULFATE BY IC	MB1 BS	W	05LICA13	N/A	03/09/05	03/09/05



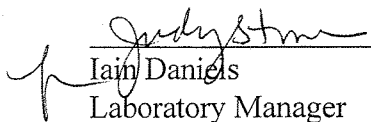
Analytical Report

Client: TNU-HANFROD I05-020 H3047
LVL#: 0502L857

W.O.#: 11343-606-001-9999-00
Date Received: 02-23-05

INORGANIC NARRATIVE

1. This narrative covers the analysis of 1 water sample.
2. The sample was prepared and analyzed in accordance with the method checked on the attached glossary.
3. Sample holding time as required by the method and/or contract was met.
4. The results presented in this report are derived from a sample 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 recovery was within the 75-125% control limits.
8. The replicate analysis was 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

3/22/05
Date

njp002-857

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 11 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.

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INORGANICS DATA SUMMARY REPORT 03/15/05

CLIENT: TNUHANFORD I05-020 H3047
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0502L857

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
-001	B1C5D0	Sulfate by IC	116	MG/L	5.0	20.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/15/05

CLIENT: TNUHANFORD I05-020 H3047
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0502L857

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK10	05LICA14-MB1	Sulfate by IC	0.25 u	MG/L	0.25	1.0
BLANK10	05LICA13-MB1	Sulfate by IC	0.25 u	MG/L	0.25	1.0

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INORGANICS ACCURACY REPORT 03/15/05

CLIENT: TNUHANFORD I05-020 H3047
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0502L857

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B1C5D0	Sulfate by IC	659	116	500	108.5	100
BLANK10	05LICA14-MB1	Sulfate by IC	4.9	0.25u	5.0	98.9	1.0
BLANK10	05LICA13-MB1	Sulfate by IC	4.9	0.25u	5.0	97.0	1.0

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INORGANICS PRECISION REPORT 03/15/05

CLIENT: TNUHANFORD I05-020 H3047
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0502L857

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-001REP	B1C5D0	Sulfate by IC	116	114	2.1	20.0

PNNL	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # I05-020-64
		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. I05-020	Sampling Origin HANEORD SITE	Purchase Order/Charge Code
Project Title CERCLA 100HR3IAM GW MONITORING, FEBRUARY 2005	DTS - STWS H 89	Ice Chest No. Temp. STWS 100 STWS 399
Shipped To (Lab) Lionville Laboratory Incorporated	Method of Shipment GOVT VEHICLE	Bill of Lading/Air Bill No. 7915 5574 8155
Protocol CERCLA	Priority: 45 Days	Offsite Property No. PTR # 14932

POSSIBLE SAMPLE HAZARDS/REMARKS ** **	SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Batch all PNNL GW samples submitted under "I05" SAF's into one SDG, not to exceed SDG closure of 14 days. DO NOT BATCH WITH OTHER NON-PNNL SAMPLES Submit invoices & deliverables to DL Stewart, PNNL
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1C5D0		W	2-22-05	0912	1x500-mL P	IC Anions - 300.0 (Sulfate)	Cool 4C
B1C5D0		W	↓	↓	1x20-mL P	Activity Scan	None

Relinquished By R.T. SICKLE	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time FEB 22 2005	Received By FED EX	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time 2-23-05 / 0855	Matrix * S = Soil DS = Drum Solid SF = Sediment DL = Drum Liquid SO = Solid T = Tissue SL = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By <i>[Signature]</i>	Date/Time 2-23-05 / 0855	Received By <i>[Signature]</i>	Date/Time 2-23-05 / 0855					
Relinquished By	Date/Time	Received By	Date/Time					
Relinquished By	Date/Time	Received By	Date/Time					
FINAL SAMPLE DISPOSITION		Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By		Date/Time	

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SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hamford

Date: 2-23-05

Purchase Order / Project# / 105-020

SAF# / SOW# / Release #:

LvLI Batch #:

0502L857

Sample Custodian:

W. Smith

NOTE: EXPLAIN ALL DISCREPANCIES

- | | | |
|---|---|--|
| 1. Samples Hand Delivered or <u>Shipped</u> | Carrier <u>FedEx</u> | Airbill# <u>7915 5574 8155</u> |
| 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 <u>0.3</u> °C | Cooler # <u>SAWS-399</u> |
| 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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A <i>W. Smith</i>
2-23-05 |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria) | <input checked="" type="checkbox"/> Yes
<i>W. Smith</i>
2-23-05 | <input type="checkbox"/> No
<input checked="" type="checkbox"/> Discrepancies |