SAF-RC-206
Remedial Action of the 100-C-7 & 100-C-7:1 Waste Sites – Full Soil Protocol
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 8/2/12
INITIAL/DATE

COMMENTS:

SDG K3949 SAF-RC-206

Rad only ☑ Chem only Rad & Chem

☑ Complete Partial

Sample Location: 100-C-7:1 SPA1

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

25 July 2012

Joan Kessner
WC-Hanford, Inc.
2620 Fermi Avenue
MSIN H4-21
Richland, WA 99354

Subject: Analytical Data Package

Dear Ms. Kessner:

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

LvLI Batch #	1207020
SDG #	K3949
SAF #	RC-206
Date Received	07/12/12
# Samples	17
Matrix	SOIL
Volatiles	
Semivolatiles	
Pest/PCB	
Glycols	
DRO/KRO/GRO	
PAHs	
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

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 49 pages.

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

CHAIN OF CUSTODY

Lionville Laboratory Use Only: 1207020

Custody Transfer Record/Lab Work Request

Page 1 of 2

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Lionville Laboratory
A Division of Eberline Analytical Corporation

Client: WC Hanford SAF# RC-206
Est. Final Proj. Sampling Date:
Project#:
Project Contact/Phone#:
Lionville Laboratory Project Manager: O. Johnson
QC: SW Del: Std TAT: 21 Days

Date Rec'd: 7/12/12 Date Due: 8/02/12

Refrigerator #		A	B
		2	2
#/Type Container	Liquid		
	Solid	1pl	1pl
Volume	Liquid		
	Solid	125	125
Preservatives		—	—
ANALYSES REQUESTED →		ORGANIC: VOA, BNA, Pest/PCB, Herb	INORG: Metal, Hg, CN, Hex-Chrom
Lionville Laboratory Use Only		MET	Cr6+

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Met	Cr6+
01	J1PTJ7			Soil	7-9-12	7:12	X	X
02	J1PTJ8					7:24	X	X
03	J1PTJ9					7:31	X	X
04	J1PTK0					7:36	X	X
05	J1PTK1					7:46	X	X
06	J1PTK2					7:52	X	X
07	J1PTK3					8:00	X	X
08	J1PTK4					8:05	X	X
09	J1PTK5					8:11	X	X
10	J1PTK6					8:19	X	X

Special Instructions:
① Met = HSL + B, Mo, Si (no TL)

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

Relinquished by	Received by	Date	Time
Fed Ex	[illegible] Hernandez	7/12/12	0950

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-206-052	Page 1 of 4

Collector A. Dunnum	Company Contact J. Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Price Code 8L	Data Turnaround 21 Days		
Project Designation Remedial Action of the 100-C-7 & 100-C-7:1 Waste Sites - F	Sampling Location 100-C-7:1 SPA1		SAF No. RC-206
Ice Chest No. RCC-07-012	Field Logbook No. EL-1655-06	COA R00C712000	Method of Shipment Fed Ex
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A110467		Bill of Lading/Air Bill No. See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

Cool, 4 degrees Centigrade

Preservation	Cool 4C	Cool 4C									
Type of Container	G/P	G/P									
No. of Container(s)	1	1									
Volume	125mL	125mL									
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196									

Sample No.	Matrix *	Sample Date	Sample Time										
J1PTJ7	SOIL	7-9-12	7:12	X	X								
J1PTJ8	SOIL	7-9-12	7:24	X	X								
J1PTJ9	SOIL	7-9-12	7:31	X	X								
J1PTK0	SOIL	7-9-12	7:36	X	X								
J1PTK1	SOIL	7-9-12	7:46	X	X								

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
A. Dunnum	7-9-12 900	R. Fahlberg R. Fahlberg	7-9-12 0900
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Fahlberg R. Fahlberg	7-9-12 1440	A. Freier A. Freier	7-9-12 1440
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
A. Freier A. Freier	WCH 7-10-12 1060#1 1045	Fed Ex	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex	7-12-12 0950	[illegible]	7-12-12 0950
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV) {Mercury}

REVIEWED BY MWSher
DATE 7/10/12

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

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

WCH-EE-011

00000004

Lionville Laboratory Use Only

1207020

Custody Transfer Record/Lab Work Request

Page 2 of 2

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Lionville Laboratory
A Division of Eberline Analytical Corporation

Client: WC Hanford SAF# RC-206

Est. Final Proj. Sampling Date:

Project#: [illegible]

Project Contact/Phone#:

Lionville Laboratory Project Manager: O. Johnson

QC: Del: TAT:

Date Rec'd: Date Due:

Refrigerator #		A			B		
#/Type Container	Liquid	2			2		
	Solid	1			1		
Volume	Liquid						
	Solid	125			125		
Preservatives		—			—		
ANALYSES REQUESTED		ORGANIC: VOA, BNA, Pest/PCB, Herb			INORG: Metal, ~~Hg~~, CN		~~Cl~~ Chrom.
Lionville Laboratory Use Only					Met		Cr VI

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Metal	CN	Cr VI
11	J1PTK7			Soil	7-9-12	8:28	X		X
12	J1PTK8					8:33	X		X
13	J1PTK9					8:43	X		X
14	J1PTL0					8:47	X		X
15	J1PTL1					8:54	X		X
16	J1PTL2					7:12	X		X
17	J1PTL3					7:10	X		

Special Instructions:

Special Instructions:

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

Relinquished by	Received by	Date	Time
Fed Ex	Victor Hernandez	7/12/12	0950

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-206-052	Page 2 of 4

Collector A. Dunnum	Company Contact J. Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Price Code 8L	Data Turnaround 21 Days		
Project Designation Remedial Action of the 100-C-7 & 100-C-7:1 Waste Sites - F	Sampling Location 100-C-7:1 SPA1		SAF No. RC-206
Ice Chest No. KCC-07-012	Field Logbook No. EL-1655-06	COA R00C712000	Method of Shipment Fed Ex
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A110467		Bill of Lading/Air Bill No. See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

Cool, 4 degrees Centigrade

Preservation	Cool 4C	Cool 4C									
Type of Container	G/P	G/P									
No. of Container(s)	1	1									
Volume	125mL	125mL									
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196									

Sample No.	Matrix *	Sample Date	Sample Time										
J1PTK2	SOIL	7.9.12	7:52	X	X								
J1PTK3	SOIL	7.9.12	8:00	X	X								
J1PTK4	SOIL	7.9.12	8:05	X	X								
J1PTK5	SOIL	7.9.12	8:11	X	X								
J1PTK6	SOIL	7.9.12	8:19	X	X								

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Aaron Dunnum	7.9.12 9:00	R. Fahlberg R. Fahlberg	0900 7.9.12
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Fahlberg R. Fahlberg	1440 7.9.12	A. Freier A. Freier	1060#1 7-9-12 1440
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
A. Freier A. Freier	WCH 1060#1 7-10-12 1045	Fed Ex	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex	7.12.12/0950	[illegible]	7-12-12/0950
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV) {Mercury}

REVIEWED BY Rowshea DATE 7/10/12

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

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

WCH-EE-011

000000006

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-206-052	Page 3 of 4

Collector A. Dunnum	Company Contact J. Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Price Code 8L	Data Turnaround 21 Days		
Project Designation Remedial Action of the 100-C-7 & 100-C-7:1 Waste Sites - F	Sampling Location 100-C-7:1 SPA1		SAF No. RC-206
Ice Chest No. RCC-07-012	Field Logbook No. EL-1655-06	COA R00C712000	Method of Shipment Fed Ex
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A110467		Bill of Lading/Air Bill No. See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

Cool, 4 degrees Centigrade

Preservation	Cool 4C	Cool 4C									
Type of Container	G/P	G/P									
No. of Container(s)	1	1									
Volume	125mL	125mL									
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196									

Sample No.	Matrix *	Sample Date	Sample Time										
J1PTK7	SOIL	7-9-12	8:28	X	X								
J1PTK8	SOIL	7-9-12	8:33	X	X								
J1PTK9	SOIL	7-9-12	8:43	X	X								
J1PTL0	SOIL	7-9-12	8:47	X	X								
J1PTL1	SOIL	7-9-12	8:54	X	X								

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Aaron Dunnum	7-9-12 9:00	R. Fahlberg R. Fahlberg	0900 7-9-12
R. Fahlberg R. Fahlberg	7-9-12 1440	A. Freier A. Freier	1060#1 7-9-12 1440
A. Freier A. Freier	WCH 1060#1 7-10-12 1045	Fed Ex	
Fed Ex	7-12-12 0950	[illegible]	7-12-12 0950

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV) {Mercury}

REVIEWED BY MWSher DATE 7/10/12

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

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

WCH-EE-011

000000007

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-206-052	Page 4 of 4

Collector A. Dunnum	**Company Contact** J. Kessner	**Telephone No.** 509-375-4688	**Project Coordinator** KESSNER, JH
Project Designation Remedial Action of the 100-C-7 & 100-C-7:1 Waste Sites - F	**Sampling Location** 100-C-7:1 SPA1		**SAF No.** RC-206
Ice Chest No. RCC-07-012	**Field Logbook No.** EL-1655-06	**COA** R00C712000	**Method of Shipment** Fed Ex
Shipped To EBERLINE SERVICES LIONVILLE	**Offsite Property No.** A 110467		**Bill of Lading/Air Bill No.** See OSPC

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

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

Cool, 4 degrees Centigrade

Preservation	Cool 4C	Cool 4C									
Type of Container	G/P	G/P									
No. of Container(s)	1	1									
Volume	125mL	125mL									
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196									

Sample No.	Matrix *	Sample Date	Sample Time										
J1PTL2	SOIL	7-9-12	7:12	X	X								
J1PTL3	SOIL	7-9-12	7:10	X	~~X~~ RE 7-9-1								
AJ 7-10-12													

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
A. Dunnum	7-9-12 900	R. Fahlberg R. Fahlberg	7-9-12 0900
R. Fahlberg R. Fahlberg	7-9-12 1440	A. Freier A. Freier (1060#1)	7-9-12 1440
A. Freier A. Freier (WCH)	7-10-12 1060#1 1045	Fed Ex	
Fed Ex	7-12-12 0950	[illegible]	7-12-12 0950
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV) {Mercury}

REVIEWED BY [illegible] DATE 7/10/12

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

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

WCH-EE-011

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC Hanford **Date:** 7-12-12

Project/SAF/SOW/Release #: RC-206

LvL Batch #: 1207020 **Sample Custodian:** D. Jones

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # RCC-07-012
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** 2.2	°C	Cooler # RCC-07-012
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 _____	

SR-002-B.doc

METALS

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

WC-Hanford, Inc.	Project: RC-206	
2620 Fermi Avenue	Project Number: K3949	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 16:20

Analytical Report for Metals by SW846 6000/7000 series

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PTJ7	1207020-01	Soil	07/09/2012 07:12	07/12/2012 09:50
J1PTJ8	1207020-02	Soil	07/09/2012 07:24	07/12/2012 09:50
J1PTJ9	1207020-03	Soil	07/09/2012 07:31	07/12/2012 09:50
J1PTK0	1207020-04	Soil	07/09/2012 07:36	07/12/2012 09:50
J1PTK1	1207020-05	Soil	07/09/2012 07:46	07/12/2012 09:50
J1PTK2	1207020-06	Soil	07/09/2012 07:52	07/12/2012 09:50
J1PTK3	1207020-07	Soil	07/09/2012 08:00	07/12/2012 09:50
J1PTK4	1207020-08	Soil	07/09/2012 08:05	07/12/2012 09:50
J1PTK5	1207020-09	Soil	07/09/2012 08:11	07/12/2012 09:50
J1PTK6	1207020-10	Soil	07/09/2012 08:19	07/12/2012 09:50
J1PTK7	1207020-11	Soil	07/09/2012 08:28	07/12/2012 09:50
J1PTK8	1207020-12	Soil	07/09/2012 08:33	07/12/2012 09:50
J1PTK9	1207020-13	Soil	07/09/2012 08:43	07/12/2012 09:50
J1PTL0	1207020-14	Soil	07/09/2012 08:47	07/12/2012 09:50
J1PTL1	1207020-15	Soil	07/09/2012 08:54	07/12/2012 09:50
J1PTL2	1207020-16	Soil	07/09/2012 07:12	07/12/2012 09:50
J1PTL3	1207020-17	Soil	07/09/2012 07:10	07/12/2012 09:50

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-206
LVL#: 1207020
SDG/SAF#: K3949/RC-206

W.O.#: 60049-001-001-0001-00
Date Received: 07-12-11

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 analyses of 17 soil samples.

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

   Sample J1PTK5 was redigested for Mercury in batch L207095 after the digestate was lost during digestion in batch L207068.

   Sample J1PTL1 was rerun with a 12 fold dilution for Calcium due to high concentration.

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, or samples 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 13 analytes were outside the 75-125% control limits.

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

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:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J1PTJ7	Aluminum	22,000	85.9
	Antimony	100	85.8
	Boron	100	81.9
	Cadmium	100	95.6
	Calcium	20,800	112.9
	Cobalt	100	90.1
	Iron	42,000	56.6
	Lead	100	80.2
	Manganese	1,000	70.2
	Nickel	100	88.5
	Potassium	12,000	84.8
	Silicon	2,600	123.0
	Vanadium	1,000	75.4

12. All duplicate analysis for were within the 20% Relative Percent Difference (RPD) control limits. The ± 20% RPD control limit applies to sample results greater 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.

Iain Daniels
Laboratory Manager
Lionville Laboratory

7/26/12
Date

rgc/07-020hg%.doc

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

WC-Hanford, Inc.	Project: RC-206	
2620 Fermi Avenue	Project Number: K3949	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 16:20

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

264 Welsh Pool Road
Exton, PA 19341
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WC-Hanford, Inc.	Project: RC-206	
2620 Fermi Avenue	Project Number: K3949	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 16:20

J1PTJ7
1207020-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	**6770**		4.87	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Antimony	0.585	U	0.585	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Arsenic	**2.06**		0.975	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Barium	**81.2**		0.487	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Beryllium	**0.268**		0.195	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Boron	**3.30**		1.95	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cadmium	**0.122**	B	0.195	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Calcium	**5200**		97.5	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Chromium	**9.25**		0.195	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cobalt	**5.70**		1.95	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Copper	**13.3**		0.975	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Iron	**17300**		19.5	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Lead	**6.21**		0.487	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Magnesium	**3900**		73.1	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Manganese	**266**		4.87	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Molybdenum	**0.394**	B	1.95	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Nickel	**8.87**		3.90	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Potassium	**1430**		390	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Selenium	0.292	U	0.292	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silicon	**232**		1.95	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silver	0.195	U	0.195	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Sodium	**289**		48.7	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Vanadium	**46.7**		2.44	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Zinc	**39.4**		9.75	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Mercury	**0.0477**		0.0253	mg/kg dry	1	L207068	07/12/2012	07/17/2012	7471A

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WC-Hanford, Inc.	Project: RC-206	
2620 Fermi Avenue	Project Number: K3949	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 16:20

J1PTJ8
1207020-02 (Soil)

Lionville Laboratory

Metals by SW846 6000/7000 series

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Aluminum	**7450**		4.70	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Antimony	0.565	U	0.565	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Arsenic	**2.69**		0.941	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Barium	**55.6**		0.470	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Beryllium	**0.280**		0.188	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Boron	**1.74**	B	1.88	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cadmium	**0.0698**	B	0.188	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Calcium	**6260**		94.1	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Chromium	**10.5**		0.188	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cobalt	**7.13**		1.88	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Copper	**13.7**		0.941	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Iron	**19500**		18.8	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Lead	**3.55**		0.470	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Magnesium	**4890**		70.6	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Manganese	**304**		4.70	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Molybdenum	**0.441**	B	1.88	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Nickel	**10.7**		3.76	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Potassium	**1140**		376	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Selenium	0.282	U	0.282	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silicon	**234**		1.88	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silver	0.188	U	0.188	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Sodium	**293**		47.0	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Vanadium	**48.5**		2.35	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Zinc	**39.9**		9.41	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Mercury	0.0254	U	0.0254	mg/kg dry	1	L207068	07/12/2012	07/17/2012	7471A

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WC-Hanford, Inc.	Project: RC-206	
2620 Fermi Avenue	Project Number: K3949	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 16:20

J1PTJ9
1207020-03 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	**8730**		5.01	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Antimony	0.601	U	0.601	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Arsenic	**2.26**		1.00	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Barium	**65.8**		0.501	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Beryllium	**0.302**		0.200	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Boron	**1.73**	B	2.00	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cadmium	**0.0903**	B	0.200	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Calcium	**3890**		100	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Chromium	**9.59**		0.200	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cobalt	**6.12**		2.00	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Copper	**11.3**		1.00	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Iron	**17900**		20.0	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Lead	**3.32**		0.501	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Magnesium	**3820**		75.1	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Manganese	**302**		5.01	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Molybdenum	**0.325**	B	2.00	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Nickel	**9.13**		4.01	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Potassium	**1580**		401	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Selenium	0.300	U	0.300	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silicon	**329**		2.00	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silver	0.200	U	0.200	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Sodium	**220**		50.1	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Vanadium	**45.0**		2.50	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Zinc	**36.9**		10.0	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Mercury	0.0242	U	0.0242	mg/kg dry	1	L207068	07/12/2012	07/17/2012	7471A

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WC-Hanford, Inc.	Project: RC-206	
2620 Fermi Avenue	Project Number: K3949	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 16:20

J1PTK0
1207020-04 (Soil)

Lionville Laboratory

Metals by SW846 6000/7000 series

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Aluminum	**6370**		4.98	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Antimony	0.597	U	0.597	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Arsenic	**2.19**		0.996	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Barium	**72.7**		0.498	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Beryllium	**0.255**		0.199	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Boron	**2.16**		1.99	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cadmium	**0.0959**	B	0.199	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Calcium	**5390**		99.6	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Chromium	**8.01**		0.199	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cobalt	**6.15**		1.99	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Copper	**14.2**		0.996	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Iron	**17200**		19.9	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Lead	**4.81**		0.498	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Magnesium	**4100**		74.7	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Manganese	**257**		4.98	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Molybdenum	**0.425**	B	1.99	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Nickel	**9.03**		3.98	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Potassium	**1060**		398	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Selenium	0.299	U	0.299	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silicon	**260**		1.99	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silver	0.199	U	0.199	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Sodium	**261**		49.8	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Vanadium	**47.8**		2.49	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Zinc	**39.1**		9.96	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Mercury	0.0254	U	0.0254	mg/kg dry	1	L207068	07/12/2012	07/17/2012	7471A

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WC-Hanford, Inc.	Project: RC-206	
2620 Fermi Avenue	Project Number: K3949	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 16:20

J1PTK1
1207020-05 (Soil)

Lionville Laboratory

Metals by SW846 6000/7000 series

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Aluminum	**8440**		4.75	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Antimony	0.570	U	0.570	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Arsenic	**2.65**		0.949	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Barium	**67.4**		0.475	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Beryllium	**0.301**		0.190	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Boron	**1.75**	B	1.90	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cadmium	**0.0869**	B	0.190	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Calcium	**3810**		94.9	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Chromium	**10.2**		0.190	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cobalt	**6.12**		1.90	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Copper	**11.7**		0.949	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Iron	**17400**		19.0	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Lead	**3.39**		0.475	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Magnesium	**3920**		71.2	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Manganese	**290**		4.75	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Molybdenum	**0.334**	B	1.90	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Nickel	**9.19**		3.80	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Potassium	**1690**		380	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Selenium	0.285	U	0.285	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silicon	**293**		1.90	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silver	0.190	U	0.190	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Sodium	**226**		47.5	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Vanadium	**43.3**		2.37	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Zinc	**37.2**		9.49	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Mercury	**0.0115**	B	0.0256	mg/kg dry	1	L207068	07/12/2012	07/17/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-206 Project Number: K3949 Project Manager: Joan Kessner	**Reported:** 07/26/2012 16:20

J1PTK2
1207020-06 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	**8030**		4.79	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Antimony	0.575	U	0.575	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Arsenic	**2.63**		0.958	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Barium	**66.8**		0.479	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Beryllium	**0.284**		0.192	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Boron	**1.94**		1.92	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cadmium	**0.105**	B	0.192	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Calcium	**3970**		95.8	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Chromium	**11.5**		0.192	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cobalt	**5.73**		1.92	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Copper	**11.1**		0.958	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Iron	**16700**		19.2	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Lead	**4.65**		0.479	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Magnesium	**3850**		71.8	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Manganese	**277**		4.79	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Molybdenum	**0.329**	B	1.92	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Nickel	**8.65**		3.83	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Potassium	**1570**		383	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Selenium	0.287	U	0.287	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silicon	**1060**		1.92	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silver	0.192	U	0.192	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Sodium	**226**		47.9	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Vanadium	**43.4**		2.39	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Zinc	**38.7**		9.58	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Mercury	0.0277	U	0.0277	mg/kg dry	1	L207068	07/12/2012	07/17/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-206 Project Number: K3949 Project Manager: Joan Kessner	**Reported:** 07/26/2012 16:20

J1PTK3
1207020-07 (Soil)

Lionville Laboratory

Metals by SW846 6000/7000 series

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Aluminum	**7840**		4.76	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Antimony	0.572	U	0.572	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Arsenic	**2.36**		0.953	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Barium	**62.8**		0.476	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Beryllium	**0.284**		0.191	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Boron	**1.69**	B	1.91	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cadmium	**0.0824**	B	0.191	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Calcium	**4340**		95.3	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Chromium	**9.38**		0.191	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cobalt	**6.14**		1.91	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Copper	**13.1**		0.953	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Iron	**17000**		19.1	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Lead	**3.26**		0.476	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Magnesium	**4160**		71.5	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Manganese	**264**		4.76	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Molybdenum	**0.316**	B	1.91	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Nickel	**9.37**		3.81	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Potassium	**1290**		381	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Selenium	0.286	U	0.286	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silicon	**259**		1.91	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silver	0.191	U	0.191	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Sodium	**252**		47.6	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Vanadium	**43.4**		2.38	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Zinc	**36.9**		9.53	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Mercury	**0.0241**	B	0.0252	mg/kg dry	1	L207068	07/12/2012	07/17/2012	7471A

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WC-Hanford, Inc.	Project: RC-206	
2620 Fermi Avenue	Project Number: K3949	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 16:20

J1PTK4
1207020-08 (Soil)

Lionville Laboratory

Metals by SW846 6000/7000 series

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Aluminum	**7330**		4.88	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Antimony	0.585	U	0.585	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Arsenic	**2.00**		0.976	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Barium	**64.4**		0.488	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Beryllium	**0.265**		0.195	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Boron	**1.35**	B	1.95	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cadmium	**0.0712**	B	0.195	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Calcium	**4970**		97.6	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Chromium	**8.79**		0.195	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cobalt	**6.65**		1.95	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Copper	**13.6**		0.976	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Iron	**18500**		19.5	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Lead	**2.89**		0.488	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Magnesium	**4140**		73.2	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Manganese	**266**		4.88	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Molybdenum	**0.344**	B	1.95	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Nickel	**8.02**		3.90	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Potassium	**1150**		390	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Selenium	0.293	U	0.293	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silicon	**199**		1.95	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silver	0.195	U	0.195	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Sodium	**374**		48.8	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Vanadium	**46.1**		2.44	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Zinc	**39.1**		9.76	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Mercury	**0.208**		0.0247	mg/kg dry	1	L207068	07/12/2012	07/17/2012	7471A

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WC-Hanford, Inc.	Project: RC-206	
2620 Fermi Avenue	Project Number: K3949	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 16:20

J1PTK5
1207020-09 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	**8200**		4.37	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Antimony	0.524	U	0.524	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Arsenic	**2.49**		0.873	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Barium	**69.9**		0.437	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Beryllium	**0.286**		0.175	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Boron	**2.28**		1.75	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cadmium	**0.0957**	B	0.175	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Calcium	**3810**		87.3	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Chromium	**12.7**		0.175	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cobalt	**5.74**		1.75	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Copper	**11.0**		0.873	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Iron	**16300**		17.5	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Lead	**3.46**		0.437	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Magnesium	**4020**		65.5	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Manganese	**282**		4.37	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Molybdenum	**0.299**	B	1.75	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Nickel	**9.43**		3.49	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Potassium	**1540**		349	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Selenium	0.262	U	0.262	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silicon	**298**		1.75	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silver	0.175	U	0.175	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Sodium	**213**		43.7	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Vanadium	**41.6**		2.18	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Zinc	**37.4**		8.73	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Mercury	0.0290	U	0.0290	mg/kg dry	1	L207095	07/18/2012	07/20/2012	7471A

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WC-Hanford, Inc.	Project: RC-206	
2620 Fermi Avenue	Project Number: K3949	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 16:20

J1PTK6
1207020-10 (Soil)

Lionville Laboratory

Metals by SW846 6000/7000 series

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Aluminum	**6080**		4.93	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Antimony	0.592	U	0.592	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Arsenic	**2.09**		0.986	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Barium	**58.2**		0.493	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Beryllium	**0.196**	B	0.197	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Boron	**1.64**	B	1.97	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cadmium	**0.0709**	B	0.197	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Calcium	**2360**		98.6	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Chromium	**14.9**		0.197	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cobalt	**4.43**		1.97	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Copper	**10.2**		0.986	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Iron	**9580**		19.7	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Lead	**2.98**		0.493	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Magnesium	**4680**		74.0	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Manganese	**179**		4.93	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Molybdenum	1.97	U	1.97	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Nickel	**19.2**		3.94	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Potassium	**1450**		394	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Selenium	0.296	U	0.296	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silicon	**264**		1.97	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silver	0.197	U	0.197	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Sodium	**127**		49.3	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Vanadium	**17.2**		2.47	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Zinc	**24.5**		9.86	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Mercury	0.0245	U	0.0245	mg/kg dry	1	L207068	07/12/2012	07/17/2012	7471A

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WC-Hanford, Inc.	Project: RC-206	
2620 Fermi Avenue	Project Number: K3949	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 16:20

J1PTK7
1207020-11 (Soil)

Lionville Laboratory

Metals by SW846 6000/7000 series

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Aluminum	**6870**		4.82	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Antimony	0.578	U	0.578	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Arsenic	**2.59**		0.964	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Barium	**73.1**		0.482	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Beryllium	**0.270**		0.193	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Boron	**2.66**		1.93	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cadmium	**0.0874**	B	0.193	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Calcium	**5730**		96.4	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Chromium	**8.33**		0.193	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cobalt	**6.62**		1.93	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Copper	**14.0**		0.964	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Iron	**16500**		19.3	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Lead	**4.46**		0.482	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Magnesium	**4920**		72.3	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Manganese	**256**		4.82	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Molybdenum	**0.287**	B	1.93	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Nickel	**14.5**		3.86	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Potassium	**1320**		386	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Selenium	0.289	U	0.289	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silicon	**157**		1.93	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silver	0.193	U	0.193	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Sodium	**312**		48.2	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Vanadium	**41.5**		2.41	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Zinc	**38.3**		9.64	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Mercury	**0.0171**	B	0.0263	mg/kg dry	1	L207068	07/12/2012	07/17/2012	7471A

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WC-Hanford, Inc.	Project: RC-206	
2620 Fermi Avenue	Project Number: K3949	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 16:20

J1PTK8
1207020-12 (Soil)

Lionville Laboratory

Metals by SW846 6000/7000 series

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Aluminum	**7530**		5.00	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Antimony	0.600	U	0.600	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Arsenic	**3.83**		1.00	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Barium	**75.5**		0.500	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Beryllium	**0.313**		0.200	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Boron	**1.26**	B	2.00	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cadmium	**0.0708**	B	0.200	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Calcium	**8260**		100	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Chromium	**17.0**		0.200	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cobalt	**8.33**		2.00	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Copper	**15.4**		1.00	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Iron	**20500**		20.0	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Lead	**4.54**		0.500	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Magnesium	**5900**		75.0	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Manganese	**323**		5.00	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Molybdenum	**0.465**	B	2.00	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Nickel	**12.4**		4.00	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Potassium	**1350**		400	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Selenium	0.300	U	0.300	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silicon	**230**		2.00	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silver	0.200	U	0.200	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Sodium	**439**		50.0	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Vanadium	**56.3**		2.50	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Zinc	**49.9**		10.0	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Mercury	**0.0213**	B	0.0242	mg/kg dry	1	L207068	07/12/2012	07/17/2012	7471A

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WC-Hanford, Inc.	Project: RC-206	
2620 Fermi Avenue	Project Number: K3949	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 16:20

J1PTK9

1207020-13 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	**6750**		4.30	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Antimony	0.516	U	0.516	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Arsenic	**2.71**		0.860	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Barium	**70.1**		0.430	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Beryllium	**0.272**		0.172	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Boron	**2.53**		1.72	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cadmium	**0.0839**	B	0.172	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Calcium	**6440**		86.0	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Chromium	**9.47**		0.172	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cobalt	**6.61**		1.72	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Copper	**13.6**		0.860	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Iron	**17500**		17.2	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Lead	**3.87**		0.430	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Magnesium	**4440**		64.5	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Manganese	**271**		4.30	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Molybdenum	**0.385**	B	1.72	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Nickel	**8.86**		3.44	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Potassium	**1150**		344	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Selenium	0.258	U	0.258	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silicon	**213**		1.72	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silver	0.172	U	0.172	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Sodium	**278**		43.0	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Vanadium	**50.2**		2.15	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Zinc	**39.8**		8.60	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Mercury	**0.0825**		0.0247	mg/kg dry	1	L207068	07/12/2012	07/17/2012	7471A

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WC-Hanford, Inc.	Project: RC-206	
2620 Fermi Avenue	Project Number: K3949	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 16:20

J1PTL0
1207020-14 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	**7060**		4.98	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Antimony	0.598	U	0.598	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Arsenic	**2.62**		0.997	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Barium	**75.4**		0.498	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Beryllium	**0.281**		0.199	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Boron	**3.16**		1.99	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cadmium	**0.0993**	B	0.199	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Calcium	**6610**		99.7	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Chromium	**8.76**		0.199	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cobalt	**6.33**		1.99	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Copper	**14.3**		0.997	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Iron	**18000**		19.9	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Lead	**4.37**		0.498	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Magnesium	**4220**		74.8	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Manganese	**278**		4.98	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Molybdenum	**0.352**	B	1.99	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Nickel	**8.63**		3.99	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Potassium	**1510**		399	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Selenium	0.299	U	0.299	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silicon	**264**		1.99	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silver	0.199	U	0.199	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Sodium	**290**		49.8	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Vanadium	**49.0**		2.49	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Zinc	**42.2**		9.97	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Mercury	**0.0152**	B	0.0261	mg/kg dry	1	L207068	07/12/2012	07/17/2012	7471A

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WC-Hanford, Inc.	Project: RC-206	
2620 Fermi Avenue	Project Number: K3949	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 16:20

J1PTL1
1207020-15 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	**8810**		5.16	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Antimony	**0.978**		0.619	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Arsenic	**22.0**		1.03	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Barium	**101**		0.516	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Beryllium	**0.229**		0.206	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Boron	**6.91**		2.06	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cadmium	**0.0569**	B	0.206	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Calcium	**89600**		1240	mg/kg dry	12	L207071	07/13/2012	07/24/2012	6010B
Chromium	**10.9**		0.206	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cobalt	**6.61**		2.06	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Copper	**31.2**		1.03	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Iron	**14600**		20.6	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Lead	**7.59**		0.516	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Magnesium	**5060**		77.4	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Manganese	**228**		5.16	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Molybdenum	**0.803**	B	2.06	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Nickel	**9.16**		4.13	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Potassium	**1700**		413	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Selenium	0.310	U	0.310	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silicon	**342**		2.06	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silver	0.206	U	0.206	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Sodium	**323**		51.6	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Vanadium	**40.3**		2.58	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Zinc	**124**		10.3	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Mercury	0.0287	U	0.0287	mg/kg dry	1	L207068	07/12/2012	07/17/2012	7471A

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WC-Hanford, Inc.	Project: RC-206	
2620 Fermi Avenue	Project Number: K3949	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 16:20

J1PTL2
1207020-16 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	**6540**		4.61	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Antimony	0.554	U	0.554	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Arsenic	**2.53**		0.923	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Barium	**70.3**		0.461	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Beryllium	**0.258**		0.185	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Boron	**3.21**		1.85	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cadmium	**0.125**	B	0.185	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Calcium	**5870**		92.3	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Chromium	**11.6**		0.185	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cobalt	**6.03**		1.85	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Copper	**14.9**		0.923	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Iron	**16800**		18.5	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Lead	**5.18**		0.461	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Magnesium	**5140**		69.2	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Manganese	**244**		4.61	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Molybdenum	**0.376**	B	1.85	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Nickel	**14.7**		3.69	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Potassium	**1230**		369	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Selenium	0.277	U	0.277	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silicon	**206**		1.85	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silver	0.185	U	0.185	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Sodium	**271**		46.1	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Vanadium	**40.8**		2.31	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Zinc	**40.8**		9.23	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Mercury	**0.0119**	B	0.0261	mg/kg dry	1	L207068	07/12/2012	07/17/2012	7471A

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WC-Hanford, Inc.	Project: RC-206	
2620 Fermi Avenue	Project Number: K3949	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 16:20

J1PTL3
1207020-17 (Soil)

Lionville Laboratory

Metals by SW846 6000/7000 series

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Aluminum	**193**		4.24	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Antimony	0.509	U	0.509	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Arsenic	0.848	U	0.848	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Barium	**1.64**		0.424	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Beryllium	0.170	U	0.170	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Boron	**1.19**	B	1.70	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cadmium	0.170	U	0.170	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Calcium	**56.7**	B	84.8	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Chromium	0.170	U	0.170	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Cobalt	1.70	U	1.70	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Copper	0.848	U	0.848	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Iron	**266**		17.0	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Lead	**0.387**	B	0.424	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Magnesium	**20.2**	B	63.6	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Manganese	**4.67**		4.24	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Molybdenum	1.70	U	1.70	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Nickel	3.39	U	3.39	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Potassium	**38.2**	B	339	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Selenium	0.254	U	0.254	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silicon	**70.0**		1.70	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Silver	0.170	U	0.170	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Sodium	**11.0**	B	42.4	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Vanadium	**0.273**	B	2.12	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Zinc	**1.69**	B	8.48	mg/kg dry	1	L207071	07/13/2012	07/16/2012	6010B
Mercury	0.0257	U	0.0257	mg/kg dry	1	L207068	07/12/2012	07/17/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-206 Project Number: K3949 Project Manager: Joan Kessner	**Reported:** 07/26/2012 16:20

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 L207068 - SW 7471A Prep										
Blank (L207068-BLK1)				Prepared: 07/12/2012 Analyzed: 07/17/2012						
Mercury	0.0273	U	0.0273	mg/kg wet						
Duplicate (L207068-DUP3)		**Source: 1207020-01**		Prepared: 07/12/2012 Analyzed: 07/17/2012						
Mercury	0.0130	B	0.0253	mg/kg dry		0.0477			115*	20
Matrix Spike (L207068-MS3)		**Source: 1207020-01**		Prepared: 07/12/2012 Analyzed: 07/17/2012						
Mercury	0.168		0.0261	mg/kg dry	0.14486	0.0477	83.0	75-125		20
Reference (L207068-SRM1)				Prepared: 07/12/2012 Analyzed: 07/17/2012						
Mercury	1.21		0.0281	mg/kg wet	1.2900		94.0	62.6-138		
Batch L207071 - SW 3050B										
Blank (L207071-BLK1)				Prepared: 07/13/2012 Analyzed: 07/16/2012						
Aluminum	4.81	U	4.81	mg/kg wet						
Antimony	0.577	U	0.577	mg/kg wet						
Arsenic	0.962	U	0.962	mg/kg wet						
Barium	0.481	U	0.481	mg/kg wet						
Beryllium	0.192	U	0.192	mg/kg wet						
Boron	1.92	U	1.92	mg/kg wet						
Cadmium	0.192	U	0.192	mg/kg wet						
Calcium	8.03	B	96.2	mg/kg wet						
Chromium	0.192	U	0.192	mg/kg wet						
Cobalt	1.92	U	1.92	mg/kg wet						
Copper	0.962	U	0.962	mg/kg wet						
Iron	19.2	U	19.2	mg/kg wet						
Lead	0.481	U	0.481	mg/kg wet						
Magnesium	72.1	U	72.1	mg/kg wet						
Manganese	4.81	U	4.81	mg/kg wet						
Molybdenum	1.92	U	1.92	mg/kg wet						
Nickel	3.85	U	3.85	mg/kg wet						
Potassium	385	U	385	mg/kg wet						
Selenium	0.288	U	0.288	mg/kg wet						
Silicon	1.92	U	1.92	mg/kg wet						
Silver	0.192	U	0.192	mg/kg wet						
Sodium	48.1	U	48.1	mg/kg wet						
Vanadium	2.40	U	2.40	mg/kg wet						
Zinc	9.62	U	9.62	mg/kg wet						

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WC-Hanford, Inc.	Project: RC-206	
2620 Fermi Avenue	Project Number: K3949	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 16:20

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 L207071 - SW 3050B										
Duplicate (L207071-DUP1)		**Source: 1207020-01**		Prepared: 07/13/2012 Analyzed: 07/16/2012						
Aluminum	6300		4.61	mg/kg dry		6770			7	20
Antimony	0.553	U	0.553	mg/kg dry		0.585 U				20
Arsenic	2.02		0.922	mg/kg dry		2.06			2	20
Barium	69.2		0.461	mg/kg dry		81.2			16	20
Beryllium	0.246		0.184	mg/kg dry		0.268			9	20
Boron	3.10		1.84	mg/kg dry		3.30			6	20
Cadmium	0.122	B	0.184	mg/kg dry		0.122			0.1	20
Calcium	5250		92.2	mg/kg dry		5200			0.9	20
Chromium	8.71		0.184	mg/kg dry		9.25			6	20
Cobalt	5.60		1.84	mg/kg dry		5.70			2	20
Copper	13.1		0.922	mg/kg dry		13.3			1	20
Iron	17400		18.4	mg/kg dry		17300			1	20
Lead	5.76		0.461	mg/kg dry		6.21			8	20
Magnesium	3910		69.1	mg/kg dry		3900			0.4	20
Manganese	253		4.61	mg/kg dry		266			5	20
Molybdenum	0.390	B	1.84	mg/kg dry		0.394			1	20
Nickel	8.62		3.69	mg/kg dry		8.87			3	20
Potassium	1240		369	mg/kg dry		1430			14	20
Selenium	0.277	U	0.277	mg/kg dry		0.292 U				20
Silicon	227		1.84	mg/kg dry		232			2	20
Silver	0.184	U	0.184	mg/kg dry		0.195 U				20
Sodium	288		46.1	mg/kg dry		289			0.4	20
Vanadium	44.0		2.30	mg/kg dry		46.7			6	20
Zinc	39.9		9.22	mg/kg dry		39.4			1	20
Matrix Spike (L207071-MS1)		**Source: 1207020-01**		Prepared: 07/13/2012 Analyzed: 07/16/2012						
Aluminum	7970		5.07	mg/kg dry	202.80	6770	592*	75-125		
Antimony	11.3		0.608	mg/kg dry	50.700	0.585 U	22*	75-125		
Arsenic	160		1.01	mg/kg dry	202.80	2.06	78	75-125		
Barium	234		0.507	mg/kg dry	202.80	81.2	75	75-125		
Beryllium	4.07		0.203	mg/kg dry	5.0700	0.268	75	75-125		
Boron	72.1		2.03	mg/kg dry	101.40	3.30	68*	75-125		
Cadmium	3.53		0.203	mg/kg dry	5.0700	0.122	67*	75-125		
Calcium	8390		101	mg/kg dry	2535.0	5200	126*	75-125		
Chromium	25.6		0.203	mg/kg dry	20.280	9.25	81	75-125		
Cobalt	42.2		2.03	mg/kg dry	50.700	5.70	72*	75-125		
Copper	32.6		1.01	mg/kg dry	25.350	13.3	76	75-125		

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WC-Hanford, Inc.	Project: RC-206	
2620 Fermi Avenue	Project Number: K3949	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 16:20

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 L207071 - SW 3050B									
Matrix Spike (L207071-MS1)		**Source: 1207020-01**	Prepared: 07/13/2012 Analyzed: 07/16/2012						
Iron	16700	20.3	mg/kg dry	101.40	17300	-559*	75-125		
Lead	40.8	0.507	mg/kg dry	50.700	6.21	68*	75-125		
Magnesium	6180	76.0	mg/kg dry	2535.0	3900	90	75-125		
Manganese	302	5.07	mg/kg dry	50.700	266	69*	75-125		
Molybdenum	76.4	2.03	mg/kg dry	101.40	0.394	75	75-125		
Nickel	45.0	4.06	mg/kg dry	50.700	8.87	71*	75-125		
Potassium	3310	406	mg/kg dry	2535.0	1430	74*	75-125		
Selenium	154	0.304	mg/kg dry	202.80	0.292 U	76	75-125		
Silicon	263	2.03	mg/kg dry	101.40	232	30*	75-125		
Silver	3.93	0.203	mg/kg dry	5.0700	0.195 U	78	75-125		
Sodium	2390	50.7	mg/kg dry	2535.0	289	83	75-125		
Vanadium	81.8	2.53	mg/kg dry	50.700	46.7	69*	75-125		
Zinc	79.2	10.1	mg/kg dry	50.700	39.4	78	75-125		
Reference (L207071-SRM1)			Prepared: 07/13/2012 Analyzed: 07/16/2012						
Aluminum	9610	14.4	mg/kg wet	6670.0		144	0-200.89		
Antimony	28.0	1.73	mg/kg wet	53.000		53	0-235.8		
Arsenic	109	2.88	mg/kg wet	114.00		96	82.8-117.54		
Barium	320	1.44	mg/kg wet	307.00		104	79.8-120.2		
Beryllium	98.6	0.577	mg/kg wet	108.00		91	82.8-117.6		
Boron	72.3	5.77	mg/kg wet	85.100		85	67.5-132.8		
Cadmium	219	0.577	mg/kg wet	225.00		97	83.6-116.4		
Calcium	3420	288	mg/kg wet	3360.0		102	83.3-116.9		
Chromium	78.0	0.577	mg/kg wet	77.200		101	73.3-126.4		
Cobalt	156	5.77	mg/kg wet	166.00		94	80.7-118.7		
Copper	254	2.88	mg/kg wet	271.00		94	80.8-119.2		
Iron	7780	57.7	mg/kg wet	8420.0		92	78.6-121.1		
Lead	177	1.44	mg/kg wet	190.00		93	81.6-118.4		
Magnesium	8750	216	mg/kg wet	8570.0		102	83.2-116.7		
Manganese	955	14.4	mg/kg wet	965.00		99	69.3-130.5		
Molybdenum	222	5.77	mg/kg wet	235.00		95	76.2-123.8		
Nickel	204	11.5	mg/kg wet	221.00		92	79.6-120.8		
Potassium	13100	1150	mg/kg wet	14400		91	81.9-118.1		
Selenium	184	0.865	mg/kg wet	187.00		98	75.9-124.6		
Silicon	211	5.77	mg/kg wet	807.00		26	0-219.3		
Silver	79.5	0.577	mg/kg wet	83.500		95	82.7-117.1		
Sodium	9050	144	mg/kg wet	9730.0		93	82.5-117.2		

264 Welsh Pool Road
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Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-206 Project Number: K3949 Project Manager: Joan Kessner	**Reported:** 07/26/2012 16:20

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 L207071 - SW 3050B										
Reference (L207071-SRM1)				Prepared: 07/13/2012 Analyzed: 07/16/2012						
Vanadium	94.7		7.21	mg/kg wet	98.700		96	75.9-123.6		
Zinc	190		28.8	mg/kg wet	199.00		95	78.4-121.6		
Batch L207095 - SW 7471A Prep										
Blank (L207095-BLK1)				Prepared: 07/18/2012 Analyzed: 07/20/2012						
Mercury	0.0281	U	0.0281	mg/kg wet						
Duplicate (L207095-DUP1)		**Source: 1207020-09**		Prepared: 07/18/2012 Analyzed: 07/20/2012						
Mercury	0.0281	U	0.0281	mg/kg dry		0.0290 U				20
Matrix Spike (L207095-MS1)		**Source: 1207020-09**		Prepared: 07/18/2012 Analyzed: 07/20/2012						
Mercury	0.162		0.0281	mg/kg dry	0.15613	0.0290 U	104	75-125		20
Reference (L207095-SRM1)				Prepared: 07/18/2012 Analyzed: 07/20/2012						
Mercury	1.29		0.0300	mg/kg wet	1.2900		100	62.6-138		

Lionville Laboratory

Logbook #: 128

SAMPLE DIGESTION RECORD

Digestion Batch #: L207071
Date/Time Initiated: 2030 / 95° 7/12/12
Date/Time Completed: 1410 / 930 7/13/12
Analyst: CR
Matrix (circle): Soil Water Other
Method (circle one): 3005A 3010A 3050 200.7 (1994)
pH/Turbidity: N/A for Solids.
NOTE: All temperatures are recorded as corrected temperatures

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

Work Order #	Spike Vol (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/Sol/ TC	Texture	Color / Appearance	Artifact	Turb
1207020-01		0.52	50		TO	Fine	BROWN	NA	NA
01R		0.55	50		TO	Fine	BROWN		
01S	0.5	0.50	50		TO	Fine	BROWN		
02		0.54	50		TO	Fine	BROWN		
03		0.51	50		TO	Fine	BROWN		
04		0.51	50		TO	Fine	BROWN		
05		0.54	50		TO	Fine	BROWN		
06		0.53	50		TO	Fine	BROWN		
07		0.53	50		TO	Fine	BROWN		
08		0.52	50		TO	Fine	BROWN		
09		0.59	50		TO	Fine	BROWN		
10		0.51	50		TO	Fine	BROWN		
11		0.53	50		TO	Fine	BROWN		
12		0.51	50		TO	Fine	BROWN		
13		0.59	50		TO	Fine	BROWN		
14		0.51	50		TO	Fine	BROWN		
15		0.51	50		TO	Fine	BROWN		
16		0.55	50		TO	Fine	BROWN		
17		0.59	50		TO	Fine	BROWN		
BLK1		0.52	50		TO		Boiling Chips		
SRM1		0.52	50		TO		Peak Loamy Sand		

7/13/12

Spiking IDs / Expiration Date:
MS# : 1200457

LCS#: K1101357

Reagent IDs:
HNO_3 L08023
HCl L01031
H_2O_2 K09A03
1:1 HNO_3 637-066-02
1:1 HCl

File ID#:

Data Review By/Date: 7/19/12

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Signed\SPI\Metals Digestion log.doc

Page #:

new curve - 7/17/12

Lionville Laboratory

MERCURY PREPARATION

Analyst: [illegible]
Date 7/12/12 - 7/13/12
Start Time/Temp: 1310/94°
End Time/Temp: 1340/96°

Instrument ID: HG3.1/HG3.2
Balance # 329 /NA
Pipette Calibration (Daily) (Y)

Logbook # 1143
Prep Batch: L207068
Worksheet: HG071701/HG071702
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	
L207068-BLK1				0.33	50	
SRM1		(X)	(X)	0.32	50	
1207009-01				0.32	50	RAD
L207068-DUP1				0.32	50	↓
MS1		0.500	1.0	0.32	50	↓
1207019-01				0.36	50	
L207068-DUP2				0.34	50	
MS2		0.500	1.0	0.37	50	
1207020-01				0.36	50	
L207068-DUP3				0.36	50	
MS3		0.500	1.0	0.35	50	
1207020-02				0.36	50	
03				0.38	50	
04				0.36	50	
05				0.36	50	
06				0.33	50	
07				0.36	50	
08				0.37	50	

Standard:	ID	Prep Date/Time
ICAL/MS	RT 1200588	7/13/12 1025
ICV/CCV/LCS	(I.V. 1200532)	N/A

Reviewed By/Date: RGO 7/24/12

se book # 1143-B1 for std traceability information

Soil LCS True Value = 1.29 mg/Kg
Standard # 1101357 (X)

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

Lionville Laboratory

MERCURY PREPARATION

Logbook # 1143

Analyst: [illegible]
Date 7/12/12
Start Time/Temp: See page 013
End Time/Temp: See page 013

Instrument ID: HG3.1/HG3.2
Balance # B29 /NA
Pipette Calibration (Daily) (Y)

Prep Batch: L207068
Worksheet: HG071701/HG071702
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.
1207020-09				0.36	50	
10				0.37	50	
11				0.35	50	
12				0.38	50	
13				0.37	50	
14				0.35	50	
15				0.33	50	
16				0.35	50	
17				0.35	50	

PW 7/12/12

Standard:	ID	Prep Date/Time
ICAL/MS	See page 013	
ICV/CCV/LCS		

Reviewed By/Date: RW 7/24/12

See book # 1143 pg 1 for std traceability information

Soil LCS True Value = See page 013 mg/Kg
Standard # _____

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

Lionville Laboratory

MERCURY PREPARATION

Analyst: MWell
Date 7/18/12 - 7/19/12
Start Time/Temp: 1400 / 96°
End Time/Temp: 1430 / 97°

Instrument ID: HG3.2
Balance # B09 /NA
Pipette Calibration (Daily) (Y)

Logbook # 1143
Prep Batch: L207095
Worksheet: HG072002
SOP No. ME-HgCVAA
BLOCK 1 2 (3) (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				10ml	50	
0.2 µg/l		0.100		10 ml	50	
1.0 µg/l		0.500		10 ml	50	
2.0 µg/l		1.000		10 ml	50	
5.0 µg/l		2.500		10 ml	50	
10.0 µg/l		5.000		10 ml	50	
ICV		0.125	2.5	10ml	50	
CCV		0.250	5.0	10ml	50	
ICB/CCB				10ml	50	
L207095-BK1				0.32	50	
SRM1		(*)	(*)	0.30	50	
1207020-09				0.32	50	
L207095-DUP1				0.33	50	
MS1		0.500	1.0	0.33	50	
1207030-01				0.36	50	
L207095-DUP2				0.36	50	
MS2		0.500	1.0	0.35	50	
1207032-01				0.38	50	
L207095-DUP3				0.37	50	
MS3		0.500	1.0	0.38	50	
1207034-01				0.35	50	
L207095-DUP4				0.35	50	
MS4		0.500	1.0	0.36	50	
1207034-02				0.37	50	
03				0.36	50	
04				0.37	50	
05				0.34	50	

Standard:	ID	Prep Date/Time
ICAL/MS	RT 1200588	7/19/12 1030
ICV/CCV/LCS	(I.V. 1200532)	N/A

Reviewed By/Date: Rjo 7/24/12

se book # 1143 pg 1 for std traceability information

Soil LCS True Value = 1.79 mg/Kg
Standard # 1101357 (*)

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

ME-HgCVAA-Prep0910

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000000019

Lionville Laboratory

MERCURY PREPARATION

Analyst: [illegible]
Date 7/18/12-7/19/12
Start Time/Temp: 019
End Time/Temp: See 18

Instrument ID: HG3.2
Balance # B29 /NA
Pipette Calibration (Daily) (Y)

Logbook # 1143
Prep Batch: L207095
Worksheet: HG072002
SOP No. ME-HgCVAA
BLOCK 1 (3) 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.
1207034-06				0.34	50	
07				0.39	50	
08				0.34	50	
09				0.33	50	
10				0.37	50	
11				0.36	50	
12				0.38	50	
13				0.33	50	
14				0.35	50	
15				0.34	50	

MW 7/18/12

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

Reviewed By/Date: [illegible] 7/24/12

se book # 1143 pg 1 for std traceability information

Soil LCS True Value = See page 019 mg/Kg
Standard #

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

ME-HgCVAA-Prep0910

Page #:

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INORGANICS

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

WC-Hanford, Inc.	Project: RC-206	
2620 Fermi Avenue	Project Number: K3949	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/24/2012 14:01

Analytical Report for Wet Chemistry

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PTJ7	1207020-01	Soil	07/09/2012 07:12	07/12/2012 09:50
J1PTJ8	1207020-02	Soil	07/09/2012 07:24	07/12/2012 09:50
J1PTJ9	1207020-03	Soil	07/09/2012 07:31	07/12/2012 09:50
J1PTK0	1207020-04	Soil	07/09/2012 07:36	07/12/2012 09:50
J1PTK1	1207020-05	Soil	07/09/2012 07:46	07/12/2012 09:50
J1PTK2	1207020-06	Soil	07/09/2012 07:52	07/12/2012 09:50
J1PTK3	1207020-07	Soil	07/09/2012 08:00	07/12/2012 09:50
J1PTK4	1207020-08	Soil	07/09/2012 08:05	07/12/2012 09:50
J1PTK5	1207020-09	Soil	07/09/2012 08:11	07/12/2012 09:50
J1PTK6	1207020-10	Soil	07/09/2012 08:19	07/12/2012 09:50
J1PTK7	1207020-11	Soil	07/09/2012 08:28	07/12/2012 09:50
J1PTK8	1207020-12	Soil	07/09/2012 08:33	07/12/2012 09:50
J1PTK9	1207020-13	Soil	07/09/2012 08:43	07/12/2012 09:50
J1PTL0	1207020-14	Soil	07/09/2012 08:47	07/12/2012 09:50
J1PTL1	1207020-15	Soil	07/09/2012 08:54	07/12/2012 09:50
J1PTL2	1207020-16	Soil	07/09/2012 07:12	07/12/2012 09:50
J1PTL3	1207020-17	Soil	07/09/2012 07:10	07/12/2012 09:50

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

264 Welsh Pool Road
Exton, Pennsylvania 19341
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Case Narrative

Client: WC-HANFORD RC-206 K3949
LVL#: 1207020 **Date Received:** 07-12-12

INORGANIC NARRATIVE

1. This narrative covers the analyses of 17 soil samples.

2. The samples were prepared and analyzed in accordance with the methods indicated on the data summary report.

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

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

4. The results presented in this report are derived from samples that met LvL's sample acceptance policy.

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

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

7. The matrix spike (MS) recovery for Insoluble Cr^{6+} was within the 75-125% control limits however MS recovery for Soluble Cr^{6+} was below the control limits at 63% that may be attributed to sample inhomogeneity or negative interference to the spiking solution.

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

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

10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. 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

7/24/12
Date

njp\i07-020

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.

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WC-Hanford, Inc.	Project: RC-206	
2620 Fermi Avenue	Project Number: K3949	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/24/2012 14:01

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-206	
2620 Fermi Avenue	Project Number: K3949	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/24/2012 14:01

Wet Chemistry
Lionville Laboratory

Analyte	Result and Qualifier		LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PTJ7 (1207020-01) Soil										
%Solids	**98.6**			0.1	% by Weight	1	L207077	07/13/2012	07/13/2012	SM2540G
Hexavalent Chromium	0.20	U	0.20	0.51	mg/kg dry	1	L207074	07/13/2012	07/17/2012	SW846 7196A
J1PTJ8 (1207020-02) Soil										
%Solids	**98.4**			0.1	% by Weight	1	L207077	07/13/2012	07/13/2012	SM2540G
Hexavalent Chromium	0.20	U	0.20	0.51	mg/kg dry	1	L207074	07/13/2012	07/17/2012	SW846 7196A
J1PTJ9 (1207020-03) Soil										
%Solids	**97.9**			0.1	% by Weight	1	L207077	07/13/2012	07/13/2012	SM2540G
Hexavalent Chromium	0.20	U	0.20	0.51	mg/kg dry	1	L207074	07/13/2012	07/17/2012	SW846 7196A
J1PTK0 (1207020-04) Soil										
%Solids	**98.5**			0.1	% by Weight	1	L207077	07/13/2012	07/13/2012	SM2540G
Hexavalent Chromium	0.20	U	0.20	0.51	mg/kg dry	1	L207074	07/13/2012	07/17/2012	SW846 7196A
J1PTK1 (1207020-05) Soil										
%Solids	**97.5**			0.1	% by Weight	1	L207077	07/13/2012	07/13/2012	SM2540G
Hexavalent Chromium	0.21	U	0.21	0.51	mg/kg dry	1	L207074	07/13/2012	07/17/2012	SW846 7196A
J1PTK2 (1207020-06) Soil										
%Solids	**98.5**			0.1	% by Weight	1	L207077	07/13/2012	07/13/2012	SM2540G
Hexavalent Chromium	0.20	U	0.20	0.51	mg/kg dry	1	L207074	07/13/2012	07/17/2012	SW846 7196A
J1PTK3 (1207020-07) Soil										
%Solids	**99.0**			0.1	% by Weight	1	L207077	07/13/2012	07/13/2012	SM2540G
Hexavalent Chromium	0.20	U	0.20	0.50	mg/kg dry	1	L207074	07/13/2012	07/17/2012	SW846 7196A

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WC-Hanford, Inc.	Project: RC-206	
2620 Fermi Avenue	Project Number: K3949	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/24/2012 14:01

Wet Chemistry
Lionville Laboratory

Analyte	Result and Qualifier		LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PTK4 (1207020-08) Soil										
%Solids	**98.6**			0.1	% by Weight	1	L207077	07/13/2012	07/13/2012	SM2540G
Hexavalent Chromium	0.20	U	0.20	0.51	mg/kg dry	1	L207074	07/13/2012	07/17/2012	SW846 7196A
J1PTK5 (1207020-09) Soil										
%Solids	**97.0**			0.1	% by Weight	1	L207077	07/13/2012	07/13/2012	SM2540G
Hexavalent Chromium	0.21	U	0.21	0.52	mg/kg dry	1	L207074	07/13/2012	07/17/2012	SW846 7196A
J1PTK6 (1207020-10) Soil										
%Solids	**99.4**			0.1	% by Weight	1	L207077	07/13/2012	07/13/2012	SM2540G
Hexavalent Chromium	0.20	U	0.20	0.50	mg/kg dry	1	L207074	07/13/2012	07/17/2012	SW846 7196A
J1PTK7 (1207020-11) Soil										
%Solids	**97.9**			0.1	% by Weight	1	L207077	07/13/2012	07/13/2012	SM2540G
Hexavalent Chromium	0.20	U	0.20	0.51	mg/kg dry	1	L207074	07/13/2012	07/17/2012	SW846 7196A
J1PTK8 (1207020-12) Soil										
%Solids	**98.0**			0.1	% by Weight	1	L207077	07/13/2012	07/13/2012	SM2540G
Hexavalent Chromium	**0.45**		0.20	0.51	mg/kg dry	1	L207074	07/13/2012	07/17/2012	SW846 7196A
J1PTK9 (1207020-13) Soil										
%Solids	**98.5**			0.1	% by Weight	1	L207077	07/13/2012	07/13/2012	SM2540G
Hexavalent Chromium	0.20	U	0.20	0.51	mg/kg dry	1	L207074	07/13/2012	07/17/2012	SW846 7196A
J1PTL0 (1207020-14) Soil										
%Solids	**98.4**			0.1	% by Weight	1	L207077	07/13/2012	07/13/2012	SM2540G
Hexavalent Chromium	0.20	U	0.20	0.51	mg/kg dry	1	L207074	07/13/2012	07/17/2012	SW846 7196A

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WC-Hanford, Inc.	Project: RC-206	
2620 Fermi Avenue	Project Number: K3949	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/24/2012 14:01

Wet Chemistry
Lionville Laboratory

Analyte	Result and Qualifier		LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PTL1 (1207020-15) Soil										
%Solids	**95.0**			0.1	% by Weight	1	L207077	07/13/2012	07/13/2012	SM2540G
Hexavalent Chromium	**0.26**	B	0.21	0.53	mg/kg dry	1	L207129	07/23/2012	07/23/2012	SW846 7196A
J1PTL2 (1207020-16) Soil										
%Solids	**98.5**			0.1	% by Weight	1	L207077	07/13/2012	07/13/2012	SM2540G
Hexavalent Chromium	**0.37**	B	0.20	0.51	mg/kg dry	1	L207129	07/23/2012	07/23/2012	SW846 7196A
J1PTL3 (1207020-17) Soil										
%Solids	**100**			0.1	% by Weight	1	L207077	07/13/2012	07/13/2012	SM2540G

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WC-Hanford, Inc.	Project: RC-206	
2620 Fermi Avenue	Project Number: K3949	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/24/2012 14:01

Wet Chemistry - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207074 - Default Prep GenChem											
Blank (L207074-BLK1)					Prepared: 07/13/2012 Analyzed: 07/17/2012						
Hexavalent Chromium	0.20	U	0.20	0.50	mg/kg wet						
LCS (L207074-BS1)					Prepared: 07/13/2012 Analyzed: 07/17/2012						
Hexavalent Chromium	3.64		0.20	0.50	mg/kg wet	4.0000		91	80-120		
LCS (L207074-BS2)					Prepared: 07/13/2012 Analyzed: 07/17/2012						
Hexavalent Chromium	1140	D	20.0	50.0	mg/kg wet	1191.4		95	80-120		
Duplicate (L207074-DUP1)		**Source: 1207020-02**			Prepared: 07/13/2012 Analyzed: 07/17/2012						
Hexavalent Chromium	0.20	U	0.20	0.51	mg/kg dry		0.20 U				20
Matrix Spike (L207074-MS1)		**Source: 1207020-02**			Prepared: 07/13/2012 Analyzed: 07/17/2012						
Hexavalent Chromium	2.54		0.20	0.51	mg/kg dry	4.0649	0.20 U	63*	75-125		
Matrix Spike (L207074-MS2)		**Source: 1207020-02**			Prepared: 07/13/2012 Analyzed: 07/17/2012						
Hexavalent Chromium	1070	D	20.3	50.8	mg/kg dry	1184.5	0.20 U	91	75-125		
Batch L207077 - % Solids											
Duplicate (L207077-DUP1)		**Source: 1207020-02**			Prepared & Analyzed: 07/13/2012						
%Solids	98.6			0.1	% by Weight		98.4			0.2	20
Batch L207129 - Default Prep GenChem											
Blank (L207129-BLK1)					Prepared & Analyzed: 07/23/2012						
Hexavalent Chromium	0.20	U	0.20	0.50	mg/kg wet						

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Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207129 - Default Prep GenChem										
LCS (L207129-BS1)				Prepared & Analyzed: 07/23/2012						
Hexavalent Chromium	4.17	0.20	0.50	mg/kg wet	4.0000		104	80-120		
LCS (L207129-BS2)				Prepared & Analyzed: 07/23/2012						
Hexavalent Chromium	1040 D	20.0	50.0	mg/kg wet	1075.5		96	80-120		