

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD IO5-025 H3094

DATE RECEIVED: 03/26/05

LVL LOT # :0503L086

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B1CCV2						
SULFATE BY IC	001	W	05LIC23	03/23/05	04/11/05	04/11/05
SULFATE BY IC	001 REP	W	05LIC23	03/23/05	04/11/05	04/11/05
SULFATE BY IC	001 MS	W	05LIC23	03/23/05	04/11/05	04/11/05

LAB QC:

SULFATE BY IC	MB1	W	05LIC23	N/A	04/11/05	04/11/05
SULFATE BY IC	MB1 BS	W	05LIC23	N/A	04/11/05	04/11/05



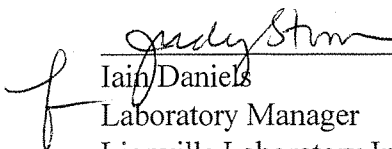
Analytical Report

Client: TNU-HANFORD I05-025 H3094
LVL#: 0503L086

W.O.#: 11343-606-001-9999-00
Date Received: 03-26-05

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 blank was within the method criteria.
6. The Laboratory Control Sample (LCS) was 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

4/26/05
Date

njpl03-086

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 14 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 04/15/05

CLIENT: TNUHANFORD IO5-025 H3094
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L086

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
-001	B1CCV2	Sulfate by IC	123	MG/L	12.5	50.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/15/05

CLIENT: TNUHANFORD I05-025 H3094
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L086

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK10	05LIC23-MB1	Sulfate by IC	0.25 u	MG/L	0.25	1.0

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INORGANICS ACCURACY REPORT 04/15/05

CLIENT: TNUHANFORD IO5-025 H3094
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L086

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-001	B1CCV2	Sulfate by IC	666	123	500	108.7	100
BLANK10	05LIC23-MB1	Sulfate by IC	4.8	0.25u	5.0	96.0	1.0

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INORGANICS PRECISION REPORT 04/15/05

CLIENT: TNUHANFORD IO5-025 H3094
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L086

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-001REP	B1CCV2	Sulfate by IC	123	120	2.1	50.0



See SRC

0503L086

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client <u>TNU Hamford Saf # I05-005</u>				Refrigerator #																		
Est. Final Proj. Sampling Date				#/Type Container		Liquid										S						
Project # <u>11343-606-001-9999-00</u>						Solid										P						
Project Contact/Phone #				Volume		Liquid																
Lionville Laboratory Project Manager <u>Delette Gubman</u>						Solid										500						
QC Spec <u>Del Std</u> TAT <u>30 days</u>				Preservatives																		
Date Rec'd <u>3-26-05</u> Date Due <u>4-25-05</u>				ANALYSES REQUESTED →												ORGANIC					INORG	
																VOA	BNA	Pest/PCB	Herb			
↓ 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 (✓)		Matrix	Date Collected	Time Collected															
			MS	MSD																		
		001 BICCV2	✓	✓	W	3-23-05	1017									X						

Special Instructions: Saf I05-005

DATE/REVISIONS:

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

Relinquished by	Received by	Date	Time
<u>[Signature]</u>	<u>[Signature]</u>	<u>3-26-05</u>	<u>0955</u>

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL	"COMPOSITE		
REWRITTEN	WASTE		

PNNL <i>SDG# H3094</i>	<h2 style="margin:0;">CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</h2>	C.O.C. # <h1 style="margin:0;">105-025-10</h1>
		Page <u>1</u> of <u>1</u>

Collector DURATEK F. M. HALL	Contact/Requester DL STEWART	Telephone No. 509-376-5056
SAF No. 105-025	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title CERCLA 100 HR31AM, MARCH 2005	<i>DTS- SAWS H 86</i>	Ice Chest No. SAWS399 Temp.
Shipped To (Lab) Eberline Services	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 792237290670
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"/> 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
---	--

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1CCV2		W	3-23-05	1017	1x500-mL P	IC Anions - 300.0 (Sulfate)	Cool 4C
B1CCV2		W	↓	↓	1x20-mL P	Activity Scan	None

Relinquished By DURATEK F. M. HALL	Print 	Sign 	Date/Time 1400 MAR 23 2005	Received By FED EX	Print 	Sign 	Date/Time	Matrix * S = Soil DS = Drum Solid SE = Sediment DI. = Drum Liquid SO = Solid T = Tissue SL = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By <i>Fed Ex</i>	Date/Time <i>3/24/05</i>	Received By <i>SON THAI</i>	Date/Time <i>3/24/05 10:00 AM</i>					
Relinquished By <i>Fed Ex</i>	Date/Time <i>3/25/05</i>	Received By	Date/Time					
Relinquished By <i>Alex Kelcey</i>	Date/Time <i>3/25/05 16:00</i>	Received By <i>D. Smith</i>	Date/Time <i>3-26-05 109:55</i>					
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By	Date/Time			

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SDG# H3094

PAGE 1 Eberline Svcs
CONTRACT: Blanket Order #N501118

PURCHASE ORDER # R5-03-185-SU-WT
03/24/05 13:15:58

ORDER Eberline Services/Richmond
FROM Analytical Services
2030 Wright Avenue
Richmond, CA 94804-0040
ATTEN Purchasing
PHONE 510-235-2633

INVOICE Eberline Services/Richmond
TO Analytical Services
2030 Wright Avenue
Richmond, CA 94804-0040
ATTEN Purchasing
PHONE 510-235-2633

kyamamoto
AUTHORIZED BY

ORDER Lionville Laboratory, Inc.
TO 208 Welsh Pool Road
Lionville, PA 19353

Please telephone our Sample Control Department immediately if any problems are encountered in the receipt or the analysis of the samples listed below.

ATTEN Orlette Johnson

This Purchase Order authorizes LvLI to perform all work listed on the enclosed COC. Alterations to work requested can only be made by Eberline Services or the appropriate Hanford client.

<u>FRACTION</u>	<u>TEST</u>	<u>DESCRIPTION</u>	<u>UNITS</u>	<u>DUE DATE</u>	<u>COST</u>
01A	E258	Anions by IC-300.0 (TAL)	Please Advise	05/08/05	0.00
01B	E258	Anions by IC-300.0 (TAL)	Please Advise	05/08/05	0.00
01C	E258	Anions by IC-300.0 (TAL)	Please Advise	05/08/05	0.00
TOTAL CHARGE NOT TO EXCEED					\$0.00

SDG# H3094

PAGE 1

Eberline Svcs

CHAIN OF CUSTODY

ORD # R5-03-185

03/24/05 13:16:15

WORK ID: SAF# I05-025 SDG H3094

RCVD: 03/24/05 DUE: 05/08/05

KEEP: 05/08/06 DISP: S

DASH	SAMPLE IDENTIFICATION	STORED	TESTS
01A-W	B1CCV2	LION	DISPOS E258
01B-W	B1CCV2 MS	LION	E258
01C-W	B1CCV2 DUP	LION	E258

RELEASED BY	DATE	TRANSFERRED TO	DATE	RECEIVED BY	DATE
<i>Alex Kelenchuk</i> <i>DeWEx</i>	<i>3/25/05</i> <i>3-26-05</i>	<i>Lionville</i>	<i>3/25/05</i>	<i>D. Yman</i>	<i>3-26-05</i>

SDG # H3094

PAGE 1

Eberline Srvc

WORK SHEET

ORD # R5-03-185

CLIENT: WES_HANFORD CON: MCM

CAT: ENVMWT

RCVD: 03/24/05 DUE: 05/08/05

PROJ: WHC_PNL

03/24/05 13:16:05

STAT: TRANSMITTED 03/24/05

DASH	SAMPLE IDENTIFICATION	STORED	DEPT	START	DUE BY	TESTS, FRACTIONS /
01A-W	B1CCV2	LION	EN	03/24	03/24	DISPOS
=====						
				SU WT 03/29	05/08	E258
=====						
01B-W	B1CCV2 MS	LION	SU WT	03/29	05/08	E258
=====						
01C-W	B1CCV2 DUP	LION	SU WT	03/29	05/08	E258
=====						

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hartford

Date: 3-26-05

Purchase Order / Project# /
 SAF# / SOW# / Release #: 105-025

LvLI Batch # :

0503L086

Sample Custodian:

[Signature]

NOTE: EXPLAIN ALL DISCREPANCIES

- | | | |
|---|---|--|
| 1. Samples Hand Delivered or <u>Shipped</u> | Carrier <i>Ex</i> | Airbill# 7922 3981 9289 |
| 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 1.6 °C | Cooler # SAWS-399 |
| 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 |