SAF-RC-189
100N Field Remediation – Soil Full Protocol
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 3/7/13
INITIAL/DATE

COMMENTS:

SDG KP0189 SAF-RC-189

Rad only ☑ Chem only Rad & Chem

☑ Complete Partial

Sample Location: 100-N-61:1 Verification

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

5 March 2013

Joan Kessner
WC-Hanford, Inc.
2620 Fermi Avenue
MSIN H4-21
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 #	1302029
SDG #	KP0189
SAF #	RC-189
Date Received	02/08/13
# Samples	1
Matrix	SOIL
Volatiles	
Semivolatiles	
Pest/PCB	
Glycols	
DRO/KRO/GRO	
PAHs	
Herbicides	
Metals	
Inorganics	X
TCLP Metals	

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

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 11 pages.

R:\GROUP\PM\ORLETTE\Hanford\Data\B_ltrs.DOC

CHAIN OF CUSTODY

Lionville Laboratory Use Only
1302029

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Lionville Laboratory
A Division of Eberline Analytical Corporation

00000003

Client: WC Hanford SAF# RC-189
Est. Final Proj. Sampling Date:
Project#:
Project Contact/Phone#:
Lionville Laboratory Project Manager: O. Johnson
QC: SW Del: STL TAT: T Day

Date Rec'd: 2-8-13 Date Due: 2-15-13

Refrigerator #																			A				
#/Type Container	Liquid																		2				
	Solid																		1AG				
Volume	Liquid																						
	Solid																		60				
Preservatives																			—				
ANALYSES REQUESTED →		ORGANIC							INORG														
		VOA	BNA	Pest/PCB	Herb				Metal	CN									Hep Chron				
		Lionville Laboratory Use Only																					
																			C6+				
																			X				

MATRIX CODES:
W Water
WW Waste Water
GW Groundwater
WST Waste
WI Wipe
SO Solid
S Soil
SL Sludge
SE Sediment
PC Paint Chips
O Oil
NAL Non-Aqueous Liquid
L Leachate
A Air
T Tissue
F Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected
01	J1RDX5	✓	✓	Soil	2/6/13	1235

Special Instructions:

Special Instructions:
1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	2/8/13	0945

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

NR

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-189-162	Page 1 of 1

Collector Q. Stowe	**Company Contact** Joan Kessner	**Telephone No.** 375-4688	**Project Coordinator** KESSNER, JH
Price Code ~~8L~~ DH 2/4/13 8B	**Data Turnaround** DH 2/4/13 ~~21 Days~~ 7 Days		
Project Designation 100N Field Remediation - Soil Full Protocol	**Sampling Location** 100-N-61:1 Verification		**SAF No.** RC-189
Ice Chest No. WCH-12-024	**Field Logbook No.** EI-1652-08	**COA** R10N612000	**Method of Shipment** Fed Ex
Shipped To EBERLINE SERVICES/ LIONVILLE	**Offsite Property No.** A120735		**Bill of Lading/Air Bill No.** See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

~~Potential~~ Rad < DOT Limits
AS 2-7-13

Special Handling and/or Storage

Cool 4C

Preservation	Cool 4C											
Type of Container	G/P											
No. of Container(s)	1											
Volume	60mL											
SAMPLE ANALYSIS	Chromium Hex - 7196		RCF									
Sample No.	Matrix *	Sample Date	Sample Time									
J1RDX5	SOIL	2/6/13	1235	X	35258							

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By/Removed From: Quincy Stowe — Date/Time 2/6/13 1240	Received By/Stored In: Don Heidelberg — Date/Time 2/6/13 1240	REVIEWED BY CMB DATE 2-7-13	S=Soil SE=Sediment SO=Solid SI=Sludge W = Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From: Don Heidelberg — Date/Time 2/6/13 1615	Received By/Stored In: 1060#3 A. Freier — Date/Time 2-6-13 1615		
Relinquished By/Removed From: WCH A. Freier — Date/Time 2-7-13 1060#3 1010	Received By/Stored In: Fed Ex — Date/Time		
Relinquished By/Removed From: Fed Ex — Date/Time 2-8-13 0945	Received By/Stored In: VICTOR HERNANDEZ — Date/Time 2-8-13 0945		
Relinquished By/Removed From — Date/Time	Received By/Stored In — Date/Time		
Relinquished By/Removed From — Date/Time	Received By/Stored In — Date/Time		

KP0189

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

WCH-EE-011

0000000004

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC Hanford **Date:** 2/8/13

Project/SAF/SOW/Release #: RC-189

LvL Batch #: 1302029 **Sample Custodian:** [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7947 0370 5436
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** 2.3°	°C	Cooler # WCH-12-024
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 & LvL) 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, RSK-175, Sulfides, Non-Halogenated VOAs (Alcohol/Glycol) free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvL 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 _____

WET CHEMISTRY

Lionville Laboratory, PADEP Lab ID# 15-00009
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-189 Project Number: KP0189 Project Manager: Joan Kessner	**Reported:** 02/15/2013 13:27

Analytical Report for Wet Chemistry

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1RDX5	1302029-01	Soil	02/06/2013 12:35	02/08/2013 09:45

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Case Narrative

Client: WC-HANFORD RC-189 KP0189
LVL#: 1302029 **Date Received:** 02-08-13

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 data summary report.

   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 met LvL's sample acceptance policy.

5. The method blank for Hexavalent Chromium (Cr^{6+}) was within the method criteria.

6. The Laboratory Control Samples (LCS) for Cr^{6+} were within the laboratory control limits.

7. The matrix spike recoveries for Cr^{6+} were within the 75-125% control limits.

8. The replicate analyses were within the 20% Relative Percent Difference (RPD) control limit.

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. The Laboratory Manager or a designee, as verified by the following signature, has authorized release of the data contained in this hard copy package.

Iain Daniels
Laboratory Manager
Lionville Laboratory

2/15/13
Date

njp\i02-029

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Notes and Definitions

U	Analyte included in the analysis, but not detected
D	Results reported from a dilution; related reporting limits are elevated due to the presence of an interference or a high target value.
*	Value outside QC acceptance criteria
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
Wet	Sample results reported on a wet weight basis
RPD	Relative Percent Difference
LOD	Limit of Detection (LOD): the minimum estimated concentration of a target analyte that can be detected reliably. Concentrations at the LOD or between the LOD and LOQ are flagged estimated with either a 'J' qualifier or client-specific qualifier.
LOQ	Limit of Quantitation (LOQ): the minimum concentration of a target analyte that can be quantified reliably

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Wet Chemistry

Lionville Laboratory

Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1RDX5 (1302029-01) Soil									
%Solids	**94.5**		0.1	% by Weight	1	L302094	02/11/2013 11:31	02/11/2013 11:31	SM2540G
Hexavalent Chromium	0.21 U	0.21	0.53	mg/kg dry	1	L302099	02/12/2013 16:35	02/14/2013 15:30	SW846 7196A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-189 Project Number: KP0189 Project Manager: Joan Kessner	**Reported:** 02/15/2013 13:27

Wet Chemistry - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L302094 - NO PREP											
Duplicate (L302094-DUP1)		**Source: 1302029-01**			Prepared & Analyzed: 02/11/2013 11:31						
%Solids	94.6			0.1	% by Weight		94.5			0.1	20
Batch L302099 - Default Prep GenChem											
Blank (L302099-BLK1)					Prepared: 02/12/2013 13:25 Analyzed: 02/14/2013 15:30						
Hexavalent Chromium	0.20	U	0.20	0.50	mg/kg wet						
LCS (L302099-BS1)					Prepared: 02/12/2013 13:25 Analyzed: 02/14/2013 15:30						
Hexavalent Chromium	3.86		0.20	0.50	mg/kg wet	4.0000		97	80-120		
LCS (L302099-BS2)					Prepared: 02/12/2013 13:25 Analyzed: 02/14/2013 15:30						
Hexavalent Chromium	1010	D	20.0	50.0	mg/kg wet	1036.8		98	80-120		
Duplicate (L302099-DUP2)		**Source: 1302029-01**			Prepared: 02/12/2013 16:35 Analyzed: 02/14/2013 15:30						
Hexavalent Chromium	0.21	U	0.21	0.53	mg/kg dry		0.21 U				20
Matrix Spike (L302099-MS3)		**Source: 1302029-01**			Prepared: 02/12/2013 16:35 Analyzed: 02/14/2013 15:30						
Hexavalent Chromium	3.78		0.21	0.53	mg/kg dry	4.2344	0.21 U	89	75-125		
Matrix Spike (L302099-MS4)		**Source: 1302029-01**			Prepared: 02/12/2013 16:35 Analyzed: 02/14/2013 15:30						
Hexavalent Chromium	967	D	21.2	52.9	mg/kg dry	1165.8	0.21 U	83	75-125		