

SAF-RC-074
100-D/DR Burial Grounds & Remaining
Sites – Soil In-Process
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt

H4-21

KW 10/13/14
INITIAL/DATE

COMMENTS:

SDG XP0139

SAF RC-074

Rad only

Chem only

Rad & Chem

Complete

Partial

**Waste Site: 100-D-75:1, 151-D, Primary Electrical
substation**



October 07, 2014

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

Re: RC-074 Soil
Work Order: 357549
SDG: XP0139

Dear Joan Kessner:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on September 26, 2014. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1616.

Sincerely,

Orlette Johnson
Project Manager

Purchase Order: 1510
Chain of Custody: RC-074-679 and RC-074-680
Enclosures



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Case Narrative

**Receipt Narrative
for
WC-HANFORD, INC.
SDG: XP0139
Work Order: 357549**

October 07, 2014

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary:

Sample receipt: The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on September 26, 2014 for analysis.

Sample Identification: The laboratory received the following samples:

<u>Laboratory ID</u>	<u>Client ID</u>
357549001	J1V0F5
357549002	J1V0F6
357549003	J1V0F7
357549004	J1V0F8
357549005	J1V0F9
357549006	J1V0H0
357549007	J1V0H1
357549008	J1V0H2
357549009	J1V0H3
357549010	J1V0H4

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Diesel Range Organics and GC Semivolatile PCB.



Orlette Johnson
Project Manager

Chain of Custody and Supporting Documentation

RC-074-680

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Washington Closure Hanford

Project Coordinator KESSENER, JH	Telephone No. 375-4688	Company Contact Joan Kessner
SAF No. RC-074	Sampling Location 100-D-75-1, 151-D, primary electrical substation	Field Logbook No. EL-1662-03
Method of Shipment Commercial Carrier	COA 01D7512600	Offsite Property No. A131253
Bill of Lading/Air Bill No. See OSLC		

Price Code 8A 3 days	Data Turnaround
-------------------------	-----------------

Sample No.	Matrix	Sample Date	Sample Time	Preservation	Cool 4C	Cool 4C	TPH-Diesel Range - WTPH-D +
11V0H0	SOIL	09/29/14	0944			X	
11V0H1	SOIL	09/29/14	0950	aG	G	X	
11V0H2	SOIL	09/29/14	0953			X	
11V0H3	SOIL	09/29/14	0956			X	
11V0H4	SOIL	09/29/14	1003			X	

Special Handling and/or Storage
Cool 4C

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage
Cool 4C

Other Labs Shipped To
GEL Laboratories Charleston

SHIP TO: 1005 Mt
P. Bond Patricia Dent 9/26/14 050

SPECIAL INSTRUCTIONS

PCBs - 8082

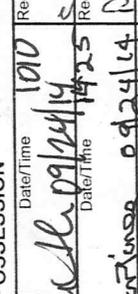
1005 Mt
P. Bond Patricia Dent 9/26/14 050

Disposal Method

Chain of Possession	Sign/Print Names	Date/Time
Relinquished By/Removed From Katherine Weber	Received By/Stored In S. Sexton	1010 09/24/14
Relinquished By/Removed From Katherine Weber	Received By/Stored In Dushea DUBITEA	1425 9/24/14
Relinquished By/Removed From Dushea DUBITEA	Received By/Stored In SM Sexton	1620 9/24/14
Relinquished By/Removed From SM Sexton	Received By/Stored In 1060 Battelle Fridge 1A	1622 9/24/14
Relinquished By/Removed From 1060 Battelle Fridge 1A	Received By/Stored In SM Sexton	0807 9/25/14
Relinquished By/Removed From SM Sexton	Received By/Stored In FED EX	0810 9/25/14
Relinquished By/Removed From FED EX	Received By/Stored In P. Bond Patricia Dent	1005 Mt 9/26/14 050

Disposal Method

Disposal Method



XP0139

WCH-EE-011

SAMPLE RECEIPT & REVIEW FORM

Client: <u>W&H</u>		SDG/AR/COC/Work Order: <u>357549</u>	
Received By: <u>P. Hunt</u>		Date Received: <u>9/26/14</u>	
Suspected Hazard Information		Yes	No
COC/Samples marked as radioactive?			<input checked="" type="checkbox"/>
Classified Radioactive II or III by RSO?			<input checked="" type="checkbox"/>
COC/Samples marked containing PCBs?			<input checked="" type="checkbox"/>
Package, COC, and/or Samples marked as beryllium or asbestos containing?			<input checked="" type="checkbox"/>
Shipped as a DOT Hazardous?			<input checked="" type="checkbox"/>
Samples identified as Foreign Soil?			<input checked="" type="checkbox"/>

*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.

Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 01cpm

If yes, Were swipes taken of sample containers < action levels?

If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.

Hazard Class Shipped: UN#:

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>			Preservation Method: <u>Ice bags</u> Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius
2a Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): <u>130462966</u>
3 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
4 Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5 Samples requiring chemical preservation at proper pH?		<input checked="" type="checkbox"/>		Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6 VOA vials free of headspace (defined as < 6mm bubble)?		<input checked="" type="checkbox"/>		Sample ID's and containers affected:
7 Are Encore containers present?			<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
8 Samples received within holding time?	<input checked="" type="checkbox"/>			ID's and tests affected:
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected:
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected:
12 Are sample containers identifiable as GEL provided?			<input checked="" type="checkbox"/>	
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			
14 Carrier and tracking number.				Circle Applicable: FedEx Air <u> </u> FedEx Ground UPS Field Services Courier Other <u>7712 8498 6846</u>

Comments (Use Continuation Form if needed):

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Washington Closure Hanford
 Collector: *A. Vardas*
 Project Designation: 100-D/DR Field Remediation
 Ice Chest No.: *RCC-07-008*
 Shipped To: **GEL Laboratories Charlston**
 Other Labs Shipped To: *N/A*

Company Contact: **Joan Kessner**
 Telephone No.: **375-4688**
 Project Coordinator: **KESSNER, JH**
 Project No.: **RC-074**
 Price Code: **RC-074-680**
 Data Turnaround: **8A 3 days**

Sampling Location: **100-D-75.1, 151-D, primary electrical substation**
 Field Logbook No.: **COA 01D7512600**
 Method of Shipment: **Commercial Carrier**
 Bill of Lading/Air Bill No.: **500 OSRC**

Offsite Property No.: **A131253**

Sample No.	Matrix	Sample Date	Sample Time	Preservation	Volume	No. of Container(s)	Type of Container	TPH-Diesel Range - WTPHD +
J1V0H0	SOIL	09/24/14	0944	Cool 4C	125mL	1	aG	X
J1V0H1	SOIL	09/24/14	0950	Cool 4C	125mL	1	G	X
J1V0H2	SOIL	09/24/14	0953	Cool 4C	125mL	1	G	X
J1V0H3	SOIL	09/24/14	0958	Cool 4C	125mL	1	G	X
J1V0H4	SOIL	09/24/14	1003	Cool 4C	125mL	1	G	X

POSSIBLE SAMPLE HAZARDS/REMARKS
V/A

Special Handling and/or Storage
Cool 4C

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
<i>Joan Kessner</i>	09/24/14 1010	<i>Patricia Dent</i>	09/24/14 1425
<i>Joan Kessner</i>	09/24/14 1425	<i>SM Sexton</i>	09/24/14 1620
<i>SM Sexton</i>	09/24/14 1620	<i>1060 Battelle Fridge 1A</i>	09/24/14 1652
<i>SM Sexton</i>	09/24/14 1652	<i>SM Sexton</i>	09/25/14 0807
<i>SM Sexton</i>	09/25/14 0807	<i>F&D Ex</i>	09/25/14 1005

FINAL SAMPLE DISPOSITION

Disposal Method: **F&D X**
 Disposed By: **P. Dent**
 Date/Time: **09/24/14 1005**



XP0139

SAMPLE RECEIPT & REVIEW FORM

Client: <u>W&H</u>		SDG/AR/COC/Work Order: <u>357549</u>
Received By: <u>P. Nient</u>		Date Received: <u>9/06/14</u>
Suspected Hazard Information	Yes	No
COC/Samples marked as radioactive?		<input checked="" type="checkbox"/>
Classified Radioactive II or III by RSO?		<input checked="" type="checkbox"/>
COC/Samples marked containing PCBs?		<input checked="" type="checkbox"/>
Package, COC, and/or Samples marked as beryllium or asbestos containing?		<input checked="" type="checkbox"/>
Shipped as a DOT Hazardous?		<input checked="" type="checkbox"/>
Samples identified as Foreign Soil?		<input checked="" type="checkbox"/>

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>			Preservation Method: <u>Ice bags</u> Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius
2a Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): <u>130462906</u>
3 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
4 Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5 Samples requiring chemical preservation at proper pH?		<input checked="" type="checkbox"/>		Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6 VOA vials free of headspace (defined as < 6mm bubble)?		<input checked="" type="checkbox"/>		Sample ID's and containers affected:
7 Are Encore containers present?			<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
8 Samples received within holding time?	<input checked="" type="checkbox"/>			ID's and tests affected:
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected:
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected:
12 Are sample containers identifiable as GEL provided?			<input checked="" type="checkbox"/>	
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			
14 Carrier and tracking number.				Circle Applicable: FedEx Air <u> </u> FedEx Ground UPS Field Services Courier Other <u>7712 8498 6846</u>

Comments (Use Continuation Form if needed):

Laboratory Certifications

List of current GEL Certifications as of 07 October 2014

State	Certification
Alaska	UST-110
Arkansas	88-0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC000122013-10
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-12-00283, P330-12-00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC000122013-10
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA130005
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC000122013-10
Nebraska	NE-OS-26-13
Nevada	SC000122014-1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68-00485
Plant Material Permit	PDEP-12-00260
South Carolina Chemistry	10120001
South Carolina GVL	23611001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235-14-9
Utah NELAP	SC000122014-14
Vermont	VT87156
Virginia NELAP	460202
Washington	C780-12
Wisconsin	999887790

FID Diesel Range Organics Analysis

Case Narrative

**FID Diesel Range Organics
WC-HANFORD, INC. (WCHN)
SDG XP0139**

Method/Analysis Information

Procedure: Analysis of Diesel Range Organics by Flame Ionization Detector

Analytical Method: NWTPH-Dx in Soil

Prep Method: SW846 3541

Analytical Batch Number: 1423480

Prep Batch Number: 1423478

Sample Analysis

The following samples were analyzed using the analytical protocol as established in NWTPH-Dx in Soil:

Sample ID	Client ID
357549001	J1V0F5
357549002	J1V0F6
357549003	J1V0F7
357549004	J1V0F8
357549005	J1V0F9
357549006	J1V0H0
357549007	J1V0H1
357549008	J1V0H2
357549009	J1V0H3
357549010	J1V0H4
1203178123	MB for batch 1423478
1203178124	Laboratory Control Sample (LCS)
1203178367	357549003(J1V0F7) Matrix Spike (MS)
1203178368	357549003(J1V0F7) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on a "dry weight" basis.

Preparation/Analytical Method Verification

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-003 REV# 24.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP).

Calibration Information

Initial Calibration

All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification (CCV) Requirements

All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria. Analyte peaks eluted within the established retention time windows for this method.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries

Sample 357549006 (J1V0H0) did not meet surrogate recovery acceptance criteria due to dilution.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

QC Sample Designation

Sample 357549003 (J1V0F7) was selected for the matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement

The MS recovery was within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement

The MSD recovered slightly below the acceptance limits possibly due to sample matrix interference.

MS/MSD Relative Percent Difference (RPD) Statement

The RPD between the MS and MSD met the acceptance limits.

Technical Information

Holding Time Specifications

GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP. Analyte peaks eluted within the established retention time windows for this method.

Sample Dilutions

Sample 357549006 (J1V0H0) was diluted due to the presence of over-range target analytes.

Sample Re-extraction/Re-analysis

Samples 357549001 (J1V0F5), 357549002 (J1V0F6), 357549003 (J1V0F7), 357549004 (J1V0F8), 357549005 (J1V0F9), 357549006 (J1V0H0), 357549007 (J1V0H1), 357549008 (J1V0H2) and 357549009 (J1V0H3) were extracted and analyzed twice due to low LCS in this first analysis. The second analysis was reported.

Miscellaneous Information

Electronic Package Comment

This package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative.

Data Exception (DER) Documentation

Data exception report (DER) is generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. DER #1340415 was generated for this SDG in this batch.

Manual Integrations

Certain standards and samples may have required manual integration to correctly position the baseline as set in the calibration standard injections. If manual integration was performed, copies of all manual integration peak profiles are included in the raw data section of this fraction.

Additional Comments

The additional comments field is used to address special issues associated with each analysis, clarify method/contractual issues pertaining to the analysis, and to list any report documents generated as a result of sample analysis or review. The additional comments were not required.

System Configuration

The Diesel Range Organics analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
FID7.I	Agilent Gas Chromatograph	Agilent 6890N GC/FID	DB-5MS	30m x 0.25mm, 0.25um(J&W)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

DATA EXCEPTION REPORT

Mo.Day Yr. 06-OCT-14	Division: Federal	Quality Criteria: Specifications	Type: Process
Instrument Type: GC/FID	Test / Method: NWTPH-Dx in Soil, SW846 3541/8015B	Matrix Type: Solid	Client Code: DMAX, WCHN
Batch ID: 1423480	Sample Numbers: See Below		

Potentially affected work order(s)(SDG): 357156,357439(XP0137),357443(XP0138),357549(XP0139),357712(XP0140)

Application Issues:

- Failed Recovery for MS/PS
- Failed RPD for MS/MSD, or PS/PSD
- Failed Yield for Surrogates
- Failed Recovery for MSD/PSD

**Specification and Requirements
Exception Description:**

1. Samples 357156002 and 357549006 did not meet surrogate recovery acceptance criteria.
2. Multiple MS/MSD pairs recovered analytes below their established acceptance limits.
3. MS(1203178363)/MSD(1203178364) pair RPD value exceeded its established acceptance limits for multiple analytes.

DER Disposition:

1. Samples 357156002 and 357549006 were diluted 1:200 due to overrange target analyte. As a result, the surrogates were diluted out of their acceptance limit. Data were reported.
2. As the MS and MSD displayed similar recoveries, the failures were attributed to sample matrix interference and the data have been reported.
3. The MS/MSD pair had poor recoveries for the analytes. The results are reported.

Originator's Name:

Benjamin Taft 06-OCT-14

Data Validator/Group Leader:

Jimin Cao 09-OCT-14

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report for

WCHN001 WC-HANFORD, INC.

Client SDG: XP0139 GEL Work Order: 357549 Project: RC-074 Soil

The Qualifiers in this report are defined as follows:

- D Results are reported from a diluted aliquot of sample.
- J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate). Value is estimated
- T Spike and/or spike duplicate sample recovery is outside control limits.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- DL Indicates that sample is diluted.
- RA Indicates that sample is re-analyzed without re-extraction.
- RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature:



Name: Jimin Cao

Date: 09 OCT 2014

Title: Data Validator

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 6, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-074 Soil

Client SDG: XP0139

Client Sample ID: J1V0F6 Project: WCHN00716
 Sample ID: 357549002 Client ID: WCHN001
 Matrix: Soil
 Collect Date: 24-SEP-14 09:25
 Receive Date: 26-SEP-14
 Collector: Client
 Moisture: 7.55%

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Diesel Range Organics											
SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"											
Diesel Range Organics (C10-C20)	T	109000	2340	7200	ug/kg	1	BYT1	10/04/14	0237	1423480	1
Motor Oil (C20-C36)		73100	2340	7200	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/29/14	0950	1422565
SW846 3541	3541 DRO IN SOIL PREP	SXW3	10/01/14	1834	1423478

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	NWTPH-Dx in Soil	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
o-Terphenyl	SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"	747 ug/kg	720	104	(50%-150%)

Notes:

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 6, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-074 Soil

Client SDG: XP0139

Client Sample ID: J1V0F7 Project: WCHN00716
 Sample ID: 357549003 Client ID: WCHN001
 Matrix: Soil
 Collect Date: 24-SEP-14 09:30
 Receive Date: 26-SEP-14
 Collector: Client
 Moisture: 8.22%

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Diesel Range Organics											
SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"											
Diesel Range Organics (C10-C20)	T	67700	2360	7260	ug/kg	1	BYT1	10/04/14	0316	1423480	1
Motor Oil (C20-C36)		42800	2360	7260	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/29/14	0950	1422565
SW846 3541	3541 DRO IN SOIL PREP	SXW3	10/01/14	1834	1423478

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	NWTPH-Dx in Soil	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
o-Terphenyl	SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"	433 ug/kg	726	59.6	(50%-150%)

Notes:

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 6, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-074 Soil

Client SDG: XP0139

Client Sample ID: J1V0F9 Project: WCHN00716
 Sample ID: 357549005 Client ID: WCHN001
 Matrix: Soil
 Collect Date: 24-SEP-14 09:38
 Receive Date: 26-SEP-14
 Collector: Client
 Moisture: 9.07%

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Diesel Range Organics											
SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"											
Diesel Range Organics (C10-C20)	TU	2380	2380	7310	ug/kg	1	BYT1	10/04/14	0550	1423480	1
Motor Oil (C20-C36)	J	2530	2380	7310	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/29/14	0950	1422565
SW846 3541	3541 DRO IN SOIL PREP	SXW3	10/01/14	1834	1423478

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	NWTPH-Dx in Soil	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
o-Terphenyl	SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"	516 ug/kg	731	70.5	(50%-150%)

Notes:

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Certificate of Analysis

Report Date: October 6, 2014

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: RC-074 Soil

Client SDG: XP0139

Client Sample ID: J1V0H1
Sample ID: 357549007
Matrix: Soil
Collect Date: 24-SEP-14 09:50
Receive Date: 26-SEP-14
Collector: Client
Moisture: 5.34%

Project: WCHN00716
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Diesel Range Organics											
SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"											
Diesel Range Organics (C10-C20)	TU	2290	2290	7040	ug/kg	1	BYT1	10/04/14	0943	1423480	1
Motor Oil (C20-C36)	J	3030	2290	7040	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/29/14	0950	1422565
SW846 3541	3541 DRO IN SOIL PREP	SXW3	10/01/14	1834	1423478

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	NWTPH-Dx in Soil	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
o-Terphenyl	SW 3541/NWTPH-Dx in Soil "Dry Weight Corrected"	481 ug/kg	704	68.3	(50%-150%)

Notes:

Quality Control Summary

GEL LABORATORIES LLC

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QC Summary

Report Date: October 6, 2014

Page 1 of 2

WC-Hanford, Inc.
2620 Fermi Avenue
MSIN H4-21
Richland, Washington
Contact: Joan Kessner

Workorder: 357549

Client SDG: XP0139

Project Description: RC-074 Soil

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Diesel Range Organics											
Batch	1423480										
QC1203178124	LCS										
Diesel Range Organics (C10-C20)	66600			47000	ug/kg		70.6	(70%-130%)	BYT1	10/04/14	01:19
Motor Oil (C20-C36)	66600			55600	ug/kg		83.4	(70%-130%)			
**o-Terphenyl	666			512	ug/kg		76.9	(50%-150%)			
QC1203178123	MB										
Diesel Range Organics (C10-C20)			U	2170	ug/kg					10/04/14	00:40
Motor Oil (C20-C36)			U	2170	ug/kg						
**o-Terphenyl	666			462	ug/kg		69.2	(50%-150%)			
QC1203178367	357549003 MS										
Diesel Range Organics (C10-C20)	72600	T	67700	123000	ug/kg		76	(70%-130%)		10/04/14	03:54
Motor Oil (C20-C36)	72600		42800	111000	ug/kg		94.4	(70%-130%)			
**o-Terphenyl	726		433	613	ug/kg		84.5	(50%-150%)			
QC1203178368	357549003 MSD										
Diesel Range Organics (C10-C20)	72500	T	67700	T	118000	ug/kg	4.13	69.2*	(0%-20%)	10/04/14	04:33
Motor Oil (C20-C36)	72500		42800	114000	ug/kg	2.66	98.7	(0%-20%)			
**o-Terphenyl	725		433	655	ug/kg		90.4	(50%-150%)			

Notes:

The Qualifiers in this report are defined as follows:

- A The TIC is a suspected aldol-condensation product
- B The analyte was detected in both the associated QC blank and in the sample.
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate). Value is estimated

GEL LABORATORIES LLC

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QC Summary

Workorder: 357549

Client SDG: XP0139

Project Description: RC-074 Soil

Page 2 of 2

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
P	Aroclor target analyte with greater than 25% difference between column analyses.										
T	Spike and/or spike duplicate sample recovery is outside control limits.										
U	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.										
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Y	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Z	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
o	Analyte failed to recover within LCS limits (Organics only)										

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

Prep Logbook

Extraction of Semivolatile and Nonvolatile Organic Compounds from Soil, Sludge, and Other Miscellaneous Solid Samples

Batch ID: 1423478 Verified by: _____
 Analyst: Shannon Whitehead
 Method: SW846 3541

Lab SOP: GL-OA-E-010 REV# 22
 Instrument: Semi-Volatiles Manual

Sample ID	Run Date	Aliquot (g)	Prepped Aliquot (mL)	Prepped Factor (mL/g)
1203178123 MB	01-OCT-2014 18:34:00	30.01	1	0.03332
1203178124 LCS	01-OCT-2014 18:34:00	30.03	1	0.0333
357156002	01-OCT-2014 18:34:00	10.131	1	0.09871
357439001 - 2	01-OCT-2014 18:34:00	15.011	0.5	0.03331
357439002 - 2	01-OCT-2014 18:34:00	15.147	0.5	0.03301
1203178363 - 2 MS (357439002)	01-OCT-2014 18:34:00	15.108	0.5	0.0331
1203178364 - 2 MSD (357439002)	01-OCT-2014 18:34:00	15.255	0.5	0.03278
357443001 - 2	01-OCT-2014 18:34:00	30.02	1	0.03331
1203178365 - 2 MS (357443001)	01-OCT-2014 18:34:00	30.02	1	0.03331
1203178366 - 2 MSD (357443001)	01-OCT-2014 18:34:00	30.02	1	0.03331
357443002 - 2	01-OCT-2014 18:34:00	30.02	1	0.03331
357549001 - 2	01-OCT-2014 18:34:00	30.03	1	0.0333
357549002 - 2	01-OCT-2014 18:34:00	30.04	1	0.03329
357549003 - 2	01-OCT-2014 18:34:00	30.03	1	0.0333
1203178367 - 2 MS (357549003)	01-OCT-2014 18:34:00	30.03	1	0.0333
1203178368 - 2 MSD (357549003)	01-OCT-2014 18:34:00	30.07	1	0.03326
357549004 - 2	01-OCT-2014 18:34:00	30.02	1	0.03331
357549005 - 2	01-OCT-2014 18:34:00	30.07	1	0.03326
357549006 - 2	01-OCT-2014 18:34:00	30.01	1	0.03332
357549007 - 2	01-OCT-2014 18:34:00	30.02	1	0.03331
357549008 - 2	01-OCT-2014 18:34:00	30.05	1	0.03328
357549009 - 2	01-OCT-2014 18:34:00	30.01	1	0.03332
357549010 - 2	01-OCT-2014 18:34:00	30.04	1	0.03329
357712001	01-OCT-2014 18:34:00	30.03	1	0.0333
1203178125 MS (357712001)	01-OCT-2014 18:34:00	30.09	1	0.03323
1203178126 MSD (357712001)	01-OCT-2014 18:34:00	30.08	1	0.03324

Type	Sample Id	Description	Serial Number	Spike Amt	Units	Comments:
LCS	1203178124	AZDRO SPIKE LCS STD,4000ug/ml	WFI140918-62	1	mL	Verified By: AV Final Solvent: CH2Cl2

Prep Logbook

Batch ID: 1423478 **Verified by:** _____
Analyst: Shannon Whitehead
Method: SW846 3541

Lab SOP: GL-OA-E-010 REV# 22
Instrument: Semi-Volatiles Manual

Sample ID	Run Date	Aliquot (g)	Prepped Aliquot (mL)	Prepped Factor (mL/g)	
MS	1203178125	AZDRO SPIKE LCS STD,4000ug/ml	WFI140918-62	1	mL
MS	1203178363	AZDRO SPIKE LCS STD,4000ug/ml	WFI140918-62	.5	mL
MS	1203178365	AZDRO SPIKE LCS STD,4000ug/ml	WFI140918-62	1	mL
MS	1203178367	AZDRO SPIKE LCS STD,4000ug/ml	WFI140918-62	1	mL
MSD	1203178126	AZDRO SPIKE LCS STD,4000ug/ml	WFI140918-62	1	mL
MSD	1203178364	AZDRO SPIKE LCS STD,4000ug/ml	WFI140918-62	.5	mL
MSD	1203178366	AZDRO SPIKE LCS STD,4000ug/ml	WFI140918-62	1	mL
MSD	1203178368	AZDRO SPIKE LCS STD,4000ug/ml	WFI140918-62	1	mL
SURR	All	20 ppm surrogate	WE140819-04	.5	mL
SURR	All	20 ppm surrogate	WE140819-04	1	mL
REGNT	All	Methylene Chloride	2159559-D	120	mL
SOURC	All	SODIUM SULFATE	2148821	30	g

* Samples 357439001, 357439002, MS-9002, and MSD-9002 is light weight plastic and was aliquoted at 15g. Final volume was concentrated to 0.5 mL.

PCB Analysis

Case Narrative

**PCB Case Narrative
WC-HANFORD, INC. (WCHN)
SDG XP0139**

Method/Analysis Information

Procedure: Analysis of Polychlorinated Biphenyls by ECD
Analytical Method: SW846 3541/8082A
Prep Method: SW846 3541
Analytical Batch Number: 1422590
Prep Batch Number: 1422589

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 3541/8082A:

Sample ID	Client ID
357549001	J1V0F5
357549002	J1V0F6
357549003	J1V0F7
357549004	J1V0F8
357549005	J1V0F9
357549006	J1V0H0
357549007	J1V0H1
357549008	J1V0H2
357549009	J1V0H3
357549010	J1V0H4
1203176023	MB for batch 1422589
1203176024	Laboratory Control Sample (LCS)
1203176029	357549002(J1V0F6) Matrix Spike (MS)
1203176030	357549002(J1V0F6) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on a "dry weight" basis.

Preparation/Analytical Method Verification

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-040 REV# 20.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP).

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package.

Initial Calibration

All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification (CCV) Requirements

All associated calibration verification standards (ICV or CCV) met the acceptance criteria for the target analytes. All analytes were within the established retention time windows for this method.

One of the five quantified peaks did not meet the acceptance criteria in one of Aroclor-1260 standards analyzed for this SDG; however, the average concentration of the five quantified peaks met the acceptance criteria.

Surrogate recovery did not meet the acceptance criteria in several CCV standards analyzed for this SDG; however, this had no adverse effects on the data as all CCV standards met the acceptance criteria for the target Aroclors.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries

Sample 357549008 (J1V0H2) recovered slightly above the acceptance limits for the surrogate on one analytical column. This non-compliance had no adverse effects on the data as the detection of the Aroclors in the sample was below the PQL on both columns.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

QC Sample Designation

Sample 357549002 (J1V0F6) was selected for the matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement

The MS recoveries for this SDG were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement

The MSD recoveries for this SDG were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement

The RPD between the MS and MSD met the acceptance limits.

Technical Information

Holding Time Specifications

GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP. All reported analyte detections in client and quality control samples were within the established retention time windows. Reported analyte concentrations were confirmed on dissimilar columns. All sample extracts were cleaned using alumina. Additionally, copper was added to all

sample extracts to remove sulfur.

Sample Dilutions

Sample 357549006 (J1V0H0) was diluted prior to analysis due to the oily matrix of the extract.

Sample Re-extraction/Re-analysis

Re-extractions or re-analyses were not required in this SDG in this batch.

Miscellaneous Information

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation

Data exception report (DER) is generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. DER #1339005 was generated for this SDG.

Manual Integrations

Certain standards and samples may have required manual integration to correctly position the baseline as set in the calibration standard injections. If manual integration was performed, copies of all manual integration peak profiles are included in the raw data section of this PCB fraction.

Additional Comments

The additional comments field is used to address special issues associated with each analysis, clarify method/contractual issues pertaining to the analysis, and to list any report documents generated as a result of sample analysis or review. The following additional comments were required:

The higher results from either column have been chosen and reported in the data package for the client samples, MB and LCS. The data reported for the MS and MSD are from the same analytical column as the parent sample.

Due to software issue, the surrogate recovery range was not indicated or possibly indicated incorrectly in Quantitation Report. Please see Surrogate Recovery Report for correct surrogate acceptance limits.

Due to rounding differences in the calculation between the forms, the data reported in Sample Summary (form 1) and Spike Recovery Report (form 3) may differ slightly from the data reported in Identification Summary (form 10).

Aroclors quantitated on the raw data report by ChemStation data system do not necessarily represent positive Aroclor identification. In order for positive identification to be made, the Aroclor must match in pattern and retention time; as well as quantitate relatively close between the primary and confirmation columns, as specified in SW846 method 8000. When these conditions are not met, the Aroclor is reported as a non-detect on the data report.

System Configuration

The Semi-Volatiles-PCB analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
ECD8A.I_1	Agilent 6890 Gas Chromatograph/Dual ECD w/ 7683 Autosampler	HP6890 Series ECD	Rtx-CLP I	30m x 0.25mm, 0.25um (Rtx-CLPesticide I)
ECD8A.I_2	Agilent 6890 Gas Chromatograph/Dual ECD w/ 7683 Autosampler	HP6890 Series ECD	Rtx-CLP II	30m x 0.25mm, 0.20um (Rtx-CLPesticide II)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

DATA EXCEPTION REPORT

Mo.Day Yr. 01-OCT-14	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: GC/ECD	Test / Method: SW846 3541/8082A	Matrix Type: Solid	Client Code: WCHN
Batch ID: 1422590	Sample Numbers: See Below		
Potentially affected work order(s)(SDG): 357549(XP0139)			
Application Issues: Failed Yield for Surrogates			
Specification and Requirements Exception Description:		DER Disposition:	
Sample 357549008 recovered slightly above the acceptance limits on one analytical column for the surrogate.		The surrogate failed to meet the acceptance limits with a positive bias on one column. Target analytes were detected below the PQL on both columns in the sample. The data were not adversely affected by the surrogate failure. Data were reported.	

Originator's Name:
James Maestas 01-OCT-14

Data Validator/Group Leader:
Jimin Cao 01-OCT-14

GEL LABORATORIES LLC

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Qualifier Definition Report for

WCHN001 WC-HANFORD, INC.

Client SDG: XP0139 GEL Work Order: 357549 Project: RC-074 Soil

The Qualifiers in this report are defined as follows:

D Results are reported from a diluted aliquot of sample.

J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate). Value is estimated

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

DL Indicates that sample is diluted.

RA Indicates that sample is re-analyzed without re-extraction.

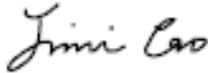
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature:



Name: Jimin Cao

Date: 03 OCT 2014

Title: Data Validator

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 1, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-074 Soil

Client SDG: XP0139

Client Sample ID: J1V0F5	Project: WCHN00716
Sample ID: 357549001	Client ID: WCHN001
Matrix: Soil	
Collect Date: 24-SEP-14 09:21	
Receive Date: 26-SEP-14	
Collector: Client	
Moisture: 5.31%	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"											
Aroclor-1016	U	1.17	1.17	3.51	ug/kg	1	JXM	09/30/14	1326	1422590	1
Aroclor-1221	U	1.17	1.17	3.51	ug/kg	1					
Aroclor-1232	U	1.17	1.17	3.51	ug/kg	1					
Aroclor-1242	U	1.17	1.17	3.51	ug/kg	1					
Aroclor-1248	U	1.17	1.17	3.51	ug/kg	1					
Aroclor-1254	U	1.17	1.17	3.51	ug/kg	1					
Aroclor-1260		22.3	1.17	3.51	ug/kg	1					
Aroclor-1262	U	1.17	1.17	3.51	ug/kg	1					
Aroclor-1268	U	1.17	1.17	3.51	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	MXD2	09/29/14	0850	1422589

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	
2	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.64 ug/kg	7.02	66.1	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	6.67 ug/kg	7.02	94.9	(25%-131%)

Notes:

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 1, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-074 Soil

Client SDG: XP0139

Client Sample ID: J1V0F6	Project: WCHN00716
Sample ID: 357549002	Client ID: WCHN001
Matrix: Soil	
Collect Date: 24-SEP-14 09:25	
Receive Date: 26-SEP-14	
Collector: Client	
Moisture: 7.55%	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"											
Aroclor-1016	U	1.19	1.19	3.57	ug/kg	1	JXM	09/30/14	1341	1422590	1
Aroclor-1221	U	1.19	1.19	3.57	ug/kg	1					
Aroclor-1232	U	1.19	1.19	3.57	ug/kg	1					
Aroclor-1242	U	1.19	1.19	3.57	ug/kg	1					
Aroclor-1248	U	1.19	1.19	3.57	ug/kg	1					
Aroclor-1254	U	1.19	1.19	3.57	ug/kg	1					
Aroclor-1262	U	1.19	1.19	3.57	ug/kg	1					
Aroclor-1268	U	1.19	1.19	3.57	ug/kg	1					
Aroclor-1260		14.9	1.19	3.57	ug/kg	1	JXM	09/30/14	1341	1422590	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	MXD2	09/29/14	0850	1422589

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	
2	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	3.50 ug/kg	7.14	49.0	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.62 ug/kg	7.14	64.7	(25%-131%)

Notes:

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 1, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-074 Soil

Client SDG: XP0139

Client Sample ID: J1V0F7	Project: WCHN00716
Sample ID: 357549003	Client ID: WCHN001
Matrix: Soil	
Collect Date: 24-SEP-14 09:30	
Receive Date: 26-SEP-14	
Collector: Client	
Moisture: 8.22%	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"											
Aroclor-1016	U	1.21	1.21	3.63	ug/kg	1	JXM	09/30/14	1424	1422590	1
Aroclor-1221	U	1.21	1.21	3.63	ug/kg	1					
Aroclor-1232	U	1.21	1.21	3.63	ug/kg	1					
Aroclor-1242	U	1.21	1.21	3.63	ug/kg	1					
Aroclor-1248	U	1.21	1.21	3.63	ug/kg	1					
Aroclor-1254	U	1.21	1.21	3.63	ug/kg	1					
Aroclor-1262	U	1.21	1.21	3.63	ug/kg	1					
Aroclor-1268	U	1.21	1.21	3.63	ug/kg	1					
Aroclor-1260	J	2.72	1.21	3.63	ug/kg	1	JXM	09/30/14	1424	1422590	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	MXD2	09/29/14	0850	1422589

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	
2	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	3.83 ug/kg	7.26	52.7	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.96 ug/kg	7.26	68.3	(25%-131%)

Notes:

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Certificate of Analysis

Report Date: October 1, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-074 Soil

Client SDG: XP0139

Client Sample ID: J1V0F8	Project: WCHN00716
Sample ID: 357549004	Client ID: WCHN001
Matrix: Soil	
Collect Date: 24-SEP-14 09:34	
Receive Date: 26-SEP-14	
Collector: Client	
Moisture: 2.23%	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"											
Aroclor-1016	U	1.13	1.13	3.38	ug/kg	1	JXM	09/30/14	1438	1422590	1
Aroclor-1221	U	1.13	1.13	3.38	ug/kg	1					
Aroclor-1232	U	1.13	1.13	3.38	ug/kg	1					
Aroclor-1242	U	1.13	1.13	3.38	ug/kg	1					
Aroclor-1248	U	1.13	1.13	3.38	ug/kg	1					
Aroclor-1254	U	1.13	1.13	3.38	ug/kg	1					
Aroclor-1260	J	2.52	1.13	3.38	ug/kg	1					
Aroclor-1262	U	1.13	1.13	3.38	ug/kg	1					
Aroclor-1268	U	1.13	1.13	3.38	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	MXD2	09/29/14	0850	1422589

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	
2	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.67 ug/kg	6.76	69.0	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	5.69 ug/kg	6.76	84.2	(25%-131%)

Notes:

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Certificate of Analysis

Report Date: October 1, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-074 Soil

Client SDG: XP0139

Client Sample ID: J1V0F9	Project: WCHN00716
Sample ID: 357549005	Client ID: WCHN001
Matrix: Soil	
Collect Date: 24-SEP-14 09:38	
Receive Date: 26-SEP-14	
Collector: Client	
Moisture: 9.07%	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"											
Aroclor-1016	U	1.22	1.22	3.66	ug/kg	1	JXM	09/30/14	1453	1422590	1
Aroclor-1221	U	1.22	1.22	3.66	ug/kg	1					
Aroclor-1232	U	1.22	1.22	3.66	ug/kg	1					
Aroclor-1242	U	1.22	1.22	3.66	ug/kg	1					
Aroclor-1248	U	1.22	1.22	3.66	ug/kg	1					
Aroclor-1254	U	1.22	1.22	3.66	ug/kg	1					
Aroclor-1262	U	1.22	1.22	3.66	ug/kg	1					
Aroclor-1268	U	1.22	1.22	3.66	ug/kg	1					
Aroclor-1260		18.3	1.22	3.66	ug/kg	1	JXM	09/30/14	1453	1422590	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	MXD2	09/29/14	0850	1422589

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	
2	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	5.30 ug/kg	7.31	72.5	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	6.87 ug/kg	7.31	94.0	(25%-131%)

Notes:

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Certificate of Analysis

Report Date: October 1, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-074 Soil

Client SDG: XP0139

Client Sample ID: J1V0H0	Project: WCHN00716
Sample ID: 357549006	Client ID: WCHN001
Matrix: Soil	
Collect Date: 24-SEP-14 09:44	
Receive Date: 26-SEP-14	
Collector: Client	
Moisture: 2.08%	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"											
Aroclor-1016	DU	5.63	5.63	16.9	ug/kg	5	JXM	09/30/14	1507	1422590	1
Aroclor-1221	DU	5.63	5.63	16.9	ug/kg	5					
Aroclor-1232	DU	5.63	5.63	16.9	ug/kg	5					
Aroclor-1242	DU	5.63	5.63	16.9	ug/kg	5					
Aroclor-1248	DU	5.63	5.63	16.9	ug/kg	5					
Aroclor-1254	DU	5.63	5.63	16.9	ug/kg	5					
Aroclor-1260	DU	5.63	5.63	16.9	ug/kg	5					
Aroclor-1262	DU	5.63	5.63	16.9	ug/kg	5					
Aroclor-1268	DU	5.63	5.63	16.9	ug/kg	5					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	MXD2	09/29/14	0850	1422589

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	
2	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	3.40 ug/kg	6.76	50.3	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.85 ug/kg	6.76	71.7	(25%-131%)

Notes:

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Certificate of Analysis

Report Date: October 1, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-074 Soil

Client SDG: XP0139

Client Sample ID: J1V0H1	Project: WCHN00716
Sample ID: 357549007	Client ID: WCHN001
Matrix: Soil	
Collect Date: 24-SEP-14 09:50	
Receive Date: 26-SEP-14	
Collector: Client	
Moisture: 5.34%	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"											
Aroclor-1016	U	1.15	1.15	3.46	ug/kg	1	JXM	09/30/14	1521	1422590	1
Aroclor-1221	U	1.15	1.15	3.46	ug/kg	1					
Aroclor-1232	U	1.15	1.15	3.46	ug/kg	1					
Aroclor-1242	U	1.15	1.15	3.46	ug/kg	1					
Aroclor-1248	U	1.15	1.15	3.46	ug/kg	1					
Aroclor-1254	U	1.15	1.15	3.46	ug/kg	1					
Aroclor-1260	J	3.16	1.15	3.46	ug/kg	1					
Aroclor-1262	U	1.15	1.15	3.46	ug/kg	1					
Aroclor-1268	U	1.15	1.15	3.46	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	MXD2	09/29/14	0850	1422589

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	
2	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	5.33 ug/kg	6.93	76.9	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	8.81 ug/kg	6.93	127	(25%-131%)

Notes:

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Certificate of Analysis

Report Date: October 1, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-074 Soil

Client SDG: XP0139

Client Sample ID: J1V0H2	Project: WCHN00716
Sample ID: 357549008	Client ID: WCHN001
Matrix: Soil	
Collect Date: 24-SEP-14 09:53	
Receive Date: 26-SEP-14	
Collector: Client	
Moisture: 10.3%	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"											
Aroclor-1016	U	1.23	1.23	3.68	ug/kg	1	JXM	09/30/14	1536	1422590	1
Aroclor-1221	U	1.23	1.23	3.68	ug/kg	1					
Aroclor-1232	U	1.23	1.23	3.68	ug/kg	1					
Aroclor-1242	U	1.23	1.23	3.68	ug/kg	1					
Aroclor-1248	U	1.23	1.23	3.68	ug/kg	1					
Aroclor-1254	U	1.23	1.23	3.68	ug/kg	1					
Aroclor-1260	J	2.89	1.23	3.68	ug/kg	1					
Aroclor-1262	U	1.23	1.23	3.68	ug/kg	1					
Aroclor-1268	U	1.23	1.23	3.68	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	MXD2	09/29/14	0850	1422589

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	
2	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	7.30 ug/kg	7.36	99.1	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	9.77 ug/kg	7.36	133*	(25%-131%)

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: October 1, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-074 Soil

Client SDG: XP0139

Client Sample ID: J1V0H3	Project: WCHN00716
Sample ID: 357549009	Client ID: WCHN001
Matrix: Soil	
Collect Date: 24-SEP-14 09:58	
Receive Date: 26-SEP-14	
Collector: Client	
Moisture: 12.7%	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"											
Aroclor-1016	U	1.27	1.27	3.81	ug/kg	1	JXM	09/30/14	1615	1422590	1
Aroclor-1221	U	1.27	1.27	3.81	ug/kg	1					
Aroclor-1232	U	1.27	1.27	3.81	ug/kg	1					
Aroclor-1242	U	1.27	1.27	3.81	ug/kg	1					
Aroclor-1248	U	1.27	1.27	3.81	ug/kg	1					
Aroclor-1254	U	1.27	1.27	3.81	ug/kg	1					
Aroclor-1260	U	1.27	1.27	3.81	ug/kg	1					
Aroclor-1262	U	1.27	1.27	3.81	ug/kg	1					
Aroclor-1268	U	1.27	1.27	3.81	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	MXD2	09/29/14	0850	1422589

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	
2	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	3.95 ug/kg	7.61	51.8	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	7.23 ug/kg	7.61	94.9	(25%-131%)

Notes:

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 1, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-074 Soil

Client SDG: XP0139

Client Sample ID: J1V0H4	Project: WCHN00716
Sample ID: 357549010	Client ID: WCHN001
Matrix: Soil	
Collect Date: 24-SEP-14 10:03	
Receive Date: 26-SEP-14	
Collector: Client	
Moisture: 5.75%	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"											
Aroclor-1016	U	1.17	1.17	3.52	ug/kg	1	JXM	09/30/14	1629	1422590	1
Aroclor-1221	U	1.17	1.17	3.52	ug/kg	1					
Aroclor-1232	U	1.17	1.17	3.52	ug/kg	1					
Aroclor-1242	U	1.17	1.17	3.52	ug/kg	1					
Aroclor-1248	U	1.17	1.17	3.52	ug/kg	1					
Aroclor-1254	U	1.17	1.17	3.52	ug/kg	1					
Aroclor-1262	U	1.17	1.17	3.52	ug/kg	1					
Aroclor-1268	U	1.17	1.17	3.52	ug/kg	1					
Aroclor-1260	J	2.45	1.17	3.52	ug/kg	1	JXM	09/30/14	1629	1422590	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	MXD2	09/29/14	0850	1422589

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	
2	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	5.55 ug/kg	7.03	79.0	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	7.56 ug/kg	7.03	107	(25%-131%)

Notes:

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: October 1, 2014

Page 1 of 2

WC-Hanford, Inc.
2620 Fermi Avenue
MSIN H4-21
Richland, Washington
Contact: Joan Kessner

Workorder: 357549

Client SDG: XP0139

Project Description: RC-074 Soil

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatiles-PCB											
Batch	1422590										
QC1203176024	LCS										
Aroclor-1016	33.1			23.1	ug/kg		69.8	(44%-97%)	JXM	09/30/14	10:53
Aroclor-1260	33.1			22.8	ug/kg		68.9	(49%-109%)			
**4cmx	6.62			5.00	ug/kg		75.5	(29%-106%)			
**Decachlorobiphenyl	6.62			6.41	ug/kg		96.7	(25%-131%)			
QC1203176023	MB										
Aroclor-1016			U	1.11	ug/kg					09/30/14	10:38
Aroclor-1221			U	1.11	ug/kg						
Aroclor-1232			U	1.11	ug/kg						
Aroclor-1242			U	1.11	ug/kg						
Aroclor-1248			U	1.11	ug/kg						
Aroclor-1254			U	1.11	ug/kg						
Aroclor-1260			U	1.11	ug/kg						
Aroclor-1262			U	1.11	ug/kg						
Aroclor-1268			U	1.11	ug/kg						
**4cmx	6.66			4.49	ug/kg		67.5	(29%-106%)			
**Decachlorobiphenyl	6.66			5.37	ug/kg		80.6	(25%-131%)			
QC1203176029	357549002	MS									
Aroclor-1016	35.6	U	1.19	13.9	ug/kg		39.1	(22%-127%)		09/30/14	13:55
Aroclor-1260	35.6		14.9	28.6	ug/kg		38.5	(18%-130%)			
**4cmx	7.12		3.50	3.60	ug/kg		50.6	(29%-106%)			
**Decachlorobiphenyl	7.12		4.62	4.84	ug/kg		68.1	(25%-131%)			

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 357549

Client SDG: XP0139

Project Description: RC-074 Soil

Page 2 of 2

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatiles-PCB											
Batch	1422590										
QC1203176030 357549002 MSD											
Aroclor-1016	35.8	U	1.19	11.9	ug/kg	15.5	33.3	(0%-30%)	JXM	09/30/14	14:10
Aroclor-1260	35.8		14.9	28.4	ug/kg	0.619	37.7	(0%-30%)			
**4cmx	7.16		3.50	2.97	ug/kg		41.4	(29%-106%)			
**Decachlorobiphenyl	7.16		4.62	3.97	ug/kg		55.4	(25%-131%)			

Notes:

The Qualifiers in this report are defined as follows:

- A The TIC is a suspected aldol-condensation product
- B The analyte was detected in both the associated QC blank and in the sample.
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate). Value is estimated
- P Aroclor target analyte with greater than 25% difference between column analyses.
- T Spike and/or spike duplicate sample recovery is outside control limits.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- o Analyte failed to recover within LCS limits (Organics only)

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
 ^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.
 For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

Prep Logbook

Automated Soxhlet Extraction

Batch ID: 1422589
Analyst: Mia DeLee
Method: SW846 3541

Verified by: _____

Lab SOP: GL-OA-E-066 REV# 5
Instrument: Semi-Volatiles Manual

Sample ID	Run Date	Aliquot (g)	Clean Up 1 Amount 1 (mL)	Clean Up Post Clean Up Amount 1 (mL)	Final Volume (mL)	Prepped Factor (mL/g)
1203176023 MB	29-SEP-2014 08:50:00	30.02	H2SO4/KM 2 nO4	9	1	0.03331
1203176024 LCS	29-SEP-2014 08:50:00	30.19	H2SO4/KM 2 nO4	9	1	0.03312
357439001	29-SEP-2014 08:50:00	10.68	H2SO4/KM 2 nO4	9	1	0.09363
357439002	29-SEP-2014 08:50:00	10.37	H2SO4/KM 2 nO4	9	1	0.09643
1203176025 MS (357439002)	29-SEP-2014 08:50:00	10.46	H2SO4/KM 2 nO4	9	1	0.0956
1203176026 MSD (357439002)	29-SEP-2014 08:50:00	10.5	H2SO4/KM 2 nO4	9	1	0.09524
357443001	29-SEP-2014 08:50:00	30.45	H2SO4/KM 2 nO4	9	1	0.03284
1203176027 MS (357443001)	29-SEP-2014 08:50:00	30.02	H2SO4/KM 2 nO4	9	1	0.03331
1203176028 MSD (357443001)	29-SEP-2014 08:50:00	30.11	H2SO4/KM 2 nO4	9	1	0.03321
357443002	29-SEP-2014 08:50:00	30.38	H2SO4/KM 2 nO4	9	1	0.03292
357549001	29-SEP-2014 08:50:00	30.07	H2SO4/KM 2 nO4	9	1	0.03326
357549002	29-SEP-2014 08:50:00	30.32	H2SO4/KM 2 nO4	9	1	0.03298
1203176029 MS (357549002)	29-SEP-2014 08:50:00	30.4	H2SO4/KM 2 nO4	9	1	0.03289
1203176030 MSD (357549002)	29-SEP-2014 08:50:00	30.2	H2SO4/KM 2 nO4	9	1	0.03311
357549003	29-SEP-2014 08:50:00	30.01	H2SO4/KM 2 nO4	9	1	0.03332
357549004	29-SEP-2014 08:50:00	30.25	H2SO4/KM 2 nO4	9	1	0.03306
357549005	29-SEP-2014 08:50:00	30.07	H2SO4/KM 2 nO4	9	1	0.03326
357549006	29-SEP-2014 08:50:00	30.2	H2SO4/KM 2 nO4	9	1	0.03311
357549007	29-SEP-2014 08:50:00	30.5	H2SO4/KM 2 nO4	9	1	0.03279
357549008	29-SEP-2014 08:50:00	30.27	H2SO4/KM 2 nO4	9	1	0.03304
357549009	29-SEP-2014 08:50:00	30.07	H2SO4/KM 2 nO4	9	1	0.03326
357549010	29-SEP-2014 08:50:00	30.17	H2SO4/KM 2 nO4	9	1	0.03315

Type	Sample Id	Description	Serial Number	Spike Amt	Units	Comments:
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Prep Logbook

Batch ID: 1422589
Analyst: Mia DeLee
Method: SW846 3541

Verified by: _____

Lab SOP: GL-OA-E-066 REV# 5
Instrument: Semi-Volatiles Manual

Sample ID	Run Date	Aliquot (g)	Clean Up 1 Amount 1 (mL)	Clean Up Amount 1 (mL)	Post Clean Up Amount 1 (mL)	Final Volume (mL)	Prepped Factor (mL/g)
LCS	1203176024	PCB Laboratory Control		WE140908-06	1	mL	Final Solvent: Hexane
MS	1203176025	PCB Laboratory Control		WE140908-06	1	mL	Verified by: SG
MS	1203176027	PCB Laboratory Control		WE140908-06	1	mL	Clean-up: H2SO4/KMnO4
MS	1203176029	PCB Laboratory Control		WE140908-06	1	mL	Prior to clean-up: 2mL
MSD	1203176026	PCB Laboratory Control		WE140908-06	1	mL	Clean-up initials: MD/SR
MSD	1203176028	PCB Laboratory Control		WE140908-06	1	mL	Clean-up SOP: GL-OA-E-037 Rev.1
MSD	1203176030	PCB Laboratory Control		WE140908-06	1	mL	Clean-up date: 09-29-14
SURR	All	PEST LOW LEVEL SURROGATE 200 UG/L		WE140922-01	1	mL	Due to sample matrix only 10g were used for samples 357439001 and 357439002 (including the MS/MSD)
REGNT	All	1:1 sulfuric acid		2144769	5	mL	
REGNT	All	Hexane		2151967-B10	120	mL	
REGNT	All	5% Potassium Permanganate		2159385	5	mL	
SOURC	All	SODIUM SULFATE		2148821	30	g	