0086625

SAF-RC-146
100-IU-2 & 100-IU-6 Remaining Sites
Other
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 4/1/10
INITIAL/DATE

COMMENTS:

SDG K1898 **SAF-RC-146**

Rad only ☑ Chem only Rad & Chem

☑ Complete Partial

Add-on TCLP Metals

Sample Location/Waste Site: 600-280 (waste characterization)

RECEIVED
APR 01 2010
EDMC

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

264 Welsh Pool Road
Exton, Pennsylvania 19341
Phone (610) 280-3000
Fax (610) 280-3041

26 March 2010

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 #	1001050
SDG #	K1898 ADDON
SAF #	RC-146
Date Received	2/23/10
# Samples	3
Matrix	OTHER
Volatiles	
Semivolatiles	
Pest/PCB	
Glycols	
DRO/KRO/GRO	
PAHs	
Herbicides	
Metals	X
Inorganics	

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

Sincerely,

Lionville Laboratory
A Division of Eberline Analytical Corporation

Orlette S. Johnson
Project Manager

264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-146 Project Number: K1898 Project Manager: Joan Kessner	Reported: 03/08/2010 10:46

Analytical Report for TCLP Metals by SW846 1311 6000/7000 series

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J19DY7	1001050-01	Other Solid	01/14/2010 09:00	01/15/2010 10:00

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Case Narrative

Client: WC-HANFORD RC-146
LVL#: 1001050
SDG/SAF#: K1898/RC-146

W.O.#: 60049-001-001-0001-00
Date Received: 01-15-10

METALS

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.

1. This narrative covers the analysis of 1 TCLP leachate sample.

2. The sample was prepared and analyzed in accordance with methods listed on the data report forms.

   The TCLP leachate sample was run with a 6-fold dilution for ICP metals due to sample matrix.

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

4. Please refer to the Sample Receipt Check List for any sample discrepancies in LvLI's sample acceptance policy.

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).

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

7. All preparation/method blanks (MB) were within method criteria {less than the Limit of Quantitation (3-10X the LOD), or samples greater than 20X MB value}.

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

9. All laboratory control samples (LCS) were within the 80-120% control limits.

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.

10. All duplicate analyses were within the 20% Relative Percent Difference (RPD) control limit critieria. The ± 20% RPD control limit applies to sample results greater than ten times the MDL.

11. The TCLP extract from sample J19F25 was selected for the matrix spike (MS) for this analytical batch. All MS recoveries were greater than 50% as per method criteria.

12. For the purposes of this report, the data have 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 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

3/9/10
Date

alm/01-050

264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.	Project: RC-146	
2620 Fermi Avenue	Project Number: K1898	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	03/08/2010 10:46

Notes and Definitions

U	Analyte included in the analysis, but not detected
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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2620 Fermi Avenue	Project Number: K1898	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	03/08/2010 10:46

J19DY7

1001050-01 (Other Solid)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
TCLP Metals by SW846 1311 6000/7000 series									
Arsenic	0.0900	U	0.0900	mg/L	6	L003056	03/04/2010	03/05/2010	6010
Barium	**0.220**		0.00600	mg/L	6	L003056	03/04/2010	03/05/2010	6010
Cadmium	0.0180	U	0.0180	mg/L	6	L003056	03/04/2010	03/05/2010	6010
Chromium	0.0300	U	0.0300	mg/L	6	L003056	03/04/2010	03/05/2010	6010
Lead	**0.165**		0.0600	mg/L	6	L003056	03/04/2010	03/05/2010	6010
Selenium	0.120	U	0.120	mg/L	6	L003056	03/04/2010	03/05/2010	6010
Silver	0.0360	U	0.0360	mg/L	6	L003056	03/04/2010	03/05/2010	6010

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WC-Hanford, Inc.	Project: RC-146	
2620 Fermi Avenue	Project Number: K1898	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	03/08/2010 10:46

TCLP Metals by SW846 1311 6000/7000 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L003056 - SW 3010A										
Blank (L003056-BLK1)				Prepared: 03/04/2010 Analyzed: 03/05/2010						
Arsenic	0.0150	U	0.0150	mg/L						
Barium	0.00100	U	0.00100	mg/L						
Cadmium	0.00300	U	0.00300	mg/L						
Chromium	0.00500	U	0.00500	mg/L						
Lead	0.0100	U	0.0100	mg/L						
Selenium	0.0200	U	0.0200	mg/L						
Silver	0.00600	U	0.00600	mg/L						
Blank (L003056-BLK2)				Prepared: 03/04/2010 Analyzed: 03/05/2010						
Arsenic	0.0900	U	0.0900	mg/L						
Barium	0.0157		0.00600	mg/L						
Cadmium	0.0180	U	0.0180	mg/L						
Chromium	0.0300	U	0.0300	mg/L						
Lead	0.0600	U	0.0600	mg/L						
Selenium	0.120	U	0.120	mg/L						
Silver	0.0360	U	0.0360	mg/L						
LCS (L003056-BS1)				Prepared: 03/04/2010 Analyzed: 03/05/2010						
Arsenic	8.62		0.0150	mg/L	10.000		86.2	80-120		
Barium	4.30		0.00100	mg/L	5.0000		86.1	80-120		
Cadmium	0.230		0.00300	mg/L	0.25000		91.9	80-120		
Chromium	0.429		0.00500	mg/L	0.50000		85.8	80-120		
Lead	2.14		0.0100	mg/L	2.5000		85.7	80-120		
Selenium	8.54		0.0200	mg/L	10.000		85.4	80-120		
Silver	0.429		0.00600	mg/L	0.50000		85.8	80-120		
Duplicate (L003056-DUP1)			Source: 1001050-01	Prepared: 03/04/2010 Analyzed: 03/05/2010						
Arsenic	0.0900	U	0.0900	mg/L		0.0900 U				20
Barium	0.222		0.00600	mg/L		0.220			0.842	20
Cadmium	0.0180	U	0.0180	mg/L		0.0180 U				20
Chromium	0.0300	U	0.0300	mg/L		0.0300 U				20
Lead	0.168		0.0600	mg/L		0.165			1.59	20
Selenium	0.120	U	0.120	mg/L		0.120 U				20
Silver	0.0360	U	0.0360	mg/L		0.0360 U				20

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WC-Hanford, Inc.	Project: RC-146	
2620 Fermi Avenue	Project Number: K1898	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	03/08/2010 10:46

TCLP Metals by SW846 1311 6000/7000 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L003056 - SW 3010A									
Matrix Spike (L003056-MS1)		**Source: 1001050-01**	Prepared: 03/04/2010 Analyzed: 03/05/2010						
Arsenic	5.11	0.0900	mg/L	5.0000	0.0900 U	102	50-1000		
Barium	99.7	0.00600	mg/L	100.00	0.220	99.5	50-1000		
Cadmium	1.03	0.0180	mg/L	1.0000	0.0180 U	103	50-1000		
Chromium	5.00	0.0300	mg/L	5.0000	0.0300 U	100	50-1000		
Lead	5.13	0.0600	mg/L	5.0000	0.165	99.3	50-1000		
Selenium	1.02	0.120	mg/L	1.0000	0.120 U	102	50-1000		
Silver	4.46	0.0360	mg/L	5.0000	0.0360 U	89.1	50-1000		

Lionville Laboratory **Logbook #:** 770

SAMPLE DIGESTION RECORD

Digestion Batch #: L003056
Date/Time Initiated: 3/9/10 1210
Date/Time Completed: 3/5/10 0935
Analyst: JJS
Matrix (circle): Soil Water Other

Digested / Undigested (circle one)
Balance #: N/A
Balance Cal Verification: Y NA
Temp: 95

Method (circle one): 3005A 3010A 3050 200.7 (1994)

Work Order #	Spike Vol (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/Sol/ TC	Texture	Color / Appearance	Artifact	Turb
1001050-01		50mL	50mL	Cf	TC	N/A	Clear / Colo-less	N/A	N/A
L003056-Dup1									
-MS1	0.5								
-BLK1									
A -BLK2									
-BS1	0.5								

JJS 3/5/10

Spiking IDs / Expiration Date:
MS#: 6072-083-11
-10

LCS#: 6072-086-10
08
07
09

Reagent IDs:
HNO_3 N14024
HCl
H_2O_2
1:1 HNO_3 ~~637~~ 3/9/10
1:1 HCl 637-017-04

File ID#:

Data Review By / Date: 3/8/10

R:\group\QA\SOP\
Signed\SPI\Metals Digestion log.doc

A: Associated with batch L003016

Page #:

Lionville Laboratory Incorporated

TCLP EXTRACTION RECORD (NON-VOLATILES)

LOGBOOK # 734

Start Date: 3/1/10 Start Time: 1800 Analyst: MW SOP: SPI-1311.1 Rev. 01C	End Date: 3/2/10 End Time: 1230 Analyst: MW Method: 1311	Tumbler Speed: 30 RPM Leachate Batch #: L003016 Leachate Page: 1 of 2 Room Temp. (°C): / (start/finish)

LvLI #: 1001050-01 Client ID#: pH After 5 Min: 6.66 pH After Acid/Heat: 1.96 Extraction Fluid/pH: 4.85 Sample Wt.(g): 70.2 g Extract Fluid Vol.(mL): 404 pH After Extraction: 4.94	Initial Filtration Data and Comments: Solids: ____% / NA metals only Initial Filtrate Added:
LvLI #: 1002087-01 Client ID#: pH After 5 Min: 8.29 pH After Acid/Heat: 1.99 Extraction Fluid/pH: 4.85 Sample Wt.(g): ~~70.2 g~~ 15.4 g Extract Fluid Vol.(mL): 1308 pH After Extraction: 4.94	Initial Filtration Data and Comments: Solids: ____% / NA metals / BNA M = 408 ml B = 900 ml Initial Filtrate Added:
LvLI # 1002027-03 Client ID#: pH After 5 Min: 6.80 pH After Acid/Heat: 2.03 Extraction Fluid/pH: 4.85 Sample Wt.(g): 100.0 Extract Fluid Vol.(mL): 2000 pH After Extraction: 5.14	Initial Filtration Data and Comments: Solids: ____% / NA metals only Initial Filtrate Added:
LvLI #: 1002044-01 Client ID#: pH After 5 Min: 6.57 pH After Acid/Heat: 3.66 Extraction Fluid/pH: 4.85 Sample Wt.(g): 100.4 Extract Fluid Vol.(mL): 2008 pH After Extraction: 5.60	Initial Filtration Data and Comments: Solids: ____% / NA Initial Filtrate Added:

Standard	ID	Prep Date	Expir Date
MS			

Reviewed By/Date [signature] 3/8/10

Lionville Laboratory Incorporated

TCLP EXTRACTION RECORD
(NON-VOLATILES)

LOGBOOK # 734

Start Date: 3/1/10 Start Time: 1800 Analyst: MW SOP: SPI-1311.1 Rev. 01C	End Date: 3/2/10 End Time: 1230 Analyst: MW Method: 1311	Tumbler Speed: 30 RPM Leachate Batch #: L003016 Leachate Page: 2 of 2 Room Temp. (°C): ___/___ (start/finish)

LvLI #: 1002044-03 Client ID#: pH After 5 Min: 7.83 pH After Acid/Heat: 3.17 Extraction Fluid/pH: 4.85 Sample Wt.(g): 100.5g Extract Fluid Vol.(mL): 2010 pH After Extraction: 5.77	Initial Filtration Data and Comments: Solids: ____% / NA Initial Filtrate Added:
LvLI #: 1002044-04 Client ID#: pH After 5 Min: 7.80 pH After Acid/Heat: 3.21 Extraction Fluid/pH: 4.85 Sample Wt.(g): 100.1g Extract Fluid Vol.(mL): 2002 pH After Extraction: 5.96	Initial Filtration Data and Comments: Solids: ____% / NA Initial Filtrate Added:
LvLI # 1002044-05 Client ID#: pH After 5 Min: 6.58 pH After Acid/Heat: 3.68 Extraction Fluid/pH: 4.85 Sample Wt.(g): 99.9g Extract Fluid Vol.(mL): 1998 pH After Extraction: 5.64	Initial Filtration Data and Comments: Solids: ____% / NA Initial Filtrate Added:
LvLI #: L003016-BLK1 Client ID#: pH After 5 Min: N/A pH After Acid/Heat: N/A Extraction Fluid/pH: 4.85 Sample Wt.(g): 70 Extract Fluid Vol.(mL): 1400 pH After Extraction: 4.95	Initial Filtration Data and Comments: Solids: ____% / NA Initial Filtrate Added:

Standard	ID	Prep Date	Expir Date
MS			

MW 3/1/10

Reviewed By/Date Apm 3/8/10

Revision

800 SRC

Lionville Laboratory Use Only: 1001050

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

Client: WC Hanford RC-146

Est. Final Proj. Sampling Date:

Project#:

Project Contact/Phone#:

Lionville Laboratory Project Manager: O.T.

QC: SW Del: STD TAT: 21 Day

Date Rec'd: 1-15-10 Date Due: 2-5-10

		A	B	C	D	E			F	G
Refrigerator #		VOA	2	2	2	2			2	2
#/Type Container	Liquid									
	Solid	1AG	1AG	1AG	1AG	1AG			1P	1AG
Volume		60	60	60	60	60			125	125
Preservatives		–	–	–	–	–				
ANALYSES REQUESTED →		ORGANIC: VOA	BNA	~~Pest~~/PCB	CHLORO Herb	Pest			INORG: Metal	TOT CN, SULF

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	624 TCL	625 TCL	PCB	HBG	608		TCLP Met	Met(1)	CYNTO SFD
01	J19DY7	✓	✓	OTHER SOLID	1-14-10	0900	X	X	X	X	X			X	X

Special Instructions:

met(1) = HSL + B, MO, Si
NOTL

Special Instructions:

1/15/10 1. VOA = normal TCL list eg
2-23-10 2. Add TCLP MET NO HG per client.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[signature]	[signature]	1-15-10	1000

Relinquished by	Received by	Date	Time

Relinquished	Received by	Date	Time
ORIGINAL REWRITTEN		COMPOSITE WASTE	

1001050

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-146-002	Page 1 of 1

Collector T. Welch-Koelling/C. Martinez	**Company Contact** C. Martinez	**Telephone No.** 509-539-2816	**Project Coordinator** KESSNER, JH
Project Designation 100-IU-2 & 100-IU-6 Remaining Sites - Other	**Sampling Location** 600-280 (waste characterization)		**SAF No.** RC-146
Ice Chest No. ERC-99-032	**Field Logbook No.** EL-1643	**COA** R602802600	**Method of Shipment** Fed Ex
Shipped To EBERLINE SERVICES / LIONVILLE	**Offsite Property No.** A100083		**Bill of Lading/Air Bill No.** See OSPC

Price Code 8L **Data Turnaround** 21 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

Cool, 4 degrees centigrade

Preservation	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C			
Type of Container	G/P	aG	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume cm 12/29/09	~~120mL~~ 125 mL	125mL	60mL	60mL	60mL	60mL	60mL			
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Total Cyanide - 9010; Sulfides - 9030	VOA - 8260 (Client List)	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081	Chloro Herbicides - EPA8151			

Sample No.	Matrix *	Sample Date	Sample Time										
J19DY7	OTHER Soil	1-14-10	0900	X	X	X	X	X	X	X			

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From T. Welch-Koelling [signature]	Date/Time 1030 1-14-10	Received By/Stored In C. Martinez / C. Martinez	Date/Time 1030 01/14/10
Relinquished By/Removed From C. Martinez / C. Martinez	Date/Time 1120 01/14/10	Received By/Stored In J. E. Bernhard	Date/Time 1120 1-14-10
Relinquished By/Removed From J-E Bernhard WCH	Date/Time 1130 1-14-10	Received By/Stored In FED EX	Date/Time
Relinquished By/Removed From Fed Ex	Date/Time 1-15-10 1000	Received By/Stored In VICTOR HERNANDEZ	Date/Time 1-15-10 1000
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) ICP Metals - 6010TR (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 - 7471 - (CV)

REVIEWED BY [signature] DATE 1-14-10

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-EE-011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC Hanford
Project/SAP/SOW/Release #: RC-146

Date: 1-15-10

LvLI Batch #: 1001050

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 79318232 1120
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 plastic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 2-3°	°C	Cooler # ERC-99-032
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

00000013