

SAF-RC-233
100-IU-2 & 100-IU-6 Remaining
Waste Sites – Soil In-Process
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt

H4-21

KW 10/1/14
INITIAL/DATE

COMMENTS:

SDG XP0133

SAF-RC-233

Rad only

Chem only

Rad & Chem

Complete

Partial

**Sample Location: 100-B-35:1, 151-B Electrical switchyard,
IP EXC**



September 25, 2014

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

Re: RC-233 Soil
Work Order: 357039
SDG: XP0133

Dear Joan Kessner:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on September 18, 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-233-059 and RC-233-060
Enclosures

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Case Narrative

**Receipt Narrative
for
WC-HANFORD, INC.
SDG: XP0133
Work Order: 357039**

September 25, 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 18, 2014 for analysis.

Sample Identification: The laboratory received the following samples:

<u>Laboratory ID</u>	<u>Client ID</u>
357039001	J1TXW8
357039002	J1TXW9
357039003	J1TXX0
357039004	J1TXX1
357039005	J1TXX2
357039006	J1TXX3
357039007	J1TXX4
357039008	J1TXX5
357039009	J1TXX6
357039010	J1TXX7

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

Washington Closure Hanford

Company Contact: Joan Kessner, Telephone No. 375-4688

Project Designation: 100-IU-2 & 100-IU-6 Remaining Waste Sites

Sampling Location: 100-B-35.1, 151-B Electrical switchyard, IP EXC

Field Logbook No. COA 010B352600

Offsite Property No. A131229

Method of Shipment: Commercial Carrier

Bill of Lading/Air Bill No. See O5PC

Price Code: 8A 3 days

Project Coordinator: KESSNER, JH

SAF No. RC-233

Method of Shipment: Commercial Carrier

Bill of Lading/Air Bill No. See O5PC

Company Contact: Joan Kessner, Telephone No. 375-4688

Project Designation: 100-IU-2 & 100-IU-6 Remaining Waste Sites

Sampling Location: 100-B-35.1, 151-B Electrical switchyard, IP EXC

Field Logbook No. COA 010B352600

Offsite Property No. A131229

Method of Shipment: Commercial Carrier

Bill of Lading/Air Bill No. See O5PC

Price Code: 8A 3 days

Project Coordinator: KESSNER, JH

SAF No. RC-233

Method of Shipment: Commercial Carrier

Bill of Lading/Air Bill No. See O5PC

Company Contact: Joan Kessner, Telephone No. 375-4688

Project Designation: 100-IU-2 & 100-IU-6 Remaining Waste Sites

Sampling Location: 100-B-35.1, 151-B Electrical switchyard, IP EXC

Field Logbook No. COA 010B352600

Offsite Property No. A131229

Method of Shipment: Commercial Carrier

Bill of Lading/Air Bill No. See O5PC

Price Code: 8A 3 days

Project Coordinator: KESSNER, JH

SAF No. RC-233

Method of Shipment: Commercial Carrier

Bill of Lading/Air Bill No. See O5PC

Company Contact: Joan Kessner, Telephone No. 375-4688

Project Designation: 100-IU-2 & 100-IU-6 Remaining Waste Sites

Sampling Location: 100-B-35.1, 151-B Electrical switchyard, IP EXC

Field Logbook No. COA 010B352600

Offsite Property No. A131229

Method of Shipment: Commercial Carrier

Bill of Lading/Air Bill No. See O5PC

Price Code: 8A 3 days

Project Coordinator: KESSNER, JH

SAF No. RC-233

Method of Shipment: Commercial Carrier

Sample No.	Matrix	Sample Date	Sample Time	Preservation	Type of Container	No. of Container(s)	Volume	Sample Analysis
JITXW8	SOIL	09/16/14	1215	Cool 4C	aG	1	125mL	TPH-Diesel Range - WTPHD +
JITXW9	SOIL	09/16/14	1221	Cool 4C	aG	1	125mL	TPH-Diesel Range - WTPHD +
JITXX0	SOIL	09/16/14	1224	Cool 4C	aG	1	125mL	TPH-Diesel Range - WTPHD +
JITXX1	SOIL	09/16/14	1229	Cool 4C	aG	1	125mL	TPH-Diesel Range - WTPHD +
JITXX2	SOIL	09/16/14	1239	Cool 4C	aG	1	125mL	TPH-Diesel Range - WTPHD +

Special Handling and/or Storage
Cool 4C

POSSIBLE SAMPLE HAZARDS/REMARKS
None

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Weather Weber / OSHA	09/16/14 1319	W. Sheehy / WSTEA	9/16/14 1315
W. Sheehy / WSTEA	9/16/14 1520	SM Sexton / J. Hoff	9/16/14 1520
SM Sexton / J. Hoff	9/16/14 1530	1060 Battelle / Fridge 1A	9/16/14 1530
1060 Battelle / Fridge 1A	9/17/14 0735	SM Sexton / J. Hoff	9/17/14 0730
SM Sexton / J. Hoff	9/17/14 0735	FED EX	9/17/14
FED EX	9/17/14	H. Taylor / J. Hoff	09/18/08

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Project Coordinator: KESSNER, JH

SAF No. RC-233

Method of Shipment: Commercial Carrier

Bill of Lading/Air Bill No. See O5PC

Price Code: 8A 3 days

Company Contact: Joan Kessner, Telephone No. 375-4688

Project Designation: 100-IU-2 & 100-IU-6 Remaining Waste Sites

Sampling Location: 100-B-35.1, 151-B Electrical switchyard, IP EXC

Field Logbook No. COA 010B352600

Offsite Property No. A131229

Method of Shipment: Commercial Carrier

Bill of Lading/Air Bill No. See O5PC



XP0133

FINAL SAMPLE DISPOSITION
WCH-EE-011



SAMPLE RECEIPT & REVIEW FORM

Client: <u>WCHD</u>		SDG/AR/COC/Work Order: <u>357039</u>
Received By: <u>H. Taylor</u>		Date Received:
Suspected Hazard Information	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?	<input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0cpm</u>
Classified Radioactive II or III by RSO?	<input checked="" type="checkbox"/>	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?	<input checked="" type="checkbox"/>	
Package, COC, and/or Samples marked as beryllium or asbestos containing?	<input checked="" type="checkbox"/>	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?	<input checked="" type="checkbox"/>	Hazard Class Shipped: UN#:
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"/>	<input type="checkbox"/>	<input 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"/>	<input type="checkbox"/>	<input 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"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>1303272</u> Secondary Temperature Device Serial # (If Applicable):
3 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4 Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: <u>see below</u> Seals broken Damaged container Leaking container Other (describe)
5 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
7 Are Encore containers present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
8 Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
12 Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14 Carrier and tracking number.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other

Comments (Use Continuation Form if needed):
1 container each received broken for J1TX4 and J1TX8 transferred to another container

PM (or PMA) review: Initials HT Date 09/18/14 Page 1 of 1

Laboratory Certifications

List of current GEL Certifications as of 25 September 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 XP0133**

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: 1420963

Prep Batch Number: 1420962

Sample Analysis

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

Sample ID	Client ID
357039001	J1TXW8
357039002	J1TXW9
357039003	J1TXX0
357039004	J1TXX1
357039005	J1TXX2
357039006	J1TXX3
357039007	J1TXX4
357039008	J1TXX5
357039009	J1TXX6
357039010	J1TXX7
1203171874	MB for batch 1420962
1203171875	Laboratory Control Sample (LCS)
1203171876	357039003(J1TXX0) Matrix Spike (MS)
1203171877	357039003(J1TXX0) 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

All surrogate recoveries were within the established acceptance criteria for this SDG.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

QC Sample Designation

Sample 357039003 (J1TXX0) was selected for the matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement

The MS recoveries for this SDG were not within the acceptance limits. The failures confirm in the matrix spike duplicate and are attributed to matrix interference.

Matrix Spike Duplicate (MSD) Recovery Statement

The MSD recoveries for this SDG were not within the acceptance limits. The failures confirm in the MS and are attributed to 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 357039007 (J1TXX4) was diluted due to the presence of over-range target analytes.

Sample Re-extraction/Re-analysis

All field samples in this SDG were extracted and analyzed twice due to low LCS recovery in the 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 #1336812 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 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. 24-SEP-14	Division: Federal	Quality Criteria: Specifications	Type: Process
Instrument Type: GC/FID	Test / Method: NWTPH-Dx in Soil	Matrix Type: Solid	Client Code: WCHN
Batch ID: 1420963	Sample Numbers: See Below		

Potentially affected work order(s)(SDG): 357039(XP0133)

Application Issues:

Failed Recovery for MS/PS
Failed Recovery for MSD/PSD

**Specification and Requirements
Exception Description:**

DER Disposition:

1. The MS(1203171876) and MSD(1203171877) recovered multiple analytes below their established acceptance limit(SPC Limit: 70%-130%).

1. As the MS and MSD displayed similar recoveries, the failures were attributed to sample matrix interference and the data have been reported.

Originator's Name:

Benjamin Taft 24-SEP-14

Data Validator/Group Leader:

Jimin Cao 24-SEP-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: XP0133 GEL Work Order: 357039 Project: RC–233 Soil

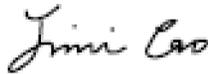
The Qualifiers in this report are defined as follows:

- 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: 25 SEP 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: September 25, 2014

Company : WC–Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4–21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC–233 Soil

Client SDG: XP0133

Client Sample ID: J1TXW8	Project: WCHN00313
Sample ID: 357039001	Client ID: WCHN001
Matrix: Soil	
Collect Date: 16–SEP–14 12:15	
Receive Date: 18–SEP–14	
Collector: Client	
Moisture: 1.58%	

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	2200	2200	6770	ug/kg	1	BYT1	09/23/14	1231	1420963	1
Motor Oil (C20–C36)	JT	3300	2200	6770	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/19/14	1000	1420418
SW846 3541	3541 DRO IN SOIL PREP	SJW1	09/22/14	1107	1420962

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"	490 ug/kg	677	72.3	(50%–150%)

Notes:

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: September 25, 2014

Company : WC–Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4–21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC–233 Soil

Client SDG: XP0133

Client Sample ID: J1TXW9	Project: WCHN00313
Sample ID: 357039002	Client ID: WCHN001
Matrix: Soil	
Collect Date: 16–SEP–14 12:21	
Receive Date: 18–SEP–14	
Collector: Client	
Moisture: 1.8%	

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	2200	2200	6770	ug/kg	1	BYT1	09/23/14	1309	1420963	1
Motor Oil (C20–C36)	T	7230	2200	6770	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/19/14	1000	1420418
SW846 3541	3541 DRO IN SOIL PREP	SJW1	09/22/14	1107	1420962

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"	424 ug/kg	677	62.6	(50%–150%)

Notes:

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: September 25, 2014

Company : WC–Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4–21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC–233 Soil

Client SDG: XP0133

Client Sample ID: J1TXX0	Project: WCHN00313
Sample ID: 357039003	Client ID: WCHN001
Matrix: Soil	
Collect Date: 16–SEP–14 12:24	
Receive Date: 18–SEP–14	
Collector: Client	
Moisture: 2.73%	

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	2220	2220	6840	ug/kg	1	BYT1	09/23/14	1348	1420963	1
Motor Oil (C20–C36)	JT	4200	2220	6840	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/19/14	1000	1420418
SW846 3541	3541 DRO IN SOIL PREP	SJW1	09/22/14	1107	1420962

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"	472 ug/kg	684	69.0	(50%–150%)

Notes:

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: September 25, 2014

Company : WC–Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4–21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC–233 Soil

Client SDG: XP0133

Client Sample ID: J1TXX1	Project: WCHN00313
Sample ID: 357039004	Client ID: WCHN001
Matrix: Soil	
Collect Date: 16–SEP–14 12:29	
Receive Date: 18–SEP–14	
Collector: Client	
Moisture: 1.33%	

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	2190	2190	6750	ug/kg	1	BYT1	09/23/14	1702	1420963	1
Motor Oil (C20–C36)	JT	3100	2190	6750	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/19/14	1000	1420418
SW846 3541	3541 DRO IN SOIL PREP	SJW1	09/22/14	1107	1420962

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"	429 ug/kg	675	63.5	(50%–150%)

Notes:

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: September 25, 2014

Company : WC–Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4–21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC–233 Soil

Client SDG: XP0133

Client Sample ID: J1TXX2	Project: WCHN00313
Sample ID: 357039005	Client ID: WCHN001
Matrix: Soil	
Collect Date: 16–SEP–14 12:39	
Receive Date: 18–SEP–14	
Collector: Client	
Moisture: 2.2%	

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	2210	2210	6800	ug/kg	1	BYT1	09/23/14	1741	1420963	1
Motor Oil (C20–C36)	T	7260	2210	6800	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/19/14	1000	1420418
SW846 3541	3541 DRO IN SOIL PREP	SJW1	09/22/14	1107	1420962

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"	434 ug/kg	680	63.8	(50%–150%)

Notes:

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Certificate of Analysis

Report Date: September 25, 2014

Company : WC–Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4–21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC–233 Soil

Client SDG: XP0133

Client Sample ID: J1TXX3	Project: WCHN00313
Sample ID: 357039006	Client ID: WCHN001
Matrix: Soil	
Collect Date: 16–SEP–14 12:34	
Receive Date: 18–SEP–14	
Collector: Client	
Moisture: 5.13%	

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	2270	2270	7000	ug/kg	1	BYT1	09/23/14	1819	1420963	1
Motor Oil (C20–C36)	JT	5930	2270	7000	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/19/14	1000	1420418
SW846 3541	3541 DRO IN SOIL PREP	SJW1	09/22/14	1107	1420962

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"	418 ug/kg	700	59.7	(50%–150%)

Notes:

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Certificate of Analysis

Report Date: September 25, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-233 Soil

Client SDG: XP0133

Client Sample ID: J1TXX4	Project: WCHN00313
Sample ID: 357039007	Client ID: WCHN001
Matrix: Soil	
Collect Date: 16-SEP-14 12:56	
Receive Date: 18-SEP-14	
Collector: Client	
Moisture: 3.27%	

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)	DT	169000	4480	13800	ug/kg	2	BYT1	09/23/14	1858	1420963	1
Motor Oil (C20-C36)	DT	105000	4480	13800	ug/kg	2					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/19/14	1000	1420418
SW846 3541	3541 DRO IN SOIL PREP	SJW1	09/22/14	1107	1420962

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"	809 ug/kg	689	118	(50%-150%)

Notes:

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Certificate of Analysis

Report Date: September 25, 2014

Company : WC–Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4–21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC–233 Soil

Client SDG: XP0133

Client Sample ID: J1TXX5	Project: WCHN00313
Sample ID: 357039008	Client ID: WCHN001
Matrix: Soil	
Collect Date: 16–SEP–14 13:01	
Receive Date: 18–SEP–14	
Collector: Client	
Moisture: 4.75%	

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	10200	2270	6990	ug/kg	1	BYT1	09/23/14	1937	1420963	1
Motor Oil (C20–C36)	T	18200	2270	6990	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/19/14	1000	1420418
SW846 3541	3541 DRO IN SOIL PREP	SJW1	09/22/14	1107	1420962

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"	496 ug/kg	699	71.0	(50%–150%)

Notes:

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Certificate of Analysis

Report Date: September 25, 2014

Company : WC–Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4–21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC–233 Soil

Client SDG: XP0133

Client Sample ID: J1TXX6	Project: WCHN00313
Sample ID: 357039009	Client ID: WCHN001
Matrix: Soil	
Collect Date: 16–SEP–14 13:05	
Receive Date: 18–SEP–14	
Collector: Client	
Moisture: 3.19%	

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)	JT	6310	2240	6890	ug/kg	1	BYT1	09/23/14	2015	1420963	1
Motor Oil (C20–C36)	T	9180	2240	6890	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/19/14	1000	1420418
SW846 3541	3541 DRO IN SOIL PREP	SJW1	09/22/14	1107	1420962

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"	368 ug/kg	689	53.5	(50%–150%)

Notes:

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Certificate of Analysis

Report Date: September 25, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-233 Soil

Client SDG: XP0133

Client Sample ID: J1TXX7	Project: WCHN00313
Sample ID: 357039010	Client ID: WCHN001
Matrix: Soil	
Collect Date: 16-SEP-14 13:09	
Receive Date: 18-SEP-14	
Collector: Client	
Moisture: 4.04%	

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	2260	2260	6950	ug/kg	1	BYT1	09/23/14	2054	1420963	1
Motor Oil (C20-C36)	JT	4410	2260	6950	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	MXD2	09/19/14	1000	1420418
SW846 3541	3541 DRO IN SOIL PREP	SJW1	09/22/14	1107	1420962

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"	453 ug/kg	695	65.1	(50%-150%)

Notes:

Quality Control Summary

GEL LABORATORIES LLC

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

QC Summary

Report Date: September 25, 2014

Page 1 of 1

WC–Hanford, Inc.
2620 Fermi Avenue
MSIN H4–21
Richland, Washington

Contact: Joan Kessner

Workorder: 357039

Client SDG: XP0133

Project Description: RC–233 Soil

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Diesel Range Organics											
Batch	1420963										
QC1203171875	LCS										
Diesel Range Organics (C10–C20)	66600			51700	ug/kg		77.6	(70%–130%)	BYT1	09/23/14	11:00
Motor Oil (C20–C36)	66600			56300	ug/kg		84.5	(70%–130%)			
**o–Terphenyl	666			562	ug/kg		84.4	(50%–150%)			
QC1203171874	MB										
Diesel Range Organics (C10–C20)			U	2160	ug/kg					09/23/14	11:00
Motor Oil (C20–C36)			U	2160	ug/kg						
**o–Terphenyl	665			457	ug/kg		68.8	(50%–150%)			
QC1203171876	357039003 MS										
Diesel Range Organics (C10–C20)	68500	TU	2220 T	44600	ug/kg		65.1 *	(70%–130%)		09/23/14	14:00
Motor Oil (C20–C36)	68500	JT	4200 T	49800	ug/kg		66.5 *	(70%–130%)			
**o–Terphenyl	685		472	473	ug/kg		69	(50%–150%)			
QC1203171877	357039003 MSD										
Diesel Range Organics (C10–C20)	68300	TU	2220 T	46900	ug/kg	4.98	68.6 *	(0%–20%)		09/23/14	15:00
Motor Oil (C20–C36)	68300	JT	4200	57300	ug/kg	14.1	77.7	(0%–20%)			
**o–Terphenyl	683		472	503	ug/kg		73.6	(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

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QC Summary

Workorder: 357039

Client SDG: XP0133

Project Description: RC-233 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: 1420962 **Verified by:** _____
Analyst: Sirena White
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)
1203171874 MB	22-SEP-2014 11:07:00	30.07	1	0.03326
1203171875 LCS	22-SEP-2014 11:07:00	30.03	1	0.0333
357039001 - 2	22-SEP-2014 11:07:00	30	1	0.03333
357039002 - 2	22-SEP-2014 11:07:00	30.07	1	0.03326
357039003 - 2	22-SEP-2014 11:07:00	30.04	1	0.03329
1203171876 - 2 MS (357039003)	22-SEP-2014 11:07:00	30.01	1	0.03332
1203171877 - 2 MSD (357039003)	22-SEP-2014 11:07:00	30.09	1	0.03323
357039004 - 2	22-SEP-2014 11:07:00	30.03	1	0.0333
357039005 - 2	22-SEP-2014 11:07:00	30.06	1	0.03327
357039006 - 2	22-SEP-2014 11:07:00	30.13	1	0.03319
357039007 - 2	22-SEP-2014 11:07:00	30.02	1	0.03331
357039008 - 2	22-SEP-2014 11:07:00	30.04	1	0.03329
357039009 - 2	22-SEP-2014 11:07:00	30	1	0.03333
357039010 - 2	22-SEP-2014 11:07:00	30	1	0.03333

Type	Sample Id	Description	Serial Number	Spike Amt	Units	Comments:
LCS	1203171875	AZDRO SPIKE LCS STD,4000ug/ml	WF1140918-62	1	mL	Final Solvent: CH2Cl2 Verified by: MD
MS	1203171876	AZDRO SPIKE LCS STD,4000ug/ml	WF1140918-62	1	mL	
MSD	1203171877	AZDRO SPIKE LCS STD,4000ug/ml	WF1140918-62	1	mL	Samples 357039001 through 357039010 all were a mixture of rocks and soil.
SURR	All	20 ppm surrogate	WE140819-04	1	mL	
REGNT	All	Methylene Chloride	2156262-D	120	mL	
SOURC	All	SODIUM SULFATE	2148821	30	g	

PCB Analysis

Case Narrative

**PCB Case Narrative
WC-HANFORD, INC. (WCHN)
SDG XP0133**

Method/Analysis Information

Procedure: Analysis of Polychlorinated Biphenyls by ECD

Analytical Method: SW846 3541/8082A

Prep Method: SW846 3541

Analytical Batch Number: 1420662

Prep Batch Number: 1420661

Sample Analysis

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

Sample ID	Client ID
357039001	J1TXW8
357039002	J1TXW9
357039003	J1TXX0
357039004	J1TXX1
357039005	J1TXX2
357039006	J1TXX3
357039007	J1TXX4
357039008	J1TXX5
357039009	J1TXX6
357039010	J1TXX7
1203171192	MB for batch 1420661
1203171193	Laboratory Control Sample (LCS)
1203171294	357039002(J1TXW9) Matrix Spike (MS)
1203171295	357039002(J1TXW9) 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. 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 Aroclor-1254 and Aroclor-1260 standards analyzed for this SDG; however, the average concentration of the five quantified peaks met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries

All surrogate recoveries were within the established acceptance criteria for the samples in this SDG in this batch.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

QC Sample Designation

Sample 357039002 (J1TXW9) 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 357039007 (J1TXX4) was diluted due to high level of target analytes detected in the sample.

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. A DER was not required for the samples in 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 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 column 2 has been chosen as the primary column. The data are reported from the column 2 for all samples in this batch.

Due to software issue, the surrogate recovery range was not indicated 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
----------------------	-------------------	-----------------------------	------------------	---------------------------

ECD9A.I_1	Agilent 7890A Gas Chromatograph/Dual ECD w/ 7693 Autosampler	7890A GC/ECD	Restek Rtx-CLPest 1	30m x 0.25mm, 0.25um
ECD9A.I_2	Agilent 7890A Gas Chromatograph/Dual ECD w/ 7693 Autosampler	7890A GC/ECD	Restek Rtx-CLPest 2	30m x 0.25mm, 0.20um

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.

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Qualifier Definition Report for

WCHN001 WC-HANFORD, INC.

Client SDG: XP0133 GEL Work Order: 357039 Project: RC-233 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: 25 SEP 2014

Title: Data Validator

Sample Data Summary

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: September 25, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-233 Soil

Client SDG: XP0133

Client Sample ID: J1TXW8	Project: WCHN00313
Sample ID: 357039001	Client ID: WCHN001
Matrix: Soil	
Collect Date: 16-SEP-14 12:15	
Receive Date: 18-SEP-14	
Collector: Client	
Moisture: 1.58%	

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	YS1	09/21/14	1627	1420662	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	U	1.13	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	AXV1	09/19/14	1745	1420661

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.70 ug/kg	6.77	69.4	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	5.72 ug/kg	6.77	84.5	(25%-131%)

Notes:

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: September 25, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-233 Soil

Client SDG: XP0133

Client Sample ID: J1TXW9	Project: WCHN00313
Sample ID: 357039002	Client ID: WCHN001
Matrix: Soil	
Collect Date: 16-SEP-14 12:21	
Receive Date: 18-SEP-14	
Collector: Client	
Moisture: 1.8%	

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	3.39	ug/kg	1	YS1	09/21/14	1641	1420662	1
Aroclor-1221	U	1.13	1.13	3.39	ug/kg	1					
Aroclor-1232	U	1.13	1.13	3.39	ug/kg	1					
Aroclor-1242	U	1.13	1.13	3.39	ug/kg	1					
Aroclor-1248	U	1.13	1.13	3.39	ug/kg	1					
Aroclor-1254	U	1.13	1.13	3.39	ug/kg	1					
Aroclor-1260	U	1.13	1.13	3.39	ug/kg	1					
Aroclor-1262	U	1.13	1.13	3.39	ug/kg	1					
Aroclor-1268	U	1.13	1.13	3.39	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	AXV1	09/19/14	1745	1420661

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.38 ug/kg	6.79	64.4	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.40 ug/kg	6.79	64.7	(25%-131%)

Notes:

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Certificate of Analysis

Report Date: September 25, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-233 Soil

Client SDG: XP0133

Client Sample ID: J1TXX0	Project: WCHN00313
Sample ID: 357039003	Client ID: WCHN001
Matrix: Soil	
Collect Date: 16-SEP-14 12:24	
Receive Date: 18-SEP-14	
Collector: Client	
Moisture: 2.73%	

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	1.14	1.14	3.42	ug/kg	1	YS1	09/21/14	1744	1420662	1
Aroclor-1221	U	1.14	1.14	3.42	ug/kg	1					
Aroclor-1232	U	1.14	1.14	3.42	ug/kg	1					
Aroclor-1242	U	1.14	1.14	3.42	ug/kg	1					
Aroclor-1248	U	1.14	1.14	3.42	ug/kg	1					
Aroclor-1254	U	1.14	1.14	3.42	ug/kg	1					
Aroclor-1260	U	1.14	1.14	3.42	ug/kg	1					
Aroclor-1262	U	1.14	1.14	3.42	ug/kg	1					
Aroclor-1268	U	1.14	1.14	3.42	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	AXV1	09/19/14	1745	1420661

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.00 ug/kg	6.84	58.5	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.58 ug/kg	6.84	67.0	(25%-131%)

Notes:

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Certificate of Analysis

Report Date: September 25, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-233 Soil

Client SDG: XP0133

Client Sample ID: J1TXX1	Project: WCHN00313
Sample ID: 357039004	Client ID: WCHN001
Matrix: Soil	
Collect Date: 16-SEP-14 12:29	
Receive Date: 18-SEP-14	
Collector: Client	
Moisture: 1.33%	

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	1.12	1.12	3.37	ug/kg	1	YS1	09/21/14	1757	1420662	1
Aroclor-1221	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1232	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1242	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1248	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1254	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1260	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1262	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1268	U	1.12	1.12	3.37	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	AXV1	09/19/14	1745	1420661

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.60 ug/kg	6.75	68.2	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	5.50 ug/kg	6.75	81.5	(25%-131%)

Notes:

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Certificate of Analysis

Report Date: September 25, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-233 Soil

Client SDG: XP0133

Client Sample ID: J1TXX2	Project: WCHN00313
Sample ID: 357039005	Client ID: WCHN001
Matrix: Soil	
Collect Date: 16-SEP-14 12:39	
Receive Date: 18-SEP-14	
Collector: Client	
Moisture: 2.2%	

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	3.40	ug/kg	1	YS1	09/21/14	1810	1420662	1
Aroclor-1221	U	1.13	1.13	3.40	ug/kg	1					
Aroclor-1232	U	1.13	1.13	3.40	ug/kg	1					
Aroclor-1242	U	1.13	1.13	3.40	ug/kg	1					
Aroclor-1248	U	1.13	1.13	3.40	ug/kg	1					
Aroclor-1254	U	1.13	1.13	3.40	ug/kg	1					
Aroclor-1260	U	1.13	1.13	3.40	ug/kg	1					
Aroclor-1262	U	1.13	1.13	3.40	ug/kg	1					
Aroclor-1268	U	1.13	1.13	3.40	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	AXV1	09/19/14	1745	1420661

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.36 ug/kg	6.81	64.0	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.91 ug/kg	6.81	72.1	(25%-131%)

Notes:

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Certificate of Analysis

Report Date: September 25, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-233 Soil

Client SDG: XP0133

Client Sample ID: J1TXX3 Project: WCHN00313
 Sample ID: 357039006 Client ID: WCHN001
 Matrix: Soil
 Collect Date: 16-SEP-14 12:34
 Receive Date: 18-SEP-14
 Collector: Client
 Moisture: 5.13%

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	YS1	09/21/14	1824	1420662	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	U	1.17	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	AXV1	09/19/14	1745	1420661

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.32 ug/kg	7.02	61.6	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	5.03 ug/kg	7.02	71.7	(25%-131%)

Notes:

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Certificate of Analysis

Report Date: September 25, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-233 Soil

Client SDG: XP0133

Client Sample ID: J1TXX4	Project: WCHN00313
Sample ID: 357039007	Client ID: WCHN001
Matrix: Soil	
Collect Date: 16-SEP-14 12:56	
Receive Date: 18-SEP-14	
Collector: Client	
Moisture: 3.27%	

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	5.74	5.74	17.2	ug/kg	5	YS1	09/21/14	1837	1420662	1
Aroclor-1221	DU	5.74	5.74	17.2	ug/kg	5					
Aroclor-1232	DU	5.74	5.74	17.2	ug/kg	5					
Aroclor-1242	DU	5.74	5.74	17.2	ug/kg	5					
Aroclor-1248	DU	5.74	5.74	17.2	ug/kg	5					
Aroclor-1254	D	141	5.74	17.2	ug/kg	5					
Aroclor-1260	D	77.5	5.74	17.2	ug/kg	5					
Aroclor-1262	DU	5.74	5.74	17.2	ug/kg	5					
Aroclor-1268	DU	5.74	5.74	17.2	ug/kg	5					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	AXV1	09/19/14	1745	1420661

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.55 ug/kg	6.89	66.0	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	5.10 ug/kg	6.89	74.0	(25%-131%)

Notes:

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: September 25, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-233 Soil

Client SDG: XP0133

Client Sample ID: J1TXX5 Project: WCHN00313
 Sample ID: 357039008 Client ID: WCHN001
 Matrix: Soil
 Collect Date: 16-SEP-14 13:01
 Receive Date: 18-SEP-14
 Collector: Client
 Moisture: 4.75%

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	1.16	1.16	3.49	ug/kg	1	YS1	09/21/14	1850	1420662	1
Aroclor-1221	U	1.16	1.16	3.49	ug/kg	1					
Aroclor-1232	U	1.16	1.16	3.49	ug/kg	1					
Aroclor-1242	U	1.16	1.16	3.49	ug/kg	1					
Aroclor-1248	U	1.16	1.16	3.49	ug/kg	1					
Aroclor-1254	U	1.16	1.16	3.49	ug/kg	1					
Aroclor-1260	J	1.45	1.16	3.49	ug/kg	1					
Aroclor-1262	U	1.16	1.16	3.49	ug/kg	1					
Aroclor-1268	U	1.16	1.16	3.49	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	AXV1	09/19/14	1745	1420661

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	3.93 ug/kg	6.98	56.3	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.79 ug/kg	6.98	68.7	(25%-131%)

Notes:

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: September 25, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-233 Soil

Client SDG: XP0133

Client Sample ID: J1TXX6
 Sample ID: 357039009
 Matrix: Soil
 Collect Date: 16-SEP-14 13:05
 Receive Date: 18-SEP-14
 Collector: Client
 Moisture: 3.19%

Project: WCHN00313
 Client ID: WCHN001

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	1.14	1.14	3.44	ug/kg	1	YS1	09/21/14	1904	1420662	1
Aroclor-1221	U	1.14	1.14	3.44	ug/kg	1					
Aroclor-1232	U	1.14	1.14	3.44	ug/kg	1					
Aroclor-1242	U	1.14	1.14	3.44	ug/kg	1					
Aroclor-1248	U	1.14	1.14	3.44	ug/kg	1					
Aroclor-1254		15.4	1.14	3.44	ug/kg	1					
Aroclor-1260		9.86	1.14	3.44	ug/kg	1					
Aroclor-1262	U	1.14	1.14	3.44	ug/kg	1					
Aroclor-1268	U	1.14	1.14	3.44	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	AXV1	09/19/14	1745	1420661

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	3.90 ug/kg	6.88	56.8	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.37 ug/kg	6.88	63.6	(25%-131%)

Notes:

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: September 25, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-233 Soil

Client SDG: XP0133

Client Sample ID: J1TXX7
 Sample ID: 357039010
 Matrix: Soil
 Collect Date: 16-SEP-14 13:09
 Receive Date: 18-SEP-14
 Collector: Client
 Moisture: 4.04%

Project: WCHN00313
 Client ID: WCHN001

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	1.16	1.16	3.47	ug/kg	1	YS1	09/21/14	1917	1420662	1
Aroclor-1221	U	1.16	1.16	3.47	ug/kg	1					
Aroclor-1232	U	1.16	1.16	3.47	ug/kg	1					
Aroclor-1242	U	1.16	1.16	3.47	ug/kg	1					
Aroclor-1248	U	1.16	1.16	3.47	ug/kg	1					
Aroclor-1254	U	1.16	1.16	3.47	ug/kg	1					
Aroclor-1260	U	1.16	1.16	3.47	ug/kg	1					
Aroclor-1262	U	1.16	1.16	3.47	ug/kg	1					
Aroclor-1268	U	1.16	1.16	3.47	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	AXV1	09/19/14	1745	1420661

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	4.88 ug/kg	6.94	70.2	(29%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB - 3 day TAT "Dry Weight Corrected"	5.45 ug/kg	6.94	78.4	(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: September 25, 2014

Page 1 of 2

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

Workorder: 357039

Client SDG: XP0133

Project Description: RC-233 Soil

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatiles-PCB											
Batch	1420662										
QC1203171193	LCS										
Aroclor-1016	33.3			26.0	ug/kg		78.1	(44%-97%)	YS1	09/21/14	15:34
Aroclor-1260	33.3			25.7	ug/kg		77.3	(49%-109%)			
**4cmx	6.66			5.18	ug/kg		77.8	(29%-106%)			
**Decachlorobiphenyl	6.66			5.79	ug/kg		87	(25%-131%)			
QC1203171192	MB										
Aroclor-1016			U	1.11	ug/kg					09/21/14	15:20
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			4.94	ug/kg		74.2	(29%-106%)			
**Decachlorobiphenyl	6.66			5.52	ug/kg		82.9	(25%-131%)			
QC1203171294	357039002	MS									
Aroclor-1016	33.9	U	1.13	22.4	ug/kg		66.2	(22%-127%)		09/21/14	16:54
Aroclor-1260	33.9	U	1.13	24.9	ug/kg		73.6	(18%-130%)			
**4cmx	6.78		4.38	4.20	ug/kg		62	(29%-106%)			
**Decachlorobiphenyl	6.78		4.40	5.12	ug/kg		75.6	(25%-131%)			

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QC Summary

Workorder: 357039

Client SDG: XP0133

Project Description: RC-233 Soil

Page 2 of 2

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatiles-PCB											
Batch	1420662										
QC1203171295 357039002 MSD											
Aroclor-1016	33.9	U	1.13	28.7	ug/kg	24.6	84.7	(0%-30%)	YS1	09/21/14	17:07
Aroclor-1260	33.9	U	1.13	28.3	ug/kg	12.6	83.5	(0%-30%)			
**4cmx	6.78		4.38	5.49	ug/kg		80.9	(29%-106%)			
**Decachlorobiphenyl	6.78		4.40	6.16	ug/kg		90.9	(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: 1420661 Verified by: _____
 Analyst: Alberto Velasco
 Method: SW846 3541

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)
1203171192 MB	19-SEP-2014 17:45:00	30.03	H2SO4/KM 2 nO4	9	1	0.0333
1203171193 LCS	19-SEP-2014 17:45:00	30.05	H2SO4/KM 2 nO4	9	1	0.03328
356334001 - 2	19-SEP-2014 17:45:00	1.01	H2SO4/KM 2 nO4	9	1	0.9901
356755001 - 2	19-SEP-2014 17:45:00	10.113	H2SO4/KM 2 nO4	9	1	0.09888
356975001	19-SEP-2014 17:45:00	10.06	H2SO4/KM 2 nO4	9	1	0.0994
357039001	19-SEP-2014 17:45:00	30.02	H2SO4/KM 2 nO4	9	1	0.03331
357039002	19-SEP-2014 17:45:00	30	H2SO4/KM 2 nO4	9	1	0.03333
1203171294 MS (357039002)	19-SEP-2014 17:45:00	30.05	H2SO4/KM 2 nO4	9	1	0.03328
1203171295 MSD (357039002)	19-SEP-2014 17:45:00	30.04	H2SO4/KM 2 nO4	9	1	0.03329
357039003	19-SEP-2014 17:45:00	30.05	H2SO4/KM 2 nO4	9	1	0.03328
357039004	19-SEP-2014 17:45:00	30.03	H2SO4/KM 2 nO4	9	1	0.0333
357039005	19-SEP-2014 17:45:00	30.04	H2SO4/KM 2 nO4	9	1	0.03329
357039006	19-SEP-2014 17:45:00	30.02	H2SO4/KM 2 nO4	9	1	0.03331
357039007	19-SEP-2014 17:45:00	30.01	H2SO4/KM 2 nO4	9	1	0.03332
357039008	19-SEP-2014 17:45:00	30.1	H2SO4/KM 2 nO4	9	1	0.03322
357039009	19-SEP-2014 17:45:00	30.05	H2SO4/KM 2 nO4	9	1	0.03328
357039010	19-SEP-2014 17:45:00	30.01	H2SO4/KM 2 nO4	9	1	0.03332

Type	Sample Id	Description	Serial Number	Spike Amt	Units	Comments:
LCS	1203171193	PCB Laboratory Control	WE140908-06	1	mL	Final Solvent: Hexane
MS	1203171294	PCB Laboratory Control	WE140908-06	1	mL	Clean up Initials: AV
MSD	1203171295	PCB Laboratory Control	WE140908-06	1	mL	Verified By: SLW
SURR	All	PEST LOW LEVEL SURROGATE 200 UG/L	WE140812-01	1	mL	Clean up SOP: GL-OA-E-037
REGNT	All	5% Potassium Permanganate	2134734	5	mL	Clean up Date: 9-19-14
REGNT	All	1:1 sulfuric acid	2144769	5	mL	*Sample 356334001 was lightweight characteristics and limited amount, aliquot by 1g.
REGNT	All	Hexane	2151969-B10	120	mL	*Sample 356975001 was dirt lint-like characteristics and lightweight, aliquot by 10g.

Prep Logbook

Batch ID: 1420661
Analyst: Alberto Velasco
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)
SOURC All	SODIUM SULFATE		2148821		30	g	