0094359

SAF-RC-195
Soil/Sediment Sampling – Integrated Remedial Investigation/Feasibility Study, 100-BC Boreholes
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

No Distribution Required

COMMENTS:

SDG K2709 SAF-RC-195

Rad only ☑ Chem only Rad & Chem

☑ Complete Partial

Sample Location: C7847 (118-B-8); I-004

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FEB 10 2011
EDMC

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

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FEB 2011

25 January 2011

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 #	1012046
SDG #	K2709
SAF #	RC-195
Date Received	12/04/10
# Samples	1
Matrix	SOIL
Volatiles	
Semivolatiles	
Pest/PCB	X
Glycols	
DRO/KRO/GRO	X
PAHs	X
Herbicides	
Metals	X
Inorganics	X

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
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FEB 2011

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-195 Project Number: K2709 Project Manager: Joan Kessner	**Reported:** 01/10/2011 15:43

Analytical Report for Metals by SW846 6000/7000 series

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B28N97	1012046-01	Soil	11/18/2010 13:40	12/04/2010 11:00

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Case Narrative

Client: WC-HANFORD RC-195
LVL#: 1012046
SDG/SAF#: K2709/RC-195

W.O.#: 60049-001-001-0001-00
Date Received: 12-04-10

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.

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 listed on the data report forms.

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), samples were greater than 20X MB value}.

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

9. All Standard Reference Material (SRM) analytes were within the Prediction Interval control limits supplied by the manufacturer.

10. The matrix spike (MS) recoveries for 8 analytes were outside the 75-125% control limits.

11. 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:

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 15 pages.

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
B28N97	Aluminum	12,000	70.5
	Antimony	100	97.7
	Calcium	10,800	84.2
	Iron	12,000	20.0
	Magnesium	11,600	115.1
	Manganese	1,000	49.7
	Phosphorous	2,000	76.0
	Silicon	100	50.0

12. The duplicate analyses for 4 analytes were outside the 20% Relative Percent Difference (RPD) control limit critieria. The ± 20% RPD control limit applies to sample results greater than ten times the MDL. The sample result for Molybdenum was less than ten times the MDL.

13. 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.

14. 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.

15. 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.

Alain Daniels
Laboratory Manager
Lionville Laboratory

1/12/11
Date

alm/12-046

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WC-Hanford, Inc.	Project: RC-195	
2620 Fermi Avenue	Project Number: K2709	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	01/10/2011 15:43

Notes and Definitions

U	Analyte included in the analysis, but not detected
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
B	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag)
*	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

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2620 Fermi Avenue	Project Number: K2709	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	01/10/2011 15:43

B28N97

1012046-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	7940		4.63	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Antimony	0.556	U	0.556	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Arsenic	3.35		0.926	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Barium	70.4		0.463	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Beryllium	0.264		0.185	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Bismuth	9.26	U	9.26	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Boron	1.21	B	1.85	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Cadmium	0.141	B	0.185	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Calcium	10500		92.6	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Chromium	14.0		0.185	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Cobalt	8.02		1.85	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Copper	19.3		0.926	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Iron	25000		18.5	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Lead	5.57		0.463	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Lithium	7.21		2.31	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Magnesium	5090		69.4	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Manganese	365		4.63	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Molybdenum	0.776	B	1.85	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Nickel	12.0		3.70	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Phosphorus	984		46.3	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Potassium	1060		370	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Selenium	0.278	U	0.278	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Silicon	1240		1.85	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Silver	0.185	U	0.185	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Sodium	498		46.3	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Strontium	32.1		0.926	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Thallium	0.463	U	0.463	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Tin	2.70	B	9.26	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Vanadium	66.1		2.31	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Zinc	53.1		9.26	mg/kg dry	1	L012328	12/28/2010	01/07/2011	6010B
Mercury	0.321		0.0269	mg/kg dry	1	L012122	12/09/2010	12/10/2010	7471A

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WC-Hanford, Inc.	Project: RC-195	
2620 Fermi Avenue	Project Number: K2709	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	01/10/2011 15:43

Metals by SW846 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 L012122 - SW 7471A Prep										
Blank (L012122-BLK1)				Prepared: 12/09/2010 Analyzed: 12/10/2010						
Mercury	0.0290	U	0.0290	mg/kg wet						
Duplicate (L012122-DUP5)		Source: 1012046-01		Prepared: 12/09/2010 Analyzed: 12/10/2010						
Mercury	0.463		0.0261	mg/kg dry		0.321			36.3*	20
Matrix Spike (L012122-MS5)		Source: 1012046-01		Prepared: 12/09/2010 Analyzed: 12/10/2010						
Mercury	0.474		0.0276	mg/kg dry	0.15343	0.321	100	75-125		
Reference (L012122-SRM1)				Prepared: 12/09/2010 Analyzed: 12/10/2010						
Mercury	1.31		0.0281	mg/kg wet	1.2600		104	65.9-133.3		
Batch L012328 - SW 3050B										
Blank (L012328-BLK1)				Prepared: 12/28/2010 Analyzed: 01/07/2011						
Aluminum	4.17	U	4.17	mg/kg wet						
Antimony	0.500	U	0.500	mg/kg wet						
Arsenic	0.833	U	0.833	mg/kg wet						
Barium	0.417	U	0.417	mg/kg wet						
Beryllium	0.167	U	0.167	mg/kg wet						
Bismuth	8.33	U	8.33	mg/kg wet						
Boron	1.67	U	1.67	mg/kg wet						
Cadmium	0.167	U	0.167	mg/kg wet						
Calcium	83.3	U	83.3	mg/kg wet						
Chromium	0.167	U	0.167	mg/kg wet						
Cobalt	1.67	U	1.67	mg/kg wet						
Copper	0.833	U	0.833	mg/kg wet						
Iron	16.7	U	16.7	mg/kg wet						
Lead	0.417	U	0.417	mg/kg wet						
Lithium	2.08	U	2.08	mg/kg wet						
Magnesium	62.5	U	62.5	mg/kg wet						
Manganese	4.17	U	4.17	mg/kg wet						
Molybdenum	1.67	U	1.67	mg/kg wet						
Nickel	3.33	U	3.33	mg/kg wet						
Phosphorus	41.7	U	41.7	mg/kg wet						
Potassium	333	U	333	mg/kg wet						
Selenium	0.250	U	0.250	mg/kg wet						
Silicon	1.67	U	1.67	mg/kg wet						
Silver	0.167	U	0.167	mg/kg wet						
Sodium	41.7	U	41.7	mg/kg wet						

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2620 Fermi Avenue	Project Number: K2709	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	01/10/2011 15:43

Metals by SW846 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 L012328 - SW 3050B										
Blank (L012328-BLK1)				Prepared: 12/28/2010 Analyzed: 01/07/2011						
Strontium	0.833	U	0.833	mg/kg wet						
Thallium	0.417	U	0.417	mg/kg wet						
Tin	1.52	B	8.33	mg/kg wet						
Vanadium	2.08	U	2.08	mg/kg wet						
Zinc	8.33	U	8.33	mg/kg wet						
Duplicate (L012328-DUP2)		Source: 1012046-01		Prepared: 12/28/2010 Analyzed: 01/07/2011						
Aluminum	6450		4.01	mg/kg dry		7940			21*	20
Antimony	0.481	U	0.481	mg/kg dry		0.556 U				20
Arsenic	3.22		0.802	mg/kg dry		3.35			4	20
Barium	69.1		0.401	mg/kg dry		70.4			2	20
Beryllium	0.253		0.160	mg/kg dry		0.264			4	20
Bismuth	8.02	U	8.02	mg/kg dry		9.26 U				20
Boron	1.15	B	1.60	mg/kg dry		1.21			5	20
Cadmium	0.137	B	0.160	mg/kg dry		0.141			3	20
Calcium	10300		80.2	mg/kg dry		10500			2	20
Chromium	13.1		0.160	mg/kg dry		14.0			6	20
Cobalt	6.99		1.60	mg/kg dry		8.02			14	20
Copper	16.4		0.802	mg/kg dry		19.3			16	20
Iron	20400		16.0	mg/kg dry		25000			20	20
Lead	6.47		0.401	mg/kg dry		5.57			15	20
Lithium	6.60		2.00	mg/kg dry		7.21			9	20
Magnesium	4220		60.1	mg/kg dry		5090			19	20
Manganese	298		4.01	mg/kg dry		365			20	20
Molybdenum	0.520	B	1.60	mg/kg dry		0.776			40*	20
Nickel	9.91		3.21	mg/kg dry		12.0			19	20
Phosphorus	781		40.1	mg/kg dry		984			23*	20
Potassium	929		321	mg/kg dry		1060			13	20
Selenium	0.240	U	0.240	mg/kg dry		0.278 U				20
Silicon	1120		1.60	mg/kg dry		1240			10	20
Silver	0.160	U	0.160	mg/kg dry		0.185 U				20
Sodium	352		40.1	mg/kg dry		498			34*	20
Strontium	27.6		0.802	mg/kg dry		32.1			15	20
Thallium	0.401	U	0.401	mg/kg dry		0.463 U				20
Tin	2.53	B	8.02	mg/kg dry		2.70			6	20
Vanadium	56.4		2.00	mg/kg dry		66.1			16	20
Zinc	52.0		8.02	mg/kg dry		53.1			2	20

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Richland WA, 99354	Project Manager: Joan Kessner	01/10/2011 15:43

Metals by SW846 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 L012328 - SW 3050B									
Matrix Spike (L012328-MS2)	**Source: 1012046-01**		Prepared: 12/28/2010 Analyzed: 01/07/2011						
Aluminum	7810	4.13	mg/kg dry	165.24	7940	-79*	75-125		
Antimony	19.3	0.496	mg/kg dry	41.309	0.556 U	47*	75-125		
Arsenic	142	0.826	mg/kg dry	165.24	3.35	84	75-125		
Barium	222	0.413	mg/kg dry	165.24	70.4	92	75-125		
Beryllium	3.86	0.165	mg/kg dry	4.1309	0.264	87	75-125		
Bismuth	345	8.26	mg/kg dry	413.09	9.26 U	84	75-125		
Boron	66.7	1.65	mg/kg dry	82.619	1.21	79	75-125		
Cadmium	3.71	0.165	mg/kg dry	4.1309	0.141	86	75-125		
Calcium	11900	82.6	mg/kg dry	2065.5	10500	71*	75-125		
Chromium	28.7	0.165	mg/kg dry	16.524	14.0	89	75-125		
Cobalt	41.5	1.65	mg/kg dry	41.309	8.02	81	75-125		
Copper	36.3	0.826	mg/kg dry	20.655	19.3	82	75-125		
Iron	24800	16.5	mg/kg dry	82.619	25000	-232*	75-125		
Lead	39.5	0.413	mg/kg dry	41.309	5.57	82	75-125		
Lithium	79.2	2.07	mg/kg dry	82.619	7.21	87	75-125		
Magnesium	6380	62.0	mg/kg dry	2065.5	5090	62*	75-125		
Manganese	377	4.13	mg/kg dry	41.309	365	29*	75-125		
Molybdenum	70.6	1.65	mg/kg dry	82.619	0.776	84	75-125		
Nickel	44.7	3.30	mg/kg dry	41.309	12.0	79	75-125		
Phosphorus	1210	41.3	mg/kg dry	413.09	984	55*	75-125		
Potassium	2810	330	mg/kg dry	2065.5	1060	85	75-125		
Selenium	131	0.248	mg/kg dry	165.24	0.278 U	79	75-125		
Silicon	1460	1.65	mg/kg dry	82.619	1240	273*	75-125		
Silver	3.28	0.165	mg/kg dry	4.1309	0.185 U	79	75-125		
Sodium	2360	41.3	mg/kg dry	2065.5	498	90	75-125		
Strontium	103	0.826	mg/kg dry	82.619	32.1	85	75-125		
Thallium	126	0.413	mg/kg dry	165.24	0.463 U	76	75-125		
Tin	68.2	8.26	mg/kg dry	82.619	2.70	79	75-125		
Vanadium	104	2.07	mg/kg dry	41.309	66.1	91	75-125		
Zinc	90.8	8.26	mg/kg dry	41.309	53.1	91	75-125		

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Metals by SW846 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 L012328 - SW 3050B									
Reference (L012328-SRM1)			Prepared: 12/28/2010 Analyzed: 01/07/2011						
Aluminum	6910	10.4	mg/kg wet	6766.6		102	0-225.5		
Antimony	50.9	1.25	mg/kg wet	56.630		90	0-225.6		
Arsenic	118	2.08	mg/kg wet	113.85		104	85-115		
Barium	314	1.04	mg/kg wet	298.35		105	75.7-124.3		
Beryllium	113	0.417	mg/kg wet	108.32		104	85.2-114.8		
Boron	84.8	4.17	mg/kg wet	86.580		98	68.5-131.6		
Cadmium	232	0.417	mg/kg wet	224.09		104	84.9-115.1		
Calcium	3420	208	mg/kg wet	3305.9		103	82.8-117.2		
Chromium	84.8	0.417	mg/kg wet	77.590		109	76.8-123.2		
Cobalt	170	4.17	mg/kg wet	163.19		104	79.4-120.6		
Copper	266	2.08	mg/kg wet	265.65		100	82.4-117.6		
Iron	8610	41.7	mg/kg wet	8202.8		105	78.9-121.1		
Lead	193	1.04	mg/kg wet	187.62		103	81.5-118.5		
Lithium	116	5.21	mg/kg wet	113.01		102	33.8-166.2		
Magnesium	8590	156	mg/kg wet	8352.3		103	84.2-115.8		
Manganese	936	10.4	mg/kg wet	951.35		98	69-131		
Molybdenum	245	4.17	mg/kg wet	234.78		104	80.1-119.9		
Nickel	227	8.33	mg/kg wet	220.85		103	81.4-118.6		
Potassium	14700	833	mg/kg wet	14177		104	85.7-114.3		
Selenium	195	0.625	mg/kg wet	187.99		103	78.8-121.2		
Silicon	964	4.17	mg/kg wet	939.78		103	0-272.3		
Silver	85.9	0.417	mg/kg wet	83.960		102	81.9-118.1		
Sodium	9850	104	mg/kg wet	9587.1		103	83.5-116.4		
Strontium	184	2.08	mg/kg wet	171.65		107	67.5-132.5		
Thallium	88.5	1.04	mg/kg wet	85.410		104	77.1-122.9		
Tin	104	20.8	mg/kg wet	101.60		102	86.7-113.2		
Vanadium	105	5.21	mg/kg wet	97.430		108	75.8-124.2		
Zinc	203	20.8	mg/kg wet	196.52		103	78.9-121.1		

Lionville Laboratory **Logbook #:** 855

SAMPLE DIGESTION RECORD

Digestion Batch #: L012328
Date/Time Initiated: 12/28/10 1745
Date/Time Completed: 12/28/10 1645
Analyst: JJS
Matrix (circle): Soil Water Other
Method (circle one): 3005A 3010A 3050 200.7 (1994)

Digested / Undigested (circle one)
Balance #: B14
Balance Cal Verification: Y NA
Temp: 95
BLOCK 1 2 (circle one)

NOTE: All temperatures are recorded as corrected temperatures

Work Order #	Spike Vol (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/Sol/ TC	Texture	Color / Appearance	Artifact	Turb
1012016-01		0.73	50		TO	Coarse	Brown	Rocks/H2O	N/A
L012328-Dup1		0.56	50						
-MS1	0.5	0.54	50						
1012016 02		0.65	50			Coarse	Brown	Rocks/H2O	
1012046-01		0.54	50			Coarse	Brown	Rocks	
L012328-Dup2		0.67	50						
-MS2	0.5	0.65	50						
1012047-01		0.57	50			Coarse	Brown	Rocks/H2O	
L012328-Dup3		0.59	50						
-MS3	0.5	0.73	50						
1012059-01		0.74	50			Coarse	Brown	Rocks	
L012328-Dup4		0.59	50						
-MS4	0.5	0.77	50						
1012059 -02		0.78	50			Coarse	Brown	Rocks	
-03		0.73	50			Coarse	Brown	Rocks	
-04		0.60	50			Coarse	Brown	Rocks	
-05		0.73	50			Coarse	Brown	Rocks	
-06		0.66	50			Coarse	Brown	Rocks	
L012328 BLK		0.60	50			Coarse	Boiling Chips		
SRM1		0.72	50			Fine	dusty, pulverized		

JJS 12/28/10

Spiking IDs / Expiration Date:
MS#: 100854M

LCS#: 1001328

Reagent IDs:
HNO_3 J29049
HCl J34056
H_2O_2 J43417
1:1 HNO_3 037-033-02
1:1 HCl

File ID#:

Data Review By / Date: 12/30/10

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

Page #:

Lionville Laboratory

MERCURY PREPARATION

Logbook # 844

Analyst: [illegible]
Date 12/9/10
Start Time/Temp: 1950/95°
End Time/Temp: 2025/97°

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

Prep Batch: L012122
Worksheet: HG121007
SOP No. ME-HgCVAA
BLOCK 1 (2) (circle one)

NOTE: All temperatures are recorded as corrected temperatures.

LvL Work Order#	pH < 2 (Liq)	Spike Vol (mL)	Spike Conc. (µg/L)	Initial Wt. or Vol (g or mL)	Final Sample Vol (mL)	Comments, % Solids, etc.
Blank				10 ml	50	
0.2 ug/l		0.100		10 ml	50	
1.0 ug/l		0.500		10 ml	50	
2.0 ug/l		1.000		10 ml	50	
5.0 ug/l		2.500		10 ml	50	
10.0 ug/l		5.000		10 ml	50	
ICV		0.125	2.5	10 ml	50	
CCV		0.250	5.0	10 ml	50	
ICB/CCB				10 ml	50	
L012122-BK1				0.31	50	
SRM1		⊗	⊗	0.32	50	
1011204-01				0.38	50	RAA
L012122-DUP1				0.36	50	
MS1		0.500	1.0	0.39	50	
1011218-01				0.34	50	
L012122-DUP2				0.34	50	
MS2		0.500	1.0	0.37	50	
1012018-01				0.36	50	
L012122-DUP3				0.36	50	
MS3		0.500	1.0	0.36	50	
1012019-01				0.37	50	
L012122-DUP4				0.37	50	
MS4		0.500	1.0	0.36	50	
1012019-02				0.35	50	
03				0.36	50	
04				0.36	50	
05				0.38	50	

Standard:	ID	Prep Date/Time
ICAL/MS	RI 0901985B	12/9/10 1715
ICV/CCV/LCS	IK 0902297A	1

Reviewed By/Date: [illegible] 12/13/10

se book # 9368 for std traceability information

Soil LCS True Value = 1.26 mg/Kg
Standard # 1001320 ⊗

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

Lionville Laboratory

MERCURY PREPARATION

Logbook # 844

Analyst: [illegible]
Date 12/9/10
Start Time/Temp: [illegible] 035
End Time/Temp: [illegible]

Instrument ID: HG3.1
Balance # B29 /NA
Pipette Calibration (Daily) [illegible]

Prep Batch: L012122
Worksheet: HG121001
SOP No. ME-HgCVAA
BLOCK 1 (2) (circle one)

NOTE: All temperatures are recorded as corrected temperatures.

LvL Work Order#	pH < 2 (Liq)	Spike Vol (mL)	Spike Conc. (µg/L)	Initial Wt. or Vol (g or mL)	Final Sample Vol (mL)	Comments, % Solids, etc.
1012019-06				0.35	50	
07				0.36	50	
1012046-01				0.36	50	RAD
L012122-BLK5				0.37	50	
MS5		0.500	1.0	0.35	50	

pW 12/9/10

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

Reviewed By/Date: [illegible] 12/13/10

se book # 9368 for std traceability information

Soil LCS True Value = [illegible] 035 mg/Kg
Standard # [illegible]

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

Lionville Laboratory Use Only: 1012046

Custody Transfer Record/Lab Work Request

Page 1 of 1 SRC

SEE

LVLI Lionville Laboratory Inc.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: W.C. Hanford SAF # RC.195

Est. Final Proj. Sampling Date:

Project#:

Project Contact/Phone#:

Lionville Laboratory Project Manager: Arlette Johnson

QC: S(e) Del: STD TAT: 30 days

Date Rec'd: 12.4.10 Date Due: 1-3-11

	A	B	C	D	E	F	G
Refrigerator #	1	1	1	1	1	1	1
#/Type Container (Liquid / Solid)	1aq	1aq	1aq	1aq	1aq	1aq	1aq
Volume	250	250	120	250	120	120	250
Preservatives	—	—	—	—	—	—	—
ANALYSES REQUESTED (ORGANIC: VOA, BNA, ~~Pest~~ PCB, Herb; INORG: Metal, CN)	8082	8310 PAHs	DRO Kerosene	Metal	Anions	Cr+6	pH
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	A	B	C	D	E	F	G
01	B28N97	✓	✓	S	11.18.10	1340	X	X	X	X	X	X	X

Special Instructions:

Special Instructions:

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

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	12.4.10	11:00

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN			

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-195-529	PAGE 1 OF 1

COLLECTOR: BAILEY	COMPANY CONTACT: RADLOFF, ANNA	TELEPHONE NO.: (509) 376-4554	PROJECT COORDINATOR: KESSNER, JH
PRICE CODE: 8N	DATA TURNAROUND: 45 Days / 45 Days	AIR QUALITY: ☐	
SAMPLING LOCATION: C7847 (118-B-8); I-004	PROJECT DESIGNATION: Soil/Sediment Sampling - Integrated Remedial Investigation/Feasibility Stud	SAF NO.: RC-195	
ICE CHEST NO.: 6W3-186	FIELD LOGBOOK NO.: HNF-N-585-3/81	ACTUAL SAMPLE DEPTH: 12.5'-15'	COA: 302512ES10
METHOD OF SHIPMENT: FEDERAL EXPRESS	SHIPPED TO: Lionville Laboratory Incorporated	OFFSITE PROPERTY NO.: SEE PTR	BILL OF LADING/AIR BILL NO.: SEE PTR 7941 8031 6467

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE: RADIOACTIVE TIE TO: ~~B28N46~~ B29K45 KS 11/19/10

PRESERVATION	Cool~4C	Cool~4C	Cool~4C	Cool~4C	Cool~4C	Cool~4C	None
HOLDING TIME	14/40 Days	14/40 Days	1 yr/1 yr	6 Months	30 Days	28 Days/48 Hours	ASAP
TYPE OF CONTAINER	aG	G	aG	G/P	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1	1	1	1
VOLUME	250mL	120mL	250mL	250mL	120mL	120mL	250mL
SAMPLE ANALYSIS	PAHs - 8310 (100 Area RI/FS);	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	PCBs - 8082 (100 Area RI/FS);	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196 (100 Area RIFS);	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	pH (Soil) - 9045 (100 Area RIFS); % moisture 05/12/11/10

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME							
B28N97	SOIL	11-18-10	1340	✓	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION	SIGN/ PRINT NAMES
RELINQUISHED BY/REMOVED FROM: JBAILEY/JKB — DATE/TIME: 11-18-10/1700	RECEIVED BY/STORED IN: SSURI — DATE/TIME: 11-18-10/1700
RELINQUISHED BY/REMOVED FROM: SSU-R1 — DATE/TIME: DEC 03 2010 0830	RECEIVED BY/STORED IN: M.A. White — DATE/TIME: DEC 03 2010 0830
RELINQUISHED BY/REMOVED FROM: M.A. White — DATE/TIME: DEC 03 2010 1400	RECEIVED BY/STORED IN: FEDEX — DATE/TIME:
RELINQUISHED BY/REMOVED FROM: FEDEX — DATE/TIME: 12-3-10/11:00	RECEIVED BY/STORED IN: DSmith — DATE/TIME: 12-4-10/1100
RELINQUISHED BY/REMOVED FROM: — DATE/TIME:	RECEIVED BY/STORED IN: — DATE/TIME:
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

** The laboratory is to analyze pH within 24 hours of receipt.☐☐** The RCCC acknowledges that the analytical holding time for Nitrate, Nitrite, and Phosphate by EPA methods 300.0 or 9056 will not be met.☐☐** Physical Properties laboratory: Conduct the hydraulic conductivity test (ASTM 5084 or 2434) as appropriate to the sample matrix.☐☐

(1) TPH-DieselKerosene Range - WTPH-D (100 Area RIFS);
(2) ICP Metals - 6010TR (100 Area RIFS Client List); Mercury - 7471 - CV) (100 Area RIFS);
(3) IC Anions - 300.0 (100 Area RI/FS); NO2/NO3 - 353.2 (100 Area RI/FS);

ORIGINAL

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

A-6003-618(01/06)

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC Hanford
Project/SAF/SOW/Release #: RC-195

Date: 12.4.10

LvL Batch #: 1012046

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7941 8031 6467
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 2.6	°C	Cooler # GWS-186
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 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 _____	

LIONVILLE LABORATORY
A division of Enertine Analytical Corporation

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

RECEIVED
FEB 2011

WC-Hanford, Inc.	Project: RC-I95	
2620 Fermi Avenue	Project Number: K2709	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	01/06/2011 23:44

Analytical Report for Extractable Petroleum Hydrocarbons by SW846 8015

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B28N97	1012046-01	Soil	11/18/2010 13:40	12/04/2010 11:00

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

Case Narrative

Client: WC-HANFORD RC-195 K2709
LVL #: 1012046

W.O. #: 60049-001-001-0001-00
Date Received: 12-04-2010

DIESEL RANGE ORGANICS

One (1) soil sample was collected on 11-18-2010.

The sample and associated QC samples were extracted 12-08-2010 and analyzed 12-30,31-2010 according to criteria set forth in Lionville Laboratory SOPs. The extraction procedure was based on SW846 Method 3540C and the analysis procedure was based on SW846 Method 8015B for Diesel Range Organics.

Lionville Laboratory (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. LvL certifies that all test results meet the requirements of NELAC with any exception noted in the following statements:

1. Discrepancies from the sample acceptance policy have been recorded on the Sample Receipt Checklist.
2. The samples were extracted two (2) days outside of recommended hold time. The samples were received past hold time.
3. All obtainable surrogate recoveries were within acceptance criteria.
4. The method blank was below the reporting limits for all target compounds.
5. All blank spike recoveries were within acceptance criteria.
6. All matrix spike recoveries were within acceptance criteria.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. The sample was reported on a dry weight basis.

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.

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 hardcopy data package has been authorized by the laboratory manager or a designee as verified by the following signature.

Iain Daniels
LvL Laboratory Manager

1/12/17
Date

GLOSSARY OF DATA

DATA QUALIFIERS

U	=	Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
J	=	Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification 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.
E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
I	=	Interference.
.I	=	Indicates an interference on one analytical column only. Result is reported from remaining analytical column.
P	=	This flag is used for a dual column analysis (i.e. pesticides/PCB/herbicides) when there is greater than 40% difference for detected concentrations between the two GC columns; the lower of the two values is reported on Form 1 and flagged with a "P".
D	=	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
C	=	This flag applies to a compound that has been confirmed by GC/MS.

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking 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	=	Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
NS	=	Not Spiked.
SP	=	Indicates Spiked Compound.
NPM	=	No pattern match for multi-component target analytes.

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

WC-Hanford, Inc.	Project: RC-195	
2620 Fermi Avenue	Project Number: K2709	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	01/06/2011 23:44

Extractable Petroleum Hydrocarbons by SW846 8015

Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
B28N97 (1012046-01) Soil								
Surrogate: p-Terphenyl	*103 %*	*39-129*			*L012104*	*12/08/2010*	*12/31/2010*	*8015M*
Diesel Range Organics	22100	3440	ug/kg dry	1	L012104	12/08/2010	12/31/2010	8015M
Motor Oil	79300	10300	ug/kg dry	1	L012104	12/08/2010	12/31/2010	8015M
Kerosene	10300 U	10300	ug/kg dry	1	L012104	12/08/2010	12/31/2010	8015M

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

WC-Hanford, Inc.	Project: RC-195	
2620 Fermi Avenue	Project Number: K2709	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	01/06/2011 23:44

Extractable Petroleum Hydrocarbons by SW846 8015 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L012104 - SW 3540C									
Blank (L012104-BLK1)			Prepared: 12/08/2010 Analyzed: 12/30/2010						
Diesel Range Organics	3330 U	3330	ug/kg wet						
Motor Oil	5010 J	10000	ug/kg wet						
Surrogate: p-Terphenyl	*5400*		*ug/kg wet*	*6666.7*		*81*	*39-129*		
Blank (L012104-BLK2)			Prepared: 12/08/2010 Analyzed: 12/31/2010						
Kerosene	10000 U	10000	ug/kg wet						
LCS (L012104-BS1)			Prepared: 12/08/2010 Analyzed: 12/30/2010						
Diesel Range Organics	53200	3330	ug/kg wet	66667		80	42-133		
Surrogate: p-Terphenyl	*5430*		*ug/kg wet*	*6666.7*		*81*	*39-129*		
LCS (L012104-BS2)			Prepared: 12/08/2010 Analyzed: 12/31/2010						
Kerosene	48900	10000	ug/kg wet	66667		73	0-200		
Matrix Spike (L012104-MS1)	**Source: 1012046-01**		Prepared: 12/08/2010 Analyzed: 12/31/2010						
Diesel Range Organics	102000	3540	ug/kg dry	70894	22100	112	42-133		
Surrogate: p-Terphenyl	*7350*		*ug/kg dry*	*7089.4*		*104*	*39-129*		
Matrix Spike (L012104-MS2)	**Source: 1012046-01**		Prepared: 12/08/2010 Analyzed: 12/31/2010						
Kerosene	55000	10600	ug/kg dry	70429	10300 U	78	0-200		
Matrix Spike Dup (L012104-MSD1)	**Source: 1012046-01**		Prepared: 12/08/2010 Analyzed: 12/31/2010						
Diesel Range Organics	63300	3410	ug/kg dry	68302	22100	60	42-133	60*	40
Surrogate: p-Terphenyl	*5310*		*ug/kg dry*	*6830.2*		*78*	*39-129*		
Matrix Spike Dup (L012104-MSD2)	**Source: 1012046-01**		Prepared: 12/08/2010 Analyzed: 12/31/2010						
Kerosene	60300	10300	ug/kg dry	68959	10300 U	88	0-200	11	200

REVISION

PREPARATION BENCH SHEET

L012104

Lionville Laboratory

Printed: 1/6/2011 11:34:29PM

Matrix: Solid **Prepared using: GC - SW 3540C** **Surrogate used: 1001900**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1012046-01	8015M DRO	12/08/2010 14:30	31.24	1				1000	WC-Hanford, Inc.	
1012046-01	8015M KRO	12/08/2010 14:30	31.24	1				1000	WC-Hanford, Inc.	
1012047-01	8015M DRO	12/08/2010 14:30	30.99	1				1000	WC-Hanford, Inc.	
1012047-01	8015M KRO	12/08/2010 14:30	30.99	1				1000	WC-Hanford, Inc.	
L012104-BLK1	QC	12/08/2010 14:30	30	1				1000		ODRO
L012104-BLK2	QC	12/08/2010 14:30	30	1				1000		KERO
L012104-BS1	QC	12/08/2010 14:30	30	1	1002032		1000	1000		ODRO
L012104-BS2	QC	12/08/2010 14:30	30	1	1001587		500	1000		KERO
L012104-MS1	QC	12/08/2010 14:30	30.3	1	1002032	1012046-01	1000	1000		ODRO
L012104-MS2	QC	12/08/2010 14:30	30.5	1	1001587	1012046-01	500	1000		KERO
L012104-MS3	QC	12/08/2010 14:30	30.55	1	1002032	1012047-01	1000	1000		ODRO
L012104-MS4	QC	12/08/2010 14:30	30.08	1	1001587	1012047-01	500	1000		KERO
L012104-MSD1	QC	12/08/2010 14:30	31.45	1	1002032	1012046-01	1000	1000		ODRO
L012104-MSD2	QC	12/08/2010 14:30	31.15	1	1001587	1012046-01	500	1000		KERO
L012104-MSD3	QC	12/08/2010 14:30	30.3	1	1002032	1012047-01	1000	1000		ODRO

Extracts Relinquished By Date

Extracts Received By Date

PREPARATION BENCH SHEET

L012104

Lionville Laboratory

Printed: 12/9/2010 3:47:51PM

Matrix: Solid **Prepared using: GC - SW 3540C** **Surrogate used: 1001900**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1012046-01	8015M DRO	12/08/2010 14:30	31.24	1				1000	WC-Hanford, Inc.	
1012046-01	8015M KRO	12/08/2010 14:30	31.24	1				1000	WC-Hanford, Inc.	
1012047-01	8015M DRO	12/08/2010 14:30	30.99	1				1000	WC-Hanford, Inc.	
1012047-01	8015M KRO	12/08/2010 14:30	30.99	1				1000	WC-Hanford, Inc.	
L012104-BLK1	QC	12/08/2010 14:30	30	1				1000		ODRO
L012104-BLK2	QC	12/08/2010 14:30	30	1				1000		KERO
L012104-BS1	QC	12/08/2010 14:30	30	1	1002032		1000	1000		ODRO
L012104-BS2	QC	12/08/2010 14:30	30	1	1001587		1000	1000		KERO
L012104-MS1	QC	12/08/2010 14:30	30.3	1	1002032	1012046-01	1000	1000		ODRO
L012104-MS2	QC	12/08/2010 14:30	30.5	1	1001587	1012046-01	1000	1000		KERO
L012104-MS3	QC	12/08/2010 14:30	30.55	1	1002032	1012047-01	1000	1000		ODRO
L012104-MS4	QC	12/08/2010 14:30	30.08	1	1001587	1012047-01	1000	1000		KERO
L012104-MSD1	QC	12/08/2010 14:30	31.45	1	1002032	1012046-01	1000	1000		ODRO
L012104-MSD2	QC	12/08/2010 14:30	31.15	1	1001587	1012046-01	1000	1000		KERO
L012104-MSD3	QC	12/08/2010 14:30	30.3	1	1002032	1012047-01	1000	1000		ODRO

C S Ari 12/9/10 15:47
Extracts Relinquished By Date

S Zoh 12/09/10 15:58
Extracts Received By Date

Lionville Laboratory Use Only: 1012046

Custody Transfer Record/Lab Work Request

Page 1 of 1 SRC SEE

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI Lionville Laboratory Inc.

Client WC. Hanford SAF # RC.195

Est. Final Proj. Sampling Date

Project#

Project Contact/Phone#

Lionville Laboratory Project Manager Arlette Johnson

QC S(W) Del STD TAT 30 days

Date Rec'd 12.4.10 Date Due 1-3-11

	A	B	C	D	E	F	G
Refrigerator #	1	1	1	1	1	1	1
#/Type Container (Liquid / Solid)	1aq	1aq	1aq	1aq	1ar	1aq	1aq
Volume	250	250	120	250	120	120	250
Preservatives	—	—	—	—	—	—	—
ANALYSES REQUESTED (ORGANIC: VOA, BNA, ~~Pest~~ PCB, Herb; INORG: Metal, CN)	8082	8310 PAHs	DRO Kerosene TPH-D	Metals	Arsenic	Cr+6	pH moisture

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	A	B	C	D	E	F	G
01	B28N97	✓	✓	S	11.18.10	1340	X	X	X	X	X	X	X

Special Instructions:

Special Instructions:

1.
2.
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5.
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Relinquished by	Received by	Date	Time
[signature]	[signature]	12.4.10	11:00

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN			

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-195-529	PAGE 1 OF 1

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8N	DATA TURNAROUND
BAILEY	RADLOFF, ANNA	(509) 376-4554	KESSNER, JH	AIR QUALITY ☐	45 Days / 45 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**		
C7847 (118-B-8); I-004	Soil/Sediment Sampling - Integrated Remedial Investigation/Feasibility Stud		RC-195		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**	
GWS-186	HNF-N-585-3/81	12.5'-15'	302512ES10	FEDERAL EXPRESS	
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
Lionville Laboratory Incorporated	SEE PTR		SEE PTR 7941 8031 6467		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE
RADIOACTIVE TIE TO: ~~B28N48~~
B29K45 KS 11/19/10

PRESERVATION	Cool~4C	Cool~4C	Cool~4C	Cool~4C	Cool~4C	Cool~4C	None
HOLDING TIME	14/40 Days	14/40 Days	1 yr/1 yr	6 Months	30 Days	28 Days/48 Hours	ASAP
TYPE OF CONTAINER	aG	G	aG	G/P	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1	1	1	1
VOLUME	250mL	120mL	250mL	250mL	120mL	120mL	250mL
SAMPLE ANALYSIS	PAHs - 8310 (100 Area RI/FS);	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	PCBs - 8082 (100 Area RI/FS);	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196 (100 Area RIFS);	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	pH (Soil) - 9045 (100 Area RIFS); % moisture 03/24/10

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME							
B28N97	SOIL	11-18-10	1340	✓	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION	SIGN/ PRINT NAMES
RELINQUISHED BY/REMOVED FROM — DATE/TIME	RECEIVED BY/STORED IN — DATE/TIME
SKGALLOY/SKB 11-18-10/1700	SSURI 11-18-10/1700
SSU-R1 DEC 03 2010 0830	M.A. White DEC 03 2010 0830
M.A. White DEC 03 2010 1400	FEDEX
12-3-10/11:00	DSmith 12-3-10/11:00

SPECIAL INSTRUCTIONS
** The laboratory is to analyze pH within 24 hours of receipt.☐☐** The RCCC acknowledges that the analytical holding time for Nitrate, Nitrite, and Phosphate by EPA methods 300.0 or 9056 will not be met.☐☐** Physical Properties laboratory: Conduct the hydraulic conductivity test (ASTM 5084 or 2434) as appropriate to the sample matrix.☐☐
(1) TPH-DieselKerosene Range - WTPH-D (100 Area RIFS);
(2) ICP Metals - 6010TR (100 Area RIFS Client List); Mercury - 7471 - (CV) (100 Area RIFS);
(3) IC Anions - 300.0 (100 Area RI/FS); NO2/NO3 - 353.2 (100 Area RI/FS);

ORIGINAL

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

A-6003-618(01/06)

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC Hanford
Project/SAF/SOW/Release #: RC-195

Date: 12.4.10

LvL Batch #: 1012046

Sample Custodian: [signature]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7941 8031 6467
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 2.6	°C	Cooler # GWS-186
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 DRover 12/12/11 outsHold	
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 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 _____	

LIONVILLE LABORATORY, INC.
A division of Eberline Analytical Corporation

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

RECEIVED
FEB 2011

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-195 Project Number: K2709 Project Manager: Joan Kessner	**Reported:** 01/11/2011 22:47

Analytical Report for Polychlorinated Biphenyls by SW846-8082

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B28N97	1012046-01	Soil	11/18/2010 13:40	12/04/2010 11:00

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

Case Narrative

Client: WC-HANFORD RC-195 K2709
LVL #: 1012046

W.O. #: 60049-001-001-0001-00
Received: 12-04-2011

PCBs

One (1) soil sample was collected on 11-18-2010.

The sample and associated QC samples were extracted 12-16-2010 and analyzed 12-30,31-2010, 01-01-2011 according to criteria set forth in Lionville Laboratory SOPs. The extraction procedure was based on SW846 Method 3540C and the analysis procedure was based on SW846 Method 8082. All samples received Copper-Sulfur and Sulfuric Acid cleanups based on SW846 methods 3660A and 3665A.

Lionville Laboratory (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. LvL certifies that all test results meet the requirements of NELAC with any exception noted in the following statements:

1. The results presented in this report are derived from a sample that met LvL's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. Two (2) of ten (10) surrogate recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR#11GC010) has been enclosed.
4. The method blank was below the reporting limits for all target compounds.
5. All blank spike recoveries were within acceptance criteria.
6. All matrix spike recoveries were within acceptance criteria.
7. The sample was reported on a dry weight basis.
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.

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 12 pages.

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 hardcopy data package has been authorized by the laboratory manager or a designee as verified by the following signature.

Iain Daniels
LvL Laboratory Manager

1/18/11
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 11BC010

Initiator: Catherine Carey
Date: 01/12/11
Client: WC Hanford

Batch: 1012046
Samples: All
Method: SW846/MCAWW/CLP/

Parameter: PCB
Matrix: SOIL
Prep Batch: L012904

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)

Both surrogate recoveries are low in Blank.

2. Known or Probable Causes(s)

Some of sample extract was lost, most likely on the water bath, or surrogate was not added in the correct amount.

3. Discussion and Proposed Action

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

Other Description:

Since there are no target analyte hits in the sample above the reporting limit, there is no impact on the Narrate 22.

1/18/11

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: 1/18/11

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
__ Project Mgr (circle): Johnson / Stone
__ Sample Prep (circle): Ford
__ Log-in: King

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

QA-139-A-0208

GLOSSARY OF DATA

DATA QUALIFIERS

U	=	Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
J	=	Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification 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.
E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
I	=	Interference.
.I	=	Indicates an interference on one analytical column only. Result is reported from remaining analytical column.
P	=	This flag is used for a dual column analysis (i.e. pesticides/PCB/herbicides) when there is greater than 40% difference for detected concentrations between the two GC columns; the lower of the two values is reported on Form 1 and flagged with a "P".
D	=	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
C	=	This flag applies to a compound that has been confirmed by GC/MS.

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking 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	=	Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
NS	=	Not Spiked.
SP	=	Indicates Spiked Compound.
NPM	=	No pattern match for multi-component target analytes.

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

WC-Hanford, Inc.	Project: RC-195	
2620 Fermi Avenue	Project Number: K2709	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	01/11/2011 22:47

B28N97

1012046-01 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
		Lionville Laboratory						
Polychlorinated Biphenyls by SW846 8082								
Aroclor 1016	14.2 U	14.2	ug/kg dry	1	L012204	12/16/2010	12/31/2010	8082
Aroclor 1221	14.2 U	14.2	ug/kg dry	1	L012204	12/16/2010	12/31/2010	8082
Aroclor 1232	14.2 U	14.2	ug/kg dry	1	L012204	12/16/2010	12/31/2010	8082
Aroclor 1242	14.2 U	14.2	ug/kg dry	1	L012204	12/16/2010	12/31/2010	8082
Aroclor 1248	14.2 U	14.2	ug/kg dry	1	L012204	12/16/2010	12/31/2010	8082
Aroclor 1254	**12.4** J	14.2	ug/kg dry	1	L012204	12/16/2010	12/31/2010	8082
Aroclor 1260	**5.07** J	14.2	ug/kg dry	1	L012204	12/16/2010	12/31/2010	8082
Surrogate: Decachlorobiphenyl	*84 %*	*43-144*			*L012204*	*12/16/2010*	*12/31/2010*	*8082*
Surrogate: Tetrachloro-meta-xylene	*84 %*	*52-141*			*L012204*	*12/16/2010*	*12/31/2010*	*8082*

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WC-Hanford, Inc.	Project: RC-195	
2620 Fermi Avenue	Project Number: K2709	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	01/11/2011 22:47

Polychlorinated Biphenyls by SW846 8082 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L012204 - SW 3540C									
Blank (L012204-BLK1)			Prepared: 12/16/2010 Analyzed: 12/30/2010						
Aroclor 1016	13.3 U	13.3	ug/kg wet						
Aroclor 1221	13.3 U	13.3	ug/kg wet						
Aroclor 1232	13.3 U	13.3	ug/kg wet						
Aroclor 1242	13.3 U	13.3	ug/kg wet						
Aroclor 1248	13.3 U	13.3	ug/kg wet						
Aroclor 1254	13.3 U	13.3	ug/kg wet						
Aroclor 1260	13.3 U	13.3	ug/kg wet						
Surrogate: Decachlorobiphenyl	*12.4*		*ug/kg wet*	*33.333*		*37**	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*12.8*		*ug/kg wet*	*33.337*		*38**	*52-141*		
LCS (L012204-BS1)			Prepared: 12/16/2010 Analyzed: 12/30/2010						
Aroclor 1016	206	13.3	ug/kg wet	166.67		124	50-138		
Aroclor 1260	176	13.3	ug/kg wet	166.67		106	50-148		
Surrogate: Decachlorobiphenyl	*34.6*		*ug/kg wet*	*33.333*		*104*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*46.1*		*ug/kg wet*	*33.337*		*138*	*52-141*		
Matrix Spike (L012204-MS2)		**Source: 1012046-01**	Prepared: 12/16/2010 Analyzed: 12/31/2010						
Aroclor 1016	103	13.9	ug/kg dry	174.30	14.2 U	59	50-138		
Aroclor 1260	100	13.9	ug/kg dry	174.30	5.07	55	50-148		
Surrogate: Decachlorobiphenyl	*19.5*		*ug/kg dry*	*34.860*		*56*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*23.0*		*ug/kg dry*	*34.864*		*66*	*52-141*		
Matrix Spike Dup (L012204-MSD2)		**Source: 1012046-01**	Prepared: 12/16/2010 Analyzed: 01/01/2011						
Aroclor 1016	176	14.3	ug/kg dry	178.95	14.2 U	98	50-138	50*	40
Aroclor 1260	194	14.3	ug/kg dry	178.95	5.07	106	50-148	64*	40
Surrogate: Decachlorobiphenyl	*37.9*		*ug/kg dry*	*35.790*		*106*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*40.8*		*ug/kg dry*	*35.793*		*114*	*52-141*		

PREPARATION BENCH SHEET

L012204

Lionville Laboratory

Printed: 12/18/2010 12:27:38AM

Matrix: Solid **Prepared using: GC - SW 3540C** **Surrogate used: 1001998**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1012041-01	8082 PCBs	12/16/2010 10:16	30.18	10				250	WC-Hanford, Inc.	
1012046-01	8082 PCBs	12/16/2010 10:16	30.08	10				250	WC-Hanford, Inc.	
1012047-01	8082 PCBs	12/16/2010 10:16	31.47	10				250	WC-Hanford, Inc.	
1012068-01	8082 PCBs	12/16/2010 10:16	30.03	10				250	WC-Hanford, Inc.	
1012084-01	8082 PCBs	12/16/2010 10:16	31.28	10				250	WC-Hanford, Inc.	
1012084-02	8082 PCBs	12/16/2010 10:16	30.44	10				250	WC-Hanford, Inc.	
1012097-01	8082 PCBs	12/16/2010 10:16	30.58	10				250	WC-Hanford, Inc.	
1012097-02	8082 PCBs	12/16/2010 10:16	30.05	10				250	WC-Hanford, Inc.	
1012097-03	8082 PCBs	12/16/2010 10:16	30.71	10				250	WC-Hanford, Inc.	
1012097-04	8082 PCBs	12/16/2010 10:16	31.83	10				250	WC-Hanford, Inc.	
L012204-BLK1	QC	12/16/2010 10:16	30	10				250		
L012204-BS1	QC	12/16/2010 10:16	30	10	1002000		250	250		
L012204-MS1	QC	12/16/2010 10:16	30.45	10	1002000	1012041-01	250	250		
L012204-MS2	QC	12/16/2010 10:16	30.81	10	1002000	1012046-01	250	250		
L012204-MS3	QC	12/16/2010 10:16	30.64	10	1002000	1012047-01	250	250		
L012204-MS4	QC	12/16/2010 10:16	31.69	10	1002000	1012068-01	250	250		
L012204-MS5	QC	12/16/2010 10:16	30.01	10	1002000	1012084-02	250	250		
L012204-MS6	QC	12/16/2010 10:16	30.01	10	1002000	1012097-01	250	250		
L012204-MSD1	QC	12/16/2010 10:16	30.5	10	1002000	1012041-01	250	250		
L012204-MSD2	QC	12/16/2010 10:16	30.01	10	1002000	1012046-01	250	250		

S cleared 12.20.10 SZ

12/18/10 0315 — Extracts Relinquished By — Date

UC 12/20/10 — Extracts Received By — Date

PREPARATION BENCH SHEET

L012204

Lionville Laboratory

Printed: 12/18/2010 12:27:38AM

Matrix: Solid **Prepared using: GC - SW 3540C** **Surrogate used: 1001998**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
L012204-MSD3	QC	12/16/2010 10:16	30.02	10	1002000	1012047-01	250	250		
L012204-MSD4	QC	12/16/2010 10:16	30.18	10	1002000	1012068-01	250	250		
L012204-MSD5	QC	12/16/2010 10:16	30.5	10	1002000	1012084-02	250	250		
L012204-MSD6	QC	12/16/2010 10:16	31.6	10	1002000	1012097-01	250	250		

Scleared 12.20.10 SZ

12/18/10 815

Extracts Relinquished By Date

LE 12/20/10

Extracts Received By Date

Lionville Laboratory Use Only

1012046

Custody Transfer Record/Lab Work Request

Page 1 of 1 SEE SRC

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI Lionville Laboratory Inc.

Client WC. Hanford SAF # RC.195

Est. Final Proj. Sampling Date

Project#

Project Contact/Phone#

Lionville Laboratory Project Manager Arlette Johnson

QC S(W) Del STD TAT 30 days

Date Rec'd 12.4.10 Date Due 1-3-11

		A		B	C		D		E		F	G		
Refrigerator #		1		1	1		1		1		1	1		
#/Type Container	Liquid	1aq		1aq	1aq		1aq		1aq	—	1aq	1aq		
	Solid													
Volume		250		250	120		250		120	—	120	250		
Preservatives		—		—	—		—		—		—	—		
ANALYSES REQUESTED →		ORGANIC						INORG						
		VOA	BNA	~~Pest~~ PCB	Herb	PAHs 8310	GC TPH-D		Metal + Hg	CN	BU Anions 202.2 203	Cr+6	pH	
Lionville Laboratory Use Only				8082		8310	DRO Kerosene		Met		Anions	USU2	CRC	pH 9.3 mdistilled

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															
01	B28N97	✓	✓	S	11.18.10	1340			X		X	X		X		X	X	X	X		

Special Instructions:

Special Instructions:

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[illegible]	[illegible]	12.4.10	11:00

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-195-529	PAGE 1 OF 1

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8N	DATA TURNAROUND
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ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**	
GWS-186	HNF-N-585-3/81	12.5'-15'	302512ES10	FEDERAL EXPRESS	
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
Lionville Laboratory Incorporated	SEE PTR		SEE PTR 7941 8031 6467		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE
RADIOACTIVE TIE TO: ~~B28N48~~
B29K45 KS 11/19/10

PRESERVATION	Cool~4C	Cool~4C	Cool~4C	Cool~4C	Cool~4C	Cool~4C	None
HOLDING TIME	14/40 Days	14/40 Days	1 yr/1 yr	6 Months	30 Days	28 Days/48 Hours	ASAP
TYPE OF CONTAINER	aG	G	aG	G/P	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1	1	1	1
VOLUME	250mL	120mL	250mL	250mL	120mL	120mL	250mL
SAMPLE ANALYSIS	PAHs - 8310 (100 Area RI/FS);	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	PCBs - 8082 (100 Area RI/FS);	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196 (100 Area RIFS);	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	pH (Soil) - 9045 (100 Area RIFS); % moisture KS 12/4/10

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME							
B28N97	SOIL	11-18-10	1340	✓	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION	SIGN/ PRINT NAMES
RELINQUISHED BY/REMOVED FROM: JRGAILEY/JKB DATE/TIME: 11-18-10/1700	RECEIVED BY/STORED IN: SSU-R1 DATE/TIME: 11-18-10/1700
RELINQUISHED BY/REMOVED FROM: SSU-R1 DATE/TIME: DEC 03 2010 0830	RECEIVED BY/STORED IN: M.A. White DATE/TIME: DEC 03 2010 0830
RELINQUISHED BY/REMOVED FROM: M.A. White DATE/TIME: DEC 03 2010 1400	RECEIVED BY/STORED IN: FEDEX DATE/TIME:
RELINQUISHED BY/REMOVED FROM: FedEx DATE/TIME: 12-3-10/11:00	RECEIVED BY/STORED IN: DSmith DATE/TIME: 12-4-10/1100
RELINQUISHED BY/REMOVED FROM: DATE/TIME:	RECEIVED BY/STORED IN: DATE/TIME:
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
** The laboratory is to analyze pH within 24 hours of receipt.☐☐** The RCCC acknowledges that the analytical holding time for Nitrate, Nitrite, and Phosphate by EPA methods 300.0 or 9056 will not be met.☐☐** Physical Properties laboratory: Conduct the hydraulic conductivity test (ASTM 5084 or 2434) as appropriate to the sample matrix.☐☐
(1) TPH-DieselKerosene Range - WTPH-D (100 Area RIFS);
(2) ICP Metals - 6010TR (100 Area RIFS Client List); Mercury - 7471 - CV) (100 Area RIFS);
(3) IC Anions - 300.0 (100 Area RI/FS); NO2/NO3 - 353.2 (100 Area RI/FS);

ORIGINAL

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

A-6003-618(01/06)

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC Hanford Date: 12.4.10

Project/SAF/SOW/Release #: RC-195

LvL Batch #: 1012046 Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7941 8031 6467
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 2.6	°C	Cooler # GWS-186
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 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 _____	

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

RECEIVED
FEB 2011

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-195 Project Number: K2709 Project Manager: Joan Kessner	**Reported:** 01/11/2011 22:14

Analytical Report for Polynuclear Aromatic Compounds by SW846 8310

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B28N97	1012046-01	Soil	11/18/2010 13:40	12/04/2010 11:00

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

Case Narrative

Client: WC-HANFORD RC-195 K2709
LVL #: 1012046

W.O. #: 60049-001-001-0001-00
Date Received: 12-04-2010

POLYNUCLEAR AROMATIC HYDROCARBONS (PAH)

One (1) soil sample was collected on 11-18-2010.

The sample and associated QC samples were extracted 12-07-2010 and analyzed 12-28-2010, 01-05-2011 according to criteria set forth in Lionville Laboratory SOPs. The extraction procedure was based on SW846 Method 3540C and the analysis procedure was based on SW846 Method 8310.

Lionville Laboratory (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. LvL certifies that all test results meet the requirements of NELAC with any exception noted in the following statements:

1. Discrepancies from the sample acceptance policy have been recorded on the Sample Receipt Checklist.
2. The samples were extracted five (5) days outside of recommended hold time. The samples were received out of hold.
3. All obtainable surrogate recoveries were within acceptance criteria.
4. The method blank was below the reporting limits for all target compounds.
5. All blank spike recoveries were within acceptance criteria.
6. All matrix spike recoveries were within acceptance criteria.
7. The initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. The sample was 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 data package has been authorized by the laboratory manager or a designee as verified by the following signature.

Iain Daniels
LvL Laboratory Manager

1/18/11
Date

r:\group\data\2010\pah 8310\wc-hanford\1012046jes.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 11 pages.

GLOSSARY OF DATA

DATA QUALIFIERS

U	=	Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
J	=	Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification 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.
E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
I	=	Interference.
.I	=	Indicates an interference on one analytical column only. Result is reported from remaining analytical column.
P	=	This flag is used for a dual column analysis (i.e. pesticides/PCB/herbicides) when there is greater than 40% difference for detected concentrations between the two GC columns; the lower of the two values is reported on Form 1 and flagged with a "P".
D	=	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
C	=	This flag applies to a compound that has been confirmed by GC/MS.

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking 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	=	Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
NS	=	Not Spiked.
SP	=	Indicates Spiked Compound.
NPM	=	No pattern match for multi-component target analytes.

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WC-Hanford, Inc.	Project: RC-195	
2620 Fermi Avenue	Project Number: K2709	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	01/11/2011 22:14

B28N97
1012046-01 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
		Lionville Laboratory						
Polynuclear Aromatic Compounds by SW846 8310								
Naphthalene	3.57 U	3.57	ug/kg dry	1	L012089	12/07/2010	01/05/2011	8310
Acenaphthylene	**16.7**	3.57	ug/kg dry	1	L012089	12/07/2010	01/05/2011	8310
Acenaphthene	**42.8**	3.57	ug/kg dry	1	L012089	12/07/2010	01/05/2011	8310
Fluorene	**1.71 J**	3.57	ug/kg dry	1	L012089	12/07/2010	01/05/2011	8310
Phenanthrene	**4.80**	3.57	ug/kg dry	1	L012089	12/07/2010	01/05/2011	8310
Anthracene	**1.21 J**	3.57	ug/kg dry	1	L012089	12/07/2010	01/05/2011	8310
Fluoranthene	**3.89**	3.57	ug/kg dry	1	L012089	12/07/2010	01/05/2011	8310
Indeno[1,2,3-cd]pyrene	**4.61**	3.57	ug/kg dry	1	L012089	12/07/2010	01/05/2011	8310
Pyrene	**3.77**	3.57	ug/kg dry	1	L012089	12/07/2010	01/05/2011	8310
Benz[a]anthracene	**1.09 J**	3.57	ug/kg dry	1	L012089	12/07/2010	01/05/2011	8310
Chrysene	**5.16**	3.57	ug/kg dry	1	L012089	12/07/2010	01/05/2011	8310
Benzo[b] fluoranthene	**10.5**	3.57	ug/kg dry	1	L012089	12/07/2010	01/05/2011	8310
Benzo[k] fluoranthene	**2.32 J**	3.57	ug/kg dry	1	L012089	12/07/2010	01/05/2011	8310
Benzo[a] pyrene	**2.07 J**	3.57	ug/kg dry	1	L012089	12/07/2010	01/05/2011	8310
Dibenz[a,h]anthracene	3.57 U	3.57	ug/kg dry	1	L012089	12/07/2010	01/05/2011	8310
Benzo[g,h,i] perylene	**1.82 J**	3.57	ug/kg dry	1	L012089	12/07/2010	01/05/2011	8310
Surrogate: Triphenylene	*94 %*	*68-129*			*L012089*	*12/07/2010*	*01/05/2011*	*8310*

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WC-Hanford, Inc.	Project: RC-195	
2620 Fermi Avenue	Project Number: K2709	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	01/11/2011 22:14

Polynuclear Aromatic Compounds by SW846 8310 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L012089 - SW 3540C									
Blank (L012089-BLK1)			Prepared: 12/07/2010 Analyzed: 12/28/2010						
Naphthalene	3.33 U	3.33	ug/kg wet						
Acenaphthylene	3.33 U	3.33	ug/kg wet						
Acenaphthene	3.33 U	3.33	ug/kg wet						
Fluorene	3.33 U	3.33	ug/kg wet						
Phenanthrene	3.33 U	3.33	ug/kg wet						
Anthracene	3.33 U	3.33	ug/kg wet						
Fluoranthene	3.33 U	3.33	ug/kg wet						
Indeno[1,2,3-cd]pyrene	3.33 U	3.33	ug/kg wet						
Pyrene	3.33 U	3.33	ug/kg wet						
Benz[a]anthracene	3.33 U	3.33	ug/kg wet						
Chrysene	3.33 U	3.33	ug/kg wet						
Benzo[b] fluoranthene	3.33 U	3.33	ug/kg wet						
Benzo[k] fluoranthene	3.33 U	3.33	ug/kg wet						
Benzo[a] pyrene	3.33 U	3.33	ug/kg wet						
Dibenz[a,h]anthracene	3.33 U	3.33	ug/kg wet						
Benzo[g,h,i] perylene	3.33 U	3.33	ug/kg wet						
Surrogate: Triphenylene	*171*		*ug/kg wet*	*166.67*		*102*	*68-129*		
LCS (L012089-BS1)			Prepared: 12/07/2010 Analyzed: 12/28/2010						
Naphthalene	150	3.33	ug/kg wet	166.67		90	0-127		
Acenaphthylene	159	3.33	ug/kg wet	166.67		96	50-140		
Acenaphthene	159	3.33	ug/kg wet	166.67		95	17-139		
Fluorene	156	3.33	ug/kg wet	166.67		94	28-145		
Phenanthrene	160	3.33	ug/kg wet	166.67		96	30-152		
Anthracene	171	3.33	ug/kg wet	166.67		103	19-171		
Fluoranthene	157	3.33	ug/kg wet	166.67		94	34-159		
Indeno[1,2,3-cd]pyrene	157	3.33	ug/kg wet	166.67		94	31-156		
Pyrene	175	3.33	ug/kg wet	166.67		105	33-152		
Benz[a]anthracene	168	3.33	ug/kg wet	166.67		101	32-157		
Chrysene	172	3.33	ug/kg wet	166.67		103	31-159		
Benzo[b] fluoranthene	168	3.33	ug/kg wet	166.67		101	33-164		
Benzo[k] fluoranthene	177	3.33	ug/kg wet	166.67		106	28-161		
Benzo[a] pyrene	165	3.33	ug/kg wet	166.67		99	29-149		
Dibenz[a,h]anthracene	169	3.33	ug/kg wet	166.67		101	27-153		
Benzo[g,h,i] perylene	181	3.33	ug/kg wet	166.67		108	32-157		
Surrogate: Triphenylene	*168*		*ug/kg wet*	*166.67*		*101*	*68-129*		

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WC-Hanford, Inc.	Project: RC-195	
2620 Fermi Avenue	Project Number: K2709	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	01/11/2011 22:14

Polynuclear Aromatic Compounds by SW846 8310 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L012089 - SW 3540C									
Matrix Spike (L012089-MS4)	**Source: 1012046-01**		Prepared: 12/07/2010 Analyzed: 01/05/2011						
Naphthalene	142	3.40	ug/kg dry	170.21	3.57 U	83	0-127		
Acenaphthylene	174	3.40	ug/kg dry	170.21	16.7	93	50-140		
Acenaphthene	155	3.40	ug/kg dry	170.21	42.8	66	17-139		
Fluorene	157	3.40	ug/kg dry	170.21	1.71	91	28-145		
Phenanthrene	169	3.40	ug/kg dry	170.21	4.80	96	30-152		
Anthracene	153	3.40	ug/kg dry	170.21	1.21	89	19-171		
Fluoranthene	153	3.40	ug/kg dry	170.21	3.89	88	34-159		
Indeno[1,2,3-cd]pyrene	184	3.40	ug/kg dry	170.21	4.61	105	31-156		
Pyrene	168	3.40	ug/kg dry	170.21	3.77	97	33-152		
Benz[a]anthracene	158	3.40	ug/kg dry	170.21	1.09	92	32-157		
Chrysene	132	3.40	ug/kg dry	170.21	5.16	75	31-159		
Benzo[b] fluoranthene	177	3.40	ug/kg dry	170.21	10.5	98	33-164		
Benzo[k] fluoranthene	171	3.40	ug/kg dry	170.21	2.32	99	28-161		
Benzo[a] pyrene	157	3.40	ug/kg dry	170.21	2.07	91	29-149		
Dibenz[a,h]anthracene	155	3.40	ug/kg dry	170.21	3.57 U	91	27-153		
Benzo[g,h,i] perylene	167	3.40	ug/kg dry	170.21	1.82	97	32-157		
Surrogate: Triphenylene	*157*		*ug/kg dry*	*170.21*		*92*	*68-129*		
Matrix Spike Dup (L012089-MSD4)	**Source: 1012046-01**		Prepared: 12/07/2010 Analyzed: 01/05/2011						
Naphthalene	147	3.55	ug/kg dry	177.65	3.57 U	83	0-127	0.4	40
Acenaphthylene	185	3.55	ug/kg dry	177.65	16.7	94	50-140	2	40
Acenaphthene	155	3.55	ug/kg dry	177.65	42.8	63	17-139	4	40
Fluorene	162	3.55	ug/kg dry	177.65	1.71	90	28-145	0.8	40
Phenanthrene	176	3.55	ug/kg dry	177.65	4.80	96	30-152	0.1	40
Anthracene	159	3.55	ug/kg dry	177.65	1.21	89	19-171	0.4	40
Fluoranthene	163	3.55	ug/kg dry	177.65	3.89	89	34-159	2	40
Indeno[1,2,3-cd]pyrene	194	3.55	ug/kg dry	177.65	4.61	107	31-156	1	40
Pyrene	176	3.55	ug/kg dry	177.65	3.77	97	33-152	0.1	40
Benz[a]anthracene	163	3.55	ug/kg dry	177.65	1.09	91	32-157	1	40
Chrysene	153	3.55	ug/kg dry	177.65	5.16	83	31-159	11	40
Benzo[b] fluoranthene	175	3.55	ug/kg dry	177.65	10.5	93	33-164	5	40
Benzo[k] fluoranthene	179	3.55	ug/kg dry	177.65	2.32	99	28-161	0.4	40
Benzo[a] pyrene	168	3.55	ug/kg dry	177.65	2.07	93	29-149	3	40
Dibenz[a,h]anthracene	161	3.55	ug/kg dry	177.65	3.57 U	91	27-153	0.3	40
Benzo[g,h,i] perylene	173	3.55	ug/kg dry	177.65	1.82	96	32-157	0.4	40
Surrogate: Triphenylene	*166*		*ug/kg dry*	*177.65*		*94*	*68-129*		

PREPARATION BENCH SHEET

L012089

Lionville Laboratory

Printed: 12/9/2010 10:16:56AM

Matrix: Solid **Prepared using: HPLC - SW 3540C** **Surrogate used: 1001909**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1012018-01	8310 PAH	12/07/2010 16:22	30.63	5				500	WC-Hanford, Inc.	
1012019-01	8310 PAH	12/07/2010 16:22	31.86	5				500	WC-Hanford, Inc.	
1012019-02	8310 PAH	12/07/2010 16:22	30.34	5				500	WC-Hanford, Inc.	
1012019-03	8310 PAH	12/07/2010 16:22	31.91	5				500	WC-Hanford, Inc.	
1012019-04	8310 PAH	12/07/2010 16:22	30.81	5				500	WC-Hanford, Inc.	
1012019-05	8310 PAH	12/07/2010 16:22	30.18	5				500	WC-Hanford, Inc.	
1012019-06	8310 PAH	12/07/2010 16:22	30.38	5				500	WC-Hanford, Inc.	
1012019-07	8310 PAH	12/07/2010 16:22	30.41	5				500	WC-Hanford, Inc.	
1012020-01	8310 PAH	12/07/2010 16:22	30.11	5				500	WC-Hanford, Inc.	
1012020-02	8310 PAH	12/07/2010 16:22	30.85	5				500	WC-Hanford, Inc.	
1012020-03	8310 PAH	12/07/2010 16:22	30.05	5				500	WC-Hanford, Inc.	
1012020-05	8310 PAH	12/07/2010 16:22	30.79	5				500	WC-Hanford, Inc.	
1012046-01	8310 PAH	12/07/2010 16:22	30.08	5				500	WC-Hanford, Inc.	
L012089-BLK1	QC	12/07/2010 16:22	30	5				500		
L012089-BS1	QC	12/07/2010 16:22	30	5	1001668		1000	500		
L012089-MS1	QC	12/07/2010 16:22	30.9	5	1001668	1012018-01	1000	500		
L012089-MS2	QC	12/07/2010 16:22	30.31	5	1001668	1012019-01	1000	500		
L012089-MS3	QC	12/07/2010 16:22	31.62	5	1001668	1012020-01	1000	500		
L012089-MS4	QC	12/07/2010 16:22	31.55	5	1001668	1012046-01	1000	500		
L012089-MSD1	QC	12/07/2010 16:22	30.35	5	1001668	1012018-01	1000	500		

Extracts Relinquished By 12/9/10 10:16 Date

Extracts Received By 12/09/10 10:20 Date

PREPARATION BENCH SHEET

L012089

Lionville Laboratory

Printed: 12/9/2010 10:16:56AM

Matrix: Solid **Prepared using: HPLC - SW 3540C** **Surrogate used: 1001909**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
L012089-MSD2	QC	12/07/2010 16:22	30.08	5	1001668	1012019-01	1000	500		
L012089-MSD3	QC	12/07/2010 16:22	30.1	5	1001668	1012020-01	1000	500		
L012089-MSD4	QC	12/07/2010 16:22	30.23	5	1001668	1012046-01	1000	500		

12/9/10 10:16 — Extracts Relinquished By — Date

12.09.10 10.20. — Extracts Received By — Date

Lionville Laboratory Use Only
1012046

Custody Transfer Record/Lab Work Request

Page 1 of 1 SAE SRC

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI Lionville Laboratory Inc.

Client WC. Hanford SAF # RC.195

Est. Final Proj. Sampling Date

Project#

Project Contact/Phone#

Lionville Laboratory Project Manager Arlette Johnson

QC S(W) Del STD TAT 30 days

Date Rec'd 12.4.10 Date Due 1-3-11

		A		B	C		D		E		F	G		
Refrigerator #		1		1	1		1		1		1	1		
#/Type Container	Liquid	1aq		1aq	1aq		1aq		1aq	—	1aq	1aq		
	Solid													
Volume		250		250	120		250		120	—	120	250		
Preservatives		—		—	—		—		—		—	—		
ANALYSES REQUESTED →		ORGANIC					INORG							
		VOA	BNA	~~Pest~~ PCB	Herb	PAHs 8310	GC TPH-D		Metal + Hg	CN	3C H Anions	2002-2003	Cr+6	pH % moisture
Lionville Laboratory Use Only				8082		8310	DRO Kerosene		Met		Anions	USU2	CRC	pH % moisture

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																
01	B28N97	✓	✓	S	11.18.10	1340			X		X	X		X		X	X	X	X			

Special Instructions:

Special Instructions:

1.
2.
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6.

Relinquished by	Received by	Date	Time
Tec Fox	[signature]	12.4.10	11:00

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN			

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-195-529	PAGE 1 OF 1

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8N	DATA TURNAROUND
BAILEY	RADLOFF, ANNA	(509) 376-4554	KESSNER, JH	AIR QUALITY ☐	45 Days / 45 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**		
C7847 (118-B-8); I-004	Soil/Sediment Sampling - Integrated Remedial Investigation/Feasibility Stud		RC-195		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**	
GW3-186	HNF-N-585-3/81	12.5'-15'	302512ES10	FEDERAL EXPRESS	
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
Lionville Laboratory Incorporated	SEE PTR		SEE PTR 7941 8031 6467		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE
RADIOACTIVE TIE TO: ~~B28N48~~
B29K45 KS 11/19/10

PRESERVATION	Cool~4C	Cool~4C	Cool~4C	Cool~4C	Cool~4C	Cool~4C	None
HOLDING TIME	14/40 Days	14/40 Days	1 yr/1 yr	6 Months	30 Days	28 Days/48 Hours	ASAP
TYPE OF CONTAINER	aG	G	aG	G/P	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1	1	1	1
VOLUME	250mL	120mL	250mL	250mL	120mL	120mL	250mL
SAMPLE ANALYSIS	PAHs - 8310 (100 Area RI/FS);	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	PCBs - 8082 (100 Area RI/FS);	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196 (100 Area RIFS);	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	pH (Soil) - 9045 (100 Area RIFS); % moisture 03/24/10

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME							
B28N97	SOIL	11-18-10	1340	✓	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION	SIGN/ PRINT NAMES
RELINQUISHED BY/REMOVED FROM — DATE/TIME	RECEIVED BY/STORED IN — DATE/TIME
JBAILEY/JKB 11-18-10/1700	SSURI 11-18-10 /1700
RELINQUISHED BY/REMOVED FROM — DATE/TIME	RECEIVED BY/STORED IN — DATE/TIME
SSU-R1 DEC 0 3 2010 0830	M.A. White DEC 0 3 2010 0830
RELINQUISHED BY/REMOVED FROM — DATE/TIME	RECEIVED BY/STORED IN — DATE/TIME
M.A. White DEC 0 3 2010 1400	FEDEX
RELINQUISHED BY/REMOVED FROM — DATE/TIME	RECEIVED BY/STORED IN — DATE/TIME
FedEx 12-3-10/11:00	DSmith 12-3-10/11:00
RELINQUISHED BY/REMOVED FROM — DATE/TIME	RECEIVED BY/STORED IN — DATE/TIME
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
** The laboratory is to analyze pH within 24 hours of receipt.☐☐** The RCCC acknowledges that the analytical holding time for Nitrate, Nitrite, and Phosphate by EPA methods 300.0 or 9056 will not be met.☐☐** Physical Properties laboratory: Conduct the hydraulic conductivity test (ASTM 5084 or 2434) as appropriate to the sample matrix.☐☐
(1) TPH-DieselKerosene Range - WTPH-D (100 Area RIFS);
(2) ICP Metals - 6010TR (100 Area RIFS Client List); Mercury - 7471 - (CV) (100 Area RIFS);
(3) IC Anions - 300.0 (100 Area RI/FS); NO2/NO3 - 353.2 (100 Area RI/FS);

ORIGINAL

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

A-6003-618(01/06)

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC Hanford

Project/SAF/SOW/Release #: RC-195

Date: 12.4.10

LvL Batch #: 1012046

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7941 8031 6467
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 2.6	°C	Cooler # GWS-186
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 PAH	
Short holds taken to wet lab?	☑ Yes 1/18/11	☐ No rec'd	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No out of hold	☑ 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 _____

LIONVILLE LABORATORY
A division of Shoreline Analytical Corporation

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

RECEIVED
FEB 2011

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-195 Project Number: K2709 Project Manager: Joan Kessner	**Reported:** 01/22/2011 17:35

Analytical Report for Wet Chemistry

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B28N97	1012046-01	Soil	11/18/2010 13:40	12/04/2010 11:00

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

Case Narrative

Client: WC-HANFORD RC-195 K2709
LVL#: 1012046 **Date Received:** 12-04-10

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. Results for soil or solid pH are measured in water at 25°C unless otherwise specified.

   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 not met for Fluoride, Chloride, Nitrate, Nitrite, Bromide, Orthophosphate, Sulfate, Nitrate Nitrite and Hexavalent Chromium.

4. The results presented in this report are derived from samples that met LvL's sample acceptance policy with the exceptions 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 and method criteria.

7. The matrix spike recoveries were within the 75-125% control limits.

8. The replicate analyses were within the 20% Relative Percent Difference (RPD) control limit with the exception of Chloride at 38.0% that may be attributed to sample inhomogeneity.

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

1/24/11
Date

njp\i12-046

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 10 pages.

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WC-Hanford, Inc.	Project: RC-195	
2620 Fermi Avenue	Project Number: K2709	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	01/22/2011 17:35

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.
B	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
*	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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WC-Hanford, Inc.	Project: RC-195	
2620 Fermi Avenue	Project Number: K2709	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	01/22/2011 17:35

Wet Chemistry
Lionville Laboratory

Analyte	Result and Qualifier		LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
B28N97 (1012046-01) Soil										
%Solids	**93.1**		0.1	0.1	% by Weight	1	L012180	12/13/2010	12/13/2010	SM2540G
Bromide	1.8	U	1.8	2.6	mg/kg dry	1	L101220	01/20/2011	01/21/2011	EPA 300.0 (1993)
Chloride	**2.2**	B	0.6	2.6	mg/kg dry	1	L101220	01/20/2011	01/21/2011	EPA 300.0 (1993)
Fluoride	**0.4**	B	0.3	2.6	mg/kg dry	1	L101220	01/20/2011	01/21/2011	EPA 300.0 (1993)
Nitrate	**4.6**		1.1	2.6	mg/kg dry	1	L101220	01/20/2011	01/21/2011	EPA 300.0 (1993)
Nitrite	1.0	U	1.0	2.6	mg/kg dry	1	L101220	01/20/2011	01/21/2011	EPA 300.0 (1993)
Orthophosphate	3.5	U	3.5	5.2	mg/kg dry	1	L101220	01/20/2011	01/21/2011	EPA 300.0 (1993)
Sulfate	**62.2**		1.0	2.6	mg/kg dry	1	L101220	01/20/2011	01/21/2011	EPA 300.0 (1993)
Nitrate/Nitrite as N	**1.74**		0.10	0.52	mg/kg dry	1	L101219	01/20/2011	01/21/2011	EPA 353.2
Hexavalent Chromium	0.21	U	0.21	0.54	mg/kg dry	1	L101136	01/13/2011	01/13/2011	SW846 7196A
pH	**10.56**			0.10	pH Units	1	L012368	12/30/2010	12/30/2010	SW846 9045D
%Moisture	**6.89**			0.01	% by Weight	1	L012181	12/13/2010	12/13/2010	D2216

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WC-Hanford, Inc.	Project: RC-195	
2620 Fermi Avenue	Project Number: K2709	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	01/22/2011 17:35

Wet Chemistry - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L012368 - Default Prep GenChem										
Duplicate (L012368-DUP1)	**Source: 1012046-01**			Prepared & Analyzed: 12/30/2010						
pH	10.57		0.10	pH Units		10.56			0.0946	20
Reference (L012368-SRM1)				Prepared & Analyzed: 12/30/2010						
pH	9.97		0.10	pH Units	10.000		99.7	99-101		
Batch L101136 - SW 3060A										
Blank (L101136-BLK1)				Prepared & Analyzed: 01/13/2011						
Hexavalent Chromium	0.20 U	0.20	0.50	mg/kg wet						
LCS (L101136-BS1)				Prepared & Analyzed: 01/13/2011						
Hexavalent Chromium	4.13	0.20	0.50	mg/kg wet	4.0000		103	80-120		
LCS (L101136-BS2)				Prepared & Analyzed: 01/13/2011						
Hexavalent Chromium	1250 D	20.0	50.0	mg/kg wet	1081.9		115	80-120		
LCS (L101136-BS3)				Prepared & Analyzed: 01/13/2011						
Hexavalent Chromium	4.01	0.20	0.50	mg/kg wet	4.0000		100	80-120		
LCS (L101136-BS4)				Prepared & Analyzed: 01/13/2011						
Hexavalent Chromium	994 D	20.0	50.0	mg/kg wet	914.48		109	80-120		
Duplicate (L101136-DUP6)	**Source: 1012046-01**			Prepared & Analyzed: 01/13/2011						
Hexavalent Chromium	0.27 B	0.21	0.54	mg/kg dry		0.21 U				20
Matrix Spike (L101136-MSB)	**Source: 1012046-01**			Prepared & Analyzed: 01/13/2011						
Hexavalent Chromium	4.51	0.21	0.54	mg/kg dry	4.2962	0.21 U	105	75-125		

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WC-Hanford, Inc.	Project: RC-195	
2620 Fermi Avenue	Project Number: K2709	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	01/22/2011 17:35

Wet Chemistry - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L101136 - SW 3060A										
Matrix Spike (L101136-MSC)	**Source: 1012046-01**			Prepared & Analyzed: 01/13/2011						
Hexavalent Chromium	1130 D	21.5	53.7	mg/kg dry	1092.9	0.21 U	103	75-125		
Batch L101219 - Default Prep GenChem										
Blank (L101219-BLK1)				Prepared: 01/20/2011 Analyzed: 01/21/2011						
Nitrate/Nitrite as N	0.13 B	0.09	0.47	mg/kg wet						
Blank (L101219-BLK2)				Prepared: 01/20/2011 Analyzed: 01/21/2011						
Nitrate/Nitrite as N	0.12 B	0.10	0.48	mg/kg wet						
LCS (L101219-BS1)				Prepared: 01/20/2011 Analyzed: 01/21/2011						
Nitrate/Nitrite as N	4.17	0.09	0.44	mg/kg wet	4.4392		94.0	90-110		
LCS (L101219-BS2)				Prepared: 01/20/2011 Analyzed: 01/21/2011						
Nitrate/Nitrite as N	4.22	0.09	0.44	mg/kg wet	4.4418		95.0	90-110		
Duplicate (L101219-DUP2)	**Source: 1012046-01**			Prepared: 01/20/2011 Analyzed: 01/21/2011						
Nitrate/Nitrite as N	1.92	0.10	0.50	mg/kg dry		1.74			10.1	20
Matrix Spike (L101219-MS2)	**Source: 1012046-01**			Prepared: 01/20/2011 Analyzed: 01/21/2011						
Nitrate/Nitrite as N	6.59	0.10	0.52	mg/kg dry	5.1720	1.74	93.8	75-125		
Batch L101220 - Default Prep GenChem										
Blank (L101220-BLK1)				Prepared: 01/20/2011 Analyzed: 01/21/2011						
Fluoride	0.3 U	0.3	2.3	mg/kg wet						
Chloride	0.6 U	0.6	2.3	mg/kg wet						
Bromide	1.6 U	1.6	2.3	mg/kg wet						
Orthophosphate	3.2 U	3.2	4.7	mg/kg wet						
Sulfate	0.9 U	0.9	2.3	mg/kg wet						
Nitrate	1.9 B	1.0	2.3	mg/kg wet						
Nitrite	0.9 U	0.9	2.3	mg/kg wet						

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WC-Hanford, Inc.	Project: RC-195	
2620 Fermi Avenue	Project Number: K2709	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	01/22/2011 17:35

Wet Chemistry - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L101220 - Default Prep GenChem											
LCS (L101220-BS1)					Prepared: 01/20/2011 Analyzed: 01/21/2011						
Fluoride	59.3		0.3	2.2	mg/kg wet	59.666		99.4	90-110		
Chloride	59.0		0.6	2.2	mg/kg wet	59.666		98.9	90-110		
Bromide	59.1		1.5	2.2	mg/kg wet	59.666		99.0	90-110		
Orthophosphate	61.5		3.0	4.5	mg/kg wet	59.666		103	90-110		
Sulfate	59.4		0.9	2.2	mg/kg wet	59.666		99.6	90-110		
Nitrate	59.3		1.0	2.2	mg/kg wet	59.666		99.4	90-110		
Nitrite	58.6		0.9	2.2	mg/kg wet	59.666		98.1	90-110		
Duplicate (L101220-DUP3)		**Source: 1012046-01**			Prepared: 01/20/2011 Analyzed: 01/21/2011						
Fluoride	0.3	U	0.3	2.5	mg/kg dry		0.4				20
Chloride	3.3		0.6	2.5	mg/kg dry		2.2			38.0*	20
Bromide	1.7	U	1.7	2.5	mg/kg dry		1.8 U				20
Orthophosphate	3.4	U	3.4	5.0	mg/kg dry		3.5 U				20
Sulfate	62.5		1.0	2.5	mg/kg dry		62.2			0.402	20
Nitrate	4.5		1.1	2.5	mg/kg dry		4.6			2.66	20
Nitrite	1.0	U	1.0	2.5	mg/kg dry		1.0 U				20
Matrix Spike (L101220-MS4)		**Source: 1012046-01**			Prepared: 01/20/2011 Analyzed: 01/21/2011						
Fluoride	51.3		0.3	2.6	mg/kg dry	51.720	0.4	98.4	75-125		
Chloride	55.8		0.6	2.6	mg/kg dry	51.720	2.2	104	75-125		
Bromide	51.7		1.8	2.6	mg/kg dry	51.720	1.8 U	99.9	75-125		
Orthophosphate	57.6		3.5	5.2	mg/kg dry	51.720	3.5 U	111	75-125		
Sulfate	121		1.0	2.6	mg/kg dry	51.720	62.2	114	75-125		
Nitrate	58.3		1.1	2.6	mg/kg dry	51.720	4.6	104	75-125		
Nitrite	52.0		1.0	2.6	mg/kg dry	51.720	1.0 U	101	75-125		

Lionville Laboratory Use Only

1012046

Custody Transfer Record/Lab Work Request

Page 1 of 1 SRC

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

VLI Lionville Laboratory Inc.

Client WC. Hanford SAF # RC.195

Est. Final Proj. Sampling Date

Project#

Project Contact/Phone#

Lionville Laboratory Project Manager Arlette Johnson

QC S(W) Del STD TAT 30 days

Date Rec'd 12.4.10 Date Due 1-3-11

		A		B	C		D		E		F	G		
Refrigerator #		1		1	1		1		1		1	1		
#/Type Container	Liquid	1aq		1aq	1aq		1aq		1aq	—	1aq	1aq		
	Solid													
Volume		250		250	120		250		120	—	120	250		
Preservatives		—		—	—		—		—		—	—		
ANALYSES REQUESTED		ORGANIC					INORG							
		VOA	BNA	~~Pest~~ PCB	Herb	PAHs 8310	(1) TPH-D		(2) Metal + Hg	CN	(3) SO4 Anions 202.2	203	Cr+6	pH % moisture
		Lionville Laboratory Use Only												
		8082		8310	DRO Kerosine		Met		Anions		V3U2	CRC	pH % moisture	

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected																
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	01	B28N97	✓	✓	S	11.18.10	1340			X		X	X		X		X	X	X	X			

Special Instructions:

Special Instructions:

1.
2.
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4.
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6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	12.4.10	11:00

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN			

000000008

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-195-529	PAGE 1 OF 1

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8N	DATA TURNAROUND
BAILEY	RADLOFF, ANNA	(509) 376-4554	KESSNER, JH	AIR QUALITY ☐	45 Days / 45 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**		
C7847 (118-B-8); I-004	Soil/Sediment Sampling - Integrated Remedial Investigation/Feasibility Stud		RC-195		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**	
GW3-186	HNF-N-585-3/81	12.5'-15'	302512ES10	FEDERAL EXPRESS	
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
Lionville Laboratory Incorporated	SEE PTR		SEE PTR 7941 8031 6467		

MATRIX*
A=Air
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DS=Drum Solids
L=Liquid
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S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE
RADIOACTIVE TIE TO: ~~B28N48~~
B29K45 KS 11/19/10

PRESERVATION	Cool~4C	Cool~4C	Cool~4C	Cool~4C	Cool~4C	Cool~4C	None
HOLDING TIME	14/40 Days	14/40 Days	1 yr/1 yr	6 Months	30 Days	28 Days/48 Hours	ASAP
TYPE OF CONTAINER	aG	G	aG	G/P	G/P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1	1	1	1
VOLUME	250mL	120mL	250mL	250mL	120mL	120mL	250mL
SAMPLE ANALYSIS	PAHs - 8310 (100 Area RI/FS);	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	PCBs - 8082 (100 Area RI/FS);	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196 (100 Area RIFS);	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	pH (Soil) - 9045 (100 Area RIFS); % moisture KS 11/24/10

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME							
B28N97	SOIL	11-18-10	1340	✓	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
JRGALLOY/JKB	11-18-10/1700	SSU-R1	11-18-10/1700
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
SSU-R1	DEC 0 3 2010 0830	M. A. White Mawhite	DEC 0 3 2010 0830
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
M. A. White Mawhite	DEC 0 3 2010 1400	FEDEX	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
FedEx	12-4-10/11:00	DSmith	12-4-10/11:00
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
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

** The laboratory is to analyze pH within 24 hours of receipt.☐☐** The RCCC acknowledges that the analytical holding time for Nitrate, Nitrite, and Phosphate by EPA methods 300.0 or 9056 will not be met.☐☐** Physical Properties laboratory: Conduct the hydraulic conductivity test (ASTM 5084 or 2434) as appropriate to the sample matrix.☐☐

(1) TPH-DieselKerosene Range - WTPH-D (100 Area RIFS);
(2) ICP Metals - 6010TR (100 Area RIFS Client List); Mercury - 7471 - (CV) (100 Area RIFS);
(3) IC Anions - 300.0 (100 Area RI/FS); NO2/NO3 - 353.2 (100 Area RI/FS);

ORIGINAL

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

A-6003-618(01/06)

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC Hamfoio Date: 12.4.10

Project/SAF/SOW/Release #: RC-195

LvL Batch #: 1012046 Sample Custodian: [signature]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7941 8031 6467
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 2.6	°C	Cooler # GWS-186
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 NO2 NO3 PO4 past hold	
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 LvL Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes ★ MS 1-24-11	☑ No see #12	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____