

SAF-RC-241
100N Sample Collection Supporting
100-N-85 Characterization Borehole
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt

H4-21

KW 3/11/15
INITIAL/DATE

COMMENTS:

SDG X0092

SAF-RC-241

Rad only

Chem only

Rad & Chem

Complete

Partial

**Sample Location: C9410 - I-001, I-002, I-003, I-004, I-005,
and I-006**



March 09, 2015

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

Re: RC-241 UPR-100-N-17 Archive
Work Order: 366711
SDG: X0092

Dear Joan Kessner:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on February 07, 2015. This revised data report has been prepared and reviewed in accordance with GEL's standard operating procedures. This data package was revised to correct the Volatiles and WA EPH fractions.

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. 4505.

Sincerely,

Heather Shaffer
Project Manager

Purchase Order: 1510

Chain of Custody: RC-241-004, RC-241-006, RC-241-008, RC-241-010, RC-241-012, RC-241-013,
RC-241-014, RC-241-015, RC-241-016, RC-241-017, RC-241-018, RC-241-019 and RC-241-020

Enclosures



Table of Contents

Case Narrative.....	1
Chain of Custody and Supporting Documentation.....	4
Laboratory Certifications.....	30
Volatile Analysis.....	32
Case Narrative.....	33
Sample Data Summary.....	39
Quality Control Summary.....	58
Miscellaneous.....	71
HPLC Polynuclear Aromatic Hydrocarbon Analysis.....	73
Sample Data Summary.....	81
QC Summary.....	86
Miscellaneous Data.....	91
Flame Ionization Detector Analysis.....	93
Case Narrative.....	94
Sample Data Summary.....	100
Quality Control Summary.....	106
Miscellaneous.....	110
FID Diesel Range Organics Analysis.....	112
Case Narrative.....	113
Sample Data Summary.....	118

Quality Control Summary.....	123
Miscellaneous.....	126
GC Volatiles (GRO) Analysis.....	128
Case Narrative.....	129
Sample Data Summary.....	134
Quality Control Summary.....	139
Miscellaneous.....	142

Case Narrative

This data package was revised to correct the Volatiles and WA EPH fractions.

**Receipt Narrative
for
Eberline
SDG: X0092
Work Order: 366711**

March 09, 2015

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 February 07, 2015 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Sample Identification: The laboratory received the following samples:

<u>Laboratory ID</u>	<u>Client ID</u>
366711001	B30C27
366711002	B30C31
366711003	B30C25
366711004	B30C24
366711005	B30C29
366711006	B30C16
366711007	B30C20
366711008	B30C22
366711009	B30C18
366711010	B30C30
366711011	B30C28
366711012	B30C32
366711013	B30C26

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, FID Flame Ionization Detector, GC Volatiles (GRO), GC/MS Volatile and HPLC Polynuclear Aromatic Hydrocarbon.



Heather Shaffer
Project Manager

Chain of Custody and Supporting Documentation

73165

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-241-015	PAGE 1 OF 1
COLLECTOR J. A. ...	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR KESSNER, JH	PRICE CODE 8K	DATA TURNAROUND 15 Days / 45 Days
SAMPLING LOCATION C9410, I-005	PROJECT DESIGNATION 100-N-85 Characterization Borehole - Soil	SAF NO. RC-241	COA 303630	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT FEDERAL EXPRESS
ICE CHEST NO. 605-333	FIELD LOGBOOK NO. HNF-N-507-28-95	ACTUAL SAMPLE DEPTH 43.10 ft	BILL OF LADING/AIR BILL NO. 7728 5457 8300	ORIGINAL	
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 5391				
MATRIX* A=Air DL=Drum L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESERVATION Frozen/Cool <-7C and >-20C 14 Days	HOLDING TIME 14 Days	TYPE OF CONTAINER aGs	NO. OF CONTAINER(S) 5
SPECIAL HANDLING AND/ OR STORAGE		VOLUME 40mL	SAMPLE ANALYSIS VOA - 5035/0260 (TCL);		
SAMPLE NO. B30C27	MATRIX* SOIL	SAMPLE DATE 2-5-15	SAMPLE TIME 1400		

SPECIAL INSTRUCTIONS

** It is critical to ensure that the correct TAT and price code is marked on each COC.** The field NCOs are to identify on the COC and Field Sampling Report any samples with indications (visual, odor, or per meter) of high organic content.** Include sampling location (drilling ID) on the COC. TRVL-15-016

TRVL-15-016

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
J. A. ...	2-5-15 1530	SSU #1	2-5-15 1530
J. A. ...	FEB 06 2015 0930	L.D. Wall	FEB 06 2015 0930
LD. WALL	FFR 06 2015 1400	FEDEX	
LD. WALL		Mr. Kozlov	2-7-15 0850

TITLE
DISPOSED BY
DATE/TIME

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-241-019	PAGE 1 OF 1
COLLECTOR <i>J Aguilar</i>	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR KESSNER, JH	PRICE CODE 8K	DATA TURNAROUND 15 Days / 45 Days
SAMPLING LOCATION C9410, I-006	PROJECT DESIGNATION 100-N-85 Characterization Borehole - Soil		SAF NO. RC-241	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO. <i>605-333</i>	FIELD LOGBOOK NO. <i>2-15</i> HNF N-507-28-95	ACTUAL SAMPLE DEPTH 47.9 ft	COA 303630	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. <i>5391</i>	BILL OF LADING/AIR BILL NO. <i>7728 5457 8300</i>			

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	Preservation	Frozen/Cool <-7C and >
A=Air	*Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	HOLDING TIME	20C 14 Days
DL=Drum		TYPE OF CONTAINER	ags
Liquids		NO. OF CONTAINER(S)	5
DS=Drum		VOLUME	40mL
Solids		SAMPLE ANALYSIS	VOA - 5035/8260 (TCL)
L=Liquid		SPECIAL HANDLING AND/OR STORAGE	
O=Oil		SAMPLE NO.	B30C31
S=Soil		MATRIX*	SOIL
SE=Sediment		SAMPLE DATE	2-5-15
T=Tissue		SAMPLE TIME	1450
V=Vegetation			
W=Water			
WI=Wipe			
X=Other			

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM <i>J Aguilar</i>		RECEIVED BY/STORED IN <i>SSU #1</i>	DATE/TIME 2-5-15 1530
RELINQUISHED BY/REMOVED FROM <i>SSU #1</i>		RECEIVED BY/STORED IN <i>L.D. Well</i>	DATE/TIME FEB 06 2015 0930
RELINQUISHED BY/REMOVED FROM <i>L.D. Well</i>		RECEIVED BY/STORED IN <i>FFDEX</i>	DATE/TIME FEB 06 2015 1400
RELINQUISHED BY/REMOVED FROM <i>FFDEX</i>		RECEIVED BY/STORED IN <i>Pa. Keshaw</i>	DATE/TIME 2-7-15 0850
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
** It is critical to ensure that the correct TAT and price code is marked on each COC.** The field NCOs are to identify on the COC and Field Sampling Report any samples with indications (visual, odor, or per meter) of high organic content.** Include sampling location (drilling ID) on the COC. TRVL-15-016

TRVL-15-016

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-241-013	PAGE 1 OF 1
COLLECTOR <i>J. Aquilar</i>	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR KESSNER, JH	PRICE CODE 8K	DATA TURNAROUND
SAMPLING LOCATION C9410, I-004	PROJECT DESIGNATION 100-N-85 Characterization Borehole - Soil		SAF NO. RC-241	AIR QUALITY <input type="checkbox"/>	15 Days / 45 Days
ICE CHEST NO. <i>605-233</i>	FIELD LOGBOOK NO. HNF-N-507-28-95	ACTUAL SAMPLE DEPTH 37.8 ft	COA 303630	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. <i>5391</i>	BILL OF LADING/AIR BILL NO. <i>7728 5457 8300</i>			

MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESERVATION Frozen/Cool <-7C and >-20C 14 Days	
	HOLDING TIME	aGs	
	TYPE OF CONTAINER	5	
	NO. OF CONTAINER(S)	40mL	
	VOLUME	VOA - 5035/R260 (TCL);	
	SAMPLE ANALYSIS		
SAMPLE NO. B30C25	MATRIX* SOIL	SAMPLE DATE 2-5-15	SAMPLE TIME 1250

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>J. Aquilar</i>	DATE/TIME 2-5-15 1530	RECEIVED BY/STORED IN SSU #1	DATE/TIME 2-5-15 1530	** It is critical to ensure that the correct TAT and price code is marked on each COC.** The field NCOs are to identify on the COC and Field Sampling Report any samples with indications (visual, odor, or per meter) of high organic content.** Include sampling location (drilling ID) on the COC. TRVL-15-016 <i>TRVL-15-016</i>	
RELINQUISHED BY/REMOVED FROM	DATE/TIME FEB 06 2015 0930	RECEIVED BY/STORED IN LD. W. [Signature]	DATE/TIME FEB 06 2015 0930		
RELINQUISHED BY/REMOVED FROM <i>LD. W. [Signature]</i>	DATE/TIME FEB 06 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME FEB 06 2015 0930		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN <i>M. [Signature]</i>	DATE/TIME 2-7-15 0830		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME	

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-241-012	PAGE 1 OF 1
COLLECTOR <i>E. Kauer</i>	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR KESSNER, JH	PRICE CODE 8K	DATA TURNAROUND 15 Days / 45 Days
SAMPLING LOCATION C9410, I-003 FTB	PROJECT DESIGNATION 100-N-85 Characterization Borehole - Soil	ACTUAL SAMPLE DEPTH (N/A)	SAF NO. RC-241	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT FEDERAL EXPRESS
ICE CHEST NO. <i>605-333</i>	FIELD LOGBOOK NO. <i>HN-307-28-95</i>	OFFSITE PROPERTY NO. <i>5391</i>	COA 303630	BILL OF LADING/AIR BILL NO. <i>7728 5457 8200</i>	
SHIPPED TO GEL Laboratories, LLC		PRESERVATION Frozen/Cool <-7C and >- 20C 14 Days			
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other		HOLDING TIME aGs			
POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.		NO. OF CONTAINER(S) 5			
SPECIAL HANDLING AND/OR STORAGE		VOLUME 40mL			
SAMPLE NO. B30C24		SAMPLE ANALYSIS VOA - 5035/6260 (TCL);			
MATRIX* SOIL		SAMPLE DATE 2-5-15			
DATE/TIME		SAMPLE TIME 1050			

SIGN/ PRINT NAMES		RECEIVED BY/STORED IN		DATE/TIME
<i>E. Kauer</i>		<i>L.D. Wall</i>		2-5-15 1225
RECEIVED BY/STORED IN		RECEIVED BY/STORED IN		DATE/TIME
<i>L.D. Wall</i>		<i>L.D. Wall</i>		FEB 05 2015 1230
RECEIVED BY/STORED IN		RECEIVED BY/STORED IN		DATE/TIME
<i>L.D. Wall</i>		<i>L.D. Wall</i>		FEB 06 2015 0930
RECEIVED BY/STORED IN		RECEIVED BY/STORED IN		DATE/TIME
<i>L.D. Wall</i>		<i>L.D. Wall</i>		FEB 06 2015 1400
RECEIVED BY/STORED IN		RECEIVED BY/STORED IN		DATE/TIME
<i>L.D. Wall</i>		<i>L.D. Wall</i>		FEB 06 2015 1400
RECEIVED BY/STORED IN		RECEIVED BY/STORED IN		DATE/TIME
<i>L.D. Wall</i>		<i>L.D. Wall</i>		FEB 06 2015 1400

SPECIAL INSTRUCTIONS
 ** It is critical to ensure that the correct TAT and price code is marked on each COC. ** The field NCOs are to identify on the COC and Field Sampling Report any samples with indications (visual, odor, or per meter) of high organic content. ** Include sampling location (drilling ID) on the COC. TRVL-15-016

TRVL-15-016

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-241-017	PAGE 1 OF 1
COLLECTOR <i>J. A. ...</i>	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR KESSNER, JH	PRICE CODE 8K	DATA TURNAROUND 15 Days / 45 Days
SAMPLING-LOCATION C9410, I-005 EB	PROJECT DESIGNATION 100-N-85 Characterization Borehole - Soil	ACTUAL SAMPLE DEPTH 21A	SAF NO. RC-241	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT FEDERAL EXPRESS
ICE CHEST NO. <i>605-333</i>	FIELD LOGBOOK NO. <i>28-75</i>	OFFSITE PROPERTY NO. <i>5391</i>	COA 303630	BILL OF LADING/AIR BILL NO. <i>777854578300</i>	
SHIPPED TO GEL Laboratories, LLC					

MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESERVATION Frozen/Cool <7C and >20C 14 Days	HOLDING TIME 14 Days	TYPE OF CONTAINER aGs	NO. OF CONTAINER(S) 5	VOLUME 40ml	SAMPLE ANALYSIS VOA - 5035/8260 (TCL);
SPECIAL HANDLING AND/OR STORAGE							
SAMPLE NO. B30C29	MATRIX* SOIL	SAMPLE DATE <i>2-5-15</i>	SAMPLE TIME <i>1310</i>				

SPECIAL INSTRUCTIONS ** It is critical to ensure that the correct TAT and price code is marked on each COC.** The field NCOs are to identify on the COC and Field Sampling Report any samples with indications (visual, odor, or per meter) of high organic content.** Include sampling location (drilling ID) on the COC. TRVL-15-016	
SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM <i>J. A. ...</i>	RECEIVED BY/STORED IN SSU #1
RELINQUISHED BY/REMOVED FROM <i>J. A. ...</i>	RECEIVED BY/STORED IN LD. W. ...
RELINQUISHED BY/REMOVED FROM <i>J. A. ...</i>	RECEIVED BY/STORED IN LD. W. ...
RELINQUISHED BY/REMOVED FROM <i>J. A. ...</i>	RECEIVED BY/STORED IN LD. W. ...
RELINQUISHED BY/REMOVED FROM <i>J. A. ...</i>	RECEIVED BY/STORED IN LD. W. ...
RELINQUISHED BY/REMOVED FROM <i>J. A. ...</i>	RECEIVED BY/STORED IN LD. W. ...
RELINQUISHED BY/REMOVED FROM <i>J. A. ...</i>	RECEIVED BY/STORED IN LD. W. ...
RELINQUISHED BY/REMOVED FROM <i>J. A. ...</i>	RECEIVED BY/STORED IN LD. W. ...
RELINQUISHED BY/REMOVED FROM <i>J. A. ...</i>	RECEIVED BY/STORED IN LD. W. ...
RELINQUISHED BY/REMOVED FROM <i>J. A. ...</i>	RECEIVED BY/STORED IN LD. W. ...
LABORATORY SECTION	RECEIVED BY
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD
TITLE	DATE/TIME
DISPOSED BY	DATE/TIME
PRINTED ON 1/21/2015	

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-241-004	PAGE 1 OF 1
COLLECTOR <i>E. Kauer</i>	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR KESSNER, JH	PRICE CODE 8K	DATA TURNAROUND 15 Days / 45 Days
SAMPLING LOCATION C9410, I-001	PROJECT DESIGNATION 100-N-85 Characterization Borehole - Soil	ACTUAL SAMPLE DEPTH 22.5 ft	SAF NO. RC-241	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT FEDERAL EXPRESS
ICE CHEST NO. <i>605-333</i>	FIELD LOGBOOK NO. HNF-N-507-28-95	OFFSITE PROPERTY NO. 5391	COA 303630	BILL OF LADING/AIR BILL NO. <i>1728 5457 8300</i>	
SHIPPED TO GEL Laboratories, LLC	ORIGINAL				

MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESCRIPTION Frozen/Cool <7C and >20C 14 Days	NO. OF CONTAINER(S) 5	VOLUME 40ml	SAMPLE ANALYSIS VOA - 5035/8260 (TCL)
SAMPLE NO. B30C16	MATRIX* SOIL	SAMPLE DATE 2-5-15	SAMPLE TIME 0925	L	

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>E. Kauer</i>	DATE/TIME 2-5-15 1215	RECEIVED BY/STORED IN <i>L.D. Wall</i>	DATE/TIME 2-5-15 1215	** It is critical to ensure that the correct TAT and price code is marked on each COC.** The field NCOs are to identify on the COC and Field Sampling Report any samples with indications (visual, odor, or per meter) of high organic content.** Include sampling location (drilling ID) on the COC. TRVL-15-016	
RELINQUISHED BY/REMOVED FROM <i>CH2M Hill</i>	DATE/TIME FEB 05 2015 1220	RECEIVED BY/STORED IN <i>SSW/H</i>	DATE/TIME FEB 05 2015 1230	TRVL-15-016	
RELINQUISHED BY/REMOVED FROM <i>SSW/H</i>	DATE/TIME FEB 06 2015 0930	RECEIVED BY/STORED IN <i>L.D. Wall</i>	DATE/TIME FEB 06 2015 0930		
RELINQUISHED BY/REMOVED FROM <i>L.D. Wall</i>	DATE/TIME FEB 06 2015 1400	RECEIVED BY/STORED IN <i>FEDEX</i>	DATE/TIME FEB 06 2015 1400		
RELINQUISHED BY/REMOVED FROM <i>FEDEX</i>	DATE/TIME FEB 06 2015 1400	RECEIVED BY/STORED IN <i>M. Kessler</i>	DATE/TIME 2-7-15 0850		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME
PRINTED ON 1/21/2015			

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-241-008	PAGE 1 OF 1
COLLECTOR <i>E. Kauer</i>	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR KESSNER, JH	PRICE CODE 8K	DATA TURNAROUND 15 Days / 45 Days
SAMPLING LOCATION C9410, I-002	PROJECT DESIGNATION 100-N-85 Characterization Borehole - Soil		SAF NO. RC-241	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO. <i>605-333</i>	FIELD LOGBOOK NO. <i>HNF-N-507-28-95</i>	ACTUAL SAMPLE DEPTH <i>27.8 ft</i>	COA 303630	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. <i>5391</i>	BILL OF LADING/AIR BILL NO. <i>772854578300</i>			

MATRIX* A=Air DL=Drum L=Liquids DS=Drum S=Soil SF=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESERVATION Frozen/Cool <-7C and > 20C 14 Days	HOLDING TIME 14 Days	TYPE OF CONTAINER ags	NO. OF CONTAINER(S) 5	VOLUME 40ml	SAMPLE ANALYSIS VOA - 5035/8260 (TCL);
SPECIAL HANDLING AND/OR STORAGE							
SAMPLE NO. B30C20	MATRIX* SOIL	SAMPLE DATE <i>2-5-15</i>	SAMPLE TIME <i>1010</i>				

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>E. Kauer</i>	DATE/TIME <i>2-5-15 1215</i>	RECEIVED BY/STORED IN <i>L.D. Wall</i>	DATE/TIME <i>2-5-15 1215</i>	** It is critical to ensure that the correct TAT and price code is marked on each COC.** The field NCOs are to identify on the COC and Field Sampling Report any samples with indications (visual, odor, or per meter) of high organic content.** Include sampling location (drilling ID) on the COC. TRVL-15-016	
RELINQUISHED BY/REMOVED FROM <i>L.D. Wall</i>	DATE/TIME <i>FEB 05 2015 1830</i>	RECEIVED BY/STORED IN <i>SCS#1</i>	DATE/TIME <i>FEB 05 2015 1230</i>	TRVL-15-016	
RELINQUISHED BY/REMOVED FROM <i>SCS#1</i>	DATE/TIME <i>FEB 06 2015 0930</i>	RECEIVED BY/STORED IN <i>L.D. Wall</i>	DATE/TIME <i>FEB 06 2015 0930</i>		
RELINQUISHED BY/REMOVED FROM <i>L.D. Wall</i>	DATE/TIME <i>FEB 06 2015 1400</i>	RECEIVED BY/STORED IN FEDEX	DATE/TIME <i>FEB 06 2015 1400</i>		
RELINQUISHED BY/REMOVED FROM <i>FEI ex</i>	DATE/TIME <i>2-7-15 0830</i>	RECEIVED BY/STORED IN <i>M. Kous</i>	DATE/TIME <i>2-7-15 0830</i>		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME		
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME		
PRINTED ON 1/21/2015					

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-241-010	PAGE 1 OF 1
COLLECTOR E. Kauer	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR KESSNER, JH	PRICE CODE 8K	DATA TURNAROUND 15 Days / 45 Days
SAMPLING LOCATION C9410, I-003	PROJECT DESIGNATION 100-N-85 Characterization Borehole - Soil	ACTUAL SAMPLE DEPTH 33.4 Ft	SAF NO. RC-241	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT FEDERAL EXPRESS
ICE CHEST NO. 605-333	FIELD LOGBOOK NO. 100-N-307-28-95	OFFSITE PROPERTY NO. 5381	COA 303630	BILL OF LADING/AIR BILL NO. 7728 5457 8300	
SHIPPED TO GEL Laboratories, LLC	PRESERVATION Frozen/Cool <-7C and >-20C 14 Days				
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	HOLDING TIME 14 Days				
POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	TYPE OF CONTAINER aGs				
SPECIAL HANDLING AND/OR STORAGE	NO. OF CONTAINER(S) 5				
	VOLUME 40mL				
	SAMPLE ANALYSIS VOA - 5035/8260 (TCL)				
SAMPLE NO. B30C22	MATRIX*	SAMPLE DATE 2-5-15	SAMPLE TIME 1150		

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM E. Kauer	DATE/TIME 2-5-15 1215	RECEIVED BY/STORED IN L.D. West	DATE/TIME 2-5-15 1215	** It is critical to ensure that the correct TAT and price code is marked on each COC.** The field NCOs are to identify on the COC and Field Sampling Report any samples with indications (visual, odor, or per meter) of high organic content.** Include sampling location (drilling ID) on the COC. TRVL-15-016	
RELINQUISHED BY/REMOVED FROM L.D. West	DATE/TIME FEB 05 2015 1230	RECEIVED BY/STORED IN SSUW#1	DATE/TIME FEB 05 2015 1230	TRVL-15-016	
RELINQUISHED BY/REMOVED FROM L.D. West	DATE/TIME FEB 06 2015 0930	RECEIVED BY/STORED IN L.D. West	DATE/TIME FEB 06 2015 0930		
RELINQUISHED BY/REMOVED FROM L.D. West	DATE/TIME FEB 06 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME 2-7-15 0850		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME
PRINTED ON 1/21/2015			

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-241-006	PAGE 1 OF 1
COLLECTOR <i>E. Kumer</i>	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR KESSNER, JH	PRICE CODE 8K	DATA TURNAROUND 15 Days / 45 Days
SAMPLING LOCATION C9410, I-001 DUP	PROJECT DESIGNATION 100-N-85 Characterization Borehole - Soil		SAF NO. RC-241	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO. <i>605-333</i>	FIELD LOGBOOK NO. <i>HNF-N507-28-95</i>	ACTUAL SAMPLE DEPTH <i>22.5 Ft</i>	COA 303630	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. <i>5391</i>	BILL OF LADING/AIR BILL NO. <i>77285457 8300</i>			

MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESERVATION Frozen/Cool <7C and >. 20C 14 Days	TYPE OF CONTAINER 9GS	NO. OF CONTAINER(S) 5	VOLUME 40ml	SAMPLE ANALYSIS VOA - 5035/8260 (TCL);
SPECIAL HANDLING AND/OR STORAGE						
SAMPLE NO. B30C18	MATRIX* SOIL	SAMPLE DATE <i>2-5-15</i>	SAMPLE TIME <i>0925</i>			

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM <i>E. Kumer</i>	<i>L.D. Wall</i>	<i>L.D. Wall</i>	<i>2-5-15 1215</i>
RELINQUISHED BY/REMOVED FROM <i>L.D. Wall</i>	<i>SSW #1</i>	<i>L.D. Wall</i>	<i>FEB 05 2015 1230</i>
RELINQUISHED BY/REMOVED FROM <i>SSW #1</i>	<i>L.D. Wall</i>	<i>L.D. Wall</i>	<i>FEB 06 2015 0930</i>
RELINQUISHED BY/REMOVED FROM <i>L.D. Wall</i>	<i>FEDEX</i>	<i>M. Karpis</i>	<i>2-7-15 0830</i>
RELINQUISHED BY/REMOVED FROM <i>FEDEX</i>			
RELINQUISHED BY/REMOVED FROM			

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

SPECIAL INSTRUCTIONS

** It is critical to ensure that the correct TAT and price code is marked on each COC.** The field NCOs are to identify on the COC and Field Sampling Report any samples with indications (visual, odor, or per meter) of high organic content.** Include sampling location (drilling ID) on the COC. TRVL-15-016

TRVL-15-016

CH2M Hill Plateau Remediation Company

COLLECTOR: J Ayala, LC

SAMPLING LOCATION: C9410, I-005

ICE CHEST NO.: 6005-428

COMPANY CONTACT: SUMNER, LC

TELEPHONE NO.: 376-3922

PROJECT COORDINATOR: KESSNER, JH

PRICE CODE: 8K

AIR QUALITY:

METHOD OF SHIPMENT: FEDERAL EXPRESS

PROJECT DESIGNATION: 100-N-85 Characterization Borehole - Soil

FIELD LOGBOOK NO.: HNF-N-507-28-95

ACTUAL SAMPLE DEPTH: 43.10 Ft

COA: 303630

SAF NO.: RC-241

RC-241-016

PAGE 1 OF 1

DATA TURNAROUND: 15 Days / 45 Days

ORIGINAL

SHIP TO: GEL Laboratories, LLC

OFFSITE PROPERTY NO.: 53911

BILL OF LADING/AIR BILL NO.: 772005457 8300

MATRIX*	PRESERVATION	HOLDING TIME	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS	SAMPLE DATE	SAMPLE TIME	MATRIX*
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SF=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	Cool <=6C	14 Days	aG	1	500mL	PAHS - 8310;	2-5-15	1400	SOIL
	Cool <=6C	14 Days	Gs*	3	40mL	TPH-Gasoline Range - WTPH-G;			
	Cool <=6C	14/40 Days	G	1	220mL 245 420mL	TPH-Diesel Range - WTPH-D+;			
	Cool <=6C	14 Days	aG	1	420mL	Extractable Petroleum Hydrocarbons (EPH);			

SPECIAL INSTRUCTIONS

** It is critical to ensure that the correct TAT and price code is marked on each COC.** The field NCOs are to identify on the COC and Field Sampling Report any samples with indications (visual, odor, or per meter) of high organic content.** Include sampling location (drilling ID) on the COC. TRVL-15-016

TRVL-15-016

CHAIN OF POSSESSION	DATE/TIME	REMOVED FROM	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	2-5-15 1530	J Ayala, LC	SSU #1	2-5-15 1530
RELINQUISHED BY/REMOVED FROM	FEB 06 2015 0930	LD. Wall	LD. Wall	FEB 06 2015 0930
RELINQUISHED BY/REMOVED FROM	FEB 06 2015 1400	LD. Wall	FEDEX	FEB 06 2015 0830
RELINQUISHED BY/REMOVED FROM			M. Kuslov	
RELINQUISHED BY/REMOVED FROM				
RELINQUISHED BY/REMOVED FROM				
RELINQUISHED BY/REMOVED FROM				
RELINQUISHED BY/REMOVED FROM				

LABORATORY SECTION: RECEIVED BY

FINAL SAMPLE DISPOSITION: DISPOSAL METHOD

PRINTED ON 1/21/2015

DATE/TIME

DISPOSED BY

57165

CH2M Hill Plateau Remediation Company

COLLECTOR
J. Aquilar

SAMPLING LOCATION
C9410, I-004

ICE CHEST NO.
605-420

SHIPPED TO
GEL Laboratories, LLC

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

COMPANY CONTACT
SUMNER, LC

TELEPHONE NO.
376-3922

PROJECT COORDINATOR
KESSNER, JH

PRICE CODE
8K

DATA TURNAROUND
15 Days / 45 Days

PROJECT DESIGNATION
100-N-85 Characterization Borehole - Soil

SAF NO.
RC-241

AIR QUALITY

METHOD OF SHIPMENT
FEDERAL EXPRESS

FIELD LOGBOOK NO.
HNF-N-507-28-95

ACTUAL SAMPLE DEPTH
37.8 ft

COA
303630

BILL OF LADING/AIR BILL NO.
728 5457 8300

OFFSITE PROPERTY NO.
5321

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION		HOLDING TIME		TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS
		Cool <=6C	Cool <=6C	14/40 Days	14/40 Days				
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	Cool <=6C	Cool <=6C	14/40 Days	14/40 Days	aG	1	500mL	PAHS - 8310;
				Gs*	G		3	40mL	TPH-Gasoline Range - WTPH-G;
							1	120mL 125	Extractable Petroleum Hydrocarbons (EPH);
							1	120mL 125	TPH-Diesel Range - WTPH-D +;

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	DATE/TIME

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME
J. Aquilar	2-5-15 1530		SSU #1	2-5-15 1530
LD. Wall	FEB 06 2015 0900		L.D. Wall	FEB 06 2015 0900
LD. Wall	FEB 06 2015 1400		FEDEX	
LD. Wall	FEB 06 2015 1400		J.H. Kessner	2-7-15 0830

SPECIAL INSTRUCTIONS
** It is critical to ensure that the correct TAT and price code is marked on each COC.** The field NCOs are to identify on the COC and Field Sampling Report any samples with indications (visual, odor, or per meter) of high organic content.** Include sampling location (drilling ID) on the COC. TRVL-15-016

TRVL-15-016

LABORATORY SECTION
RECEIVED BY

FINAL SAMPLE DISPOSITION
DISPOSAL METHOD

TITLE

DATE/TIME

DISPOSED BY

DATE/TIME

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location:

C9410

Sampler Initials and Date: JRA 2-5-15

Sample Number ¹	Sample Suffix	Initial Weight ² (grams)	Total Weight ³ (grams)	Soil Weight ⁴ (grams)
B30C27	K	29.12	34.36	5.24
B30C27	L	29.33	34.53	5.20
B30C27	M	29.20	35.12	5.92
B30C27	N	29.32	35.15	5.83
B30C27	P	29.36	34.74	5.38

¹ Enter sample number associated with the sampling event.

² Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

³ Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

⁴ Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location:

C9410

Sampler Initials and Date: JRA 2-5-15

Sample Number ¹	Sample Suffix	Initial Weight ² (grams)	Total Weight ³ (grams)	Soil Weight ⁴ (grams)
B30C31	K	29.50	35.13	5.63
B30C31	L	29.34	34.42	5.08
B30C31	M	29.50	34.77	5.27
B30C31	N	29.48	34.74	5.28
B30C31	P	29.40	34.73	5.33

¹ Enter sample number associated with the sampling event.

² Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

³ Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

⁴ Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location:

C9410

Sampler Initials and Date:

JRA

to 2-5-15

~~2-5-10~~ 2-5-15

Sample Number ¹	Sample Suffix	Initial Weight ² (grams)	Total Weight ³ (grams)	Soil Weight ⁴ (grams)
B30C25	K	29.40	34.57	5.17
B30C25	L	29.26	34.40	5.14
B30C25	M	29.53	35.17	5.64
B30C25	N	29.59	35.56	5.97
B30C25	P	29.63	35.83	6.20

¹ Enter sample number associated with the sampling event.

² Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

³ Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

⁴ Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location:

C9410

Sampler Initials and Date: ELK 2-5-15

Sample Number ¹	Sample Suffix	Initial Weight ² (grams)	Total Weight ³ (grams)	Soil Weight ⁴ (grams)
B30C24	K	29.39	35.69	6.30
B30C24	L	29.21	36.16	6.95
B30C24	M	29.26	34.74	5.48
B30C24	N	29.56	36.29	6.73
B30C24	P	29.21	35.75	6.54

¹ Enter sample number associated with the sampling event.

² Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

³ Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

⁴ Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location:

C9410

Sampler Initials and Date: JRA 25-15

Sample Number ¹	Sample Suffix	Initial Weight ² (grams)	Total Weight ³ (grams)	Soil Weight ⁴ (grams)
B30C29	K	29.65	34.66	5.01
B30C29	L	29.34	34.82	5.48
B30C29	M	29.30	34.70	5.40
B30C29	N	29.53	34.79	5.26
B30C29	P	29.42	34.75	5.33

¹ Enter sample number associated with the sampling event.

² Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

³ Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

⁴ Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location:

Sampler Initials and Date: *EIK 2-5-15*

Sample Number ¹	Sample Suffix	Initial Weight ² (grams)	Total Weight ³ (grams)	Soil Weight ⁴ (grams)
<i>B30C16</i>	<i>K</i>	<i>29.44</i>	<i>34.70</i>	<i>5.24</i>
<i>B30C16</i>	<i>L</i>	<i>29.66</i>	<i>35.74</i>	<i>6.08</i>
<i>B30C16</i>	<i>M</i>	<i>29.37</i>	<i>35.98</i>	<i>6.61</i>
<i>B30C16</i>	<i>N</i>	<i>29.28</i>	<i>35.44</i>	<i>6.16</i>
<i>B30C16</i>	<i>P</i>	<i>29.25</i>	<i>36.35</i>	<i>7.10</i>

¹ Enter sample number associated with the sampling event.

² Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

³ Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

⁴ Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location:

C9410

Sampler Initials and Date: ELK 2-5-15

Sample Number ¹	Sample Suffix	Initial Weight ² (grams)	Total Weight ³ (grams)	Soil Weight ⁴ (grams)
B30C20	K	29.32	35.43	6.11
B30C20	L	29.57	35.48	5.91
B30C20	M	29.41	36.44	7.03
B30C20	N	29.22	34.27	5.05
B30C20	P	29.33	34.29	4.96

¹ Enter sample number associated with the sampling event.

² Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

³ Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

⁴ Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location:

C9410

Sampler Initials and Date: ELK 2-5-15

Sample Number ¹	Sample Suffix	Initial Weight ² (grams)	Total Weight ³ (grams)	Soil Weight ⁴ (grams)
B30C22	K	29.30	36.26	
B30C22	L	29.40	35.01	
B30C22	M	29.38	35.31	
B30C22	N	29.20	35.60	
B30C22	P	29.31	37.40	

¹ Enter sample number associated with the sampling event.

² Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

³ Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

⁴ Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location:

C9410

Sampler Initials and Date: ELK 2-5-15

Sample Number ¹	Sample Suffix	Initial Weight ² (grams)	Total Weight ³ (grams)	Soil Weight ⁴ (grams)
B30C18	K	29.33	35.54	6.21
B30C18	L	29.26	34.48	5.22
B30C18	M	29.31	35.05	5.74
B30C18	N	29.37	35.75	6.38
B30C18	P	29.48	35.66	6.18

¹ Enter sample number associated with the sampling event.

² Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

³ Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

⁴ Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)



Client: <u>CPRC</u>		SDG/AR/COC/Work Order: <u>326711</u>
Received By: <u>MIC</u>		Date Received: <u>2-7-15</u>
Suspected Hazard Information	Yes	No
COC/Samples marked as radioactive?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Classified Radioactive II or III by RSO?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
COC/Samples marked containing PCBs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Package, COC, and/or Samples marked as beryllium or asbestos containing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Shipped as a DOT Hazardous?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Samples identified as Foreign Soil?	<input checked="" type="checkbox"/>	<input 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) <u>see attached</u> 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>130532776</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: 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: <u>FedEx Air</u> FedEx Ground UPS Field Services Courier Other <u>see attached sheet</u>

Comments (Use Continuation Form if needed):

Subject: X0092 RC-241 VOA Samples
From: "Weiss, Richard L" <richard.weiss@wch-rcc.com>
Date: 2/9/2015 12:41 PM
To: "Heather.Shaffer@gel.com" <Heather.Shaffer@gel.com>
CC: "Kessner, Joan H" <joan.kessner@wch-rcc.com>

Heather,

I thought that the CHPRC soil sampling procedure specifically identified a soil moisture bottle, but I remember incorrectly. It only specifies 5 bottles all with tare/final weights and a stir bar. For the RC-241 samples, they should have taken five bottles. If you cannot use one of those for percent moisture, it is acceptable to report the VOA on as-received weight. If necessary, we can recalculate for our use from percent moistures determined on associated sample numbers. (e.g. sample B30C16 – VOA should have associated B30C17 used for PAH, EPH, & WTPH –D/G).

Have you gotten specifically identified percent moisture bottles from CHPRC in the past?

Please let me know if you need anything else.

Rich

Laboratory Certifications

List of current GEL Certifications as of 09 March 2015

State	Certification
Alaska	UST-110
Arkansas	88-0651
CLIA	42D0904046
California	2940 Interim
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 SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA150001
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	T104704235-15-10
Utah NELAP	SC000122014-16
Vermont	VT87156
Virginia NELAP	460202
Washington	C780-12

Volatile Analysis

Case Narrative

**GC/MS Volatile
Technical Case Narrative
Eberline (WCHN)
SDG #: X0092
Work Order #: 366711**

Method/Analysis Information

Procedure:	Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer
Analytical Method:	SW846 5035/8260C
Prep Method:	SW846 5035
Analytical Batch Number:	1456652
Prep Batch Number:	1456651

Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

Sample ID	Client ID
366711001	B30C27
366711002	B30C31
366711003	B30C25
366711004	B30C24
366711005	B30C29
366711006	B30C16
366711007	B30C20
366711008	B30C22
366711009	B30C18
1203261693	Method Blank (MB)
1203261694	Laboratory Control Sample (LCS)
1203261695	366711001(B30C27) Post Spike (PS)
1203261696	366711001(B30C27) Post Spike Duplicate (PSD)
1203263153	Method Blank (MB)
1203263154	Laboratory Control Sample (LCS)

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

The data results reported met all SOP and method criteria, unless otherwise discussed below.

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-038 REV# 21.

Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the Calibration History report located in the Standard Data section of the data package. The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were added by the auto sampler at a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories LLC will not have surrogate recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an industry shortage.

Initial Calibration

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

Continuing Calibration Verification Requirements

The calibration verification standard requirements were not all met. There were no positive results for any of the analytes that were outside the calibration criteria. The results are reported.

Quality Control (QC) Information

Blank (MB) Statement

The blanks analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries

Surrogate recoveries in all client and quality control samples were within the acceptance limits.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

QC Sample Designation

Sample 366711001 (B30C27) was designated for spike analysis.

Matrix Spike/Matrix Spike Duplicate Recovery Statement

The matrix spike (MS) and matrix spike duplicate (MSD) recoveries were within the required acceptance limits.

Relative Percent Difference (RPD) Statement

The RPDs between the matrix spike pair met the acceptance limits.

Internal Standard (ISTD) Acceptance

The internal standard responses in all client and quality control samples met the required acceptance criteria.

Technical Information

Holding Time Specifications

All samples in this SDG met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or 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.

Sample Preservation and Integrity

All samples met the sample preservation and integrity requirements.

Sample Dilutions/Methanol Dilutions

The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis

Re-analyses were not required for samples in this SDG.

Miscellaneous Information

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to 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. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation

The following DER was generated for this SDG: 1381091.

Manual Integrations

Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment

Tentatively identified compounds (TIC) may be requested for samples in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, were included on the Sample Data Summary (Form 1) and included with the sample raw data.

Additional Comments

Additional comments were not required for this SDG.

System Configuration

The Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description	P & T Trap
VOA2.I	Agilent 7890/5975 GC/MS w/ OI Eclipse/Archon Autosampler	HP7890N/HP5975C	DB-624	J&W, 60m x 0.25mm x 1.4um	Trap 10

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. 11-FEB-15	Division: Federal	Quality Criteria: SOP	Type: Process
Instrument Type: VOA GC/MS	Test / Method: 8260C	Matrix Type: Solid	Client Code: WCHN001
Batch ID: 1456652	Sample Numbers: ALL		
Potentially affected work order(s)(SDG):			
Application Issues: Other			
Specification and Requirements Exception Description:		DER Disposition:	
1. The percent drifts for Chloromethane (+22.4%) and Vinyl Chloride (+20.06%) exceeded the 20% drift limit in the continuing calibration verification sample analyzed 02/10/15. Each had high bias.		1. Narrate and report data. Neither compound was detected in the associated samples.	

Originator's Name:
Crystal Stacey 11-FEB-15

Data Validator/Group Leader:
Kelle Bellamy 23-FEB-15

GEL LABORATORIES LLC

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

Qualifier Definition Report for

WCHN001 Eberline

Client SDG: X0092 GEL Work Order: 366711 Project: RC-241 UPR-100-N-17

The Qualifiers in this report are defined as follows:

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.

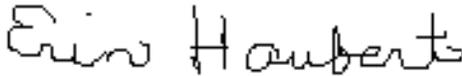
RA Indicates that sample is re-analyzed without re-extraction.

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: Erin Haubert

Date: 23 FEB 2015

Title: Data Validator

Sample Data Summary

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: **RC-241 UPR-100-N-17 Archive**

Report Date: February 23, 2015

Client SDG: X0092

Client Sample ID: B30C27
 Sample ID: 366711001
 Matrix: SOIL
 Collect Date: 05-FEB-15 14:00
 Receive Date: 07-FEB-15
 Collector: Client

Project: WCHN0RC241
 Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Volatile Organics										
<i>Volatiles by SW846 8260C "As Received"</i>										
1,1,1-Trichloroethane	U	0.288	0.288	1.92	ug/kg	1	CDS1 02/10/15	1045	1456652	1
1,1,2,2-Tetrachloroethane	U	0.288	0.288	1.92	ug/kg	1				
1,1,2-Trichloroethane	U	0.288	0.288	1.92	ug/kg	1				
1,1-Dichloroethane	U	0.288	0.288	1.92	ug/kg	1				
1,1-Dichloroethylene	U	0.288	0.288	1.92	ug/kg	1				
1,2-Dichloroethane	U	0.288	0.288	1.92	ug/kg	1				
1,2-Dichloroethylene (total)	U	0.288	0.288	3.85	ug/kg	1				
1,2-Dichloropropane	U	0.288	0.288	1.92	ug/kg	1				
2-Butanone	U	2.88	2.88	9.62	ug/kg	1				
2-Hexanone	U	2.88	2.88	9.62	ug/kg	1				
4-Methyl-2-pentanone	U	2.88	2.88	9.62	ug/kg	1				
Acetone	U	2.88	2.88	9.62	ug/kg	1				
Benzene	U	0.288	0.288	1.92	ug/kg	1				
Bromodichloromethane	U	0.288	0.288	1.92	ug/kg	1				
Bromoform	U	0.288	0.288	1.92	ug/kg	1				
Bromomethane	U	0.288	0.288	1.92	ug/kg	1				
Carbon disulfide	U	1.54	1.54	9.62	ug/kg	1				
Carbon tetrachloride	U	0.288	0.288	1.92	ug/kg	1				
Chlorobenzene	U	0.288	0.288	1.92	ug/kg	1				
Chloroethane	U	0.288	0.288	1.92	ug/kg	1				
Chloroform	U	0.288	0.288	1.92	ug/kg	1				
Chloromethane	U	0.288	0.288	1.92	ug/kg	1				
Dibromochloromethane	U	0.288	0.288	1.92	ug/kg	1				
Ethylbenzene	U	0.288	0.288	1.92	ug/kg	1				
Methylene chloride	U	1.54	1.54	4.81	ug/kg	1				
Styrene	U	0.288	0.288	1.92	ug/kg	1				
Tetrachloroethylene	U	0.288	0.288	1.92	ug/kg	1				
Toluene	J	0.538	0.288	1.92	ug/kg	1				
Trichloroethylene	U	0.288	0.288	1.92	ug/kg	1				
Vinyl chloride	U	0.288	0.288	1.92	ug/kg	1				
Xylenes (total)	J	0.298	0.288	5.77	ug/kg	1				
cis-1,2-Dichloroethylene	U	0.288	0.288	1.92	ug/kg	1				
cis-1,3-Dichloropropylene	U	0.288	0.288	1.92	ug/kg	1				
trans-1,2-Dichloroethylene	U	0.288	0.288	1.92	ug/kg	1				
trans-1,3-	U	0.288	0.288	1.92	ug/kg	1				

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: **RC-241 UPR-100-N-17 Archive**

Report Date: February 23, 2015

Client SDG: X0092

Client Sample ID: B30C27
Sample ID: 366711001
Project: WCHN0RC241
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
-----------	-----------	--------	----	----	-------	----	-------------	------	-------	--------

Volatile Organics

Volatiles by SW846 8260C "As Received"

Dichloropropylene

<i>Surrogate/Tracer recovery</i>	<i>Result</i>	<i>Nominal</i>	<i>Recovery%</i>	<i>Acceptable Limits</i>	<i>Date Time:</i>	<i>02/10/15 10 45</i>
Toluene-d8	46.3 ug/kg	50.0	96.3	(80%-120%)		
Bromofluorobenzene	51.8 ug/kg	50.0	108	(63%-138%)		
1,2-Dichloroethane-d4	57.3 ug/kg	50.0	119	(70%-128%)		

<i>Tentatively Identified Compound (TIC)</i>	<i>CAS No.</i>	<i>RT</i>	<i>Est. Concentration</i>	<i>Fit</i>	<i>Qual</i>	<i>Date Time:</i>	<i>02/10/15 10 45</i>
No Tentatively Identified Compounds Found							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 5035	5035/8260C Prep	CDS1	02/05/15	1400	1456651

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 5035/8260C	

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: **RC-241 UPR-100-N-17 Archive**

Report Date: February 23, 2015

Client SDG: X0092

Client Sample ID: B30C31
Sample ID: 366711002
Matrix: SOIL
Collect Date: 05-FEB-15 14:50
Receive Date: 07-FEB-15
Collector: Client
Project: WCHN0RC241
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Volatile Organics										
<i>Volatiles by SW846 8260C "As Received"</i>										
1,1,1-Trichloroethane	U	0.283	0.283	1.89	ug/kg	1	CDS1 02/10/15 1115	1456652	1	
1,1,2,2-Tetrachloroethane	U	0.283	0.283	1.89	ug/kg	1				
1,1,2-Trichloroethane	U	0.283	0.283	1.89	ug/kg	1				
1,1-Dichloroethane	U	0.283	0.283	1.89	ug/kg	1				
1,1-Dichloroethylene	U	0.283	0.283	1.89	ug/kg	1				
1,2-Dichloroethane	U	0.283	0.283	1.89	ug/kg	1				
1,2-Dichloroethylene (total)	U	0.283	0.283	3.77	ug/kg	1				
1,2-Dichloropropane	U	0.283	0.283	1.89	ug/kg	1				
2-Butanone	U	2.83	2.83	9.43	ug/kg	1				
2-Hexanone	U	2.83	2.83	9.43	ug/kg	1				
4-Methyl-2-pentanone	U	2.83	2.83	9.43	ug/kg	1				
Acetone	U	2.83	2.83	9.43	ug/kg	1				
Benzene	U	0.283	0.283	1.89	ug/kg	1				
Bromodichloromethane	U	0.283	0.283	1.89	ug/kg	1				
Bromoform	U	0.283	0.283	1.89	ug/kg	1				
Bromomethane	U	0.283	0.283	1.89	ug/kg	1				
Carbon disulfide	U	1.51	1.51	9.43	ug/kg	1				
Carbon tetrachloride	U	0.283	0.283	1.89	ug/kg	1				
Chlorobenzene	U	0.283	0.283	1.89	ug/kg	1				
Chloroethane	U	0.283	0.283	1.89	ug/kg	1				
Chloroform	U	0.283	0.283	1.89	ug/kg	1				
Chloromethane	U	0.283	0.283	1.89	ug/kg	1				
Dibromochloromethane	U	0.283	0.283	1.89	ug/kg	1				
Ethylbenzene	U	0.283	0.283	1.89	ug/kg	1				
Methylene chloride	U	1.51	1.51	4.72	ug/kg	1				
Styrene	U	0.283	0.283	1.89	ug/kg	1				
Tetrachloroethylene	U	0.283	0.283	1.89	ug/kg	1				
Toluene	J	0.311	0.283	1.89	ug/kg	1				
Trichloroethylene	U	0.283	0.283	1.89	ug/kg	1				
Vinyl chloride	U	0.283	0.283	1.89	ug/kg	1				
Xylenes (total)	U	0.283	0.283	5.66	ug/kg	1				
cis-1,2-Dichloroethylene	U	0.283	0.283	1.89	ug/kg	1				
cis-1,3-Dichloropropylene	U	0.283	0.283	1.89	ug/kg	1				
trans-1,2-Dichloroethylene	U	0.283	0.283	1.89	ug/kg	1				
trans-1,3-	U	0.283	0.283	1.89	ug/kg	1				

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: **RC-241 UPR-100-N-17 Archive**

Report Date: February 23, 2015

Client SDG: X0092

Client Sample ID: B30C31
Sample ID: 366711002
Project: WCHN0RC241
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
-----------	-----------	--------	----	----	-------	----	-------------	------	-------	--------

Volatile Organics

Volatiles by SW846 8260C "As Received"

Dichloropropylene

<i>Surrogate/Tracer recovery</i>	<i>Result</i>	<i>Nominal</i>	<i>Recovery%</i>	<i>Acceptable Limits</i>	<i>Date Time:</i>	<i>02/10/15 11 15</i>
Toluene-d8	44.4 ug/kg	50.0	94.2	(80%-120%)		
Bromofluorobenzene	49.4 ug/kg	50.0	105	(63%-138%)		
1,2-Dichloroethane-d4	51.4 ug/kg	50.0	109	(70%-128%)		

<i>Tentatively Identified Compound (TIC)</i>	<i>CAS No.</i>	<i>RT</i>	<i>Est. Concentration</i>	<i>Fit</i>	<i>Qual</i>	<i>Date Time:</i>	<i>02/10/15 11 15</i>
No Tentatively Identified Compounds Found							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 5035	5035/8260C Prep	CDS1	02/05/15	1450	1456651

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 5035/8260C	

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: **RC-241 UPR-100-N-17 Archive**

Report Date: February 23, 2015

Client SDG: X0092

Client Sample ID: B30C25
 Sample ID: 366711003
 Matrix: SOIL
 Collect Date: 05-FEB-15 12:50
 Receive Date: 07-FEB-15
 Collector: Client

Project: WCHN0RC241
 Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Volatile Organics										
<i>Volatiles by SW846 8260C "As Received"</i>										
1,1,1-Trichloroethane	U	0.288	0.288	1.92	ug/kg	1	CDS1 02/10/15	1145	1456652	1
1,1,2,2-Tetrachloroethane	U	0.288	0.288	1.92	ug/kg	1				
1,1,2-Trichloroethane	U	0.288	0.288	1.92	ug/kg	1				
1,1-Dichloroethane	U	0.288	0.288	1.92	ug/kg	1				
1,1-Dichloroethylene	U	0.288	0.288	1.92	ug/kg	1				
1,2-Dichloroethane	U	0.288	0.288	1.92	ug/kg	1				
1,2-Dichloroethylene (total)	U	0.288	0.288	3.85	ug/kg	1				
1,2-Dichloropropane	U	0.288	0.288	1.92	ug/kg	1				
2-Butanone	U	2.88	2.88	9.62	ug/kg	1				
2-Hexanone	U	2.88	2.88	9.62	ug/kg	1				
4-Methyl-2-pentanone	U	2.88	2.88	9.62	ug/kg	1				
Acetone	U	2.88	2.88	9.62	ug/kg	1				
Benzene	U	0.288	0.288	1.92	ug/kg	1				
Bromodichloromethane	U	0.288	0.288	1.92	ug/kg	1				
Bromoform	U	0.288	0.288	1.92	ug/kg	1				
Bromomethane	U	0.288	0.288	1.92	ug/kg	1				
Carbon disulfide	U	1.54	1.54	9.62	ug/kg	1				
Carbon tetrachloride	U	0.288	0.288	1.92	ug/kg	1				
Chlorobenzene	U	0.288	0.288	1.92	ug/kg	1				
Chloroethane	U	0.288	0.288	1.92	ug/kg	1				
Chloroform	U	0.288	0.288	1.92	ug/kg	1				
Chloromethane	U	0.288	0.288	1.92	ug/kg	1				
Dibromochloromethane	U	0.288	0.288	1.92	ug/kg	1				
Ethylbenzene	U	0.288	0.288	1.92	ug/kg	1				
Methylene chloride	U	1.54	1.54	4.81	ug/kg	1				
Styrene	U	0.288	0.288	1.92	ug/kg	1				
Tetrachloroethylene	U	0.288	0.288	1.92	ug/kg	1				
Toluene	J	0.346	0.288	1.92	ug/kg	1				
Trichloroethylene	U	0.288	0.288	1.92	ug/kg	1				
Vinyl chloride	U	0.288	0.288	1.92	ug/kg	1				
Xylenes (total)	U	0.288	0.288	5.77	ug/kg	1				
cis-1,2-Dichloroethylene	U	0.288	0.288	1.92	ug/kg	1				
cis-1,3-Dichloropropylene	U	0.288	0.288	1.92	ug/kg	1				
trans-1,2-Dichloroethylene	U	0.288	0.288	1.92	ug/kg	1				
trans-1,3-	U	0.288	0.288	1.92	ug/kg	1				

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: **RC-241 UPR-100-N-17 Archive**

Report Date: February 23, 2015

Client SDG: X0092

Client Sample ID: B30C25
Sample ID: 366711003
Project: WCHN0RC241
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
-----------	-----------	--------	----	----	-------	----	-------------	------	-------	--------

Volatile Organics

Volatiles by SW846 8260C "As Received"

Dichloropropylene

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits	Date Time:	02/10/15 11 45
Toluene-d8	45.7 ug/kg	50.0	95.1	(80%-120%)		
1,2-Dichloroethane-d4	51.9 ug/kg	50.0	108	(70%-128%)		
Bromofluorobenzene	52.9 ug/kg	50.0	110	(63%-138%)		

Tentatively Identified Compound (TIC)	CAS No.	RT	Est. Concentration	Fit	Qual	Date Time:	02/10/15 11 45
No Tentatively Identified Compounds Found							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 5035	5035/8260C Prep	CDS1	02/05/15	1250	1456651

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 5035/8260C	

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: **RC-241 UPR-100-N-17 Archive**

Report Date: February 23, 2015

Client SDG: X0092

Client Sample ID: B30C24
 Sample ID: 366711004
 Matrix: SOIL
 Collect Date: 05-FEB-15 10:50
 Receive Date: 07-FEB-15
 Collector: Client

Project: WCHN0RC241
 Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Volatile Organics										
<i>Volatiles by SW846 8260C "As Received"</i>										
1,1,1-Trichloroethane	U	0.214	0.214	1.43	ug/kg	1	CDS1 02/10/15	1215	1456652	1
1,1,2,2-Tetrachloroethane	U	0.214	0.214	1.43	ug/kg	1				
1,1,2-Trichloroethane	U	0.214	0.214	1.43	ug/kg	1				
1,1-Dichloroethane	U	0.214	0.214	1.43	ug/kg	1				
1,1-Dichloroethylene	U	0.214	0.214	1.43	ug/kg	1				
1,2-Dichloroethane	J	0.693	0.214	1.43	ug/kg	1				
1,2-Dichloroethylene (total)	U	0.214	0.214	2.86	ug/kg	1				
1,2-Dichloropropane	U	0.214	0.214	1.43	ug/kg	1				
2-Butanone	J	4.18	2.14	7.14	ug/kg	1				
2-Hexanone	U	2.14	2.14	7.14	ug/kg	1				
4-Methyl-2-pentanone	U	2.14	2.14	7.14	ug/kg	1				
Acetone		13.5	2.14	7.14	ug/kg	1				
Benzene	U	0.214	0.214	1.43	ug/kg	1				
Bromodichloromethane	U	0.214	0.214	1.43	ug/kg	1				
Bromoform	U	0.214	0.214	1.43	ug/kg	1				
Bromomethane	U	0.214	0.214	1.43	ug/kg	1				
Carbon disulfide	U	1.14	1.14	7.14	ug/kg	1				
Carbon tetrachloride	U	0.214	0.214	1.43	ug/kg	1				
Chlorobenzene	U	0.214	0.214	1.43	ug/kg	1				
Chloroethane	U	0.214	0.214	1.43	ug/kg	1				
Chloroform	U	0.214	0.214	1.43	ug/kg	1				
Chloromethane	U	0.214	0.214	1.43	ug/kg	1				
Dibromochloromethane	U	0.214	0.214	1.43	ug/kg	1				
Ethylbenzene	U	0.214	0.214	1.43	ug/kg	1				
Methylene chloride	U	1.14	1.14	3.57	ug/kg	1				
Styrene	U	0.214	0.214	1.43	ug/kg	1				
Tetrachloroethylene	U	0.214	0.214	1.43	ug/kg	1				
Toluene	J	0.586	0.214	1.43	ug/kg	1				
Trichloroethylene	U	0.214	0.214	1.43	ug/kg	1				
Vinyl chloride	U	0.214	0.214	1.43	ug/kg	1				
Xylenes (total)	J	0.493	0.214	4.29	ug/kg	1				
cis-1,2-Dichloroethylene	U	0.214	0.214	1.43	ug/kg	1				
cis-1,3-Dichloropropylene	U	0.214	0.214	1.43	ug/kg	1				
trans-1,2-Dichloroethylene	U	0.214	0.214	1.43	ug/kg	1				
trans-1,3-	U	0.214	0.214	1.43	ug/kg	1				

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: **RC-241 UPR-100-N-17 Archive**

Report Date: February 23, 2015

Client SDG: X0092

Client Sample ID: B30C24
 Sample ID: 366711004

Project: WCHN0RC241
 Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
-----------	-----------	--------	----	----	-------	----	---------	------	------	-------	--------

Volatile Organics

Volatiles by SW846 8260C "As Received"

Dichloropropylene

<i>Surrogate/Tracer recovery</i>	<i>Result</i>	<i>Nominal</i>	<i>Recovery%</i>	<i>Acceptable Limits</i>	<i>Date Time:</i>	<i>02/10/15 12 15</i>
Toluene-d8	33.4 ug/kg	50.0	93.6	(80%-120%)		
1,2-Dichloroethane-d4	38.5 ug/kg	50.0	108	(70%-128%)		
Bromofluorobenzene	38.7 ug/kg	50.0	108	(63%-138%)		

<i>Tentatively Identified Compound (TIC)</i>	<i>CAS No.</i>	<i>RT</i>	<i>Est. Concentration</i>	<i>Fit</i>	<i>Qual</i>	<i>Date Time:</i>	<i>02/10/15 12 15</i>
unknown		3.464	4.36 ug/kg	0	J		

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 5035	5035/8260C Prep	CDS1	02/05/15	1050	1456651

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 5035/8260C	

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: **RC-241 UPR-100-N-17 Archive**

Report Date: February 23, 2015

Client SDG: X0092

Client Sample ID: B30C29
Sample ID: 366711005
Matrix: SOIL
Collect Date: 05-FEB-15 13:10
Receive Date: 07-FEB-15
Collector: Client
Project: WCHN0RC241
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Volatile Organics										
<i>Volatiles by SW846 8260C "As Received"</i>										
1,1,1-Trichloroethane	U	0.273	0.273	1.82	ug/kg	1	CDS1 02/10/15	1245	1456652	1
1,1,2,2-Tetrachloroethane	U	0.273	0.273	1.82	ug/kg	1				
1,1,2-Trichloroethane	U	0.273	0.273	1.82	ug/kg	1				
1,1-Dichloroethane	U	0.273	0.273	1.82	ug/kg	1				
1,1-Dichloroethylene	U	0.273	0.273	1.82	ug/kg	1				
1,2-Dichloroethane	U	0.273	0.273	1.82	ug/kg	1				
1,2-Dichloroethylene (total)	U	0.273	0.273	3.64	ug/kg	1				
1,2-Dichloropropane	U	0.273	0.273	1.82	ug/kg	1				
2-Butanone	J	3.62	2.73	9.09	ug/kg	1				
2-Hexanone	U	2.73	2.73	9.09	ug/kg	1				
4-Methyl-2-pentanone	U	2.73	2.73	9.09	ug/kg	1				
Acetone		11.2	2.73	9.09	ug/kg	1				
Benzene	U	0.273	0.273	1.82	ug/kg	1				
Bromodichloromethane	U	0.273	0.273	1.82	ug/kg	1				
Bromoform	U	0.273	0.273	1.82	ug/kg	1				
Bromomethane	U	0.273	0.273	1.82	ug/kg	1				
Carbon disulfide	U	1.45	1.45	9.09	ug/kg	1				
Carbon tetrachloride	U	0.273	0.273	1.82	ug/kg	1				
Chlorobenzene	U	0.273	0.273	1.82	ug/kg	1				
Chloroethane	U	0.273	0.273	1.82	ug/kg	1				
Chloroform	U	0.273	0.273	1.82	ug/kg	1				
Chloromethane	U	0.273	0.273	1.82	ug/kg	1				
Dibromochloromethane	U	0.273	0.273	1.82	ug/kg	1				
Ethylbenzene	U	0.273	0.273	1.82	ug/kg	1				
Methylene chloride	U	1.45	1.45	4.55	ug/kg	1				
Styrene	U	0.273	0.273	1.82	ug/kg	1				
Tetrachloroethylene	U	0.273	0.273	1.82	ug/kg	1				
Toluene	J	0.673	0.273	1.82	ug/kg	1				
Trichloroethylene	U	0.273	0.273	1.82	ug/kg	1				
Vinyl chloride	U	0.273	0.273	1.82	ug/kg	1				
Xylenes (total)	J	0.527	0.273	5.45	ug/kg	1				
cis-1,2-Dichloroethylene	U	0.273	0.273	1.82	ug/kg	1				
cis-1,3-Dichloropropylene	U	0.273	0.273	1.82	ug/kg	1				
trans-1,2-Dichloroethylene	U	0.273	0.273	1.82	ug/kg	1				
trans-1,3-	U	0.273	0.273	1.82	ug/kg	1				

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: **RC-241 UPR-100-N-17 Archive**

Report Date: February 23, 2015

Client SDG: X0092

Client Sample ID: B30C29
Sample ID: 366711005
Project: WCHN0RC241
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
-----------	-----------	--------	----	----	-------	----	-------------	------	-------	--------

Volatile Organics

Volatiles by SW846 8260C "As Received"

Dichloropropylene

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits	Date Time:	02/10/15 12 45
Toluene-d8	39.9 ug/kg	50.0	87.7	(80%-120%)		
1,2-Dichloroethane-d4	44.9 ug/kg	50.0	98.9	(70%-128%)		
Bromofluorobenzene	46.1 ug/kg	50.0	101	(63%-138%)		

Tentatively Identified Compound (TIC)	CAS No.	RT	Est. Concentration	Fit	Qual	Date Time:	02/10/15 12 45
No Tentatively Identified Compounds Found							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 5035	5035/8260C Prep	CDS1	02/05/15	1300	1456651

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 5035/8260C	

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: **RC-241 UPR-100-N-17 Archive**

Report Date: February 23, 2015

Client SDG: X0092

Client Sample ID: B30C16
 Sample ID: 366711006
 Matrix: SOIL
 Collect Date: 05-FEB-15 09:25
 Receive Date: 07-FEB-15
 Collector: Client

Project: WCHN0RC241
 Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Volatile Organics										
<i>Volatiles by SW846 8260C "As Received"</i>										
1,1,1-Trichloroethane	U	0.227	0.227	1.52	ug/kg	1	CDS1 02/10/15	1315	1456652	1
1,1,2,2-Tetrachloroethane	U	0.227	0.227	1.52	ug/kg	1				
1,1,2-Trichloroethane	U	0.227	0.227	1.52	ug/kg	1				
1,1-Dichloroethane	U	0.227	0.227	1.52	ug/kg	1				
1,1-Dichloroethylene	U	0.227	0.227	1.52	ug/kg	1				
1,2-Dichloroethane	U	0.227	0.227	1.52	ug/kg	1				
1,2-Dichloroethylene (total)	U	0.227	0.227	3.03	ug/kg	1				
1,2-Dichloropropane	U	0.227	0.227	1.52	ug/kg	1				
2-Butanone	U	2.27	2.27	7.58	ug/kg	1				
2-Hexanone	U	2.27	2.27	7.58	ug/kg	1				
4-Methyl-2-pentanone	U	2.27	2.27	7.58	ug/kg	1				
Acetone	U	2.27	2.27	7.58	ug/kg	1				
Benzene	U	0.227	0.227	1.52	ug/kg	1				
Bromodichloromethane	U	0.227	0.227	1.52	ug/kg	1				
Bromoform	U	0.227	0.227	1.52	ug/kg	1				
Bromomethane	U	0.227	0.227	1.52	ug/kg	1				
Carbon disulfide	U	1.21	1.21	7.58	ug/kg	1				
Carbon tetrachloride	U	0.227	0.227	1.52	ug/kg	1				
Chlorobenzene	U	0.227	0.227	1.52	ug/kg	1				
Chloroethane	U	0.227	0.227	1.52	ug/kg	1				
Chloroform	U	0.227	0.227	1.52	ug/kg	1				
Chloromethane	U	0.227	0.227	1.52	ug/kg	1				
Dibromochloromethane	U	0.227	0.227	1.52	ug/kg	1				
Ethylbenzene	U	0.227	0.227	1.52	ug/kg	1				
Methylene chloride	U	1.21	1.21	3.79	ug/kg	1				
Styrene	U	0.227	0.227	1.52	ug/kg	1				
Tetrachloroethylene	U	0.227	0.227	1.52	ug/kg	1				
Toluene	U	0.227	0.227	1.52	ug/kg	1				
Trichloroethylene	U	0.227	0.227	1.52	ug/kg	1				
Vinyl chloride	U	0.227	0.227	1.52	ug/kg	1				
Xylenes (total)	J	0.242	0.227	4.55	ug/kg	1				
cis-1,2-Dichloroethylene	U	0.227	0.227	1.52	ug/kg	1				
cis-1,3-Dichloropropylene	U	0.227	0.227	1.52	ug/kg	1				
trans-1,2-Dichloroethylene	U	0.227	0.227	1.52	ug/kg	1				
trans-1,3-	U	0.227	0.227	1.52	ug/kg	1				

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: **RC-241 UPR-100-N-17 Archive**

Report Date: February 23, 2015

Client SDG: X0092

Client Sample ID: B30C16
 Sample ID: 366711006

Project: WCHN0RC241
 Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
-----------	-----------	--------	----	----	-------	----	---------	------	------	-------	--------

Volatile Organics

Volatiles by SW846 8260C "As Received"

Dichloropropylene

<i>Surrogate/Tracer recovery</i>	<i>Result</i>	<i>Nominal</i>	<i>Recovery%</i>	<i>Acceptable Limits</i>	<i>Date Time:</i>	<i>02/10/15 13 15</i>
Toluene-d8	37.4 ug/kg	50.0	98.8	(80%-120%)		
1,2-Dichloroethane-d4	42.2 ug/kg	50.0	111	(70%-128%)		
Bromofluorobenzene	45.0 ug/kg	50.0	119	(63%-138%)		

<i>Tentatively Identified Compound (TIC)</i>	<i>CAS No.</i>	<i>RT</i>	<i>Est. Concentration</i>	<i>Fit</i>	<i>Qual</i>	<i>Date Time:</i>	<i>02/10/15 13 15</i>
unknown		3.456	4.2 ug/kg	0	J		

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 5035	5035/8260C Prep	CDS1	02/05/15	0925	1456651

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 5035/8260C	

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: **RC-241 UPR-100-N-17 Archive**

Report Date: February 23, 2015

Client SDG: X0092

Client Sample ID: B30C20
Sample ID: 366711007
Matrix: SOIL
Collect Date: 05-FEB-15 10:10
Receive Date: 07-FEB-15
Collector: Client
Project: WCHN0RC241
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Volatile Organics										
<i>Volatiles by SW846 8260C "As Received"</i>										
1,1,1-Trichloroethane	U	0.294	0.294	1.96	ug/kg	1	CDS1 02/10/15 1345	1456652	1	
1,1,2,2-Tetrachloroethane	U	0.294	0.294	1.96	ug/kg	1				
1,1,2-Trichloroethane	U	0.294	0.294	1.96	ug/kg	1				
1,1-Dichloroethane	U	0.294	0.294	1.96	ug/kg	1				
1,1-Dichloroethylene	U	0.294	0.294	1.96	ug/kg	1				
1,2-Dichloroethane	U	0.294	0.294	1.96	ug/kg	1				
1,2-Dichloroethylene (total)	U	0.294	0.294	3.92	ug/kg	1				
1,2-Dichloropropane	U	0.294	0.294	1.96	ug/kg	1				
2-Butanone	U	2.94	2.94	9.80	ug/kg	1				
2-Hexanone	U	2.94	2.94	9.80	ug/kg	1				
4-Methyl-2-pentanone	U	2.94	2.94	9.80	ug/kg	1				
Acetone	U	2.94	2.94	9.80	ug/kg	1				
Benzene	U	0.294	0.294	1.96	ug/kg	1				
Bromodichloromethane	U	0.294	0.294	1.96	ug/kg	1				
Bromoform	U	0.294	0.294	1.96	ug/kg	1				
Bromomethane	U	0.294	0.294	1.96	ug/kg	1				
Carbon disulfide	U	1.57	1.57	9.80	ug/kg	1				
Carbon tetrachloride	U	0.294	0.294	1.96	ug/kg	1				
Chlorobenzene	U	0.294	0.294	1.96	ug/kg	1				
Chloroethane	U	0.294	0.294	1.96	ug/kg	1				
Chloroform	U	0.294	0.294	1.96	ug/kg	1				
Chloromethane	U	0.294	0.294	1.96	ug/kg	1				
Dibromochloromethane	U	0.294	0.294	1.96	ug/kg	1				
Ethylbenzene	U	0.294	0.294	1.96	ug/kg	1				
Methylene chloride	U	1.57	1.57	4.90	ug/kg	1				
Styrene	U	0.294	0.294	1.96	ug/kg	1				
Tetrachloroethylene	U	0.294	0.294	1.96	ug/kg	1				
Toluene	J	0.480	0.294	1.96	ug/kg	1				
Trichloroethylene	U	0.294	0.294	1.96	ug/kg	1				
Vinyl chloride	U	0.294	0.294	1.96	ug/kg	1				
Xylenes (total)	U	0.294	0.294	5.88	ug/kg	1				
cis-1,2-Dichloroethylene	U	0.294	0.294	1.96	ug/kg	1				
cis-1,3-Dichloropropylene	U	0.294	0.294	1.96	ug/kg	1				
trans-1,2-Dichloroethylene	U	0.294	0.294	1.96	ug/kg	1				
trans-1,3-	U	0.294	0.294	1.96	ug/kg	1				

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: **RC-241 UPR-100-N-17 Archive**

Report Date: February 23, 2015

Client SDG: X0092

Client Sample ID: B30C20
 Sample ID: 366711007

Project: WCHN0RC241
 Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
-----------	-----------	--------	----	----	-------	----	---------	------	------	-------	--------

Volatile Organics

Volatiles by SW846 8260C "As Received"

Dichloropropylene

<i>Surrogate/Tracer recovery</i>	<i>Result</i>	<i>Nominal</i>	<i>Recovery%</i>	<i>Acceptable Limits</i>	<i>Date Time:</i>
Toluene-d8	46.2 ug/kg	50.0	94.2	(80%-120%)	02/10/15 13 45
Bromofluorobenzene	51.7 ug/kg	50.0	106	(63%-138%)	
1,2-Dichloroethane-d4	52.2 ug/kg	50.0	107	(70%-128%)	

<i>Tentatively Identified Compound (TIC)</i>	<i>CAS No.</i>	<i>RT</i>	<i>Est. Concentration</i>	<i>Fit</i>	<i>Qual</i>	<i>Date Time:</i>
unknown		3.464	5.36 ug/kg	0	J	02/10/15 13 45

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 5035	5035/8260C Prep	CDS1	02/05/15	1010	1456651

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 5035/8260C	

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: **RC-241 UPR-100-N-17 Archive**

Report Date: February 23, 2015

Client SDG: X0092

Client Sample ID: B30C22
Sample ID: 366711008
Matrix: SOIL
Collect Date: 05-FEB-15 11:50
Receive Date: 07-FEB-15
Collector: Client

Project: WCHN0RC241
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Volatile Organics										
<i>Volatiles by SW846 8260C "As Received"</i>										
1,1,1-Trichloroethane	U	0.268	0.268	1.79	ug/kg	1	CDS1 02/10/15	1415	1456652	1
1,1,2,2-Tetrachloroethane	U	0.268	0.268	1.79	ug/kg	1				
1,1,2-Trichloroethane	U	0.268	0.268	1.79	ug/kg	1				
1,1-Dichloroethane	U	0.268	0.268	1.79	ug/kg	1				
1,1-Dichloroethylene	U	0.268	0.268	1.79	ug/kg	1				
1,2-Dichloroethane	U	0.268	0.268	1.79	ug/kg	1				
1,2-Dichloroethylene (total)	U	0.268	0.268	3.57	ug/kg	1				
1,2-Dichloropropane	U	0.268	0.268	1.79	ug/kg	1				
2-Butanone	U	2.68	2.68	8.93	ug/kg	1				
2-Hexanone	U	2.68	2.68	8.93	ug/kg	1				
4-Methyl-2-pentanone	U	2.68	2.68	8.93	ug/kg	1				
Acetone	U	2.68	2.68	8.93	ug/kg	1				
Benzene	U	0.268	0.268	1.79	ug/kg	1				
Bromodichloromethane	U	0.268	0.268	1.79	ug/kg	1				
Bromoform	U	0.268	0.268	1.79	ug/kg	1				
Bromomethane	U	0.268	0.268	1.79	ug/kg	1				
Carbon disulfide	U	1.43	1.43	8.93	ug/kg	1				
Carbon tetrachloride	U	0.268	0.268	1.79	ug/kg	1				
Chlorobenzene	U	0.268	0.268	1.79	ug/kg	1				
Chloroethane	U	0.268	0.268	1.79	ug/kg	1				
Chloroform	U	0.268	0.268	1.79	ug/kg	1				
Chloromethane	U	0.268	0.268	1.79	ug/kg	1				
Dibromochloromethane	U	0.268	0.268	1.79	ug/kg	1				
Ethylbenzene	U	0.268	0.268	1.79	ug/kg	1				
Methylene chloride	U	1.43	1.43	4.46	ug/kg	1				
Styrene	U	0.268	0.268	1.79	ug/kg	1				
Tetrachloroethylene	U	0.268	0.268	1.79	ug/kg	1				
Toluene	J	0.768	0.268	1.79	ug/kg	1				
Trichloroethylene	U	0.268	0.268	1.79	ug/kg	1				
Vinyl chloride	U	0.268	0.268	1.79	ug/kg	1				
Xylenes (total)	J	0.393	0.268	5.36	ug/kg	1				
cis-1,2-Dichloroethylene	U	0.268	0.268	1.79	ug/kg	1				
cis-1,3-Dichloropropylene	U	0.268	0.268	1.79	ug/kg	1				
trans-1,2-Dichloroethylene	U	0.268	0.268	1.79	ug/kg	1				
trans-1,3-	U	0.268	0.268	1.79	ug/kg	1				

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: **RC-241 UPR-100-N-17 Archive**

Report Date: February 23, 2015

Client SDG: X0092

Client Sample ID: B30C22
Sample ID: 366711008
Project: WCHN0RC241
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
-----------	-----------	--------	----	----	-------	----	---------	------	------	-------	--------

Volatile Organics

Volatiles by SW846 8260C "As Received"

Dichloroproylene

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits	Date Time:	02/10/15 14 15
Toluene-d8	48.5 ug/kg	50.0	109	(80%-120%)		
1,2-Dichloroethane-d4	53.7 ug/kg	50.0	120	(70%-128%)		
Bromofluorobenzene	54.4 ug/kg	50.0	122	(63%-138%)		

Tentatively Identified Compound (TIC)	CAS No.	RT	Est. Concentration	Fit	Qual	Date Time:	02/10/15 14 15
unknown		3.457	5.38 ug/kg	0	J		

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 5035	5035/8260C Prep	CDS1	02/05/15	1150	1456651

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 5035/8260C	

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: **RC-241 UPR-100-N-17 Archive**

Report Date: February 23, 2015

Client SDG: X0092

Client Sample ID: B30C18
Sample ID: 366711009
Matrix: SOIL
Collect Date: 05-FEB-15 09:25
Receive Date: 07-FEB-15
Collector: Client
Project: WCHN0RC241
Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Volatile Organics										
<i>Volatiles by SW846 8260C "As Received"</i>										
1,1,1-Trichloroethane	U	0.234	0.234	1.56	ug/kg	1	CDS1 02/10/15	1445	1456652	1
1,1,2,2-Tetrachloroethane	U	0.234	0.234	1.56	ug/kg	1				
1,1,2-Trichloroethane	U	0.234	0.234	1.56	ug/kg	1				
1,1-Dichloroethane	U	0.234	0.234	1.56	ug/kg	1				
1,1-Dichloroethylene	U	0.234	0.234	1.56	ug/kg	1				
1,2-Dichloroethane	U	0.234	0.234	1.56	ug/kg	1				
1,2-Dichloroethylene (total)	U	0.234	0.234	3.13	ug/kg	1				
1,2-Dichloropropane	U	0.234	0.234	1.56	ug/kg	1				
2-Butanone	U	2.34	2.34	7.81	ug/kg	1				
2-Hexanone	U	2.34	2.34	7.81	ug/kg	1				
4-Methyl-2-pentanone	U	2.34	2.34	7.81	ug/kg	1				
Acetone	U	2.34	2.34	7.81	ug/kg	1				
Benzene	U	0.234	0.234	1.56	ug/kg	1				
Bromodichloromethane	U	0.234	0.234	1.56	ug/kg	1				
Bromoform	U	0.234	0.234	1.56	ug/kg	1				
Bromomethane	U	0.234	0.234	1.56	ug/kg	1				
Carbon disulfide	U	1.25	1.25	7.81	ug/kg	1				
Carbon tetrachloride	U	0.234	0.234	1.56	ug/kg	1				
Chlorobenzene	U	0.234	0.234	1.56	ug/kg	1				
Chloroethane	U	0.234	0.234	1.56	ug/kg	1				
Chloroform	U	0.234	0.234	1.56	ug/kg	1				
Chloromethane	U	0.234	0.234	1.56	ug/kg	1				
Dibromochloromethane	U	0.234	0.234	1.56	ug/kg	1				
Ethylbenzene	U	0.234	0.234	1.56	ug/kg	1				
Methylene chloride	U	1.25	1.25	3.91	ug/kg	1				
Styrene	U	0.234	0.234	1.56	ug/kg	1				
Tetrachloroethylene	U	0.234	0.234	1.56	ug/kg	1				
Toluene	J	0.609	0.234	1.56	ug/kg	1				
Trichloroethylene	U	0.234	0.234	1.56	ug/kg	1				
Vinyl chloride	U	0.234	0.234	1.56	ug/kg	1				
Xylenes (total)	J	0.297	0.234	4.69	ug/kg	1				
cis-1,2-Dichloroethylene	U	0.234	0.234	1.56	ug/kg	1				
cis-1,3-Dichloropropylene	U	0.234	0.234	1.56	ug/kg	1				
trans-1,2-Dichloroethylene	U	0.234	0.234	1.56	ug/kg	1				
trans-1,3-	U	0.234	0.234	1.56	ug/kg	1				

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: **RC-241 UPR-100-N-17 Archive**

Report Date: February 23, 2015

Client SDG: X0092

Client Sample ID: B30C18
 Sample ID: 366711009

Project: WCHN0RC241
 Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
-----------	-----------	--------	----	----	-------	----	-------------	------	-------	--------

Volatile Organics

Volatiles by SW846 8260C "As Received"

Dichloropropylene

<i>Surrogate/Tracer recovery</i>	<i>Result</i>	<i>Nominal</i>	<i>Recovery%</i>	<i>Acceptable Limits</i>	<i>Date Time:</i>
Toluene-d8	41.2 ug/kg	50.0	106	(80%-120%)	02/10/15 14 45
1,2-Dichloroethane-d4	46.9 ug/kg	50.0	120	(70%-128%)	
Bromofluorobenzene	47.9 ug/kg	50.0	123	(63%-138%)	

<i>Tentatively Identified Compound (TIC)</i>	<i>CAS No.</i>	<i>RT</i>	<i>Est. Concentration</i>	<i>Fit</i>	<i>Qual</i>	<i>Date Time:</i>
Hydrazine, methyl-	000060-34-4	3.464	4.59 ug/kg	4	J	02/10/15 14 45

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 5035	5035/8260C Prep	CDS1	02/05/15	0925	1456651

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 5035/8260C	

Quality Control Summary

GEL LABORATORIES LLC

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

QC Summary

Report Date: February 23, 2015

Page 1 of 12

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

Workorder: 366711

Client SDG: X0092

Project Description: RC-241 UPR-100-N-17 Archive

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1456652										
QC1203261694	LCS										
1,1,1-Trichloroethane	50.0			56.7	ug/kg		113	(70%-130%)	CDS1	02/10/15	08:09
1,1,2,2-Tetrachloroethane	50.0			44.3	ug/kg		88.6	(70%-130%)			
1,1,2-Trichloroethane	50.0			44.2	ug/kg		88.3	(70%-130%)			
1,1-Dichloroethane	50.0			46.9	ug/kg		93.8	(70%-130%)			
1,1-Dichloroethylene	50.0			49.1	ug/kg		98.1	(70%-130%)			
1,2-Dichloroethane	50.0			48.6	ug/kg		97.2	(70%-130%)			
1,2-Dichloroethylene (total)	100			94.6	ug/kg		94.6	(70%-130%)			
1,2-Dichloropropane	50.0			44.0	ug/kg		88.1	(70%-130%)			
2-Butanone	250			252	ug/kg		101	(70%-130%)			
2-Hexanone	250			261	ug/kg		105	(70%-130%)			
4-Methyl-2-pentanone	250			224	ug/kg		89.4	(70%-130%)			
Acetone	250			280	ug/kg		112	(70%-130%)			
Benzene	50.0			45.6	ug/kg		91.2	(70%-130%)			
Bromodichloromethane	50.0			51.6	ug/kg		103	(70%-130%)			
Bromoform	50.0			53.2	ug/kg		106	(70%-130%)			
Bromomethane	50.0			44.9	ug/kg		89.7	(70%-130%)			
Carbon disulfide	250			235	ug/kg		93.9	(70%-130%)			
Carbon tetrachloride	50.0			56.9	ug/kg		114	(70%-130%)			
Chlorobenzene	50.0			45.8	ug/kg		91.6	(70%-130%)			
Chloroethane	50.0			50.1	ug/kg		100	(70%-130%)			

GEL LABORATORIES LLC

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

QC Summary

Workorder: 366711

Client SDG: X0092

Project Description: RC-241 UPR-100-N-17 Archive

Page 2 of 12

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1456652										
Chloroform	50.0			49.1	ug/kg	98.2	(70%-130%)	CDS1	02/10/15	08:09	
Chloromethane	50.0			62.6	ug/kg	125	(70%-130%)				
Dibromochloromethane	50.0			52.3	ug/kg	105	(70%-130%)				
Ethylbenzene	50.0			47.8	ug/kg	95.6	(70%-130%)				
Methylene chloride	50.0			40.8	ug/kg	81.6	(70%-130%)				
Styrene	50.0			50.4	ug/kg	101	(70%-130%)				
Tetrachloroethylene	50.0			47.5	ug/kg	94.9	(70%-130%)				
Toluene	50.0			43.9	ug/kg	87.8	(70%-130%)				
Trichloroethylene	50.0			49.6	ug/kg	99.1	(70%-130%)				
Vinyl chloride	50.0			61.4	ug/kg	123	(70%-130%)				
Xylenes (total)	150			140	ug/kg	93.6	(70%-130%)				
cis-1,2-Dichloroethylene	50.0			47.4	ug/kg	94.7	(70%-130%)				
cis-1,3-Dichloropropylene	50.0			51.6	ug/kg	103	(70%-130%)				
trans-1,2-Dichloroethylene	50.0			47.2	ug/kg	94.4	(70%-130%)				
trans-1,3-Dichloropropylene	50.0			49.2	ug/kg	98.3	(70%-130%)				
**1,2-Dichloroethane-d4	50.0			50.3	ug/L	101	(70%-128%)				
**Bromofluorobenzene	50.0			49.5	ug/L	99	(63%-138%)				
**Toluene-d8	50.0			45.4	ug/L	90.8	(80%-120%)				
QC1203263154 LCS											
1,1,1-Trichloroethane	50.0			58.0	ug/kg	116	(70%-130%)			02/11/15	07:29
1,1,2,2-Tetrachloroethane	50.0			45.8	ug/kg	91.6	(70%-130%)				
1,1,2-Trichloroethane	50.0			45.9	ug/kg	91.9	(70%-130%)				

GEL LABORATORIES LLC

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

QC Summary

Workorder: 366711

Client SDG: X0092

Project Description: RC-241 UPR-100-N-17 Archive

Page 3 of 12

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1456652										
1,1-Dichloroethane	50.0			48.9	ug/kg		97.9	(70%-130%)	CDS1	02/11/15	07:29
1,1-Dichloroethylene	50.0			50.2	ug/kg		100	(70%-130%)			
1,2-Dichloroethane	50.0			51.1	ug/kg		102	(70%-130%)			
1,2-Dichloroethylene (total)	100			99.3	ug/kg		99.3	(70%-130%)			
1,2-Dichloropropane	50.0			47.7	ug/kg		95.4	(70%-130%)			
2-Butanone	250			241	ug/kg		96.6	(70%-130%)			
2-Hexanone	250			253	ug/kg		101	(70%-130%)			
4-Methyl-2-pentanone	250			219	ug/kg		87.5	(70%-130%)			
Acetone	250			265	ug/kg		106	(70%-130%)			
Benzene	50.0			48.0	ug/kg		95.9	(70%-130%)			
Bromodichloromethane	50.0			54.4	ug/kg		109	(70%-130%)			
Bromoform	50.0			54.3	ug/kg		109	(70%-130%)			
Bromomethane	50.0			42.6	ug/kg		85.1	(70%-130%)			
Carbon disulfide	250			237	ug/kg		94.7	(70%-130%)			
Carbon tetrachloride	50.0			58.1	ug/kg		116	(70%-130%)			
Chlorobenzene	50.0			47.6	ug/kg		95.2	(70%-130%)			
Chloroethane	50.0			47.3	ug/kg		94.5	(70%-130%)			
Chloroform	50.0			51.7	ug/kg		103	(70%-130%)			
Chloromethane	50.0			58.7	ug/kg		117	(70%-130%)			
Dibromochloromethane	50.0			54.3	ug/kg		109	(70%-130%)			
Ethylbenzene	50.0			49.6	ug/kg		99.3	(70%-130%)			

GEL LABORATORIES LLC

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

QC Summary

Workorder: 366711

Client SDG: X0092

Project Description: RC-241 UPR-100-N-17 Archive

Page 4 of 12

<u>Parmname</u>	<u>NOM</u>	<u>Sample</u>	<u>Qual</u>	<u>QC</u>	<u>Units</u>	<u>RPD%</u>	<u>REC%</u>	<u>Range</u>	<u>Anlst</u>	<u>Date</u>	<u>Time</u>
Volatile-GC/MS											
Batch	1456652										
Methylene chloride	50.0			42.9	ug/kg	85.8		(70%-130%)			
Styrene	50.0			53.0	ug/kg	106		(70%-130%)	CDS1	02/11/15	07:29
Tetrachloroethylene	50.0			48.7	ug/kg	97.4		(70%-130%)			
Toluene	50.0			45.7	ug/kg	91.5		(70%-130%)			
Trichloroethylene	50.0			51.7	ug/kg	103		(70%-130%)			
Vinyl chloride	50.0			58.8	ug/kg	118		(70%-130%)			
Xylenes (total)	150			148	ug/kg	98.4		(70%-130%)			
cis-1,2-Dichloroethylene	50.0			50.0	ug/kg	100		(70%-130%)			
cis-1,3-Dichloropropylene	50.0			54.0	ug/kg	108		(70%-130%)			
trans-1,2-Dichloroethylene	50.0			49.3	ug/kg	98.5		(70%-130%)			
trans-1,3-Dichloropropylene	50.0			50.2	ug/kg	100		(70%-130%)			
**1,2-Dichloroethane-d4	50.0			52.1	ug/L	104		(70%-128%)			
**Bromofluorobenzene	50.0			50.7	ug/L	101		(63%-138%)			
**Toluene-d8	50.0			46.7	ug/L	93.5		(80%-120%)			
QC1203261693 MB											
1,1,1-Trichloroethane			U	0.300	ug/kg					02/10/15	09:39
1,1,2,2-Tetrachloroethane			U	0.300	ug/kg						
1,1,2-Trichloroethane			U	0.300	ug/kg						
1,1-Dichloroethane			U	0.300	ug/kg						
1,1-Dichloroethylene			U	0.300	ug/kg						
1,2-Dichloroethane			U	0.300	ug/kg						
1,2-Dichloroethylene (total)			U	0.300	ug/kg						
1,2-Dichloropropane			U	0.300	ug/kg						

GEL LABORATORIES LLC

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

QC Summary

Workorder: 366711

Client SDG: X0092

Project Description: RC-241 UPR-100-N-17 Archive

Page 5 of 12

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1456652										
2-Butanone			U	3.00	ug/kg				CDS1	02/10/15	09:39
2-Hexanone			U	3.00	ug/kg						
4-Methyl-2-pentanone			U	3.00	ug/kg						
Acetone			U	3.00	ug/kg						
Benzene			U	0.300	ug/kg						
Bromodichloromethane			U	0.300	ug/kg						
Bromoform			U	0.300	ug/kg						
Bromomethane			U	0.300	ug/kg						
Carbon disulfide			U	1.60	ug/kg						
Carbon tetrachloride			U	0.300	ug/kg						
Chlorobenzene			U	0.300	ug/kg						
Chloroethane			U	0.300	ug/kg						
Chloroform			U	0.300	ug/kg						
Chloromethane			U	0.300	ug/kg						
Dibromochloromethane			U	0.300	ug/kg						
Ethylbenzene			U	0.300	ug/kg						
Methylene chloride			U	1.60	ug/kg						
Styrene			U	0.300	ug/kg						
Tetrachloroethylene			U	0.300	ug/kg						
Toluene			U	0.300	ug/kg						
Trichloroethylene			U	0.300	ug/kg						

GEL LABORATORIES LLC

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

QC Summary

Workorder: 366711

Client SDG: X0092

Project Description: RC-241 UPR-100-N-17 Archive

Page 6 of 12

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1456652										
Vinyl chloride			U	0.300	ug/kg						
Xylenes (total)			U	0.300	ug/kg				CDS1	02/10/15	09:39
cis-1,2-Dichloroethylene			U	0.300	ug/kg						
cis-1,3-Dichloropropylene			U	0.300	ug/kg						
trans-1,2-Dichloroethylene			U	0.300	ug/kg						
trans-1,3-Dichloropropylene			U	0.300	ug/kg						
**1,2-Dichloroethane-d4	50.0			52.2	ug/L		104	(70%-128%)			
**Bromofluorobenzene	50.0			50.9	ug/L		102	(63%-138%)			
**Toluene-d8	50.0			44.9	ug/L		89.8	(80%-120%)			
QC1203263153 MB											
1,1,1-Trichloroethane			U	0.300	ug/kg					02/11/15	08:28
1,1,2,2-Tetrachloroethane			U	0.300	ug/kg						
1,1,2-Trichloroethane			U	0.300	ug/kg						
1,1-Dichloroethane			U	0.300	ug/kg						
1,1-Dichloroethylene			U	0.300	ug/kg						
1,2-Dichloroethane			U	0.300	ug/kg						
1,2-Dichloroethylene (total)			U	0.300	ug/kg						
1,2-Dichloropropane			U	0.300	ug/kg						
2-Butanone			U	3.00	ug/kg						
2-Hexanone			U	3.00	ug/kg						
4-Methyl-2-pentanone			U	3.00	ug/kg						
Acetone			U	3.00	ug/kg						
Benzene			U	0.300	ug/kg						

GEL LABORATORIES LLC

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

QC Summary

Workorder: 366711

Client SDG: X0092

Project Description: RC-241 UPR-100-N-17 Archive

Page 7 of 12

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1456652										
Bromodichloromethane			U	0.300	ug/kg				CDS1	02/11/15	08:28
Bromoform			U	0.300	ug/kg						
Bromomethane			U	0.300	ug/kg						
Carbon disulfide			U	1.60	ug/kg						
Carbon tetrachloride			U	0.300	ug/kg						
Chlorobenzene			U	0.300	ug/kg						
Chloroethane			U	0.300	ug/kg						
Chloroform			U	0.300	ug/kg						
Chloromethane			U	0.300	ug/kg						
Dibromochloromethane			U	0.300	ug/kg						
Ethylbenzene			U	0.300	ug/kg						
Methylene chloride			U	1.60	ug/kg						
Styrene			U	0.300	ug/kg						
Tetrachloroethylene			U	0.300	ug/kg						
Toluene			U	0.300	ug/kg						
Trichloroethylene			U	0.300	ug/kg						
Vinyl chloride			U	0.300	ug/kg						
Xylenes (total)			U	0.300	ug/kg						
cis-1,2-Dichloroethylene			U	0.300	ug/kg						
cis-1,3-Dichloropropylene			U	0.300	ug/kg						
trans-1,2-Dichloroethylene			U	0.300	ug/kg						

GEL LABORATORIES LLC

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

QC Summary

Workorder: 366711

Client SDG: X0092

Project Description: RC-241 UPR-100-N-17 Archive

Page 8 of 12

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1456652										
trans-1,3-Dichloropropylene			U	0.300	ug/kg						
**1,2-Dichloroethane-d4	50.0			50.7	ug/L		101	(70%-128%)	CDS1	02/11/15	08:28
**Bromofluorobenzene	50.0			49.9	ug/L		99.8	(63%-138%)			
**Toluene-d8	50.0			44.4	ug/L		88.7	(80%-120%)			
QC1203261695 366711001 PS											
1,1,1-Trichloroethane	50.0	U	0.00	56.1	ug/L		112	(70%-130%)		02/11/15	12:58
1,1,2,2-Tetrachloroethane	50.0	U	0.00	48.2	ug/L		96.5	(70%-130%)			
1,1,2-Trichloroethane	50.0	U	0.00	46.8	ug/L		93.7	(70%-130%)			
1,1-Dichloroethane	50.0	U	0.00	48.7	ug/L		97.3	(70%-130%)			
1,1-Dichloroethylene	50.0	U	0.00	49.9	ug/L		99.8	(70%-130%)			
1,2-Dichloroethane	50.0	U	0.00	51.6	ug/L		103	(70%-130%)			
1,2-Dichloroethylene (total)	100	U	0.00	97.7	ug/L		97.7	(70%-130%)			
1,2-Dichloropropane	50.0	U	0.00	47.6	ug/L		95.3	(70%-130%)			
2-Butanone	250	U	0.00	278	ug/L		111	(70%-130%)			
2-Hexanone	250	U	0.00	275	ug/L		110	(70%-130%)			
4-Methyl-2-pentanone	250	U	0.00	240	ug/L		96.2	(70%-130%)			
Acetone	250	U	0.00	306	ug/L		122	(70%-130%)			
Benzene	50.0	U	0.00	47.3	ug/L		94.6	(70%-130%)			
Bromodichloromethane	50.0	U	0.00	54.1	ug/L		108	(70%-130%)			
Bromoform	50.0	U	0.00	54.3	ug/L		109	(70%-130%)			
Bromomethane	50.0	U	0.00	39.9	ug/L		79.7	(70%-130%)			
Carbon disulfide	250	U	0.00	241	ug/L		96.5	(70%-130%)			
Carbon tetrachloride	50.0	U	0.00	56.4	ug/L		113	(70%-130%)			

GEL LABORATORIES LLC

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

QC Summary

Workorder: 366711

Client SDG: X0092

Project Description: RC-241 UPR-100-N-17 Archive

Page 9 of 12

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1456652										
Chlorobenzene	50.0	U	0.00	45.0	ug/L		89.9	(70%-130%)	CDS1	02/11/15	12:58
Chloroethane	50.0	U	0.00	47.0	ug/L		94	(70%-130%)			
Chloroform	50.0	U	0.00	51.0	ug/L		102	(70%-130%)			
Chloromethane	50.0	U	0.00	59.1	ug/L		118	(70%-130%)			
Dibromochloromethane	50.0	U	0.00	54.8	ug/L		110	(70%-130%)			
Ethylbenzene	50.0	U	0.00	46.3	ug/L		92.6	(70%-130%)			
Methylene chloride	50.0	U	0.00	43.5	ug/L		87.1	(70%-130%)			
Styrene	50.0	U	0.00	49.1	ug/L		98.1	(70%-130%)			
Tetrachloroethylene	50.0	U	0.00	46.6	ug/L		93.2	(70%-130%)			
Toluene	50.0	J	0.560	44.8	ug/L		88.4	(70%-130%)			
Trichloroethylene	50.0	U	0.00	50.0	ug/L		100	(70%-130%)			
Vinyl chloride	50.0	U	0.00	57.2	ug/L		114	(70%-130%)			
Xylenes (total)	150	J	0.310	137	ug/L		91.3	(70%-130%)			
cis-1,2-Dichloroethylene	50.0	U	0.00	49.6	ug/L		99.2	(70%-130%)			
cis-1,3-Dichloropropylene	50.0	U	0.00	54.2	ug/L		108	(70%-130%)			
trans-1,2-Dichloroethylene	50.0	U	0.00	48.1	ug/L		96.1	(70%-130%)			
trans-1,3-Dichloropropylene	50.0	U	0.00	50.5	ug/L		101	(70%-130%)			
**1,2-Dichloroethane-d4	50.0		59.6	52.1	ug/L		104	(70%-128%)			
**Bromofluorobenzene	50.0		53.9	51.2	ug/L		102	(63%-138%)			
**Toluene-d8	50.0		48.2	47.2	ug/L		94.4	(80%-120%)			
QC1203261696 366711001 PSD											
1,1,1-Trichloroethane	50.0	U	0.00	61.4	ug/L	9.02	123	(0%-20%)		02/11/15	13:29

GEL LABORATORIES LLC

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

QC Summary

Workorder: 366711

Client SDG: X0092

Project Description: RC-241 UPR-100-N-17 Archive

Page 10 of 12

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1456652										
1,1,2,2-Tetrachloroethane	50.0	U	0.00	49.3	ug/L	2.25	98.7	(0%-20%)	CDS1	02/11/15	13:29
1,1,2-Trichloroethane	50.0	U	0.00	48.7	ug/L	3.83	97.3	(0%-20%)			
1,1-Dichloroethane	50.0	U	0.00	54.3	ug/L	10.9	109	(0%-20%)			
1,1-Dichloroethylene	50.0	U	0.00	54.2	ug/L	8.20	108	(0%-20%)			
1,2-Dichloroethane	50.0	U	0.00	54.0	ug/L	4.58	108	(0%-20%)			
1,2-Dichloroethylene (total)	100	U	0.00	105	ug/L	7.27	105	(0%-20%)			
1,2-Dichloropropane	50.0	U	0.00	50.8	ug/L	6.44	102	(0%-20%)			
2-Butanone	250	U	0.00	281	ug/L	1.10	112	(0%-20%)			
2-Hexanone	250	U	0.00	280	ug/L	2.11	112	(0%-20%)			
4-Methyl-2-pentanone	250	U	0.00	253	ug/L	5.17	101	(0%-20%)			
Acetone	250	U	0.00	315	ug/L	2.96	126	(0%-20%)			
Benzene	50.0	U	0.00	49.7	ug/L	5.01	99.5	(0%-20%)			
Bromodichloromethane	50.0	U	0.00	58.3	ug/L	7.49	117	(0%-20%)			
Bromoform	50.0	U	0.00	59.1	ug/L	8.48	118	(0%-20%)			
Bromomethane	50.0	U	0.00	38.9	ug/L	2.57	77.7	(0%-20%)			
Carbon disulfide	250	U	0.00	247	ug/L	2.44	98.9	(0%-20%)			
Carbon tetrachloride	50.0	U	0.00	61.2	ug/L	8.23	122	(0%-20%)			
Chlorobenzene	50.0	U	0.00	47.5	ug/L	5.49	95	(0%-20%)			
Chloroethane	50.0	U	0.00	45.7	ug/L	2.96	91.3	(0%-20%)			
Chloroform	50.0	U	0.00	54.5	ug/L	6.65	109	(0%-20%)			
Chloromethane	50.0	U	0.00	58.0	ug/L	1.93	116	(0%-20%)			

GEL LABORATORIES LLC

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

QC Summary

Workorder: 366711

Client SDG: X0092

Project Description: RC-241 UPR-100-N-17 Archive

Page 11 of 12

Parname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1456652										
Dibromochloromethane	50.0	U	0.00	58.6	ug/L	6.63	117	(0%-20%)			
Ethylbenzene	50.0	U	0.00	49.1	ug/L	5.81	98.2	(0%-20%)	CDS1	02/11/15	13:29
Methylene chloride	50.0	U	0.00	45.1	ug/L	3.63	90.3	(0%-20%)			
Styrene	50.0	U	0.00	51.3	ug/L	4.41	103	(0%-20%)			
Tetrachloroethylene	50.0	U	0.00	49.4	ug/L	5.88	98.8	(0%-20%)			
Toluene	50.0	J	0.560	47.2	ug/L	5.31	93.3	(0%-20%)			
Trichloroethylene	50.0	U	0.00	53.9	ug/L	7.53	108	(0%-20%)			
Vinyl chloride	50.0	U	0.00	56.3	ug/L	1.57	113	(0%-20%)			
Xylenes (total)	150	J	0.310	146	ug/L	6.24	97.2	(0%-20%)			
cis-1,2-Dichloroethylene	50.0	U	0.00	51.8	ug/L	4.28	104	(0%-20%)			
cis-1,3-Dichloropropylene	50.0	U	0.00	57.3	ug/L	5.56	115	(0%-20%)			
trans-1,2-Dichloroethylene	50.0	U	0.00	53.3	ug/L	10.3	107	(0%-20%)			
trans-1,3-Dichloropropylene	50.0	U	0.00	52.7	ug/L	4.32	105	(0%-20%)			
**1,2-Dichloroethane-d4	50.0		59.6	52.2	ug/L		104	(70%-128%)			
**Bromofluorobenzene	50.0		53.9	50.8	ug/L		102	(63%-138%)			
**Toluene-d8	50.0		48.2	47.3	ug/L		94.6	(80%-120%)			

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

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

QC Summary

Workorder: 366711

Client SDG: X0092

Project Description: RC-241 UPR-100-N-17 Archive

Page 12 of 12

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

Closed-System Purge-and-Trap Collection and Extraction: Volatile Organics in Soil and Waste Samples

Batch ID: 1456651

Analyst: Crystal Stacey

Method: SW846 5035

Lab SOP: GL-OA-E-039 REV# 10

Instrument: Sartorius Balance B-001

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
------	-----------	-------------	---------------	--------------	-------------

Sample ID	Run Date	Matrix	Initial Weight (g)	Final Volume (mL)	Prep Factor (mL/g)	pH Check
366711006	05-FEB-2015 09:25:00	Soil	6.6	5	0.75758	
366711009	05-FEB-2015 09:25:00	Soil	6.4	5	0.78125	
366711007	05-FEB-2015 10:10:00	Soil	5.1	5	0.98039	
366711004	05-FEB-2015 10:50:00	Soil	7	5	0.71429	
366711008	05-FEB-2015 11:50:00	Soil	5.6	5	0.89286	
366711003	05-FEB-2015 12:50:00	Soil	5.2	5	0.96154	
366711005	05-FEB-2015 13:00:00	Soil	5.5	5	0.90909	
366711001	05-FEB-2015 14:00:00	Soil	5.2	5	0.96154	
1203261695 PS (366711001)	05-FEB-2015 14:00:00	Soil	5.4	5	0.92593	
1203261696 PSD (366711001)	05-FEB-2015 14:00:00	Soil	5.2	5	0.96154	
366711002	05-FEB-2015 14:50:00	Soil	5.3	5	0.9434	
1203261693 MB	10-FEB-2015 06:00:00	Soil	5	5	1	
1203261694 LCS	10-FEB-2015 06:00:00	Soil	5	5	1	
1203263153 MB	11-FEB-2015 06:00:00	Soil	5	5	1	
1203263154 LCS	11-FEB-2015 06:00:00	Soil	5	5	1	

Reagent/Solvent Lot ID	Description	Amount	Comments:
------------------------	-------------	--------	-----------

HPLC Polynuclear Aromatic Hydrocarbon Analysis

**HPLC Polynuclear Aromatic Hydrocarbon
Technical Case Narrative
Eberline (WCHN)
SDG #: X0092
Work Order #: 366711**

Method/Analysis Information

Procedure: Polynuclear Aromatic Hydrocarbons

Analytical Method: SW846 8310
Prep Method: SW846 3550B
Analytical Batch Number: 1458369
Prep Batch Number: 1458368

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8310:

Sample ID	Client ID
366711010	B30C30
366711011	B30C28
366711012	B30C32
366711013	B30C26
1203266352	MB for batch 1458368
1203266353	Laboratory Control Sample (LCS)
1203266354	366711011(B30C28) Matrix Spike (MS)
1203266355	366711011(B30C28) 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-030 REV# 16.

Raw data reports are processed and reviewed by the analyst using the Target software package. False positives have been removed from the Target quantitation reports per standard operating procedures (SOP) section 18.0.

Calibration Information

Due to software limitations, the files displayed at the beginning of the Form 6 are only the last files uploaded for each individual level. A complete listing of all files used in the current ICAL are shown on the Calibration History that is included with each Level 4 or higher package. The last file by date in each level is the one currently uploaded for that level.

The linear equation used in Target and indicated on the initial calibration summary form is not a conventional linear equation (slope intercept formula) and does not match the equation found in SW-846 method 8000B. The x and y axes are inversed in Target, so that the instrument response is treated as the independent variable (x) and the concentration ratio is treated as the dependent variable (y). The equation used in Target to calculate sample results is adjusted to account for the linear equation inversion and reciprocal slope. The adjusted calculation has been independently verified to produce valid results.

Initial Calibration

All initial calibration requirements have been met for this SDG.

CCV Requirements

All associated calibration verification standards (ICV or CCV) 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 the surrogate recoveries were within the established acceptance criteria for this SDG.

Laboratory Control Sample (LCS) Recovery

The LCS (1203266353) did not meet spike recovery limits for Chrysene at 77.8% with recovery limits of 80-113%, and Dibenzo(a,h)anthracene at 80% with recovery limits of 83-115%. While the stated recoveries were biased low, both the MS and MSD met spike recovery limits for all target analytes. Since accuracy and precision were demonstrated by the MS and MSD, the client granted permission to report the data with the appropriate Data Exception Report (DER).

QC Sample Designation

Client sample 366711011 (B30C28) was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement

The MS recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement

The MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement

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

Technical Information:

Holding Time Specifications

All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or 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.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP.

Sample Dilutions

The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis

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

Miscellaneous Information:**Data Exception (DER) Documentation**

Data Exception Report 1385020 was generated for this SDG.

Manual Integrations

Some initial calibration standards, continuing calibration standards, and samples 366711010 (B30C30) and 366711011 (B30C28) required manual integrations due to software limitations.

Please see the raw data in the Miscellaneous Section.

Additional Comments

The Form 8 is used only as a sequence of the analysis.

One or more analytes were detected whose concentration greatly differed between the primary and confirmation analysis (greater than 40% difference or RPD) in samples 366711010 (B30C30) and 366711011 (B30C28). Because both detectors indicated an acceptable peak in the appropriate retention time window for these analytes, the analytes are reported as positive results. Due to the high percent difference or RPD between the two detectors, it is indicated as such on the appropriate Form I/Certificate of Analysis (C of A) with a 'P' qualifier. Those analytes reported with a percent difference or RPD greater than 40% but less than 70% are qualified as presumptive evidence of the presence of the material.

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. An electronic signature page inserted after the case narrative of each electronic package will indicate the analyst, reviewer, and report specialist names associated with the generation of the data and package. 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.

System Configuration

The laboratory utilizes a high performance liquid chromatography (HPLC) instrument configuration for Polynuclear Aromatic Hydrocarbons analyses.

The chromatographic hardware system consists of a HP Model 1100 HPLC with programmable gradient pumping and a 100uL loop injector.

The HPLC 1100 is coupled to a HP Model G1315A Diode Array UV detector which monitors absorbance at the following five wavelengths: 1) 224 nm; 2) 250 nm; 3) 270 nm; 4) 234 nm; 5) 300 nm.

The HPLC 1100 is also coupled to a HP Model G1321A Fluorescence Detector in series which monitors the following varying excitations and emissions 1) EX 230 nm EM 330 nm; 2) EX 210 nm EM 314 nm; 3) EX 250 nm EM 368 nm; 4) EX 237 nm EM 440 nm; 5) EX 277 nm EM 376 nm; 6) EX 255 nm EM 420 nm; 7) EX 230 nm EM 453 nm.

The Diode Array UV detector is used as the primary detector and the Fluorescence Detector is used as the confirmation detector. All results are reported from the primary Diode Array UV detector.

The HPLC system is identified with a designation of HPLC E in the raw data printouts.

Chromatographic Columns

Chromatographic separation of Polynuclear Aromatic Hydrocarbons is accomplished through analysis on the following reversed phase columns:

Phenomenex: Luna C18 (2), 100 A, 250 mm x 4.6 mm containing 5 um size particle.

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-FEB-15	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: HPLC	Test / Method: SW846 8310	Matrix Type: Solid	Client Code: WCHN
Batch ID: 1458369	Sample Numbers: See Below		
Potentially affected work order(s)(SDG): 366711(X0092)			
Application Issues: Failed Recovery for LCS/LCSD			
Specification and Requirements Exception Description:		DER Disposition:	
1. The LCS (1203266353) did not meet spike recovery limits for Chrysene at 77.8% with recovery limits of 80-113%, and Dibenzo(a,h)anthracene at 80% with recovery limits of 83-115%.		1. While the stated recoveries were biased low, both the MS and MSD met spike recovery limits for all target analytes. Since accuracy and precision were demonstrated by the MS and MSD, the client granted permission to report the data with the appropriate DER.	

Originator's Name:
Michael Penny 24-FEB-15

Data Validator/Group Leader:
Lynne Russell 24-FEB-15

GEL LABORATORIES LLC

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

Qualifier Definition Report for

WCHN001 Eberline

Client SDG: X0092 GEL Work Order: 366711 Project: RC-241 UPR-100-N-17

The Qualifiers in this report are defined as follows:

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.

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: Michael Penny

Date: 24 FEB 2015

Title: Group Leader

Roadmap for WCHN X0092 HPLC_PAH

This roadmap was analyzed by map on 02-24-2015, 13:12.

This roadmap was reviewed by map on 02-24-2015, 13:15.

This roadmap was packaged by map on 02-24-2015, 14:15.

Sample

exclude	manual	datafile	smpid	injdate	injtime	sublist	clientid	dilution	batchid	comment
<input type="checkbox"/>	N	/chem/hplce.i/p022015.b/ph5b2051.d	366711010	22-FEB-2015	00:52	X0092.sub	B30C30	1	1458369	<input type="text"/>
<input type="checkbox"/>	N	/chem/hplce.i/p022015.b/ph5b2052.d	366711011	22-FEB-2015	01:35	X0092.sub	B30C28	1	1458369	<input type="text"/>
<input type="checkbox"/>	N	/chem/hplce.i/p022015.b/ph5b2055.d	366711012	22-FEB-2015	03:41	X0092.sub	B30C32	1	1458369	<input type="text"/>
<input type="checkbox"/>	N	/chem/hplce.i/p022015.b/ph5b2056.d	366711013	22-FEB-2015	04:23	X0092.sub	B30C26	1	1458369	<input type="text"/>

QC Sample

exclude	manual	datafile	smpid	samplotype	injdate	injtime	sublist	clientid	dilution	batchid	comment
<input type="checkbox"/>	N	/chem/hplce.i/p022015.b/ph5b2049.d	1203266352	mb	21-FEB-2015	23:28	X0092.sub	PAHBLK01	1	1458369	<input type="text"/>
<input type="checkbox"/>	N	/chem/hplce.i/p022015.b/ph5b2050.d	1203266353	lcs	22-FEB-2015	00:10	X0092.sub	PAHBLK01LCS	1	1458369	2 low recoveries, samples out of hold.
<input type="checkbox"/>	N	/chem/hplce.i/p022015.b/ph5b2053.d	1203266354	ms	22-FEB-2015	02:17	X0092.sub	B30C28MS	1	1458369	Pass
<input type="checkbox"/>	N	/chem/hplce.i/p022015.b/ph5b2054.d	1203266355	msd	22-FEB-2015	02:59	X0092.sub	B30C28MSD	1	1458369	Pass

Sample Data Summary

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: February 24, 2015

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-241 UPR-100-N-17 Archive

Client SDG: X0092

Client Sample ID: B30C30	Project: WCHN0RC241
Sample ID: 366711010	Client ID: WCHN001
Matrix: SOIL	
Collect Date: 05-FEB-15 13:10	
Receive Date: 07-FEB-15	
Collector: Client	
Moisture: <0.1%	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
HPLC-PAH											
8310/3550 PAH Std list Soil "Dry Weight Corrected"											
Acenaphthene	U	4.98	4.98	16.6	ug/kg	1	CWW	02/22/15	0052	1458369	1
Acenaphthylene	U	4.98	4.98	16.6	ug/kg	1					
Anthracene	J	7.67	1.66	16.6	ug/kg	1					
Benzo(a)anthracene	J	1.13	0.532	1.66	ug/kg	1					
Benzo(a)pyrene	J	0.730	0.532	1.66	ug/kg	1					
Benzo(b)fluoranthene	J	0.953	0.532	1.66	ug/kg	1					
Benzo(ghi)perylene	J	1.02	0.532	1.66	ug/kg	1					
Benzo(k)fluoranthene	JP	0.726	0.266	0.831	ug/kg	1					
Chrysene	U	0.532	0.532	1.66	ug/kg	1					
Dibenzo(a,h)anthracene	J	0.844	0.532	1.66	ug/kg	1					
Fluoranthene	U	0.532	0.532	1.66	ug/kg	1					
Fluorene	J	5.34	4.98	16.6	ug/kg	1					
Indeno(1,2,3-cd)pyrene	J	0.781	0.532	1.66	ug/kg	1					
Naphthalene	U	4.98	4.98	16.6	ug/kg	1					
Phenanthrene	J	7.28	4.98	16.6	ug/kg	1					
Pyrene	J	1.02	0.532	1.66	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3550B	3550B PAH BY HPLC Prep in soil	SJW1	02/19/15	1340	1458368

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8310	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Decafluorobiphenyl	8310/3550 PAH Std list Soil "Dry Weight Corrected"	5040 ug/kg	8310	60.7	(46%-101%)

Notes:

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: February 24, 2015

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-241 UPR-100-N-17 Archive

Client SDG: X0092

Client Sample ID: B30C28	Project: WCHN0RC241
Sample ID: 366711011	Client ID: WCHN001
Matrix: SOIL	
Collect Date: 05-FEB-15 14:00	
Receive Date: 07-FEB-15	
Collector: Client	
Moisture: 3.57%	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
HPLC-PAH											
8310/3550 PAH Std list Soil "Dry Weight Corrected"											
Acenaphthene	U	5.18	5.18	17.3	ug/kg	1	CWW	02/22/15	0135	1458369	1
Acenaphthylene	U	5.18	5.18	17.3	ug/kg	1					
Anthracene	J	4.78	1.73	17.3	ug/kg	1					
Benzo(a)anthracene	U	0.552	0.552	1.73	ug/kg	1					
Benzo(a)pyrene	J	0.692	0.552	1.73	ug/kg	1					
Benzo(b)fluoranthene	J	0.663	0.552	1.73	ug/kg	1					
Benzo(ghi)perylene	J	1.43	0.552	1.73	ug/kg	1					
Benzo(k)fluoranthene	JP	0.563	0.276	0.863	ug/kg	1					
Chrysene	U	0.552	0.552	1.73	ug/kg	1					
Dibenzo(a,h)anthracene	J	0.976	0.552	1.73	ug/kg	1					
Fluoranthene	U	0.552	0.552	1.73	ug/kg	1					
Fluorene	U	5.18	5.18	17.3	ug/kg	1					
Indeno(1,2,3-cd)pyrene	J	0.887	0.552	1.73	ug/kg	1					
Naphthalene	U	5.18	5.18	17.3	ug/kg	1					
Phenanthrene	U	5.18	5.18	17.3	ug/kg	1					
Pyrene	U	0.552	0.552	1.73	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3550B	3550B PAH BY HPLC Prep in soil	SJW1	02/19/15	1340	1458368

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 8310	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Decafluorobiphenyl	8310/3550 PAH Std list Soil "Dry Weight Corrected"	5610 ug/kg	8630	65.0	(46%-101%)

Notes:

QC Summary

GEL LABORATORIES LLC

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

QC Summary

Report Date: February 24, 2015

Page 1 of 4

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

Workorder: 366711

Client SDG: X0092

Project Description: RC-241 UPR-100-N-17 Archive

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
HPLC-PAH											
Batch	1458369										
QC1203266353	LCS										
Acenaphthene	1660			1320	ug/kg		79.2	(66%-98%)	CWW	02/22/15	00:10
Acenaphthylene	1660			1250	ug/kg		75.2	(65%-95%)			
Anthracene	1660			1340	ug/kg		80.4	(71%-107%)			
Benzo(a)anthracene	166			131	ug/kg		78.4	(72%-103%)			
Benzo(a)pyrene	166			120	ug/kg		71.9	(68%-98%)			
Benzo(b)fluoranthene	166			130	ug/kg		78	(72%-99%)			
Benzo(ghi)perylene	166			131	ug/kg		78.9	(69%-98%)			
Benzo(k)fluoranthene	83.2			69.8	ug/kg		83.9	(62%-103%)			
Chrysene	166			129	ug/kg		77.8*	(80%-113%)			
Dibenzo(a,h)anthracene	166			133	ug/kg		80*	(83%-115%)			
Fluoranthene	166			130	ug/kg		78.2	(68%-98%)			
Fluorene	1660			1370	ug/kg		82.1	(68%-99%)			
Indeno(1,2,3-cd)pyrene	166			134	ug/kg		80.8	(76%-105%)			
Naphthalene	1660			1140	ug/kg		68.5	(62%-93%)			
Phenanthrene	1660			1360	ug/kg		81.6	(70%-98%)			
Pyrene	166			127	ug/kg		76.5	(73%-104%)			
**Decafluorobiphenyl	8320			5880	ug/kg		70.7	(46%-101%)			
QC1203266352	MB										
Acenaphthene			U	4.99	ug/kg					02/21/15	23:28
Acenaphthylene			U	4.99	ug/kg						

GEL LABORATORIES LLC

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

QC Summary

Workorder: 366711

Client SDG: X0092

Project Description: RC-241 UPR-100-N-17 Archive

Page 2 of 4

Parname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
HPLC-PAH											
Batch	1458369										
Anthracene			U	1.66	ug/kg						
Benzo(a)anthracene			U	0.532	ug/kg				CWW	02/21/15	23:28
Benzo(a)pyrene			U	0.532	ug/kg						
Benzo(b)fluoranthene			U	0.532	ug/kg						
Benzo(ghi)perylene			U	0.532	ug/kg						
Benzo(k)fluoranthene			U	0.266	ug/kg						
Chrysene			U	0.532	ug/kg						
Dibenzo(a,h)anthracene			U	0.532	ug/kg						
Fluoranthene			U	0.532	ug/kg						
Fluorene			U	4.99	ug/kg						
Indeno(1,2,3-cd)pyrene			U	0.532	ug/kg						
Naphthalene			U	4.99	ug/kg						
Phenanthrene			U	4.99	ug/kg						
Pyrene			U	0.532	ug/kg						
**Decafluorobiphenyl	8320			5500	ug/kg		66.1	(46%-101%)			
QC1203266354 366711011 MS											
Acenaphthene	1720	U	5.18	1550	ug/kg		90	(57%-97%)		02/22/15	02:17
Acenaphthylene	1720	U	5.18	1480	ug/kg		85.8	(55%-94%)			
Anthracene	1720	J	4.78	1530	ug/kg		88.5	(65%-103%)			
Benzo(a)anthracene	172	U	0.552	149	ug/kg		86.4	(53%-110%)			
Benzo(a)pyrene	172	J	0.692	137	ug/kg		79.1	(53%-105%)			
Benzo(b)fluoranthene	172	J	0.663	147	ug/kg		85	(52%-110%)			
Benzo(ghi)perylene	172	J	1.43	148	ug/kg		85.2	(44%-107%)			

GEL LABORATORIES LLC

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

QC Summary

Workorder: 366711

Client SDG: X0092

Project Description: RC-241 UPR-100-N-17 Archive

Page 3 of 4

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
HPLC-PAH											
Batch	1458369										
Benzo(k)fluoranthene	86.1	JP	0.563	78.9	ug/kg		91	(48%-116%)	CWW	02/22/15	02:17
Chrysene	172	U	0.552	149	ug/kg		86.2	(61%-118%)			
Dibenzo(a,h)anthracene	172	J	0.976	150	ug/kg		86.5	(63%-119%)			
Fluoranthene	172	U	0.552	148	ug/kg		85.8	(56%-100%)			
Fluorene	1720	U	5.18	1570	ug/kg		91.2	(59%-97%)			
Indeno(1,2,3-cd)pyrene	172	J	0.887	151	ug/kg		87.4	(53%-115%)			
Naphthalene	1720	U	5.18	1370	ug/kg		79.5	(54%-88%)			
Phenanthrene	1720	U	5.18	1550	ug/kg		89.9	(60%-99%)			
Pyrene	172	U	0.552	146	ug/kg		84.8	(54%-112%)			
**Decafluorobiphenyl	8610		5610	6690	ug/kg		77.6	(46%-101%)			
QC1203266355 366711011 MSD											
Acenaphthene	1720	U	5.18	1340	ug/kg	14.9	77.6	(0%-30%)		02/22/15	02:59
Acenaphthylene	1720	U	5.18	1270	ug/kg	15.1	73.8	(0%-30%)			
Anthracene	1720	J	4.78	1310	ug/kg	15.4	75.8	(0%-30%)			
Benzo(a)anthracene	172	U	0.552	127	ug/kg	15.9	73.7	(0%-30%)			
Benzo(a)pyrene	172	J	0.692	117	ug/kg	15.5	67.7	(0%-30%)			
Benzo(b)fluoranthene	172	J	0.663	126	ug/kg	15.2	73	(0%-30%)			
Benzo(ghi)perylene	172	J	1.43	128	ug/kg	14.9	73.3	(0%-30%)			
Benzo(k)fluoranthene	86.1	JP	0.563	67.8	ug/kg	15.2	78.1	(0%-30%)			
Chrysene	172	U	0.552	126	ug/kg	16.7	73	(0%-30%)			
Dibenzo(a,h)anthracene	172	J	0.976	130	ug/kg	14.6	74.7	(0%-30%)			
Fluoranthene	172	U	0.552	126	ug/kg	16.2	73	(0%-30%)			

GEL LABORATORIES LLC

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

QC Summary

Workorder: 366711

Client SDG: X0092

Project Description: RC-241 UPR-100-N-17 Archive

Page 4 of 4

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
HPLC-PAH											
Batch	1458369										
Fluorene	1720	U	5.18	1340	ug/kg	15.6	78.1	(0%-30%)	CWW	02/22/15	02:59
Indeno(1,2,3-cd)pyrene	172	J	0.887	131	ug/kg	14.6	75.5	(0%-30%)			
Naphthalene	1720	U	5.18	1190	ug/kg	13.7	69.4	(0%-30%)			
Phenanthrene	1720	U	5.18	1330	ug/kg	15.4	77.1	(0%-30%)			
Pyrene	172	U	0.552	124	ug/kg	16.6	71.9	(0%-30%)			
*Decafluorobiphenyl	8610		5610	6280	ug/kg		72.9	(46%-101%)			

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 Data

Prep Logbook

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

Batch ID: 1458368 Verified by: _____
 Analyst: Sirena White
 Method: SW846 3550B

Lab SOP: GL-OA-E-010 REV# 24
 Instrument: Semi-Volatiles Manual

Sample ID	Run Date	Aliquot (g)	Prepped Aliquot (mL)	Prepped Factor (mL/g)
1203266352 MB	19-FEB-2015 13:40:00	30.05	1	0.03328
1203266353 LCS	19-FEB-2015 13:40:00	30.05	1	0.03328
366711010	19-FEB-2015 13:40:00	30.1	1	0.03322
366711011	19-FEB-2015 13:40:00	30.04	1	0.03329
1203266354 MS (366711011)	19-FEB-2015 13:40:00	30.1	1	0.03322
1203266355 MSD (366711011)	19-FEB-2015 13:40:00	30.12	1	0.0332
366711012	19-FEB-2015 13:40:00	30.06	1	0.03327
366711013	19-FEB-2015 13:40:00	30.34	1	0.03296

Type	Sample Id	Description	Serial Number	Spike Amt	Units	Comments:
LCS	1203266353	8310 PAH SPIKE	UE150219-10	1	mL	Verified By: RLC
MS	1203266354	8310 PAH SPIKE	UE150219-10	1	mL	Final Solvent: ACN
MSD	1203266355	8310 PAH SPIKE	UE150219-10	1	mL	
SURR	All	Decafluorobiphenyl 250 mg/L	UE150121-35	1	mL	
REGNT	All	Methylene Chloride	2211177-D	300	mL	
REGNT	All	Acetonitrile UV 4L	2219831	5	mL	
SOURC	All	SODIUM SULFATE	2193342	30	g	

Flame Ionization Detector Analysis

Case Narrative

**FID Flame Ionization Detector
Technical Case Narrative
Eberline (WCHN)
SDG #: X0092
Work Order #: 366711**

Method/Analysis Information

Procedure: Washington Method for the Determination of Extractable Petroleum Hydrocarbons

Analytical Method: WA EPH

Prep Method: WA EPH

Analytical Batch Number: 1458365

Prep Batch Number: 1458363

Sample Analysis

The following samples were analyzed using the analytical protocol as established in WA EPH:

Sample ID	Client ID
366711010	B30C30
366711011	B30C28
366711012	B30C32
366711013	B30C26
1203266341	MB for batch 1458363
1203266342	Laboratory Control Sample (LCS)
1203266343	366711010(B30C30) Matrix Spike (MS)
1203266344	366711010(B30C30) 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-075 REV# 0.

Raw data reports are processed and reviewed by the analyst using ChemStation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 23.0.

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.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB 1203266341 (MB) contained hits of target analytes above the RDL; however, there were no hits in the associated samples for this analyte above the RDL.

Surrogate Recoveries

Surrogate recoveries were within the acceptance limits in all samples and quality control samples.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

QC Sample Designation

Sample 366711010 (B30C30) 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. 1203266343 (B30C30MS).

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.

Sample Dilutions

The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis

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

Miscellaneous Information

Data Exception (DER) Documentation

The following DER was generated for this SDG: 1384181. 1203266341 (MB) and 1203266343 (B30C30MS).

Manual Integrations

Samples 1203266343 (B30C30MS), 1203266344 (B30C30MSD) and 366711010 (B30C30) required manual integration.

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 GC-FID analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
FID5.I	Agilent Gas Chromatograph	Agilent 6890N GC/FID	J&W DB-5MS	30m x 0.25mm, 0.25um(J&W)
FID5.I	Agilent Gas Chromatograph	Agilent 6890N GC/FID	J&W DB-WAX	30m x 0.53 mm x 1um
FID5.I	Agilent Gas Chromatograph	Agilent 6890N GC/FID	J&W DB-624	30m x 0.53mm, 3.0um(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. 20-FEB-15	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: GC/FID	Test / Method: WA EPH	Matrix Type: Solid	Client Code: WCHN
Batch ID: 1458365	Sample Numbers: See Below		

Potentially affected work order(s)(SDG): 366711(X0092)

Application Issues:

Failed Recovery for MS/MSD, or PS/PSD

Method Blank contamination

Failed Yield for Surrogates

**Specification and Requirements
Exception Description:**

DER Disposition:

1. The MS(1203266343) did not meet spike recovery acceptance criteria.
3. A target analyte was detected in the MB(1203266341) at a concentration above the PQL.

1. The MS recoveries for this SDG were not within the acceptance limits. The low recovery confirmed in the matrix spike duplicate and was attributed to matrix interference.
2. The MB contained hits of target analytes above the RDL; however, there were no hits in the associated samples for this analyte above the RDL.

Originator's Name:

Josh Brooks 20-FEB-15

Data Validator/Group Leader:

Cameron Bearden 20-FEB-15

GEL LABORATORIES LLC

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

Qualifier Definition Report for

WCHN001 Eberline

Client SDG: X0092 GEL Work Order: 366711 Project: RC-241 UPR-100-N-17

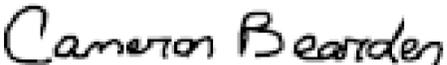
The Qualifiers in this report are defined as follows:

- B The analyte was detected in both the associated QC blank and in the 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: Cameron Bearden

Date: 20 FEB 2015

Title: Group Leader

Sample Data Summary

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: March 10, 2015

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-241 UPR-100-N-17 Archive

Client SDG: X0092

Client Sample ID: B30C30
 Sample ID: 366711010
 Matrix: SOIL
 Collect Date: 05-FEB-15 13:10
 Receive Date: 07-FEB-15
 Collector: Client
 Moisture: <0.1%

Project: WCHN0RC241
 Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
GC-FID											
Washington EPH Solid "Dry Weight Corrected"											
Aliphatic Hydrocarbons >C10-C12	U	ND	666	1330	ug/Kg	1	JMB3	02/19/15	2055	1458365	1
Aliphatic Hydrocarbons >C12-C16	U	ND	666	1330	ug/Kg	1					
Aliphatic Hydrocarbons >C16-C21	J	1330	666	1330	ug/Kg	1					
Aliphatic Hydrocarbons >C21-C34		2290	666	1330	ug/Kg	1					
Aliphatic Hydrocarbons C8-C10	BJT	1020	666	1330	ug/Kg	1					
Aromatic Hydrocarbons >C10-C12	U	ND	666	1330	ug/Kg	1	JMB3	02/19/15	2353	1458365	2
Aromatic Hydrocarbons >C12-C16	U	ND	666	1330	ug/Kg	1					
Aromatic Hydrocarbons >C16-C21	U	ND	666	1330	ug/Kg	1					
Aromatic Hydrocarbons >C21-C34	U	ND	666	1330	ug/Kg	1					
Aromatic Hydrocarbons C8-C10	U	ND	666	1330	ug/Kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
WA EPH	Washington EPH Prep Solids	SJW1	02/18/15	0902	1458363

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	WA EPH	
2	WA EPH	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chlorooctadecane	Washington EPH Solid "Dry Weight Corrected"	895 ug/Kg	1330	67.1	(60%-140%)
o-Terphenyl	Washington EPH Solid "Dry Weight Corrected"	822 ug/Kg	1330	61.7	(60%-140%)

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.
- B The associated QC sample blank has a result $\geq 2X$ the MDA and, after corrections, result is \geq MDA for this 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

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

Certificate of Analysis

Report Date: March 10, 2015

Company : WC-Hanford, Inc.
Address : 2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354
Contact: Joan Kessner
Project: RC-241 UPR-100-N-17 Archive

Client SDG: X0092

Client Sample ID: B30C30
Sample ID: 366711010

Project: WCHN0RC241
Client ID: WCHN001

- 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)

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 Certificate of Analysis.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Heather Shaffer.

Reviewed by

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: February 20, 2015

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-241 UPR-100-N-17 Archive

Client SDG: X0092

Client Sample ID: B30C28	Project: WCHN0RC241
Sample ID: 366711011	Client ID: WCHN001
Matrix: SOIL	
Collect Date: 05-FEB-15 14:00	
Receive Date: 07-FEB-15	
Collector: Client	
Moisture: 3.57%	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
GC-FID											
Washington EPH Solid "Dry Weight Corrected"											
Aliphatic Hydrocarbons >C10-C12	U	688	688	1380	ug/Kg	1	JMB3	02/19/15	2224	1458365	1
Aliphatic Hydrocarbons >C12-C16	U	688	688	1380	ug/Kg	1					
Aliphatic Hydrocarbons >C16-C21	U	688	688	1380	ug/Kg	1					
Aliphatic Hydrocarbons >C21-C34	U	688	688	1380	ug/Kg	1					
Aliphatic Hydrocarbons C8-C10	BJT	1350	688	1380	ug/Kg	1					
Aromatic Hydrocarbons >C10-C12	U	688	688	1380	ug/Kg	1	JMB3	02/19/15	1455	1458365	2
Aromatic Hydrocarbons >C12-C16	U	688	688	1380	ug/Kg	1					
Aromatic Hydrocarbons >C16-C21	U	688	688	1380	ug/Kg	1					
Aromatic Hydrocarbons >C21-C34	U	688	688	1380	ug/Kg	1					
Aromatic Hydrocarbons C8-C10	U	688	688	1380	ug/Kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
WA EPH	Washington EPH Prep Solids	SJW1	02/18/15	0902	1458363

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	WA EPH	
2	WA EPH	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chlorooctadecane	Washington EPH Solid "Dry Weight Corrected"	1020 ug/Kg	1380	74.3	(60%-140%)
o-Terphenyl	Washington EPH Solid "Dry Weight Corrected"	908 ug/Kg	1380	66.0	(60%-140%)

Notes:

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: February 20, 2015

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-241 UPR-100-N-17 Archive

Client SDG: X0092

Client Sample ID: B30C32	Project: WCHN0RC241
Sample ID: 366711012	Client ID: WCHN001
Matrix: SOIL	
Collect Date: 05-FEB-15 14:50	
Receive Date: 07-FEB-15	
Collector: Client	
Moisture: 3.69%	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
GC-FID											
Washington EPH Solid "Dry Weight Corrected"											
Aliphatic Hydrocarbons >C10-C12	U	689	689	1380	ug/Kg	1	JMB3	02/19/15	2254	1458365	1
Aliphatic Hydrocarbons >C12-C16	U	689	689	1380	ug/Kg	1					
Aliphatic Hydrocarbons >C16-C21	U	689	689	1380	ug/Kg	1					
Aliphatic Hydrocarbons >C21-C34	U	689	689	1380	ug/Kg	1					
Aliphatic Hydrocarbons C8-C10	BJT	1210	689	1380	ug/Kg	1					
Aromatic Hydrocarbons >C10-C12	U	689	689	1380	ug/Kg	1	JMB3	02/19/15	1525	1458365	2
Aromatic Hydrocarbons >C12-C16	U	689	689	1380	ug/Kg	1					
Aromatic Hydrocarbons >C16-C21	U	689	689	1380	ug/Kg	1					
Aromatic Hydrocarbons >C21-C34	U	689	689	1380	ug/Kg	1					
Aromatic Hydrocarbons C8-C10	U	689	689	1380	ug/Kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
WA EPH	Washington EPH Prep Solids	SJW1	02/18/15	0902	1458363

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	WA EPH	
2	WA EPH	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chlorooctadecane	Washington EPH Solid "Dry Weight Corrected"	1020 ug/Kg	1380	74.1	(60%-140%)
o-Terphenyl	Washington EPH Solid "Dry Weight Corrected"	1110 ug/Kg	1380	80.4	(60%-140%)

Notes:

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: February 20, 2015

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-241 UPR-100-N-17 Archive

Client SDG: X0092

Client Sample ID: B30C26	Project: WCHN0RC241
Sample ID: 366711013	Client ID: WCHN001
Matrix: SOIL	
Collect Date: 05-FEB-15 12:50	
Receive Date: 07-FEB-15	
Collector: Client	
Moisture: 7.28%	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
GC-FID											
Washington EPH Solid "Dry Weight Corrected"											
Aliphatic Hydrocarbons >C10-C12	U	717	717	1430	ug/Kg	1	JMB3	02/19/15	2323	1458365	1
Aliphatic Hydrocarbons >C12-C16	U	717	717	1430	ug/Kg	1					
Aliphatic Hydrocarbons >C16-C21	U	717	717	1430	ug/Kg	1					
Aliphatic Hydrocarbons >C21-C34	U	717	717	1430	ug/Kg	1					
Aliphatic Hydrocarbons C8-C10	BJT	1320	717	1430	ug/Kg	1					
Aromatic Hydrocarbons >C10-C12	U	717	717	1430	ug/Kg	1	JMB3	02/19/15	1555	1458365	2
Aromatic Hydrocarbons >C12-C16	U	717	717	1430	ug/Kg	1					
Aromatic Hydrocarbons >C16-C21	U	717	717	1430	ug/Kg	1					
Aromatic Hydrocarbons >C21-C34	U	717	717	1430	ug/Kg	1					
Aromatic Hydrocarbons C8-C10	U	717	717	1430	ug/Kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
WA EPH	Washington EPH Prep Solids	SJW1	02/18/15	0902	1458363

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	WA EPH	
2	WA EPH	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1-Chlorooctadecane	Washington EPH Solid "Dry Weight Corrected"	1260 ug/Kg	1430	87.7	(60%-140%)
o-Terphenyl	Washington EPH Solid "Dry Weight Corrected"	1090 ug/Kg	1430	76.2	(60%-140%)

Notes:

Quality Control Summary

GEL LABORATORIES LLC

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

QC Summary

Report Date: February 20, 2015

Page 1 of 3

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

Workorder: 366711

Client SDG: X0092

Project Description: RC-241 UPR-100-N-17 Archive

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
GC-FID											
Batch	1458365										
QC1203266342	LCS										
Aliphatic Hydrocarbons >C10-C12	6660			5610	ug/Kg		84.3	(70%-130%)	JMB3	02/19/15	18:54
Aliphatic Hydrocarbons >C12-C16	6660			6280	ug/Kg		94.3	(70%-130%)			
Aliphatic Hydrocarbons >C16-C21	6660			6150	ug/Kg		92.3	(70%-130%)			
Aliphatic Hydrocarbons C8-C10	6660		B	6440	ug/Kg		96.7	(70%-130%)			
Aromatic Hydrocarbons >C10-C12	6660			4800	ug/Kg		72.1	(70%-130%)		02/20/15	10:38
Aromatic Hydrocarbons >C12-C16	6660			5050	ug/Kg		75.9	(70%-130%)			
Aromatic Hydrocarbons >C16-C21	13300			10300	ug/Kg		77.1	(70%-130%)			
Aromatic Hydrocarbons >C21-C34	13300			10600	ug/Kg		79.7	(70%-130%)			
**1-Chlorooctadecane	1330			1070	ug/Kg		80.1	(60%-140%)		02/19/15	18:54
**o-Terphenyl	1330			1020	ug/Kg		76.4	(60%-140%)		02/20/15	10:38
QC1203266341	MB										
Aliphatic Hydrocarbons >C10-C12			U	666	ug/Kg					02/19/15	18:24
Aliphatic Hydrocarbons >C12-C16			U	666	ug/Kg						
Aliphatic Hydrocarbons >C16-C21			U	666	ug/Kg						
Aliphatic Hydrocarbons >C21-C34			U	666	ug/Kg						
Aliphatic Hydrocarbons C8-C10				1340	ug/Kg						
Aromatic Hydrocarbons >C10-C12			U	666	ug/Kg					02/19/15	16:25
Aromatic Hydrocarbons >C12-C16			U	666	ug/Kg						
Aromatic Hydrocarbons >C16-C21			U	666	ug/Kg						
Aromatic Hydrocarbons >C21-C34			U	666	ug/Kg						

GEL LABORATORIES LLC

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

QC Summary

Workorder: 366711

Client SDG: X0092

Project Description: RC-241 UPR-100-N-17 Archive

Page 2 of 3

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
GC-FID											
Batch	1458365										
Aromatic Hydrocarbons C8-C10			U	666	ug/Kg						
**1-Chlorooctadecane	1330			1020	ug/Kg		76.4	(60%-140%)	JMB3	02/19/15	18:24
**o-Terphenyl	1330			873	ug/Kg		65.6	(60%-140%)		02/19/15	16:25
QC1203266343 366711010 MS											
Aliphatic Hydrocarbons >C10-C12	6660	U	666	5080	ug/Kg		76.3	(70%-130%)		02/19/15	21:24
Aliphatic Hydrocarbons >C12-C16	6660	U	666	5930	ug/Kg		89.1	(70%-130%)			
Aliphatic Hydrocarbons >C16-C21	6660	J	1330	7220	ug/Kg		88.5	(70%-130%)			
Aliphatic Hydrocarbons C8-C10	6660	BJT	1020	BT	5620	ug/Kg	69.1 *	(70%-130%)			
Aromatic Hydrocarbons >C10-C12	6660	U	666	5360	ug/Kg		80.6	(70%-130%)		02/19/15	17:24
Aromatic Hydrocarbons >C12-C16	6660	U	666	5510	ug/Kg		82.7	(70%-130%)			
Aromatic Hydrocarbons >C16-C21	13300	U	666	11200	ug/Kg		84	(70%-130%)			
Aromatic Hydrocarbons >C21-C34	13300	U	666	11100	ug/Kg		83.5	(70%-130%)			
**1-Chlorooctadecane	1330		895	1090	ug/Kg		81.9	(60%-140%)		02/19/15	21:24
**o-Terphenyl	1330		822	1120	ug/Kg		84.5	(60%-140%)		02/19/15	17:24
QC1203266344 366711010 MSD											
Aliphatic Hydrocarbons >C10-C12	6660	U	666	5180	ug/Kg	2.02	77.7	(0%-20%)		02/19/15	21:54
Aliphatic Hydrocarbons >C12-C16	6660	U	666	6150	ug/Kg	3.69	92.3	(0%-20%)			
Aliphatic Hydrocarbons >C16-C21	6660	J	1330	7630	ug/Kg	5.47	94.4	(0%-20%)			
Aliphatic Hydrocarbons C8-C10	6660	BJT	1020	B	5860	ug/Kg	4.18	72.6	(0%-20%)		
Aromatic Hydrocarbons >C10-C12	6660	U	666	5290	ug/Kg	1.35	79.4	(0%-20%)		02/19/15	17:54
Aromatic Hydrocarbons >C12-C16	6660	U	666	5580	ug/Kg	1.37	83.8	(0%-20%)			
Aromatic Hydrocarbons >C16-C21	13300	U	666	11600	ug/Kg	3.37	86.8	(0%-20%)			
Aromatic Hydrocarbons >C21-C34	13300	U	666	11200	ug/Kg	0.941	84.2	(0%-20%)			
**1-Chlorooctadecane	1330		895	1110	ug/Kg		83.3	(60%-140%)		02/19/15	21:54

GEL LABORATORIES LLC

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

QC Summary

Workorder: 366711

Client SDG: X0092

Project Description: RC-241 UPR-100-N-17 Archive

Page 3 of 3

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
GC-FID											
Batch	1458365										
*o-Terphenyl	1330	822		1190	ug/Kg	89.5	(60%-140%)	JMB3	02/19/15	17:54	

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

Washington Method for the Determination of Extractable Petroleum Hydrocarbons

Batch ID: 1458363 **Verified by:** _____
Analyst: Sirena White
Method: WA EPH

Lab SOP: GL-OA-E-075 REV# 0
Instrument: Semi-Volatiles Manual

Sample ID	Run Date	Aliquot (g)	Prepped Aliquot (mL)	Prepped Factor (mL/g)
1203266341 MB	18-FEB-2015 09:02:00	30.05	2	0.06656
1203266342 LCS	18-FEB-2015 09:02:00	30.04	2	0.06658
366711010	18-FEB-2015 09:02:00	30.01	2	0.06664
1203266343 MS (366711010)	18-FEB-2015 09:02:00	30.04	2	0.06658
1203266344 MSD (366711010)	18-FEB-2015 09:02:00	30.01	2	0.06664
366711011	18-FEB-2015 09:02:00	30.14	2	0.06636
366711012	18-FEB-2015 09:02:00	30.14	2	0.06636
366711013	18-FEB-2015 09:02:00	30.1	2	0.06645

Type	Sample Id	Description	Serial Number	Spike Amt	Units	Comments:
LCS	1203266342	WA LCS Spiking Solution, 200mg/L	UE140929-01	1	mL	Final Solvent: Hexane Verified by: SG Fractionated on 2/19/15 by Josh Brooks
MS	1203266343	WA LCS Spiking Solution, 200mg/L	UE140929-01	1	mL	
MSD	1203266344	WA LCS Spiking Solution, 200mg/L	UE140929-01	1	mL	
SURR	All	EPH Extraction Surrogates #1	UE140918-01	1	mL	
REGNT	All	B&J Hexane for Trace GC, filtered through silica	150216EPH	50	mL	
REGNT	All	40:60 Pentane:Dichloromethane for WA EPH fractionation	150218WA	14	mL	
REGNT	All	Acetone	2192351-B1	150	mL	
REGNT	All	Hexane	2213030-B10	50	mL	
REGNT	All	Methylene Chloride	2217490-D	150	mL	
REGNT	All	Pentane 4L bottle	CI2163102	12	mL	
REGNT	All	5g/25mL Isolute SPE Column for EPH Fractionation	EPH141104A	5	g	
SOURC	All	SODIUM SULFATE	2193342	30	g	

FID Diesel Range Organics Analysis

Case Narrative

**Diesel Range Organics
Technical Case Narrative
Eberline (WCHN)
SDG #: X0092
Work Order #: 366711**

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: 1457257

Prep Batch Number: 1457255

Sample Analysis

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

Sample ID	Client ID
366711010	B30C30
366711011	B30C28
366711012	B30C32
366711013	B30C26
1203263497	MB for batch 1457255
1203263498	Laboratory Control Sample (LCS)
1203263499	366711010(B30C30) Matrix Spike (MS)
1203263500	366711010(B30C30) 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# 25.

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/LCSD) Recovery

The LCS/LCSD spike recoveries met the acceptance limits.

QC Sample Designation

Sample 366711010 (B30C30) was selected for the MS and MSD analyses.

Matrix Spike (MS/MSD) Recovery Statement

The MS/MSD recovery was 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. Analyte peaks eluted within the established retention time windows for this method.

Sample Dilutions

The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis

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

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. A DER was not required 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.

GEL LABORATORIES LLC

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

Qualifier Definition Report for

WCHN001 Eberline

Client SDG: X0092 GEL Work Order: 366711 Project: RC-241 UPR-100-N-17

The Qualifiers in this report are defined as follows:

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.

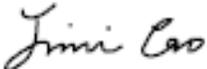
RA Indicates that sample is re-analyzed without re-extraction.

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: 19 FEB 2015

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: February 16, 2015

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-241 UPR-100-N-17 Archive

Client SDG: X0092

Client Sample ID: B30C30	Project: WCHN0RC241
Sample ID: 366711010	Client ID: WCHN001
Matrix: SOIL	
Collect Date: 05-FEB-15 13:10	
Receive Date: 07-FEB-15	
Collector: Client	
Moisture: <0.1%	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Diesel Range Organics											
SW 3541/NWTPH-Dx in Soil + Motor oil "Dry Weight Corrected"											
Diesel Range Organics (C10-C20)	U	2160	2160	6660	ug/kg	1	BYT1	02/13/15	1920	1457257	1
Motor Oil (C20-C36)	J	4010	2160	6660	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	3541 DRO IN SOIL PREP	VXS1	02/12/15	1930	1457255

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 + Motor oil "Dry Weight Corrected"	483 ug/kg	666	72.5	(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: February 16, 2015

Page 1 of 2

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

Contact: Joan Kessner

Workorder: 366711

Client SDG: X0092

Project Description: RC-241 UPR-100-N-17 Archive

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Diesel Range Organics											
Batch	1457257										
QC1203263498	LCS										
Diesel Range Organics (C10-C20)	66600			55100	ug/kg		82.7	(70%-130%)	BYT1	02/13/15	18:42
Motor Oil (C20-C36)	66600			56600	ug/kg		85.1	(70%-130%)			
**o-Terphenyl	666			577	ug/kg		86.6	(50%-150%)			
QC1203263497	MB										
Diesel Range Organics (C10-C20)			U	2160	ug/kg					02/13/15	18:03
Motor Oil (C20-C36)			U	2160	ug/kg						
**o-Terphenyl	666			568	ug/kg		85.4	(50%-150%)			
QC1203263499	366711010	MS									
Diesel Range Organics (C10-C20)	66600	U	2160	57300	ug/kg		86.1	(70%-130%)		02/13/15	19:59
Motor Oil (C20-C36)	66600	J	4010	62500	ug/kg		87.9	(70%-130%)			
**o-Terphenyl	666		483	586	ug/kg		88	(50%-150%)			
QC1203263500	366711010	MSD									
Diesel Range Organics (C10-C20)	66700	U	2160	55000	ug/kg	4.21	82.5	(0%-20%)		02/13/15	20:38
Motor Oil (C20-C36)	66700	J	4010	62300	ug/kg	0.262	87.5	(0%-20%)			
**o-Terphenyl	667		483	564	ug/kg		84.6	(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

GEL LABORATORIES LLC

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

QC Summary

Workorder: 366711

Client SDG: X0092

Project Description: RC-241 UPR-100-N-17 Archive

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: 1457255 Verified by: _____
 Analyst: Vince Sandifer
 Method: SW846 3541

Lab SOP: GL-OA-E-010 REV# 24
 Instrument: Semi-Volatiles Manual

Sample ID	Run Date	Aliquot (g)	Prepped Aliquot (mL)	Prepped Factor (mL/g)
1203263497 MB	12-FEB-2015 19:30:00	30.05	1	0.03328
1203263498 LCS	12-FEB-2015 19:30:00	30.03	1	0.0333
366711010	12-FEB-2015 19:30:00	30.03	1	0.0333
1203263499 MS (366711010)	12-FEB-2015 19:30:00	30.05	1	0.03328
1203263500 MSD (366711010)	12-FEB-2015 19:30:00	30	1	0.03333
366711011	12-FEB-2015 19:30:00	30.05	1	0.03328
366711012	12-FEB-2015 19:30:00	30.02	1	0.03331
366711013	12-FEB-2015 19:30:00	30	1	0.03333

Type	Sample Id	Description	Serial Number	Spike Amt	Units	Comments:
LCS	1203263498	AZDRO SPIKE LCS STD,4000ug/ml	WFI150128-62	1	mL	final solvent CH2Cl2
MS	1203263499	AZDRO SPIKE LCS STD,4000ug/ml	WFI150128-62	1	mL	verified by AW
MSD	1203263500	AZDRO SPIKE LCS STD,4000ug/ml	WFI150128-62	1	mL	
SURR	All	20 ppm surrogate	WE141120-04	1	mL	
REGNT	All	Methylene Chloride	2211177-D	120	mL	
SOURC	All	SODIUM SULFATE	2193342	30	g	

GC Volatiles (GRO) Analysis

Case Narrative

**GC Volatiles (GRO)
Technical Case Narrative
Eberline (WCHN)
SDG #: X0092
Work Order #: 366711**

Method/Analysis Information

Procedure: Volatile Total Petroleum Hydrocarbons by Flame Ionization Detector

Analytical Method: NWTPH-Gx in Soil

Prep Method: NWTPH-Gx in Soil

Analytical Batch Number: 1458717

Prep Batch Number: 1458714

Sample Analysis

The following client and quality control samples were analyzed to complete this sample delivery group/work order using the methods referenced in the Analysis Information section:

Sample ID	Client ID
366711010	B30C30
366711011	B30C28
366711012	B30C32
366711013	B30C26
1203267292	MB for batch 1458714
1203267294	Laboratory Control Sample (LCS)
1203267295	366711010(B30C30) Post Spike (PS)
1203267297	366711010(B30C30) Post Spike Duplicate (PSD)
1203267293	High Blank (HB)

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

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

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-004 REV# 25.

Calibration Information

Initial Calibration

All initial calibration requirements have been met for this sample delivery group (SDG). See the calibration history report for a list of data files that were used to generate the initial calibration curve in the Standard Data Section of this data package.

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(s) analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries

Surrogate recoveries, in all samples and quality control samples, were within the acceptance limits.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

QC Sample Designation

Sample 366711010 (B30C30) was selected for analysis as the matrix spike.

Spike Recovery Statement

The GRO recovery was within the acceptance limits.

Relative Percent Difference (RPD) Statement

The RPD between the matrix spike pair 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.

Sample Dilutions

Samples were analyzed using a methanol extraction procedure at 1:50 dilutions. The samples were analyzed at the lowest dilution possible when using a methanol extraction procedure.

Sample Re-extraction/Re-analysis

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

Miscellaneous Information**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to 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. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. 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 reports (DERs) are generated to document procedural anomalies that may deviate from

referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations

Data files associated with the initial calibration, continuing calibration check(s), and samples may have been manually integrated to correct misidentification of peaks by the integration software.

Additional Comments

Additional comments were not required for this SDG.

System Configuration

The GRO Organics analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description	P & T Trap
VOC4A.I	Agilent 6890N GC/FID w/ OI 4560/Archon Autosampler	HP6890N GC/FID	DB-624	0.53mm x 3.0u x 15m	OI #10

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.

GEL LABORATORIES LLC

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

Qualifier Definition Report for

WCHN001 Eberline

Client SDG: X0092 GEL Work Order: 366711 Project: RC-241 UPR-100-N-17

The Qualifiers in this report are defined as follows:

D Results are reported from a diluted aliquot of sample.

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.

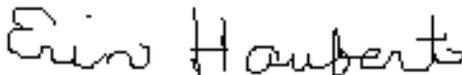
RA Indicates that sample is re-analyzed without re-extraction.

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: Erin Haubert

Date: 23 FEB 2015

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: February 23, 2015

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-241 UPR-100-N-17 Archive

Client SDG: X0092

Client Sample ID: B30C30
 Sample ID: 366711010
 Matrix: SOIL
 Collect Date: 05-FEB-15 13:10
 Receive Date: 07-FEB-15
 Collector: Client
 Moisture: <0.1%

Project: WCHN0RC241
 Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatiles GRO Organics											
NWTPH-Gx GRO in Soil "Dry Weight Corrected"											
Gasoline Range Organics (C6 - C10)	DU	1670	1670	5000	UG/KG	50	ACJ	02/18/15	1446	1458717	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
NWTPH-Gx in Soil	NWTPH-Gx Prep in Soil	ACJ	02/18/15	1346	1458714

The following Analytical Methods were performed:

Method	Description	Analyst	Comments
1	NWTPH-Gx in Soil		

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Bromofluorobenzene	NWTPH-Gx GRO in Soil "Dry Weight Corrected"	4900 UG/KG	50.0	98.0	(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: February 23, 2015

Page 1 of 2

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

Workorder: 366711

Client SDG: X0092

Project Description: RC-241 UPR-100-N-17 Archive

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatiles GRO Organics											
Batch	1458717										
QC1203267293		HB									
Gasoline Range Organics (C6 - C10)			DU	1670	UG/KG				ACJ	02/18/15	14:18
**Bromofluorobenzene				4660	UG/KG		93.2	(50%-150%)			
QC1203267294		LCS									
Gasoline Range Organics (C6 - C10)	500			481	UG/KG		96.2	(70%-130%)		02/18/15	10:29
**Bromofluorobenzene				54.6	UG/KG		109	(50%-150%)			
QC1203267292		MB									
Gasoline Range Organics (C6 - C10)			U	16.7	UG/KG					02/18/15	10:57
**Bromofluorobenzene				52.1	UG/KG		104	(50%-150%)			
QC1203267295		366711010 PS									
Gasoline Range Organics (C6 - C10)	500	DU	0.00 D	505	ug/L		101	(70%-130%)		02/18/15	16:37
**Bromofluorobenzene	50.0		49.0	49.9	ug/L		99.9	(50%-150%)			
QC1203267297		366711010 PSD									
Gasoline Range Organics (C6 - C10)	500	DU	0.00 D	449	ug/L	11.7	89.9	(0%-20%)		02/18/15	17:05
**Bromofluorobenzene	50.0		49.0	45.3	ug/L		90.7	(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
- 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.

GEL LABORATORIES LLC

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

QC Summary

Workorder: 366711

Client SDG: X0092

Project Description: RC-241 UPR-100-N-17 Archive

Page 2 of 2

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
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

Volatile Total Petroleum Hydrocarbons by Flame Ionization Detector

Batch ID: 1458714

Analyst: Amy Jamison

Method: NWTPH-Gx in Soil

Lab SOP: GL-OA-E-004 REV# 25

Instrument: Sartorius Balance B-001

Type Sample Id Description Serial Number Spike Amount Spike Units

Sample ID	Run Date	Matrix	Initial Weight (g)	Final Volume (mL)	Prep Factor (mL/g)	pH Check
1203267294 LCS	18-FEB-2015 08:00:00	Soil	5	5	1	
1203267292 MB	18-FEB-2015 08:30:00	Soil	5	5	1	
1203267293 HB	18-FEB-2015 13:45:00	Soil	5	10	2	
366711010	18-FEB-2015 13:46:00	Soil	5	10	2	
1203267295 PS (366711010)	18-FEB-2015 13:46:00	Soil	5	10	2	
1203267297 PSD (366711010)	18-FEB-2015 13:46:00	Soil	5	10	2	
366711011	18-FEB-2015 13:47:00	Soil	5	10	2	
366711012	18-FEB-2015 13:48:00	Soil	5	10	2	
366711013	18-FEB-2015 13:49:00	Soil	5	10	2	

Reagent/Solvent Lot ID Description Amount Comments: