0093594

SAF-RC-183
ARRA 100F Remaining Sites Remediation – Other
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 1/5/11
INITIAL/DATE

COMMENTS:

SDG K2441 SAF-RC-183

Rad only ☑ Chem only Rad & Chem

☑ Complete Partial

Sample Location: 100-F-49

RECEIVED
JAN 17 2011
EDMC

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

64 Welsh Pool Road
Exton, Pennsylvania 19341
Phone (610) 280-3000
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RECEIVED
JAN 2011

23 December 2010

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

Subject: Analytical Data Package

Dear Ms. Kessner:

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

LvLI Batch #	1010049
SDG #	K2441
SAF #	RC-183
Date Received	10/12/10
# Samples	1
Matrix	OTHER
Volatiles	
Semivolatiles	X
Pest/PCB	
Glycols	
DRO/KRO/GRO	
PAHs	
Herbicides	
Metals	X
Inorganics	

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

Sincerely,

Lionville Laboratory
A Division of Eberline Analytical Corporation

Orlette S. Johnson
Project Manager

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

WC-Hanford, Inc.	Project: RC-183	
2620 Fermi Avenue	Project Number: K2441	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	10/27/2010 16:44

Analytical Report for Semivolatile Organic Compounds by SW846 8270C

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1CCX0	1010049-01	Soil	10/06/2010 10:25	10/12/2010 09:50

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Case Narrative

Client: WC-HANFORD RC-183 K2441
LVL #: 1010049

W.O. #: 60049-001-001-0001-00
Date Received: 10-12-2010

SEMIVOLATILE

One (1) other solid sample was collected on 10-06-2010.

The sample and associated QC samples were extracted 10-17-2010 and analyzed 10-21-2010 according to Lionville Laboratory SOPs. The extraction procedure was based on SW846 Method 3540C, and the analysis procedure was based on SW846 Method 8270C for TCL Semivolatile target compounds.

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(s) that met LvL's sample acceptance policy.

2. The sample was extracted and analyzed within holding time.

3. Non-target compounds were detected in these samples.

4. Due to sample matrix, samples had an elevated final volume of 2.0 mls. Reporting limits have been adjusted to reflect this change.

5. Samples J1CCX0, L010222-MS3, and L010222-MSD3 received a 10-fold instrument dilution due to the matrix.

6. Eleven (11) of thirty (30) surrogate recoveries were outside acceptance criteria. The surrogate recovery criteria were not met for samples L010222-BLK1, J1CCX0, L010222-BS1, L010222-MS3, and L010222-MSD3. A copy of the Sample Discrepancy Report (SDR# 10MS303) has been enclosed. The loss of surrogate 2,4,6-Tribromophenol in the samples L010222-BLK1 and L010222-BS1 appears to be due to a chemical reaction rather than to a problem with the extraction process. Peaks in the chromatogram indicate this reaction. The conversion compound has been reported as a non-target compound (TIC) in sample L010222-BLK1 at a retention time of 19.554 minutes. No TICs were reported for the BS, but the conversion compound was seen at 19.457 minutes. This surrogate loss has been associated with the use of soxhlet extractions.

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 22 pages.

7. The method blank was below the reporting limit for all target compounds.

8. All blank spike recoveries were within acceptance criteria.

9. Sixty-eight (68) of one hundred and twenty-eight (128) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 10MS303) has been enclosed. Several matrix spike recoveries were unobtainable due to dilution required for analysis which resulted in an elevated final volume.

10. The sample was reported on a wet weight 'as received' basis.

11. All initial calibrations associated with this data set were within acceptance criteria.

12. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

13. Internal standard area and retention time criteria were met.

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

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

Iain Daniels
LvL Laboratory Manager

10/28/10
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 10MS303

Initiator: Shawn Saylor
Date: 10-27-10
Client: Wilkinsburg RC-1F3

Batch: 1010049
Samples: MS, MSD, BLK1, 01
Method: SW846/MCAWW/CLP/

Parameter: 8270
Matrix: SOIL
Prep Batch: L010222

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)

L010222-PS

① <10% recovery of 2,4,6-tribromophenol in L010222-BLK1 & J1CCX0

② several Spike recoveries outside QC acceptance limits in ms+msd but BS is ok

2. Known or Probable Causes(s) J1CCX0/MS/MSD possible matrix effect sample had an elevated final volume and required a 10 fold dilution for analysis. BLK/BS low surrogate recovery appears to be due to chemical reaction rather than a problem with the extraction process, per as the chromatograms indicate this reaction.

10/28/10

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:

narrate All target below the reporting limits no impact on the data

4. Project Manager Instructions...signature/date: 10/28/10

__ 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: 10-28-10

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

DATA QUALIFIERS

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

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

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

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

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

I = Interference.

NQ = Result qualitatively confirmed but not able to quantify.

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

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

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

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

GLOSSARY

ABBREVIATIONS

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

TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

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

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2620 Fermi Avenue	Project Number: K2441	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	10/27/2010 16:44

J1CCX0

1010049-01 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
		Lionville Laboratory						
Semivolatile Organic Compounds by SW846 8270C								
1,2,4-Trichlorobenzene	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
1,2-Dichlorobenzene	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
1,3-Dichlorobenzene	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
1,4-Dichlorobenzene	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
2,4,5-Trichlorophenol	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
2,4,6-Trichlorophenol	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
2,4-Dichlorophenol	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
2,4-Dimethylphenol	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
2,4-Dinitrophenol	32400 U	32400	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
2,4-Dinitrotoluene	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
2,6-Dinitrotoluene	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
2-Chloronaphthalene	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
2-Chlorophenol	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
2-Methylnaphthalene	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
2-Methylphenol	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
2-Nitroaniline	32400 U	32400	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
2-Nitrophenol	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
3,3'-Dichlorobenzidine	13000 U	13000	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
3-Nitroaniline	32400 U	32400	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
4,6-Dinitro-2-methylphenol	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
4-Bromophenyl Phenyl Ether	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
4-Chloro-3-methylphenol	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
4-Chloroaniline	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
4-Chlorophenyl Phenyl Ether	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
3- and/or 4-Methylphenol	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
4-Nitroaniline	32400 U	32400	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
4-Nitrophenol	32400 U	32400	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Acenaphthene	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Acenaphthylene	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Anthracene	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Benz[a]anthracene	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Benzo[a] pyrene	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Benzo[b] fluoranthene	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Benzo[g,h,i] perylene	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Benzo[k] fluoranthene	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Bis(2-chloroethoxy) methane	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Bis(2-chloroethyl) ether	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Bis(2-chloroisopropyl) ether	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Bis(2-ethylhexyl) phthalate	6480 U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C

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2620 Fermi Avenue	Project Number: K2441	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	10/27/2010 16:44

J1CCX0

1010049-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Semivolatile Organic Compounds by SW846 8270C									
Butyl Benzyl Phthalate	6480	U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Carbazole	6480	U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Chrysene	6480	U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Dibenz[a,h]anthracene	6480	U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Dibenzofuran	6480	U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Diethyl Phthalate	6480	U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Dimethyl Phthalate	6480	U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Di-n-butyl Phthalate	6480	U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Di-n-octyl Phthalate	6480	U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Fluoranthene	6480	U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Fluorene	6480	U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Hexachlorobenzene	6480	U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Hexachlorobutadiene	6480	U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Hexachlorocyclopentadiene	6480	U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Hexachloroethane	6480	U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Indeno[1,2,3-cd]pyrene	6480	U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Isophorone	**1060**	J, D	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Naphthalene	6480	U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Nitrobenzene	6480	U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
N-Nitrosodi-n-propylamine	6480	U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
N-Nitrosodiphenylamine	6480	U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Pentachlorophenol	32400	U	32400	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Phenanthrene	6480	U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Phenol	6480	U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Pyrene	6480	U	6480	ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
TIC:Aldol 1	**17800**	A, B, J, D		ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
TIC:Aldol 2	**1440000**	A, J, D		ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
TIC:Unknown 1	**477000**	B, J, D		ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
TIC:Unknown 2	**15800**	J, D		ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
TIC:Unknown 3	**23400**	J, D		ug/kg	10	L010222	10/17/2010	10/21/2010	8270C
Surrogate: 2-Fluorophenol	*85 %*		*25-121*			*L010222*	*10/17/2010*	*10/21/2010*	*8270C*
Surrogate: Phenol-d5	*89 %*		*24-113*			*L010222*	*10/17/2010*	*10/21/2010*	*8270C*
Surrogate: Nitrobenzene-d5	*89 %*		*23-120*			*L010222*	*10/17/2010*	*10/21/2010*	*8270C*
Surrogate: 2-Fluorobiphenyl	*116 % **		*30-115*			*L010222*	*10/17/2010*	*10/21/2010*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*8 % **		*19-122*			*L010222*	*10/17/2010*	*10/21/2010*	*8270C*
Surrogate: p-Terphenyl-d14	*123 %*		*18-137*			*L010222*	*10/17/2010*	*10/21/2010*	*8270C*

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Richland WA, 99354	Project Manager: Joan Kessner	10/27/2010 16:44

Semivolatile Organic Compounds by SW846 8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L010222 - SW 3540C									
Blank (L010222-BLK1)			Prepared: 10/17/2010 Analyzed: 10/21/2010						
1,2,4-Trichlorobenzene	330 U	330	ug/kg						
1,2-Dichlorobenzene	330 U	330	ug/kg						
1,3-Dichlorobenzene	330 U	330	ug/kg						
1,4-Dichlorobenzene	330 U	330	ug/kg						
2,4,5-Trichlorophenol	330 U	330	ug/kg						
2,4,6-Trichlorophenol	330 U	330	ug/kg						
2,4-Dichlorophenol	330 U	330	ug/kg						
2,4-Dimethylphenol	330 U	330	ug/kg						
2,4-Dinitrophenol	1650 U	1650	ug/kg						
2,4-Dinitrotoluene	330 U	330	ug/kg						
2,6-Dinitrotoluene	330 U	330	ug/kg						
2-Chloronaphthalene	330 U	330	ug/kg						
2-Chlorophenol	330 U	330	ug/kg						
2-Methylnaphthalene	330 U	330	ug/kg						
2-Methylphenol	330 U	330	ug/kg						
2-Nitroaniline	1650 U	1650	ug/kg						
2-Nitrophenol	330 U	330	ug/kg						
3,3'-Dichlorobenzidine	660 U	660	ug/kg						
3-Nitroaniline	1650 U	1650	ug/kg						
4,6-Dinitro-2-methylphenol	330 U	330	ug/kg						
4-Bromophenyl Phenyl Ether	330 U	330	ug/kg						
4-Chloro-3-methylphenol	330 U	330	ug/kg						
4-Chloroaniline	330 U	330	ug/kg						
4-Chlorophenyl Phenyl Ether	330 U	330	ug/kg						
3- and/or 4-Methylphenol	330 U	330	ug/kg						
4-Nitroaniline	1650 U	1650	ug/kg						
4-Nitrophenol	1650 U	1650	ug/kg						
Acenaphthene	330 U	330	ug/kg						
Acenaphthylene	330 U	330	ug/kg						
Anthracene	330 U	330	ug/kg						
Benz[a]anthracene	330 U	330	ug/kg						
Benzo[a] pyrene	330 U	330	ug/kg						
Benzo[b] fluoranthene	330 U	330	ug/kg						
Benzo[g,h,i] perylene	330 U	330	ug/kg						
Benzo[k] fluoranthene	330 U	330	ug/kg						
Bis(2-chloroethoxy) methane	330 U	330	ug/kg						

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2620 Fermi Avenue	Project Number: K2441	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	10/27/2010 16:44

Semivolatile Organic Compounds by SW846 8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L010222 - SW 3540C									
Blank (L010222-BLK1)			Prepared: 10/17/2010 Analyzed: 10/21/2010						
Bis(2-chloroethyl) ether	330 U	330	ug/kg						
Bis(2-chloroisopropyl) ether	330 U	330	ug/kg						
Bis(2-ethylhexyl) phthalate	330 U	330	ug/kg						
Butyl Benzyl Phthalate	330 U	330	ug/kg						
Carbazole	330 U	330	ug/kg						
Chrysene	330 U	330	ug/kg						
Dibenz[a,h]anthracene	330 U	330	ug/kg						
Dibenzofuran	330 U	330	ug/kg						
Diethyl Phthalate	330 U	330	ug/kg						
Dimethyl Phthalate	330 U	330	ug/kg						
Di-n-butyl Phthalate	330 U	330	ug/kg						
Di-n-octyl Phthalate	330 U	330	ug/kg						
Fluoranthene	330 U	330	ug/kg						
Fluorene	330 U	330	ug/kg						
Hexachlorobenzene	330 U	330	ug/kg						
Hexachlorobutadiene	330 U	330	ug/kg						
Hexachlorocyclopentadiene	330 U	330	ug/kg						
Hexachloroethane	330 U	330	ug/kg						
Indeno[1,2,3-cd]pyrene	330 U	330	ug/kg						
Isophorone	330 U	330	ug/kg						
Naphthalene	330 U	330	ug/kg						
Nitrobenzene	330 U	330	ug/kg						
N-Nitrosodi-n-propylamine	330 U	330	ug/kg						
N-Nitrosodiphenylamine	330 U	330	ug/kg						
Pentachlorophenol	1650 U	1650	ug/kg						
Phenanthrene	330 U	330	ug/kg						
Phenol	330 U	330	ug/kg						
Pyrene	330 U	330	ug/kg						
Unknown 1 (TIC)	847 J		ug/kg						
Aldol 2	77000 A, J		ug/kg						
Aldol 1	590 A, J		ug/kg						
Unknown 3	2020 J		ug/kg						
Unknown 2	28000 J		ug/kg						
Surrogate: 2-Fluorophenol	*1130*		*ug/kg*	*2500.0*		*45*	*25-121*		
Surrogate: Phenol-d5	*1170*		*ug/kg*	*2500.0*		*47*	*24-113*		
Surrogate: Nitrobenzene-d5	*958*		*ug/kg*	*1666.7*		*57*	*23-120*		

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WC-Hanford, Inc.	Project: RC-183	
2620 Fermi Avenue	Project Number: K2441	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	10/27/2010 16:44

Semivolatile Organic Compounds by SW846 8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L010222 - SW 3540C									
Blank (L010222-BLK1)			Prepared: 10/17/2010 Analyzed: 10/21/2010						
Surrogate: 2-Fluorobiphenyl	*960*		*ug/kg*	*1666.7*		*58*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*112*		*ug/kg*	*2500.0*		*4**	*19-122*		
Surrogate: p-Terphenyl-d14	*1210*		*ug/kg*	*1666.7*		*73*	*18-137*		
LCS (L010222-BS1)			Prepared: 10/17/2010 Analyzed: 10/21/2010						
1,2,4-Trichlorobenzene	1210	330	ug/kg	2000.0		60	45-110		
1,2-Dichlorobenzene	1530	330	ug/kg	2000.0		77	45-105		
1,3-Dichlorobenzene	1490	330	ug/kg	2000.0		75	40-100		
1,4-Dichlorobenzene	1510	330	ug/kg	2000.0		75	35-105		
2,4,5-Trichlorophenol	1140	330	ug/kg	2000.0		57	30-140		
2,4,6-Trichlorophenol	447	330	ug/kg	2000.0		22	20-110		
2,4-Dichlorophenol	1290	330	ug/kg	2000.0		65	40-110		
2,4-Dimethylphenol	1060	330	ug/kg	2000.0		53	30-105		
2,4-Dinitrophenol	1280 J	1650	ug/kg	2000.0		64	25-130		
2,4-Dinitrotoluene	1910	330	ug/kg	2000.0		95	50-115		
2,6-Dinitrotoluene	1870	330	ug/kg	2000.0		94	40-120		
2-Chloronaphthalene	1600	330	ug/kg	2000.0		80	45-115		
2-Chlorophenol	1520	330	ug/kg	2000.0		76	45-105		
2-Methylnaphthalene	1320	330	ug/kg	2000.0		66	45-110		
2-Methylphenol	1530	330	ug/kg	2000.0		77	40-120		
2-Nitroaniline	2060	1650	ug/kg	2000.0		103	45-120		
2-Nitrophenol	1320	330	ug/kg	2000.0		66	40-110		
3,3'-Dichlorobenzidine	1330	660	ug/kg	2000.0		66	15-130		
3-Nitroaniline	1670	1650	ug/kg	2000.0		84	40-130		
4,6-Dinitro-2-methylphenol	1460	330	ug/kg	2000.0		73	20-140		
4-Bromophenyl Phenyl Ether	1550	330	ug/kg	2000.0		77	45-115		
4-Chloro-3-methylphenol	1380	330	ug/kg	2000.0		69	35-115		
4-Chloroaniline	848	330	ug/kg	2000.0		42	10-100		
4-Chlorophenyl Phenyl Ether	1690	330	ug/kg	2000.0		84	45-110		
3- and/or 4-Methylphenol	1620	330	ug/kg	2000.0		81	40-120		
4-Nitroaniline	1930	1650	ug/kg	2000.0		97	40-130		
4-Nitrophenol	1610 J	1650	ug/kg	2000.0		81	15-140		
Acenaphthene	1690	330	ug/kg	2000.0		84	45-110		
Acenaphthylene	1670	330	ug/kg	2000.0		84	45-115		
Anthracene	1830	330	ug/kg	2000.0		91	45-130		
Benz[a]anthracene	1810	330	ug/kg	2000.0		90	45-130		
Benzo[a] pyrene	1960	330	ug/kg	2000.0		98	45-130		

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WC-Hanford, Inc.	Project: RC-183	
2620 Fermi Avenue	Project Number: K2441	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	10/27/2010 16:44

Semivolatile Organic Compounds by SW846 8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L010222 - SW 3540C									
LCS (L010222-BS1)			Prepared: 10/17/2010 Analyzed: 10/21/2010						
Benzo[b] fluoranthene	1890	330	ug/kg	2000.0		94	40-130		
Benzo[g,h,i] perylene	1940	330	ug/kg	2000.0		97	45-125		
Benzo[k] fluoranthene	1840	330	ug/kg	2000.0		92	45-125		
Bis(2-chloroethoxy) methane	1430	330	ug/kg	2000.0		71	45-110		
Bis(2-chloroethyl) ether	1660	330	ug/kg	2000.0		83	40-110		
Bis(2-chloroisopropyl) ether	1670	330	ug/kg	2000.0		84	30-115		
Bis(2-ethylhexyl) phthalate	1920	330	ug/kg	2000.0		96	40-145		
Butyl Benzyl Phthalate	1900	330	ug/kg	2000.0		95	50-125		
Carbazole	1760	330	ug/kg	2000.0		88	40-140		
Chrysene	1800	330	ug/kg	2000.0		90	45-130		
Dibenz[a,h]anthracene	1930	330	ug/kg	2000.0		96	45-125		
Dibenzofuran	1670	330	ug/kg	2000.0		83	45-120		
Diethyl Phthalate	1900	330	ug/kg	2000.0		95	50-125		
Dimethyl Phthalate	1870	330	ug/kg	2000.0		93	45-130		
Di-n-butyl Phthalate	1830	330	ug/kg	2000.0		92	50-130		
Di-n-octyl Phthalate	1970	330	ug/kg	2000.0		98	40-150		
Fluoranthene	1920	330	ug/kg	2000.0		96	45-130		
Fluorene	1790	330	ug/kg	2000.0		90	45-120		
Hexachlorobenzene	1510	330	ug/kg	2000.0		75	45-130		
Hexachlorobutadiene	1300	330	ug/kg	2000.0		65	45-105		
Hexachlorocyclopentadiene	1010	330	ug/kg	2000.0		51	10-100		
Hexachloroethane	1520	330	ug/kg	2000.0		76	35-110		
Indeno[1,2,3-cd]pyrene	1950	330	ug/kg	2000.0		97	45-130		
Isophorone	1320	330	ug/kg	2000.0		66	40-110		
Naphthalene	1290	330	ug/kg	2000.0		64	40-110		
Nitrobenzene	1410	330	ug/kg	2000.0		70	40-105		
N-Nitrosodi-n-propylamine	1820	330	ug/kg	2000.0		91	30-130		
N-Nitrosodiphenylamine	1710	330	ug/kg	2000.0		85	50-120		
Pentachlorophenol	616 J	1650	ug/kg	2000.0		31	25-120		
Phenanthrene	1770	330	ug/kg	2000.0		89	50-120		
Phenol	1580	330	ug/kg	2000.0		79	40-115		
Pyrene	1780	330	ug/kg	2000.0		89	45-125		
Surrogate: 2-Fluorophenol	*1910*		*ug/kg*	*2500.0*		*77*	*25-121*		
Surrogate: Phenol-d5	*2080*		*ug/kg*	*2500.0*		*83*	*24-113*		
Surrogate: Nitrobenzene-d5	*1250*		*ug/kg*	*1666.7*		*75*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*1400*		*ug/kg*	*1666.7*		*84*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*308*		*ug/kg*	*2500.0*		*12**	*19-122*		

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WC-Hanford, Inc.	Project: RC-183	
2620 Fermi Avenue	Project Number: K2441	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	10/27/2010 16:44

Semivolatile Organic Compounds by SW846 8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L010222 - SW 3540C										
LCS (L010222-BS1)				Prepared: 10/17/2010 Analyzed: 10/21/2010						
Surrogate: p-Terphenyl-d14	*1550*			*ug/kg*	*1666.7*		*93*	*18-137*		
Matrix Spike (L010222-MS3)		**Source: 1010049-01**		Prepared: 10/17/2010 Analyzed: 10/21/2010						
1,2,4-Trichlorobenzene	1640	J, D	6480	ug/kg	1962.8	6480 U	84	45-110		
1,2-Dichlorobenzene	1750	J, D	6480	ug/kg	1962.8	6480 U	89	45-105		
1,3-Dichlorobenzene	1520	J, D	6480	ug/kg	1962.8	6480 U	77	40-100		
1,4-Dichlorobenzene	1530	J, D	6480	ug/kg	1962.8	6480 U	78	35-105		
2,4,5-Trichlorophenol	6480	U	6480	ug/kg	1962.8	6480 U	*	30-140		
2,4,6-Trichlorophenol	6480	U	6480	ug/kg	1962.8	6480 U	*	20-110		
2,4-Dichlorophenol	1360	J, D	6480	ug/kg	1962.8	6480 U	69	40-110		
2,4-Dimethylphenol	1790	J, D	6480	ug/kg	1962.8	6480 U	91	30-105		
2,4-Dinitrophenol	32400	U	32400	ug/kg	1962.8	32400 U	*	25-130		
2,4-Dinitrotoluene	1380	J, D	6480	ug/kg	1962.8	6480 U	70	50-115		
2,6-Dinitrotoluene	1610	J, D	6480	ug/kg	1962.8	6480 U	82	40-120		
2-Chloronaphthalene	1900	J, D	6480	ug/kg	1962.8	6480 U	97	45-115		
2-Chlorophenol	1530	J, D	6480	ug/kg	1962.8	6480 U	78	45-105		
2-Methylnaphthalene	1920	J, D	6480	ug/kg	1962.8	6480 U	98	45-110		
2-Methylphenol	2040	J, D	6480	ug/kg	1962.8	6480 U	104	40-120		
2-Nitroaniline	32400	U	32400	ug/kg	1962.8	32400 U	*	45-120		
2-Nitrophenol	6480	U	6480	ug/kg	1962.8	6480 U	*	40-110		
3,3'-Dichlorobenzidine	13000	U	13000	ug/kg	1962.8	13000 U	*	15-130		
3-Nitroaniline	32400	U	32400	ug/kg	1962.8	32400 U	*	40-130		
4,6-Dinitro-2-methylphenol	6480	U	6480	ug/kg	1962.8	6480 U	*	20-140		
4-Bromophenyl Phenyl Ether	1990	J, D	6480	ug/kg	1962.8	6480 U	102	45-115		
4-Chloro-3-methylphenol	1450	J, D	6480	ug/kg	1962.8	6480 U	74	35-115		
4-Chloroaniline	1310	J, D	6480	ug/kg	1962.8	6480 U	67	10-100		
4-Chlorophenyl Phenyl Ether	1930	J, D	6480	ug/kg	1962.8	6480 U	98	45-110		
3- and/or 4-Methylphenol	1430	J, D	6480	ug/kg	1962.8	6480 U	73	40-120		
4-Nitroaniline	32400	U	32400	ug/kg	1962.8	32400 U	*	40-130		
4-Nitrophenol	32400	U	32400	ug/kg	1962.8	32400 U	*	15-140		
Acenaphthene	2090	J, D	6480	ug/kg	1962.8	6480 U	107	45-110		
Acenaphthylene	2070	J, D	6480	ug/kg	1962.8	6480 U	105	45-115		
Anthracene	2180	J, D	6480	ug/kg	1962.8	6480 U	111	45-130		
Benz[a]anthracene	1830	J, D	6480	ug/kg	1962.8	6480 U	93	45-130		
Benzo[a] pyrene	1680	J, D	6480	ug/kg	1962.8	6480 U	86	45-130		
Benzo[b] fluoranthene	1820	J, D	6480	ug/kg	1962.8	6480 U	93	40-130		
Benzo[g,h,i] perylene	1610	J, D	6480	ug/kg	1962.8	6480 U	82	45-125		

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WC-Hanford, Inc.	Project: RC-183	
2620 Fermi Avenue	Project Number: K2441	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	10/27/2010 16:44

Semivolatile Organic Compounds by SW846 8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L010222 - SW 3540C										
Matrix Spike (L010222-MS3)		**Source: 1010049-01**		Prepared: 10/17/2010 Analyzed: 10/21/2010						
Benzo[k] fluoranthene	1790	J, D	6480	ug/kg	1962.8	6480 U	91	45-125		
Bis(2-chloroethoxy) methane	1750	J, D	6480	ug/kg	1962.8	6480 U	89	45-110		
Bis(2-chloroethyl) ether	1550	J, D	6480	ug/kg	1962.8	6480 U	79	40-110		
Bis(2-chloroisopropyl) ether	1560	J, D	6480	ug/kg	1962.8	6480 U	80	30-115		
Bis(2-ethylhexyl) phthalate	2110	J, D	6480	ug/kg	1962.8	6480 U	108	40-145		
Butyl Benzyl Phthalate	2040	J, D	6480	ug/kg	1962.8	6480 U	104	50-125		
Carbazole	2110	J, D	6480	ug/kg	1962.8	6480 U	107	40-140		
Chrysene	1900	J, D	6480	ug/kg	1962.8	6480 U	97	45-130		
Dibenz[a,h]anthracene	1550	J, D	6480	ug/kg	1962.8	6480 U	79	45-125		
Dibenzofuran	2120	J, D	6480	ug/kg	1962.8	6480 U	108	45-120		
Diethyl Phthalate	2200	J, D	6480	ug/kg	1962.8	6480 U	112	50-125		
Dimethyl Phthalate	2050	J, D	6480	ug/kg	1962.8	6480 U	105	45-130		
Di-n-butyl Phthalate	2720	J, D	6480	ug/kg	1962.8	6480 U	138*	50-130		
Di-n-octyl Phthalate	2030	J, D	6480	ug/kg	1962.8	6480 U	103	40-150		
Fluoranthene	2230	J, D	6480	ug/kg	1962.8	6480 U	114	45-130		
Fluorene	2220	J, D	6480	ug/kg	1962.8	6480 U	113	45-120		
Hexachlorobenzene	2500	J, D	6480	ug/kg	1962.8	6480 U	127	45-130		
Hexachlorobutadiene	1930	J, D	6480	ug/kg	1962.8	6480 U	98	45-105		
Hexachlorocyclopentadiene	6480	U	6480	ug/kg	1962.8	6480 U	*	10-100		
Hexachloroethane	1190	J, D	6480	ug/kg	1962.8	6480 U	60	35-110		
Indeno[1,2,3-cd]pyrene	1590	J, D	6480	ug/kg	1962.8	6480 U	81	45-130		
Isophorone	2110	J, D	6480	ug/kg	1962.8	1060	54	40-110		
Naphthalene	2020	J, D	6480	ug/kg	1962.8	6480 U	103	40-110		
Nitrobenzene	1500	J, D	6480	ug/kg	1962.8	6480 U	76	40-105		
N-Nitrosodi-n-propylamine	1620	J, D	6480	ug/kg	1962.8	6480 U	82	30-130		
N-Nitrosodiphenylamine	2030	J, D	6480	ug/kg	1962.8	6480 U	104	50-120		
Pentachlorophenol	32400	U	32400	ug/kg	1962.8	32400 U	*	25-120		
Phenanthrene	2210	J, D	6480	ug/kg	1962.8	6480 U	113	50-120		
Phenol	1550	J, D	6480	ug/kg	1962.8	6480 U	79	40-115		
Pyrene	2120	J, D	6480	ug/kg	1962.8	6480 U	108	45-125		
Surrogate: 2-Fluorophenol	*1720*			*ug/kg*	*2453.5*		*70*	*25-121*		
Surrogate: Phenol-d5	*1950*			*ug/kg*	*2453.5*		*80*	*24-113*		
Surrogate: Nitrobenzene-d5	*1200*			*ug/kg*	*1635.6*		*73*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*1710*			*ug/kg*	*1635.6*		*104*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*323*			*ug/kg*	*2453.5*		*13**	*19-122*		
Surrogate: p-Terphenyl-d14	*1810*			*ug/kg*	*1635.6*		*110*	*18-137*		

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Richland WA, 99354	Project Manager: Joan Kessner	10/27/2010 16:44

Semivolatile Organic Compounds by SW846 8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L010222 - SW 3540C									
Matrix Spike Dup (L010222-MSD3)	**Source: 1010049-01**	Prepared: 10/17/2010 Analyzed: 10/25/2010							
1,2,4-Trichlorobenzene	2660 J, D	6570	ug/kg	1990.6	6480 U	134*	45-110	46*	40
1,2-Dichlorobenzene	2590 J, D	6570	ug/kg	1990.6	6480 U	130*	45-105	37	40
1,3-Dichlorobenzene	2470 J, D	6570	ug/kg	1990.6	6480 U	124*	40-100	46*	40
1,4-Dichlorobenzene	2570 J, D	6570	ug/kg	1990.6	6480 U	129*	35-105	49*	40
2,4,5-Trichlorophenol	6570 U	6570	ug/kg	1990.6	6480 U	*	30-140		40
2,4,6-Trichlorophenol	6570 U	6570	ug/kg	1990.6	6480 U	*	20-110		40
2,4-Dichlorophenol	2070 J, D	6570	ug/kg	1990.6	6480 U	104	40-110	40	40
2,4-Dimethylphenol	2940 J, D	6570	ug/kg	1990.6	6480 U	148*	30-105	47*	40
2,4-Dinitrophenol	32800 U	32800	ug/kg	1990.6	32400 U	*	25-130		40
2,4-Dinitrotoluene	2490 J, D	6570	ug/kg	1990.6	6480 U	125*	50-115	56*	40
2,6-Dinitrotoluene	2970 J, D	6570	ug/kg	1990.6	6480 U	149*	40-120	58*	40
2-Chloronaphthalene	2880 J, D	6570	ug/kg	1990.6	6480 U	145*	45-115	40	40
2-Chlorophenol	2750 J, D	6570	ug/kg	1990.6	6480 U	138*	45-105	56*	40
2-Methylnaphthalene	2930 J, D	6570	ug/kg	1990.6	6480 U	147*	45-110	40	40
2-Methylphenol	3050 J, D	6570	ug/kg	1990.6	6480 U	153*	40-120	38	40
2-Nitroaniline	2220 J, D	32800	ug/kg	1990.6	32400 U	111	45-120		40
2-Nitrophenol	2200 J, D	6570	ug/kg	1990.6	6480 U	110	40-110		40
3,3'-Dichlorobenzidine	2880 J, D	13100	ug/kg	1990.6	13000 U	145*	15-130		40
3-Nitroaniline	3050 J, D	32800	ug/kg	1990.6	32400 U	153*	40-130		40
4,6-Dinitro-2-methylphenol	1140 J, D	6570	ug/kg	1990.6	6480 U	57	20-140		40
4-Bromophenyl Phenyl Ether	2710 J, D	6570	ug/kg	1990.6	6480 U	136*	45-115	29	40
4-Chloro-3-methylphenol	2120 J, D	6570	ug/kg	1990.6	6480 U	106	35-115	36	40
4-Chloroaniline	2400 J, D	6570	ug/kg	1990.6	6480 U	121*	10-100	57*	40
4-Chlorophenyl Phenyl Ether	2850 J, D	6570	ug/kg	1990.6	6480 U	143*	45-110	37	40
3- and/or 4-Methylphenol	2700 J, D	6570	ug/kg	1990.6	6480 U	136*	40-120	60*	40
4-Nitroaniline	2830 J, D	32800	ug/kg	1990.6	32400 U	142*	40-130		40
4-Nitrophenol	2440 J, D	32800	ug/kg	1990.6	32400 U	123	15-140		40
Acenaphthene	2950 J, D	6570	ug/kg	1990.6	6480 U	148*	45-110	33	40
Acenaphthylene	2980 J, D	6570	ug/kg	1990.6	6480 U	150*	45-115	35	40
Anthracene	2940 J, D	6570	ug/kg	1990.6	6480 U	148*	45-130	29	40
Benz[a]anthracene	3180 J, D	6570	ug/kg	1990.6	6480 U	160*	45-130	52*	40
Benzo[a] pyrene	2870 J, D	6570	ug/kg	1990.6	6480 U	144*	45-130	51*	40
Benzo[b] fluoranthene	3040 J, D	6570	ug/kg	1990.6	6480 U	153*	40-130	49*	40
Benzo[g,h,i] perylene	3380 J, D	6570	ug/kg	1990.6	6480 U	170*	45-125	70*	40
Benzo[k] fluoranthene	2910 J, D	6570	ug/kg	1990.6	6480 U	146*	45-125	46*	40
Bis(2-chloroethoxy) methane	2630 J, D	6570	ug/kg	1990.6	6480 U	132*	45-110	39	40

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

WC-Hanford, Inc.	Project: RC-183	
2620 Fermi Avenue	Project Number: K2441	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	10/27/2010 16:44

Semivolatile Organic Compounds by SW846 8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L010222 - SW 3540C										
Matrix Spike Dup (L010222-MSD3)		**Source: 1010049-01**		Prepared: 10/17/2010 Analyzed: 10/25/2010						
Bis(2-chloroethyl) ether	2570	J, D	6570	ug/kg	1990.6	6480 U	129*	40-110	48*	40
Bis(2-chloroisopropyl) ether	2760	J, D	6570	ug/kg	1990.6	6480 U	139*	30-115	54*	40
Bis(2-ethylhexyl) phthalate	3300	J, D	6570	ug/kg	1990.6	6480 U	166*	40-145	42*	40
Butyl Benzyl Phthalate	3610	J, D	6570	ug/kg	1990.6	6480 U	181*	50-125	54*	40
Carbazole	2940	J, D	6570	ug/kg	1990.6	6480 U	148*	40-140	32	40
Chrysene	3040	J, D	6570	ug/kg	1990.6	6480 U	153*	45-130	45*	40
Dibenz[a,h]anthracene	2940	J, D	6570	ug/kg	1990.6	6480 U	148*	45-125	61*	40
Dibenzofuran	2960	J, D	6570	ug/kg	1990.6	6480 U	149*	45-120	32	40
Diethyl Phthalate	3400	J, D	6570	ug/kg	1990.6	6480 U	171*	50-125	41*	40
Dimethyl Phthalate	3000	J, D	6570	ug/kg	1990.6	6480 U	151*	45-130	36	40
Di-n-butyl Phthalate	3080	J, D	6570	ug/kg	1990.6	6480 U	155*	50-130	11	40
Di-n-octyl Phthalate	3070	J, D	6570	ug/kg	1990.6	6480 U	154*	40-150	39	40
Fluoranthene	3140	J, D	6570	ug/kg	1990.6	6480 U	158*	45-130	33	40
Fluorene	2970	J, D	6570	ug/kg	1990.6	6480 U	149*	45-120	28	40
Hexachlorobenzene	3160	J, D	6570	ug/kg	1990.6	6480 U	159*	45-130	22	40
Hexachlorobutadiene	2900	J, D	6570	ug/kg	1990.6	6480 U	146*	45-105	39	40
Hexachlorocyclopentadiene	1390	J, D	6570	ug/kg	1990.6	6480 U	70	10-100		40
Hexachloroethane	2440	J, D	6570	ug/kg	1990.6	6480 U	122*	35-110	68*	40
Indeno[1,2,3-cd]pyrene	2960	J, D	6570	ug/kg	1990.6	6480 U	148*	45-130	59*	40
Isophorone	2570	J, D	6570	ug/kg	1990.6	1060	76	40-110	34	40
Naphthalene	2800	J, D	6570	ug/kg	1990.6	6480 U	140*	40-110	31	40
Nitrobenzene	2720	J, D	6570	ug/kg	1990.6	6480 U	137*	40-105	57*	40
N-Nitrosodi-n-propylamine	2500	J, D	6570	ug/kg	1990.6	6480 U	126	30-130	42*	40
N-Nitrosodiphenylamine	2600	J, D	6570	ug/kg	1990.6	6480 U	130*	50-120	23	40
Pentachlorophenol	32800	U	32800	ug/kg	1990.6	32400 U	*	25-120		40
Phenanthrene	2980	J, D	6570	ug/kg	1990.6	6480 U	150*	50-120	28	40
Phenol	2690	J, D	6570	ug/kg	1990.6	6480 U	135*	40-115	53*	40
Pyrene	2910	J, D	6570	ug/kg	1990.6	6480 U	146*	45-125	30	40
Surrogate: 2-Fluorophenol	*3070*			*ug/kg*	*2488.2*		*123**	*25-121*		
Surrogate: Phenol-d5	*3320*			*ug/kg*	*2488.2*		*133**	*24-113*		
Surrogate: Nitrobenzene-d5	*2040*			*ug/kg*	*1658.8*		*123**	*23-120*		
Surrogate: 2-Fluorobiphenyl	*2300*			*ug/kg*	*1658.8*		*139**	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*420*			*ug/kg*	*2488.2*		*17**	*19-122*		
Surrogate: p-Terphenyl-d14	*2660*			*ug/kg*	*1658.8*		*160**	*18-137*		

PREPARATION BENCH SHEET

L010222

Lionville Laboratory

Printed: 10/28/2010 10:03:21AM

Matrix: Solid **Prepared using: SVOCGCMS - SW 3540C** **Surrogate used: 1001763**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1010046-01	8270C TCL SVOC	10/17/2010 08:26	30.26	2				500	Eberline	
1010046-02	8270C TCL SVOC	10/17/2010 08:26	30.158	1				500	Eberline	
1010046-03	8270C TCL SVOC	10/17/2010 08:26	30.19	1				500	Eberline	
1010046-04	8270C TCL SVOC	10/17/2010 08:26	30.053	4				500	Eberline	
1010046-05	8270C TCL SVOC	10/17/2010 08:26	30.466	4				500	Eberline	
1010048-01	8270C TCL SVOC	10/17/2010 08:26	30.59	4				500	WC-Hanford, Inc.	
1010048-02	8270C TCL SVOC	10/17/2010 08:26	30.378	2				500	WC-Hanford, Inc.	
1010048-03	8270C TCL SVOC	10/17/2010 08:26	30.218	1				500	WC-Hanford, Inc.	
1010049-01	8270C TCL SVOC	10/17/2010 08:26	30.569	2				500	WC-Hanford, Inc.	
L010222-BLK1	QC	10/17/2010 08:26	30	1				500		
L010222-BS1	QC	10/17/2010 08:26	30	1	1000933		600	500		
L010222-MS1	QC	10/17/2010 08:26	30.15	2	1000933	1010046-01	600	500		
L010222-MS2	QC	10/17/2010 08:26	30.428	4	1000933	1010048-01	600	500		
L010222-MS3	QC	10/17/2010 08:26	30.569	2	1000933	1010049-01	600	500		
L010222-MSD1	QC	10/17/2010 08:26	30.81	2	1000933	1010046-01	600	500		
L010222-MSD2	QC	10/17/2010 08:26	30.014	4	1000933	1010048-01	600	500		
L010222-MSD3	QC	10/17/2010 08:26	30.142	2	1000933	1010049-01	600	500		

Extracts Relinquished By Date

Extracts Received By Date

PREPARATION BENCH SHEET

L010222

Lionville Laboratory

Printed: 10/20/2010 11:57:58AM

Matrix: Solid **Prepared using: SVOCGCMS - SW 3540/3550** NA RWW 20/10 **Surrogate used: 1001763**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1010046-01	8270C TCL SVOC	10/17/2010 08:26	30.26	2				500	Eberline	
1010046-02	8270C TCL SVOC	10/17/2010 08:26	30.158	1				500	Eberline	
1010046-03	8270C TCL SVOC	10/17/2010 08:26	30.19	1				500	Eberline	
1010046-04	8270C TCL SVOC	10/17/2010 08:26	30.053	4				500	Eberline	
1010046-05	8270C TCL SVOC	10/17/2010 08:26	30.466	4				500	Eberline	
1010048-01	8270C TCL SVOC	10/17/2010 08:26	30.59	4				500	WC-Hanford, Inc.	
1010048-02	8270C TCL SVOC	10/17/2010 08:26	30.378	2				500	WC-Hanford, Inc.	
1010048-03	8270C TCL SVOC	10/17/2010 08:26	30.218	1				500	WC-Hanford, Inc.	
1010049-01	8270C TCL SVOC	10/17/2010 08:26	30.569	2				500	WC-Hanford, Inc.	
L010222-BLK1	QC	10/17/2010 08:26	30	1				500		
L010222-BS1	QC	10/17/2010 08:26	30	1	1000933		600	500		
L010222-MS1	QC	10/17/2010 08:26	30.15	2	1000933	1010046-01	600	500		
L010222-MS2	QC	10/17/2010 08:26	30.428	4	1000933	1010048-01	600	500		
L010222-MS3	QC	10/17/2010 08:26	30.569	2	1000933	1010049-01	600	500		
L010222-MSD1	QC	10/17/2010 08:26	30.81	2	1000933	1010046-01	600	500		
L010222-MSD2	QC	10/17/2010 08:26	30.014	4	1000933	1010048-01	600	500		
L010222-MSD3	QC	10/17/2010 08:26	30.142	2	1000933	1010049-01	600	500		

10/20/10 11:57
Extracts Relinquished By Date

10/20/10 1210
Extracts Received By Date

Lionville Laboratory Use Only: 1010049

Custody Transfer Record/Lab Work Request

Page 1 of 1 SRC

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI Lionville Laboratory Inc.

Client: WC Hanford SAF# RC-183

Est. Final Proj. Sampling Date:

Project#:

Project Contact/Phone#:

Lionville Laboratory Project Manager: O-J

QC: SW Del: STD TAT: 15 Days

Date Rec'd: 10-12-10 Date Due: 10-27-10

		A				B			C		D					
Refrigerator #		2				2			2		2					
#/Type Container	Liquid / Solid	1AG				1AG			1AG		1AG					
Volume		60				120			60		120					
Preservatives		—				—					—					
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb	TCLP BNA			Metal Hg	CN	TCLP Met	TCLP Hg				
Lionville Laboratory Use Only			8270			TCLP 8270T			Metal		TCLP Metal					

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	J1CCX0	✓	✓	OTHER	10/6/10	1025		X			X			X		X	X			

Special Instructions:

Met ①: HSL + B, Mo, S; NOT L

Special Instructions:

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

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	10/12/10	0950

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL			
REWRITTEN			

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-183-003	Page 1 of 1

Collector JRD 10/6/10 ~~D. Henjum~~ Leach	Company Contact S. Van Den Hende	Telephone No. 509-551-3934	Project Coordinator KESSNER, JH
Price Code ~~9L~~ JRD 10/6/10 9K	Data Turnaround JRD 10/6/10 ~~21~~ 15 Days		
Project Designation ARRA 100F Remaining Sites Remediation - Other	Sampling Location 100-F-49		SAF No. RC-183
Ice Chest No. WCH-11-008	Field Logbook No. EL-1651	COA S00F498100	Method of Shipment FEDEX
Shipped To EBERLINE SERVICES / JONVILLE	Offsite Property No. A100558		Bill of Lading/Air Bill No. SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

None JEB 10-11-10
Potential RAD, < DOT Limits

Special Handling and/or Storage

Cool 4 degrees C

Preservation	Cool 4C	None	Cool 4C	Cool 4C	None	None					
Type of Container	G/P	G/P	aG	aG	aG	G/P					
No. of Container(s)	1	1	1	1	1	1					
Volume	60mL	120mL	60mL	60mL	120mL	500g					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	Pesticides - 8081 JRD 10/6/10	TCLP Semi-VOA - 1311/8270A	RCE GEA Shipping Screen JRD 10/6/10					
Sample No.	Matrix *	Sample Date	Sample Time								
J1CCX0	OTHER	10/6/10	1025	✓	✓	✓		✓			
~~J1CCX1~~	OTHER										
~~J1CCX2~~	OTHER										
~~J1CCX3~~	OTHER										
~~J1CCX4~~ JRD 10/6/10	OTHER										

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Z. Leach	10/6/10 1545	JRDeDuvigne JRDeDuvigne	10/6/10 1545
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JRDeDuvigne JRDeDuvigne	10/6/10 1630	S. Howell	10-6-10 1630
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
J.E. Bernhal WCH	10-11-10 1000	FED EX	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
FED EX	10-12-10 0950	VICTOR HERNANDEZ	10-12-10 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 (Client List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV) {Mercury}
(2) Metals by ICP (TCLP) - 1311/6010 {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury (TCLP) - 1311/7470 {Mercury}

Sterling Howell was unavailable to relinquish custody of samples on 10-11-10. J.E. Bernhal will take custody of these samples stored 1060 Battelle, Fridge 1B. JEB 10-11-10

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

REVIEWED BY JR
DATE 10/11/10

WCH-EE-011

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC Hanford

Project/SAF/SOW/Release #: RC-183

Date: 10/12/10

LvL Batch #: 1010 0 049

Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FED EX		Airbill # 7963 2993 6487
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 2.1 °C		Cooler # WCH-11-008
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

WC-Hanford, Inc.	Project: RC-183	
2620 Fermi Avenue	Project Number: K2441	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	10/29/2010 15:19

Analytical Report for Metals by SW846 6000/7000 series

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1CCX0	1010049-01	Other Solid	10/06/2010 10:25	10/12/2010 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-183
LVL#: 1010049
SDG/SAF#: K2441/RC-183

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

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 analyses of 1 other solid sample and 1 TCLP leachate sample.

2. The samples were prepared and analyzed in accordance with methods listed on the data report forms. The other solid sample was reported on a wet weight, 'as-received' basis.

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

   The other solid sample J1CCX0 was rerun and reported with a 6-fold dilution for Calcium due to high Calcium concentration in the sample.

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), MB value less than 5% of the RCRA limit, 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. All laboratory control samples (LCS) were within the 80-120% control limits.

10. The soil matrix spike (MS) recoveries for 8 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 26 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
J1CCX0	Aluminum	22,000	102.4
	Antimony	100	99.2
	Calcium	40,000	96.2
	Chromium	100	98.6
	Iron	42,000	89.0
	Lead	100	96.0
	Manganese	1,000	96.2
	Silicon	2,100	126.8

12. The soil 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 results for Boron, Cadmium, and Molybdenum were less than ten times the MDL.

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

14. The TCLP extract from sample J1CCX0 was selected for the matrix spike (MS) for this analytical batch. The MS recoveries for all analytes in the TCLP extract were above 50%.

15. 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.

16. 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.

17. 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

Date 11/1/10

alm/10-049

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

WC-Hanford, Inc.	Project: RC-183	
2620 Fermi Avenue	Project Number: K2441	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	10/29/2010 15:19

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).
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

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

WC-Hanford, Inc.	Project: RC-183	
2620 Fermi Avenue	Project Number: K2441	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	10/29/2010 15:19

J1CCX0

1010049-01 (Other Solid)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Metals by SW846 6000/7000 series									
Aluminum	**6030**		3.97	mg/kg	1	L010353	10/26/2010	10/28/2010	6010B
Antimony	0.476	U	0.476	mg/kg	1	L010353	10/26/2010	10/28/2010	6010B
Arsenic	**3.88**		0.794	mg/kg	1	L010353	10/26/2010	10/28/2010	6010B
Barium	**81.3**		0.397	mg/kg	1	L010353	10/26/2010	10/28/2010	6010B
Beryllium	**0.182**		0.159	mg/kg	1	L010353	10/26/2010	10/28/2010	6010B
Boron	**4.39**		1.59	mg/kg	1	L010353	10/26/2010	10/28/2010	6010B
Cadmium	**0.295**		0.159	mg/kg	1	L010353	10/26/2010	10/28/2010	6010B
Calcium	**61400**		476	mg/kg	6	L010353	10/26/2010	10/29/2010	6010B
Chromium	**12.5**		0.159	mg/kg	1	L010353	10/26/2010	10/28/2010	6010B
Cobalt	**3.90**		1.59	mg/kg	1	L010353	10/26/2010	10/28/2010	6010B
Copper	**11.7**		0.794	mg/kg	1	L010353	10/26/2010	10/28/2010	6010B
Iron	**14500**		15.9	mg/kg	1	L010353	10/26/2010	10/28/2010	6010B
Lead	**21.2**		0.397	mg/kg	1	L010353	10/26/2010	10/28/2010	6010B
Magnesium	**3010**		59.5	mg/kg	1	L010353	10/26/2010	10/28/2010	6010B
Manganese	**175**		3.97	mg/kg	1	L010353	10/26/2010	10/28/2010	6010B
Molybdenum	**0.669**	B	1.59	mg/kg	1	L010353	10/26/2010	10/28/2010	6010B
Nickel	**6.84**		3.17	mg/kg	1	L010353	10/26/2010	10/28/2010	6010B
Potassium	**890**		317	mg/kg	1	L010353	10/26/2010	10/28/2010	6010B
Selenium	0.238	U	0.238	mg/kg	1	L010353	10/26/2010	10/28/2010	6010B
Silicon	**420**		1.59	mg/kg	1	L010353	10/26/2010	10/28/2010	6010B
Silver	0.159	U	0.159	mg/kg	1	L010353	10/26/2010	10/28/2010	6010B
Sodium	**551**		39.7	mg/kg	1	L010353	10/26/2010	10/28/2010	6010B
Vanadium	**40.5**		1.98	mg/kg	1	L010353	10/26/2010	10/28/2010	6010B
Zinc	**40.2**		7.94	mg/kg	1	L010353	10/26/2010	10/28/2010	6010B
Mercury	0.0237	U	0.0237	mg/kg	1	L010304	10/22/2010	10/25/2010	7471A

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WC-Hanford, Inc.	Project: RC-183	
2620 Fermi Avenue	Project Number: K2441	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	10/29/2010 15:19

J1CCX0

1010049-01 (Other Solid)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
TCLP Metals by SW846 1311 6000/7000 series									
Arsenic	0.0900	U	0.0900	mg/L	6	L010299	10/21/2010	10/23/2010	6010
Barium	**0.344**		0.00600	mg/L	6	L010299	10/21/2010	10/23/2010	6010
Cadmium	0.0180	U	0.0180	mg/L	6	L010299	10/21/2010	10/23/2010	6010
Chromium	**0.0231**	B	0.0300	mg/L	6	L010299	10/21/2010	10/23/2010	6010
Lead	0.0600	U	0.0600	mg/L	6	L010299	10/21/2010	10/23/2010	6010
Selenium	0.120	U	0.120	mg/L	6	L010299	10/21/2010	10/23/2010	6010
Silver	0.0360	U	0.0360	mg/L	6	L010299	10/21/2010	10/23/2010	6010
Mercury	**0.0000900**	B	0.000200	mg/L	1	L010202	10/14/2010	10/15/2010	7470

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2620 Fermi Avenue	Project Number: K2441	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	10/29/2010 15:19

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 L010304 - SW 7471A Prep										
Blank (L010304-BLK1)				Prepared: 10/22/2010 Analyzed: 10/25/2010						
Mercury	0.0257	U	0.0257	mg/kg						
Duplicate (L010304-DUP3)		Source: 1010049-01		Prepared: 10/22/2010 Analyzed: 10/25/2010						
Mercury	0.0231	U	0.0231	mg/kg		0.0237 U				20
Matrix Spike (L010304-MS3)		Source: 1010049-01		Prepared: 10/22/2010 Analyzed: 10/25/2010						
Mercury	0.158		0.0243	mg/kg	0.13514	0.0237 U	117	75-125		
Reference (L010304-SRM1)				Prepared: 10/22/2010 Analyzed: 10/25/2010						
Mercury	1.18		0.0273	mg/kg	1.2600		94.0	65.9-133.3		
Batch L010353 - SW 3050B										
Blank (L010353-BLK1)				Prepared: 10/26/2010 Analyzed: 10/28/2010						
Aluminum	5.00	U	5.00	mg/kg						
Antimony	0.600	U	0.600	mg/kg						
Arsenic	1.00	U	1.00	mg/kg						
Barium	0.500	U	0.500	mg/kg						
Beryllium	0.200	U	0.200	mg/kg						
Boron	2.00	U	2.00	mg/kg						
Cadmium	0.200	U	0.200	mg/kg						
Calcium	100	U	100	mg/kg						
Chromium	0.200	U	0.200	mg/kg						
Cobalt	2.00	U	2.00	mg/kg						
Copper	1.00	U	1.00	mg/kg						
Iron	20.0	U	20.0	mg/kg						
Lead	0.500	U	0.500	mg/kg						
Magnesium	1.06	B	75.0	mg/kg						
Manganese	5.00	U	5.00	mg/kg						
Molybdenum	2.00	U	2.00	mg/kg						
Nickel	4.00	U	4.00	mg/kg						
Potassium	400	U	400	mg/kg						
Selenium	0.300	U	0.300	mg/kg						
Silicon	2.00	U	2.00	mg/kg						
Silver	0.200	U	0.200	mg/kg						
Sodium	50.0	U	50.0	mg/kg						
Vanadium	2.50	U	2.50	mg/kg						
Zinc	10.0	U	10.0	mg/kg						

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WC-Hanford, Inc.	Project: RC-183	
2620 Fermi Avenue	Project Number: K2441	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	10/29/2010 15:19

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 L010353 - SW 3050B										
Duplicate (L010353-DUP1)		**Source: 1010049-01**		Prepared: 10/26/2010 Analyzed: 10/28/2010						
Aluminum	5890		4.72	mg/kg		6030			2	20
Antimony	0.566	U	0.566	mg/kg		0.476 U				20
Arsenic	3.45		0.943	mg/kg		3.88			12	20
Barium	65.4		0.472	mg/kg		81.3			22*	20
Beryllium	0.187	B	0.189	mg/kg		0.182			3	20
Boron	2.60		1.89	mg/kg		4.39			51*	20
Cadmium	0.565		0.189	mg/kg		0.295			63*	20
Calcium	28600		94.3	mg/kg		61400			73*	20
Chromium	11.3		0.189	mg/kg		12.5			10	20
Cobalt	4.41		1.89	mg/kg		3.90			12	20
Copper	11.5		0.943	mg/kg		11.7			2	20
Iron	13600		18.9	mg/kg		14500			7	20
Lead	22.1		0.472	mg/kg		21.2			5	20
Magnesium	2940		70.8	mg/kg		3010			2	20
Manganese	176		4.72	mg/kg		175			0.4	20
Molybdenum	0.505	B	1.89	mg/kg		0.669			28*	20
Nickel	6.72		3.77	mg/kg		6.84			2	20
Potassium	867		377	mg/kg		890			3	20
Selenium	0.283	U	0.283	mg/kg		0.238 U				20
Silicon	524		1.89	mg/kg		420			22*	20
Silver	0.189	U	0.189	mg/kg		0.159 U				20
Sodium	386		47.2	mg/kg		551			35*	20
Vanadium	38.5		2.36	mg/kg		40.5			5	20
Zinc	43.4		9.43	mg/kg		40.2			8	20
Matrix Spike (L010353-MS1)		**Source: 1010049-01**		Prepared: 10/26/2010 Analyzed: 10/28/2010						
Aluminum	6440		3.85	mg/kg	153.85	6030	265*	75-125		
Antimony	18.4		0.462	mg/kg	38.462	0.476 U	48*	75-125		
Arsenic	138		0.769	mg/kg	153.85	3.88	87	75-125		
Barium	219		0.385	mg/kg	153.85	81.3	90	75-125		
Beryllium	3.52		0.154	mg/kg	3.8462	0.182	87	75-125		
Boron	68.0		1.54	mg/kg	76.923	4.39	83	75-125		
Cadmium	4.02		0.154	mg/kg	3.8462	0.295	97	75-125		
Calcium	33800		76.9	mg/kg	1923.1	61400	-1430*	75-125		
Chromium	22.8		0.154	mg/kg	15.385	12.5	67*	75-125		
Cobalt	37.3		1.54	mg/kg	38.462	3.90	87	75-125		
Copper	28.7		0.769	mg/kg	19.231	11.7	88	75-125		

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2620 Fermi Avenue	Project Number: K2441	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	10/29/2010 15:19

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 L010353 - SW 3050B									
Matrix Spike (L010353-MS1)		**Source: 1010049-01**		Prepared: 10/26/2010 Analyzed: 10/28/2010					
Iron	15600	15.4	mg/kg	76.923	14500	1360*	75-125		
Lead	49.3	0.385	mg/kg	38.462	21.2	73*	75-125		
Magnesium	4490	57.7	mg/kg	1923.1	3010	77	75-125		
Manganese	231	3.85	mg/kg	38.462	175	144*	75-125		
Molybdenum	69.1	1.54	mg/kg	76.923	0.669	89	75-125		
Nickel	38.6	3.08	mg/kg	38.462	6.84	83	75-125		
Potassium	2690	308	mg/kg	1923.1	890	93	75-125		
Selenium	127	0.231	mg/kg	153.85	0.238 U	83	75-125		
Silicon	1110	1.54	mg/kg	76.923	420	896*	75-125		
Silver	3.27	0.154	mg/kg	3.8462	0.159 U	85	75-125		
Sodium	2310	38.5	mg/kg	1923.1	551	92	75-125		
Vanadium	77.6	1.92	mg/kg	38.462	40.5	97	75-125		
Zinc	76.3	7.69	mg/kg	38.462	40.2	94	75-125		
Reference (L010353-SRM1)				Prepared: 10/26/2010 Analyzed: 10/28/2010					
Aluminum	6870	13.2	mg/kg	6766.6		101	0-225.5		
Antimony	69.4	1.58	mg/kg	56.630		123	0-225.6		
Arsenic	114	2.63	mg/kg	113.85		101	85-115		
Barium	298	1.32	mg/kg	298.35		100	75.7-124.3		
Beryllium	106	0.526	mg/kg	108.32		98	85.2-114.8		
Boron	84.7	5.26	mg/kg	86.580		98	68.5-131.6		
Cadmium	224	0.526	mg/kg	224.09		100	84.9-115.1		
Calcium	3290	263	mg/kg	3305.9		100	82.8-117.2		
Chromium	81.5	0.526	mg/kg	77.590		105	76.8-123.2		
Cobalt	165	5.26	mg/kg	163.19		101	79.4-120.6		
Copper	262	2.63	mg/kg	265.65		98	82.4-117.6		
Iron	8590	52.6	mg/kg	8202.8		105	78.9-121.1		
Lead	187	1.32	mg/kg	187.62		99	81.5-118.5		
Magnesium	8510	197	mg/kg	8352.3		102	84.2-115.8		
Manganese	1130	13.2	mg/kg	951.35		118	69-131		
Molybdenum	250	5.26	mg/kg	234.78		106	80.1-119.9		
Nickel	225	10.5	mg/kg	220.85		102	81.4-118.6		
Potassium	14100	1050	mg/kg	14177		99	85.7-114.3		
Selenium	181	0.789	mg/kg	187.99		96	78.8-121.2		
Silicon	562	5.26	mg/kg	939.78		60	0-272.3		
Silver	81.6	0.526	mg/kg	83.960		97	81.9-118.1		
Sodium	9500	132	mg/kg	9587.1		99	83.5-116.4		

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WC-Hanford, Inc.	Project: RC-183	
2620 Fermi Avenue	Project Number: K2441	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	10/29/2010 15:19

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 L010353 - SW 3050B									
Reference (L010353-SRM1)			Prepared: 10/26/2010 Analyzed: 10/28/2010						
Vanadium	106	6.58	mg/kg	97.430		109	75.8-124.2		
Zinc	193	26.3	mg/kg	196.52		98	78.9-121.1		

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WC-Hanford, Inc.	Project: RC-183	
2620 Fermi Avenue	Project Number: K2441	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	10/29/2010 15:19

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

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L010202 - SW 7470A Prep										
Blank (L010202-BLK1)				Prepared: 10/14/2010 Analyzed: 10/15/2010						
Mercury	0.000200	U	0.000200	mg/L						
Blank (L010202-BLK2)				Prepared: 10/14/2010 Analyzed: 10/15/2010						
Mercury	0.0000660	B	0.000200	mg/L						
LCS (L010202-BS1)				Prepared: 10/14/2010 Analyzed: 10/15/2010						
Mercury	0.00473		0.000200	mg/L	0.0050606		93.5	80-120		
Duplicate (L010202-DUP3)		Source: 1010049-01		Prepared: 10/14/2010 Analyzed: 10/15/2010						
Mercury	0.0000950	B	0.000200	mg/L		0.0000900			5.41	20
Matrix Spike (L010202-MS3)		Source: 1010049-01		Prepared: 10/14/2010 Analyzed: 10/15/2010						
Mercury	0.171	D	0.0100	mg/L	0.20212	0.0000900	84.6	50-1000		
Batch L010299 - SW 3010A										
Blank (L010299-BLK1)				Prepared: 10/21/2010 Analyzed: 10/23/2010						
Arsenic	0.0150	U	0.0150	mg/L						
Barium	0.00100	U	0.00100	mg/L						
Cadmium	0.00300	U	0.00300	mg/L						
Chromium	0.00500	U	0.00500	mg/L						
Lead	0.0100	U	0.0100	mg/L						
Selenium	0.0200	U	0.0200	mg/L						
Silver	0.00600	U	0.00600	mg/L						
Blank (L010299-BLK2)				Prepared: 10/21/2010 Analyzed: 10/23/2010						
Arsenic	0.0900	U	0.0900	mg/L						
Barium	0.00600	U	0.00600	mg/L						
Cadmium	0.0180	U	0.0180	mg/L						
Chromium	0.0300	U	0.0300	mg/L						
Lead	0.0600	U	0.0600	mg/L						
Selenium	0.120	U	0.120	mg/L						
Silver	0.0360	U	0.0360	mg/L						

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WC-Hanford, Inc.	Project: RC-183	
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Richland WA, 99354	Project Manager: Joan Kessner	10/29/2010 15:19

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

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L010299 - SW 3010A										
LCS (L010299-BS1)				Prepared: 10/21/2010 Analyzed: 10/23/2010						
Arsenic	9.86		0.0150	mg/L	10.000		98.6	80-120		
Barium	5.12		0.00100	mg/L	5.0000		102	80-120		
Cadmium	0.254		0.00300	mg/L	0.25000		102	80-120		
Chromium	0.504		0.00500	mg/L	0.50000		101	80-120		
Lead	2.45		0.0100	mg/L	2.5000		98.1	80-120		
Selenium	9.38		0.0200	mg/L	10.000		93.8	80-120		
Silver	0.504		0.00600	mg/L	0.50000		101	80-120		
Duplicate (L010299-DUP1)		**Source: 1010049-01**		Prepared: 10/21/2010 Analyzed: 10/23/2010						
Arsenic	0.0900	U	0.0900	mg/L		0.0900 U				20
Barium	0.323		0.00600	mg/L		0.344			6.42	20
Cadmium	0.0180	U	0.0180	mg/L		0.0180 U				20
Chromium	0.0210	B	0.0300	mg/L		0.0231			9.23	20
Lead	0.0600	U	0.0600	mg/L		0.0600 U				20
Selenium	0.120	U	0.120	mg/L		0.120 U				20
Silver	0.0360	U	0.0360	mg/L		0.0360 U				20
Matrix Spike (L010299-MS1)		**Source: 1010049-01**		Prepared: 10/21/2010 Analyzed: 10/23/2010						
Arsenic	5.06		0.0900	mg/L	5.0000	0.0900 U	101	50-1000		
Barium	99.5		0.00600	mg/L	100.00	0.344	99.1	50-1000		
Cadmium	1.01		0.0180	mg/L	1.0000	0.0180 U	101	50-1000		
Chromium	4.87		0.0300	mg/L	5.0000	0.0231	97.0	50-1000		
Lead	4.74		0.0600	mg/L	5.0000	0.0600 U	94.9	50-1000		
Selenium	0.977		0.120	mg/L	1.0000	0.120 U	97.7	50-1000		
Silver	4.87		0.0360	mg/L	5.0000	0.0360 U	97.4	50-1000		

Lionville Laboratory **Logbook #:** 829

SAMPLE DIGESTION RECORD

Digestion Batch #: L010799
Date/Time Initiated: 10/21/10 1235
Date/Time Completed: 10/22/10 1555
Analyst: JJS
Matrix (circle): Soil Water Other
Method (circle one): 3005A 3010A 3050 200.7 (1994)

Digested / Undigested (circle one)
Balance #: N/A
Balance Cal Verification: Y NA
Temp: 97
BLOCK 1 2 (circle one)

NOTE: All temperatures are recorded as corrected temperatures

C/C: clear/colorless

Work Order #	Spike Vol (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/Sol/ TC	Texture	Color / Appearance	Artifact	Turb
10100499-01		50	50	<2	TC	N/A	C/C	N/A	N/A
L010799-MB1		50	50	<2					
-MS1	0.5	50	50						
-BLK1		50	50				C/C		
-BS1	0.5	50	50				C/C		
-BLK2		50	50	<2			C/C		

JJS 10/22/10

Spiking IDs / Expiration Date:
MS#: 6072-086-66
-087-01

LCS#: ~~6100-0~~ 6072-086-10 -08 -09 -07
WJS 10/27/10

Reagent IDs:
HNO_3 J19073
HCl
H_2O_2
1:1 HNO_3
1:1 HCl 637-027-08

File ID#:

Data Review By / Date: AEM 10/25/10

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Page #:

†: Associated with L010153.

PREPARATION BENCH SHEET

L010299

Lionville Laboratory

Printed: 10/29/2010 4:19:41PM

Matrix: Solid **Prepared using: METALS - SW 3010A** **(No Surrogate)**

Lab Number	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1010049-01	1311/6010B TCLP RCRA ICP MET	10/21/2010 12:22	50	50					WC-Hanford, Inc.	
L010299-BLK1	QC	10/21/2010 12:22	50	50						
L010299-BLK2	QC	10/21/2010 12:22	50	50						Associated with L010153.
L010299-BS1	QC	10/21/2010 12:22	50	50	1001197		500			
L010299-DUP1	QC	10/21/2010 12:22	50	50		1010049-01				
L010299-MS1	QC	10/21/2010 12:22	50	50	1000502	1010049-01	500			

Extracts Relinquished By Date

Extracts Received By Date

Lionville Laboratory **Logbook #:** 829

SAMPLE DIGESTION RECORD

Digestion Batch #: L010353
Date/Time Initiated: 10/26/10 1705
Date/Time Completed: 10/26/10 1740
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: ✓ 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
1010049-01		0.63	50		TO	Coarse	gray	Acid/HCl	N/A
L010353-Dpl		0.53	50		↓	↓	↓	↓	↓
-MS1	0.5	0.65	50		↓	↓	↓	↓	↓
BLH1		0.50	50		↓	Coarse	Boiling chips		↓
SM1	1.0	0.57	50		↓	Fine	dust/pebbles		↓

JJS
10/26/10

Spiking IDs / Expiration Date:
MS#: 8100-04-07
-08
-09
6072-087-14
LCS#: 1001320

Reagent IDs:
HNO_3 J19023
HCl J18041
H_2O_2 H28J00
1:1 HNO_3 637-028067
1:1 HCl

File ID#:

Data Review By / Date: 10/28/10

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PREPARATION BENCH SHEET

L010353

Lionville Laboratory

Printed: 10/29/2010 4:19:29PM

Matrix: Solid **Prepared using: METALS - SW 3050B** **(No Surrogate)**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1010049-01	6010B ICP Metals	10/26/2010 12:48	0.63	50					WC-Hanford, Inc.	HSL + B, Mo, Si (No TL)
L010353-BLK1	QC	10/26/2010 12:48	0.5	50						
L010353-DUP1	QC	10/26/2010 12:48	0.53	50		1010049-01				
L010353-MS1	QC	10/26/2010 12:48	0.65	50	1001747	1010049-01	500			
L010353-SRM1	QC	10/26/2010 12:48	0.57	50	1001320		570			

Extracts Relinquished By Date

Extracts Received By Date

Lionville Laboratory

MERCURY PREPARATION

Logbook # B24

Analyst: [illegible]
Date 10/14/10
Start Time/Temp: 2036/93°
End Time/Temp: 2230/98°

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

Prep Batch: L010202
Worksheet: HG101502
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				33	33	
0.2 µg/L		0.0667		33	33	
1.0 µg/L		0.333		33	33	
2.0 µg/L		0.667		33	33	
5.0 µg/L		1.667		33	33	
10.0 µg/L		3.333		33	33	
IEV		0.0835	2.5	33	33	
CEV		0.167	5.0	33	33	
IEB/CEB				33	33	
L010202-BLK1				33	33	
BLK2	<			33	33	L01053
BS1		0.167	5.0	33	33	
1009162-01	<			33	33	
L010202-DUP1	<			33	33	
MS1		0.667 (*)	200	33	33	
1009162-02	<			33	33	
1009164-01	<			33	33	
L010202-DUP2	<			33	33	
MS2		0.667 (*)	200	33	33	
1009164-02	<			33	33	
03	<			33	33	
04	<			33	33	
05	<			33	33	
1010049-01	<			33	33	
L010202-DUP3	<		200	33	33	
MS3		0.667 (*)	[illegible]	~~33~~ 33	33	
		MN 10/14/10				

Standard:	ID	Prep Date/Time
ICAL/MS	RI 09019858	10/14/10 1300
ICV/CCV/LCS	IU. 09022297A	↓

Reviewed By/Date: [illegible] 10/18/10

se book # 9368 for std traceability information

Soil LCS True Value = N/A mg/Kg
Standard # N/A

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

(*) used RI 09019854 (1 µg/ml)

A

ME-HgCVAA-Prep0910

Page #:

00000017

Lionville Laboratory **MERCURY PREPARATION**

Analyst: [illegible] 21 I.E. pw 10/22/10
Date 10/22/10 - digested 10/22/10
Start Time/Temp: 1320/96°
End Time/Temp: 1410/98°

Instrument ID: HG31
Balance # 629 /NA
Pipette Calibration (Daily) (Y) ____

Logbook # 824
Prep Batch: L010304
Worksheet: HG102501
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				10ml	50	
0.2 ug/l		0.100		10ml	50	
1.0 ug/l		0.500		10ml	50	
2.0 ug/l		1.000		10ml	50	
5.0 ug/l		2.500		10ml	50	
10.0 ug/l		5.000		10ml	50	
ICV		0.125	2.5	10ml	50	
CCV		0.250	5.0	10ml	50	
ICB/CCB				10ml	50	
L010304-BLK1				0.35	50	
SRM1				0.33	50	
1010037-01				0.36	50	
L010304-DUP1				0.37	50	
MS1		0.500	1.0	0.36	50	
1010048-01				0.38	50	
L010304-DUP2				0.37	50	
MS2		0.500	1.0	0.37	50	
1010048-02				0.39	50	
03				0.36	50	
1010049-01				0.38	50	
L010304-DUP3				0.39	50	
MS3		0.500	1.0	0.37	50	
1010051-01				0.35	50	
L010304-DUP4				0.35	50	
pw potassium extra.0 MS4		0.500	1.0	0.36	50	
1010053-01				0.36	50	
02				0.38	50	

Standard:	ID	Prep Date/Time
ICAL/MS	BI 09014853	10/22/10 0945
ICV/CCV/LCS	I.V. 09022947	1

Reviewed By/Date: [illegible] 10/26/10

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

A

Lionville Laboratory

MERCURY PREPARATION

Logbook # 824

Analyst: [illegible]
Date 10/21/10 - digested 10/22/10
Start Time/Temp: [illegible] 039
End Time/Temp: [illegible]

Instrument ID: Hg3.1
Balance # 829 /NA
Pipette Calibration (Daily) (Y) ____

Prep Batch: L010304
Worksheet: HG102501
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.
1010053-03				0.37	50	
L010304-DUP5				0.35	50	
MS5		0.500	1.0	0.35	50	

PMB 10/22/10

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

Reviewed By/Date: [illegible] 10/26/10

se book # 9368 for std traceability information

Soil LCS True Value = [illegible] 039 mg/Kg
Standard # [illegible]

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

A

ME-HgCVAA-Prep0910

Page #:

Lionville Laboratory

TCLP EXTRACTION RECORD
(NON-VOLATILES)

LOGBOOK # 814

Start Date: 10/13/10 Start Time: 0021 Analyst: [illegible] SOP: SPI-1311.1	End Date: 10/14/10 End Time: 1800 Analyst: [illegible] Method: 1311.	Tumbler Speed: 30 RPM Leachate Batch #: 1010153 Leachate Page: 1 of 3 Room Temp. (°C): Start 21 /Finish 21 Acceptance Criteria: 23°C ± 2°

LvL #: 1010153 Client ID#: pH After 5 Min: pH After Acid/Heat: Extraction Fluid/pH: 4.92 Sample Wt.(g): Extract Fluid Vol.(mL): pH After Extraction:	Initial Filtration Data and Comments: Solids: ____% / NA B/C Initial Filtrate Added:
LvL #: 1009162-001 Client ID#: NA pH After 5 Min: 7.58 pH After Acid/Heat: ~~1.97~~ 1.97 Extraction Fluid/pH: #1 4.92 Sample Wt.(g): 25 Extract Fluid Vol.(mL): 500 pH After Extraction: 5.04	Initial Filtration Data and Comments: Solids: ____% / NA 001 Initial Filtrate Added:
LvL # 1009162-002 Client ID#: NA pH After 5 Min: 7.61 pH After Acid/Heat: 2.13 Extraction Fluid/pH: #1 4.92 Sample Wt.(g): 25 Extract Fluid Vol.(mL): 500 pH After Extraction: 4.88	Initial Filtration Data and Comments: Solids: ____% / NA 002 Initial Filtrate Added:
LvL #: 1009163-001 Client ID#: NA pH After 5 Min: 8.43 pH After Acid/Heat: 1.97 Extraction Fluid/pH: #1 4.92 Sample Wt.(g): 25 Extract Fluid Vol.(mL): 500 pH After Extraction: 4.94	Initial Filtration Data and Comments: Solids: ____% / NA 001 Initial Filtrate Added:

Standard	ID	Prep Date	Expir Date
MS			

Reviewed By/Date _____

Lionville Laboratory

TCLP EXTRACTION RECORD
(NON-VOLATILES)

LOGBOOK # 814

Start Date: 10/13/10 Start Time: 1021 Analyst: WJ SOP: SPI-1311.1	End Date: 10/14/10 End Time: 1806 Analyst: WJ Method: 1311.	Tumbler Speed: 30 RPM Leachate Batch #: L010153 Leachate Page: 3 of 3 Room Temp. (°C): Start 21 /Finish 21 Acceptance Criteria: 23°C ± 2°

LvL #: 1009164-004 Client ID#: NA pH After 5 Min: 9.32 pH After Acid/Heat: 2.18 Extraction Fluid/pH: #1 4.93 Sample Wt.(g): 25 Extract Fluid Vol.(mL): 500 pH After Extraction: 4.90	Initial Filtration Data and Comments: Solids: ____% / NA 004 Initial Filtrate Added:
LvL #: 1009164-005 Client ID#: NA pH After 5 Min: 5.38 pH After Acid/Heat: # Extraction Fluid/pH: #1 4.93 Sample Wt.(g): 25 Extract Fluid Vol.(mL): 500 pH After Extraction: 5.04	Initial Filtration Data and Comments: Solids: ____% / NA 005 Initial Filtrate Added:
LvL # 1010049-001 Client ID#: NA pH After 5 Min: 10.14 pH After Acid/Heat: 1.88 Extraction Fluid/pH: 4.92 Sample Wt.(g): 100 Extract Fluid Vol.(mL): 2000 pH After Extraction: 7.10	Initial Filtration Data and Comments: Solids: ____% / NA 001 Initial Filtrate Added:
LvL #: Client ID#: pH After 5 Min: pH After Acid/Heat: Extraction Fluid/pH: Sample Wt.(g): Extract Fluid Vol.(mL): pH After Extraction:	Initial Filtration Data and Comments: Solids: ____% / NA Initial Filtrate Added:

Standard	ID	Prep Date	Expir Date
MS			

Reviewed By/Date _____

SPI-1311.1-A-0310

Page #

TCLP BENCH SHEET

L010153

Lionville Laboratory

Printed: 10/25/2010 2:56:05PM

Matrix: Solid

Prepared using: WETCHEM - SW 1311

LabID	ClientID	Analysis	Initial (g)	Final (mL)	Start Date Time)	By	pH after 5 min	pH after Acid/Heat	Ext Fluid pH	Rm Temp	End Date Time	pH	Extraction Comments
1009162-01	J1C3K9	1311 TCLP Inorganic	25	500	10/13/2010 00:21	MLF	7.58	1.97	#1 4.92	21	10/14/10 1800	5.04	
1009162-02	J1C3L0	1311 TCLP Inorganic	25	500	10/13/2010 00:21	MLF	7.61	2.13	#1 4.92	21	10/14/10 1800	4.88	
1009163-01	J1BYX3	1311 TCLP Inorganic	25	500	10/13/2010 00:21	MLF	8.43	1.97	#1 4.92	21	10/14/10 1800	4.94	
1009163-02	J1BYX4	1311 TCLP Inorganic	25	500	10/13/2010 00:21	MLF	8.19	1.84	#1 4.92	21	10/14/10 1800	4.92	
1009164-01	J1C3W2	1311 TCLP Inorganic	25	500	10/13/2010 00:21	MLF	7.95	1.89	#1 4.92	21	10/14/10 1800	5.04	
1009164-02	J1C3W3	1311 TCLP Inorganic	25	500	10/13/2010 00:21	MLF	8.76	1.89	#1 4.92	21	10/14/10 1800	4.98	
1009164-03	J1C3W4	1311 TCLP Inorganic	25	500	10/13/2010 00:21	MLF	8.32	1.96	#1 4.92	21	10/14/10 1800	4.93	
1009164-04	J1C3W5	1311 TCLP Inorganic	25	500	10/13/2010 00:21	MLF	9.32	2.18	#1 4.92	21	10/14/10 1800	4.9	
1009164-05	J1C3W6	1311 TCLP Inorganic	25	500	10/13/2010 00:21	MLF	5.38	1.01	#1 4.92	21	10/14/10 1800	5.07	
1010049-01	J1CCX0	1311 TCLP Inorganic	100	2000	10/13/2010 00:21	MLF	10.14	1.88	#1 4.92	21	10/14/10 1800	7.1	
1010049-01	J1CCX0	1311 TCLP Organic	100	2000	10/13/2010 00:21	MLF	10.14	1.88	#1 4.92	21	10/14/10 1800	7.1	
L010153-BLK1	Blank	QC	100	2000	10/13/2010 00:21	MLF	n/a	n/a	#1 4.92	21	10/14/10 1800		

Leachates Relinquished By Date

Leachates Received By Date

Lionville Laboratory Use Only

1010049

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-183

Est. Final Proj. Sampling Date:

Project#:

Project Contact/Phone#:

Lionville Laboratory Project Manager: O. J

QC: SW Del: STD TAT: 15 Days

Date Rec'd: 10-12-10 Date Due: 10-27-10

		A				B			C		D					
Refrigerator #		2				2			2		2					
#/Type Container	Liquid / Solid	1AG				1AG			1AG		1AG					
Volume		60				120			60		120					
Preservatives		—				—					—					
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb	TCLP BNA			Metal Hg	CN	TCLP Met	TCLP Hg				
		Lionville Laboratory Use Only														
			8270			TCLP 8270T			Met①		TCLP Met					

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	J1CCX0	✓	✓	OTHER	10/6/10	1025		X			X			X		X	X				

Special Instructions:

Met①: HSL + B, Mo, S; NOTL

Special Instructions:

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

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	10/12/10	0950

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL			
REWRITTEN			

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-183-003	Page 1 of 1

Collector JRD 10/6/10 ~~D. Henjum~~ Leach	Company Contact S. Van Den Hende	Telephone No. 509-551-3934	Project Coordinator KESSNER, JH
Price Code ~~9L~~ JRD 10/6/10 9K	Data Turnaround ~~21~~ Days 15		
Project Designation ARRA 100F Remaining Sites Remediation - Other	Sampling Location 100-F-49		SAF No. RC-183
Ice Chest No. WCH-11-008	Field Logbook No. EL-1651	COA S00F498100	Method of Shipment FEDEX
Shipped To EBERLINE SERVICES / KIONVILLE	Offsite Property No. A100558		Bill of Lading/Air Bill No. SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

None JEB 10-11-10
Potential RAD, < DOT Limits

Special Handling and/or Storage

Cool 4 degrees C

Preservation	Cool 4C	None	Cool 4C	Cool 4C	None	None	
Type of Container	G/P	G/P	aG	aG	aG	G/P	
No. of Container(s)	1	1	1	1	1	1	
Volume	60mL	120mL	60mL	60mL	120mL	60mL	
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	Pesticides - 8081 JRD 10/6/10	TCLP Semi-VOA - 1311/8270A	RCE GEA Shipping Screen JRD 10/6/10	

Sample No.	Matrix *	Sample Date	Sample Time										
J1CCX0	OTHER	10/6/10	1025	✓	✓	✓		✓					
~~J1CCX1~~	OTHER												
~~J1CCX2~~	OTHER												
~~J1CCX3~~	OTHER												
~~J1CCX4~~ JRD 10/6/10	OTHER												

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Z. Leach	10/6/10 1545	JRDeBuigne JRDeBuigne	10/6/10 1545
JRDeBuigne JRDeBuigne	10/6/10 1630	S. Howell	10-6-10 1630
J.E. Bemhal WCH	10-11-10 1000	FED EX	
Victor Hernandez	10-12-10 0950	Victor Hernandez	10-12-10 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 (Client List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV) {Mercury}
(2) Metals by ICP (TCLP) - 1311/6010 {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury (TCLP) - 1311/7470 {Mercury}

Sterling Howell was unavailable to relinquish custody of samples on 10-11-10. J.E. Bemhal will take custody of these samples stored 1060 Battelle, Fridge 1B. JEB 10-11-10

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

REVIEWED BY JR DATE 10/11/10

WCH-EE-011

P2000000C

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC Hanford Date: 10/12/10

Project/SAF/SOW/Release #: RC-183

LvL Batch #: 1010 0 049 Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FED EX		Airbill # 796329936487
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 2.1°	°C	Cooler # WCH-11-008
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 _____	

Apex™

Non-Reg.

Analysis Report for RCF25861

J1CCX0 SAF:RC-183 100F/100-F-49 SOIL SAMPLE

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF25861
Sample Description	: J1CCX0 SAF:RC-183 100F/100-F-49 SOIL SAMPLE
Sample Type	: 50g pillbox
Sample Size	: 4.500E+01 grams
Facility	: Default
Sample Taken On	: 10/6/2010 10:25:00AM
Acquisition Started	: 10/11/2010 6:52:35AM
Procedure	: 50 Gram Pill Box
Operator	: RCT
Detector Name	: REGIE02
Geometry	: 50 ml Pill Box
Live Time	: 3600.0 seconds
Real Time	: 3600.2 seconds
Dead Time	: 0.01 %
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 40 - 4096
Peak Area Range (in channels)	: 40 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 7/29/2010
Efficiency Calibration Used Done On	: 3/27/2010
Efficiency Calibration Description	: REGE 50gPB 032610Cal 80398-238
Sample Number	: 7613

INTERFERENCE CORRECTED REPORT

Nuclide Name		Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40		0.994	1.30E+01	3.41E+00	
PB-212		0.710	7.59E-01	1.66E-01	
RA-226d	@	0.612	5.85E-01	1.68E-01	
TH-232d		0.435	4.22E-01	1.58E-01	

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

WC-Hanford, Inc.	Project: RC-183	
2620 Fermi Avenue	Project Number: K2441	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	11/10/2010 15:17

Analytical Report for TCLP Semivolatiles by SW846 1311/8270C

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1CCX0	1010049-01	Other Solid	10/06/2010 10:25	10/12/2010 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-183 K2441
LVL #: 1010049

W.O. #: 60049-001-001-0001-00
Date Received: 10-21-2010

SEMIVOLATILE - TCLP

One (1) leachate sample was generated from a soil sample collected on 10-06-2010.

The sample and associated QC samples were leached 10-14-2010, extracted 10-25,27-2010 and analyzed 10-27-2010 and 11-03-2010 according to criteria set forth in Lionville Laboratory SOPs. The leaching procedure was based on SW846 Method 1311, the extraction procedure was based on SW846 Method 3520C, and the analysis procedure was based on SW846 Method 8270C.

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(s) that met LvL's sample acceptance policy.

2. The sample was analyzed within the recommended holding time.

3. The samples were extracted outside of the recommended holding time. A copy of the Sample Discrepancy Report (SDR# 10MS314) has been enclosed.

4. Four (4) of forty-eight (48) surrogate recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR#10MS314) has been enclosed. The loss of the surrogate 2,4,6-Tribromophenol in the samples L010222-BLK1 and L010222-BS1 appears to be due to a chemical reaction rather than to a problem with the extraction process. Peaks on the chromatogram indicate this reaction. The conversion compound has been reported as a non-target compound (TIC) in sample L010222-BLK1 at a retention time of 19.554 minutes. No TICs were reported for the BS, but the conversion compound was seen at 19.547 minutes. This surrogate loss has been associated with the use of soxhlet extractions.

5. The method blanks were below the reporting limit for all target compounds.

6. One (1) of twenty-four (24) blank spike recoveries was outside acceptance criteria. The recoveries were biased high there is no impact on data.

7. Three (3) of twenty-four (24) matrix spike recoveries were outside acceptance criteria. The recoveries were biased high there is no impact on data.

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 24 pages.

10. Internal standard area and retention time criteria were met.

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

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

Iain Daniels
LvL Laboratory Manager

11/11/10
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 10MS314

Initiator: Sharon Saylor
Date: 11-9-10
Client: WC Hanford K2441

Batch: 1010049
Samples: LBLK, JICC XO
Method: SW846/MCAWW/CLP/

Parameter: 8270
Matrix: leachate
Prep Batch: L010333

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)

(1) 4 surrogates out of QC acceptance Limits in L010333-BLK-4 (LT00153)
(2) ~~leachate extracted out of 7 day hold time (JICC XO leachate)~~ Samples extracted outside the recommended hold time (4 days sample 6 days leach blank) Reviewed

2. Known or Probable Causes(s) (1) portion of extract may have been lost during sample concentration on Mavap all early eluting surrogates have no recovery, late eluting surrogates within criteria (2) scheduling error

3. Discussion and Proposed Action Other Description: narrate samples all qualified no important analytes

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

4. Project Manager Instructions...signature/date: 11/11/10

__ 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: 11-10-10 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

DATA QUALIFIERS

U	=	Indicates that the compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
J	=	Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concetration of 3 ug/L is calculated, it is reported as 3J.
B	=	This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
D	=	Identifies all compounds identified in an analysis at a secondary dilution factor.
I	=	Interference.
NQ	=	Result qualitatively confirmed but not able to quantify.
A	=	Indicates that a TIC is a suspected aldol-condensation product.
N	=	Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
X	=	This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
Y	=	Additional qualifiers used as required are explained in the case narrative.

GLOSSARY

ABBREVIATIONS

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

TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

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

The calculated Phenol-d5 surrogate for sample L010333-BLK1 did not meet acceptance criteria; however, the presence of a peak on the chromatogram indicated that the recovery was within acceptance criteria. The spectrum showed evidence of deuterated phenol(s), indicating that deuterium exchange had occurred during the extraction process. The total deuterated Phenol-d5 surrogate recovery has been recalculated and reported.

R\SHARE\GCMS\BNA\WCNOTES\WC101049.DOC

Leach blank L010153(L010381-BLK4) was extracted in batch L010381 on 10/27/10. To accommodate the date reporting system the leach blank was moved to batch L010333 and renamed L010333-BLK4. The associated blank and blank spike, extracted 10/27/10 was also moved and renamed L010333-BLK5 and L010333-BS5 to associate with the samples and leach blank.

R\SHARE\GCMS\BNA\WCNOTES/WC101049A.DOC

264 Welsh Pool Road
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WC-Hanford, Inc.	Project: RC-183	
2620 Fermi Avenue	Project Number: K2441	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	11/10/2010 15:17

J1CCX0
1010049-01 (Other Solid)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
		Lionville Laboratory						
TCLP Semivolatiles by SW846 1311/8270C								
1,4-Dichlorobenzene	0.0500 U	0.0500	mg/L	1	L010333	10/25/2010	11/03/2010	8270C
2,4,5-Trichlorophenol	0.0500 U	0.0500	mg/L	1	L010333	10/25/2010	11/03/2010	8270C
2,4,6-Trichlorophenol	0.0500 U	0.0500	mg/L	1	L010333	10/25/2010	11/03/2010	8270C
2,4-Dinitrotoluene	0.0500 U	0.0500	mg/L	1	L010333	10/25/2010	11/03/2010	8270C
2-Methylphenol	0.0500 U	0.0500	mg/L	1	L010333	10/25/2010	11/03/2010	8270C
3- and/or 4-Methylphenol	0.0500 U	0.0500	mg/L	1	L010333	10/25/2010	11/03/2010	8270C
Hexachlorobenzene	0.0500 U	0.0500	mg/L	1	L010333	10/25/2010	11/03/2010	8270C
Hexachlorobutadiene	0.0500 U	0.0500	mg/L	1	L010333	10/25/2010	11/03/2010	8270C
Hexachloroethane	0.0500 U	0.0500	mg/L	1	L010333	10/25/2010	11/03/2010	8270C
Nitrobenzene	0.0500 U	0.0500	mg/L	1	L010333	10/25/2010	11/03/2010	8270C
Pentachlorophenol	0.125 U	0.125	mg/L	1	L010333	10/25/2010	11/03/2010	8270C
Pyridine	0.0500 U	0.0500	mg/L	1	L010333	10/25/2010	11/03/2010	8270C
Surrogate: 2-Fluorophenol	*90 %*	*21-100*			*L010333*	*10/25/2010*	*11/03/2010*	*8270C*
Surrogate: Phenol-d5	*40 %*	*10-94*			*L010333*	*10/25/2010*	*11/03/2010*	*8270C*
Surrogate: Nitrobenzene-d5	*85 %*	*35-114*			*L010333*	*10/25/2010*	*11/03/2010*	*8270C*
Surrogate: 2-Fluorobiphenyl	*77 %*	*43-116*			*L010333*	*10/25/2010*	*11/03/2010*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*96 %*	*10-123*			*L010333*	*10/25/2010*	*11/03/2010*	*8270C*
Surrogate: p-Terphenyl-d14	*94 %*	*33-141*			*L010333*	*10/25/2010*	*11/03/2010*	*8270C*

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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WC-Hanford, Inc.	Project: RC-183	
2620 Fermi Avenue	Project Number: K2441	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	11/10/2010 15:17

TCLP Semivolatiles by SW846 1311/8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L010333 - SW 3520C									
Blank (L010333-BLK1)			Prepared: 10/25/2010 Analyzed: 10/27/2010						
1,4-Dichlorobenzene	0.0500 U	0.0500	mg/L						
2,4,5-Trichlorophenol	0.0500 U	0.0500	mg/L						
2,4,6-Trichlorophenol	0.0500 U	0.0500	mg/L						
2,4-Dinitrotoluene	0.0500 U	0.0500	mg/L						
2-Methylphenol	0.0500 U	0.0500	mg/L						
3- and/or 4-Methylphenol	0.0500 U	0.0500	mg/L						
Hexachlorobenzene	0.0500 U	0.0500	mg/L						
Hexachlorobutadiene	0.0500 U	0.0500	mg/L						
Hexachloroethane	0.0500 U	0.0500	mg/L						
Nitrobenzene	0.0500 U	0.0500	mg/L						
Pentachlorophenol	0.125 U	0.125	mg/L						
Pyridine	0.0500 U	0.0500	mg/L						
Surrogate: 2-Fluorophenol	*0.168*		*mg/L*	*0.37500*		*45*	*21-100*		
Surrogate: Phenol-d5	*0.143*		*mg/L*	*0.37500*		*38*	*10-94*		
Surrogate: Nitrobenzene-d5	*0.179*		*mg/L*	*0.25000*		*71*	*35-114*		
Surrogate: 2-Fluorobiphenyl	*0.160*		*mg/L*	*0.25000*		*64*	*43-116*		
Surrogate: 2,4,6-Tribromophenol	*0.220*		*mg/L*	*0.37500*		*59*	*10-123*		
Surrogate: p-Terphenyl-d14	*0.199*		*mg/L*	*0.25000*		*79*	*33-141*		
Blank (L010333-BLK4)			Prepared: 10/27/2010 Analyzed: 11/03/2010						
1,4-Dichlorobenzene	0.0500 U	0.0500	mg/L						
2,4,5-Trichlorophenol	0.0500 U	0.0500	mg/L						
2,4,6-Trichlorophenol	0.0500 U	0.0500	mg/L						
2,4-Dinitrotoluene	0.0500 U	0.0500	mg/L						
2-Methylphenol	0.0500 U	0.0500	mg/L						
3- and/or 4-Methylphenol	0.0500 U	0.0500	mg/L						
Hexachlorobenzene	0.0500 U	0.0500	mg/L						
Hexachlorobutadiene	0.0500 U	0.0500	mg/L						
Hexachloroethane	0.0500 U	0.0500	mg/L						
Nitrobenzene	0.0500 U	0.0500	mg/L						
Pentachlorophenol	0.125 U	0.125	mg/L						
Pyridine	0.0500 U	0.0500	mg/L						
Surrogate: 2-Fluorophenol	*0.00 U*		*mg/L*	*0.37500*		***	*21-100*		
Surrogate: Phenol-d5	*0.00 U*		*mg/L*	*0.37500*		***	*10-94*		
Surrogate: Nitrobenzene-d5	*0.000141*		*mg/L*	*0.25000*		*0.06**	*35-114*		
Surrogate: 2-Fluorobiphenyl	*0.00422*		*mg/L*	*0.25000*		*2**	*43-116*		
Surrogate: 2,4,6-Tribromophenol	*0.137*		*mg/L*	*0.37500*		*37*	*10-123*		
Surrogate: p-Terphenyl-d14	*0.261*		*mg/L*	*0.25000*		*105*	*33-141*		

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Richland WA, 99354	Project Manager: Joan Kessner	11/10/2010 15:17

TCLP Semivolatiles by SW846 1311/8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L010333 - SW 3520C									
Blank (L010333-BLK5)			Prepared: 10/27/2010 Analyzed: 11/03/2010						
1,4-Dichlorobenzene	0.0500 U	0.0500	mg/L						
2,4,5-Trichlorophenol	0.0500 U	0.0500	mg/L						
2,4,6-Trichlorophenol	0.0500 U	0.0500	mg/L						
2,4-Dinitrotoluene	0.0500 U	0.0500	mg/L						
2-Methylphenol	0.0500 U	0.0500	mg/L						
3- and/or 4-Methylphenol	0.0500 U	0.0500	mg/L						
Hexachlorobenzene	0.0500 U	0.0500	mg/L						
Hexachlorobutadiene	0.0500 U	0.0500	mg/L						
Hexachloroethane	0.0500 U	0.0500	mg/L						
Nitrobenzene	0.0500 U	0.0500	mg/L						
Pentachlorophenol	0.125 U	0.125	mg/L						
Pyridine	0.0500 U	0.0500	mg/L						
Surrogate: 2-Fluorophenol	*0.289*		*mg/L*	*0.37500*		*77*	*21-100*		
Surrogate: Phenol-d5	*0.107*		*mg/L*	*0.37500*		*28*	*10-94*		
Surrogate: Nitrobenzene-d5	*0.184*		*mg/L*	*0.25000*		*74*	*35-114*		
Surrogate: 2-Fluorobiphenyl	*0.157*		*mg/L*	*0.25000*		*63*	*43-116*		
Surrogate: 2,4,6-Tribromophenol	*0.290*		*mg/L*	*0.37500*		*77*	*10-123*		
Surrogate: p-Terphenyl-d14	*0.250*		*mg/L*	*0.25000*		*100*	*33-141*		
LCS (L010333-BS1)			Prepared: 10/25/2010 Analyzed: 10/27/2010						
1,4-Dichlorobenzene	0.200	0.0500	mg/L	0.30000		67	36-97		
2,4,5-Trichlorophenol	0.299	0.0500	mg/L	0.30000		100	9-141		
2,4,6-Trichlorophenol	0.283	0.0500	mg/L	0.30000		94	9-141		
2,4-Dinitrotoluene	0.286	0.0500	mg/L	0.30000		95	24-96		
2-Methylphenol	0.257	0.0500	mg/L	0.30000		86	9-141		
3- and/or 4-Methylphenol	0.259	0.0500	mg/L	0.30000		86	9-141		
Hexachlorobenzene	0.239	0.0500	mg/L	0.30000		80	9-141		
Hexachlorobutadiene	0.206	0.0500	mg/L	0.30000		69	9-141		
Hexachloroethane	0.186	0.0500	mg/L	0.30000		62	9-141		
Nitrobenzene	0.262	0.0500	mg/L	0.30000		87	9-141		
Pentachlorophenol	0.373	0.125	mg/L	0.30000		124*	9-103		
Pyridine	0.0988	0.0500	mg/L	0.30000		33	9-141		
Surrogate: 2-Fluorophenol	*0.321*		*mg/L*	*0.37500*		*86*	*21-100*		
Surrogate: Phenol-d5	*0.334*		*mg/L*	*0.37500*		*89*	*10-94*		
Surrogate: Nitrobenzene-d5	*0.217*		*mg/L*	*0.25000*		*87*	*35-114*		
Surrogate: 2-Fluorobiphenyl	*0.203*		*mg/L*	*0.25000*		*81*	*43-116*		
Surrogate: 2,4,6-Tribromophenol	*0.334*		*mg/L*	*0.37500*		*89*	*10-123*		

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2620 Fermi Avenue	Project Number: K2441	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	11/10/2010 15:17

TCLP Semivolatiles by SW846 1311/8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L010333 - SW 3520C									
LCS (L010333-BS1)			Prepared: 10/25/2010 Analyzed: 10/27/2010						
Surrogate: p-Terphenyl-d14	*0.258*		*mg/L*	*0.25000*		*103*	*33-141*		
LCS (L010333-BS5)			Prepared: 10/27/2010 Analyzed: 11/03/2010						
1,4-Dichlorobenzene	0.151	0.0500	mg/L	0.30000		50	36-97		
2,4,5-Trichlorophenol	0.215	0.0500	mg/L	0.30000		72	9-141		
2,4,6-Trichlorophenol	0.210	0.0500	mg/L	0.30000		70	9-141		
2,4-Dinitrotoluene	0.222	0.0500	mg/L	0.30000		74	24-96		
2-Methylphenol	0.208	0.0500	mg/L	0.30000		69	9-141		
3- and/or 4-Methylphenol	0.204	0.0500	mg/L	0.30000		68	9-141		
Hexachlorobenzene	0.217	0.0500	mg/L	0.30000		72	9-141		
Hexachlorobutadiene	0.162	0.0500	mg/L	0.30000		54	9-141		
Hexachloroethane	0.133	0.0500	mg/L	0.30000		44	9-141		
Nitrobenzene	0.179	0.0500	mg/L	0.30000		60	9-141		
Pentachlorophenol	0.271	0.125	mg/L	0.30000		90	9-103		
Pyridine	0.128	0.0500	mg/L	0.30000		43	9-141		
Surrogate: 2-Fluorophenol	*0.234*		*mg/L*	*0.37500*		*62*	*21-100*		
Surrogate: Phenol-d5	*0.168*		*mg/L*	*0.37500*		*45*	*10-94*		
Surrogate: Nitrobenzene-d5	*0.157*		*mg/L*	*0.25000*		*63*	*35-114*		
Surrogate: 2-Fluorobiphenyl	*0.152*		*mg/L*	*0.25000*		*61*	*43-116*		
Surrogate: 2,4,6-Tribromophenol	*0.288*		*mg/L*	*0.37500*		*77*	*10-123*		
Surrogate: p-Terphenyl-d14	*0.219*		*mg/L*	*0.25000*		*88*	*33-141*		
Matrix Spike (L010333-MS3)		**Source: 1010049-01**	Prepared: 10/25/2010 Analyzed: 11/03/2010						
1,4-Dichlorobenzene	0.197	0.0500	mg/L	0.30000	0.0500 U	66	36-97		
2,4,5-Trichlorophenol	0.271	0.0500	mg/L	0.30000	0.0500 U	90	9-141		
2,4,6-Trichlorophenol	0.249	0.0500	mg/L	0.30000	0.0500 U	83	9-141		
2,4-Dinitrotoluene	0.265	0.0500	mg/L	0.30000	0.0500 U	88	24-96		
2-Methylphenol	0.247	0.0500	mg/L	0.30000	0.0500 U	82	9-141		
3- and/or 4-Methylphenol	0.236	0.0500	mg/L	0.30000	0.0500 U	79	9-141		
Hexachlorobenzene	0.235	0.0500	mg/L	0.30000	0.0500 U	78	9-141		
Hexachlorobutadiene	0.201	0.0500	mg/L	0.30000	0.0500 U	67	9-141		
Hexachloroethane	0.171	0.0500	mg/L	0.30000	0.0500 U	57	9-141		
Nitrobenzene	0.236	0.0500	mg/L	0.30000	0.0500 U	79	9-141		
Pentachlorophenol	0.348	0.125	mg/L	0.30000	0.125 U	116*	9-103		
Pyridine	0.126	0.0500	mg/L	0.30000	0.0500 U	42	9-141		
Surrogate: 2-Fluorophenol	*0.335*		*mg/L*	*0.37500*		*89*	*21-100*		
Surrogate: Phenol-d5	*0.290*		*mg/L*	*0.37500*		*77*	*10-94*		
Surrogate: Nitrobenzene-d5	*0.213*		*mg/L*	*0.25000*		*85*	*35-114*		

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TCLP Semivolatiles by SW846 1311/8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L010333 - SW 3520C									
Matrix Spike (L010333-MS3)	**Source: 1010049-01**		Prepared: 10/25/2010 Analyzed: 11/03/2010						
Surrogate: 2-Fluorobiphenyl	*0.202*		*mg/L*	*0.25000*		*81*	*43-116*		
Surrogate: 2,4,6-Tribromophenol	*0.360*		*mg/L*	*0.37500*		*96*	*10-123*		
Surrogate: p-Terphenyl-d14	*0.204*		*mg/L*	*0.25000*		*82*	*33-141*		
Matrix Spike Dup (L010333-MSD3)	**Source: 1010049-01**		Prepared: 10/25/2010 Analyzed: 11/03/2010						
1,4-Dichlorobenzene	0.200	0.0500	mg/L	0.30000	0.0500 U	67	36-97	1	20
2,4,5-Trichlorophenol	0.334	0.0500	mg/L	0.30000	0.0500 U	111	9-141	21*	20
2,4,6-Trichlorophenol	0.303	0.0500	mg/L	0.30000	0.0500 U	101	9-141	20	20
2,4-Dinitrotoluene	0.309	0.0500	mg/L	0.30000	0.0500 U	103*	24-96	15	20
2-Methylphenol	0.288	0.0500	mg/L	0.30000	0.0500 U	96	9-141	15	20
3- and/or 4-Methylphenol	0.284	0.0500	mg/L	0.30000	0.0500 U	95	9-141	18	20
Hexachlorobenzene	0.271	0.0500	mg/L	0.30000	0.0500 U	90	9-141	14	20
Hexachlorobutadiene	0.210	0.0500	mg/L	0.30000	0.0500 U	70	9-141	5	20
Hexachloroethane	0.187	0.0500	mg/L	0.30000	0.0500 U	62	9-141	9	20
Nitrobenzene	0.269	0.0500	mg/L	0.30000	0.0500 U	90	9-141	13	20
Pentachlorophenol	0.431 E	0.125	mg/L	0.30000	0.125 U	144*	9-103	21*	20
Pyridine	0.173	0.0500	mg/L	0.30000	0.0500 U	58	9-141	32*	20
Surrogate: 2-Fluorophenol	*0.363*		*mg/L*	*0.37500*		*97*	*21-100*		
Surrogate: Phenol-d5	*0.329*		*mg/L*	*0.37500*		*88*	*10-94*		
Surrogate: Nitrobenzene-d5	*0.233*		*mg/L*	*0.25000*		*93*	*35-114*		
Surrogate: 2-Fluorobiphenyl	*0.215*		*mg/L*	*0.25000*		*86*	*43-116*		
Surrogate: 2,4,6-Tribromophenol	*0.373*		*mg/L*	*0.37500*		*100*	*10-123*		
Surrogate: p-Terphenyl-d14	*0.221*		*mg/L*	*0.25000*		*88*	*33-141*		

PREPARATION BENCH SHEET

L010153

Lionville Laboratory

Printed: 11/3/2010 1:47:52PM

Matrix: Solid **Prepared using: WETCHEM - SW 1311** **(No Surrogate)**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1009162-01	1311 TCLP Inorganic	10/13/2010 00:21	25	500					WC-Hanford, Inc.	
1009162-02	1311 TCLP Inorganic	10/13/2010 00:21	25	500					WC-Hanford, Inc.	
1009163-01	1311 TCLP Inorganic	10/13/2010 00:21	25	500					WC-Hanford, Inc.	
1009163-02	1311 TCLP Inorganic	10/13/2010 00:21	25	500					WC-Hanford, Inc.	
1009164-01	1311 TCLP Inorganic	10/13/2010 00:21	25	500					WC-Hanford, Inc.	
1009164-02	1311 TCLP Inorganic	10/13/2010 00:21	25	500					WC-Hanford, Inc.	
1009164-03	1311 TCLP Inorganic	10/13/2010 00:21	25	500					WC-Hanford, Inc.	
1009164-04	1311 TCLP Inorganic	10/13/2010 00:21	25	500					WC-Hanford, Inc.	
1009164-05	1311 TCLP Inorganic	10/13/2010 00:21	25	500					WC-Hanford, Inc.	
1010049-01	1311 TCLP Inorganic	10/13/2010 00:21	100	2000					WC-Hanford, Inc.	
1010049-01	1311 TCLP Organic	10/13/2010 00:21	100	2000					WC-Hanford, Inc.	
L010153-BLK1	QC	10/13/2010 00:21	100	2000						

Extracts Relinquished By Date

Extracts Received By Date

Lionville Laboratory

TCLP EXTRACTION RECORD
(NON-VOLATILES)

LOGBOOK # 814

Start Date: 10/13/10 Start Time: 0021 Analyst: [illegible] SOP: SPI-1311.1	End Date: 10/14/10 End Time: 1800 Analyst: [illegible] Method: 1311.	Tumbler Speed: 30 RPM Leachate Batch #: 1010153 Leachate Page: 1 of 3 Room Temp. (°C): Start 21 /Finish 21 Acceptance Criteria: 23°C ± 2°

LvL #: 1010153 Client ID#: pH After 5 Min: pH After Acid/Heat: Extraction Fluid/pH: 4.92 Sample Wt.(g): Extract Fluid Vol.(mL): pH After Extraction:	Initial Filtration Data and Comments: Solids: ____% / NA B/C Initial Filtrate Added:
LvL #: 1009162-001 Client ID#: NA pH After 5 Min: 7.58 pH After Acid/Heat: 1.97 ~~1.87~~ Extraction Fluid/pH: #1 4.92 Sample Wt.(g): 25 Extract Fluid Vol.(mL): 500 pH After Extraction: 5.04	Initial Filtration Data and Comments: Solids: ____% / NA 001 Initial Filtrate Added:
LvL # 1009162-002 Client ID#: NA pH After 5 Min: 7.61 pH After Acid/Heat: 2.13 Extraction Fluid/pH: #1 4.92 Sample Wt.(g): 25 Extract Fluid Vol.(mL): 500 pH After Extraction: 4.88	Initial Filtration Data and Comments: Solids: ____% / NA 002 Initial Filtrate Added:
LvL #: 1009163-001 Client ID#: NA pH After 5 Min: 8.43 pH After Acid/Heat: 1.97 Extraction Fluid/pH: #1 4.92 Sample Wt.(g): 25 Extract Fluid Vol.(mL): 500 pH After Extraction: 4.94	Initial Filtration Data and Comments: Solids: ____% / NA 001 Initial Filtrate Added:

Standard	ID	Prep Date	Expir Date
MS			

Reviewed By/Date _____

Lionville Laboratory

TCLP EXTRACTION RECORD
(NON-VOLATILES)

LOGBOOK # 814

Start Date: 10/13/10 Start Time: 1021 Analyst: [illegible] SOP: SPI-1311.1	End Date: 10/14/10 End Time: 18:06 Analyst: [illegible] Method: 1311	Tumbler Speed: 30 RPM Leachate Batch #: L010153 Leachate Page: 3 of 3 Room Temp. (°C): Start 21 /Finish 21 Acceptance Criteria: 23°C ± 2°

LvL #: 1009164-004 Client ID#: NA pH After 5 Min: 9.32 pH After Acid/Heat: 2.18 Extraction Fluid/pH: #1 4.93 Sample Wt.(g): 25 Extract Fluid Vol.(mL): 500 pH After Extraction: 4.90	Initial Filtration Data and Comments: Solids: ____% / NA 004 Initial Filtrate Added:
LvL #: 1009164-005 Client ID#: NA pH After 5 Min: 5.38 pH After Acid/Heat: # Extraction Fluid/pH: #1 4.93 Sample Wt.(g): 25 Extract Fluid Vol.(mL): 500 pH After Extraction: 5.07	Initial Filtration Data and Comments: Solids: ____% / NA 005 Initial Filtrate Added:
LvL # 1010049-001 Client ID#: NA pH After 5 Min: 10.14 pH After Acid/Heat: 1.88 Extraction Fluid/pH: 4.92 Sample Wt.(g): 100 Extract Fluid Vol.(mL): 2000 pH After Extraction: 7.10	Initial Filtration Data and Comments: Solids: ____% / NA 001 Initial Filtrate Added:
LvL #: Client ID#: pH After 5 Min: pH After Acid/Heat: Extraction Fluid/pH: Sample Wt.(g): Extract Fluid Vol.(mL): pH After Extraction:	Initial Filtration Data and Comments: Solids: ____% / NA Initial Filtrate Added:

Standard	ID	Prep Date	Expir Date
MS			

Reviewed By/Date _____

PREPARATION BENCH SHEET

L010333

Lionville Laboratory

Printed: 11/10/2010 2:53:04PM

000000018

Matrix: Water **Prepared using: SVOCGCMS - SW 3520C** **Surrogate used: 1001763**

Lab Number	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1010041-01	1311/8270C TCLP SVOC	10/25/2010 13:49	200	1				500	WC-Hanford, Inc.	
1010048-01	1311/8270C TCLP SVOC	10/25/2010 13:49	200	1				500	WC-Hanford, Inc.	
1010048-02	1311/8270C TCLP SVOC	10/25/2010 13:49	200	1				500	WC-Hanford, Inc.	
1010049-01	1311/8270C TCLP SVOC	10/25/2010 13:49	200	1				500	WC-Hanford, Inc.	
1010084-01	1311/8270C TCLP SVOC	10/25/2010 13:49	200	1				500	WC-Hanford, Inc.	
1010084-02	1311/8270C TCLP SVOC	10/25/2010 13:49	200	1				500	WC-Hanford, Inc.	
L010333-BLK1	QC	10/25/2010 13:49	200	1				500		
L010333-BLK2	QC	10/25/2010 13:49	200	1				500		leach blk L010310
L010333-BLK3	QC	10/27/2010 17:08	200	1				500		leach blk L010255
L010333-BLK4	QC	10/27/2010 17:08	200	1				500		Leach Blank L010153
L010333-BLK5	QC	10/27/2010 17:08	200	1				500		blk associated with lch blk L010255
L010333-BS1	QC	10/25/2010 13:49	200	1	1000933		600	500		
L010333-BS5	QC	10/27/2010 17:08	200	1	1000933		600	500		bs associated with lch blk L010255
L010333-MS1	QC	10/25/2010 13:49	200	1	1000933	1010041-01	600	500		
L010333-MS2	QC	10/25/2010 13:49	200	1	1000933	1010048-01	600	500		
L010333-MS3	QC	10/25/2010 13:49	200	1	1000933	1010049-01	600	500		
L010333-MS4	QC	10/25/2010 13:49	200	1	1000933	1010084-01	600	500		
L010333-MSD1	QC	10/25/2010 13:49	200	1	1000933	1010041-01	600	500		
L010333-MSD2	QC	10/25/2010 13:49	200	1	1000933	1010048-01	600	500		
L010333-MSD3	QC	10/25/2010 13:49	200	1	1000933	1010049-01	600	500		

Ashley Bilks 11/10/10

Extracts Relinquished By Date

Extracts Received By Date

PREPARATION BENCH SHEET

L010333

Lionville Laboratory

Printed: 11/10/2010 2:53:04PM

00000019

Matrix: Water **Prepared using: SVOCGCMS - SW 3520C** **Surrogate used: 1001763**

Lab Number	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
L010333-MSD4	QC	10/25/2010 13:49	200	1	1000933	1010084-01	600	500		

Extracts Relinquished By Date

Extracts Received By Date

PREPARATION BENCH SHEET

L010333

Lionville Laboratory

Printed: 10/27/2010 2:54:55PM

00000020

Matrix: Water **Prepared using: Extraction - SW 3520C** **Surrogate used: 100176**

Lab Number	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1010041-01	1311/8270C TCLP SVOC	10/25/2010 13:49	200	1				500	WC-Hanford, Inc.	
1010048-01	1311/8270C TCLP SVOC	10/25/2010 13:49	200	1				500	WC-Hanford, Inc.	
1010048-02	1311/8270C TCLP SVOC	10/25/2010 13:49	200	1				500	WC-Hanford, Inc.	
1010049-01	1311/8270C TCLP SVOC	10/25/2010 13:49	200	1				500	WC-Hanford, Inc.	
1010084-01	1311/8270C TCLP SVOC	10/25/2010 13:49	200	1				500	WC-Hanford, Inc.	
1010084-02	1311/8270C TCLP SVOC	10/25/2010 13:49	200	1				500	WC-Hanford, Inc.	
L010333-BLK1	QC	10/25/2010 13:49	200	1				500		
L010333-BLK2	QC	10/25/2010 13:49	200	1				500		leach blk L010310
L010333-BS1	QC	10/25/2010 13:49	200	1	1000933		600	500		
L010333-MS1	QC	10/25/2010 13:49	200	1	1000933	1010041-01	600	500		
L010333-MS2	QC	10/25/2010 13:49	200	1	1000933	1010048-01	600	500		
L010333-MS3	QC	10/25/2010 13:49	200	1	1000933	1010049-01	600	500		
L010333-MS4	QC	10/25/2010 13:49	200	1	1000933	1010084-01	600	500		
L010333-MSD1	QC	10/25/2010 13:49	200	1	1000933	1010041-01	600	500		
L010333-MSD2	QC	10/25/2010 13:49	200	1	1000933	1010048-01	600	500		
L010333-MSD3	QC	10/25/2010 13:49	200	1	1000933	1010049-01	600	500		
L010333-MSD4	QC	10/25/2010 13:49	200	1	1000933	1010084-01	600	500		

Extracts Relinquished By — Date 10/27/10 1454

Extracts Received By — Date 10/27/10 1500

PREPARATION BENCH SHEET

L010381

Lionville Laboratory

Printed: 11/3/2010 1:41:56PM

Matrix: Water **Prepared using: SVOCGCMS - SW 3520C** **Surrogate used: 1001703**

Lab Number	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1010048-03	1311/8270C TCLP SVOC	10/27/2010 17:08	200	1				500	WC-Hanford, Inc.	
~~1010068-01~~	~~1311/8270C TCLP SVOC~~	~~10/27/2010 17:08~~	~~500~~	~~1~~				~~500~~	WC-Hanford, Inc.	Added for BatchQC in: L010381
1010068-01	8270C TCL SVOC	10/27/2010 17:08	500	1				500	WC-Hanford, Inc.	
L010381-BLK1	QC	10/27/2010 17:08	200	1				500		TCLP
L010381-BLK2	QC	10/27/2010 17:08	1000	1				500		SVOC
L010381-BLK3	QC	10/27/2010 17:08	200	1				500		Leach blank L010255 for 101041,1010048
L010381-BLK4	QC	10/27/2010 17:08	200	1				500		Jeach blk L010153 for 1010049
L010381-BS1	QC	10/27/2010 17:08	200	1	1001857		600	500		TCLP
L010381-BS2	QC	10/27/2010 17:08	1000	1	1001857		600	500		SVOC
L010381-MS1	QC	10/27/2010 17:08	500	1	1001857	1010068-01	600	500		SVOC
L010381-MSD1	QC	10/27/2010 17:08	500	1	1001857	1010068-01	600	500		SVOC

Extracts Relinquished By — Date 11/3/10

Extracts Received By — Date 11-3-10 1130

Lionville Laboratory Use Only: 1010049

Custody Transfer Record/Lab Work Request

Page 1 of 1 SRC

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI Lionville Laboratory Inc.

Client: WC Hanford SAF# RC-183

Est. Final Proj. Sampling Date:

Project#:

Project Contact/Phone#:

Lionville Laboratory Project Manager: O-J

QC: SW Del: STD TAT: 15 Days

Date Rec'd: 10-12-10 Date Due: 10-27-10

	A	B	C	D
Refrigerator #	2	2	2	2
#/Type Container (Liquid / Solid)	1AG	1AG	1AG	1AG
Volume	60	120	60	120
Preservatives	—	—		—
ANALYSES REQUESTED (ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: Metal, Hg, CN)	BNA	TCLP BNA	Metal	TCLP Metal, TCLP Hg
Lionville Laboratory Use Only	8270	TCLP 8270T	Met①	TCLP Recht

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
01	J1CCX0	✓	✓	OTHER	10/6/10	1025	X	X	X	X

Special Instructions:

Met①: HSL + B, Mo, Si
NOTL

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

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	10/12/10	0950

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL			
REWRITTEN			

000000022

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-183-003	Page 1 of 1

Collector ~~D. Henjum~~ JRD 10/6/10 Leach	Company Contact S. Van Den Hende	Telephone No. 509-551-3934	Project Coordinator KESSNER, JH
Price Code ~~9L~~ JRD 10/6/10 9K	Data Turnaround ~~21~~ 15 Days JRD 10/6/10		
Project Designation ARRA 100F Remaining Sites Remediation - Other	Sampling Location 100-F-49		SAF No. RC-183
Ice Chest No. WCH-11-008	Field Logbook No. EL-1651	COA S00F498100	Method of Shipment FEDEX
Shipped To EBERLINE SERVICES / KONVILLE	Offsite Property No. A100558		Bill of Lading/Air Bill No. SEE OSPC

000000023

POSSIBLE SAMPLE HAZARDS/REMARKS

None JEB 10-11-10
Potential RAD, < DOT Limits

Special Handling and/or Storage

Cool 4 degrees C

Preservation	Cool 4C	None	Cool 4C	Cool 4C	None	None					
Type of Container	G/P	G/P	aG	aG	aG	G/P					
No. of Container(s)	1	1	1	1	1	1					
Volume	60mL	120mL	60mL	60mL	120mL	500					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	Pesticides - 8081 JRD 10/6/10	TCLP Semi-VOA - 1311/8270A	RCE CEA Shipping Screen JRD 10/6/10					
Sample No.	Matrix *	Sample Date	Sample Time								
J1CCX0	OTHER	10/6/10	1025	✓	✓	✓		✓			
~~J1CCX1~~	OTHER										
~~J1CCX2~~	OTHER										
~~J1CCX3~~ JRD 10/6/10	OTHER										
~~J1CCX4~~ JRD	OTHER										

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Z. Leach	10/6/10 1545	JR DeBuigne	10/6/10 1545
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JR DeBuigne	10/6/10 1630	S. Howell	10-6-10 1630
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
J.E. Bemhal WCH	10-11-10 1000	FED EX	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
FED EX	10-12-10 0950	VICTOR HERNANDEZ	10-12-10 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 (Client List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV) (Mercury)
(2) Metals by ICP (TCLP) - 1311/6010 (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Mercury (TCLP) - 1311/7470 (Mercury)

Sterling Howell was unavailable to relinquish custody of samples on 10-11-10. J.E. Bemhal will take custody of these samples stored 1060 Battelle, Fridge 1B. JEB 10-11-10

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

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

REVIEWED BY JR DATE 10/11/10

WCH-EE-011

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC Hanford
Project/SAF/SOW/Release #: RC-183

Date: 10/12/10

LvL Batch #: 1010 0049

Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FED EX		Airbill # 7963 2993 6487
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 2.1°	°C	Cooler # WCH-11-008
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 _____	