SAF-RC-190
100N Field Remediation – Soil In-Process
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 1/16/13
INITIAL/DATE

COMMENTS:

SDG K4039 SAF-RC-190

Rad only ☑ Chem only Rad & Chem

☑ Complete Partial

Sample Location: UPR-100-N-24 South Slope

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

11 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 #	1212044
SDG #	K4039
SAF #	RC-190
Date Received	12/12/12
# 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 15 pages.

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

CHAIN OF CUSTODY

Lionville Laboratory Use Only

1212044

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-190

Est. Final Proj. Sampling Date:

Project#:

Project Contact/Phone#:

Lionville Laboratory Project Manager: O. Johnson

QC: SW Del: SW TAT: 15 Days

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

Refrigerator #							A									
#/Type Container	Liquid						2									
	Solid						1AG									
Volume	Liquid															
	Solid						60									
Preservatives							—									
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb		WTPH-D		Metal	CN						
		Lionville Laboratory Use Only														
							SOIL DRYING									

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	J1R6V4			Soil	12-6-12	1002						X									
02	J1R6V5			Soil	12-6-12	0959						X									
03	J1R6V6			Soil	12-6-12	0957						X									

Special Instructions: MATRIX QC

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

Relinquished by	Received by	Date	Time
Fed Ex	V. Hernandez	12/12/12	0950

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-190-122	Page 1 of 1

Collector Q. Stowe	**Company Contact** Joan Kessner **Telephone No.** 375-4688	**Project Coordinator** KESSNER, JH	**Price Code** ~~8L~~ 8K 12/6/12 **Data Turnaround** ~~21~~ Days 15 12/6/12
Project Designation 100N Field Remediation - Soil In-Process	**Sampling Location** UPR-100-N-24 South Slope	**SAF No.** RC-190	
Ice Chest No. ~~WCH-12-017~~ WCH-11-009 12-10-12 CMB	**Field Logbook No.** EL-1652-07 **COA** RUP1202000	**Method of Shipment** FedEx ~~Hand Deliver~~ 12/6/12	
Shipped To ~~EBERLINE SERVICES~~ LIONVILLE 12/6/12	**Offsite Property No.** A120682	**Bill of Lading/Air Bill No.** See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

~~Potential Rad~~ < Dot limits 12-10-12 CMB

Special Handling and/or Storage

Cool 4C

Preservation	Cool 4C										
Type of Container	G										
No. of Container(s)	1										
Volume	60mL										
SAMPLE ANALYSIS	TPH-Diesel Range - WTPH-D +	RCF									
Sample No. / Matrix * / Sample Date / Sample Time											
J1R6V4 / SOIL / 12-6-12 / 1002	X										
J1R6V5 / SOIL / 12-6-12 / 0959	X										
J1R6V6 / SOIL / 12-6-12 / 0957	X	35059									

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS
Relinquished By/Removed From: Quincy Stowe — Date/Time 1057 12-6-12	Received By/Stored In: Dennis Newman — Date/Time 12/6/12 1057	
Relinquished By/Removed From: Dennis Newman — Date/Time 1345 12/6/12	Received By/Stored In: A. Freier — Date/Time 1060#3 1345 12-6-12	
Relinquished By/Removed From: A. Freier — Date/Time WCH 1060#3 12-10-12 1010	Received By/Stored In: Fed Ex — Date/Time	
Relinquished By/Removed From: Fed Ex — Date/Time 12-12-12 0950	Received By/Stored In: Victor Hernandez — Date/Time 12-12-12 0950	
Relinquished By/Removed From — Date/Time	Received By/Stored In — Date/Time	
Relinquished By/Removed From — Date/Time	Received By/Stored In — Date/Time	

REVIEWED BY CMB DATE 12-10-12

Matrix *
S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
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

000000004

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC Hanford
Project/SAF/SOW/Release #: RC-190

Date: 12/12/12

LvL Batch #: 1212044

Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7942 6151 9756
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	**Temp** 2.2 °C		Cooler # WCH-1-009
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvL) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvL Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted_____ Date_____

SR-002-B-0412.doc

DRO/MO

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-190	
2620 Fermi Avenue	Project Number: K4039	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	01/11/2013 13:27

Analytical Report for Extractable Petroleum Hydrocarbons by SW846 8015

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1R6V4	1212044-01	Soil	12/06/2012 10:02	12/12/2012 09:50
J1R6V5	1212044-02	Soil	12/06/2012 09:59	12/12/2012 09:50
J1R6V6	1212044-03	Soil	12/06/2012 09:57	12/12/2012 09:50

LIONVILLE LABORATORY
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Case Narrative

Client: WC-HANFORD RC-190 K4039
LVL #: 1212044

W.O. #: 60049-001-001-0001-00
Date Received: 12-12-2012

DIESEL RANGE ORGANICS

Three (3) soil samples were collected on 12-06-2012.

The samples and associated QC samples were extracted 12-15-2012 and analyzed 12-18,19-2012 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

1/11/13
Date

r:\group\data\2012\dro\wc hanford\templateoj_s2dry.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.

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WC-Hanford, Inc.	Project: RC-190	
2620 Fermi Avenue	Project Number: K4039	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	01/11/2013 13:27

J1R6V4
1212044-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Extractable Petroleum Hydrocarbons by SW846 8015									
Diesel Range Organics	3470	U	3470	ug/kg dry	1	L212135	12/15/2012	12/18/2012	8015M
Motor Oil	10400	U	10400	ug/kg dry	1	L212135	12/15/2012	12/18/2012	8015M
Surrogate: p-Terphenyl	*92 %*		*39-129*			*L212135*	*12/15/2012*	*12/18/2012*	*8015M*

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WC-Hanford, Inc.	Project: RC-190	
2620 Fermi Avenue	Project Number: K4039	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	01/11/2013 13:27

J1R6V5
1212044-02 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Extractable Petroleum Hydrocarbons by SW846 8015									
Diesel Range Organics	3680	U	3680	ug/kg dry	1	L212135	12/15/2012	12/19/2012	8015M
Motor Oil	11000	U	11000	ug/kg dry	1	L212135	12/15/2012	12/19/2012	8015M
Surrogate: p-Terphenyl	*106 %*		*39-129*			*L212135*	*12/15/2012*	*12/19/2012*	*8015M*

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WC-Hanford, Inc.	Project: RC-190	
2620 Fermi Avenue	Project Number: K4039	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	01/11/2013 13:27

J1R6V6
1212044-03 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Extractable Petroleum Hydrocarbons by SW846 8015									
Diesel Range Organics	3460	U	3460	ug/kg dry	1	L212135	12/15/2012	12/19/2012	8015M
Motor Oil	10400	U	10400	ug/kg dry	1	L212135	12/15/2012	12/19/2012	8015M
Surrogate: p-Terphenyl	*75 %*		*39-129*			*L212135*	*12/15/2012*	*12/19/2012*	*8015M*

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WC-Hanford, Inc.	Project: RC-190	
2620 Fermi Avenue	Project Number: K4039	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	01/11/2013 13:27

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 L212135 - SW 3540C										
Blank (L212135-BLK1)				Prepared: 12/15/2012 Analyzed: 12/18/2012						
Diesel Range Organics	3330	U	3330	ug/kg wet						
Motor Oil	10000	U	10000	ug/kg wet						
Surrogate: p-Terphenyl	*6420*			*ug/kg wet*	*6666.7*		*96*	*39-129*		
LCS (L212135-BS1)				Prepared: 12/15/2012 Analyzed: 12/18/2012						
Diesel Range Organics	51300		3330	ug/kg wet	66667		77	42-133		
Surrogate: p-Terphenyl	*5820*			*ug/kg wet*	*6666.7*		*87*	*39-129*		
Matrix Spike (L212135-MS1)		**Source: 1212044-01**		Prepared: 12/15/2012 Analyzed: 12/18/2012						
Diesel Range Organics	51600		3540	ug/kg dry	70747	3470 U	73	42-133		
Surrogate: p-Terphenyl	*5820*			*ug/kg dry*	*7074.7*		*82*	*39-129*		
Matrix Spike Dup (L212135-MSD1)		**Source: 1212044-01**		Prepared: 12/15/2012 Analyzed: 12/19/2012						
Diesel Range Organics	52600		3670	ug/kg dry	73312	3470 U	72	42-133	2	40
Surrogate: p-Terphenyl	*5730*			*ug/kg dry*	*7331.2*		*78*	*39-129*		

PREPARATION BENCH SHEET

L212135

Lionville Laboratory

Printed: 1/11/2013 1:26:40PM

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
1212044-01	8015M DRO	12/15/2012 11:51	30.56	1				1000	WC-Hanford, Inc.	
1212044-02	8015M DRO	12/15/2012 11:51	30.03	1				1000	WC-Hanford, Inc.	
1212044-03	8015M DRO	12/15/2012 11:51	30.83	1				1000	WC-Hanford, Inc.	
1212047-01	8015M DRO	12/15/2012 11:51	30.13	1				1000	WC-Hanford, Inc.	
1212047-02	8015M DRO	12/15/2012 11:51	31.46	1				1000	WC-Hanford, Inc.	
1212047-03	8015M DRO	12/15/2012 11:51	15.5	1				1000	WC-Hanford, Inc.	
1212048-01	8015M DRO	12/15/2012 11:51	30.35	1				1000	WC-Hanford, Inc.	
L212135-BLK1	QC	12/15/2012 11:51	30	1				1000		
L212135-BS1	QC	12/15/2012 11:51	30	1	1201538		1000	1000		
L212135-MS1	QC	12/15/2012 11:51	30.01	1	1201538	1212044-01	1000	1000		
L212135-MS2	QC	12/15/2012 11:51	31.24	1	1201538	1212047-02	1000	1000		
L212135-MS3	QC	12/15/2012 11:51	30.75	1	1201538	1212048-01	1000	1000		
L212135-MSD1	QC	12/15/2012 11:51	28.96	1	1201538	1212044-01	1000	1000		
L212135-MSD2	QC	12/15/2012 11:51	30.13	1	1201538	1212047-02	1000	1000		
L212135-MSD3	QC	12/15/2012 11:51	30.01	1	1201538	1212048-01	1000	1000		

revision for prep method Rec. 1/11/13

Extracts Relinquished By Date Extracts Received By Date

PREPARATION BENCH SHEET

L212135

Lionville Laboratory

Printed: 12/16/2012 5:56:01PM

000000015

Matrix: Solid **Prepared using: GC - SW 3540/3550** **Surrogate used: 1201463**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1212044-01	8015M DRO	12/15/2012 11:51	30.56	1				1000	WC-Hanford, Inc.	
1212044-02	8015M DRO	12/15/2012 11:51	30.03	1				1000	WC-Hanford, Inc.	
1212044-03	8015M DRO	12/15/2012 11:51	30.83	1				1000	WC-Hanford, Inc.	
1212047-01	8015M DRO	12/15/2012 11:51	30.13	1				1000	WC-Hanford, Inc.	
1212047-02	8015M DRO	12/15/2012 11:51	31.46	1				1000	WC-Hanford, Inc.	
1212047-03	8015M DRO	12/15/2012 11:51	15.5	1				1000	WC-Hanford, Inc.	
1212048-01	8015M DRO	12/15/2012 11:51	30.35	1				1000	WC-Hanford, Inc.	
L212135-BLK1	QC	12/15/2012 11:51	30	1				1000		
L212135-BS1	QC	12/15/2012 11:51	30	1	1201538		1000	1000		
L212135-MS1	QC	12/15/2012 11:51	30.01	1	1201538	1212044-01	1000	1000		
L212135-MS2	QC	12/15/2012 11:51	31.24	1	1201538	1212047-02	1000	1000		
L212135-MS3	QC	12/15/2012 11:51	30.75	1	1201538	1212048-01	1000	1000		
L212135-MSD1	QC	12/15/2012 11:51	28.96	1	1201538	1212044-01	1000	1000		
L212135-MSD2	QC	12/15/2012 11:51	30.13	1	1201538	1212047-02	1000	1000		
L212135-MSD3	QC	12/15/2012 11:51	30.01	1	1201538	1212048-01	1000	1000		

12/14/12 1756 Catherine Carey 12/16/12

Extracts Relinquished By / Date — Extracts Received By / Date