0099959

SAF-RC-073
100-D/DR Burial Grounds & Remaining Sites – Other Quick Turn
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt	H4-21	KW 9/28/11 INITIAL/DATE

COMMENTS:

SDG K3681 SAF RC-073

Rad only Chem only ☑ Rad & Chem

☑ Complete Partial

Waste Site: 118-D-3 (100D-AN-08-004)

RECEIVED
NOV 01 2011
EDMC

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

RECEIVED
SEP 2011

23 September 2011

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

Subject: Analytical Data Package

Dear Ms. Kessner:

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

LvLI Batch #	1109066
SDG #	K3681
SAF #	RC-073
Date Received	09/14/11
# Samples	1
Matrix	OTHER SOLID
Volatiles	X
Semivolatiles	X
Pest/PCB	
Glycols	
DRO/KRO/GRO	
PAHs	
Herbicides	
Metals	X
Inorganics	X

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

Sincerely,

Lionville Laboratory
A Division of Eberline Analytical Corporation

Orlette S. Johnson
Project Manager

LIONVILLE LABORATORY
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SEP 2011

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-073 Project Number: K3681 Project Manager: Joan Kessner	Reported: 09/22/2011 12:26

Analytical Report for Volatile Organic Compounds by SW846 8260B

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1L866	1109066-01	Other Solid	09/07/2011 09:15	09/14/2011 10:00

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Case Narrative

Client: WC-HANFORD RC-073 K3681
LVL #: 1109066

W.O. #: 60049-001-001-0001-00
Date Received: 09-14-2011

GC/MS VOLATILE

One (1) other solid samples was collected on 09-07-2011.

The sample and associated QC samples were prepared and analyzed 09-20-2011 according to criteria set forth in Lionville Laboratory SOPs. The preparation procedure was based on SW846 Method 5035A and the analysis procedure was based on SW846 Method 8260B for TCL Volatile 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 analyzed within hold time.

3. Non-target compounds were not detected in the sample.

4. The sample required 1,000X dilution, as well as, medium level analysis due to high concentrations of target analytes and the nature of the matrix. The total required sample dilution was 50,000X . The solid samples were analyzed using a medium level preparation method, 100ul of the methanol is then added to the purge and trap and analyzed using the 8260 method. The effective starting sample amount (i.e., the amount added to the purge and trap) is 1/100 of the actual initial sample aliquot. Reporting limits are adjusted for the effective preparation factor of approximately 125.

5. All surrogate recoveries were unobtainable due to dilution required for analysis. A copy of the Sample Discrepancy Report (SDR#11VT009) has been enclosed.

6. All matrix spike recoveries were not reported due to dilution required for analysis. A copy of the Sample Discrepancy Report (SDR#11VT009) has been enclosed.

7. All blank spike recoveries were within acceptance criteria.

8. The method blank was below the reporting limit for all target analytes.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 15 pages.

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

10. All internal standard area and retention time criteria were met.

11. Manual integrations are performed according to SOP QA-125 to produce quality data with 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 hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Iain Daniels
LvL Laboratory Manager

9/22/11
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 11VT009

Initiator: B. Rubino
Date: 9/22/11
Client: WC Hanford RE-073

Batch: 1109066
Samples: 01MS, 01MSD
Method: SW846/MCAWW/CLP/

Parameter: MS4GA
Matrix: Solid
Prep Batch: _____

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)

Sample JIL8L6 and the matrix QC were diluted 50,000x consequently all surrogates and spikes were diluted out.

2. Known or Probable Causes(s)

Sample was a gel-like solid that required a large dilution for target compounds.

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:

Report only the sample and not matrix QC because no spikes were recovered. Report + narrate

4. Project Manager Instructions...signature/date: [signature] 9/22/11

✓ 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: [signature] 9/22/11

Other Explanation:

__ Verified re-[log][leach][extract][digest][analysis] (circle)
X 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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WC-Hanford, Inc.	Project: RC-073	
2620 Fermi Avenue	Project Number: K3681	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/22/2011 12:26

J1L866
1109066-01 (Other Solid)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Volatile Organic Compounds by SW846 8260B									
1,1,1-Trichloroethane	2500000	U	2500000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
1,1,2,2-Tetrachloroethane	2500000	U	2500000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
1,1,2-Trichloroethane	2500000	U	2500000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
1,1-Dichloroethane	2500000	U	2500000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
1,1-Dichloroethene	2500000	U	2500000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
1,2-Dichloroethane	3000000	U	3000000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
1,2-Dichloroethene (total)	2500000	U	2500000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
1,2-Dichloropropane	2500000	U	2500000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
2-Butanone	6000000	U	6000000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
2-Hexanone	6000000	U	6000000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
4-Methyl-2-pentanone	**94700000**	D	6000000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
Acetone	**3080000**	B, J, D	6000000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
Benzene	2500000	U	2500000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
Bromodichloromethane	3000000	U	3000000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
Bromoform	2500000	U	2500000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
Bromomethane	5000000	U	5000000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
Carbon Disulfide	2500000	U	2500000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
Carbon Tetrachloride	2500000	U	2500000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
Chlorobenzene	2500000	U	2500000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
Chloroethane	5000000	U	5000000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
Chloroform	2500000	U	2500000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
Chloromethane	5000000	U	5000000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
cis-1,2-Dichloroethene	2500000	U	2500000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
cis-1,3-Dichloropropene	2500000	U	2500000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
Dibromochloromethane	2500000	U	2500000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
Ethylbenzene	**4320000**	D	2500000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
Methylene Chloride	3000000	U	3000000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
Styrene	2500000	U	2500000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
Tetrachloroethene	2500000	U	2500000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
trans-1,2-Dichloroethene	2500000	U	2500000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
Toluene	**31700000**	D	2500000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
trans-1,3-Dichloropropene	2500000	U	2500000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
Trichloroethene	2500000	U	2500000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
Vinyl chloride	5000000	U	5000000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
Xylenes, total	**23300000**	D	2500000	ug/kg wet	50000	L109322	09/20/2011	09/20/2011	8260B
Surrogate: 1,2-Dichloroethane-d4	*% **	*U*	*60-130*			*L109322*	*09/20/2011*	*09/20/2011*	*8260B*
Surrogate: Toluene-d8	*% **	*U*	*72-117*			*L109322*	*09/20/2011*	*09/20/2011*	*8260B*
Surrogate: 4-Bromofluorobenzene	*% **	*U*	*72-144*			*L109322*	*09/20/2011*	*09/20/2011*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-073 Project Number: K3681 Project Manager: Joan Kessner	Reported: 09/22/2011 12:26

Volatile Organic Compounds by SW846 8260B - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L109322 - SW 5035A/5030A									
Blank (L109322-BLK1)			Prepared & Analyzed: 09/20/2011						
1,1,1-Trichloroethane	625 U	625	ug/kg wet						
1,1,2,2-Tetrachloroethane	625 U	625	ug/kg wet						
1,1,2-Trichloroethane	625 U	625	ug/kg wet						
1,1-Dichloroethane	625 U	625	ug/kg wet						
1,1-Dichloroethene	625 U	625	ug/kg wet						
1,2-Dichloroethane	750 U	750	ug/kg wet						
1,2-Dichloroethene (total)	625 U	625	ug/kg wet						
1,2-Dichloropropane	625 U	625	ug/kg wet						
2-Butanone	1500 U	1500	ug/kg wet						
2-Hexanone	1500 U	1500	ug/kg wet						
4-Methyl-2-pentanone	1500 U	1500	ug/kg wet						
Acetone	511 J, D	1500	ug/kg wet						
Benzene	625 U	625	ug/kg wet						
Bromodichloromethane	750 U	750	ug/kg wet						
Bromoform	625 U	625	ug/kg wet						
Bromomethane	1250 U	1250	ug/kg wet						
Carbon Disulfide	625 U	625	ug/kg wet						
Carbon Tetrachloride	625 U	625	ug/kg wet						
Chlorobenzene	625 U	625	ug/kg wet						
Chloroethane	1250 U	1250	ug/kg wet						
Chloroform	625 U	625	ug/kg wet						
Chloromethane	1250 U	1250	ug/kg wet						
cis-1,2-Dichloroethene	625 U	625	ug/kg wet						
cis-1,3-Dichloropropene	625 U	625	ug/kg wet						
Dibromochloromethane	625 U	625	ug/kg wet						
Ethylbenzene	625 U	625	ug/kg wet						
Methylene Chloride	750 U	750	ug/kg wet						
Styrene	625 U	625	ug/kg wet						
Tetrachloroethene	625 U	625	ug/kg wet						
trans-1,2-Dichloroethene	625 U	625	ug/kg wet						
Toluene	625 U	625	ug/kg wet						
trans-1,3-Dichloropropene	625 U	625	ug/kg wet						
Trichloroethene	625 U	625	ug/kg wet						
Vinyl chloride	1250 U	1250	ug/kg wet						
Xylenes, total	625 U	625	ug/kg wet						
Surrogate: 1,2-Dichloroethane-d4	*5560*		*ug/kg wet*	*6250.0*		*89*	*60-130*		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-073 Project Number: K3681 Project Manager: Joan Kessner	Reported: 09/22/2011 12:26

Volatile Organic Compounds by SW846 8260B - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L109322 - SW 5035A/5030A									
Blank (L109322-BLK1)			Prepared & Analyzed: 09/20/2011						
Surrogate: Toluene-d8	*6070*		*ug/kg wet*	*6250.0*		*97*	*72-117*		
Surrogate: 4-Bromofluorobenzene	*6280*		*ug/kg wet*	*6250.0*		*100*	*72-144*		
LCS (L109322-BS1)			Prepared & Analyzed: 09/20/2011						
1,1,1-Trichloroethane	6040 D	625	ug/kg wet	6250.0		97	65-130		
1,1,2,2-Tetrachloroethane	6090 D	625	ug/kg wet	6250.0		98	50-130		
1,1,2-Trichloroethane	6090 D	625	ug/kg wet	6250.0		97	60-125		
1,1-Dichloroethane	5780 D	625	ug/kg wet	6250.0		92	70-130		
1,1-Dichloroethene	5660 D	625	ug/kg wet	6250.0		91	60-130		
1,2-Dichloroethane	6090 D	750	ug/kg wet	6250.0		97	60-130		
1,2-Dichloroethene (total)	11400 D	625	ug/kg wet	12500		91	75-125		
1,2-Dichloropropane	6060 D	625	ug/kg wet	6250.0		97	70-130		
2-Butanone	6480 D	1500	ug/kg wet	6250.0		104	20-200		
2-Hexanone	6720 D	1500	ug/kg wet	6250.0		108	20-200		
4-Methyl-2-pentanone	6530 D	1500	ug/kg wet	6250.0		104	40-150		
Acetone	6840 D	1500	ug/kg wet	6250.0		109	15-240		
Benzene	5930 D	625	ug/kg wet	6250.0		95	75-125		
Bromodichloromethane	5890 D	750	ug/kg wet	6250.0		94	65-135		
Bromoform	6240 D	625	ug/kg wet	6250.0		100	60-130		
Bromomethane	5440 D	1250	ug/kg wet	6250.0		87	40-150		
Carbon Disulfide	5960 D	625	ug/kg wet	6250.0		95	55-140		
Carbon Tetrachloride	6000 D	625	ug/kg wet	6250.0		96	60-135		
Chlorobenzene	5960 D	625	ug/kg wet	6250.0		95	70-125		
Chloroethane	4710 D	1250	ug/kg wet	6250.0		75	50-150		
Chloroform	5670 D	625	ug/kg wet	6250.0		91	70-130		
Chloromethane	5150 D	1250	ug/kg wet	6250.0		82	40-130		
cis-1,2-Dichloroethene	5410 D	625	ug/kg wet	6250.0		86	70-125		
cis-1,3-Dichloropropene	5760 D	625	ug/kg wet	6250.0		92	70-125		
Dibromochloromethane	6110 D	625	ug/kg wet	6250.0		98	65-125		
Ethylbenzene	6130 D	625	ug/kg wet	6250.0		98	70-125		
Methylene Chloride	5450 D	750	ug/kg wet	6250.0		87	45-140		
Styrene	6400 D	625	ug/kg wet	6250.0		102	70-125		
Tetrachloroethene	6020 D	625	ug/kg wet	6250.0		96	60-130		
trans-1,2-Dichloroethene	6000 D	625	ug/kg wet	6250.0		96	65-130		
Toluene	6150 D	625	ug/kg wet	6250.0		98	70-125		
trans-1,3-Dichloropropene	6200 D	625	ug/kg wet	6250.0		99	65-125		
Trichloroethene	5750 D	625	ug/kg wet	6250.0		92	70-130		

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WC-Hanford, Inc.	Project: RC-073	
2620 Fermi Avenue	Project Number: K3681	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/22/2011 12:26

Volatile Organic Compounds by SW846 8260B - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L109322 - SW 5035A/5030A									
LCS (L109322-BS1)			Prepared & Analyzed: 09/20/2011						
Vinyl chloride	5090 D	1250	ug/kg wet	6250.0		82	50-150		
Xylenes, total	18200 D	625	ug/kg wet	18750		97	70-125		
Surrogate: 1,2-Dichloroethane-d4	*5960*		*ug/kg wet*	*6250.0*		*95*	*60-130*		
Surrogate: Toluene-d8	*5860*		*ug/kg wet*	*6250.0*		*94*	*72-117*		
Surrogate: 4-Bromofluorobenzene	*6090*		*ug/kg wet*	*6250.0*		*97*	*72-144*		

PREPARATION BENCH SHEET

L109322

Lionville Laboratory

Printed: 9/22/2011 11:53:55AM

Matrix: Solid **Prepared using: VOAGCMS - SW 5035A/5030A** **Surrogate used: 1001878**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1109066-01	8260B TCL VOC	09/20/2011 13:46	1	10				500	WC-Hanford, Inc.	MED LVL 50,000X
L109322-BLK1	QC	09/20/2011 12:29	4	10				500		MED LVL 50X
L109322-BS1	QC	09/20/2011 13:02	4	10	1101147		500	500		MED LVL 50X

TR 9/22/11

Extracts Relinquished By Date MA Rec 9/24/11 Extracts Received By Date

Lionville Laboratory Use Only

1109066 9.14.11

Custody Transfer Record/Lab Work Request

Page 1 of 1

Lionville Laboratory
A Division of Eberline Analytical Corporation

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client WCHanford SAF# RC-073

Est. Final Proj. Sampling Date

Project#

Project Contact/Phone#

Lionville Laboratory Project Manager Arlette Johnson

QC SW Del STD TAT 7 days

Date Rec'd 9-14-11 Date Due 9-21-11

		A							B							
Refrigerator #		1							1							
#/Type Container	Liquid															
	Solid	1aq							1aq							
Volume	Liquid															
	Solid	500							500							
Preservatives		—							—							
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb	TCLP Semi Vol			Metal + Hg	CN	TCLP Metal + Hg	SFD	Ignit.			
		Lionville Laboratory Use Only														
		8260	8270	8082		TCLP 8270			Metal	CYNTO	TCLP RCRA	SFD	IGEN			

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	TCLP Semi Vol			Metal + Hg	CN	TCLP Metal + Hg	SFD	Ignit.			
W Water WW Waste Water GW Groundwater WST Waste WI Wipe SO Solid S Soil SL Sludge SE Sediment PC Paint Chips O Oil NAL Non-Aqueous Liquid L Leachate A Air T Tissue F Fish	01	JIL866	✓	✓	SO	9-7-11	0915	X	X	X		X			X	X	X	X	X			

Special Instructions:

metal ① = HSL + B, Li, Mo (no TL)

Special Instructions:

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

See BRC

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	9-14-11	1000

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN			

0000001

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-073-199	Page 1 of 2 JTD 9/7/11

Collector K Lucas	Company Contact Joan Kessner Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 9K JTD 9/7/11 B Data Turnaround JTD 9/7/11 ~~21~~ 7 Days
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Other Quick	Sampling Location 118-D-3 (100D-AN-08-004)	SAF No. RC-073	
Ice Chest No. WCH-11-019	Field Logbook No. EL-1657 COA R118D32F20	Method of Shipment Fed Ex	
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. NA	Bill of Lading/Air Bill No. See ~~OSPC~~ HMSR JTD 9/13/11	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive/Potentially Combustible
<D.O.T. ARE 9-13-11

Special Handling and/or Storage
Cool JTD 9/13/11

Preservation	Cool 4C	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None
Type of Container	G/P	G	G	G	G	sG	sG	sG	G/P	G/P
No. of Container(s)	1	0	0	0	0	1	0	0	1	0
Volume	500mL	500mL	500mL	500mL	500mL	500mL	500mL	500mL	500mL	500mL

SAMPLE ANALYSIS				See item (1) in Special Instructions.	See item (2) in Special Instructions.	Total Cyanide - 9010; Sulfides - 9030	Ignitability - 1010	VOA - 8260A (TCL)	Semi-VOA - 8270A (TCL)	PCBs - 8082	TCLP Semi-VOA - 1311/8270A	See item (3) in Special Instructions. JTD 9/7/11	Gross Alpha & Gross Beta
Sample No.	Matrix *	Sample Date	Sample Time										
J1L866	OTHER	9/7/11	0915	✓	✓	✓	✓	✓	✓	✓	✓		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time 9-7-11 1120	Received By/Stored In 100D RMA	Date/Time 1120 9/7/11
Relinquished By/Removed From 100D RMA	Date/Time 0910 9/13/11	Received By/Stored In Fed EX	Date/Time
Relinquished By/Removed From Fed Ex	Date/Time 9-14-11 1000	Received By/Stored In	Date/Time 1000 9-14-11
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS
~~Tranship from RCF to Eberline.~~ JTD 9/7/11

(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)
~~(3) Gamma Spec (Client List) (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)~~ JTD 9/7/11

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

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

WCH-EE-011

0000000014

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC Hanford Date: 9.14.11

Project/SAF/SOW/Release #: RC-073

LvL Batch #: 1109066 9.14.11 Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7975 1214 6611
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 4.6	°C	Cooler # WCH-11-019
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 _____

000000015

SR-002-B.doc

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

RECEIVED
SEP 2011

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-073 Project Number: K3681 Project Manager: Joan Kessner	Reported: 09/22/2011 09:21

Analytical Report for Semivolatile Organic Compounds by SW846 8270C

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1L866	1109066-01	Other Solid	09/07/2011 09:15	09/14/2011 10:00

LIONVILLE LABORATORY
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Case Narrative

Client: WC-HANFORD RC-073 K3681
LVL #: 1109066

W.O. #: 60049-001-001-0001-00
Date Received: 09-14-2011

SEMIVOLATILE

One (1) other solid sample was collected on 09-07-2011.

The sample and associated QC samples were extracted 09-19-2011 and analyzed 09-20-2011 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 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 the sample matrix, the samples were extracted with a reduced initial volume of 1 gram and had an elevated final volume of 4 mls. Reporting limits have been adjusted to reflect this change.

5. The following extracted samples required dilution due to the nature of the matrix. The samples J1L866 and L109256-MS1/MSD1 required a 5X dilution. Reporting limits have been adjusted to reflect the necessary dilutions.

6. All obtainable surrogate recoveries were within acceptance criteria.

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

8. Three (3) of sixty-four (64) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 11MS121) has been enclosed.

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 21 pages.

9. Thirty-two (32) of one hundred and twenty-eight (128) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 11MS121) has been enclosed. Several matrix spike recoveries were unobtainable due to dilution required for analysis.

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. Internal standard area and retention time criteria were met.

13. 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").

14. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hardcopy package has been authorized by the Laboratory Manager or designee, as verified by the following signature.

Iain Daniels
LvL Laboratory Manager

9/22/4
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 11MS121

Initiator: Shawn Sylvester
Date: 9-21-11
Client: U-11 Wilmington Recycling
Batch: 1109066
Samples: BS, MS, MSD
Method: SW846/MCAWW/CLP/
Parameter: 8270
Matrix: Other-solid
Prep Batch: L109256

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)

Spike recoveries outside QC acceptance Limits in L109256-BS1, L109256-MS1, & L109256-MSD1

2. Known or Probable Causes(s) MS/MSD - matrix effect samples required a 5 fold dilution for analysis in addition to an elevated final volume of 4 mls. BS - 4 chloroaniline + 2,4 dinitrophenol recoveries elevated. Hexachlorocyclopentadiene subject to thermal decomposition in the gas chromatograph, reactions in acetone solution, and photochemical decomposition

3. Discussion and Proposed Action Other Description: 9/21/11

narrate Targets below reporting limits no impact on the data

__ 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: 9/22/11

__ 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: 9-22-11 Other Explanation:

__ Verified re-[log][leach][extract][digest][analysis] (circle)
✓ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

When Final Action has been recorded, forward original to QA for diposition.

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

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

QA-139-A-0208

000000004

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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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-073 Project Number: K3681 Project Manager: Joan Kessner	Reported: 09/22/2011 09:21

J1L866
1109066-01 (Other Solid)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory					
Semivolatile Organic Compounds by SW846 8270C								
1,2,4-Trichlorobenzene	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
1,2-Dichlorobenzene	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
1,3-Dichlorobenzene	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
1,4-Dichlorobenzene	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
2,4,5-Trichlorophenol	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
2,4,6-Trichlorophenol	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
2,4-Dichlorophenol	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
2,4-Dimethylphenol	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
2,4-Dinitrophenol	971000 U	971000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
2,4-Dinitrotoluene	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
2,6-Dinitrotoluene	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
2-Chloronaphthalene	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
2-Chlorophenol	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
2-Methylnaphthalene	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
2-Methylphenol	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
2-Nitroaniline	971000 U	971000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
2-Nitrophenol	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
3,3'-Dichlorobenzidine	388000 U	388000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
3-Nitroaniline	971000 U	971000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
4,6-Dinitro-2-methylphenol	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
4-Bromophenyl Phenyl Ether	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
4-Chloro-3-methylphenol	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
4-Chloroaniline	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
4-Chlorophenyl Phenyl Ether	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
3- and/or 4-Methylphenol	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
4-Nitroaniline	971000 U	971000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
4-Nitrophenol	971000 U	971000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Acenaphthene	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Acenaphthylene	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Anthracene	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Benz[a]anthracene	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Benzo[a] pyrene	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Benzo[b] fluoranthene	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Benzo[g,h,i] perylene	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Benzo[k] fluoranthene	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Bis(2-chloroethoxy) methane	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Bis(2-chloroethyl) ether	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Bis(2-chloroisopropyl) ether	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Bis(2-ethylhexyl) phthalate	194000 U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C

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WC-Hanford, Inc.	Project: RC-073	
2620 Fermi Avenue	Project Number: K3681	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/22/2011 09:21

J1L866
1109066-01 (Other Solid)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Semivolatile Organic Compounds by SW846 8270C									
Butyl Benzyl Phthalate	194000	U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Carbazole	194000	U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Chrysene	194000	U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Dibenz[a,h]anthracene	194000	U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Dibenzofuran	194000	U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Diethyl Phthalate	194000	U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Dimethyl Phthalate	194000	U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Di-n-butyl Phthalate	194000	U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Di-n-octyl Phthalate	194000	U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Fluoranthene	194000	U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Fluorene	194000	U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Hexachlorobenzene	194000	U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Hexachlorobutadiene	194000	U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Hexachlorocyclopentadiene	194000	U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Hexachloroethane	194000	U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Indeno[1,2,3-cd]pyrene	194000	U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Isophorone	194000	U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Naphthalene	194000	U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Nitrobenzene	194000	U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
N-Nitrosodi-n-propylamine	194000	U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
N-Nitrosodiphenylamine	194000	U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Pentachlorophenol	971000	U	971000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Phenanthrene	**81900**	J, D	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Phenol	194000	U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Pyrene	194000	U	194000	ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
TIC:1,3,5-Cycloheptatriene	**8820000**	N, J, D		ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
TIC:Methyl Isobutyl Ketone	**11300000**	N, J, D		ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
TIC:C2 Benzene 1	**2280000**	J, D		ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
TIC:C2 Benzene 3	**1960000**	J, D		ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
TIC:C2 Benzene 2	**8430000**	J, D		ug/kg wet	5	L109256	09/19/2011	09/20/2011	8270C
Surrogate: 2-Fluorophenol	*88 %*		*25-121*			*L109256*	*09/19/2011*	*09/20/2011*	*8270C*
Surrogate: Phenol-d5	*84 %*		*24-113*			*L109256*	*09/19/2011*	*09/20/2011*	*8270C*
Surrogate: Nitrobenzene-d5	*83 %*		*23-120*			*L109256*	*09/19/2011*	*09/20/2011*	*8270C*
Surrogate: 2-Fluorobiphenyl	*93 %*		*30-115*			*L109256*	*09/19/2011*	*09/20/2011*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*56 %*		*19-122*			*L109256*	*09/19/2011*	*09/20/2011*	*8270C*
Surrogate: p-Terphenyl-d14	*100 %*		*18-137*			*L109256*	*09/19/2011*	*09/20/2011*	*8270C*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-073 Project Number: K3681 Project Manager: Joan Kessner	Reported: 09/22/2011 09:21

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 L109256 - SW 3540C									
Blank (L109256-BLK1)			Prepared: 09/19/2011 Analyzed: 09/20/2011						
1,2,4-Trichlorobenzene	330 U	330	ug/kg wet						
1,2-Dichlorobenzene	330 U	330	ug/kg wet						
1,3-Dichlorobenzene	330 U	330	ug/kg wet						
1,4-Dichlorobenzene	330 U	330	ug/kg wet						
2,4,5-Trichlorophenol	330 U	330	ug/kg wet						
2,4,6-Trichlorophenol	330 U	330	ug/kg wet						
2,4-Dichlorophenol	330 U	330	ug/kg wet						
2,4-Dimethylphenol	330 U	330	ug/kg wet						
2,4-Dinitrophenol	1650 U	1650	ug/kg wet						
2,4-Dinitrotoluene	330 U	330	ug/kg wet						
2,6-Dinitrotoluene	330 U	330	ug/kg wet						
2-Chloronaphthalene	330 U	330	ug/kg wet						
2-Chlorophenol	330 U	330	ug/kg wet						
2-Methylnaphthalene	330 U	330	ug/kg wet						
2-Methylphenol	330 U	330	ug/kg wet						
2-Nitroaniline	1650 U	1650	ug/kg wet						
2-Nitrophenol	330 U	330	ug/kg wet						
3,3'-Dichlorobenzidine	660 U	660	ug/kg wet						
3-Nitroaniline	1650 U	1650	ug/kg wet						
4,6-Dinitro-2-methylphenol	330 U	330	ug/kg wet						
4-Bromophenyl Phenyl Ether	330 U	330	ug/kg wet						
4-Chloro-3-methylphenol	330 U	330	ug/kg wet						
4-Chloroaniline	330 U	330	ug/kg wet						
4-Chlorophenyl Phenyl Ether	330 U	330	ug/kg wet						
3- and/or 4-Methylphenol	330 U	330	ug/kg wet						
4-Nitroaniline	1650 U	1650	ug/kg wet						
4-Nitrophenol	1650 U	1650	ug/kg wet						
Acenaphthene	330 U	330	ug/kg wet						
Acenaphthylene	330 U	330	ug/kg wet						
Anthracene	330 U	330	ug/kg wet						
Benz[a]anthracene	330 U	330	ug/kg wet						
Benzo[a] pyrene	330 U	330	ug/kg wet						
Benzo[b] fluoranthene	330 U	330	ug/kg wet						
Benzo[g,h,i] perylene	330 U	330	ug/kg wet						
Benzo[k] fluoranthene	330 U	330	ug/kg wet						
Bis(2-chloroethoxy) methane	330 U	330	ug/kg wet						

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WC-Hanford, Inc.	Project: RC-073	
2620 Fermi Avenue	Project Number: K3681	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/22/2011 09:21

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 L109256 - SW 3540C									
Blank (L109256-BLK1)			Prepared: 09/19/2011 Analyzed: 09/20/2011						
Bis(2-chloroethyl) ether	330 U	330	ug/kg wet						
Bis(2-chloroisopropyl) ether	330 U	330	ug/kg wet						
Bis(2-ethylhexyl) phthalate	330 U	330	ug/kg wet						
Butyl Benzyl Phthalate	330 U	330	ug/kg wet						
Carbazole	330 U	330	ug/kg wet						
Chrysene	330 U	330	ug/kg wet						
Dibenz[a,h]anthracene	330 U	330	ug/kg wet						
Dibenzofuran	330 U	330	ug/kg wet						
Diethyl Phthalate	330 U	330	ug/kg wet						
Dimethyl Phthalate	330 U	330	ug/kg wet						
Di-n-butyl Phthalate	330 U	330	ug/kg wet						
Di-n-octyl Phthalate	330 U	330	ug/kg wet						
Fluoranthene	330 U	330	ug/kg wet						
Fluorene	330 U	330	ug/kg wet						
Hexachlorobenzene	330 U	330	ug/kg wet						
Hexachlorobutadiene	330 U	330	ug/kg wet						
Hexachlorocyclopentadiene	330 U	330	ug/kg wet						
Hexachloroethane	330 U	330	ug/kg wet						
Indeno[1,2,3-cd]pyrene	330 U	330	ug/kg wet						
Isophorone	330 U	330	ug/kg wet						
Naphthalene	330 U	330	ug/kg wet						
Nitrobenzene	330 U	330	ug/kg wet						
N-Nitrosodi-n-propylamine	330 U	330	ug/kg wet						
N-Nitrosodiphenylamine	330 U	330	ug/kg wet						
Pentachlorophenol	1650 U	1650	ug/kg wet						
Phenanthrene	330 U	330	ug/kg wet						
Phenol	330 U	330	ug/kg wet						
Pyrene	330 U	330	ug/kg wet						
Surrogate: 2-Fluorophenol	*1860*		*ug/kg wet*	*2500.0*		*74*	*25-121*		
Surrogate: Phenol-d5	*1940*		*ug/kg wet*	*2500.0*		*78*	*24-113*		
Surrogate: Nitrobenzene-d5	*1250*		*ug/kg wet*	*1666.7*		*75*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*1330*		*ug/kg wet*	*1666.7*		*80*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*1890*		*ug/kg wet*	*2500.0*		*76*	*19-122*		
Surrogate: p-Terphenyl-d14	*1840*		*ug/kg wet*	*1666.7*		*110*	*18-137*		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-073 Project Number: K3681 Project Manager: Joan Kessner	Reported: 09/22/2011 09:21

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 L109256 - SW 3540C									
LCS (L109256-BS1)			Prepared: 09/19/2011 Analyzed: 09/20/2011						
1,2,4-Trichlorobenzene	1660	330	ug/kg wet	2000.0		83	45-110		
1,2-Dichlorobenzene	1630	330	ug/kg wet	2000.0		82	45-105		
1,3-Dichlorobenzene	1620	330	ug/kg wet	2000.0		81	40-100		
1,4-Dichlorobenzene	1620	330	ug/kg wet	2000.0		81	35-105		
2,4,5-Trichlorophenol	1830	330	ug/kg wet	2000.0		92	30-140		
2,4,6-Trichlorophenol	1780	330	ug/kg wet	2000.0		89	20-110		
2,4-Dichlorophenol	1810	330	ug/kg wet	2000.0		91	40-110		
2,4-Dimethylphenol	1020	330	ug/kg wet	2000.0		51	30-105		
2,4-Dinitrophenol	2870	1650	ug/kg wet	2000.0		144*	25-130		
2,4-Dinitrotoluene	1890	330	ug/kg wet	2000.0		95	50-115		
2,6-Dinitrotoluene	1830	330	ug/kg wet	2000.0		92	40-120		
2-Chloronaphthalene	1770	330	ug/kg wet	2000.0		88	45-115		
2-Chlorophenol	1710	330	ug/kg wet	2000.0		85	45-105		
2-Methylnaphthalene	1760	330	ug/kg wet	2000.0		88	45-110		
2-Methylphenol	1630	330	ug/kg wet	2000.0		82	40-120		
2-Nitroaniline	1940	1650	ug/kg wet	2000.0		97	45-120		
2-Nitrophenol	1840	330	ug/kg wet	2000.0		92	40-110		
3,3'-Dichlorobenzidine	2190	660	ug/kg wet	2000.0		110	15-130		
3-Nitroaniline	2170	1650	ug/kg wet	2000.0		109	40-130		
4,6-Dinitro-2-methylphenol	2310	330	ug/kg wet	2000.0		115	20-140		
4-Bromophenyl Phenyl Ether	1750	330	ug/kg wet	2000.0		87	45-115		
4-Chloro-3-methylphenol	1840	330	ug/kg wet	2000.0		92	35-115		
4-Chloroaniline	2010	330	ug/kg wet	2000.0		101*	10-100		
4-Chlorophenyl Phenyl Ether	1760	330	ug/kg wet	2000.0		88	45-110		
3- and/or 4-Methylphenol	1650	330	ug/kg wet	2000.0		82	40-120		
4-Nitroaniline	2430	1650	ug/kg wet	2000.0		121	40-130		
4-Nitrophenol	2070	1650	ug/kg wet	2000.0		104	15-140		
Acenaphthene	1680	330	ug/kg wet	2000.0		84	45-110		
Acenaphthylene	1720	330	ug/kg wet	2000.0		86	45-115		
Anthracene	1800	330	ug/kg wet	2000.0		90	45-130		
Benz[a]anthracene	1840	330	ug/kg wet	2000.0		92	45-130		
Benzo[a] pyrene	1830	330	ug/kg wet	2000.0		91	45-130		
Benzo[b] fluoranthene	1970	330	ug/kg wet	2000.0		99	40-130		
Benzo[g,h,i] perylene	1820	330	ug/kg wet	2000.0		91	45-125		
Benzo[k] fluoranthene	1750	330	ug/kg wet	2000.0		87	45-125		
Bis(2-chloroethoxy) methane	1770	330	ug/kg wet	2000.0		89	45-110		

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WC-Hanford, Inc.	Project: RC-073	
2620 Fermi Avenue	Project Number: K3681	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/22/2011 09:21

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 L109256 - SW 3540C									
LCS (L109256-BS1)			Prepared: 09/19/2011 Analyzed: 09/20/2011						
Bis(2-chloroethyl) ether	1630	330	ug/kg wet	2000.0		81	40-110		
Bis(2-chloroisopropyl) ether	1610	330	ug/kg wet	2000.0		80	30-115		
Bis(2-ethylhexyl) phthalate	1930	330	ug/kg wet	2000.0		97	40-145		
Butyl Benzyl Phthalate	2030	330	ug/kg wet	2000.0		101	50-125		
Carbazole	1980	330	ug/kg wet	2000.0		99	40-140		
Chrysene	1850	330	ug/kg wet	2000.0		92	45-130		
Dibenz[a,h]anthracene	1920	330	ug/kg wet	2000.0		96	45-125		
Dibenzofuran	1790	330	ug/kg wet	2000.0		90	45-120		
Diethyl Phthalate	1770	330	ug/kg wet	2000.0		89	50-125		
Dimethyl Phthalate	1740	330	ug/kg wet	2000.0		87	45-130		
Di-n-butyl Phthalate	1760	330	ug/kg wet	2000.0		88	50-130		
Di-n-octyl Phthalate	2200	330	ug/kg wet	2000.0		110	40-150		
Fluoranthene	1800	330	ug/kg wet	2000.0		90	45-130		
Fluorene	1750	330	ug/kg wet	2000.0		88	45-120		
Hexachlorobenzene	1770	330	ug/kg wet	2000.0		89	45-130		
Hexachlorobutadiene	1860	330	ug/kg wet	2000.0		93	45-105		
Hexachlorocyclopentadiene	330 U	330	ug/kg wet	2000.0		*	10-100		
Hexachloroethane	1600	330	ug/kg wet	2000.0		80	35-110		
Indeno[1,2,3-cd]pyrene	1870	330	ug/kg wet	2000.0		94	45-130		
Isophorone	1500	330	ug/kg wet	2000.0		75	40-110		
Naphthalene	1660	330	ug/kg wet	2000.0		83	40-110		
Nitrobenzene	1720	330	ug/kg wet	2000.0		86	40-105		
N-Nitrosodi-n-propylamine	1700	330	ug/kg wet	2000.0		85	30-130		
N-Nitrosodiphenylamine	1720	330	ug/kg wet	2000.0		86	50-120		
Pentachlorophenol	2330	1650	ug/kg wet	2000.0		117	25-120		
Phenanthrene	1850	330	ug/kg wet	2000.0		92	50-120		
Phenol	1740	330	ug/kg wet	2000.0		87	40-115		
Pyrene	1820	330	ug/kg wet	2000.0		91	45-125		
Surrogate: 2-Fluorophenol	*2390*		*ug/kg wet*	*2500.0*		*96*	*25-121*		
Surrogate: Phenol-d5	*2360*		*ug/kg wet*	*2500.0*		*94*	*24-113*		
Surrogate: Nitrobenzene-d5	*1610*		*ug/kg wet*	*1666.7*		*96*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*1590*		*ug/kg wet*	*1666.7*		*95*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*2500*		*ug/kg wet*	*2500.0*		*100*	*19-122*		
Surrogate: p-Terphenyl-d14	*1700*		*ug/kg wet*	*1666.7*		*102*	*18-137*		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-073 Project Number: K3681 Project Manager: Joan Kessner	Reported: 09/22/2011 09:21

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 L109256 - SW 3540C									
Matrix Spike (L109256-MS1)	**Source: 1109066-01**		Prepared: 09/19/2011 Analyzed: 09/20/2011						
1,2,4-Trichlorobenzene	45900 J, D	187000	ug/kg wet	56604	194000 U	81	45-110		
1,2-Dichlorobenzene	51100 J, D	187000	ug/kg wet	56604	194000 U	90	45-105		
1,3-Dichlorobenzene	49000 J, D	187000	ug/kg wet	56604	194000 U	87	40-100		
1,4-Dichlorobenzene	49900 J, D	187000	ug/kg wet	56604	194000 U	88	35-105		
2,4,5-Trichlorophenol	36800 J, D	187000	ug/kg wet	56604	194000 U	65	30-140		
2,4,6-Trichlorophenol	42500 J, D	187000	ug/kg wet	56604	194000 U	75	20-110		
2,4-Dichlorophenol	37100 J, D	187000	ug/kg wet	56604	194000 U	66	40-110		
2,4-Dimethylphenol	34300 J, D	187000	ug/kg wet	56604	194000 U	61	30-105		
2,4-Dinitrophenol	934000 U	934000	ug/kg wet	56604	971000 U	*	25-130		
2,4-Dinitrotoluene	39800 J, D	187000	ug/kg wet	56604	194000 U	70	50-115		
2,6-Dinitrotoluene	41100 J, D	187000	ug/kg wet	56604	194000 U	73	40-120		
2-Chloronaphthalene	47900 J, D	187000	ug/kg wet	56604	194000 U	85	45-115		
2-Chlorophenol	48800 J, D	187000	ug/kg wet	56604	194000 U	86	45-105		
2-Methylnaphthalene	77500 J, D	187000	ug/kg wet	56604	194000 U	137*	45-110		
2-Methylphenol	55500 J, D	187000	ug/kg wet	56604	194000 U	98	40-120		
2-Nitroaniline	934000 U	934000	ug/kg wet	56604	971000 U	*	45-120		
2-Nitrophenol	37200 J, D	187000	ug/kg wet	56604	194000 U	66	40-110		
3,3'-Dichlorobenzidine	374000 U	374000	ug/kg wet	56604	388000 U	*	15-130		
3-Nitroaniline	934000 U	934000	ug/kg wet	56604	971000 U	*	40-130		
4,6-Dinitro-2-methylphenol	187000 U	187000	ug/kg wet	56604	194000 U	*	20-140		
4-Bromophenyl Phenyl Ether	45500 J, D	187000	ug/kg wet	56604	194000 U	80	45-115		
4-Chloro-3-methylphenol	35800 J, D	187000	ug/kg wet	56604	194000 U	63	35-115		
4-Chloroaniline	38600 J, D	187000	ug/kg wet	56604	194000 U	68	10-100		
4-Chlorophenyl Phenyl Ether	47300 J, D	187000	ug/kg wet	56604	194000 U	84	45-110		
3- and/or 4-Methylphenol	58800 J, D	187000	ug/kg wet	56604	194000 U	104	40-120		
4-Nitroaniline	934000 U	934000	ug/kg wet	56604	971000 U	*	40-130		
4-Nitrophenol	934000 U	934000	ug/kg wet	56604	971000 U	*	15-140		
Acenaphthene	54400 J, D	187000	ug/kg wet	56604	194000 U	96	45-110		
Acenaphthylene	50300 J, D	187000	ug/kg wet	56604	194000 U	89	45-115		
Anthracene	49700 J, D	187000	ug/kg wet	56604	194000 U	88	45-130		
Benz[a]anthracene	46100 J, D	187000	ug/kg wet	56604	194000 U	81	45-130		
Benzo[a] pyrene	45500 J, D	187000	ug/kg wet	56604	194000 U	80	45-130		
Benzo[b] fluoranthene	34300 J, D	187000	ug/kg wet	56604	194000 U	61	40-130		
Benzo[g,h,i] perylene	33400 J, D	187000	ug/kg wet	56604	194000 U	59	45-125		
Benzo[k] fluoranthene	46300 J, D	187000	ug/kg wet	56604	194000 U	82	45-125		
Bis(2-chloroethoxy) methane	46100 J, D	187000	ug/kg wet	56604	194000 U	81	45-110		

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WC-Hanford, Inc.	Project: RC-073	
2620 Fermi Avenue	Project Number: K3681	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/22/2011 09:21

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 L109256 - SW 3540C									
Matrix Spike (L109256-MS1)		**Source: 1109066-01**	Prepared: 09/19/2011 Analyzed: 09/20/2011						
Bis(2-chloroethyl) ether	43900 J, D	187000	ug/kg wet	56604	194000 U	78	40-110		
Bis(2-chloroisopropyl) ether	49700 J, D	187000	ug/kg wet	56604	194000 U	88	30-115		
Bis(2-ethylhexyl) phthalate	187000 U	187000	ug/kg wet	56604	194000 U	*	40-145		
Butyl Benzyl Phthalate	47800 J, D	187000	ug/kg wet	56604	194000 U	85	50-125		
Carbazole	73200 J, D	187000	ug/kg wet	56604	194000 U	129	40-140		
Chrysene	51900 J, D	187000	ug/kg wet	56604	194000 U	92	45-130		
Dibenz[a,h]anthracene	187000 U	187000	ug/kg wet	56604	194000 U	*	45-125		
Dibenzofuran	60200 J, D	187000	ug/kg wet	56604	194000 U	106	45-120		
Diethyl Phthalate	51800 J, D	187000	ug/kg wet	56604	194000 U	91	50-125		
Dimethyl Phthalate	49400 J, D	187000	ug/kg wet	56604	194000 U	87	45-130		
Di-n-butyl Phthalate	47100 J, D	187000	ug/kg wet	56604	194000 U	83	50-130		
Di-n-octyl Phthalate	187000 U	187000	ug/kg wet	56604	194000 U	*	40-150		
Fluoranthene	49900 J, D	187000	ug/kg wet	56604	194000 U	88	45-130		
Fluorene	71000 J, D	187000	ug/kg wet	56604	194000 U	125*	45-120		
Hexachlorobenzene	50100 J, D	187000	ug/kg wet	56604	194000 U	88	45-130		
Hexachlorobutadiene	53100 J, D	187000	ug/kg wet	56604	194000 U	94	45-105		
Hexachlorocyclopentadiene	187000 U	187000	ug/kg wet	56604	194000 U	*	10-100		
Hexachloroethane	47700 J, D	187000	ug/kg wet	56604	194000 U	84	35-110		
Indeno[1,2,3-cd]pyrene	28900 J, D	187000	ug/kg wet	56604	194000 U	51	45-130		
Isophorone	42200 J, D	187000	ug/kg wet	56604	194000 U	75	40-110		
Naphthalene	74900 J, D	187000	ug/kg wet	56604	194000 U	132*	40-110		
Nitrobenzene	43400 J, D	187000	ug/kg wet	56604	194000 U	77	40-105		
N-Nitrosodi-n-propylamine	48900 J, D	187000	ug/kg wet	56604	194000 U	86	30-130		
N-Nitrosodiphenylamine	89900 J, D	187000	ug/kg wet	56604	194000 U	159*	50-120		
Pentachlorophenol	934000 U	934000	ug/kg wet	56604	971000 U	*	25-120		
Phenanthrene	147000 J, D	187000	ug/kg wet	56604	-81900	116	50-120		
Phenol	51900 J, D	187000	ug/kg wet	56604	194000 U	92	40-115		
Pyrene	66600 J, D	187000	ug/kg wet	56604	194000 U	118	45-125		
Surrogate: 2-Fluorophenol	*64200*		*ug/kg wet*	*70755*		*91*	*25-121*		
Surrogate: Phenol-d5	*63700*		*ug/kg wet*	*70755*		*90*	*24-113*		
Surrogate: Nitrobenzene-d5	*41500*		*ug/kg wet*	*47170*		*88*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*45800*		*ug/kg wet*	*47170*		*97*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*54900*		*ug/kg wet*	*70755*		*78*	*19-122*		
Surrogate: p-Terphenyl-d14	*47700*		*ug/kg wet*	*47170*		*101*	*18-137*		

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-073	
2620 Fermi Avenue	Project Number: K3681	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/22/2011 09:21

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 L109256 - SW 3540C									
Matrix Spike Dup (L109256-MSD1)	**Source: 1109066-01**		Prepared: 09/19/2011 Analyzed: 09/20/2011						
1,2,4-Trichlorobenzene	54000 J, D	198000	ug/kg wet	59880	194000 U	90	45-110	11	40
1,2-Dichlorobenzene	58500 J, D	198000	ug/kg wet	59880	194000 U	98	45-105	8	40
1,3-Dichlorobenzene	54800 J, D	198000	ug/kg wet	59880	194000 U	92	40-100	5	40
1,4-Dichlorobenzene	58400 J, D	198000	ug/kg wet	59880	194000 U	98	35-105	10	40
2,4,5-Trichlorophenol	45300 J, D	198000	ug/kg wet	59880	194000 U	76	30-140	15	40
2,4,6-Trichlorophenol	51400 J, D	198000	ug/kg wet	59880	194000 U	86	20-110	13	40
2,4-Dichlorophenol	42300 J, D	198000	ug/kg wet	59880	194000 U	71	40-110	7	40
2,4-Dimethylphenol	46700 J, D	198000	ug/kg wet	59880	194000 U	78	30-105	25	40
2,4-Dinitrophenol	988000 U	988000	ug/kg wet	59880	971000 U	*	25-130		40
2,4-Dinitrotoluene	48200 J, D	198000	ug/kg wet	59880	194000 U	80	50-115	13	40
2,6-Dinitrotoluene	49900 J, D	198000	ug/kg wet	59880	194000 U	83	40-120	14	40
2-Chloronaphthalene	54500 J, D	198000	ug/kg wet	59880	194000 U	91	45-115	7	40
2-Chlorophenol	54800 J, D	198000	ug/kg wet	59880	194000 U	91	45-105	6	40
2-Methylnaphthalene	84000 J, D	198000	ug/kg wet	59880	194000 U	140*	45-110	2	40
2-Methylphenol	64400 J, D	198000	ug/kg wet	59880	194000 U	107	40-120	9	40
2-Nitroaniline	988000 U	988000	ug/kg wet	59880	971000 U	*	45-120		40
2-Nitrophenol	43300 J, D	198000	ug/kg wet	59880	194000 U	72	40-110	10	40
3,3'-Dichlorobenzidine	395000 U	395000	ug/kg wet	59880	388000 U	*	15-130		40
3-Nitroaniline	988000 U	988000	ug/kg wet	59880	971000 U	*	40-130		40
4,6-Dinitro-2-methylphenol	198000 U	198000	ug/kg wet	59880	194000 U	*	20-140		40
4-Bromophenyl Phenyl Ether	54800 J, D	198000	ug/kg wet	59880	194000 U	92	45-115	13	40
4-Chloro-3-methylphenol	45000 J, D	198000	ug/kg wet	59880	194000 U	75	35-115	17	40
4-Chloroaniline	45300 J, D	198000	ug/kg wet	59880	194000 U	76	10-100	10	40
4-Chlorophenyl Phenyl Ether	55200 J, D	198000	ug/kg wet	59880	194000 U	92	45-110	10	40
3- and/or 4-Methylphenol	65300 J, D	198000	ug/kg wet	59880	194000 U	109	40-120	5	40
4-Nitroaniline	988000 U	988000	ug/kg wet	59880	971000 U	*	40-130		40
4-Nitrophenol	988000 U	988000	ug/kg wet	59880	971000 U	*	15-140		40
Acenaphthene	61800 J, D	198000	ug/kg wet	59880	194000 U	103	45-110	7	40
Acenaphthylene	59400 J, D	198000	ug/kg wet	59880	194000 U	99	45-115	11	40
Anthracene	60200 J, D	198000	ug/kg wet	59880	194000 U	101	45-130	14	40
Benz[a]anthracene	52500 J, D	198000	ug/kg wet	59880	194000 U	88	45-130	7	40
Benzo[a] pyrene	51600 J, D	198000	ug/kg wet	59880	194000 U	86	45-130	7	40
Benzo[b] fluoranthene	39900 J, D	198000	ug/kg wet	59880	194000 U	67	40-130	9	40
Benzo[g,h,i] perylene	41500 J, D	198000	ug/kg wet	59880	194000 U	69	45-125	16	40
Benzo[k] fluoranthene	60100 J, D	198000	ug/kg wet	59880	194000 U	100	45-125	20	40
Bis(2-chloroethoxy) methane	54300 J, D	198000	ug/kg wet	59880	194000 U	91	45-110	11	40

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WC-Hanford, Inc.	Project: RC-073	
2620 Fermi Avenue	Project Number: K3681	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/22/2011 09:21

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 L109256 - SW 3540C									
Matrix Spike Dup (L109256-MSD1)	**Source: 1109066-01**		Prepared: 09/19/2011 Analyzed: 09/20/2011						
Bis(2-chloroethyl) ether	52600 J, D	198000	ug/kg wet	59880	194000 U	88	40-110	12	40
Bis(2-chloroisopropyl) ether	56300 J, D	198000	ug/kg wet	59880	194000 U	94	30-115	7	40
Bis(2-ethylhexyl) phthalate	198000 U	198000	ug/kg wet	59880	194000 U	*	40-145		40
Butyl Benzyl Phthalate	61000 J, D	198000	ug/kg wet	59880	194000 U	102	50-125	19	40
Carbazole	81900 J, D	198000	ug/kg wet	59880	194000 U	137	40-140	6	40
Chrysene	62600 J, D	198000	ug/kg wet	59880	194000 U	105	45-130	13	40
Dibenz[a,h]anthracene	198000 U	198000	ug/kg wet	59880	194000 U	*	45-125		40
Dibenzofuran	65900 J, D	198000	ug/kg wet	59880	194000 U	110	45-120	3	40
Diethyl Phthalate	61500 J, D	198000	ug/kg wet	59880	194000 U	103	50-125	12	40
Dimethyl Phthalate	59200 J, D	198000	ug/kg wet	59880	194000 U	99	45-130	12	40
Di-n-butyl Phthalate	58500 J, D	198000	ug/kg wet	59880	194000 U	98	50-130	16	40
Di-n-octyl Phthalate	33200 J, D	198000	ug/kg wet	59880	194000 U	55	40-150		40
Fluoranthene	57800 J, D	198000	ug/kg wet	59880	194000 U	96	45-130	9	40
Fluorene	75500 J, D	198000	ug/kg wet	59880	194000 U	126*	45-120	0.6	40
Hexachlorobenzene	64500 J, D	198000	ug/kg wet	59880	194000 U	108	45-130	20	40
Hexachlorobutadiene	61000 J, D	198000	ug/kg wet	59880	194000 U	102	45-105	8	40
Hexachlorocyclopentadiene	198000 U	198000	ug/kg wet	59880	194000 U	*	10-100		40
Hexachloroethane	55300 J, D	198000	ug/kg wet	59880	194000 U	92	35-110	9	40
Indeno[1,2,3-cd]pyrene	35000 J, D	198000	ug/kg wet	59880	194000 U	59	45-130	14	40
Isophorone	48600 J, D	198000	ug/kg wet	59880	194000 U	81	40-110	9	40
Naphthalene	80600 J, D	198000	ug/kg wet	59880	194000 U	135*	40-110	2	40
Nitrobenzene	48700 J, D	198000	ug/kg wet	59880	194000 U	81	40-105	6	40
N-Nitrosodi-n-propylamine	56000 J, D	198000	ug/kg wet	59880	194000 U	93	30-130	8	40
N-Nitrosodiphenylamine	104000 J, D	198000	ug/kg wet	59880	194000 U	173*	50-120	8	40
Pentachlorophenol	988000 U	988000	ug/kg wet	59880	971000 U	*	25-120		40
Phenanthrene	149000 J, D	198000	ug/kg wet	59880	81900	111	50-120	4	40
Phenol	61600 J, D	198000	ug/kg wet	59880	194000 U	103	40-115	11	40
Pyrene	78400 J, D	198000	ug/kg wet	59880	194000 U	131*	45-125	11	40
Surrogate: 2-Fluorophenol	*68000*		*ug/kg wet*	*74850*		*91*	*25-121*		
Surrogate: Phenol-d5	*67400*		*ug/kg wet*	*74850*		*90*	*24-113*		
Surrogate: Nitrobenzene-d5	*42000*		*ug/kg wet*	*49900*		*84*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*49300*		*ug/kg wet*	*49900*		*99*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*57900*		*ug/kg wet*	*74850*		*77*	*19-122*		
Surrogate: p-Terphenyl-d14	*51500*		*ug/kg wet*	*49900*		*103*	*18-137*		

PREPARATION BENCH SHEET

L109256

Lionville Laboratory

Printed: 9/20/2011 12:32:04PM

Matrix: Solid **Prepared using: SVOCGCMS - SW 3540C** **Surrogate used: 1101302**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1109066-01	8270C TCL SVOC	09/19/2011 09:59	1.02	4				500	WC-Hanford, Inc.	
L109256-BLK1	QC	09/19/2011 09:59	30	1				500		
L109256-BS1	QC	09/19/2011 09:59	30	1	1100144		600	500		
L109256-MS1	QC	09/19/2011 09:59	1.06	4	1100144	1109066-01	600	500		
L109256-MSD1	QC	09/19/2011 09:59	1.002	4	1100144	1109066-01	600	500		

Paint

Extracts Relinquished By 9/20/11 1235 Date

Extracts Received By 9/20/11 1300 Date

Lionville Laboratory Use Only

1109066 9.14.11

Custody Transfer Record/Lab Work Request

Page 1 of 1

Lionville Laboratory
A Division of Eberline Analytical Corporation

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client WCHanford SAF# RC-073

Est. Final Proj. Sampling Date

Project#

Project Contact/Phone#

Lionville Laboratory Project Manager Arlette Johnson

QC SW Del STD TAT 7 days

Date Rec'd 9-14-11 Date Due 9-21-11

		A							B							
Refrigerator #		1							1							
#/Type Container	Liquid															
	Solid	1aq							1aq							
Volume	Liquid															
	Solid	500							500							
Preservatives		—							—							
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb	TCLP Semi-Vol			Metal Hg	CN	TCLP Metal	SFA	Ign.			

000000019

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only: 8260	8270	8082		TCLP 8270			Met①	CN/TO	TCLP RCRA	SFA	IGGN			
W Water WW Waste Water GW Groundwater WST Waste WI Wipe SO Solid S Soil SL Sludge SE Sediment PC Paint Chips O Oil NAL Non-Aqueous Liquid L Leachate A Air T Tissue F Fish	01	JIL866	✓	✓	SO	9.7.11	0915	X	X	X		X			X	X	X	X	X			

Special Instructions:

met① = HSL + B, Li, Mo (no TL)

Special Instructions:

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

See BRC

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	9.14.11	1000

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL			
REWRITTEN			

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-073-199	Page 1 of 2 JTD 9/7/11

Collector K Lucas	Company Contact Joan Kessner Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 9X JTD 9/7/11 B Data Turnaround JTD 9/7/11 ~~21~~ Days 7
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Other Quick	Sampling Location 118-D-3 (100D-AN-08-004)	SAF No. RC-073	
Ice Chest No. WCH-11-019	Field Logbook No. EL-1657 COA R118D32F20	Method of Shipment Fed Ex	
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. NA	Bill of Lading/Air Bill No. See ~~OSPC~~ HMSR JTD 9/12/11	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive Potentially Combustible
< D.O.T. ARE 9-13-11

Special Handling and/or Storage
Cool JTD 9/13/11

Preservation	Cool 4C	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None
Type of Container	G/P	G	G	G	G	aG	aG	aG	G/P	G/P
No. of Container(s)	1	0	0	0	0	1	0	0	1	0
Volume	500mL	500mL	500mL	500mL	500mL	500mL	500mL	500mL	500mL	500mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Total Cyanide - 9010; Sulfides - 9030	Ignitability - 1010	VOA - 8260A (TCL)	Semi-VOA - 8270A (TCL)	PCBs - 8082	TCLP Semi-VOA - 1311/8270A	See item (3) in Special Instructions. JTD 9/7/11	Gross Alpha & Gross Beta

Sample No.	Matrix *	Sample Date	Sample Time										
J1L866	OTHER	9/7/11	0915	✓	✓	✓	✓	✓	✓	✓	✓		

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: K Lucas Kevin Lucas	9-7-11 1120	Received By/Stored In: 100D RMA TR DeBrigne TR DeBrigne	1120 9/7/11
Relinquished By/Removed From: 100D RMA TR DeBrigne TR DeBrigne	9/12/11 0910	Received By/Stored In: Fed EX	
Relinquished By/Removed From: Fed EX	9-14-11 1000	Received By/Stored In: M. Fl	9-14-11 1000
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS
~~Tranship from RCF to Eberline.~~ JTD 9/7/11

(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)
~~(3) Gamma Spec (Client List) (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)~~ JTD 9/7/11

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

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

WCH-EE-011

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC. Hanford Date: 9.14.11

Project/SAF/SOW/Release #: RC-073

LvL Batch #: 1109065 6 9.14.11 Sample Custodian: D. Griffin

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7975 1214 6611
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 4.6	°C	Cooler # WCH-11-019
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
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Fax: 610-280-3041

RECEIVED
SEP 2011

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-073 Project Number: K3681 Project Manager: Joan Kessner	Reported: 09/22/2011 10:17

Analytical Report for TCLP Semivolatiles by SW846 1311/8270C

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1L866	1109066-01	Other Solid	09/07/2011 09:15	09/14/2011 10:00

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

Case Narrative

Client: WC-HANFORD RC-073 K3681
LVL #: 1109066 **Date Received:** 09-14-2011

SEMIVOLATILE - TCLP

One (1) leachate sample was generated from a solid sample collected on 09-07-2011.

The sample and associated QC samples were leached 09-16-2011, extracted 09-19-2011 and analyzed 09-21-2011 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 that met LvL's sample acceptance policy.

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

3. Non-target compounds were detected, however, not reported in these samples.

4. All obtainable surrogate recoveries were within acceptance criteria.

5. The samples were extracted at 5-fold dilutions due to the leachate matrix; however, all TCLP regulatory limits were achieved.

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

7. All blank spike recoveries were within acceptance criteria.

8. Two (2) of twenty-four (24) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR#11MS122) has been enclosed.

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

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

11. Internal standard area and retention time criteria were met for all except L109258-MS2/MSD2. The associated sample analyses fulfilled its reanalysis requirement. The sample was within 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 17 pages.

12. 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").

13. 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

9/22/4
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 11MS122

Initiator: Sharon Saylor
Date: 9-22-11
Client: Wilkinsburg RC-07J K36F1

Batch: 1109066
Samples: MS, MSD
Method: SW846/MCAWW/CLP/

Parameter: 8270
Matrix: leachate
Prep Batch: L109258

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)

no recovery of pyridine in L109258-MS2 & L109258-MSD2 but L109~~258~~258-MS1 is ok
TET 9-22-11

2. Known or Probable Causes(s) Matrix interferences - non target compounds eluting at and near of retention time of pyridine
RW 9/22/11

3. Discussion and Proposed Action Other Description:

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

narrate

4. Project Manager Instructions...signature/date: 9/22/11

✓ 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: 9-22-11 Other Explanation:

✓ Verified re-[log][leach][extract][digest][analysis] (circle)
__ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

When Final Action has been recorded, forward original to QA for diposition.

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

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

QA-139-A-0208

GLOSSARY

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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WC-Hanford, Inc.	Project: RC-073	
2620 Fermi Avenue	Project Number: K3681	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/22/2011 10:17

J1L866

1109066-01 (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	L109258	09/19/2011	09/21/2011	8270C
2,4,5-Trichlorophenol	0.0500 U	0.0500	mg/L	1	L109258	09/19/2011	09/21/2011	8270C
2,4,6-Trichlorophenol	0.0500 U	0.0500	mg/L	1	L109258	09/19/2011	09/21/2011	8270C
2,4-Dinitrotoluene	0.0500 U	0.0500	mg/L	1	L109258	09/19/2011	09/21/2011	8270C
2-Methylphenol	**0.299**	0.0500	mg/L	1	L109258	09/19/2011	09/21/2011	8270C
3- and/or 4-Methylphenol	**0.313**	0.0500	mg/L	1	L109258	09/19/2011	09/21/2011	8270C
Hexachlorobenzene	0.0500 U	0.0500	mg/L	1	L109258	09/19/2011	09/21/2011	8270C
Hexachlorobutadiene	0.0500 U	0.0500	mg/L	1	L109258	09/19/2011	09/21/2011	8270C
Hexachloroethane	0.0500 U	0.0500	mg/L	1	L109258	09/19/2011	09/21/2011	8270C
Nitrobenzene	0.0500 U	0.0500	mg/L	1	L109258	09/19/2011	09/21/2011	8270C
Pentachlorophenol	0.125 U	0.125	mg/L	1	L109258	09/19/2011	09/21/2011	8270C
Pyridine	0.0500 U	0.0500	mg/L	1	L109258	09/19/2011	09/21/2011	8270C
Surrogate: 2-Fluorophenol	*67 %*	*21-100*			*L109258*	*09/19/2011*	*09/21/2011*	*8270C*
Surrogate: Phenol-d5	*75 %*	*10-94*			*L109258*	*09/19/2011*	*09/21/2011*	*8270C*
Surrogate: Nitrobenzene-d5	*69 %*	*35-114*			*L109258*	*09/19/2011*	*09/21/2011*	*8270C*
Surrogate: 2-Fluorobiphenyl	*65 %*	*43-116*			*L109258*	*09/19/2011*	*09/21/2011*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*85 %*	*10-123*			*L109258*	*09/19/2011*	*09/21/2011*	*8270C*
Surrogate: p-Terphenyl-d14	*69 %*	*33-141*			*L109258*	*09/19/2011*	*09/21/2011*	*8270C*

LIONVILLE LABORATORY
A division of Fibertine Analytical Corporation

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WC-Hanford, Inc.	Project: RC-073	
2620 Fermi Avenue	Project Number: K3681	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/22/2011 10:17

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 L109258 - SW 3520C									
Blank (L109258-BLK1)			Prepared: 09/19/2011 Analyzed: 09/21/2011						
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	*0.216*		*mg/L*	*0.37500*		*58*	*21-100*		
Surrogate: Phenol-d5	*0.234*		*mg/L*	*0.37500*		*62*	*10-94*		
Surrogate: Nitrobenzene-d5	*0.153*		*mg/L*	*0.25000*		*61*	*35-114*		
Surrogate: 2-Fluorobiphenyl	*0.150*		*mg/L*	*0.25000*		*60*	*43-116*		
Surrogate: 2,4,6-Tribromophenol	*0.228*		*mg/L*	*0.37500*		*61*	*10-123*		
Surrogate: p-Terphenyl-d14	*0.188*		*mg/L*	*0.25000*		*75*	*33-141*		
Blank (L109258-BLK3)			Prepared: 09/19/2011 Analyzed: 09/21/2011						
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	*0.236*		*mg/L*	*0.37500*		*63*	*21-100*		
Surrogate: Phenol-d5	*0.246*		*mg/L*	*0.37500*		*66*	*10-94*		
Surrogate: Nitrobenzene-d5	*0.158*		*mg/L*	*0.25000*		*63*	*35-114*		
Surrogate: 2-Fluorobiphenyl	*0.151*		*mg/L*	*0.25000*		*60*	*43-116*		
Surrogate: 2,4,6-Tribromophenol	*0.240*		*mg/L*	*0.37500*		*64*	*10-123*		
Surrogate: p-Terphenyl-d14	*0.188*		*mg/L*	*0.25000*		*75*	*33-141*		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-073 Project Number: K3681 Project Manager: Joan Kessner	Reported: 09/22/2011 10:17

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 L109258 - SW 3520C									
LCS (L109258-BS1)			Prepared: 09/19/2011 Analyzed: 09/21/2011						
1,4-Dichlorobenzene	0.161	0.0500	mg/L	0.30000		54	30-100		20
2,4,5-Trichlorophenol	0.214	0.0500	mg/L	0.30000		71	45-125		20
2,4,6-Trichlorophenol	0.211	0.0500	mg/L	0.30000		70	40-125		20
2,4-Dinitrotoluene	0.232	0.0500	mg/L	0.30000		77	50-120		20
2-Methylphenol	0.217	0.0500	mg/L	0.30000		72	40-110		20
3- and/or 4-Methylphenol	0.214	0.0500	mg/L	0.30000		71	30-110		20
Hexachlorobenzene	0.214	0.0500	mg/L	0.30000		71	50-110		20
Hexachlorobutadiene	0.168	0.0500	mg/L	0.30000		56	30-100		20
Hexachloroethane	0.140	0.0500	mg/L	0.30000		47	25-100		20
Nitrobenzene	0.208	0.0500	mg/L	0.30000		69	40-110		20
Pentachlorophenol	0.219	0.125	mg/L	0.30000		73	20-130		20
Pyridine	0.170	0.0500	mg/L	0.30000		57	5-100		20
Surrogate: 2-Fluorophenol	*0.244*		*mg/L*	*0.37500*		*65*	*21-100*		
Surrogate: Phenol-d5	*0.263*		*mg/L*	*0.37500*		*70*	*10-94*		
Surrogate: Nitrobenzene-d5	*0.175*		*mg/L*	*0.25000*		*70*	*35-114*		
Surrogate: 2-Fluorobiphenyl	*0.171*		*mg/L*	*0.25000*		*68*	*43-116*		
Surrogate: 2,4,6-Tribromophenol	*0.261*		*mg/L*	*0.37500*		*70*	*10-123*		
Surrogate: p-Terphenyl-d14	*0.165*		*mg/L*	*0.25000*		*66*	*33-141*		
Matrix Spike (L109258-MS2)		**Source: 1109066-01**	Prepared: 09/19/2011 Analyzed: 09/21/2011						
1,4-Dichlorobenzene	0.152	0.0500	mg/L	0.30000	0.0500 U	51	30-100		20
2,4,5-Trichlorophenol	0.268	0.0500	mg/L	0.30000	0.0500 U	89	45-125		20
2,4,6-Trichlorophenol	0.239	0.0500	mg/L	0.30000	0.0500 U	80	40-125		20
2,4-Dinitrotoluene	0.258	0.0500	mg/L	0.30000	0.0500 U	86	50-120		20
2-Methylphenol	0.515	0.0500	mg/L	0.30000	0.299	72	40-110		20
3- and/or 4-Methylphenol	0.516	0.0500	mg/L	0.30000	0.313	67	30-110		20
Hexachlorobenzene	0.265	0.0500	mg/L	0.30000	0.0500 U	88	50-110		20
Hexachlorobutadiene	0.208	0.0500	mg/L	0.30000	0.0500 U	69	30-100		20
Hexachloroethane	0.132	0.0500	mg/L	0.30000	0.0500 U	44	25-100		20
Nitrobenzene	0.242	0.0500	mg/L	0.30000	0.0500 U	81	40-110		20
Pentachlorophenol	0.417	0.125	mg/L	0.30000	0.125 U	139*	20-130		20
Pyridine	0.0500 U	0.0500	mg/L	0.30000	0.0500 U	*	5-100		20
Surrogate: 2-Fluorophenol	*0.284*		*mg/L*	*0.37500*		*76*	*21-100*		
Surrogate: Phenol-d5	*0.332*		*mg/L*	*0.37500*		*88*	*10-94*		
Surrogate: Nitrobenzene-d5	*0.217*		*mg/L*	*0.25000*		*87*	*35-114*		
Surrogate: 2-Fluorobiphenyl	*0.210*		*mg/L*	*0.25000*		*84*	*43-116*		
Surrogate: 2,4,6-Tribromophenol	*0.374*		*mg/L*	*0.37500*		*100*	*10-123*		

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WC-Hanford, Inc.	Project: RC-073	
2620 Fermi Avenue	Project Number: K3681	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/22/2011 10:17

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 L109258 - SW 3520C									
Matrix Spike (L109258-MS2)		**Source: 1109066-01**	Prepared: 09/19/2011 Analyzed: 09/21/2011						
Surrogate: p-Terphenyl-d14	*0.188*		*mg/L*	*0.25000*		*75*	*33-141*		
Matrix Spike Dup (L109258-MSD2)		**Source: 1109066-01**	Prepared: 09/19/2011 Analyzed: 09/21/2011						
1,4-Dichlorobenzene	0.104	0.0500	mg/L	0.30000	0.0500 U	35	30-100	38*	20
2,4,5-Trichlorophenol	0.231	0.0500	mg/L	0.30000	0.0500 U	77	45-125	15	20
2,4,6-Trichlorophenol	0.207	0.0500	mg/L	0.30000	0.0500 U	69	40-125	14	20
2,4-Dinitrotoluene	0.235	0.0500	mg/L	0.30000	0.0500 U	78	50-120	9	20
2-Methylphenol	0.465	0.0500	mg/L	0.30000	0.299	55	40-110	10	20
3- and/or 4-Methylphenol	0.478	0.0500	mg/L	0.30000	0.313	55	30-110	8	20
Hexachlorobenzene	0.237	0.0500	mg/L	0.30000	0.0500 U	79	50-110	11	20
Hexachlorobutadiene	0.153	0.0500	mg/L	0.30000	0.0500 U	51	30-100	30*	20
Hexachloroethane	0.0841	0.0500	mg/L	0.30000	0.0500 U	28	25-100	44*	20
Nitrobenzene	0.217	0.0500	mg/L	0.30000	0.0500 U	72	40-110	11	20
Pentachlorophenol	0.362	0.125	mg/L	0.30000	0.125 U	121	20-130	14	20
Pyridine	0.0500 U	0.0500	mg/L	0.30000	0.0500 U	*	5-100		20
Surrogate: 2-Fluorophenol	*0.264*		*mg/L*	*0.37500*		*70*	*21-100*		
Surrogate: Phenol-d5	*0.286*		*mg/L*	*0.37500*		*76*	*10-94*		
Surrogate: Nitrobenzene-d5	*0.189*		*mg/L*	*0.25000*		*76*	*35-114*		
Surrogate: 2-Fluorobiphenyl	*0.183*		*mg/L*	*0.25000*		*73*	*43-116*		
Surrogate: 2,4,6-Tribromophenol	*0.326*		*mg/L*	*0.37500*		*87*	*10-123*		
Surrogate: p-Terphenyl-d14	*0.165*		*mg/L*	*0.25000*		*66*	*33-141*		

Lionville Laboratory

TCLP EXTRACTION RECORD
(NON-VOLATILES)

LOGBOOK # 1003

Start Date: 9-15-11 Start Time: 12:30 Analyst: RH SOP: SPI-1311.1	End Date: 9-16-11 End Time: 7:00 Analyst: RH Method: 1311.1	Tumbler Speed: 30 RPM Leachate Batch #: L109210 Leachate Page: 1 of 1 Room Temp. (°C): Start 21 /Finish 21 Acceptance Criteria: 23°C ± 2°

LvL #: 1109066-01 Client ID#: JIL866 pH After 5 Min: 7.39 pH After Acid/Heat: 7.49 Extraction Fluid/pH: #1 4.91 Sample Wt.(g): 100 Extract Fluid Vol.(mL): 2000 pH After Extraction: RH 5.15 9/16/11 4.89	Initial Filtration Data and Comments: Solids: ____% / NA Initial Filtrate Added:
LvL #: L109210 Client ID#: N/A pH After 5 Min: pH After Acid/Heat: Extraction Fluid/pH: Sample Wt.(g): Extract Fluid Vol.(mL): 500 pH After Extraction: N/A	Initial Filtration Data and Comments: Solids: ____% / NA BLANK 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:
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 RH Initial Filtrate Added:

Standard	ID	Prep Date	Expir Date
MS			

Reviewed By/Date RCA 9/21/11

SPI-1311.1-A-0310

Page #

PREPARATION BENCH SHEET

L109258

Lionville Laboratory

Printed: 9/21/2011 12:55:23PM

000000013

Matrix: Water **Prepared using: SVOCGCMS - SW 3520C** **Surrogate used: 1101302**

Lab Number	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1109036-03	1311/8270C TCLP SVOC	09/19/2011 10:37	200	1				500	Fluor-B&W Portsmouth	Flour
1109036-05	1311/8270C TCLP SVOC	09/19/2011 10:37	200	1				500	Fluor-B&W Portsmouth	Flour
1109036-05	8270C App IX SVOC	09/19/2011 10:37	200	1				500	Fluor-B&W Portsmouth	Flour
1109036-05	8270C TCL SVOC	09/19/2011 10:37	200	1				500	Fluor-B&W Portsmouth	Flour
1109036-07	1311/8270C TCLP SVOC	09/19/2011 10:37	200	1				500	Fluor-B&W Portsmouth	Flour
1109036-09	1311/8270C TCLP SVOC	09/19/2011 10:37	200	1				500	Fluor-B&W Portsmouth	Flour
1109036-11	1311/8270C TCLP SVOC	09/19/2011 10:37	200	1				500	Fluor-B&W Portsmouth	Flour
1109036-13	1311/8270C TCLP SVOC	09/19/2011 10:37	200	1				500	Fluor-B&W Portsmouth	Flour
1109066-01	1311/8270C TCLP SVOC	09/19/2011 10:37	200	1				500	WC-Hanford, Inc.	WCH
~~1109066-01~~	~~8270C App IX SVOC~~	~~09/19/2011 10:37~~	~~200~~	~~1~~				~~500~~	~~WC-Hanford, Inc.~~	WCH, Added for BatchQC in: L109258
~~1109066-01RE1~~	~~8270C TCL SVOC~~	~~09/19/2011 10:37~~	~~1000~~	~~1~~				~~500~~	~~WC-Hanford, Inc.~~	WCH, Added for BatchQC in: L109258
1109080-04	8270C TCL SVOC	09/19/2011 10:37	1000	1				500	URS/CH2M Oak Ridge (UCOR)	Table 2, method reset 8/9/11
1109081-09	8270C TCL SVOC	09/19/2011 10:37	1000	1				500	URS/CH2M Oak Ridge (UCOR)	Table 1, Report @LOD
1109085-01	8270C App IX SVOC	09/19/2011 10:37	1000	1				500	WC-Hanford, Inc.	WCH ETF List
L109258-BLK1	QC	09/19/2011 10:37	200	1				500		TCLP
L109258-BLK2	QC	09/19/2011 10:37	200	1				500		TCLP, leach BLK L109181 for 1109036
L109258-BLK3	QC	09/19/2011 10:37	200	1				500		TCLP, leach BLK L109210 for 1109066
L109258-BLK4	QC	09/19/2011 10:37	1000	1				500		WCH
L109258-BLK5	QC	09/19/2011 10:37	1000	1				500		Table 2
L109258-BLK6	QC	09/19/2011 10:37	1000	1				500		Table 1

9/21/11 12:55
Extracts Relinquished By Date

9/21/11 1258
Extracts Received By Date

PREPARATION BENCH SHEET

L109258

Lionville Laboratory

Printed: 9/21/2011 12:55:23PM

000000014

Matrix: Water **Prepared using: SVOCGCMS - SW 3520C** **Surrogate used: 1101302**

Lab Number	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
L109258-BS1	QC	09/19/2011 10:37	200	1	1100144		600	500		TCLP
L109258-BS4	QC	09/19/2011 10:37	1000	1	1100144		600	500		WCH
L109258-BS5	QC	09/19/2011 10:37	1000	1	1100144		600	500		Table 2
L109258-BS6	QC	09/19/2011 10:37	1000	1	1100144		600	500		Table 1
L109258-MS1	QC	09/19/2011 10:37	200	1	1100144	1109036-05	600	500		Fluor
L109258-MS2	QC	09/19/2011 10:37	200	1	1100144	1109066-01	600	500		WCH
L109258-MSD1	QC	09/19/2011 10:37	200	1	1100144	1109036-05	600	500		Fluor
L109258-MSD2	QC	09/19/2011 10:37	200	1	1100144	1109066-01	600	500		WCH

9/21/11 12:50
Extracts Relinquished By Date

9/21/11 12:55
Extracts Received By Date

Lionville Laboratory Use Only

1109066 9.14.11

Custody Transfer Record/Lab Work Request

Page 1 of 1

Lionville Laboratory
A Division of Eberline Analytical Corporation

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: WCHanford SAF# RC-073
Est. Final Proj. Sampling Date:
Project#:
Project Contact/Phone#:
Lionville Laboratory Project Manager: Arlette Johnson
QC: S(W) Del: STD TAT: 7 days
Date Rec'd: 9-14-11 Date Due: 9-21-11

		A							B							
Refrigerator #		1							1							
#/Type Container	Liquid															
	Solid	1oz							1oz							
Volume	Liquid															
	Solid	500							500							
Preservatives		—							—							
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb	TCLP Semi VOA			Metal Hg	CN	TCLP Metal Hg	SFA	Ign.			
		Lionville Laboratory Use Only														
		8260	8270	8082		TCLP 8270			Met①	EPA 170	TCLP RCRA	SFA	IGN			

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	TCLP Semi VOA			Metal Hg	CN	TCLP Metal Hg	SFA	Ign.			
01	JIL866	✓	✓	SO	9-7-11	0915	X	X	X		X			X	X	X	X	X			

Special Instructions:

met① = HSL + B, Li, Mo (no TL)

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

See BRC

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	9-14-11	1000

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL			
REWRITTEN			

000000015

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-073-199	Page 1 of ~~2~~ 1 JRD 9/7/11
Collector: K Lucas	Company Contact: Joan Kessner; Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 9X JRD 9/7/11 B; Data Turnaround: JRD 9/7/11 ~~21~~ 7 Days
Project Designation: 100-D/DR Burial Grounds & Remaining Sites - Other Quick	Sampling Location: 118-D-3 (100D-AN-08-004)	SAF No.: RC-073	
Ice Chest No.: WCH-11-019	Field Logbook No.: EL-1657; COA: R118D32F20	Method of Shipment: Fed Ex	
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: NA	Bill of Lading/Air Bill No.: See ~~OSPC~~ HMSR JRD 9/12/11	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive, Potentially Combustible
<D.O.T. ARE 9-13-11

Special Handling and/or Storage
Cool JRD 9/12/11

Preservation	Cool 4C	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None
Type of Container	G/P	G	G	G	G	aG	aG	aG	G/P	G/P
No. of Container(s)	1	0	0	0	0	1	0	0	1	0
Volume	500mL	500mL	500mL	500mL	500mL	500mL	500mL	500mL	500mL	500mL

SAMPLE ANALYSIS				See item (1) in Special Instructions.	See item (2) in Special Instructions.	Total Cyanide - 9010; Sulfides - 9030	Ignitability - 1010	VOA - 8260A (TCL)	Semi-VOA - 8270A (TCL)	PCBs - 8082	TCLP Semi-VOA - 1311/8270A	See item (3) in Special Instructions. JRD 9/7/11	Gross Alpha & Gross Beta
Sample No.	Matrix *	Sample Date	Sample Time										
J1L866	OTHER	9/7/11	0915	✓	✓	✓	✓	✓	✓	✓	✓		

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: K Lucas	9-7-11 1120	Received By/Stored In: 100D RMA JRDeBrigne	1120 9/7/11
Relinquished By/Removed From: 100D RMA JRDeBrigne	9/12/11 0910	Received By/Stored In: Fed EX	
Relinquished By/Removed From: Fed EX	9-14-11 1000	Received By/Stored In: M.H.	9-14-11 1000
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS
~~Tranship from RCF to Eberline.~~ JRD 9/7/11

(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}
~~(3) Gamma Spec (Client List) {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}~~ JRD 9/7/11

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

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

WCH-EE-011

000000016

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford

Project/SAF/SOW/Release #: RC-073

Date: 9.14.11

LvL Batch #: 11090656 9.14.11 Sample Custodian: D. Griffin

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7975 1214 6611
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 4.6	°C	Cooler # WCH-11-019
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 _____

000000017

SR-002-B.doc

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

RECEIVED
SEP 2011

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-073 Project Number: K3681 Project Manager: Joan Kessner	**Reported:** 09/21/2011 11:21

Analytical Report for Polychlorinated Biphenyls by SW846 8082

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1L866	1109066-01	Other Solid	09/07/2011 09:15	09/14/2011 10:00

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

Case Narrative

Client: WC-HANFORD RC-073 K3681
LVL #: 1102087

W.O. #: 60049-001-001-0001-00
Received: 09-14-2011

PCBs

One (1) other solid sample was collected on 9-07-2011.

The sample and associated QC samples were extracted 09-19-2011 and analyzed 09-20-2011 according to criteria set forth in Lionville Laboratory SOPs. The extraction procedure was based on SW846 Method 3540C and the analysis procedure was based on SW846 Method 8082. All samples received Copper-Sulfur and Sulfuric Acid cleanups based on SW846 methods 3660A and 3665A.

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

1. The results presented in this report are derived from a sample that met LvL's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. The sample was extracted with a reduced initial volume. Reporting limits have been adjusted to reflect the necessary changes.
4. All obtainable surrogate recoveries were within acceptance criteria.
5. The method blank was below the reporting for all target compounds.
6. All blank spike recoveries were within acceptance criteria.
7. Four (4) of four (4) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR#11GC202) has been enclosed.
8. The samples J1L866 and L109275-MS3/MSD3 required a 100-fold dilution, due to a high concentration of target analytes. Reporting limits have been adjusted to reflect the necessary changes.
9. The sample was reported on a wet weight 'as received' basis.
10. All initial calibrations associated with this data set were within acceptance criteria.
11. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 12 pages.

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

Iain Daniels
LvL Laboratory Manager

9/22/11
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 11GC202

Initiator: L. Kauffman
Date: 9-21-11
Client: WC Hanford RC-073

Batch: 1109066
Samples: All
Method: SW846/MCAWW/CLP/

Parameter: PCB
Matrix: Solid
Prep Batch: L109275

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)

Four of four matrix spike recoveries were outside the acceptance range

2. Known or Probable Causes(s)

DF100 due to high concentration of target analytes
Interference from the AR1254 on both 1016 & 1260.

3. Discussion and Proposed Action Other Description:

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

Narrate ID.

4. Project Manager Instructions...signature/date: 9/21/11

✓ 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: 9-22-11 Other Explanation:

__ Verified re-[log][leach][extract][digest][analysis] (circle)
✓ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

When Final Action has been recorded, forward original to QA for diposition.

Route
X Lab Manager: Daniels
X Project Mgr (circle): Johnson / Stone
__ Sample Prep (circle): Ford
__ Log-in: King

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

QA-139-A-0208

GLOSSARY OF DATA

DATA QUALIFIERS

U	=	Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
J	=	Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
B	=	This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
I	=	Interference.
. I	=	Indicates an interference on one analytical column only. Result is reported from remaining analytical column.
P	=	This flag is used for a dual column analysis (i.e. pesticides/PCB/herbicides) when there is greater than 40% difference for detected concentrations between the two GC columns; the lower of the two values is reported on Form 1 and flagged with a "P".
D	=	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
C	=	This flag applies to a compound that has been confirmed by GC/MS.

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
NS	=	Not Spiked.
SP	=	Indicates Spiked Compound.
NPM	=	No pattern match for multi-component target analytes.

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

WC-Hanford, Inc.	Project: RC-073	
2620 Fermi Avenue	Project Number: K3681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	09/21/2011 11:21

J1L866
1109066-01 (Other Solid)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	75300	U	75300	ug/kg wet	100	L109275	09/19/2011	09/20/2011	8082
Aroclor 1221	75300	U	75300	ug/kg wet	100	L109275	09/19/2011	09/20/2011	8082
Aroclor 1232	75300	U	75300	ug/kg wet	100	L109275	09/19/2011	09/20/2011	8082
Aroclor 1242	75300	U	75300	ug/kg wet	100	L109275	09/19/2011	09/20/2011	8082
Aroclor 1248	75300	U	75300	ug/kg wet	100	L109275	09/19/2011	09/20/2011	8082
Aroclor 1254	**294000**	D	75300	ug/kg wet	100	L109275	09/19/2011	09/20/2011	8082
Aroclor 1260	75300	U	75300	ug/kg wet	100	L109275	09/19/2011	09/20/2011	8082
Aroclor 1262	75300	U	75300	ug/kg wet	100	L109275	09/19/2011	09/20/2011	8082
Aroclor 1268	75300	U	75300	ug/kg wet	100	L109275	09/19/2011	09/20/2011	8082
Surrogate: Decachlorobiphenyl	*98 %*		*43-144*			*L109275*	*09/19/2011*	*09/20/2011*	*8082*
Surrogate: Tetrachloro-meta-xylene	*91 %*		*52-141*			*L109275*	*09/19/2011*	*09/20/2011*	*8082*

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

WC-Hanford, Inc.	Project: RC-073	
2620 Fermi Avenue	Project Number: K3681	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/21/2011 11:21

Polychlorinated Biphenyls by SW846 8082 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L109275 - SW 3540C										
Blank (L109275-BLK1)				Prepared: 09/19/2011 Analyzed: 09/20/2011						
Aroclor 1016	13.3	U	13.3	ug/kg wet						
Aroclor 1221	13.3	U	13.3	ug/kg wet						
Aroclor 1232	13.3	U	13.3	ug/kg wet						
Aroclor 1242	13.3	U	13.3	ug/kg wet						
Aroclor 1248	13.3	U	13.3	ug/kg wet						
Aroclor 1254	13.3	U	13.3	ug/kg wet						
Aroclor 1260	13.3	U	13.3	ug/kg wet						
Aroclor 1262	13.3	U	13.3	ug/kg wet						
Aroclor 1268	13.3	U	13.3	ug/kg wet						
Surrogate: Decachlorobiphenyl	*26.3*			*ug/kg wet*	*33.333*		*79*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*32.3*			*ug/kg wet*	*33.337*		*97*	*52-141*		
LCS (L109275-BS1)				Prepared: 09/19/2011 Analyzed: 09/20/2011						
Aroclor 1016	165		13.3	ug/kg wet	166.67		99	50-138		40
Aroclor 1260	147		13.3	ug/kg wet	166.67		88	50-148		40
Surrogate: Decachlorobiphenyl	*28.0*			*ug/kg wet*	*33.333*		*84*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*34.0*			*ug/kg wet*	*33.337*		*102*	*52-141*		
Matrix Spike (L109275-MS3)		**Source: 1109066-01**		Prepared: 09/19/2011 Analyzed: 09/20/2011						
Aroclor 1016	72800	U	72800	ug/kg wet	9124.1	75300 U	*	50-138		40
Aroclor 1260	32800	J, D	72800	ug/kg wet	9124.1	75300 U	359*	50-148		40
Surrogate: Decachlorobiphenyl	*2170*			*ug/kg wet*	*1824.8*		*119*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*1950*			*ug/kg wet*	*1825.0*		*107*	*52-141*		
Matrix Spike Dup (L109275-MSD3)		**Source: 1109066-01**		Prepared: 09/19/2011 Analyzed: 09/20/2011						
Aroclor 1016	20300	J, D	79200	ug/kg wet	9920.6	75300 U	205*	50-138		40
Aroclor 1260	62700	J, D	79200	ug/kg wet	9920.6	75300 U	632*	50-148	55*	40
Surrogate: Decachlorobiphenyl	*1980*			*ug/kg wet*	*1984.1*		*100*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*1670*			*ug/kg wet*	*1984.3*		*84*	*52-141*		

PREPARATION BENCH SHEET

L109275

Lionville Laboratory

Printed: 9/20/2011 1:44:33PM

00000008

Matrix: Solid **Prepared using: GC - SW 3540C** **Surrogate used: 1101071**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1109058-01	8082 PCBs	09/19/2011 15:08	30.39	10				250	WC-Hanford, Inc.	
1109058-02	8082 PCBs	09/19/2011 15:08	30.07	10				250	WC-Hanford, Inc.	
1109064-01	8082 PCBs	09/19/2011 15:08	0.526	10				250	Fluor-B&W Portsmouth	fish
1109066-01	8082 PCBs	09/19/2011 15:08	0.53	10				250	WC-Hanford, Inc.	paint
1109067-01	8082 PCBs	09/19/2011 15:08	30.42	10				250	WC-Hanford, Inc.	
1109067-02	8082 PCBs	09/19/2011 15:08	30.9	10				250	WC-Hanford, Inc.	
1109076-01	8082 PCBs	09/19/2011 15:08	0.5239	10				250	URS/CH2M Oak Ridge (UCOR)	
1109079-01	8082 PCBs	09/19/2011 15:08	0.562	10				250	Fluor-B&W Portsmouth	fish
L109275-BLK1	QC	09/19/2011 15:08	30	10				250		
L109275-BS1	QC	09/19/2011 15:08	30	10	1100908		250	250		
L109275-MS1	QC	09/19/2011 15:08	30.01	10	1100908	1109058-01	250	250		
L109275-MS2	QC	09/19/2011 15:08	0.534	10	1100908	1109064-01	250	250		fish
L109275-MS3	QC	09/19/2011 15:08	0.548	10	1100908	1109066-01	250	250		paint
L109275-MS4	QC	09/19/2011 15:08	30.56	10	1100908	1109067-01	250	250		
L109275-MS5	QC	09/19/2011 15:08	0.554	10	1100908	1109076-01	250	250		paint chip
L109275-MSD1	QC	09/19/2011 15:08	30.26	10	1100908	1109058-01	250	250		
L109275-MSD2	QC	09/19/2011 15:08	0.418	10	1100908	1109064-01	250	250		fish
L109275-MSD3	QC	09/19/2011 15:08	0.504	10	1100908	1109066-01	250	250		paint
L109275-MSD4	QC	09/19/2011 15:08	30.94	10	1100908	1109067-01	250	250		
L109275-MSD5	QC	09/19/2011 15:08	0.541	10	1100908	1109076-01	250	250		paint chip

Cu changed 9/20/11

9/20/11 1350 — Extracts Relinquished By — Date

9/20/11 13:51 — Extracts Received By — Date

PREPARATION BENCH SHEET

L109275

Lionville Laboratory

Printed: 9/20/2011 1:44:33PM

000000009

Matrix: Solid **Prepared using: GC - SW 3540C** **Surrogate used: 1101071**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
										Cu cleaned 9/20/11 [illegible]

Extracts Relinquished By 9/20/11 1350 Date

Extracts Received By 9/20/11 13:51 Date

Lionville Laboratory Use Only
1109066 9.14.11

Custody Transfer Record/Lab Work Request

Page 1 of 1

Lionville Laboratory
A Division of Eberline Analytical Corporation

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: WCHanford SAF# RC-073
Est. Final Proj. Sampling Date:
Project#:
Project Contact/Phone#:
Lionville Laboratory Project Manager: Arlette Johnson
QC: SW Del: STD TAT: 7 days
Date Rec'd: 9.14.11 Date Due: 9-21-11

		A	B
Refrigerator #		1	1
#/Type Container	Liquid		
	Solid	1 qt	1 qt
Volume	Liquid		
	Solid	500	500
Preservatives		—	—

ANALYSES REQUESTED →

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA	BNA	Pesty PCB	Herb	TCLP SVOA		INORG Metal THP	CN	TCLP Metal	SFA	Ign.
								Lionville Laboratory Use Only										
								8260	8270	8082		TCLP 8270		Met(1)	cyanide	TCLP RCRA	SFD	IGSW
W Water, WW Waste Water, GW Groundwater, WST Waste, WI Wipe, SO Solid, S Soil, SL Sludge, SE Sediment, PC Paint Chips, O Oil, NAL Non-Aqueous Liquid, L Leachate, A Air, T Tissue, F Fish	01	JIL866	✓	✓	SO	9.7.11	0915	X	X	X		X		X	X	X	X	X

Special Instructions:

met(1) = HSL + B, Li, Mo (no TL)

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

See BRC

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	9.14.11	1000

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL			
REWRITTEN			

0000000010

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-073-199	Page 1 of 2 JRD 9/7/11

Collector K Lucas	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH
Price Code 9K JRD 9/7/11 B	Data Turnaround JRD 9/7/11 ~~21~~ 7 Days		
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Other Quick	Sampling Location 118-D-3 (100D-AN-08-004)		SAF No. RC-073
Ice Chest No. WCH-11-019	Field Logbook No. EL-1657	COA R118D32F20	Method of Shipment Fed Ex
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. NA		Bill of Lading/Air Bill No. See ~~OSPC~~ HMSE JRD 9/12/11

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive Potentially *Combustible*

<D.O.T. ARE 9-13-11

Special Handling and/or Storage

Cool JRD 9/12/11

Preservation	Cool 4C	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None
Type of Container	G/P	G	G	G	G	aG	aG	aG	G/P	G/P
No. of Container(s)	1	0	0	0	0	1	0	0	1	0
Volume	500mL	500mL	500mL	500mL	500mL	500mL	500mL	500mL	500mL	500mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Total Cyanide - 9010; Sulfides - 9030	Ignitability - 1010	VOA - 8260A (TCL)	Semi-VOA - 8270A (TCL)	PCBs - 8082	TCLP Semi-VOA - 1311/8270A	See item (3) in Special Instructions. JRD 9/7/11	Gross Alpha & Gross Beta

Sample No.	Matrix *	Sample Date	Sample Time										
J1L866	OTHER	9/7/11	0915	✓	✓	✓	✓	✓	✓	✓	✓		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
K Lucas Kevin Lucas	9-7-11 1120	100D RMA TR DeBrigne TR DeBrigne	1120 9/7/11
100D RMA TR DeBrigne TR DeBrigne	0910 9/12/11	Fed Ex	
Fed Ex	9.14.11 1000	M.H.	1000 9/14/11

SPECIAL INSTRUCTIONS

~~Tranship from RCF to Eberline.~~ JRD 9/7/11

(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}

~~(3) Gamma Spec (Client List) {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}~~ JRD 9/7/11

Matrix *

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

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

WCH-EE-011

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford Date: 9-14-11

Project/SAF/SOW/Release #: RC-073

LvL Batch #: 110906856 9.14.11 Sample Custodian: D. Griffin

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7975 1214 6611
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 4.6	°C	Cooler # WCH-11-019
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 _____

000000012

SR-002-B.doc

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RECEIVED
SEP 2011

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-073 Project Number: K3681 Project Manager: Joan Kessner	Reported: 09/23/2011 12:06

Analytical Report for Metals by SW846 6000/7000 series

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1L866	1109066-01	Other Solid	09/07/2011 09:15	09/14/2011 10:00

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Case Narrative

Client: WC-HANFORD RC-073
LVL#: 1109066
SDG/SAF#: K3681/RC-073

W.O.#: 60049-001-001-0001-00
Date Received: 09-14-11

METALS

The following is a summary of the QC results accompanying the sample results. Lionville Laboratory (LvL) certifies that all test results meet the requirements of NELAC except as noted below.

All soil samples are reported on a dry weight basis unless requested by the client, required by the method, or noted otherwise.

1. This narrative covers the analyses of 1 other solid sample and 1 TCLP leachate sample.

2. The sample was 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 other solid sample was reanalyzed and reported with a 24-fold dilution for Barium and Cadmium due to high concentration of Cadmium in the sample.

   The TCLP leachate sample was analyzed and reported with a 5-fold dilution for ICP metals due to sample matrix.

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

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

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

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

7. The preparation/method blank for 1 analyte was outside method criteria. {less than the Limit of Quantitation, samples greater than 20X MB value}.

   a). Method Blank L109245-BLK1 result for Chromium was above the client requested limit. The sample result for Chromium was reported herein "uncorrected" for the levels found in the MB.

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 23 pages.

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 other solid matrix spike (MS) recoveries for 7 analytes were outside the 75-125% control limits.

11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A PDS was prepared at meaningful concentration level for the following analytes:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J1L866	Aluminum	22,000	91.2
	Barium	1,000	109.2
	Cadmium	2,000	99.0
	Iron	42,000	54.5
	Manganese	1,000	88.0
	Silicon	2,100	46.7
	Zinc	1,100	98.3

12. The other solid duplicate analyses for 12 analytes were outside the 20% Relative Percent Difference (RPD) control limits. The ± 20% RPD control limit applies to sample results greater than ten times the MDL. The sample results for Arsenic, Beryllium, Cobalt, Nickel, and Sodium were less than ten times the MDL.

13. The TCLP duplicate analyses were within the 20% Relative Percent Difference (RPD) control limits. The ± 20% RPD control limit applies to sample results greater than ten times the MDL. The sample result for Lead was less than ten times the MDL.

14. The TCLP extract from sample J1L866 was selected for the matrix spike (MS) for this analytical batch. All MS recoveries were greater than 50% as per method criteria.

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

9/23/11
Date

alm/09-066tchgn%

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WC-Hanford, Inc.	Project: RC-073	
2620 Fermi Avenue	Project Number: K3681	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/23/2011 12:06

Notes and Definitions

U	Analyte included in the analysis, but not detected
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
B	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag)
*	Value outside QC acceptance criteria
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
wet	Sample results reported on a wet weight basis
RPD	Relative Percent Difference

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WC-Hanford, Inc.	Project: RC-073	
2620 Fermi Avenue	Project Number: K3681	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/23/2011 12:06

J1L866
1109066-01 (Other Solid)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Metals by SW846 6000/7000 series									
Aluminum	**1400**		4.46	mg/kg wet	1	L109245	09/16/2011	09/20/2011	6010B
Antimony	0.536	U	0.536	mg/kg wet	1	L109245	09/16/2011	09/20/2011	6010B
Arsenic	**1.15**		0.893	mg/kg wet	1	L109245	09/16/2011	09/20/2011	6010B
Barium	**4310**		10.7	mg/kg wet	24	L109245	09/16/2011	09/22/2011	6010B
Beryllium	**0.0686**	B	0.179	mg/kg wet	1	L109245	09/16/2011	09/20/2011	6010B
Boron	**14.7**		1.79	mg/kg wet	1	L109245	09/16/2011	09/20/2011	6010B
Cadmium	**18000**		4.29	mg/kg wet	24	L109245	09/16/2011	09/22/2011	6010B
Calcium	**1930**		89.3	mg/kg wet	1	L109245	09/16/2011	09/20/2011	6010B
Chromium	**2.50**		0.179	mg/kg wet	1	L109245	09/16/2011	09/20/2011	6010B
Cobalt	**3.90**		1.79	mg/kg wet	1	L109245	09/16/2011	09/20/2011	6010B
Copper	**7.78**		0.893	mg/kg wet	1	L109245	09/16/2011	09/20/2011	6010B
Iron	**13500**		17.9	mg/kg wet	1	L109245	09/16/2011	09/20/2011	6010B
Lead	**2.93**		0.446	mg/kg wet	1	L109245	09/16/2011	09/20/2011	6010B
Magnesium	**868**		67.0	mg/kg wet	1	L109245	09/16/2011	09/20/2011	6010B
Manganese	**96.2**		4.46	mg/kg wet	1	L109245	09/16/2011	09/20/2011	6010B
Molybdenum	**0.236**	B	1.79	mg/kg wet	1	L109245	09/16/2011	09/20/2011	6010B
Nickel	**6.58**		3.57	mg/kg wet	1	L109245	09/16/2011	09/20/2011	6010B
Potassium	**238**	B	357	mg/kg wet	1	L109245	09/16/2011	09/20/2011	6010B
Selenium	**0.770**	B	0.893	mg/kg wet	1	L109245	09/16/2011	09/20/2011	6010B
Silicon	**375**		1.79	mg/kg wet	1	L109245	09/16/2011	09/20/2011	6010B
Silver	0.179	U	0.179	mg/kg wet	1	L109245	09/16/2011	09/20/2011	6010B
Sodium	**64.5**		44.6	mg/kg wet	1	L109245	09/16/2011	09/20/2011	6010B
Vanadium	**11.1**		2.23	mg/kg wet	1	L109245	09/16/2011	09/20/2011	6010B
Zinc	**363**		8.93	mg/kg wet	1	L109245	09/16/2011	09/20/2011	6010B
Mercury	0.0243	U	0.0243	mg/kg wet	1	L109207	09/15/2011	09/16/2011	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-073 Project Number: K3681 Project Manager: Joan Kessner	Reported: 09/23/2011 12:06

J1L866
1109066-01 (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	0.0750	U	0.0750	mg/L	5	L109242	09/16/2011	09/21/2011	6010
Barium	**0.278**		0.00500	mg/L	5	L109242	09/16/2011	09/21/2011	6010
Cadmium	**1.24**		0.0150	mg/L	5	L109242	09/16/2011	09/21/2011	6010
Chromium	**0.00325**	B	0.0250	mg/L	5	L109242	09/16/2011	09/21/2011	6010
Lead	**0.0128**	B	0.0500	mg/L	5	L109242	09/16/2011	09/21/2011	6010
Selenium	0.100	U	0.100	mg/L	5	L109242	09/16/2011	09/21/2011	6010
Silver	0.0300	U	0.0300	mg/L	5	L109242	09/16/2011	09/21/2011	6010
Mercury	0.000200	U	0.000200	mg/L	1	L109278	09/20/2011	09/21/2011	7470

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-073 Project Number: K3681 Project Manager: Joan Kessner	Reported: 09/23/2011 12:06

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 L109207 - SW 7471A Prep										
Blank (L109207-BLK1)				Prepared & Analyzed: 09/15/2011						
Mercury	0.0290	U	0.0290	mg/kg wet						
Duplicate (L109207-DUP6)		Source: 1109066-01		Prepared: 09/15/2011 Analyzed: 09/16/2011						
Mercury	0.0250	U	0.0250	mg/kg wet		0.0243 U				20
Matrix Spike (L109207-MS6)		Source: 1109066-01		Prepared: 09/15/2011 Analyzed: 09/16/2011						
Mercury	0.176		0.0257	mg/kg wet	0.14286	0.0243 U	123	75-125		20
Reference (L109207-SRM1)				Prepared & Analyzed: 09/15/2011						
Mercury	1.20		0.0300	mg/kg wet	1.2900		92.9	62.6-138		
Batch L109245 - SW 3050B										
Blank (L109245-BLK1)				Prepared: 09/16/2011 Analyzed: 09/20/2011						
Aluminum	4.46	U	4.46	mg/kg wet						
Antimony	0.536	U	0.536	mg/kg wet						
Arsenic	0.893	U	0.893	mg/kg wet						
Barium	0.446	U	0.446	mg/kg wet						
Beryllium	0.179	U	0.179	mg/kg wet						
Boron	1.79	U	1.79	mg/kg wet						
Cadmium	0.179	U	0.179	mg/kg wet						
Calcium	8.75	B	89.3	mg/kg wet						
Chromium	2.79		0.179	mg/kg wet						
Cobalt	1.79	U	1.79	mg/kg wet						
Copper	0.893	U	0.893	mg/kg wet						
Iron	13.0	B	17.9	mg/kg wet						
Lead	0.446	U	0.446	mg/kg wet						
Magnesium	4.34	B	67.0	mg/kg wet						
Manganese	0.221	B	4.46	mg/kg wet						
Molybdenum	1.79	U	1.79	mg/kg wet						
Nickel	0.975	B	3.57	mg/kg wet						
Potassium	357	U	357	mg/kg wet						
Selenium	0.893	U	0.893	mg/kg wet						
Silicon	1.79	U	1.79	mg/kg wet						
Silver	0.179	U	0.179	mg/kg wet						
Sodium	44.6	U	44.6	mg/kg wet						
Vanadium	2.23	U	2.23	mg/kg wet						
Zinc	8.93	U	8.93	mg/kg wet						

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-073 Project Number: K3681 Project Manager: Joan Kessner	Reported: 09/23/2011 12:06

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 L109245 - SW 3050B										
Duplicate (L109245-DUP2)		**Source: 1109066-01**		Prepared: 09/16/2011 Analyzed: 09/20/2011						
Aluminum	1140		4.24	mg/kg wet		1400			20.4*	20
Antimony	0.508	U	0.508	mg/kg wet		0.536 U				20
Arsenic	0.757	B	0.847	mg/kg wet		1.15			41.5*	20
Barium	5500		10.2	mg/kg wet		4310			24.2*	20
Beryllium	0.0549	B	0.169	mg/kg wet		0.0686			22.2*	20
Boron	4.37		1.69	mg/kg wet		14.7			108*	20
Cadmium	25400		4.07	mg/kg wet		18000			34.1*	20
Calcium	1450		84.7	mg/kg wet		1930			28.6*	20
Chromium	2.25		0.169	mg/kg wet		2.50			10.5	20
Cobalt	2.97		1.69	mg/kg wet		3.90			26.9*	20
Copper	5.97		0.847	mg/kg wet		7.78			26.2*	20
Iron	7780		16.9	mg/kg wet		13500			53.7*	20
Lead	3.41		0.424	mg/kg wet		2.93			15.2	20
Magnesium	681		63.6	mg/kg wet		868			24.1*	20
Manganese	68.2		4.24	mg/kg wet		96.2			34.0*	20
Molybdenum	1.69	U	1.69	mg/kg wet		0.236				20
Nickel	3.88		3.39	mg/kg wet		6.58			51.7*	20
Potassium	178	B	339	mg/kg wet		238			28.9*	20
Selenium	0.846	B	0.847	mg/kg wet		0.770			9.35	20
Silicon	267		1.69	mg/kg wet		375			33.6*	20
Silver	0.169	U	0.169	mg/kg wet		0.179 U				20
Sodium	45.7		42.4	mg/kg wet		64.5			34.1*	20
Vanadium	9.23		2.12	mg/kg wet		11.1			18.6	20
Zinc	498		8.47	mg/kg wet		363			31.4*	20
Matrix Spike (L109245-MS2)		**Source: 1109066-01**		Prepared: 09/16/2011 Analyzed: 09/20/2011						
Aluminum	1180		4.72	mg/kg wet	188.68	1400	-118*	75-125		20
Antimony	38.1		0.566	mg/kg wet	47.170	0.536 U	80.8	75-125		20
Arsenic	177		0.943	mg/kg wet	188.68	1.15	93.4	75-125		20
Barium	2390		11.3	mg/kg wet	188.68	4310	-1020*	75-125		20
Beryllium	4.49		0.189	mg/kg wet	4.7170	0.0686	93.7	75-125		20
Boron	89.2		1.89	mg/kg wet	94.340	14.7	79.0	75-125		20
Cadmium	12400		4.53	mg/kg wet	4.7170	18000	-119000*	75-125		20
Calcium	4340		94.3	mg/kg wet	2358.5	1930	102	75-125		20
Chromium	21.1		0.189	mg/kg wet	18.868	2.50	98.8	75-125		20
Cobalt	47.5		1.89	mg/kg wet	47.170	3.90	92.4	75-125		20
Copper	28.2		0.943	mg/kg wet	23.585	7.78	86.8	75-125		20

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WC-Hanford, Inc.	Project: RC-073	
2620 Fermi Avenue	Project Number: K3681	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/23/2011 12:06

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 L109245 - SW 3050B									
Matrix Spike (L109245-MS2)		**Source: 1109066-01**		Prepared: 09/16/2011 Analyzed: 09/20/2011					
Iron	13200	18.9	mg/kg wet	94.340	13500	-321*	75-125		20
Lead	45.4	0.472	mg/kg wet	47.170	2.93	90.0	75-125		20
Magnesium	2820	70.8	mg/kg wet	2358.5	868	82.8	75-125		20
Manganese	118	4.72	mg/kg wet	47.170	96.2	47.3*	75-125		20
Molybdenum	92.7	1.89	mg/kg wet	94.340	0.236	98.0	75-125		20
Nickel	48.8	3.77	mg/kg wet	47.170	6.58	89.5	75-125		20
Potassium	2330	377	mg/kg wet	2358.5	238	88.8	75-125		20
Selenium	175	0.943	mg/kg wet	188.68	0.770	92.1	75-125		20
Silicon	399	1.89	mg/kg wet	94.340	375	24.5*	75-125		20
Silver	4.24	0.189	mg/kg wet	4.7170	0.179 U	89.9	75-125		20
Sodium	2270	47.2	mg/kg wet	2358.5	64.5	93.5	75-125		20
Vanadium	54.7	2.36	mg/kg wet	47.170	11.1	92.4	75-125		20
Zinc	282	9.43	mg/kg wet	47.170	363	-172*	75-125		20
Reference (L109245-SRM1)				Prepared: 09/16/2011 Analyzed: 09/20/2011					
Aluminum	6340	11.9	mg/kg wet	6670.0		95.0	0-200.89		
Antimony	52.6	1.43	mg/kg wet	53.000		99.2	0-235.8		
Arsenic	112	2.38	mg/kg wet	114.00		97.8	82.8-117.54		
Barium	300	1.19	mg/kg wet	307.00		97.9	79.8-120.2		
Beryllium	105	0.476	mg/kg wet	108.00		97.3	82.8-117.6		
Boron	82.6	4.76	mg/kg wet	85.100		97.1	67.5-132.8		
Cadmium	226	0.476	mg/kg wet	225.00		101	83.6-116.4		
Calcium	3260	238	mg/kg wet	3360.0		96.9	83.3-116.9		
Chromium	77.6	0.476	mg/kg wet	77.200		100	73.3-126.4		
Cobalt	163	4.76	mg/kg wet	166.00		98.4	80.7-118.7		
Copper	262	2.38	mg/kg wet	271.00		96.8	80.8-119.2		
Iron	8190	47.6	mg/kg wet	8420.0		97.2	78.6-121.1		
Lead	181	1.19	mg/kg wet	190.00		95.4	81.6-118.4		
Magnesium	8260	179	mg/kg wet	8570.0		96.4	83.2-116.7		
Manganese	1000	11.9	mg/kg wet	965.00		104	69.3-130.5		
Molybdenum	238	4.76	mg/kg wet	235.00		101	76.2-123.8		
Nickel	214	9.52	mg/kg wet	221.00		96.7	79.6-120.8		
Potassium	14400	952	mg/kg wet	14400		99.7	81.9-118.1		
Selenium	186	2.38	mg/kg wet	187.00		99.4	75.9-124.6		
Silicon	778	4.76	mg/kg wet	807.00		96.4	0-219.3		
Silver	80.7	0.476	mg/kg wet	83.500		96.6	82.7-117.1		
Sodium	9150	119	mg/kg wet	9730.0		94.1	82.5-117.2		

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

WC-Hanford, Inc.	Project: RC-073	
2620 Fermi Avenue	Project Number: K3681	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/23/2011 12:06

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 L109245 - SW 3050B									
Reference (L109245-SRM1)			Prepared: 09/16/2011 Analyzed: 09/20/2011						
Vanadium	101	5.95	mg/kg wet	98.700		102	75.9-123.6		
Zinc	200	23.8	mg/kg wet	199.00		100	78.4-121.6		

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-073 Project Number: K3681 Project Manager: Joan Kessner	Reported: 09/23/2011 12:06

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 L109242 - SW 3010A										
Blank (L109242-BLK1)				Prepared: 09/16/2011 Analyzed: 09/21/2011						
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 (L109242-BLK2)				Prepared: 09/16/2011 Analyzed: 09/21/2011						
Arsenic	0.0750	U	0.0750	mg/L						
Barium	0.00500	U	0.00500	mg/L						
Cadmium	0.0150	U	0.0150	mg/L						
Chromium	0.0250	U	0.0250	mg/L						
Lead	0.0500	U	0.0500	mg/L						
Selenium	0.100	U	0.100	mg/L						
Silver	0.0300	U	0.0300	mg/L						
LCS (L109242-BS1)				Prepared: 09/16/2011 Analyzed: 09/21/2011						
Arsenic	10.0		0.0150	mg/L	10.000		100	80-120		20
Barium	5.08		0.00100	mg/L	5.0000		102	80-120		20
Cadmium	0.274		0.00300	mg/L	0.25000		110	80-120		20
Chromium	0.496		0.00500	mg/L	0.50000		99.1	80-120		20
Lead	2.44		0.0100	mg/L	2.5000		97.8	80-120		20
Selenium	9.84		0.0200	mg/L	10.000		98.4	80-120		20
Silver	0.488		0.00600	mg/L	0.50000		97.6	80-120		20
Duplicate (L109242-DUP1)		Source: 1109066-01		Prepared: 09/16/2011 Analyzed: 09/21/2011						
Arsenic	0.0750	U	0.0750	mg/L		0.0750 U				20
Barium	0.274		0.00500	mg/L		0.278			1.29	20
Cadmium	1.22		0.0150	mg/L		1.24			1.35	20
Chromium	0.0250	U	0.0250	mg/L		0.00325				20
Lead	0.0172	B	0.0500	mg/L		0.0128			28.8*	20
Selenium	0.100	U	0.100	mg/L		0.100 U				20
Silver	0.0300	U	0.0300	mg/L		0.0300 U				20

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. 2620 Fermi Avenue Richland WA, 99354	Project: RC-073 Project Number: K3681 Project Manager: Joan Kessner	Reported: 09/23/2011 12:06

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 L109242 - SW 3010A										
Matrix Spike (L109242-MS1)			**Source: 1109066-01**		Prepared: 09/16/2011 Analyzed: 09/21/2011					
Arsenic	5.14		0.0750	mg/L	5.0000	0.0750 U	103	50-1000		20
Barium	99.2		0.00500	mg/L	100.00	0.278	98.9	50-1000		20
Cadmium	2.28		0.0150	mg/L	1.0000	1.24	105	50-1000		20
Chromium	4.94		0.0250	mg/L	5.0000	0.00325	98.8	50-1000		20
Lead	4.87		0.0500	mg/L	5.0000	0.0128	97.2	50-1000		20
Selenium	1.02		0.100	mg/L	1.0000	0.100 U	102	50-1000		20
Silver	4.30		0.0300	mg/L	5.0000	0.0300 U	86.0	50-1000		20
Batch L109278 - SW 7470A Prep										
Blank (L109278-BLK1)					Prepared: 09/20/2011 Analyzed: 09/21/2011					
Mercury	0.000200	U	0.000200	mg/L						
Blank (L109278-BLK3)					Prepared: 09/20/2011 Analyzed: 09/21/2011					
Mercury	0.000200	U	0.000200	mg/L						
LCS (L109278-BS1)					Prepared: 09/20/2011 Analyzed: 09/21/2011					
Mercury	0.00492		0.000200	mg/L	0.0050606		97.2	80-120		20
Duplicate (L109278-DUP2)			**Source: 1109066-01**		Prepared: 09/20/2011 Analyzed: 09/21/2011					
Mercury	0.000200	U	0.000200	mg/L		0.000200 U				20
Matrix Spike (L109278-MS2)			**Source: 1109066-01**		Prepared: 09/20/2011 Analyzed: 09/21/2011					
Mercury	0.191		0.0100	mg/L	0.20212	0.000200 U	94.5	50-1000		20

Lionville Laboratory Logbook #: 996

SAMPLE DIGESTION RECORD

Digestion Batch #: L109245
Date/Time Initiated: 9/16/11 1145
Date/Time Completed: 9/16/11 1655
Analyst: [illegible]
Matrix (circle): Soil Water Other
Method (circle one): 3005A 3010A 3050 200.7 (1994)
pH/Turbidity: N/A for Solids.
NOTE: All temperatures are recorded as corrected temperatures

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

Work Order #	Spike Vol (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/Sol/TC	Texture	Color / Appearance	Artifact	Turb
1109058-01		0.61	50		TO	Fine	Brown	Rocks	N/A
L109245-Dg1		0.67	50						
-MS1	0.5	0.63	50						
1109058 02		0.78	50			Fine	Brown	Rocks	
1109066-01		0.56	50			Spongy	yellow	Rocks	
L109245-Dg2		0.59	50						
-MS2	0.5	0.53	50						
1109067-01		0.73	50			Coarse	white	Rocks	
L109245-Dg3		0.63	50						
-MS3	0.5	0.56	50						
1109067.02		0.72	50			Fine	white	Rocks	
1109068-01		0.58	50			Fine	Brown	Rocks	
L109245-Dg4		0.74	50						
MS4	0.5	0.61	50						
1109068.02		0.71	50			coarse	Brown	Rocks	
.03		0.58	50			Coarse	Brown	Rocks	
.04		0.58	50			Fine	Brown	Rocks	
.05		0.55	50			Fine	Brown	Rocks	
L109245-BLK		0.56	50			Coarse	Boiling chips		
SRM1	1	0.63	50			Fine	dark brown sand		

JS 9/16/11

Spiking IDs / Expiration Date:
MS#: 1101064
LCS#: 1101357

Reagent IDs:
HNO_3 H14036
HCl H100377
H_2O_2 H03411
1:1 HNO_3 637-050-04
1:1 HCl

File ID#:

Data Review By/Date: [illegible] 9/19/11

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Page #:

Lionville Laboratory **Logbook #:** 996

SAMPLE DIGESTION RECORD

Digestion Batch #: L109292
Date/Time Initiated: 9/16/11 1240
Date/Time Completed: 9/20/11 1200
Analyst: JJS
Matrix (circle): Soil Water Other
Method (circle one): 3005A 3010A 3050 200.7 (1994)
pH/Turbidity: N/A for Solids.
NOTE: All temperatures are recorded as corrected temperatures

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

Work Order #	Spike Vol (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/Sol/ TC	Texture	Color / Appearance	Artifact	Turb
1109056-01		50	50	<2	TC	N/A	C/C	N/A	N/A
L109252-Rg1		50	50	<2					
MS1	0.5	50	50						
MSD1		50	50				C/C		
BS1	0.5	50	50				C/C		
BLK2		50	50	<2			C/C		

JJS 9/20/11

Spiking IDs / Expiration Date:
MS#: 1100378
1100217
LCS#: 1101010

Reagent IDs:
HNO_3 114036
HCl
H_2O_2
1:1 HNO_3
1:1 HCl 677-051-09

File ID#:
Data Review By/Date: 9/21/11

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+: Associated with L109210.

Page #:

Lionville Laboratory

MERCURY PREPARATION

Logbook # 992

Analyst: [illegible]
Date 9/14/11 - 9/15/11
Start Time/Temp: 1700/93°
End Time/Temp: 1730/94°

Instrument ID: HG3.1
Balance # B28 /NA
Pipette Calibration (Daily) Y

Prep Batch: L109207
Worksheet: HG091501
SOP No. ME-HgCVAA
BLOCK 1 2 (circle one) 3

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	
L109207-BLK1				0.31	50	
SPM1				0.30	50	
1108117-01				0.37	50	
L109207-DUP1				0.34	50	
MS1		0.500	1.0	0.35	50	
1108136-01				0.33	50	
L109207-DUP2				0.34	50	
MS2		0.500	1.0	0.38	50	
1108136-02				0.36	50	
03				0.38	50	
04				0.36	50	
1108137-01				0.39	50	RAD
L109207-DUP3				0.34	50	
MS3		0.500	1.0	0.34	50	
1109004-02				0.38	50	
L109207-DUP4				0.35	50	
MS4		0.500	1.0	0.36	50	
1109017-01				0.36	50	

Standard:	ID	Prep Date/Time
ICAL/MS	RI 1001785B	9/15/11 1415
ICV/CCV/LCS	I.V. 1101256A	

Reviewed By/Date: [illegible] 9/16/11

see book # 9368 for std traceability information

Soil LCS True Value = 129 mg/Kg
Standard # 1100103

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

Lionville Laboratory

MERCURY PREPARATION

Logbook # 992

Analyst: [illegible]
Date 9/14/11 - 9/15/11
Start Time/Temp:
End Time/Temp: [illegible] 165

Instrument ID: HG3, 1
Balance # 629 /NA
Pipette Calibration (Daily) ✓

Prep Batch: L109207
Worksheet: HG091501
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.
L109207-DUP5				0.35	50	
MS5		0.500	1.0	0.38	50	
1109017-02				0.36	50	
03				0.39	50	
04				0.37	50	
1109066-01				0.37	50	
L109207-DUP6				0.36	50	
MS6		0.500	1.0	0.35	50	

[illegible] 9/14/11

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

Reviewed By/Date: [illegible] 9/16/11

see book # 9368 for std traceability information

Soil LCS True Value = [illegible] 165 mg/Kg
Standard # [illegible]

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

Lionville Laboratory

MERCURY PREPARATION

Logbook # 992

Analyst: [illegible]
Date 9/20/11
Start Time/Temp: 1450/93°
End Time/Temp: 1700/95°

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

Prep Batch: L109278
Worksheet: HG092102
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 ug/L		0.0667		33	33	
1.0 ug/L		0.333		33	33	
2.0 ug/L		0.667		33	33	
5.0 ug/L	W.E. MW 9/20/11	~~0~~ 1.667		33	33	
10.0 ug/L		3.333		33	33	
ICV		0.0835	2.5	33	33	
CCV		0.167	5.0	33	33	
ICB/CCB				33	33	
L109278-BLK1				33	33	
BLK2				33	33	L109260
BLK3				33	33	L109210
BS1		0.167	5.0	33	33	
1109006-01		* 0.133		16.5	33	ltd vol on 01
L109278-DUP1	W.E. MW 9/20/11	~~0.167~~	40 (200)	16.5	33	dup on 07
MS1		~~0.333~~	~~40~~	6.7	33	
1109006-02		W.E. - MW 9/20/11		16.5	33	
03				33	33	
04				33	33	
05				33	33	
06				33	33	
07				33	33	
08				33	33	
09				33	33	
10				33	33	
11				33	33	
12				33	33	

Standard:	ID	Prep Date/Time
ICAL/MS	RI 1101356B	9/20/11 1300
ICV/CCV/LCS	I.V. 1101256A	1

Reviewed By/Date: aam 9/22/11

see 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 1101356A (10 µg/ml)

Lionville Laboratory

MERCURY PREPARATION

Logbook # 992

Analyst: MLL
Date 9/20/11
Start Time/Temp: 1418 183
End Time/Temp: 1418

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

Prep Batch: L109278
Worksheet: HG092102
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.
1109086-13				33	33	
14				33	33	
15				33	33	
16				33	33	
1109066-01				33	33	
L109278-DUP 1 2				33	33	
MS 1 2		0.667	200	33	33	
w.e. MM 9/21/11						

MM 9/20/11

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

Reviewed By/Date: CPM 9/22/11

see book # 9386 for std traceability information

Soil LCS True Value = 183 mg/Kg
Standard # 183

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

Lionville Laboratory

TCLP EXTRACTION RECORD
(NON-VOLATILES)

LOGBOOK # 1003

Start Date: 9-15-11 Start Time: 12:30 Analyst: RH SOP: SPI-1311.1	End Date: 9-16-11 End Time: 7:00 Analyst: RH Method: 1311.1	Tumbler Speed: 30 RPM Leachate Batch #: L109210 Leachate Page: 1 of 1 Room Temp. (°C): Start 21 /Finish 21 Acceptance Criteria: 23°C ± 2°

LvL #: L109066-01 Client ID#: JL866 pH After 5 Min: 7.39 pH After Acid/Heat: 1.49 Extraction Fluid/pH: #1 4.91 Sample Wt.(g): 100 Extract Fluid Vol.(mL): 2000 pH After Extraction: ~~5.15~~ 4.89 RH 9/16/11	Initial Filtration Data and Comments: Solids: ____% / NA Initial Filtrate Added:
LvL #: L109210 Client ID#: N/A pH After 5 Min: pH After Acid/Heat: Extraction Fluid/pH: Sample Wt.(g): Extract Fluid Vol.(mL): 500 pH After Extraction: N/A	Initial Filtration Data and Comments: Solids: ____% / NA BLANK 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:
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 RH Initial Filtrate Added:

Standard	ID	Prep Date	Expir Date
MS			

Reviewed By/Date RH 9/21/11

SPI-1311.1-A-0310

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000000020

Lionville Laboratory Use Only

1109066 9.14.11

Custody Transfer Record/Lab Work Request

Page 1 of 1

Lionville Laboratory
A Division of Eberline Analytical Corporation

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client WCHanford SAF# RC-073

Est. Final Proj. Sampling Date

Project#

Project Contact/Phone#

Lionville Laboratory Project Manager Arlette Johnson

QC SW Del STD TAT 7 days

Date Rec'd 9.14.11 Date Due 9-21-11

		A	B
Refrigerator #		1	1
#/Type Container	Liquid		
	Solid	1 gal	1 gal
Volume	Liquid		
	Solid	500	500
Preservatives		—	—

ANALYSES REQUESTED →

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA (8260)	BNA (8270)	Pest/PCB (8082)	Herb	TCLP Semi-Vol (TCLP 8270)			INORG Metal + Hg (Metal①)	CN (cyanide)	TCLP Metals + Hg (TCLP RCRA)	SFD	Ignit. (IGN)
W Water, WW Waste Water, GW Groundwater, WST Waste, WI Wipe, SO Solid, S Soil, SL Sludge, SE Sediment, PC Paint Chips, O Oil, NAL Non-Aqueous Liquid, L Leachate, A Air, T Tissue, F Fish	01	J1L866	✓	✓	SO	9.7.11	0915	X	X	X		X			X	X	X	X	X

Special Instructions:

Met① = HSL + B, Li, Mo (no Tl)

Special Instructions:

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

Relinquished by	Received by	Date	Time
[signature]	[signature]	9.14.11	1000

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL			
REWRITTEN			

000000021

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-073-199	Page 1 of 1 JTD 9/7/11

Collector K Lucas	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH
Price Code 9X JTD 9/7/11 B	Data Turnaround JTD 9/7/11 ~~21~~ 7 Days		
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Other Quick	Sampling Location 118-D-3 (100D-AN-08-004)		SAF No. RC-073
Ice Chest No. WCH-11-019	Field Logbook No. EL-1657	COA R118D32F20	Method of Shipment Fed Ex
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. NA		Bill of Lading/Air Bill No. See ~~BSPC~~ HMSR JTD 9/7/11

000000022

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive/Potentially Combustible
<D.O.T. ARE 9-13-11

Special Handling and/or Storage
Cool JTD 9/13/11

Preservation	Cool 4C	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None
Type of Container	G/P	G	G	G	G	aG	aG	aG	G/P	G/P
No. of Container(s)	1	0	0	0	0	1	0	0	1	0
Volume	500mL	500mL	500mL	500mL	500mL	500mL	500mL	500mL	500mL	500mL

SAMPLE ANALYSIS				See item (1) in Special Instructions.	See item (2) in Special Instructions.	Total Cyanide - 9010; Sulfides - 9030	Ignitability - 1010	VOA - 8260A (TCL)	Semi-VOA - 8270A (TCL)	PCBs - 8082	TCLP Semi-VOA - 1311/8270A	See item (3) in Special Instructions. JTD 9/7/11	Gross Alpha & Gross Beta
Sample No.	Matrix *	Sample Date	Sample Time										
J1L866	OTHER	9/7/11	0915	✓	✓	✓	✓	✓	✓	✓	✓		

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From K Lucas	9-7-11 1120	Received By/Stored In 100D RMA JTD DeBruigne	1120 9/7/11
Relinquished By/Removed From 100D RMA JTD DeBruigne	9/12/11 0910	Received By/Stored In Fed Ex	
Relinquished By/Removed From Fed Ex	9-14-11 1000	Received By/Stored In M. Hall	9-14-11 1000
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS
~~Transship from RCF to Eberline.~~ JTD 9/7/11

(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}
~~(3) Gamma Spec (Client List) {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}~~ JTD 9/7/11

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

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

WCH-EE-011

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford Date: 9-14-11

Project/SAF/SOW/Release #: RC-073

LvL Batch #: 1109065 6 9.14.11 Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7975 1214 6611
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 4.6	°C	Cooler # WCH-11-019
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 _____

000000023

SR-002-B.doc

LIONVILLE LABORATORY
A division of Spectra Analytical Corporation

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

RECEIVED
SEP 2011

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-073 Project Number: K3681 Project Manager: Joan Kessner	**Reported:** 09/22/2011 12:33

Analytical Report for Wet Chemistry

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1L866	1109066-01	Other Solid	09/07/2011 09:15	09/14/2011 10:00

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

Case Narrative

Client: WC-HANFORD RC-073 K3681
LVL#: 1109066 **Date Received:** 09-14-11

INORGANIC NARRATIVE

1. This narrative covers the analyses of 1 solid sample.

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

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

3. Sample holding times as required by the method and/or contract were met with the exception of Total Sulfide.

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

5. The method blanks were within the method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits and method criteria.

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

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

9. Results for solid samples are reported on an "as-received" weight basis.

10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory

9/23/11
Date

njp\i09-066

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 9 pages.

LIONVILLE LABORATORY
A division of Hardline Analytical Corporation

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-073 Project Number: K3681 Project Manager: Joan Kessner	Reported: 09/22/2011 12:33

Notes and Definitions

U	Analyte included in the analysis, but not detected
*	Value outside QC acceptance criteria
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
Dry	Sample results reported on a dry weight basis
Wet	Sample results reported on a wet weight basis
RPD	Relative Percent Difference
LOD	Limit of Detection (LOD): the minimum estimated concentration of a target analyte that can be detected reliably. Concentrations at the LOD or between the LOD and LOQ are flagged estimated with either a 'J' qualifier or client-specific qualifier.
LOQ	Limit of Quantitation (LOQ): the minimum concentration of a target analyte that can be quantified reliably

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Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.	Project: RC-073	
2620 Fermi Avenue	Project Number: K3681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	09/22/2011 12:33

Wet Chemistry
Lionville Laboratory

Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1L866 (1109066-01) Other Solid									
Ignitability	**100**		40	°F	1	L109298	09/20/2011	09/20/201	Pensky-Marten Closed Cup
Cyanide	0.47 U	0.47	0.94	mg/kg wet	1	L109287	09/20/2011	09/20/2011	SW846 9014
Sulfide, total	40.0 U	40.0	100	mg/kg wet	1	L109277	09/19/2011	09/19/2011	SW846 9034

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-073 Project Number: K3681 Project Manager: Joan Kessner	Reported: 09/22/2011 12:33

Wet Chemistry - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L109277 - Default Prep GenChem										
Blank (L109277-BLK1)				Prepared & Analyzed: 09/19/2011						
Sulfide, total	40.0 U	40.0	100	mg/kg wet						
LCS (L109277-BS1)				Prepared & Analyzed: 09/19/2011						
Sulfide, total	231	40.0	100	mg/kg wet	227.63		101	80-120		
LCS (L109277-BS2)				Prepared & Analyzed: 09/19/2011						
Sulfide, total	238	40.0	100	mg/kg wet	227.63		104	80-120		
Duplicate (L109277-DUP1)	Source: 1109066-01			Prepared & Analyzed: 09/19/2011						
Sulfide, total	40.0 U	40.0	100	mg/kg wet		40.0 U				20
Matrix Spike (L109277-MS1)	Source: 1109066-01			Prepared & Analyzed: 09/19/2011						
Sulfide, total	254	40.0	100	mg/kg wet	227.63	40.0 U	112	75-125		
Batch L109287 - SW 9010B										
Blank (L109287-BLK1)				Prepared & Analyzed: 09/20/2011						
Cyanide	0.49 U	0.49	0.97	mg/kg wet						
LCS (L109287-BS1)				Prepared & Analyzed: 09/20/2011						
Cyanide	1.91	0.48	0.97	mg/kg wet	1.9357		98.9	80-120		
LCS (L109287-BS2)				Prepared & Analyzed: 09/20/2011						
Cyanide	9.57	0.49	0.98	mg/kg wet	9.8251		97.4	80-120		
Duplicate (L109287-DUP1)	Source: 1109066-01			Prepared & Analyzed: 09/20/2011						
Cyanide	0.47 U	0.47	0.93	mg/kg wet		0.47 U				20

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

WC-Hanford, Inc.	Project: RC-073	
2620 Fermi Avenue	Project Number: K3681	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/22/2011 12:33

Wet Chemistry - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L109287 - SW 9010B										
Matrix Spike (L109287-MS1)		**Source: 1109066-01**		Prepared & Analyzed: 09/20/2011						
Cyanide	4.24	0.48	0.95	mg/kg wet	4.7556	0.47 U	89.2	75-125		
Batch L109298 - Default Prep GenChem										
LCS (L109298-BS1)				Prepared & Analyzed: 09/20/2011						
Ignitability	82		40	°F	81.000		101	99-101		
Duplicate (L109298-DUP1)		**Source: 1109066-01**		Prepared & Analyzed: 09/20/2011						
Ignitability	102		40	°F		100			1.98	20

Lionville Laboratory Use Only
1109066 9.14.11

Custody Transfer Record/Lab Work Request

Page 1 of 1

Lionville Laboratory
A Division of Eberline Analytical Corporation

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: WCHanford SAF# RC-073
Est. Final Proj. Sampling Date:
Project#:
Project Contact/Phone#:
Lionville Laboratory Project Manager: Arlette Johnson
QC: SW Del: STD TAT: 7 days
Date Rec'd: 9.14.11 Date Due: 9-21-11

		A	B
Refrigerator #		1	1
#/Type Container	Liquid		
	Solid	1 jar	1 jar
Volume	Liquid		
	Solid	500	500
Preservatives		—	—

ANALYSES REQUESTED →

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA	BNA	Pesty PCB	Herb	TCLP SOM/VOA			INORG Metal THg	CN	TCLP Metals + THg	SFD	Ignit.			
								Lionville Laboratory Use Only														
								8260	8270	8082		TCLP 8270			Met①	EPA 170	TCLP RCRA	SFD	IGEN			
W Water, WW Waste Water, GW Groundwater, WST Waste, WI Wipe, SO Solid, S Soil, SL Sludge, SE Sediment, PC Paint Chips, O Oil, NAL Non-Aqueous Liquid, L Leachate, A Air, T Tissue, F Fish	01	J1L866	✓	✓	SO	9.7.11	0915	X	X	X		X			X	X	X	X	X			

Special Instructions:

met① = HSL + B, Li, Mo (no TL)

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

SEE BRC

Relinquished by	Received by	Date	Time
[signature]	[signature]	9.14.11	1000

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL			
REWRITTEN			

000000007

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-073-199	Page 1 of ~~2~~ JTD 9/7/11

Collector K Lucas	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH
Price Code 9K JTD 9/7/11 B	Data Turnaround JTD 9/7/11 ~~21~~ 7 Days		
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Other Quick	Sampling Location 118-D-3 (100D-AN-08-004)		SAF No. RC-073
Ice Chest No. WCH-11-019	Field Logbook No. EL-1657	COA R118D32F20	Method of Shipment Fed Ex
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. NA		Bill of Lading/Air Bill No. See ~~BSPC~~ HMSR JTD 9/12/11

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive/Potentially Combustible

<LOQ.T. ARE 9-13-11

Special Handling and/or Storage

Cool JTD 9/12/11

Preservation	Cool 4C	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None
Type of Container	G/P	G	G	G	G	aG	aG	aG	G/P	G/P
No. of Container(s)	1	0	0	0	0	1	0	0	1	0
Volume	500mL	500mL	500mL	500mL	500mL	500mL	500mL	500mL	500mL	500mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Total Cyanide - 9010; Sulfides - 9030	Ignitability - 1010	VOA - 8260A (TCL)	Semi-VOA - 8270A (TCL)	PCBs - 8082	TCLP Semi-VOA - 1311/8270A	See item (3) in Special Instructions. JTD 9/7/11	Gross Alpha & Gross Beta

Sample No.	Matrix *	Sample Date	Sample Time										
J1L866	OTHER	9/7/11	0915	✓	✓	✓	✓	✓	✓	✓	✓		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
K Lucas Kevin Lucas	9-7-11 1120	100D RMA JTD DeBrigne JTD DeBrigne	1120 9/7/11
JTD DeBrigne JTD DeBrigne (100D RMA)	0910 9/12/11	Fed Ex	
Fed Ex	9.14.11 1000	M.H.	1000 9-14-11

SPECIAL INSTRUCTIONS

~~Tranship from RCF to Eberline.~~ JTD 9/7/11

(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)

~~(3) Gamma Spec (Client List) (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)~~ JTD 9/7/11

Matrix *

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

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

WCH-EE-011

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC Hanford

Project/SAF/SOW/Release #: RC-073

Date: 9-14-11

LvL Batch #: 11090656 9.14.11 Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7975 1214 6611
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 4.6 °C		Cooler # WCH-11-019
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 _____

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SR-003-B.doc

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
2030 Wright Avenue
Richmond, California 94804-3849
Phone (510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
www.eberlineservices.com

September 21, 2011

RECEIVED
SEP 2011

Ms. Joan Kessner
Washington Closure Hanford
2620 Fermi Avenue
MSIN H4-21
Richland, WA 99352

Reference: **P.O. #S00W235A01**
Eberline Analytical S1-09-095-7801, SDG K3681

Dear Ms. Kessner:

Enclosed is the data report for one solid (other solid) sample designated under SAF No. RC-073. The sample was received at Eberline Analytical on September 14, 2011. The sample was analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Joseph Verville
Client Services Manager

NJV/kwp

Enclosure: Data Package

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K3681 was composed of one soil sample designated under SAF No. RC-073 with a Project Designation of: 100-D/DR Burial Grounds & Remaining Sites – Other Quick.

The sample was received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Analytical Sample Receipt Checklist. The results were transmitted to WCH via e-mail on September 21, 2011.

2.0 ANALYSIS NOTES

2.1 Gross Alpha/Beta Analysis

The gross alpha QC recovery was 123%, greater than the upper control limit of 120%. No other problems were encountered during the course of the analyses.

2.2 Gamma Spectroscopy

No problems were encountered during the course of the analyses.

3.0 Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Joseph Verville
Client Services Manager

9/21/11
Date

E B E R L I N E A N A L Y T I C A L - R I C H M O N D
SAMPLE DELIVERY GROUP K3681

SDG	7801
Contact	Joseph Verville

Client	Hanford
Contract	No. S00W235A01
Case no	SDG_K3681

S U M M A R Y D A T A S E C T I O N

T A B L E O F C O N T E N T S

About this section	1
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Prep Batch Summary	5
Work Summary	6
Method Blanks	7
Lab Control Samples	8
Duplicates	9
Data Sheets	10
Method Summaries	11
Report Guides	14
End of Section	28

Prepared by

Reviewed by

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	09/21/11

SDG 7801
Contact Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG_K3681

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/21/11

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3681

SDG 7801
Contact Joseph Verville

LAB SAMPLE SUMMARY

Client Hanford
Contract No. S00W235A01
Case no SDG K3681

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
S109095-01	J1L866	118-D-3 (100D-AN-08-004)	SOLID		RC-073	RC-073-199	09/07/11 09:15
S109095-02	Lab Control Sample		SOLID		RC-073		
S109095-03	Method Blank		SOLID		RC-073		
S109095-04	Duplicate (S109095-01)	118-D-3 (100D-AN-08-004)	SOLID		RC-073		09/07/11 09:15

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 09/21/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3681

SDG 7801
Contact Joseph Verville

QC SUMMARY

Client Hanford
Contract No. S00W235A01
Case no SDG K3681

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7801	RC-073-199	J1L866	SOLID	100.0	520.5 g		09/14/11	7	S109095-01	7801-001
		Method Blank	SOLID						S109095-03	7801-003
		Lab Control Sample	SOLID						S109095-02	7801-002
		Duplicate (S109095-01)	SOLID	100.0	520.5 g		09/14/11	7	S109095-04	7801-004

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 09/21/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3681

SDG 7801
Contact Joseph Verville

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A01
Case no SDG K3681

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Gas Proportional Counting												
93A	SOLID	Gross Alpha in Solids	7311-165	20.6	1			1	1	1/1		
93B	SOLID	Gross Beta in Solids	7311-165	20.6	1			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	7311-165	7.0	1			1	1	1/1		

Duplicates and Spikes are those with original sample in the QC Batch of some Client sample in this SDG.
Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 09/21/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3681

SDG 7801
Contact Joseph Verville

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A01
Case no SDG K3681

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
S109095-01	J1L866			7801-001	93A/93		09/20/11	09/21/11	BW	Gross Alpha in Solids
09/07/11	118-D-3 (100D-AN-08-004)		SOLID	7801-001	93B/93		09/20/11	09/21/11	BW	Gross Beta in Solids
09/14/11	RC-073-199	RC-073		7801-001	GAM		09/16/11	09/19/11	CSS	Gamma Scan
S109095-02	Lab Control Sample			7801-002	93A/93		09/20/11	09/21/11	BW	Gross Alpha in Solids
			SOLID	7801-002	93B/93		09/20/11	09/21/11	BW	Gross Beta in Solids
		RC-073		7801-002	GAM		09/16/11	09/19/11	CSS	Gamma Scan
S109095-03	Method Blank			7801-003	93A/93		09/20/11	09/21/11	BW	Gross Alpha in Solids
			SOLID	7801-003	93B/93		09/20/11	09/21/11	BW	Gross Beta in Solids
		RC-073		7801-003	GAM		09/16/11	09/19/11	CSS	Gamma Scan
S109095-04	Duplicate (S109095-01)			7801-004	93A/93		09/20/11	09/21/11	BW	Gross Alpha in Solids
09/07/11	118-D-3 (100D-AN-08-004)		SOLID	7801-004	93B/93		09/20/11	09/21/11	BW	Gross Beta in Solids
09/14/11		RC-073		7801-004	GAM		09/16/11	09/19/11	CSS	Gamma Scan

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
93A/93	RC-073	Gross Alpha in Solids	900.0_ALPHABETA_GPC	1			1	1	1	4
93B/93	RC-073	Gross Beta in Solids	900.0_ALPHABETA_GPC	1			1	1	1	4
GAM	RC-073	Gamma Scan	GAMMA_GS	1			1	1	1	4
TOTALS				3			3	3	3	12

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 09/21/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3681

7801-003 Method Blank

METHOD BLANK

SDG	7801	Client/Case no	Hanford	SDG K3681	
Contact	Joseph Verville	Contract	No. S00W235A01		
Lab sample id	S109095-03	Client sample id	Method Blank		
Dept sample id	7801-003	Material/Matrix		SOLID	
		SAF No	RC-073		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-0.326	2.0	4.29		U	93A
Gross Beta	12587-47-2	-1.76	3.0	5.34		U	93B
Potassium 40	13966-00-2	U		0.195		U	GAM
Cobalt 60	10198-40-0	U		0.009	0.050	U	GAM
Cesium 134	13967-70-9	U		0.011	0.100	U	GAM
Cesium 137	10045-97-3	U		0.010	0.100	U	GAM
Europium 152	14683-23-9	U		0.028	0.100	U	GAM
Europium 154	15585-10-1	U		0.027	0.100	U	GAM
Europium 155	14391-16-3	U		0.031	0.100	U	GAM
Radium 226	13982-63-3	U		0.021		U	GAM
Radium 228	15262-20-1	U		0.076		U	GAM
Thorium 228	14274-82-9	U		0.018		U	GAM
Thorium 232	TH-232	U		0.076		U	GAM
Uranium 235	15117-96-1	U		0.066		U	GAM
Uranium-238	U-238	U		1.19		U	GAM
Americium 241	14596-10-2	U		0.035	0.300	U	GAM

QC-BLANK #79916

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/21/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3681

7801-002

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7801

Contact Joseph Verville

Client/Case no Hanford SDG K3681

Contract No. S00W235A01

Lab sample id S109095-02

Dept sample id 7801-002

Client sample id Lab Control Sample

Material/Matrix SOLID

SAF No RC-073

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	124	14	3.19			93A	101	4.0	123	56-144	80-120
Gross Beta	78.8	6.8	5.19			93B	86.2	3.4	91	69-131	80-120
Cobalt 60	0.471	0.029	0.013	0.050		GAM	0.468	0.019	101	85-115	80-120
Cesium 137	0.528	0.027	0.017	0.100		GAM	0.496	0.020	106	85-115	80-120

QC-LCS #79915

Lab id EBRLNE

Protocol Hanford1

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 09/21/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3681

7801-004 J1L866

DUPLICATE

SDG	7801			Client/Case no	Hanford SDG K3681
Contact	Joseph Verville			Contract	No. S00W235A01
	DUPLICATE		ORIGINAL		
Lab sample id	S109095-04	Lab sample id	S109095-01	Client sample id	J1L866
Dept sample id	7801-004	Dept sample id	7801-001	Location/Matrix	118-D-3 (100D-AN-08-004) SOLID
		Received	09/14/11	Collected/Weight	09/07/11 09:15 520.5 g
% solids	100.0	% solids	100.0	Custody/SAF No	RC-073-199 RC-073

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	DER σ
Gross Alpha	2.08	1.6	2.41		U	93A	1.48	1.5	2.09	U	-		0.5
Gross Beta	0.900	3.2	5.54		U	93B	2.19	3.0	4.91	U	-		0.6
Potassium 40	6.87	0.18	0.071			GAM	7.28	0.37	0.154		6	17	1.0
Cobalt 60	U		0.011	0.050	U	GAM	U		0.018	U	-		0.7
Cesium 134	U		0.010	0.100	U	GAM	U		0.023	U	-		1.0
Cesium 137	0.071	0.010	0.010	0.100		GAM	0.069	0.018	0.022		3	47	0.2
Europium 152	0.034	0.016	0.023	0.100		GAM	U		0.039	U	14	174	0.2
Europium 154	U		0.024	0.100	U	GAM	U		0.058	U	-		1.1
Europium 155	U		0.032	0.100	U	GAM	0.041	0.026	0.038		25	170	0.4
Radium 226	0.266	0.018	0.016			GAM	0.271	0.034	0.033		2	26	0.2
Radium 228	0.372	0.034	0.032			GAM	0.422	0.083	0.087		13	37	1.0
Thorium 228	0.376	0.014	0.012			GAM	0.345	0.022	0.019		9	18	1.4
Thorium 232	0.372	0.034	0.032			GAM	0.422	0.083	0.087		13	37	1.0
Uranium 235	U		0.072		U	GAM	U		0.089	U	-		0.3
Uranium-238	U		0.854		U	GAM	U		2.11	U	-		1.1
Americium 241	U		0.034	0.300	U	GAM	U		0.023	U	-		0.5

QC-DUP#1 79917

100-D/DR Burial Grounds & Remaining Sites-Other Quick

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	09/21/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3681

7801-001 J1L866

DATA SHEET

SDG	7801	Client/Case no	Hanford SDG_K3681
Contact	Joseph Verville	Contract	No. S00W235A01
Lab sample id	S109095-01	Client sample id	J1L866
Dept sample id	7801-001	Location/Matrix	118-D-3 (100D-AN-08-004) SOLID
Received	09/14/11	Collected/Weight	09/07/11 09:15 520.5 g
% solids	100.0	Custody/SAF No	RC-073-199 RC-073

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	1.48	1.5	2.09		U	93A
Gross Beta	12587-47-2	2.19	3.0	4.91		U	93B
Potassium 40	13966-00-2	7.28	0.37	0.154			GAM
Cobalt 60	10198-40-0	U		0.018	0.050	U	GAM
Cesium 134	13967-70-9	U		0.023	0.100	U	GAM
Cesium 137	10045-97-3	0.069	0.018	0.022	0.100		GAM
Europium 152	14683-23-9	U		0.039	0.100	U	GAM
Europium 154	15585-10-1	U		0.058	0.100	U	GAM
Europium 155	14391-16-3	0.041	0.026	0.038	0.100		GAM
Radium 226	13982-63-3	0.271	0.034	0.033			GAM
Radium 228	15262-20-1	0.422	0.083	0.087			GAM
Thorium 228	14274-82-9	0.345	0.022	0.019			GAM
Thorium 232	TH-232	0.422	0.083	0.087			GAM
Uranium 235	15117-96-1	U		0.089		U	GAM
Uranium-238	U-238	U		2.11		U	GAM
Americium 241	14596-10-2	U		0.023	0.300	U	GAM

100-D/DR Burial Grounds & Remaining Sites-Other Quick

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/21/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3681

Test 93A Matrix SOLID
SDG 7801
Contact Joseph Verville

LAB METHOD SUMMARY

GROSS ALPHA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A01
Contract SDG K3681

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha	
Preparation batch 7311-165						
S109095-01	93		7801-001	J1L866	U	
S109095-02	93		7801-002	Lab Control Sample	HIGH	
S109095-03	93		7801-003	Method Blank	U	
S109095-04	93		7801-004	Duplicate (S109095-01)	-	U
Nominal values and limits from method				RDLs (pCi/g)		

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7311-165			2σ prep error 20.6 % Reference Lab Notebook 7311 pg. 165													
S109095-01	93		J1L866	2.09	0.100			7		100			13	09/20/11	09/20	GRB-109
S109095-02	93		Lab Control Sample	3.19	0.100			62		100				09/20/11	09/20	GRB-111
S109095-03	93		Method Blank	4.29	0.100			62		100				09/20/11	09/20	GRB-112
S109095-04	93		Duplicate (S109095-01)	2.41	0.100			7		100			13	09/20/11	09/20	GRB-216
Nominal values and limits from method					0.100			0-250		100			180			

PROCEDURES	REFERENCE	900.0_ALPHABETA_GPC
	SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 1
	SPP-125	Gross Alpha and Gross Beta in Dissolved Solids, rev 3

AVERAGES ± 2 SD	MDA	3.00	± 1.96
FOR 4 SAMPLES	RESIDUE	34	± 64

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/21/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3681

Test 93B Matrix SOLID
SDG 7801
Contact Joseph Verville

LAB METHOD SUMMARY

GROSS BETA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A01
Contract SDG K3681

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta	
Preparation batch 7311-165						
S109095-01	93		7801-001	J1L866	U	
S109095-02	93		7801-002	Lab Control Sample	ok	
S109095-03	93		7801-003	Method Blank	U	
S109095-04	93		7801-004	Duplicate (S109095-01)	-	U
Nominal values and limits from method				RDLs (pCi/g)		

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7311-165			2σ prep error 20.6 %	Reference Lab Notebook 7311 pg. 165												
S109095-01	93		J1L866	4.91	0.100			7		100			13	09/20/11	09/20	GRB-109
S109095-02	93		Lab Control Sample	5.19	0.100			62		100				09/20/11	09/20	GRB-111
S109095-03	93		Method Blank	5.34	0.100			62		100				09/20/11	09/20	GRB-112
S109095-04	93		Duplicate (S109095-01)	5.54	0.100			7		100			13	09/20/11	09/20	GRB-216
Nominal values and limits from method					0.100			0-250		100			180			

PROCEDURES	REFERENCE	900.0_ALPHABETA_GPC
	SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 1
	SPP-125	Gross Alpha and Gross Beta in Dissolved Solids, rev 3

AVERAGES ± 2 SD FOR 4 SAMPLES				
	MDA	5.24	±	0.531
	RESIDUE	34	±	64

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/21/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3681

Test GAM Matrix SOLID
SDG 7801
Contact Joseph Verville

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. S00W235A01
Contract SDG K3681

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60	Cesium 137
Preparation batch 7311-165						
S109095-01			7801-001	J1L866	U	0.069
S109095-02			7801-002	Lab Control Sample	ok	ok
S109095-03			7801-003	Method Blank	U	U
S109095-04			7801-004	Duplicate (S109095-01)	- U	ok
Nominal values and limits from method				RDLs (pCi/g)	0.050	0.100

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7311-165			2σ prep error 7.0 % Reference Lab Notebook 7311 pg. 165													
S109095-01			J1L866	0.038	520					216			9	09/16/11	09/16	02,01,00
S109095-02			Lab Control Sample	0.013	500					205				09/16/11	09/16	MB,08,00
S109095-03			Method Blank	0.018	500					217				09/16/11	09/16	01,02,00
S109095-04			Duplicate (S109095-01)	0.016	520					768			9	09/16/11	09/16	02,02,00
Nominal values and limits from method				0.050	500					100			180			

PROCEDURES	REFERENCE	GAMMA_GS
	SPP-060	Soil Preparation, rev 0
	SPP-100	Preparation of Sample for Gamma Spectroscopy, rev 0
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 1

AVERAGES ± 2 SD FOR 4 SAMPLES				
	MDA	0.021	±	0.023
	YIELD		±	

Lab id EBRLNE
Protocol Hanford1
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SDG 7801
Contact Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG_K3681

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

* LAB SAMPLE ID is the lab's primary identification for a sample.

* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.

* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.

* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

  QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/21/11

SDG 7801
Contact Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG_K3681

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

* The preparation batches are shown in the same order as the Method Summary Reports are printed.

* Only analyses of planchets relevant to the SDG are included.

* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.

* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

  These qualifiers should be reviewed as follows:

  X Some data has been manually entered or modified. Transcription errors are possible.

  P One or more results are 'preliminary'. The data is not ready for final reporting.

  2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

  Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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SDG 7801
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REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG_K3681

WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.

* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.

* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.

* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.

* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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REPORT GUIDE

Client Hanford
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Case no SDG_K3681

DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.

* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

  The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

* ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.

* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.

* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

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Protocol Hanford1
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DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H Similar to 'L' except the recovery was high.

P The RESULT is 'preliminary'.

X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

* An MDA is underlined if it is bigger than its RDL.

SDG 7801
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GUIDE, cont.

Client Hanford
Contract No. S00W235A01
Case no SDG_K3681

DATA SHEET

* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.

* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.

* When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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Protocol Hanford1
Version Ver 1.0
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SDG	7801
Contact	Joseph Verville

REPORT GUIDE

Client	Hanford
Contract	No. S00W235A01
Case no	SDG_K3681

LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.

* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

  An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The error of RESULT, including that introduced by rounding the result prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits for the recovery.

* The recovery is underlined if it is outside either of these ranges.

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-RG
Version	3.06
Report date	09/21/11

SDG 7801
Contact Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG_K3681

DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.

  If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

  For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

  If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

  This value reported for this limit is at most 999.

* The second limit for the RPD is the larger of:

  1. A fixed percentage specified in the protocol.

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DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

* The RPD is underlined if it is greater than either limit.

* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

  Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

SDG 7801
Contact Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG K3681

MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

  An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The errors of the two RESULTs, including those introduced by rounding them prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits

Lab id EBRLNE
Protocol Hanford1
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GUIDE, cont.

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Case no SDG_K3681

MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/21/11

METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

  There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

  The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

  The J and X flags are as on the data sheet.

* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.

* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.

* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

  MDAs are underlined if greater than the printed RDL.

* Aliquots are underlined if less than the nominal value specified for the method.

* Prepareation factors are underlined if greater than the nominal value specified for the method.

* Dilution factors are underlined if greater than the nominal value specified for the method.

* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.

* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.

* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

METHOD SUMMARY

* Count times are underlined if less than the nominal value specified for the method.

* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.

* Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.

* Days Held are underlined if greater than the holding time specified in the protocol.

* Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1÷3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-073-199	Page 1 of 1

Collector: K Lucas	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 9X JRD 9/13/11 B	Data Turnaround: JRD 9/7/11 21 Days 7		
Project Designation: 100-D/DR Burial Grounds & Remaining Sites - Other Quick	Sampling Location: 118-D-3 (100D-AN-08-004) K3681 (7801)	SAF No.: RC-073	
Ice Chest No.: WCH-11-018	Field Logbook No.: EL-1657	COA: R118D32F20	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES / LIONVILLE RCF JRD 9/13/11	Offsite Property No.: NA	Bill of Lading/Air Bill No.: See ~~OSPC~~ HMSR JRD 9/13/11	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive / Potentially Combustible

<D.O.T. JRE 9-13-11

Special Handling and/or Storage

Cooled for shipping JRD 9/13/11

Preservation	Cool 4C	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None
Type of Container	G/P	G	G	G	G	aG	aG	aG	G/P	G/P
No. of Container(s)	1	0	0	0	0	1	0	0	1	0
Volume	500mL	500mL	500mL	500mL	500mL	500mL	500mL	500mL	500mL	500mL
SAMPLE ANALYSIS	See item (1) in Special Instructions	See item (2) in Special Instructions	Total Cyanide - 9010, Sulfides - 9030	Ignitability - 1010	VOA - 8260A (TCL)	Semi-VOA - 8270A (TCL)	PCBs - 8082	TCLP Semi-VOA - 1311/8270A	See item (3) in Special Instructions	Gross Alpha & Gross Beta

Sample No.	Matrix *	Sample Date	Sample Time									
J1L866	OTHER	9/7/11	0915			9/7/11					✓	✓
					JRD							

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
K Lucas	9-7-11 1120	100D RMA JRDeBruigne	1120 9/7/11
100D RMA JRDeBruigne	0910 9/13/11	Fed EX	
FED EX		M. MATAMANAN	09/14/11 0930

SPECIAL INSTRUCTIONS

Tranship from RCF to Eberline.

(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}

(3) Gamma Spec (Client List) {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Matrix *

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

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

WCH-EE-011

EBERLINE SERVICES

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

7801 - K3681

Client: W.C. HANFORD City RICHLAND State WA

Date/Time received 09/14/11 0930 CoC No. RC-073-199

Container I.D. No. WCH-11-018 Requested TAT (Days) 7 P.O. Received Yes [ ] No [ ]

INSPECTION

1. Custody seals on shipping container intact? Yes [X] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [X] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [X] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [X] No [ ] N/A [ ]
5. Packing material is: Wet [ ] Dry [X]
6. Number of samples in shipping container: 1 Sample Matrix X SOLID
7. Number of containers per sample: 1 (Or see CoC _____)
8. Samples are in correct container Yes [X] No [ ]
9. Paperwork agrees with samples? Yes [X] No [ ]
10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [X] Appropriate sample labels [X]
11. Samples are: In good condition [X] Leaking [ ] Broken Container [ ] Missing [ ]
12. Samples are: Preserved [ ] Not preserved [ ] pH N/A Preservative _____
13. Describe any anomalies:

14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
15. Inspected by [signature] Date: 09/14/11 Time: 1245

Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe	Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	wipe
J1L866	<80						

Ion Chamber Ser. No. _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

Beta/Gamma Meter Ser. No. 100482 Calibration date 24 SEP 10