0078947

SAF-RC-110
100-H Burial Grounds Remaining Sites – Soil Quick Turn
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 10/20/08
NITIAL/DATE

COMMENTS:

SDG K1333 **SAF-RC-110**

Rad only Chem only X Rad & Chem

X Complete Partial

Waste Site: 118-H-1 trench B

RECEIVED
OCT 2 2 2008
EDMC

LIONVILLE LABORATORY INC.

RECEIVED
OCT 2008

15 October 2008

Joan Kessner
WC-Hanford, Inc.
2620 Fermi Avenue
MSIN H9-03
Richland, WA 99354

Subject: Analytical Data Package

Dear Ms. Kessner:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0809L112
SDG #	K1333
SAF #	RC-110
Date Received	9/16/08
# Samples	1
Matrix	SOIL
Volatiles	X
Semivolatiles	X
Pest/PCB	
Glycols	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	X

The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager
d:\b_ltrs.doc

Lionville Laboratory, Inc.
VOA ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-110 K1333

RECEIVED
OCT 2008

DATE RECEIVED: 09/16/08 LVL LOT #:0809L112

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17J33	001	S	08LVK171	09/11/08	N/A	09/17/08
J17J33	001 MS	S	08LVK171	09/11/08	N/A	09/17/08
J17J33	001 MSD	S	08LVK171	09/11/08	N/A	09/17/08

LAB QC:

VBLKGR	MB1	S	08LVK171	N/A	N/A	09/17/08
VBLKGR	MB1 BS	S	08LVK171	N/A	N/A	09/17/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: WC-HANFORD RC-110
LVL #: 0809L112
SDG/SAF # K1333/RC-110

W.O. #: 60049-001-001-0001-00
Date Received: 09-16-2008

GC/MS VOLATILE

One (1) soil sample was collected on 09-11-2008.

The sample and the associated QC samples were analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8260B for TCL Volatile target compounds on 09-17-2008.

The following is a summary of QC results accompanying the sample results. Lionville Laboratory Inc (LvLI) certifies that all test results meet the requirements of NELAC except as noted below:

1. The sample was analyzed within required holding time.
2. Non-target compounds were detected in these samples.
3. All surrogate recoveries were within acceptance criteria.
4. Twelve (12) of seventy (70) matrix spike recoveries were outside acceptance criteria due to possible matrix effect.
5. All blank spike recoveries were within acceptance criteria.
6. The method blank was below the reporting limit for all target compounds.
7. All internal standard area and retention time criteria were met.
8. Manual integrations are performed according to SOP QA-125 to produce quality data with utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").

r:\group\data\2008\voa\tnu\0809-112cs1.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage.
All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 13 pages.

9. Manual integrations are performed according to SOP QA-125 to produce quality data with utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").

10. LvLI is NELAP accredited by the State of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

11. "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

10/10/08
Date

r:\group\data\2008\voa\tnu\0809-112cs1.doc

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

GLOSSARY

DATA QUALIFIERS

U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.

J = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

D = Identifies all compounds identified in an analysis at a secondary dilution factor.

I = Interference.

NQ = Result qualitatively confirmed but not able to quantify.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.

X = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closes internal standard).

Y = Additional qualifiers used as required are explained in the case narrative.

GLOSSARY

ABBREVIATIONS

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

TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

MP - **Missed Peak:** Manually added peak not found by automatic quan program.

PA - **Peak Assignment:** Quan report was changed to reflect correct peak assignment.

RI - **Routine Integration:** Routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the Dichlorobenzene isomers on the VOA packed column and Benzo (b) fluoranthene /Benzo (k) fluoranthene which are poorly resolve on the BNA column.

SP - **Split Peak:** The automatic integration improperly split the peak; a manual integration was performed to get the correct area.

CB - **Co-elution/ Background:** Peak was manually integrated to eliminate contribution from co-eluting compounds, background signal, or other interference.

PI - **Proper Integration:** A peak with poor or inconsistent integration (i.e., excessive tail) was properly integrated manually.

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

Report Date: 09/23/08 11:27

RFW Batch Number: **0809L112** Client: **WC-HANFORD RC-110 K1333** Work Order: 60049001001 Page: 1a

	Cust ID:	J17J33	J17J33	J17J33	VBLKGR	VBLKGR BS
Sample Information	RFW#:	001	001 MS	001 MSD	08LVK171-MB1	08LVK171-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	0.980	0.980	0.980	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Toluene-d8	101 %	88 %	100 %	103 %	96 %
	Bromofluorobenzene	105 %	93 %	100 %	103 %	91 %
	1,2-Dichloroethane-d4	111 %	120 %	125 %	106 %	110 %
Chloromethane		10 U	102 %	108 %	10 U	86 %
Bromomethane		10 U	119 %	127 %	10 U	116 %
Vinyl Chloride		10 U	124 %	121 %	10 U	109 %
Chloroethane		10 U	142 %	145 %	10 U	122 %
Methylene Chloride		8 B	90 %	94 %	5 J	75 %
Acetone		10 U	309 * %	331 * %	10 U	122 %
Carbon Disulfide		5 U	118 %	123 %	5 U	107 %
1,1-Dichloroethene		5 U	125 %	130 %	5 U	110 %
1,1-Dichloroethane		5 U	121 %	126 %	5 U	104 %
1,2-Dichloroethene (total)		5 U	118 %	120 %	5 U	103 %
Chloroform		5 U	119 %	123 %	5 U	103 %
1,2-Dichloroethane		5 U	137 %	139 %	5 U	114 %
2-Butanone		10 U	244 * %	263 * %	10 U	118 %
1,1,1-Trichloroethane		5 U	121 %	127 %	5 U	103 %
Carbon Tetrachloride		5 U	120 %	124 %	5 U	105 %
Bromodichloromethane		5 U	120 %	126 %	5 U	102 %
1,2-Dichloropropane		5 U	123 %	128 %	5 U	103 %
cis-1,3-Dichloropropene		5 U	115 %	122 %	5 U	100 %
Trichloroethene		5 U	119 %	122 %	5 U	105 %
Dibromochloromethane		5 U	128 %	134 * %	5 U	111 %
1,1,2-Trichloroethane		5 U	123 %	132 * %	5 U	105 %
Benzene		5 U	116 %	120 %	5 U	100 %
Trans-1,3-Dichloropropene		5 U	120 %	127 %	5 U	103 %
Bromoform		5 U	134 %	138 %	5 U	114 %
4-Methyl-2-pentanone		10 U	159 * %	173 * %	10 U	115 %
2-Hexanone		10 U	210 * %	226 * %	5 J	117 %
Tetrachloroethene		5 U	107 %	110 %	5 U	96 %
1,1,2,2-Tetrachloroethane		5 U	139 * %	149 * %	5 U	110 %
Toluene		5 U	111 %	115 %	5 U	95 %

*= Outside of EPA CLP QC limits.

000000007

Cust ID:	J17J33		J17J33		J17J33		VBLKGR		VBLKGR BS	
RFW#:	001		001 MS		001 MSD		08LVK171-MB1		08LVK171-MB1	
Chlorobenzene	5	U	113	%	117	%	5	U	100	%
Ethylbenzene	5	U	112	%	118	%	5	U	96	%
Styrene	5	U	109	%	112	%	5	U	99	%
Xylenes (total)	5	U	104	%	109	%	5	U	95	%
cis-1,2-dichloroethene	5	U	119	%	121	%	5	U	103	%
trans-1,2-dichloroethene	5	U	118	%	119	%	5	U	104	%

*= Outside of EPA CLP QC limits.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

J17J33

Lab Name: Lionville Labs, Inc. Contract: 60049001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 0809L112-001

Sample wt/vol: 5.10 (g/mL) G Lab File ID: k0917613

Level: (low/med) LOW Date Received: 09/16/08

% Moisture: not dec. 4 Date Analyzed: 09/17/08

Column: (pack/cap) CAP Dilution Factor: 0.980

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	16.956	10	JB
2.	UNKNOWN	22.125	5	JB

FORM 1 VOA-TIC 1/87 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKGR

Lab Name: Lionville Labs, Inc. Contract: 60049001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 08LVK171-MB1

Sample wt/vol: 5.00 (g/mL) G Lab File ID: k0917604

Level: (low/med) LOW Date Received: 09/17/08

% Moisture: not dec. 0 Date Analyzed: 09/17/08

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

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	16.956	10	J
2.	UNKNOWN	22.124	6	J
3.	UNKNOWN	24.613	5	J

FORM 1 VOA-TIC 1/87 Rev.

Lionville Laboratory Use Only

0809L112

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

Client W.C. Hanford SAF# RC-110

Est. Final Proj. Sampling Date

Project# 60049-001-001-0001

Project Contact/Phone#

Lionville Laboratory Project Manager O. Johnson

QC SW846 Del SH TAT 7 days

Date Rec'd 9-16-08 Date Due 9-23-08

		A	B	C
Refrigerator #		3	3	3
#/Type Container	Liquid / Solid	1G	1G	1G
Volume		250	120	120
Preservatives		—	—	—

ANALYSES REQUESTED →

ORGANIC				INORG	
VOA	BNA	Pest/PCB	Herb	Metal	CN

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				96-25H ME1	ICCL, ICFL, ICNTO	06-24H						
001	T17T33	/	/	Soil	9/10/08	0818				X	X	X						

Special Instructions:

CL = ICBR, ICCL, ICFL, ICNO2, ICNO3, ICSO4, ICPO4

ME1 = HSL + B, Li, Mo, P, Sr, Sn, Ti, U, Zr, Si, Bi

Special Instructions:

1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	9/16/08	0930

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL		"COMPOSITE WASTE"	

000000011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-110-003	Page 1 of 1

Collector: Paul Wilson	Company Contact: Doug Bowers	Telephone No.: 509 531-0701	Project Coordinator: KESSNER, JH
Price Code	Data Turnaround: Contact Joan Kessner ASAP		
Project Designation: 100-H Burial Grounds Remaining Sites - Soil Quick Turn	Sampling Location: 118-H-1 trench B		SAF No.: RC-110
Ice Chest No.: 4GV Fiberboard Box	Field Logbook No.: EL 1627	COA: R118H12600	Method of Shipment: FED EX
Shipped To: 9-10-08 ~~EDERLINE SERVICES~~ / LIONVILLE	Offsite Property No.: SEE ~~RSS~~ RSR DAS 9/16/10		Bill of Lading/Air Bill No.: SEE RSR

0000000012

POSSIBLE SAMPLE HAZARDS/REMARKS

Potentially flamable

Special Handling and/or Storage

Preservation	None	~~Cool 4C~~ None	~~Cool 4C~~ None	None							
Type of Container	aG	aG	aG	P							
No. of Container(s)	1	1	1	1							
Volume	125mL	125mL	250mL	60mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	~~VOA - 8260A (TCL)~~ see item 1 below	~~Total Cyanide - 9010; Sulfides - 9030~~ see item 1 below	Gross Alpha; Gross Beta							

Sample No.	Matrix *	Sample Date	Sample Time										
J17J33	SOIL	9-11-08	0878	X	X	X							

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Paul R Wilson	9-11-08 0856	Cell 3 anomaly area 118-H-1	9-11-08 0857
Cell 3 Anomaly Area 118-H1	9/15/08 1220	DAVID ST. JOHN	9/15/08 1220
DAVID ST. JOHN	9/15/08 1220	FED EX	
	9-16-08 0930		9-16-08 0930

SPECIAL INSTRUCTIONS

(1) Contact Rich Weiss or Joan Kessner for analysis.

~~(1) ICP Metals - 6010 (Client List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7470 - (CV)~~

Matrix *

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

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-FF-011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W-C Hanford

Project/SAP/SOW/Release #: RC-110

Date: 9-16-08

LvLI Batch #: 0809L112

Sample Custodian: Vito Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 790084776379
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 19.3	°C	Cooler # 4G
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
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 that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI

RECEIVED
OCT 2008

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-110 K1333

DATE RECEIVED: 09/16/08 LVL LOT # 0809L112

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17J33	001	S	08LE0445	09/11/08	09/17/08	09/21/08
J17J33	001 MS	S	08LE0445	09/11/08	09/17/08	09/25/08
J17J33	001 MSD	S	08LE0445	09/11/08	09/17/08	09/22/08
LAB QC:						
SBLKXY	MB1	S	08LE0445	N/A	09/17/08	09/21/08
SBLKXY	MB1 BS	S	08LE0445	N/A	09/17/08	09/24/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: WC-HANFORD RC-110 K1333
LVL #: 0809L112

W.O. #: 60049-001-001-0001-00
Date Received: 09-16-2008

SEMIVOLATILE

One (1) soil sample was collected on 09-11-2008.

The sample and associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3540C on 09-17-2008 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 09-21,22,24,25-2008.

All soil samples are reported on a dry weight basis unless requested by the client, required by the method, or noted otherwise. The following is a summary of QC results accompanying the sample results. Lionville Laboratory (LVL) certifies that all test results meet the requirements of NELAC except as noted below:

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. Samples were extracted and analyzed within holding time.
3. Non-target compounds were detected in these samples.
4. All obtainable surrogate recoveries were within acceptance criteria.
5. All blank spike recoveries were within acceptance criteria.
6. Sixteen (16) of one hundred twenty-eight (128) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 08MS212) has been enclosed. Several matrix spike recoveries were outside acceptance criteria due to high concentrations of analytes in the parent sample.
7. The method blank contained the common laboratory contaminant Bis (2-Ethlyhexyl) phthalate at a level less than the 1x the CRQL.
8. All initial calibrations associated with this data set were within acceptance criteria.
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
10. Internal standard area and retention time criteria were met.

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 14 pages.
r:\group\data\2008\bna\wc-hanford\0809-112ojs1.doc

LIONVILLE LABORATORY INC.

11. Manual integrations are performed according to SOP QA-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").

12. LVL is NELAP accredited by the State of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

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 hardcopy data package has been authorized by the Laboratory Manager, or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory

10/9/08
Date

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

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 08MSL12

Initiator: Shawn Saylor
Date: 9-26-08
Client: WCH Hanford RC110 K1333

Batch: 0809L112
Samples: ms, msd
Method: SW846/MCAWW/CLP/

Parameter: 8270
Matrix: SOLID
Prep Batch: 0916044S

1. Reason for SDR

a. COC Discrepancy __ Tech Profile Error __ Client Request __ Sampler Error on C-O-C __ Transcription Error __ Wrong Test Code __ Other _____

b. General Discrepancy

__ Missing Sample/Extract* __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
__ Hold Time Exceeded __ Insufficient Sample* __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary)

low spike recoveries in the ms, + msd but BS is ok

2. Known or Probable Causes(s) Nitroaromatics/acidic phenols are subject to erratic chromatographic behavior especially if the GC system is contaminated with high boiling material. Several spike recoveries low due to the presence of analytes in the non spiked sample (non homogeneous mixture). other spike. All surrogates within acceptance criteria.

3. Discussion and Proposed Action Other Description: narrate

__ Re-log
__ Entire Batch
__ Following Samples: _____
__ Re-leach
__ Re-extract
__ Re-digest
__ Revise EDD
__ Change Test Code to _____
__ Place On/Take Off Hold (circle)

9/26/08

4. Project Manager Instructions...signature/date: _____

__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
☑ Include in Case Narrative
__ Client Contacted:
Date/Person _____
__ Add
__ Cancel

5. Final Action...signature/date: _____ Other Explanation:

__ Verified re-[log][leach][extract][digest][analysis] (circle)
__ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

When Final Action has been recorded, forward original to QA for diposition.

Route
__ Lab Manager: Daniels
I Project Mgr (circle): Johnson / Stone
__ Sample Prep (circle): Ford
__ Log-in: King

Route
__ Metals: Welsh / _____
__ Inorganic: Perrone / _____
__ GC/LC: Carey / _____
__ MS VOA: Rubino / _____
V MS BNA: Garden / _____
__ Other: _____

QA-139-A-0208

GLOSSARY

DATA QUALIFIERS

U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.

J = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

D = Identifies all compounds identified in an analysis at a secondary dilution factor.

I = Interference.

NQ = Result qualitatively confirmed but not able to quantify.

A = Indicates that a TIC is a suspected aldol-condensation product.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.

X = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).

Y = Additional qualifiers used as required are explained in the case narrative.

GLOSSARY

ABBREVIATIONS

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

TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

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

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 09/30/08 13:38

RFW Batch Number: **0809L112** Client: **WC-HANFORD RC-110 K1333** Work Order: 60049001001 Page: 1a

	Cust ID:	J17J33		J17J33		J17J33		SBLKXY		SBLKXY BS	
Sample Information	RFW#:	001		001 MS		001 MSD		08LE0445-MB1		08LE0445-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	61	%	47	%	70	%	66	%	66	%
	2-Fluorobiphenyl	59	%	76	%	74	%	59	%	61	%
	Terphenyl-d14	65	%	94	%	83	%	95	%	75	%
	Phenol-d5	55	%	74	%	65	%	59	%	65	%
	2-Fluorophenol	60	%	71	%	69	%	63	%	71	%
	2,4,6-Tribromophenol	46	%	54	%	76	%	57	%	19	%
			fl		fl		fl		fl		fl
Phenol		350	U	71	%	68	%	330	U	67	%
bis(2-Chloroethyl)ether		350	U	68	%	71	%	330	U	72	%
2-Chlorophenol		350	U	68	%	62	%	330	U	59	%
1,3-Dichlorobenzene		350	U	52	%	57	%	330	U	57	%
1,4-Dichlorobenzene		350	U	52	%	59	%	330	U	56	%
1,2-Dichlorobenzene		350	U	57	%	63	%	330	U	61	%
2-Methylphenol		350	U	68	%	63	%	330	U	62	%
2,2'-oxybis(1-Chloropropane)		350	U	67	%	70	%	330	U	73	%
3/4 Methylphenol		350	U	73	%	68	%	330	U	63	%
N-Nitroso-di-n-propylamine		350	U	85	%	81	%	330	U	80	%
Hexachloroethane		350	U	52	%	57	%	330	U	60	%
Nitrobenzene		350	U	47 *	%	67	%	330	U	67	%
Isophorone		350	U	46 *	%	72	%	330	U	65	%
2-Nitrophenol		350	U	48 *	%	68	%	330	U	61	%
2,4-Dimethylphenol		350	U	58	%	78	%	330	U	58	%
bis(2-Chloroethoxy)methane		350	U	56	%	82	%	330	U	75	%
2,4-Dichlorophenol		350	U	53	%	71	%	330	U	64	%
1,2,4-Trichlorobenzene		350	U	45 *	%	64	%	330	U	62	%
Naphthalene		350	U	52	%	66	%	330	U	61	%
4-Chloroaniline		350	U	32	%	49	%	330	U	45	%
Hexachlorobutadiene		350	U	48	%	66	%	330	U	69	%
4-Chloro-3-methylphenol		350	U	50 *	%	76	%	330	U	69	%
2-Methylnaphthalene		350	U	62	%	71	%	330	U	64	%
Hexachlorocyclopentadiene		350	U	41	%	47	%	330	U	59	%
2,4,6-Trichlorophenol		350	U	62	%	68	%	330	U	19	%
2,4,5-Trichlorophenol		870	U	73	%	77	%	830	U	42	%

*= Outside of EPA CLP QC limits.

000000000

Cust ID:	J17J33		J17J33		J17J33		SBLKXY		SBLKXY BS	
RFW#:	001		001 MS		001 MSD		08LE0445-MB1		08LE0445-MB1	
2-Chloronaphthalene	350	U	76	%	73	%	330	U	62	%
2-Nitroaniline	870	U	81	%	83	%	830	U	72	%
Dimethylphthalate	350	U	90	%	89	%	330	U	78	%
Acenaphthylene	350	U	78	%	78	%	330	U	64	%
2,6-Dinitrotoluene	350	U	73	%	76	%	330	U	69	%
3-Nitroaniline	870	U	58	%	71	%	830	U	61	%
Acenaphthene	100	J	139 *	%	71	%	330	U	65	%
2,4-Dinitrophenol	870	U	59	%	64	%	830	U	67	%
4-Nitrophenol	870	U	58	%	86	%	830	U	50	%
Dibenzofuran	51	J	123	%	74	%	330	U	68	%
2,4-Dinitrotoluene	350	U	74	%	79	%	330	U	65	%
Diethylphthalate	350	U	85	%	91	%	330	U	80	%
4-Chlorophenyl-phenylether	350	U	89	%	84	%	330	U	79	%
Fluorene	130	J	131 *	%	71	%	330	U	65	%
4-Nitroaniline	870	U	49 *	%	97	%	830	U	69	%
4,6-Dinitro-2-methylphenol	870	U	80	%	89	%	830	U	79	%
N-Nitrosodiphenylamine (1)	350	U	84	%	85	%	330	U	70	%
4-Bromophenyl-phenylether	350	U	82	%	83	%	330	U	76	%
Hexachlorobenzene	350	U	87	%	87	%	330	U	84	%
Pentachlorophenol	870	U	62	%	54	%	830	U	59	%
Phenanthrene	1400		265 *	%	20 *	%	330	U	69	%
Anthracene	450		139 *	%	58 *	%	330	U	69	%
Carbazole	75	J	83	%	88	%	330	U	68	%
Di-n-butylphthalate	350	U	94	%	102	%	330	U	86	%
Fluoranthene	1600		157 *	%	24 *	%	330	U	76	%
Pyrene	1400		196 *	%	27 *	%	330	U	70	%
Butylbenzylphthalate	350	U	115	%	99	%	330	U	81	%
3,3'-Dichlorobenzidine	350	U	51	%	64	%	330	U	54	%
Benzo(a)anthracene	470		121	%	66	%	330	U	66	%
Chrysene	510		122	%	67	%	330	U	69	%
bis(2-Ethylhexyl)phthalate	46	JB	104	%	97	%	92	J	79	%
Di-n-octyl phthalate	350	U	108	%	88	%	330	U	77	%
Benzo(b)fluoranthene	280	J	117	%	72	%	330	U	68	%
Benzo(k)fluoranthene	260	J	92	%	71	%	330	U	67	%
Benzo(a)pyrene	260	J	101	%	71	%	330	U	64	%
Indeno(1,2,3-cd)pyrene	110	J	88	%	76	%	330	U	63	%
Dibenz(a,h)anthracene	350	U	87	%	82	%	330	U	64	%
Benzo(g,h,i)perylene	120	J	89	%	74	%	330	U	65	%

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

60000000

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J17J33

Lab Name: Lionville Labs, Inc. Work Order: 60049001001

Client: WC-HANFORD RC-110 K1333

Matrix: (soil/water) SOIL

Lab Sample ID: 0809L112-001

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: D092109

Level: (low/med) LOW

Date Received: 09/16/08

% Moisture: 4 decanted: (Y/N)

Date Extracted: 09/17/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 09/21/08

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH:

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	6.607	60000	JB
2.	UNKNOWN	20.933	500	JB
3.	PAH	21.506	300	J
4.	PAH	21.690	500	J
5.	PAH	23.602	300	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKXY

Lab Name: Lionville Labs, Inc. Work Order: 60049001001

Client: WC-HANFORD RC-110 K1333

Matrix: (soil/water) SOIL

Lab Sample ID: 08LE0445-MB1

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: D092108

Level: (low/med) LOW

Date Received: 09/17/08

% Moisture: _____ decanted: (Y/N)__

Date Extracted: 09/17/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 09/21/08

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: _____

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	3.283	90	JA
2.	ALDOL CONDENSATE	6.095	500	JA
3.	UNKNOWN	6.678	200000	J
4.	UNKNOWN	10.247	100	J
5.	UNKNOWN	20.933	300	J

nville Laboratory Use Only

R09L112

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

000000012

nt W.C. Hanford SAF# RC-110

Final Proj. Sampling Date

ect# 60049-001-001-0001

ect Contact/Phone#

ville Laboratory Project Manager O. Johnson

SW846 Del SH TAT 7 days

Rec'd 9-16-08 Date Due 9-23-08

Refrigerator #						A 3	B 3	C 3								
#/Type Container	Liquid / Solid					1G	1G	1G								
Volume						250	120	120								
Preservatives						—	—	—								
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN						
						Lionville Laboratory Use Only										
						06254 ME1	TCL, ISP ICNTD	06244								

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected													
Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP Leachate, Wipe, Other Fish	001	T17T33	/	/	Soil	9/10/08	0818					X	X	X						

cial Instructions:

Special Instructions:

1.
2.
3.
4.
5.
6.

D = ICBR, ICCL, ICFL, ICNO2, ICNO3, ICSO4, ICPO4

I = HSL + B, Li, Mo, P, Sr, Sn, Ti, U, Zr, Si, Bi

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	9/16/08	0930

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL		COMPOSITE WASTE	

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-110-003	Page 1 of 1
Collector: Paul Wilson	Company Contact: Doug Bowers; Telephone No.: 509 531-0701	Project Coordinator: KESSNER, JH	Price Code: Data Turnaround: Contact Joan Kessner ASAP
Project Designation: 100-H Burial Grounds Remaining Sites - Soil Quick Turn	Sampling Location: 118-H-1 trench B	SAF No.: RC-110	
Ice Chest No.: 4GV Fiberboard Box	Field Logbook No.: EL 1627; COA: R118H12600	Method of Shipment: FED EX	
Shipped To: 9-10-08 ~~EBERLINE SERVICES~~ / LIONVILLE	Offsite Property No.: SEE ~~RSS~~ RSR DAS 9/10/08	Bill of Lading/Air Bill No.: SEE RSR	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potentially flamable

Special Handling and/or Storage

Preservation	None	~~None~~ Cooled 9-10	~~None~~ Cooled 9-10-08	None							
Type of Container	aG	aG	aG	P							
No. of Container(s)	1	1	1	1							
Volume	125mL	125mL AZD	250mL 9-10-08	60mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	~~VOA - 8260A (TCL)~~ see item 1 below	~~Total Cyanide - 9010; Sulfides - 9030~~ see item 1 below	Gross Alpha; Gross Beta							
Sample No.	Matrix *	Sample Date	Sample Time								
117J33	SOIL	9-11-08	0878	X	X	X					

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: Paul R Wilson	Date/Time: 9-11-08 0856	Received By/Stored In: Cell 3 anomaly area 118-H-1	Date/Time: 9-11-08 0857
Relinquished By/Removed From: Cell 3 Anomaly Area 118-H-1	Date/Time: 9/15/08 1220	Received By/Stored In: DAVID ST. JOHN	Date/Time: 9/15/08 1220
Relinquished By/Removed From: DAVID ST. JOHN	Date/Time: 9/15/08 1220	Received By/Stored In: FED EX	Date/Time:
Relinquished By/Removed From: FED EX	Date/Time: 9-16-08 0930	Received By/Stored In:	Date/Time: 9-16-08 0930
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

(1) Contact Rich Weiss or Joan Kessner for analysis.

~~(1) ICP Metals - 6010 (Client List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7470 (CV)~~

Matrix *

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

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

/CH-EE-011

000000013

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W-C Hanford

Project/SAF/SOW/Release #: RC-110

Date: 9-16-08

LvLI Batch #: 0809L112

Sample Custodian: Vito Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FED EX		Airbill # 790084776379
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 19.3°	°C	Cooler # 4G
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
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 that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI

RECEIVED
OCT 2008

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-110 K1333

DATE RECEIVED: 09/16/08 LVL LOT # :0809L112

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17J33						
SILVER, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
SILVER, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
SILVER, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
ALUMINUM, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/18/08
ALUMINUM, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/18/08
ALUMINUM, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/18/08
ARSENIC, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
ARSENIC, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
ARSENIC, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
BORON, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
BORON, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
BORON, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
BARIUM, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
BARIUM, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
BARIUM, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
BERYLLIUM, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
BERYLLIUM, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
BERYLLIUM, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
BISMUTH, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
BISMUTH, TOTAL REP	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
BISMUTH, TOTAL SPIKE	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
CALCIUM, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/18/08
CALCIUM, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/18/08
CALCIUM, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/18/08
CADMIUM, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
CADMIUM, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
CADMIUM, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
COBALT, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
COBALT, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
COBALT, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
CHROMIUM, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
CHROMIUM, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
CHROMIUM, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
COPPER, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
COPPER, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-110

DATE RECEIVED: 09/16/08 LVL LOT # :0809L112

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
IRON, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
IRON, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
IRON, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
MERCURY, TOTAL	001	S	08C0162	09/11/08	09/17/08	09/18/08
MERCURY, TOTAL	001 REP	S	08C0162	09/11/08	09/17/08	09/18/08
MERCURY, TOTAL	001 MS	S	08C0162	09/11/08	09/17/08	09/18/08
POTASSIUM, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/18/08
POTASSIUM, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/18/08
POTASSIUM, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/18/08
LITHIUM, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
LITHIUM, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
LITHIUM, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
MAGNESIUM, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
MAGNESIUM, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
MAGNESIUM, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
MANGANESE, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
MANGANESE, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
MANGANESE, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
MOLYBDENUM, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
MOLYBDENUM, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
MOLYBDENUM, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
SODIUM, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/18/08
SODIUM, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/18/08
SODIUM, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/18/08
NICKEL, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
NICKEL, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
NICKEL, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
PHOSPHORUS, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/18/08
PHOSPHORUS, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/18/08
PHOSPHORUS, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/18/08
LEAD, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
LEAD, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
LEAD, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
ANTIMONY, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
ANTIMONY, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
ANTIMONY, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
SELENIUM, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-110

DATE RECEIVED: 09/16/08 LVL LOT # :0809L112

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
SELENIUM, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
SILICON, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
SILICON, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
SILICON, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
TIN, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
TIN, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
TIN, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
STRONTIUM, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
STRONTIUM, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
STRONTIUM, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
TITANIUM, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
TITANIUM, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
TITANIUM, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
THALLIUM, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
THALLIUM, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
THALLIUM, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
URANIUM, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
URANIUM, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
URANIUM, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
VANADIUM, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
VANADIUM, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
VANADIUM, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
ZINC, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
ZINC, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
ZINC, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08
ZIRCONIUM, TOTAL	001	S	08L0339	09/11/08	09/17/08	09/19/08
ZIRCONIUM, TOTAL	001 REP	S	08L0339	09/11/08	09/17/08	09/19/08
ZIRCONIUM, TOTAL	001 MS	S	08L0339	09/11/08	09/17/08	09/19/08

AB QC:

SILVER LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
SILVER, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
ALUMINUM LABORTORY	LC1 BS	S	08L0339	N/A	09/17/08	09/18/08
ALUMINUM, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/18/08
ARSENIC LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
ARSENIC, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-110

DATE RECEIVED: 09/16/08 LVL LOT # :0809L112

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BORON LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
BORON, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
BARIUM LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
BARIUM, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
BERYLLIUM LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
BERYLLIUM, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
BISMUTH, LCS	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
BISMUTH, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
CALCIUM LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/18/08
CALCIUM, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/18/08
CADMIUM LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
CADMIUM, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
COBALT LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
COBALT, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
CHROMIUM LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
CHROMIUM, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
COPPER LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
COPPER, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
IRON LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
IRON, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
MERCURY LABORATORY	LC1 BS	S	08C0162	N/A	09/17/08	09/18/08
MERCURY, TOTAL	MB1	S	08C0162	N/A	09/17/08	09/18/08
POTASSIUM LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/18/08
POTASSIUM, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/18/08
LITHIUM LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
LITHIUM, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
MAGNESIUM LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
MAGNESIUM, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
MANGANESE LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
MANGANESE, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
MOLYBDENUM LABORATOR	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
MOLYBDENUM, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
SODIUM LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/18/08
SODIUM, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/18/08
NICKEL LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
NICKEL, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
PHOSPHORUS LCS	LC1 BS	S	08L0339	N/A	09/17/08	09/18/08
PHOSPHORUS, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/18/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-110

DATE RECEIVED: 09/16/08 LVL LOT # :0809L112

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
LEAD LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
LEAD, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
ANTIMONY LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
ANTIMONY, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
SELENIUM LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
SELENIUM, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
SILICON LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
SILICON, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
TIN LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
TIN, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
STRONTIUM LCS STANDA	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
STRONTIUM, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
TITANIUM LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
TITANIUM, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
THALLIUM LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
THALLIUM, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
URANIUM LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
URANIUM, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
VANADIUM LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
VANADIUM, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
ZINC LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
ZINC, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08
ZIRCONIUM LABORATORY	LC1 BS	S	08L0339	N/A	09/17/08	09/19/08
ZIRCONIUM, TOTAL	MB1	S	08L0339	N/A	09/17/08	09/19/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: WC-HANFORD RC-110 K1333
LVL#: 0809L112

W.O.#: 60049-001-001-0001-00
Date Received: 09-16-08

METALS CASE NARRATIVE

The following is a summary of the QC results accompanying the sample results. Lionville Laboratory (LVL) certifies that all test results meet the requirements of NELAC except as noted below.

All soil samples are reported on a dry weight basis unless requested by the client, required by the method, or noted otherwise.

1. This narrative covers the analysis of 1 soil sample.

2. The sample was prepared and analyzed in accordance with methods checked on the attached glossary.

   The sample was run with a 3-fold dilution for ICP metals due to sample matrix.

   The sample was run on a different instrument for Aluminum, Calcium and Phosphorous.

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

4. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury) with the exception of Potassium and Sodium in file TA0919A. The sample was run and reported for Potassium and Sodium from file PS0918A along with Aluminum, Calcium and Phosphorous. The recovery of the ending CCV for Uranium was 110.8 % in file TA0919A. The sample result was below the Limit of Detection, surrounded by in control CCVs and reported from the file.

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

6. The preparation/method blank for 1 analyte was outside method criteria. {less than the Limit of Quantitation (3-10X the LOD), 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 Sodium was greater than the Limit of Quantitation (LOQ) {3-10x the (LOD) Limit of Detection} and the sample read less than 20 times the MB concentration. However, no corrective action criteria for MBs were provided in SW846 method 6010B. The sample result was reported herein "uncorrected" for the levels found in the MB.

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 20 pages.

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

8. All laboratory control samples (LCS) were within the 80-120% control limits with the exception of Silicon (9.5%). Sample results for Silicon may be biased low. Refer to the Inorganics Laboratory Control Standards Report.

9. Matrix spike (MS) recoveries for 6 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

10. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A PDS was prepared at meaningful concentration level for the following analytes:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J17J33	Aluminum	126,000	99.0
	Iron	60,000	68.5
	Antimony	300	102.9
	Manganese	3,000	84.5
	Magnesium	60,000	84.4
	Titanium	6,300	95.0

11. The duplicate analyses for 6 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 Limit of Detection (LOD). Values between the LOD and the Limit of Quantitation (LOQ) are acquired in a region of less-certain quantification.

13. LVL is NELAP accredited by the state of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

14. 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
alm/m09-112

10/9/08
Date

LVLI
LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

following methods are used as reference for the digestion and analysis of samples contained within th

#: 0809L112

ching Procedure: __1310 __1311 __1312 __Other:_____

P Metals __ Digestion and __ Analysis Methods: __ILM03.0 __ILM04.0

tals Digestion Methods: __3005A __3010A __3015 __3020A ✓3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
			__200.7				__99
iminum	✓6010B		__200.7	__204.2			__99
timony	✓6010B	__7041 [5]	__200.7	__206.2	__3113B		__99
senic	✓6010B	__7060A [5]	__200.7				__99
rium	✓6010B		__200.7				__99
ryllium	✓6010B		__200.7			__1620	__99
muth	✓6010B [1]		__200.7 [1]				__99
ron	✓6010B		__200.7				__99
dmium	✓6010B	__7131A [5]	__200.7	__213.2			__99
lcium	✓6010B		__200.7				__SS17
romium	✓6010B	__7191 [5]	__200.7	__218.2			__99
balt	✓6010B		__200.7				__99
pper	✓6010B	__7211 [5]	__200.7	__220.2			__99
on	✓6010B		__200.7				__99
ad	✓6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
thium	✓6010B	__7430 [4]	__200.7			__1620	__99
agnesium	✓6010B		__200.7				__99
anganese	✓6010B		__200.7				__99
ercury	__7470A [3]	✓7471A [3]	__245.1 [2]	__245.5 [2]			__99
olybdenum	✓6010B		__200.7				__99
ckel	✓6010B		__200.7				__99
tassium	✓6010B	__7610 [4]	__200.7	__258.1 [4]			__99
are Earths	__6010B [1]		__200.7 [1]			__1620	__99
lenium	✓6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
licon	✓6010B [1]		__200.7			__1620	__99
lica	__6010B		__200.7			__1620	__99
lver	✓6010B	__7761 [5]	__200.7	__272.2			__99
dium	✓6010B	__7770 [4]	__200.7	__273.1 [4]			__99
rontium	✓6010B		__200.7				__99
hallium	✓6010B	__7841 [5]	__200.7	__279.2	__200.9		__99
in	✓6010B		__200.7				__99
itanium	✓6010B		__200.7				__99
ranium	✓6010B [1]		__200.7 [1]			__1620	__99
anadium	✓6010B		__200.7				__99
inc	✓6010B		__200.7				__99
irconium	✓6010B [1]		__200.7 [1]			__1620	__99

Phosphorous Method: 6010B

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 09/22/08

CLIENT: WC-HANFORD RC-110 LVL LOT #: 0809L112

WORK ORDER: 60049-001-001-0001-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J17J33	Silver, Total	0.25 u	MG/KG	0.25	3.0
		Aluminum, Total	8910	MG/KG	9.8	3.0
		Arsenic, Total	5.6	MG/KG	1.2	3.0
		Boron, Total	5.3	MG/KG	1.2	3.0
		Barium, Total	83.5	MG/KG	0.25	3.0
		Beryllium, Total	0.22	MG/KG	0.12	3.0
		Bismuth, Total	2.0	MG/KG	1.5	3.0
		Calcium, Total	5130	MG/KG	9.8	3.0
		Cadmium, Total	0.12	MG/KG	0.12	3.0
		Cobalt, Total	6.9	MG/KG	0.49	3.0
		Chromium, Total	16.5	MG/KG	0.49	3.0
		Copper, Total	15.2	MG/KG	0.49	3.0
		Iron, Total	19400	MG/KG	11.0	3.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	1410	MG/KG	121	3.0
		Lithium, Total	8.8	MG/KG	0.1	3.0
		Magnesium, Total	4640	MG/KG	6.1	3.0
		Manganese, Total	313	MG/KG	0.1	3.0
		Molybdenum, Total	1.1	MG/KG	0.74	3.0
		Sodium, Total	194	MG/KG	4.9	3.0
		Nickel, Total	12.8	MG/KG	0.49	3.0
		Phosphorus, Total	716	MG/KG	12.3	3.0
		Lead, Total	12.9	MG/KG	0.74	3.0
		Antimony, Total	0.74 u	MG/KG	0.74	3.0
		Selenium, Total	1.5 u	MG/KG	1.5	3.0
		Silicon, Total	377	MG/KG	9.8	3.0
		Tin, Total	7.7	MG/KG	1.5	3.0
		Strontium, Total	36.7	MG/KG	0.07	3.0
		Titanium, Total	1260	MG/KG	0.25	3.0
		Thallium, Total	1.6	MG/KG	1.5	3.0
		Uranium, Total	4.9 u	MG/KG	4.9	3.0
		Vanadium, Total	44.5	MG/KG	0.34	3.0
		Zinc, Total	47.6	MG/KG	1.5	3.0
		Zirconium, Total	18.1	MG/KG	12.3	3.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 09/22/08

CLIENT: WC-HANFORD RC-110 LVL LOT #: 0809L112

WORK ORDER: 60049-001-001-0001-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08L0339-MB1	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Aluminum, Total	4.0 u	MG/KG	4.0	1.0
		Arsenic, Total	0.50 u	MG/KG	0.50	1.0
		Boron, Total	0.50 u	MG/KG	0.50	1.0
		Barium, Total	0.10 u	MG/KG	0.10	1.0
		Beryllium, Total	0.05 u	MG/KG	0.05	1.0
		Bismuth, Total	0.60 u	MG/KG	0.60	1.0
		Calcium, Total	6.4	MG/KG	4.0	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	0.20 u	MG/KG	0.20	1.0
		Chromium, Total	0.25	MG/KG	0.20	1.0
		Copper, Total	0.20 u	MG/KG	0.20	1.0
		Iron, Total	7.8	MG/KG	4.5	1.0
		Potassium, Total	49.3 u	MG/KG	49.3	1.0
		Lithium, Total	0.07	MG/KG	0.04	1.0
		Magnesium, Total	2.5 u	MG/KG	2.5	1.0
		Manganese, Total	0.48	MG/KG	0.04	1.0
		Molybdenum, Total	0.30 u	MG/KG	0.30	1.0
		Sodium, Total	16.5	MG/KG	2.0	1.0
		Nickel, Total	0.23	MG/KG	0.20	1.0
		Phosphorus, Total	5.0 u	MG/KG	5.0	1.0
		Lead, Total	0.30 u	MG/KG	0.30	1.0
		Antimony, Total	0.30 u	MG/KG	0.30	1.0
		Selenium, Total	0.60 u	MG/KG	0.60	1.0
		Silicon, Total	4.0 u	MG/KG	4.0	1.0
		Tin, Total	1.0	MG/KG	0.60	1.0
		Strontium, Total	0.03 u	MG/KG	0.03	1.0
		Titanium, Total	0.22	MG/KG	0.10	1.0
		Thallium, Total	0.82	MG/KG	0.60	1.0
		Uranium, Total	2.0 u	MG/KG	2.0	1.0
		Vanadium, Total	0.14 u	MG/KG	0.14	1.0
		Zinc, Total	0.60 u	MG/KG	0.60	1.0
		Zirconium, Total	5.0 u	MG/KG	5.0	1.0
BLANK1	08C0162-MB1	Mercury, Total	0.01 u	MG/KG	0.01	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 09/22/08

CLIENT: WC-HANFORD RC-110 LVL LOT #: 0809L112

WORK ORDER: 60049-001-001-0001-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J17J33	Silver, Total	3.7	0.25u	3.9	94.9	3.0
		Aluminum, Total	8780	8910	155	-78. *	3.0
		Arsenic, Total	158	5.6	155	97.9	3.0
		Boron, Total	75.9	5.3	77.6	91.0	3.0
		Barium, Total	239	83.5	155	100.1	3.0
		Beryllium, Total	4.1	0.22	3.9	99.5	3.0
		Bismuth, Total	376	2.0	388	96.4	3.0
		Calcium, Total	7280	5130	1940	110.9	3.0
		Cadmium, Total	3.9	0.12	3.9	96.9	3.0
		Cobalt, Total	44.8	6.9	38.8	97.7	3.0
		Chromium, Total	28.7	16.5	15.5	78.7	3.0
		Copper, Total	35.8	15.2	19.4	106.2	3.0
		Iron, Total	18100	19400	77.6	-1600. *	3.0
		Mercury, Total	0.20	0.01u	0.16	120.2	1.0
		Potassium, Total	3080	1410	1940	86.0	3.0
		Lithium, Total	89.9	8.8	77.6	104.5	3.0
		Magnesium, Total	5700	4640	1940	54.2	3.0
		Manganese, Total	332	313	38.8	49.7*	3.0
		Molybdenum, Total	73.8	1.1	77.6	93.7	3.0
		Sodium, Total	2110	194	1940	98.9	3.0
		Nickel, Total	49.2	12.8	38.8	93.8	3.0
		Phosphorus, Total	1090	716	388	97.3	3.0
		Lead, Total	50.2	12.9	38.8	96.1	3.0
		Antimony, Total	14.1	0.74u	38.8	36.3	3.0
		Selenium, Total	130	1.5 u	155	83.4	3.0
		Silicon, Total	445	377	77.6	88.3*	3.0
		Tin, Total	75.2	7.7	77.6	87.0	3.0
		Strontium, Total	130	36.7	77.6	120.5	3.0
		Titanium, Total	1190	1260	77.6	-93. *	3.0
		Thallium, Total	147	1.6	155	93.5	3.0
		Uranium, Total	379	4.9 u	388	97.6	3.0
		Vanadium, Total	78.1	44.5	38.8	86.6	3.0
		Zinc, Total	80.4	47.6	38.8	84.5	3.0
		Zirconium, Total	377	18.1	388	92.4	3.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 09/22/08

CLIENT: WC-HANFORD RC-110 LVL LOT #: 0809L112

WORK ORDER: 60049-001-001-0001-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J17J33	Silver, Total	0.25u	0.25u	NC	3.0
		Aluminum, Total	8910	8390	6.0	3.0
		Arsenic, Total	5.6	6.4	13.3	3.0
		Boron, Total	5.3	3.7	35.6	3.0
		Barium, Total	83.5	88.1	5.4	3.0
		Beryllium, Total	0.22	0.22	0.14	3.0
		Bismuth, Total	2.0	1.5 u	~~NC~~ 200*	3.0
		Calcium, Total	5130	4920	4.0	3.0
		Cadmium, Total	0.12	0.22	56.2	3.0
		Cobalt, Total	6.9	6.9	0.00	3.0
		Chromium, Total	16.5	14.8	10.9	3.0
		Copper, Total	15.2	14.8	2.7	3.0
		Iron, Total	19400	18000	7.1	3.0
		Mercury, Total	0.01u	0.01	~~NC~~ 200*	1.0
		Potassium, Total	1410	1400	0.90	3.0
		Lithium, Total	8.8	8.3	5.8	3.0
		Magnesium, Total	4640	4640	0.12	3.0
		Manganese, Total	313	308	1.4	3.0
		Molybdenum, Total	1.1	0.75u	NC	3.0
		Sodium, Total	194	180	7.4	3.0
		Nickel, Total	12.8	13.0	1.6	3.0
		Phosphorus, Total	716	728	1.7	3.0
		Lead, Total	12.9	13.8	6.7	3.0
		Antimony, Total	0.74u	0.75u	NC	3.0
		Selenium, Total	1.5 u	1.5 u	NC	3.0
		Silicon, Total	377	461	20.2	3.0
		Tin, Total	7.7	4.9	44.4	3.0
		Strontium, Total	36.7	44.2	18.5	3.0
		Titanium, Total	1260	1140	9.5	3.0
		Thallium, Total	1.6	1.7	6.1	3.0
		Uranium, Total	4.9 u	5.0 u	NC	3.0
		Vanadium, Total	44.5	40.8	8.7	3.0
		Zinc, Total	47.6	46.5	2.3	3.0
		Zirconium, Total	18.1	17.9	1.1	3.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 09/22/08

CLIENT: WC-HANFORD RC-110 LVL LOT #: 0809L112

WORK ORDER: 60049-001-001-0001-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0339-LC1	Silver, LCS	49.0	50.0	MG/KG	98.0
		Aluminum, LCS	463	500	MG/KG	92.5
		Arsenic, LCS	889	1000	MG/KG	88.9
		Boron, LCS	442	500	MG/KG	88.3
		Barium, LCS	502	500	MG/KG	100.5
		Beryllium, LCS	22.9	25.0	MG/KG	91.6
		Bismuth, LCS	471	500	MG/KG	94.1
		Calcium, LCS	2270	2500	MG/KG	90.7
		Cadmium, LCS	21.6	25.0	MG/KG	86.4
		Cobalt, LCS	225	250	MG/KG	90.0
		Chromium, LCS	46.7	50.0	MG/KG	93.4
		Copper, LCS	130	125	MG/KG	103.7
		Iron, LCS	496	500	MG/KG	99.3
		Potassium, LCS	2250	2500	MG/KG	89.8
		Lithium, LCS	570	500	MG/KG	114.0
		Magnesium, LCS	2280	2500	MG/KG	91.0
		Manganese, LCS	70.5	75.0	MG/KG	94.0
		Molybdenum, LCS	459	500	MG/KG	91.9
		Sodium, LCS	2340	2500	MG/KG	93.5
		Nickel, LCS	181	200	MG/KG	90.4
		Phosphorus, LCS	431	500	MG/KG	86.3
		Lead, LCS	224	250	MG/KG	89.5
		Antimony, LCS	278	300	MG/KG	92.8
		Selenium, LCS	861	1000	MG/KG	86.1
		Silicon, LCS	47.7	500	MG/KG	9.5
		Tin, LCS	450	500	MG/KG	90.0
		Strontium, LCS	498	500	MG/KG	99.7
		Titanium, LCS	488	500	MG/KG	97.7
		Thallium, LCS	912	1000	MG/KG	91.2
		Uranium, LCS	511	500	MG/KG	102.2
		Vanadium, LCS	232	250	MG/KG	92.8
		Zinc, LCS	92.5	100	MG/KG	92.5
		Zirconium, LCS	486	500	MG/KG	97.2
LCS1	08C0162-LC1	Mercury, LCS	4.8	4.7	MG/KG	102.6

Lionville Laboratory Incorporated

Logbook #: 78 c

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0339
Date/Time Initiated: 9/17/08 1130
Date/Time Completed: 9/17/08 2030
Analyst(s): MW
Matrix: Soil Water Other:
Instr. Type: AA ICP
Parameters: See backlog

Digested / Undigested (circle one)
Balance #: B20
Balance Cal Verif: Y NA
Hot Plate Temp: 91°

Method: SW (circle) 3005A, 3010A, 3015, 3020A, 7060A (As/Se), 7760A (Ag), 3050B, 3051
DW 200.7 (1994), 200.9, 3113B
MCAWW 200.7 (1982), 200 (AA), 206.2 (As/Se)
SM 3030C (NC)
CLP ILMO3.0, ILMO4.0
Other Tyler

TMW

COC Batch #	Spike Vol(s) (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/So/TC	Texture	Color/Appearance	Artifact	Turb
08092112-001		1.27gm	100ml	<2	TO	fine	brown liquid	none	
001R		1.24gm							
001S	1.0 ml*	1.34gm							
08092113-001		1.27gm				coarse	dark gray solid	N/A	
001R		1.22gm					chunks, broken		
001S	1.0 ml	1.29gm					into smaller pieces		
08L0339-MB1		1.0gm					boiling chips		
LC1	1.0 ml*	1.0gm							

MW 9/17/08

Spiking IDs:
MS #: 8100-04-01, 02, 03, 6072-78-07
LCS #: 08, 09, 10, 11

Reagent IDs:
HNO_3 G07057
HCL G76054
H_2O_2 G15A18
1:1 HNO_3 9789-083-08
1:1 HCL

File ID#: IC033901, IC033902

LIMS Transfer: Y N

Data Review By/Date: 9/22/08

Updated

* also 0.5ml 6072-076-11 (Bi)
0.5 ml 6072-079-14 (P-)
0.5 ml 6072-078-01 (U-)
0.5 ml 6072-079-13 (Zr)

Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 498

Analyst: TLS
Date 9/17/08
Start Time/Temp: 1505 | 91°
End Time/Temp: 1535 | 98°

Instrument ID HG-3.1
Balance #: B29 ✓ /NA
Pipette Calibration (Daily) Y ✓

Prep Batch: 08C0162
Worksheet: HG091801/HG091901
SOP No. ME-HgCVAA, Rev. 02

pH < 2 for Liquids? __ Yes ✓ No (If no: designate affected samples in Comments column, and initiate an SDR)

NOTE: The Inital/Final Volume for water samples = 33mL, unless otherwise noted.
The Final volume for soil samples = 50mL, unless otherwise noted.

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
Blank	SE			10mL	50mL	
0.2 µg/L	8H	0.100				
1.0	HR	0.500				
2.0	303	1.000				
5.0	X5	2.500				
10.0	FT	5.000				
ICV	11A	0.125	2.5			
CCV	G7	0.250	5.0			
ICB/CCB	H5					90.50 L
MB1	J5			0.30		PBS162 100.00
LC1	A27	*	*	0.34		LCSS162
0809L084-001	3X			0.31		R 91.37
001R	GR			0.30		
001S	AB	0.000	1.0	0.31		
002	C9			0.31		81.88
003	W0			0.37		89.40
004	35			0.40		85.81
005	N60			0.34		86.49
006	CT			0.30		84.41
007	JB			0.31		90.11
008	IC			0.32		81.45
009	818			0.34		86.77
010	DR			0.33		88.85
011	700			0.34		91.18
012	OF			0.33		88.15
013	NJ			0.34		89.61
0809L103-001	AH			0.34		96.77

Standard:	ID	Prep Date/Time
ICAL/MS	R1 6077-78-14B	9/17/08 1000
ICV/CCV/LCS	K5 6078-78-15A	↓

Reviewed By/Date: [signature] 9/22/08

see book # 9368 for std traceability information

Soil LCS =US Metals in soil No.3; True Value = 4.70 mg/Kg *
Catalogue #1RM-021, Lot # E021

Water Matrix Spiking Solution Concentration = 0.1 µg/ml
Water LCS Spiking Concentration: 1.0 µg/ml

ME-HgCVAA-Prep1007

Page #:

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Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 498

Analyst: CB
Date 9/17/08
Start Time/Temp: see page
End Time/Temp: 024

Instrument ID HG3.1
Balance #: B29 /NA
Pipette Calibration (Daily) Y ✓

Prep Batch: 08C0162
Worksheet: HG-091801 / HL-091901
SOP No. ME-HgCVAA, Rev. 02

pH < 2 for Liquids? __ Yes NA No (If no: designate affected samples in Comments column, and initiate an SDR)

NOTE: The Inital/Final Volume for water samples = 33mL, unless otherwise noted.
The Final volume for soil samples = 50mL, unless otherwise noted.

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
0809L103-001R	PF			0.36	50mL	96.77
001S	B14	0.500	1.0	0.34		⊥
002	G12			0.38		96.85
003	997			0.33		96.86
004	508			0.38		94.71
005	154			0.31		99.86
0809L112-001	76			0.32		R 96.15
001R	F2			0.38		⊥ ⊥
001S	500	0.500	1.0	0.32		
0809L113-001	B2			0.30		100.00
001R	OLN			0.33		
001S	183	0.500	1.0	0.30		⊥

Tl 09/22/08

Standard:	ID	Prep Date/Time
ICAL/MS		
ICV/CCV/LCS	see page 024	

Reviewed By/Date: [signature] 9/22/08

see book # 9368 for std traceability information

Soil LCS =US Metals in soil No.3; True Value = 4.70 mg/Kg
Catalogue #1RM-021, Lot # E021

Water Matrix Spiking Solution Concentration = 0.1 µg/ml
Water LCS Spiking Concentration: 1.0 µg/ml

ME-HgCVAA-Prep1007

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nville Laboratory Use Only

8094 112

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

VLI

000000018

nt W.C. Hanford SAF# RC-110

Final Proj. Sampling Date

ject# 60049-001-001-0001

ject Contact/Phone#

nville Laboratory Project Manager Q. Johnson

SW846 Del SH TAT 7 days

te Rec'd 9-16-08 Date Due 9-23-08

		A	B	C
Refrigerator #		3	3	3
#/Type Container	Liquid / Solid	1G	1G	1G
Volume		200	120	120
Preservatives		—	—	—

ANALYSES REQUESTED →

TRIX DES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	INORG Metal	CN	Lionville Laboratory Use Only 06254 ME1	ICP, ISP ICNTD	06244
Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP, Leachate, Wipe, Other, Fish	001	T17T33	/	/	Soil	9/16/08	0818							X	X	X

ecial Instructions:

2 = ICBR, ICCL, ICFL, ICNO2, ICNO3, ICSO4, ICPO4

1 = HSL + B, Li, Mo, P, Sr, Sn, Ti, U, Zr, Si, Bi

Special Instructions:

1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[signature]	[signature]	9/16/08	0930

Relinquished by	Received by	Date	Time

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-110-003	Page 1 of 1

Collector: Paul Wilson	Company Contact: Doug Bowers	Telephone No.: 509 531-0701	Project Coordinator: KESSNER, JH
Price Code	Data Turnaround: Contact Joan Kessner ASAP		
Project Designation: 100-H Burial Grounds Remaining Sites - Soil Quick Turn	Sampling Location: 118-H-1 trench B		SAF No.: RC-110
Ice Chest No.: 4GV Fiberboard Box	Field Logbook No.: EL 1627	COA: R118H12600	Method of Shipment: FED EX
Shipped To: 9-10-08 ~~FEDERLINE SERVICES~~ / LIONVILLE	Offsite Property No.: SEE ~~RSS~~ RSR DAS 9/10/08		Bill of Lading/Air Bill No.: SEE RSR

POSSIBLE SAMPLE HAZARDS/REMARKS

Potentially flamable

Special Handling and/or Storage

Preservation	None	~~Cool 4C~~ None 9-10-08	~~Cool 4C~~ None 9-10-08	None							
Type of Container	aG	aG	aG	P							
No. of Container(s)	1	1	1	1							
Volume	125mL	125mL	250mL	60mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	~~VOA - 8260A (TCL)~~ see item 1 below	~~Total Cyanide - 9010; Sulfides - 9030~~ See item 1 below	Gross Alpha; Gross Beta							

Sample No.	Matrix *	Sample Date	Sample Time										
17J33	SOIL	9-11-08	0878	X	X	X							

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From: Paul R Wilson	Date/Time: 9-11-08 0856	Received By/Stored In: Cell 3 anomaly area 118-H-1
Date/Time: 0855 9-11-08		
Relinquished By/Removed From: Cell 3 Anomaly Area 118-H1	Date/Time: 9/15/08 1220	Received By/Stored In: DAVID ST. JOHN
Date/Time: 9/15/08 1220		
Relinquished By/Removed From: DAVID ST. JOHN	Date/Time: 9/15/08 1220	Received By/Stored In: FED EX
Date/Time:		
Relinquished By/Removed From:	Date/Time: 9-16-08 0930	Received By/Stored In:
Date/Time: 9-16-08 0930		
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:
Date/Time:		
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:
Date/Time:		

SPECIAL INSTRUCTIONS

(1) Contact Rich Weiss or Joan Kessner for analysis.

~~(1) ICP Metals - 6010 (Client List)~~ (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); ~~Mercury - 7470 - (CV)~~

Matrix *

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

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

VCH-EE-011

000000019

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W-C Hanford

Project/SAF/SOW/Release #: RC-110

Date: 9-16-08

LvLI Batch #: 0809L112

Sample Custodian: Vito Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FED EX		Airbill # 790084776379
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 19.3	°C	Cooler # 4G
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
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 that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-110 K1333

RECEIVED OCT 2008

DATE RECEIVED: 09/16/08 LVL LOT # :0809L112

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17J33						
% SOLIDS	001	S	08L%S077	09/11/08	09/17/08	09/18/08
% SOLIDS	001 REP	S	08L%S077	09/11/08	09/17/08	09/18/08
BROMIDE BY IC	001	S	08LICS74	09/11/08	09/26/08	09/29/08
BROMIDE BY IC	001 REP	S	08LICS74	09/11/08	09/26/08	09/29/08
BROMIDE BY IC	001 MS	S	08LICS74	09/11/08	09/26/08	09/29/08
CHLORIDE BY IC	001	S	08LICS74	09/11/08	09/26/08	09/29/08
CHLORIDE BY IC	001 REP	S	08LICS74	09/11/08	09/26/08	09/29/08
CHLORIDE BY IC	001 MS	S	08LICS74	09/11/08	09/26/08	09/29/08
FLUORIDE BY IC	001	S	08LICS74	09/11/08	09/26/08	09/29/08
FLUORIDE BY IC	001 REP	S	08LICS74	09/11/08	09/26/08	09/29/08
FLUORIDE BY IC	001 MS	S	08LICS74	09/11/08	09/26/08	09/29/08
NITRITE BY IC	001	S	08LICS74	09/11/08	09/26/08	09/29/08
NITRITE BY IC	001 REP	S	08LICS74	09/11/08	09/26/08	09/29/08
NITRITE BY IC	001 MS	S	08LICS74	09/11/08	09/26/08	09/29/08
NITRATE BY IC	001	S	08LICS74	09/11/08	09/26/08	09/29/08
NITRATE BY IC	001 REP	S	08LICS74	09/11/08	09/26/08	09/29/08
NITRATE BY IC	001 MS	S	08LICS74	09/11/08	09/26/08	09/29/08
TOTAL CYANIDE	001	S	08LCA50	09/11/08	09/20/08	09/20/08
TOTAL CYANIDE	001 REP	S	08LCA50	09/11/08	09/20/08	09/20/08
PHOSPHATE BY IC	001	S	08LICS74	09/11/08	09/26/08	09/29/08
PHOSPHATE BY IC	001 REP	S	08LICS74	09/11/08	09/26/08	09/29/08
PHOSPHATE BY IC	001 MS	S	08LICS74	09/11/08	09/26/08	09/29/08
SULFATE BY IC	001	S	08LICS74	09/11/08	09/26/08	09/29/08
SULFATE BY IC	001 REP	S	08LICS74	09/11/08	09/26/08	09/29/08
SULFATE BY IC	001 MS	S	08LICS74	09/11/08	09/26/08	09/29/08
SULFIDE	001	S	08LSD053	09/11/08	09/18/08	09/18/08
SULFIDE	001 REP	S	08LSD053	09/11/08	09/18/08	09/18/08
SULFIDE	001 MS	S	08LSD053	09/11/08	09/18/08	09/18/08
LB QC:						
BROMIDE BY IC	MB1	S	08LICS74	N/A	09/26/08	09/28/08
BROMIDE BY IC	MB1 BS	S	08LICS74	N/A	09/26/08	09/28/08
CHLORIDE BY IC	MB1	S	08LICS74	N/A	09/26/08	09/28/08
CHLORIDE BY IC	MB1 BS	S	08LICS74	N/A	09/26/08	09/28/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-110 K1333

DATE RECEIVED: 09/16/08 LVL LOT # :0809L112

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
FLUORIDE BY IC	MB1	S	08LICS74	N/A	09/26/08	09/28/08
FLUORIDE BY IC	MB1 BS	S	08LICS74	N/A	09/26/08	09/28/08
NITRITE BY IC	MB1	S	08LICS74	N/A	09/26/08	09/28/08
NITRITE BY IC	MB1 BS	S	08LICS74	N/A	09/26/08	09/28/08
NITRATE BY IC	MB1	S	08LICS74	N/A	09/26/08	09/28/08
NITRATE BY IC	MB1 BS	S	08LICS74	N/A	09/26/08	09/28/08
TOTAL CYANIDE	LCS L	S	08LCA50	N/A	09/20/08	09/20/08
TOTAL CYANIDE	LCS L	S	08LCA50	N/A	09/20/08	09/20/08
TOTAL CYANIDE	MB1	S	08LCA50	N/A	09/20/08	09/20/08
PHOSPHATE BY IC	MB1	S	08LICS74	N/A	09/26/08	09/28/08
PHOSPHATE BY IC	MB1 BS	S	08LICS74	N/A	09/26/08	09/28/08
SULFATE BY IC	MB1	S	08LICS74	N/A	09/26/08	09/28/08
SULFATE BY IC	MB1 BS	S	08LICS74	N/A	09/26/08	09/28/08
SULFIDE	MB1	S	08LSD053	N/A	09/18/08	09/18/08
SULFIDE	MB1 BS	S	08LSD053	N/A	09/18/08	09/18/08
SULFIDE	MB1 BSD	S	08LSD053	N/A	09/18/08	09/18/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: WC-HANFORD RC-110 K1333
LVL#: 0809L112

W.O.#: 60049-001-001-0001-00
Date Received: 09-16-08

INORGANIC NARRATIVE

1. This narrative covers the analyses of 1 soil sample.

2. The sample was prepared and analyzed in accordance with the methods indicated on the attached glossary.

   Lionville Lab (LvL) is NELAP accredited by the State of Pennsylvania. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager. LvL certifies that all test results meet the requirements of NELAC with any exception noted in the following statements.

3. Sample holding times as required by the method and/or contract were met.

4. The results presented in this report are derived from a sample that did not meet LvLI's sample acceptance policy as noted on the Sample Receipt Checklist.

5. The method blanks were within the method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS for Sulfide was within the 20% Relative Percent Difference (RPD) control limit.

7. The matrix spike recoveries were within the 75-125% control limits. Matrix spike analysis was not performed for Total Cyanide due to limited sample volume.

8. The replicate analyses were within the 20% RPD control limit with the exception of Nitrate at 22.4%.

9. Results for soil samples are reported on a dry weight basis.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory

10/7/08
Date

njp\i09-112

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.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	ASTM	SW846	OTHER
% Ash	__ D2216-80		
% Moisture	__ D2216-80		__ ILMO4.0 (e)
% Solids	✓ D2216-80		__ ILMO4.0 (e)
% Volatile Solids	__ D2216-80		
ASTM Extraction in Water	__ D3987-81/85		
BTU	__ D240-87		
CEC		__ 9081	__ c
Chromium VI		__ 3060A/7196A	
Corrosivity ___ by coupon ___ by pH		__ 1110(mod) __ 9045C	
Cyanide, Total		✓ 9010B /9014	__ ILMO4.0 (e)
Cyanide, Reactive		__ Section 7.3/9014	
Halides, Extractable Organic		__ 9020B	__ EPA 600/4/84-008
Halides, Total		__ 9020B	__ EPA 600/4/84-008
EP Toxicity		__ 1310A	
Flash Point		__ 1010	
Ignitability		__ 1010	
Oil & Grease		__ 9071A	
Carbon, Total Organic		__ 9060	__ Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	__ D240-87(mod)	__ 5050	
Petroleum Hydrocarbons, Total Recoverable		__ 9071	__ EPA 418.1
pH, Soil		__ 9045C	
Sulfide, Reactive		__ Section 7.3/9030B	
Sulfide		✓ 9030B(mod) /9034	
Specific Gravity	__ D1429-76C/	__ D5057-90	
Sulfur, Total		__ 9056	
Synthetic Preparation Leach		__ 1312	
Paint Filter		__ 9095A	

Other: Bromide, Chloride, Fluoride, } **Method:** EPA 300.0

Other: Nitrite, Nitrate, Phosphate, Sulfate } **Method**

L-WI-034/B-01/01

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 10/03/08

CLIENT: WC-HANFORD RC-110 K1333 LVL LOT #: 0809L112
WORK ORDER: 60049-001-001-0001-00

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J17J33	% Solids	96.2		%	0.01	1.0
		Bromide by IC	5.0	u	MG/KG	5.0	1.0
		Chloride by IC	2.0	u	MG/KG	2.0	1.0
		Fluoride by IC	2.5	u	MG/KG	2.5	1.0
		Nitrite by IC	2.50	u	MG/KG	2.50	1.0
		Nitrate by IC	4.22		MG/KG	2.50	1.0
		Cyanide, Total	0.49	u	MG/KG	0.49	1.0
		Phosphate by IC	2.5	u	MG/KG	2.5	1.0
		Sulfate by IC	18.8		MG/KG	2.5	1.0
		Sulfide	20.9	u	MG/KG	20.9	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 10/03/08

CLIENT: WC-HANFORD RC-110 K1333 LVL LOT #: 0809L112

WORK ORDER: 60049-001-001-0001-00

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	08LICS74-MB1	Bromide by IC	4.7	u	MG/KG	4.7	1.0
		Chloride by IC	2.4	u	MG/KG	2.4	1.0
		Fluoride by IC	2.4	u	MG/KG	2.4	1.0
		Nitrite by IC	2.36	u	MG/KG	2.36	1.0
		Nitrate by IC	2.36	u	MG/KG	2.36	1.0
		Phosphate by IC	2.4	u	MG/KG	2.4	1.0
		Sulfate by IC	2.6	u	MG/KG	2.6	1.0
BLANK1	08LCAS0-MB1	Cyanide, Total	0.50	u	MG/KG	0.50	1.0
BLANK10	08LSD053-MB1	Sulfide	20.4	u	MG/KG	20.4	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 10/03/08

CLIENT: WC-HANFORD RC-110 K1333 LVL LOT #: 0809L112

WORK ORDER: 60049-001-001-0001-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J17J33	Bromide by IC	53.0	0.0	51.0	103.9	1.0
		Chloride by IC	53.7	1.5	51.0	102.3	1.0
		Fluoride by IC	54.0	1.2	51.0	103.5	1.0
		Nitrite by IC	52.8	2.50u	51.0	103.4	1.0
		Nitrate by IC	57.5	4.22	51.0	104.5	1.0
		Phosphate by IC	63.2	2.5 u	51.0	124.0	1.0
		Sulfate by IC	72.8	18.8	51.0	105.9	1.0
		Sulfide	254	7.1	251	98.1	1.0
BLANK10	08LICS74-MB1	Bromide by IC	69.9	4.7 u	67.3	103.9	1.0
		Chloride by IC	71.7	2.4 u	67.3	106.6	1.0
		Fluoride by IC	71.3	2.4 u	67.3	105.9	1.0
		Nitrite by IC	71.9	2.36u	67.3	106.9	1.0
		Nitrate by IC	69.7	2.36u	67.3	103.7	1.0
		Phosphate by IC	69.4	2.4 u	67.3	103.2	1.0
		Sulfate by IC	63.4	2.6 u	66.4	95.5	1.0
BLANK10	08LSD053-MB1	Sulfide	238	20.4 u	240	98.9	1.0
		Sulfide MSD	241	20.4 u	246	98.1	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 10/03/08

CLIENT: WC-HANFORD RC-110 K1333 LVL LOT #: 0809L112

WORK ORDER: 60049-001-001-0001-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	08LSD053-MB1	Sulfide	98.9	98.1	0.85

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 10/03/08

CLIENT: WC-HANFORD RC-110 K1333 LVL LOT #: 0809L112

WORK ORDER: 60049-001-001-0001-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J17J33	% Solids	96.2	96.0	0.10	1.0
		Bromide by IC	5.0 u	5.3 u	NC	1.0
		Chloride by IC	2.0 u	2.1 u	NC	1.0
		Fluoride by IC	2.5 u	2.6 u	NC	1.0
		Nitrite by IC	2.50u	2.63u	NC	1.0
		Nitrate by IC	4.22	5.28	22.4	1.0
		Cyanide, Total	0.49u	0.50u	NC	1.0
		Phosphate by IC	2.5 u	2.7	NC	1.0
		Sulfate by IC	18.8	17.3	8.1	1.0
		Sulfide	20.9 u	21.2 u	NC	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 10/03/08

CLIENT: WC-HANFORD RC-110 K1333

LVL LOT #: 0809L112

WORK ORDER: 60049-001-001-0001-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCSS1	08LCA50-LCS1	Cyanide, Total LCS	1.82	2.0	MG/KG	91.0
LCSS2	08LCA50-LCS2	Cyanide, Total LCS	9.79	10.0	MG/KG	97.9

nville Laboratory Use Only

8094 112

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

nt W.C. Hanford SAFH RC-110

Final Proj. Sampling Date

ect# 60049-001-001-0001

ect Contact/Phone#

ville Laboratory Project Manager Q. JOHNSON

SW846 Del SH TAT 7 days

Rec'd 9-16-08 Date Due 9-23-08

Refrigerator #						A	B	C								
						3	3	3								
#/Type Container	Liquid															
	Solid					1G	1G	1G								
Volume						250	120	120								
Preservatives						—	—	—								
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN						
						Lionville Laboratory Use Only										
						8625H ME1	ICP, ISP ICNTD	8244H								

MATRIX CODES: Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP, Leachate, Wipe, Other, Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected														
001	T17T33	✓	✓	Soil	9/16/08	0818				X	X	X								

cial Instructions:

Q = ICBR, ICCL, ICFL, ICNO2, ICNO3, ICSO4, ICPO4

1 = HSL + B, Li, Mo, P, Sr, Sn, Ti, U, Zr, Si, Bi

Special Instructions:

1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	9/16/08	0930

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL		COMPOSITE WASTE	

000000012

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-110-003	Page 1 of 1
ollector Paul Wilson	Company Contact Doug Bowers	Telephone No. 509 531-0701	Project Coordinator KESSNER, JH	Price Code / Data Turnaround Contact Joan Kessner ASAP
roject Designation 100-H Burial Grounds Remaining Sites - Soil Quick Turn	Sampling Location 118-H-1 trench B		SAF No. RC-110	
e Chest No. 4GV Fiberboard Box	Field Logbook No. EL 1627	COA R118H12600	Method of Shipment FED EX	
hipped To 9-10-08 WTM ~~EBERLINE SERVICES~~ / LIONVILLE	Offsite Property No. DAS 9/10/08 SEE RSS RSR		Bill of Lading/Air Bill No. SEE RSR	

0000000013

POSSIBLE SAMPLE HAZARDS/REMARKS

Potentially flamable

Special Handling and/or Storage

Preservation	None	~~Cool 4C~~ None WTM	~~Cool 4C~~ None 9-10-08	None							
Type of Container	aG	aG	aG	P							
No. of Container(s)	1	1	1	1							
Volume	125mL	125mL WTM	250mL 9-10-08	60mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	~~VOA - 8260A (TCL)~~ see item 1 below	~~Total Cyanide - 9010; Sulfides - 9030~~ see item 1 below	Gross Alpha; Gross Beta							
Sample No.	Matrix *	Sample Date	Sample Time								
17J33	SOIL	9-11-08	0878	X	X	X					

CHAIN OF POSSESSION		Sign/Print Names	
linquished By/Removed From Paul R Wilson	Date/Time 0856 9-11-08	Received By/Stored In Cell 3 anomaly area 118-H-1 9-11-08	Date/Time 0857
linquished By/Removed From cell 3 Anomaly Area 118-H1	Date/Time 1220 9/15/08	Received By/Stored In DAVID ST. JOHN	Date/Time 9/15/08 1220
linquished By/Removed From DAVID ST. JOHN	Date/Time 9/15/08 1220	Received By/Stored In FED EX	Date/Time
linquished By/Removed From FED EX	Date/Time 9-16-08 0930	Received By/Stored In	Date/Time 9-16-08 0930
linquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
linquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Contact Rich Weiss or Joan Kessner for analysis.

~~(1) ICP Metals - 6010 (Client List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7470 - (CV)~~

Matrix *

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

ABORATORY SECTION	Received By	Title	Date/Time
INAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

CH-EE-011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W-C Hanford
Project/SAP/SOW/Release #: RC-110

Date: 9-16-08

LvLI Batch #: 0809L112

Sample Custodian: Vito Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FED EX		Airbill # 790084776379
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 19.3	°C	Cooler # 4G
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
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 that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☑ No	See #5 (temp >6°C)
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI