SAF-RC-148
300 Area D4 Waste Sites – Soil Full Protocol
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 1/24/13
INITIAL/DATE

COMMENTS:

SDG KP0174 SAF-RC-148

Rad only ☑ Chem only Rad & Chem

☑ Complete Partial

Sample Location/Waste Site: 300-15

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

22 January 2013

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

Subject: Analytical Data Package

Dear Ms. Kessner:

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

LvLI Batch #	1301009
SDG #	KP0174
SAF #	RC-148
Date Received	01/04/13
# Samples	1
Matrix	SOIL
Volatiles	
Semivolatiles	
Pest/PCB	X
Glycols	
DRO/KRO/GRO	
PAHs	
Herbicides	
Metals	
Inorganics	

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

Sincerely,

Lionville Laboratory
A Division of Eberline Analytical Corporation

Orlette S. Johnson
Project Manager

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.

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

CHAIN OF CUSTODY

Lionville Laboratory Use Only

1301009

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Lionville Laboratory
A Division of Eberline Analytical Corporation

Client: WC Hanford SAF# RC-148

Est. Final Proj. Sampling Date: KP0174

Project#:

Project Contact/Phone#:

Lionville Laboratory Project Manager: O. Johnson

QC: SW Del: SD TAT: 7Days

Date Rec'd: 1/4/13 Date Due: 1/11/13

		A													
Refrigerator #				2											
#/Type Container	Liquid														
	Solid			1AG											
Volume	Liquid														
	Solid			120											
Preservatives				—											
ANALYSES REQUESTED →		ORGANIC							INORG						
		VOA	BNA	Pest/PCB	Herb				Metal	CN					
		Lionville Laboratory Use Only													
				8082											

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected													
01	J1R7R2	✓	✓	Soil	1-2-13	1200			X										

Special Instructions: MATRIX QC

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

Relinquished by	Received by	Date	Time
[signature]	[signature]	1-4-13	1025

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-148-114	Page 1 of 1

Collector M. Simonds	Company Contact Joan Kessner Telephone No. 509-375-4688	Project Coordinator KESSNER, JH	Price Code 8L/B MAB 1-2-13
Project Designation 300 Area D4 Waste Sites - Soil Full Protocol	Sampling Location 300-15	SAF No. RC-148	Data Turnaround ~~21~~ Days 7 1-2-13
Ice Chest No. WCH-12-021	Field Logbook No. EL-1665 COA R300152000	Method of Shipment Fed Ex	
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A120687	Bill of Lading/Air Bill No. See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

~~Potential~~ Radioactive < DOT Limits
AS 1-2-13

Special Handling and/or Storage

Cool 4C

Preservation	Cool 4C										
Type of Container	aG										
No. of Container(s)	1										
Volume	120mL										
SAMPLE ANALYSIS	PCBs - 8082		RCF	35053							
Sample No. / Matrix * / Sample Date / Sample Time											
J1R7R2 / SOIL / 1/2/13 / 1200	✓										
~~J1R7R3 / SOIL~~	✓								MAB	1/2/13	

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From MIRANDA SIMONDS	Date/Time 1/2/13 1210	Received By/Stored In MABamberger	Date/Time 1-2-13 1210
Relinquished By/Removed From MABamberger	Date/Time 1/2/13 1217	Received By/Stored In Bingham	Date/Time 1-2-13 1217
Relinquished By/Removed From Bingham	Date/Time WCH 1-2-13 1240	Received By/Stored In FEDEX	Date/Time
Relinquished By/Removed From FEDEX	Date/Time 1-4-13 1025	Received By/Stored In VICTOR HERNANDEZ	Date/Time 1-4-13 1025
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

REVIEWED BY AJ
DATE 1-2-13

KP0174

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

0000000004

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC Hanford
Project/SAF/SOW/Release #: RC-148

Date: 1/4/13

LvL Batch #: 1301009

Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 794427535476
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	**Temp** 2.3	°C	Cooler # WCH-12-021
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvL) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX, RSK-175, Sulfides, Non-Halogenated VOAs (Alcohol/Glycol) free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvL Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

SR-002-B-1112.doc

PCBs

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-148 Project Number: KP0174 Project Manager: Joan Kessner	**Reported:** 01/09/2013 20:25

Analytical Report for Polychlorinated Biphenyls by SW846 8082

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1R7R2	1301009-01	Soil	01/02/2013 12:00	01/04/2013 10:25

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

264 Welsh Pool Road
Exton, Pennsylvania 19341
Phone (610) 280-3000
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Case Narrative

Client: WC-HANFORD RC-148 KP0174
LVL #: 1301009

W.O. #: 60049-001-001-0001-00
Received: 01-04-2013

PCBs

One (1) soil sample was collected on 01-02-2013.

The sample and associated QC samples were extracted 01-04-2013 and analyzed 01-07,08-2013 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. All obtainable surrogate recoveries were within acceptance criteria.

4. The method blank was below the reporting limits for all target compounds.

5. All blank spike recoveries were within acceptance criteria.

6. All matrix spike recoveries were within acceptance criteria.

7. The samples were reported on a dry weight basis.

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

9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria. Per SW846 Method 8000B, the attached table lists compounds where the %difference or drift was greater than 15%, and the mean across all compounds was used for evaluation of the continuing calibration. Results associated with these compounds are considered to have greater uncertainty.

10. Patterns for Aroclors 1254 and 1260 were identified in these samples. The reported Aroclors were chosen based on the best pattern match and fit. Quantitation was performed using congeners common to both Aroclors to give the best overall total PCB concentration.

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

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

Iain Daniels
LvL Laboratory Manager

1/11/13
Date

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

8082/A PCBs

Analytes with %Difference or %Drift >15%, Where Mean is Used for Continuing Calibration

Analyte	CCV1 01.07.13 10:54:24 AM		CCV2 01.07.13 4:41:10 PM		CCV3 01.08.13 12:45:38 AM		CCV4 01.08.13 7:29:30 AM		CCV5		CCV6		CCV7		CCV8	
	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary
Tetrachloro-meta-xylene (surrogate)		23.1	17.1	22.8	17.3	20.5	23.1	26.2								
Decachlorobiphenyl (surrogate)																
Aroclor 1016-1								15.6								
Aroclor 1016-2																
Aroclor 1016-3							16.3									
Aroclor 1016-4							16.1									
Aroclor 1016-5																
Aroclor 1260-1																
Aroclor 1260-2																
Aroclor 1260-3																
Aroclor 1260-4																
Aroclor 1260-5																
Mean %D or %Drift	0.9	9.7	6.6	9.2	5.5	4.0	13.4	10.8								

Sample results reported from affected CCV:

CCV1: L301018-BIK1,BS1, L301025-BIK1,BS1, 1301004-04, 10

CCV2: L301030-BIK1, BS1, (1301009-01, 1301013-01,02,03, 1301014-01,02,03,04) 10x

CCV3: 1301014-05,06,07,08,09,10, 11,12 -10x

CCV4:

CCV5:

CCV6:

CCV7:

CCV8:

8082/A PCBs

Analytes with %Difference or %Drift >15%, Where Mean is Used for Continuing Calibration

Analyte	CCV1 01.08.13 9:02:26 AM		CCV2 01.08.13 05:06:29 PM		CCV3 01.09.13 12:30:38 AM		CCV4 01.09.13 4:33:02 AM		CCV5		CCV6		CCV7		CCV8	
	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary
Tetrachloro-meta-xylene (surrogate)	16.8	20.8	22.0	20.3	18.4	15.4										
Decachlorobiphenyl (surrogate)							-15.8	-22.3								
Aroclor 1016-1																
Aroclor 1016-2			18.5		15.9											
Aroclor 1016-3			19.1		15.1											
Aroclor 1016-4			16.3													
Aroclor 1016-5			15.1													
Aroclor 1260-1																
Aroclor 1260-2																
Aroclor 1260-3																
Aroclor 1260-4								-17.6								
Aroclor 1260-5								-19.4								
Mean %D or %Drift																

Sample results reported from affected CCV:

CCV1: 1301014-01, 02, 03, 04, 05, 06, 07, 08, 09

CCV2: 13.01014-10, 11, 12, L301009-01, L301025-MS1, MSD1; 1301009-01, L301025-MS1, MSD1, 1310013-03 S2 01.09.13

CCV3: 1301013-01, 02, L301025-MS2, MSD2

CCV4:

CCV5:

CCV6:

CCV7:

CCV8:

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

WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0174	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	01/09/2013 20:25

J1R7R2
1301009-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	14.6	U	14.6	ug/kg dry	1	L301025	01/04/2013	01/08/2013	8082
Aroclor 1221	14.6	U	14.6	ug/kg dry	1	L301025	01/04/2013	01/08/2013	8082
Aroclor 1232	14.6	U	14.6	ug/kg dry	1	L301025	01/04/2013	01/08/2013	8082
Aroclor 1242	14.6	U	14.6	ug/kg dry	1	L301025	01/04/2013	01/08/2013	8082
Aroclor 1248	14.6	U	14.6	ug/kg dry	1	L301025	01/04/2013	01/08/2013	8082
Aroclor 1254	**24.2**		14.6	ug/kg dry	1	L301025	01/04/2013	01/08/2013	8082
Aroclor 1260	**7.05**	J	14.6	ug/kg dry	1	L301025	01/04/2013	01/08/2013	8082
Aroclor 1262	14.6	U	14.6	ug/kg dry	1	L301025	01/04/2013	01/08/2013	8082
Aroclor 1268	14.6	U	14.6	ug/kg dry	1	L301025	01/04/2013	01/08/2013	8082
Surrogate: Decachlorobiphenyl	*91 %*		*43-144*			*L301025*	*01/04/2013*	*01/08/2013*	*8082*
Surrogate: Tetrachloro-meta-xylene	*99 %*		*52-141*			*L301025*	*01/04/2013*	*01/08/2013*	*8082*

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-148 Project Number: KP0174 Project Manager: Joan Kessner	**Reported:** 01/09/2013 20:25

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 L301025 - SW 3540C										
Blank (L301025-BLK1)				Prepared: 01/04/2013 Analyzed: 01/07/2013						
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	*31.8*			*ug/kg wet*	*33.333*		*96*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*36.0*			*ug/kg wet*	*33.337*		*108*	*52-141*		
LCS (L301025-BS1)				Prepared: 01/04/2013 Analyzed: 01/07/2013						
Aroclor 1016	128		13.3	ug/kg wet	166.67		77	50-138		
Aroclor 1260	149		13.3	ug/kg wet	166.67		89	50-148		
Surrogate: Decachlorobiphenyl	*31.6*			*ug/kg wet*	*33.333*		*95*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*35.4*			*ug/kg wet*	*33.337*		*106*	*52-141*		
Matrix Spike (L301025-MS1)		**Source: 1301009-01**		Prepared: 01/04/2013 Analyzed: 01/08/2013						
Aroclor 1016	163		14.7	ug/kg dry	183.61	14.6 U	89	50-138		
Aroclor 1260	195		14.7	ug/kg dry	183.61	7.05	103	50-148		
Surrogate: Decachlorobiphenyl	*36.9*			*ug/kg dry*	*36.721*		*100*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*41.7*			*ug/kg dry*	*36.725*		*114*	*52-141*		
Matrix Spike Dup (L301025-MSD1)		**Source: 1301009-01**		Prepared: 01/04/2013 Analyzed: 01/08/2013						
Aroclor 1016	161		14.6	ug/kg dry	183.55	14.6 U	88	50-138	1	40
Aroclor 1260	196		14.6	ug/kg dry	183.55	7.05	103	50-148	0.3	40
Surrogate: Decachlorobiphenyl	*38.8*			*ug/kg dry*	*36.709*		*106*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*40.0*			*ug/kg dry*	*36.713*		*109*	*52-141*		

PREPARATION BENCH SHEET

L301025

Lionville Laboratory

Printed: 1/5/2013 11:49:42AM

Matrix: Solid

Prepared using: Extraction - SW 3540C

Surrogate used: 120139

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1301009-01	8082 PCBs	01/04/2013 13:46	30.17	10				250	WC-Hanford, Inc.	
1301013-01	8082 PCBs	01/04/2013 13:46	30.64	10				250	WC-Hanford, Inc.	
1301013-02	8082 PCBs	01/04/2013 13:46	30.68	10				250	WC-Hanford, Inc.	
1301013-03	8082 PCBs	01/04/2013 13:46	30.18	10				250	WC-Hanford, Inc.	
L301025-BLK1	QC	01/04/2013 13:46	30	10				250		
L301025-BS1	QC	01/04/2013 13:46	30	10	1200902		250	250		
L301025-MS1	QC	01/04/2013 13:46	30.02	10	1200902	1301009-01	250	250		
L301025-MS2	QC	01/04/2013 13:46	30.6	10	1200902	1301013-02	250	250		
L301025-MSD1	QC	01/04/2013 13:46	30.03	10	1200902	1301009-01	250	250		
L301025-MSD2	QC	01/04/2013 13:46	30.36	10	1200902	1301013-02	250	250		

S cleaned 01.07.13 SZ
Cu lot # B10X036

Extracts Relinquished By 1/5/13 1200 Date

Extracts Received By 01.07.13 8:45 Date