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 1/14/13
INITIAL/DATE

COMMENTS:

SDG KP0175 SAF-RC-148

Rad only ☑ Chem only Rad & Chem

☑ Complete Partial

Sample Location/Waste Site: 300-32 (333 Bldg) - Loewy Press Pit - Verification

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

10 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 #	1301015
SDG #	KP0175
SAF #	RC-148
Date Received	1/05/13
# Samples	3
Matrix	SOIL
Volatiles	
Semivolatiles	
Pest/PCB	
Glycols	
DRO/KRO/GRO	X
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 14 pages.

CHAIN OF CUSTODY

Lionville Laboratory Use Only
1301015

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 WCHanford SAF# RC-148

Est. Final Proj. Sampling Date

Project#

Project Contact/Phone#

Lionville Laboratory Project Manager O. Johnson

QC SW Del SJL TAT 5 Days

Date Rec'd 1-5-13 Date Due 1-~~12~~ 10-13 05) 1/6/13

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

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	J1R866			Soil	1-3-13	1420
02	J1R867			Soil	1-3-13	1430
03	J1R868			Soil	1-3-13	1440

Special Instructions: Matrix QC

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

Relinquished by	Received by	Date	Time
[signature]	[signature]	1/5/13	0950

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-148-117	Page 1 of 1

Collector ~~M. Simonds~~ SELF, L MAB 1-3-13	Company Contact Joan Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Project Designation 300 Area D4 Waste Sites - Soil Full Protocol	Sampling Location 300-32 [333 Bldg] - Loewy Press Pit - Verification		SAF No. RC-148
Ice Chest No. WCH-11-001	Field Logbook No. EL ~~1663-05~~ 1665 MAB 1-3-13	COA 0300322000 ~~0300322000~~ AJ 1-3-13	Method of Shipment Fed Ex
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A120689		Bill of Lading/Air Bill No. See OSPC

Price Code 8~~L~~ B MAB 1/3/13

Data Turnaround ~~21~~ 7 Days MAB 1-3-13

POSSIBLE SAMPLE HAZARDS/REMARKS

~~Potential~~ Radioactive < DOT Limits AJ 1-3-13

Special Handling and/or Storage

Cool 4C

Preservation	Cool 4C	None									
Type of Container	aG	G/P									
No. of Container(s)	1	1									
Volume	120mL	60g									
SAMPLE ANALYSIS	TPH-Diesel Range - WTPH-D +	RCF GEA Shipping Screen MAB 1-3-13		RCF	31216						

Sample No.	Matrix *	Sample Date	Sample Time									
J1R866	SOIL	1-3-13	1420	✓	✓							
J1R867	SOIL	1-3-13	1430	✓	✓							
J1R868	SOIL	1-3-13	1440	✓	✓							

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] Luke Self	1-3-13/1455	[signature] MA Bamberger	1455 1-3-13
[signature] MA Bamberger	1515 1-3-13	A. Freier [signature]	1515 1-3-13
A. Freier [signature]	1540 1-3-13	[signature]	1060#3 1540
[signature] WCH	1060#3 1-4-13 1045	fed Ex	
Fed Ex	1-5-13 0950	Victor Hernandez	1-5-13 0950

SPECIAL INSTRUCTIONS

KP0175

REVIEWED BY [signature] DATE 1/4/13

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: WCH Hanford

Project/SAF/SOW/Release #: RC-148

Date: 1-5-13

LvL Batch #: 1301015

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FED EX		Airbill # 794449889620
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** 3	°C	Cooler # WCH-11-001
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

DRO/MO

Lionville Laboratory, PADEP Lab ID# 15-00009
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: KP0175	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	01/10/2013 15:27

Analytical Report for Extractable Petroleum Hydrocarbons by SW846 8015

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1R866	1301015-01	Soil	01/03/2013 14:20	01/05/2013 09:50
J1R867	1301015-02	Soil	01/03/2013 14:30	01/05/2013 09:50
J1R868	1301015-03	Soil	01/03/2013 14:40	01/05/2013 09:50

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

Case Narrative

Client: WC-HANFORD RC-148 KP0175
LVL #: 1301015

W.O. #: 60049-001-001-0001-00
Date Received: 01-05-2013

DIESEL RANGE ORGANICS

Three (3) soil samples were collected on 01-03-2013.

The samples and associated QC samples were extracted 01-05-2013 and analyzed 01-06-2013 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 8015B for Diesel Range Organics.

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

1. The results presented in this report are derived from samples 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. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. The samples were reported on a dry weight basis.
10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory manager or a designee as verified by the following signature.

Iain Daniels
LvL Laboratory Manager

1/10/13
Date

r:\group\data\2012\dro\wc hanford\1301015alm_3s.doc

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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.

Lionville Laboratory, PADEP Lab ID# 15-00009
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: KP0175	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	01/10/2013 15:27

Extractable Petroleum Hydrocarbons by SW846 8015

Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
J1R866 (1301015-01) Soil								
Surrogate: p-Terphenyl	*106 %*	*39-129*			*L301029*	*01/05/2013 12:30*	*01/06/2013 17:09*	*8015M*
Diesel Range Organics	1180 J	3610	ug/kg dry	1	L301029	01/05/2013 12:30	01/06/2013 17:09	8015M
Motor Oil	10800 U	10800	ug/kg dry	1	L301029	01/05/2013 12:30	01/06/2013 17:09	8015M
J1R867 (1301015-02) Soil								
Surrogate: p-Terphenyl	*93 %*	*39-129*			*L301029*	*01/05/2013 12:30*	*01/06/2013 20:02*	*8015M*
Diesel Range Organics	3450 U	3450	ug/kg dry	1	L301029	01/05/2013 12:30	01/06/2013 20:02	8015M
Motor Oil	60600	10300	ug/kg dry	1	L301029	01/05/2013 12:30	01/06/2013 20:02	8015M
J1R868 (1301015-03) Soil								
Surrogate: p-Terphenyl	*89 %*	*39-129*			*L301029*	*01/05/2013 12:30*	*01/06/2013 21:00*	*8015M*
Diesel Range Organics	3510 U	3510	ug/kg dry	1	L301029	01/05/2013 12:30	01/06/2013 21:00	8015M
Motor Oil	9540 J	10500	ug/kg dry	1	L301029	01/05/2013 12:30	01/06/2013 21:00	8015M

Lionville Laboratory, PADEP Lab ID# 15-00009
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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0175	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	01/10/2013 15:27

Extractable Petroleum Hydrocarbons by SW846 8015 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L301029 - SW 3540C										
Blank (L301029-BLK1)				Prepared: 01/05/2013 12:30 Analyzed: 01/06/2013 15:14						
Diesel Range Organics	3330	U	3330	ug/kg wet						
Motor Oil	10000	U	10000	ug/kg wet						
Surrogate: p-Terphenyl	*6630*			*ug/kg wet*	*6666.7*		*99*	*39-129*		
LCS (L301029-BS1)				Prepared: 01/05/2013 12:30 Analyzed: 01/06/2013 16:12						
Diesel Range Organics	56800		3330	ug/kg wet	66667		85	42-133		
Surrogate: p-Terphenyl	*6400*			*ug/kg wet*	*6666.7*		*96*	*39-129*		
Matrix Spike (L301029-MS1)		**Source: 1301015-01**		Prepared: 01/05/2013 12:30 Analyzed: 01/06/2013 18:07						
Diesel Range Organics	56800		3540	ug/kg dry	70898	1180	78	42-133		
Surrogate: p-Terphenyl	*6270*			*ug/kg dry*	*7089.8*		*88*	*39-129*		
Matrix Spike Dup (L301029-MSD1)		**Source: 1301015-01**		Prepared: 01/05/2013 12:30 Analyzed: 01/06/2013 19:05						
Diesel Range Organics	55900		3560	ug/kg dry	71293	1180	77	42-133	2	40
Surrogate: p-Terphenyl	*6380*			*ug/kg dry*	*7129.3*		*89*	*39-129*		

PREPARATION BENCH SHEET

L301029

Lionville Laboratory

Printed: 1/10/2013 3:25:22PM

00000012

Matrix: Solid **Prepared using: GC - SW 3540C** **Surrogate used: 1201463**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1301015-01	8015M DRO	01/05/2013 12:30	30.1	1				1000	WC-Hanford, Inc.	
1301015-02	8015M DRO	01/05/2013 12:30	30.92	1				1000	WC-Hanford, Inc.	
1301015-03	8015M DRO	01/05/2013 12:30	30.4	1				1000	WC-Hanford, Inc.	
L301029-BLK1	QC	01/05/2013 12:30	30	1				1000		
L301029-BS1	QC	01/05/2013 12:30	30	1	1201538		1000	1000		
L301029-MS1	QC	01/05/2013 12:30	30.63	1	1201538	1301015-01	1000	1000		
L301029-MSD1	QC	01/05/2013 12:30	30.46	1	1201538	1301015-01	1000	1000		

revision date/time prepared
aem 1/10/13

Extracts Relinquished By Date

Extracts Received By Date

PREPARATION BENCH SHEET

L301029

Lionville Laboratory

Printed: 1/8/2013 9:19:05PM

Matrix: Solid **Prepared using: GC - SW 3540C** **Surrogate used: 1201463**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1301015-01	8015M DRO	01/07/2013 09:57	30.1	1				1000	WC-Hanford, Inc.	
1301015-02	8015M DRO	01/07/2013 09:57	30.92	1				1000	WC-Hanford, Inc.	
1301015-03	8015M DRO	01/07/2013 09:57	30.4	1				1000	WC-Hanford, Inc.	
L301029-BLK1	QC	01/05/2013 12:19	30	1				1000		
L301029-BS1	QC	01/05/2013 12:19	30	1	1201538		1000	1000		
L301029-MS1	QC	01/05/2013 12:19	30.63	1	1201538	1301015-01	1000	1000		
L301029-MSD1	QC	01/05/2013 12:19	30.46	1	1201538	1301015-01	1000	1000		

Extracts Relinquished By Date

Catherine Carey 01/08/13
Extracts Received By Date

Lionville Laboratory

SOIL EXTRACTABLES

Extract Date: 1/5/13 Extraction Batch #: L301029 Logbook # 1189

Analyst: WJ Test: ODRO Method: 3540 Solvent: DCM Hexane

	Batch #	Matrix	Initial Wt/Vol (g/mL)	Surr/ Spike Mult		Final Vol (ml)
1	1301015-001	S	30.10	1		1
2	001-S		30.63	1	1	1
3	001-T		30.46	1	1	1
4	002		30.92	1		1
5	003		30.4	1		1
6	BK		30.0	1		1
7	BS		30.0	1	1	1
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						

DCM Solvent Lot: 1300006

Acetone Solvent Lot: ~~13~~ 1/6/13 WJ

Hexane Solvent Lot: 1300007

Ether Solvent Lot: —

Sodium Sulfate Lot: 1201685

Acid Lot: —

Diatomaceous Earth Lot: —

Other: SAND

Extraction Information (Date/Initials)

Start time: 1/5/13 1230 WJ

End time: 1/6/13 08:15 WJ

Filtration: 1/6/13 WJ

Temp/Date/Initials

Boildown: 1/6/13 WJ 85°C

Boildown Exch: 1/6/13 WJ 98°C

Blowdown: 1/6/13 35

Derivatization (herb only): —

Acid/Florisil Cleanup: (circle)

Florisil Lot #: —

Florisil Lab ID #: —

Prep Sheet: 1/6/13 WJ

Balance #: B-23

Balance Cal Check Y/NA (circle)

Spiked by: WJ

Surrogate: 1.0 ml ODRO Surr 1201463 8999002

Spike: 1.0 ml Diesel Spike 1201538 86928403

Witness:

Pipette ID: Hamilton Syringe

Pipette ID: 1

This Page Reviewed By/Date:

SPO-SOIL-1112

Page # A

000000014