GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
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gel.com

November 16, 2015

Mr. Scot Fitzgerald
CH2MHill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352

Re: CHPRC SAF F15-011
Work Order: 385002
SDG: GEL385002

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on November 06, 2015. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4505.

Sincerely,

Sarah Edwards for
Heather Shaffer
Project Manager

Purchase Order: 302632 8C
Chain of Custody: F15-011-423, F15-011-427 and F15-011-434
Enclosures

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Case Narrative

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF F15-011
SDG: GEL385002

November 16, 2015

Laboratory Identification:

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

Summary

Sample receipt

The sample(s) arrived at GEL Laboratories, LLC, Charleston, South Carolina on November 06, 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.

Items of Note All efforts were made by the lab to meet any short hold times. Samples that were analyzed outside of the initial hold time but still within 2X hold time will be noted in the lab case narrative and DER.

Sample Identification
The laboratory received the following samples:

Laboratory Identification	Sample Description
385002001	B33BY0
385002002	B33BY4
385002003	B33C01

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) 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.

Data Package

The enclosed data package contains the following sections: General Narrative, Chain of Custody and Supporting Documentation, and data from the following fractions: GC/MS Volatile.

This package, to the best of my knowledge, is in compliance with the SOW, both technically and for completeness, including a full description of, explanation of, and corrective actions for, any and all deviations, from either the analyses requested or the case narrative requested. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager (or designee) and the laboratory's client services representative as verified by their signatures on this report.

Sarah Edwards for
Heather Shaffer
Project Manager

SAMPLE ISSUE RESOLUTION

SIR NUM	SIR16-093
REV NUM	0
DATE INITIATED	11/12/2015

SAMPLE EVENT INFORMATION

SAF NUM(S)	F15-011
OPERABLE UNIT(S)	200-DV-1
PROJECT(S)	200-DV-1
SAMPLE EVENT TITLE(S)	200-DV-1 OU Waste Sites
LABORATORY	GEL Laboratories, LLC

SAMPLING INFORMATION

NUMBER OF SAMPLES	3
SAMPLE NUMBERS	B33BY0, B33BY4, B33C01
SAMPLE MATRIX	SOIL
COLLECTION DATE	11/4/2015 - 11/4/2015
SDG NUM	GEL385002

ISSUE BACKGROUND

CLASS	Chain of Custody Issue (Field)
TYPE	No/Illegible Relinquisher/Receiver Listed on COC
DESCRIPTION	COC # F15-011-423, Sample B33BY0. COC # F15-011-427, Sample B33BY4. COC # F15-011-434, Sample B33C01. Missing final Relinquished by/Received by information.

DISPOSITION

DESCRIPTION	DOCUMENT AND CLOSE
JUSTIFICATION	DOCUMENT AND CLOSE

SUBMITTED BY: Gayelyn Gibson DATE: 11/10/2015
ACCEPTED BY: Kirsten Killand DATE: 11/12/2015

Chain of Custody and Supporting Documentation

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 385002			F15-011-423	PAGE 1 OF 1
COLLECTOR D. Wright	COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 8C	DATA TURNAROUND
SAMPLING LOCATION C9489, I-003	PROJECT DESIGNATION 200-DV-1 Operable Unit Characterization of Waste Sites - Soil		SAF NO. F15-011	AIR QUALITY ☐	15 Days / 15 Days
ICE CHEST NO. GWS-499	FIELD LOGBOOK NO. HNF-N-645-2/21	ACTUAL SAMPLE DEPTH 10.1 to 12.6 FT	COA 302632	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6113			BILL OF LADING/AIR BILL NO. 7749 0973 6172	

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. NA

SPECIAL HANDLING AND/OR STORAGE
~~RADIOACTIVE TIE TO: B33BX9~~
11-4-15

PRESERVATION	Frozen/Cool <-7C and >-20C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aGs
NO. OF CONTAINER(S)	5
VOLUME	40mL
SAMPLE ANALYSIS	5035/8260_VOA : LOW LEVEL: COMMON;

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B33BY0	SOIL	11-4-15	0905	✓

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
D. Wright	11-4-15 1030	SSU-1	11-4-15 1030
SSU-1	NOV 05 2015 0910	L.D. Wall CHPRC	NOV 05 2015 0910
L.D. Wall CHPRC	NOV 05 2015 1400	FEDEX	11-05-15 NOV 05 2015
FedEx		C. Seagle / Cheyenne Eagle	11/06/15 0930

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis.** The laboratory is to use one of the low level VOA bottles for moisture content determination.** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages. TRVL-16-007

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

PRINTED ON 10/8/2015 FSR ID = FSR7776 TRVL NUM = TRVL-16-007 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: C9489 J-003 F15-011-423

Sampler Initials and Date: ELR 11-4-15

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B33BY0	K	29.08	35.48	6.40
↑	L	29.04	35.68	6.64
	M	29.27	34.98	5.71
↓	N	29.27	38.06	8.79
B33BY0	P	29.17	35.65	6.48

[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)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 385002			F15-011-427	PAGE 1 OF 1
COLLECTOR: D. Wright	COMPANY CONTACT: TODAK, D	TELEPHONE NO.: 376-6427	PROJECT COORDINATOR: TODAK, D	PRICE CODE: 8C	DATA TURNAROUND
SAMPLING LOCATION: C9489, I-003 FTB	PROJECT DESIGNATION: 200-DV-1 Operable Unit Characterization of Waste Sites - Soil		SAF NO.: F15-011	AIR QUALITY ☐	15 Days / 15 Days
ICE CHEST NO.: GWS-499	FIELD LOGBOOK NO.: HNF-N-645-2/81	ACTUAL SAMPLE DEPTH: (N/A) Ft	COA: 302632	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 6113			BILL OF LADING/AIR BILL NO.: 7749 0973 6172	

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. NA D 10-13-15

SPECIAL HANDLING AND/OR STORAGE
~~RADIOACTIVE TIE TO: B33BY3~~ D 10-13-15

PRESERVATION	Frozen/Cool <-7C and >-20C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aGs
NO. OF CONTAINER(S)	5
VOLUME	40mL
SAMPLE ANALYSIS	5035/8260_VOA : LOW LEVEL: COMMON;

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B33BY4	SOIL	11-4-15	0800	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: D. Wright CHPRC	DATE/TIME: 11-4-15 1630	RECEIVED BY/STORED IN: SSU-1	DATE/TIME: 11-4-15 1630
RELINQUISHED BY/REMOVED FROM: SSU-1	DATE/TIME: NOV 05 2015 0910	RECEIVED BY/STORED IN: L.D. Wall CHPRC	DATE/TIME: NOV 05 2015 0910
RELINQUISHED BY/REMOVED FROM: L.D. Wall CHPRC	DATE/TIME: NOV 05 2015 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME: TCB 11-05-15 ~~NOV 05 2015~~
RELINQUISHED BY/REMOVED FROM: FedEx	DATE/TIME:	RECEIVED BY/STORED IN: C. Seagle	DATE/TIME: 11/06/15 0930
RELINQUISHED BY/REMOVED FROM:	DATE/TIME:	RECEIVED BY/STORED IN:	DATE/TIME:
RELINQUISHED BY/REMOVED FROM:	DATE/TIME:	RECEIVED BY/STORED IN:	DATE/TIME:
RELINQUISHED BY/REMOVED FROM:	DATE/TIME:	RECEIVED BY/STORED IN:	DATE/TIME:

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis.** The laboratory is to use one of the low level VOA bottles for moisture content determination.** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages. TRVL-16-007

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

PRINTED ON 10/8/2015 FSR ID = FSR7777 TRVL NUM = TRVL-16-007 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: C9489 I-003 FTB F15-011-427

Sampler Initials and Date: EWC 11-4-15

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B33B44	K	29.19	35.35	6.16
↑	L	28.87	35.50	6.63
	M	29.09	35.97	6.88
↓	N	29.07	36.76	7.69
B33B44	P	29.11	35.02	5.91

[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)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 385002			F15-011-434	PAGE 1 OF 1
COLLECTOR D. Wight	COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 8C	DATA TURNAROUND
SAMPLING LOCATION FXR-1	PROJECT DESIGNATION 200-DV-1 Operable Unit Characterization of Waste Sites - Soil		SAF NO. F15-011	AIR QUALITY ☐	15 Days / 15 Days
ICE CHEST NO. GWS-499	FIELD LOGBOOK NO. HNFN-645-2/E1	ACTUAL SAMPLE DEPTH W/A	COA 302632	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6113			BILL OF LADING/AIR BILL NO. 7749 0973 6172	

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. NA

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Frozen/Cool <-7C and >-20C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aGs
NO. OF CONTAINER(S)	5
VOLUME	40mL
SAMPLE ANALYSIS	5035/8260_VOA : LOW LEVEL: COMMON;

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B33C01	SOIL	11-4-15	0905	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM D. Wight CHPRC	DATE/TIME 11-4-15 1030	RECEIVED BY/STORED IN SSU-1	DATE/TIME 11-4-15 1030
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 05 2015 0910	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 05 2015 0910
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 05 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME NOV 05 2015
RELINQUISHED BY/REMOVED FROM Fedex	DATE/TIME	RECEIVED BY/STORED IN C. Seagle	DATE/TIME 11/06/15 0930
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis.** The laboratory is to use one of the low level VOA bottles for moisture content determination.** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages. TRVL-16-007

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

PRINTED ON 10/8/2015 FSR ID = FSR7779 TRVL NUM = TRVL-16-007 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: C9489 I-003 FXR1 F15-011-434

Sampler Initials and Date: ELK 11-4-15

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B33 C01	K	29.58	35.12	5.54
	L	28.82	35.02	6.20
	M	28.98	35.61	6.63
	N	29.30	35.04	5.74
B33 C01	P	29.09	36.19	7.10

[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)

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: CPRC			SDG/AR/COC/Work Order:
Received By: Coy			Date Received: 11/06/15
Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0cpm
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓	✓		Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓	✓		Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius
2a	Daily check performed and passed on IR temperature gun?	✓	✓		Temperature Device Serial #: 201404337 Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?	✓		✓	Sample ID's, containers affected and observed pH: If Preservation added, Lot#: see below
6	Do Low Level Perchlorate samples have headspace as required?		✓		Sample ID's and containers affected:
7	VOA vials contain acid preservation?		✓		(If unknown, select No)
8	VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
9	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
10	Samples received within holding time?	✓			ID's and tests affected:
11	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
12	Date & time on COC match date & time on bottles?	✓	✓		Sample ID's affected:
13	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
14	Are sample containers identifiable as GEL provided?			✓	
15	COC form is properly signed in relinquished/received sections?	✓			
16	Carrier and tracking number.	✓		✓	Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 7749 0973 6172 – 2.1°C 1351 3238 – 3.3°C

Comments (Use Continuation Form if needed):
B336K1 2 alphabeta bottles: pH=4 & 6
B335V8: Sr coy 2 Sr bottles: pH=5

PM (or PMA) review: Initials CU Date 11/9/15 Page 1 of 1 GL-CHL-SR-001 Rev 2

Data Review Qualifier Definitions

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 (843) 556−8171

Report Date: 16−NOV−15

Project Specific Qualifier Definitions for GEL Client Code: CPRC

Code	Status	Qualifier Definition	CofA	Department	Fraction	Additional Comments
U	Programmed	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.	Y			Includes MDA, TPU, count uncert.
J	Programmed	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	Y	Organics		Organics only
P	Programmed	Aroclor target analyte with greater than 25% difference between column analyses.	Y	Organics		PCB only
C	Manual	Analyte has been confirmed by GC/MS analysis	Y	Organics	Pesticide	IF GC/MS confirmation was attempted but unsuccessful do not qualify with C
B	Programmed	The analyte was detected in both the associated QC blank and in the sample.	Y	Organics		
E	Manual	Concentration exceeds the calibration range of the instrument	Y	Organics		Qualifier Uploaded
A	Manual	The TIC is a suspected aldol−condensation product	Y	Organics	Semi−Volatile	Uploaded with TIC
X	Programmed	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier	Y			Replaces H Hold Date In RAD replaces UI. Same usage as standard X as well.
N	Programmed	Spike Sample recovery is outside control limits.	Y			
*	Programmed	Duplicate analysis not within control limits	Y	Inorganics		
>	Programmed	Result greater than quantifiable range or greater than upper limit of the analysis range	Y	General Chemistry		
Z	Manual	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier	Y			
B	Programmed	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).	Y	Inorganics	Metals	Replaces J Estimated Value
D	Programmed	Results are reported from a diluted aliquot of sample.	Y			Dilution
E	Programmed	Reported value is estimated due to interferences. See comment in narrative.	Y	Inorganics	Metals	GEL E
M	Manual	Duplicate precision not met.	Y	Inorganics	Metals	Replaces *
o	Programmed	Analyte failed to recover within LCS limits (0rganics only)	Y	Organics		
S	Manual	Reported value determined by the Method of Standard Additions (MSA)	Y	Inorganics		Not coded B/C Rarely preformed
T	Programmed	Spike and/or spike duplicate sample recovery is outside control limits.	Y	Organics		GC/MS only
W	Manual	Post−digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.	Y	Inorganics		No GFAA in house.
B	Programmed	The associated QC sample blank has a result >= 2X the MDA and, after corrections, result is >= MDA for this sample	Y	Radiological		
Y	Manual	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier	Y			
+	Manual	Correlation coefficient for Method of Standard Additions (MSA) is < 0.995	Y	Inorganics		
B	Programmed	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).	Y	General Chemistry		Replaces J Estimated Value
C	Programmed	Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.	Y	Inorganics	Metals	Replaces B Blank Detection
C	Programmed	Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.	Y	General Chemistry		Replaces B Blank Detection
<	Programmed	Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide	Y	General Chemistry		for Reactive CN/S

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 (843) 556−8171

Report Date: 16−NOV−15

Project Specific Qualifier Definitions for GEL Client Code: CPRC

Code	Status	Qualifier Definition	CofA	Department	Fraction	Additional Comments
UX	Manual	Gamma Spectroscopy−−Uncertain identification	Y	Radiological		

Laboratory Certifications

List of current GEL Certifications as of 16 November 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	P330−15−00283, P330−15−00253
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	SC000122016−1
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
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−15−10
Utah NELAP	SC000122015−19
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Volatile Analysis

Case Narrative

GC/MS Volatile
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL385002
Work Order #: 385002

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:	1521179
Prep Batch Number:	1521178

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
385002001	B33BY0
385002002	B33BY4
385002003	B33C01
1203427951	Method Blank (MB)
1203427952	Laboratory Control Sample (LCS)
1203427953	384871001(B33BX1) Post Spike (PS)
1203427954	384871001(B33BX1) Post Spike Duplicate (PSD)
1203429178	Method Blank (MB)
1203429179	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
All associated calibration verification standards (CCV) met the acceptance criteria.

Quality Control (QC) Information

Blank (MB) Statement
The blanks analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
Surrogate recoveries, in sample (See Below) was outside the acceptance limits. Sample re-analysis confirmed matrix interference. The re-analysis results are reported.

Sample	Analyte	Value
385002001 (B33BY0)	1,2-Dichloroethane-d4	147* (81%-124%)
	Toluene-d8	136* (81%-120%)

Laboratory Control Sample (LCS) Recovery
The LCS (See Below) recoveries were not all within the acceptance limits. There were no detected analytes in the samples. The results are reported.

Sample	Analyte	Value
1203427952 (LCS)	Carbon disulfide	131* (70%-130%)

QC Sample Designation
Sample 384871001 (B33BX1) 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
Samples 385002001 (B33BY0), 385002002 (B33BY4) and 385002003 (B33C01) were re-analyzed due to unacceptable surrogate or internal standard recoveries in the initial analysis. The re-analyses confirmed/and or passed and were reported.

Miscellaneous Information

Data Exception (DER) Documentation
A data exception report (DER) 1466436 was generated for samples 385002001 (B33BY0) and 1203427952 (LCS) in this SDG/batch.

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) were not required for this SDG.

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
VOA3.I	Agilent 6890/5973 GC/MS w/ OI 4560/Archon Autosampler	HP6890/HP5973	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.

GEL LABORATORIES LLC

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

Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL385002 GEL Work Order: 385002

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

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: Erin Haubert **Name: Erin Haubert**

Date: 18 NOV 2015 **Title: Data Validator**

Sample Data Summary

GEL Laboratories LLC

Report Date: November 17, 2015

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385002**	**Date Collected:**	**11/04/2015 09:05**	**Matrix:**	**SOIL**
Lab Sample ID:	**385002001**	**Date Received:**	**11/06/2015 09:30**	**%Moisture:**	**2.8**
		Client:	**CPRC001**	**Project:**	**CPRC0F15011**
Client ID:	**B33BY0**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1521179**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/09/2015 12:30**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/04/2015 09:05**	**Aliquot:**	**6.6 g**	**Final Volume:**	**5 mL**
Data File:	**110915V3\3I112.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.234	ug/kg	0.234	1.56
79-34-5	1,1,2,2-Tetrachloroethane	U	0.234	ug/kg	0.234	1.56
79-00-5	1,1,2-Trichloroethane	U	0.234	ug/kg	0.234	1.56
75-34-3	1,1-Dichloroethane	U	0.234	ug/kg	0.234	1.56
75-35-4	1,1-Dichloroethylene	U	0.234	ug/kg	0.234	1.56
107-06-2	1,2-Dichloroethane	U	0.234	ug/kg	0.234	1.56
540-59-0	1,2-Dichloroethylene (total)	U	0.234	ug/kg	0.234	3.12
78-87-5	1,2-Dichloropropane	U	0.234	ug/kg	0.234	1.56
78-93-3	2-Butanone	U	2.34	ug/kg	2.34	7.79
591-78-6	2-Hexanone	U	2.34	ug/kg	2.34	7.79
108-10-1	4-Methyl-2-pentanone	U	2.34	ug/kg	2.34	7.79
67-64-1	Acetone	U	2.34	ug/kg	2.34	7.79
71-43-2	Benzene	U	0.234	ug/kg	0.234	1.56
75-27-4	Bromodichloromethane	U	0.234	ug/kg	0.234	1.56
75-25-2	Bromoform	U	0.234	ug/kg	0.234	1.56
74-83-9	Bromomethane	U	0.234	ug/kg	0.234	1.56
75-15-0	Carbon disulfide	U	1.25	ug/kg	1.25	7.79
56-23-5	Carbon tetrachloride	U	0.234	ug/kg	0.234	1.56
108-90-7	Chlorobenzene	U	0.234	ug/kg	0.234	1.56
75-00-3	Chloroethane	U	0.234	ug/kg	0.234	1.56
67-66-3	Chloroform	U	0.234	ug/kg	0.234	1.56
74-87-3	Chloromethane	U	0.234	ug/kg	0.234	1.56
124-48-1	Dibromochloromethane	U	0.234	ug/kg	0.234	1.56
100-41-4	Ethylbenzene	U	0.234	ug/kg	0.234	1.56
75-09-2	Methylene chloride	J	1.49	ug/kg	1.25	3.90
100-42-5	Styrene	U	0.234	ug/kg	0.234	1.56
127-18-4	Tetrachloroethylene	U	0.234	ug/kg	0.234	1.56
108-88-3	Toluene	J	0.265	ug/kg	0.234	1.56
79-01-6	Trichloroethylene	U	0.234	ug/kg	0.234	1.56
75-01-4	Vinyl chloride	U	0.234	ug/kg	0.234	1.56
1330-20-7	Xylenes (total)	U	0.234	ug/kg	0.234	4.68
10061-01-5	cis-1,3-Dichloropropylene	U	0.234	ug/kg	0.234	1.56
10061-02-6	trans-1,3-Dichloropropylene	U	0.234	ug/kg	0.234	1.56

GEL Laboratories LLC

Report Date: November 17, 2015

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385002**	**Date Collected:**	**11/04/2015 08:00**	**Matrix:**	**SOIL**
Lab Sample ID:	**385002002**	**Date Received:**	**11/06/2015 09:30**	**%Moisture:**	**.1**
		Client:	**CPRC001**	**Project:**	**CPRC0F15011**
Client ID:	**B33BY4**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1521179**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/09/2015 13:00**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/04/2015 08:00**	**Aliquot:**	**5.9 g**	**Final Volume:**	**5 mL**
Data File:	**110915V3\3I113.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.254	ug/kg	0.254	1.70
79-34-5	1,1,2,2-Tetrachloroethane	U	0.254	ug/kg	0.254	1.70
79-00-5	1,1,2-Trichloroethane	U	0.254	ug/kg	0.254	1.70
75-34-3	1,1-Dichloroethane	U	0.254	ug/kg	0.254	1.70
75-35-4	1,1-Dichloroethylene	U	0.254	ug/kg	0.254	1.70
107-06-2	1,2-Dichloroethane	U	0.254	ug/kg	0.254	1.70
540-59-0	1,2-Dichloroethylene (total)	U	0.254	ug/kg	0.254	3.39
78-87-5	1,2-Dichloropropane	U	0.254	ug/kg	0.254	1.70
78-93-3	2-Butanone	J	5.43	ug/kg	2.54	8.48
591-78-6	2-Hexanone	U	2.54	ug/kg	2.54	8.48
108-10-1	4-Methyl-2-pentanone	U	2.54	ug/kg	2.54	8.48
67-64-1	Acetone		12.1	ug/kg	2.54	8.48
71-43-2	Benzene	U	0.254	ug/kg	0.254	1.70
75-27-4	Bromodichloromethane	U	0.254	ug/kg	0.254	1.70
75-25-2	Bromoform	U	0.254	ug/kg	0.254	1.70
74-83-9	Bromomethane	U	0.254	ug/kg	0.254	1.70
75-15-0	Carbon disulfide	U	1.36	ug/kg	1.36	8.48
56-23-5	Carbon tetrachloride	U	0.254	ug/kg	0.254	1.70
108-90-7	Chlorobenzene	U	0.254	ug/kg	0.254	1.70
75-00-3	Chloroethane	U	0.254	ug/kg	0.254	1.70
67-66-3	Chloroform	U	0.254	ug/kg	0.254	1.70
74-87-3	Chloromethane	U	0.254	ug/kg	0.254	1.70
124-48-1	Dibromochloromethane	U	0.254	ug/kg	0.254	1.70
100-41-4	Ethylbenzene	U	0.254	ug/kg	0.254	1.70
75-09-2	Methylene chloride	U	1.36	ug/kg	1.36	4.24
100-42-5	Styrene	U	0.254	ug/kg	0.254	1.70
127-18-4	Tetrachloroethylene	U	0.254	ug/kg	0.254	1.70
108-88-3	Toluene	J	0.602	ug/kg	0.254	1.70
79-01-6	Trichloroethylene	U	0.254	ug/kg	0.254	1.70
75-01-4	Vinyl chloride	U	0.254	ug/kg	0.254	1.70
1330-20-7	Xylenes (total)	J	0.466	ug/kg	0.254	5.09
10061-01-5	cis-1,3-Dichloropropylene	U	0.254	ug/kg	0.254	1.70
10061-02-6	trans-1,3-Dichloropropylene	U	0.254	ug/kg	0.254	1.70

GEL Laboratories LLC

Report Date: November 17, 2015

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385002**	**Date Collected:**	**11/04/2015 09:05**	**Matrix:**	**SOIL**
Lab Sample ID:	**385002003**	**Date Received:**	**11/06/2015 09:30**	**%Moisture:**	**.1**
		Client:	**CPRC001**	**Project:**	**CPRC0F15011**
Client ID:	**B33C01**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1521179**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/09/2015 13:30**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/04/2015 09:05**	**Aliquot:**	**5.7 g**	**Final Volume:**	**5 mL**
Data File:	**110915V3\3I114.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.263	ug/kg	0.263	1.76
79-34-5	1,1,2,2-Tetrachloroethane	U	0.263	ug/kg	0.263	1.76
79-00-5	1,1,2-Trichloroethane	U	0.263	ug/kg	0.263	1.76
75-34-3	1,1-Dichloroethane	U	0.263	ug/kg	0.263	1.76
75-35-4	1,1-Dichloroethylene	U	0.263	ug/kg	0.263	1.76
107-06-2	1,2-Dichloroethane	U	0.263	ug/kg	0.263	1.76
540-59-0	1,2-Dichloroethylene (total)	U	0.263	ug/kg	0.263	3.51
78-87-5	1,2-Dichloropropane	U	0.263	ug/kg	0.263	1.76
78-93-3	2-Butanone	J	4.09	ug/kg	2.63	8.78
591-78-6	2-Hexanone	U	2.63	ug/kg	2.63	8.78
108-10-1	4-Methyl-2-pentanone	U	2.63	ug/kg	2.63	8.78
67-64-1	Acetone	J	8.71	ug/kg	2.63	8.78
71-43-2	Benzene	U	0.263	ug/kg	0.263	1.76
75-27-4	Bromodichloromethane	U	0.263	ug/kg	0.263	1.76
75-25-2	Bromoform	U	0.263	ug/kg	0.263	1.76
74-83-9	Bromomethane	U	0.263	ug/kg	0.263	1.76
75-15-0	Carbon disulfide	U	1.40	ug/kg	1.40	8.78
56-23-5	Carbon tetrachloride	U	0.263	ug/kg	0.263	1.76
108-90-7	Chlorobenzene	U	0.263	ug/kg	0.263	1.76
75-00-3	Chloroethane	U	0.263	ug/kg	0.263	1.76
67-66-3	Chloroform	U	0.263	ug/kg	0.263	1.76
74-87-3	Chloromethane	U	0.263	ug/kg	0.263	1.76
124-48-1	Dibromochloromethane	U	0.263	ug/kg	0.263	1.76
100-41-4	Ethylbenzene	U	0.263	ug/kg	0.263	1.76
75-09-2	Methylene chloride	J	1.47	ug/kg	1.40	4.39
100-42-5	Styrene	U	0.263	ug/kg	0.263	1.76
127-18-4	Tetrachloroethylene	U	0.263	ug/kg	0.263	1.76
108-88-3	Toluene	U	0.263	ug/kg	0.263	1.76
79-01-6	Trichloroethylene	U	0.263	ug/kg	0.263	1.76
75-01-4	Vinyl chloride	U	0.263	ug/kg	0.263	1.76
1330-20-7	Xylenes (total)	U	0.263	ug/kg	0.263	5.27
10061-01-5	cis-1,3-Dichloropropylene	U	0.263	ug/kg	0.263	1.76
10061-02-6	trans-1,3-Dichloropropylene	U	0.263	ug/kg	0.263	1.76

Quality Control Summary

GEL LABORATORIES LLC

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QC Summary

Report Date: November 17, 2015

CH2MHill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington

Contact: **Mr. Scot Fitzgerald**

Workorder: **385002**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS										
Batch 1521179										
QC1203427952 LCS										
1,1,1-Trichloroethane	50.0			61.2	ug/kg		122	(70%-130%)	CDS1	11/06/15 08:41
1,1,2,2-Tetrachloroethane	50.0			55.4	ug/kg		111	(70%-130%)		
1,1,2-Trichloroethane	50.0			49.5	ug/kg		99	(70%-130%)		
1,1-Dichloroethane	50.0			55.9	ug/kg		112	(70%-130%)		
1,1-Dichloroethylene	50.0			61.7	ug/kg		123	(70%-130%)		
1,2-Dichloroethane	50.0			47.7	ug/kg		95	(70%-130%)		
1,2-Dichloroethylene (total)	100			109	ug/kg		109	(70%-130%)		
1,2-Dichloropropane	50.0			50.6	ug/kg		101	(70%-130%)		
2-Butanone	250			251	ug/kg		100	(70%-130%)		
2-Hexanone	250			255	ug/kg		102	(70%-130%)		
4-Methyl-2-pentanone	250			242	ug/kg		97	(70%-130%)		
Acetone	250			245	ug/kg		98	(70%-130%)		
Benzene	50.0			54.7	ug/kg		109	(70%-130%)		
Bromodichloromethane	50.0			52.5	ug/kg		105	(70%-130%)		
Bromoform	50.0			51.9	ug/kg		104	(70%-130%)		
Bromomethane	50.0			60.1	ug/kg		120	(70%-130%)		
Carbon disulfide	250			327	ug/kg		131*	(70%-130%)		
Carbon tetrachloride	50.0			58.6	ug/kg		117	(70%-130%)		
Chlorobenzene	50.0			54.6	ug/kg		109	(70%-130%)		
Chloroethane	50.0			54.2	ug/kg		108	(70%-130%)		

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QC Summary

Workorder: **385002**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1521179											
Chloroform	50.0			52.7	ug/kg		105	(70%-130%)	CDS1	11/06/15	08:41
Chloromethane	50.0			51.9	ug/kg		104	(70%-130%)			
Dibromochloromethane	50.0			54.9	ug/kg		110	(70%-130%)			
Ethylbenzene	50.0			55.4	ug/kg		111	(70%-130%)			
Methylene chloride	50.0			52.3	ug/kg		105	(70%-130%)			
Styrene	50.0			54.3	ug/kg		109	(70%-130%)			
Tetrachloroethylene	50.0			56.7	ug/kg		113	(70%-130%)			
Toluene	50.0			55.6	ug/kg		111	(70%-130%)			
Trichloroethylene	50.0			55.9	ug/kg		112	(70%-130%)			
Vinyl chloride	50.0			51.0	ug/kg		102	(70%-130%)			
Xylenes (total)	150			165	ug/kg		110	(70%-130%)			
cis-1,3-Dichloropropylene	50.0			52.6	ug/kg		105	(70%-130%)			
trans-1,3-Dichloropropylene	50.0			53.0	ug/kg		106	(70%-130%)			
**1,2-Dichloroethane-d4	50.0			52.7	ug/L		105	(81%-124%)			
**Bromofluorobenzene	50.0			50.7	ug/L		101	(70%-130%)			
**Toluene-d8	50.0			50.4	ug/L		101	(81%-120%)			
QC1203429179 LCS											
1,1,1-Trichloroethane	50.0			58.1	ug/kg		116	(70%-130%)		11/09/15	08:28
1,1,2,2-Tetrachloroethane	50.0			51.1	ug/kg		102	(70%-130%)			
1,1,2-Trichloroethane	50.0			47.6	ug/kg		95	(70%-130%)			
1,1-Dichloroethane	50.0			51.3	ug/kg		103	(70%-130%)			
1,1-Dichloroethylene	50.0			55.8	ug/kg		112	(70%-130%)			

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QC Summary

Workorder: **385002**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1521179											
1,2-Dichloroethane	50.0			45.9	ug/kg		92	(70%-130%)	CDS1	11/09/15	08:28
1,2-Dichloroethylene (total)	100			101	ug/kg		101	(70%-130%)			
1,2-Dichloropropane	50.0			48.5	ug/kg		97	(70%-130%)			
2-Butanone	250			243	ug/kg		97	(70%-130%)			
2-Hexanone	250			246	ug/kg		98	(70%-130%)			
4-Methyl-2-pentanone	250			228	ug/kg		91	(70%-130%)			
Acetone	250			233	ug/kg		93	(70%-130%)			
Benzene	50.0			49.7	ug/kg		99	(70%-130%)			
Bromodichloromethane	50.0			50.9	ug/kg		102	(70%-130%)			
Bromoform	50.0			51.0	ug/kg		102	(70%-130%)			
Bromomethane	50.0			63.6	ug/kg		127	(70%-130%)			
Carbon disulfide	250			295	ug/kg		118	(70%-130%)			
Carbon tetrachloride	50.0			54.5	ug/kg		109	(70%-130%)			
Chlorobenzene	50.0			51.7	ug/kg		103	(70%-130%)			
Chloroethane	50.0			55.8	ug/kg		112	(70%-130%)			
Chloroform	50.0			49.3	ug/kg		99	(70%-130%)			
Chloromethane	50.0			52.3	ug/kg		105	(70%-130%)			
Dibromochloromethane	50.0			52.6	ug/kg		105	(70%-130%)			
Ethylbenzene	50.0			52.1	ug/kg		104	(70%-130%)			
Methylene chloride	50.0			49.0	ug/kg		98	(70%-130%)			
Styrene	50.0			51.5	ug/kg		103	(70%-130%)			

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QC Summary

Workorder: **385002**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1521179											
Tetrachloroethylene	50.0			54.4	ug/kg		109	(70%-130%)			
Toluene	50.0			52.6	ug/kg		105	(70%-130%)	CDS1	11/09/15	08:28
Trichloroethylene	50.0			52.7	ug/kg		105	(70%-130%)			
Vinyl chloride	50.0			51.8	ug/kg		104	(70%-130%)			
Xylenes (total)	150			153	ug/kg		102	(70%-130%)			
cis-1,3-Dichloropropylene	50.0			49.2	ug/kg		98	(70%-130%)			
trans-1,3-Dichloropropylene	50.0			50.8	ug/kg		102	(70%-130%)			
**1,2-Dichloroethane-d4	50.0			53.5	ug/L		107	(81%-124%)			
**Bromofluorobenzene	50.0			51.1	ug/L		102	(70%-130%)			
**Toluene-d8	50.0			52.6	ug/L		105	(81%-120%)			
QC1203427951 MB											
1,1,1-Trichloroethane			U	0.300	ug/kg					11/06/15	10:42
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						

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QC Summary

Workorder: **385002**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1521179											
Benzene			U	0.300	ug/kg				CDS1	11/06/15	10:42
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						
Vinyl chloride			U	0.300	ug/kg						
Xylenes (total)			U	0.300	ug/kg						
cis-1,3-Dichloropropylene			U	0.300	ug/kg						
trans-1,3-Dichloropropylene			U	0.300	ug/kg						

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QC Summary

Workorder: **385002**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1521179											
**1,2-Dichloroethane-d4	50.0			55.5	ug/L		111	(81%-124%)			
**Bromofluorobenzene	50.0			46.1	ug/L		92	(70%-130%)	CDS1	11/06/15	10:42
**Toluene-d8	50.0			54.3	ug/L		109	(81%-120%)			
QC1203429178 MB											
1,1,1-Trichloroethane			U	0.300	ug/kg					11/09/15	10:28
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						
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						

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QC Summary

Workorder: **385002**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS												
Batch 1521179												
Chloroethane				U	0.300	ug/kg				CDS1	11/09/15	10:28
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-1,3-Dichloropropylene				U	0.300	ug/kg						
trans-1,3-Dichloropropylene				U	0.300	ug/kg						
**1,2-Dichloroethane-d4	50.0				55.2	ug/L		110	(81%-124%)			
**Bromofluorobenzene	50.0				45.9	ug/L		92	(70%-130%)			
**Toluene-d8	50.0				51.7	ug/L		103	(81%-120%)			
QC1203427953 384871001 PS												
1,1,1-Trichloroethane	50.0	U	0.00		49.3	ug/L		99	(70%-130%)		11/06/15	16:17
1,1,2,2-Tetrachloroethane	50.0	U	0.00		57.1	ug/L		114	(70%-130%)			
1,1,2-Trichloroethane	50.0	U	0.00		48.3	ug/L		97	(70%-130%)			
1,1-Dichloroethane	50.0	U	0.00		49.1	ug/L		98	(70%-130%)			

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QC Summary

Workorder: **385002**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS												
Batch 1521179												
1,1-Dichloroethylene	50.0	U	0.00		49.7	ug/L		99	(70%-130%)	CDS1	11/06/15	16:17
1,2-Dichloroethane	50.0	U	0.00		47.8	ug/L		96	(70%-130%)			
1,2-Dichloroethylene (total)	100	U	0.00		91.7	ug/L		92	(70%-130%)			
1,2-Dichloropropane	50.0	U	0.00		46.6	ug/L		93	(70%-130%)			
2-Butanone	250	U	0.00		283	ug/L		113	(70%-130%)			
2-Hexanone	250	U	0.00		277	ug/L		111	(70%-130%)			
4-Methyl-2-pentanone	250	U	0.00		284	ug/L		113	(70%-130%)			
Acetone	250	U	0.00		277	ug/L		111	(70%-130%)			
Benzene	50.0	U	0.00		46.8	ug/L		94	(70%-130%)			
Bromodichloromethane	50.0	U	0.00		47.3	ug/L		95	(70%-130%)			
Bromoform	50.0	U	0.00		48.9	ug/L		98	(70%-130%)			
Bromomethane	50.0	U	0.00		50.8	ug/L		102	(70%-130%)			
Carbon disulfide	250	U	0.00		264	ug/L		106	(70%-130%)			
Carbon tetrachloride	50.0	U	0.00		47.6	ug/L		95	(70%-130%)			
Chlorobenzene	50.0	U	0.00		39.1	ug/L		78	(70%-130%)			
Chloroethane	50.0	U	0.00		46.9	ug/L		94	(70%-130%)			
Chloroform	50.0	U	0.00		46.2	ug/L		92	(70%-130%)			
Chloromethane	50.0	U	0.00		46.2	ug/L		92	(70%-130%)			
Dibromochloromethane	50.0	U	0.00		49.9	ug/L		100	(70%-130%)			
Ethylbenzene	50.0	U	0.00		38.4	ug/L		77	(70%-130%)			
Methylene chloride	50.0	U	0.00		48.8	ug/L		98	(70%-130%)			

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QC Summary

Workorder: **385002**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS												
Batch 1521179												
Styrene	50.0	U	0.00		37.8	ug/L		76	(70%-130%)			
Tetrachloroethylene	50.0	U	0.00		38.8	ug/L		78	(70%-130%)	CDS1	11/06/15	16:17
Toluene	50.0	U	0.00		42.7	ug/L		85	(70%-130%)			
Trichloroethylene	50.0	U	0.00		43.1	ug/L		86	(70%-130%)			
Vinyl chloride	50.0	U	0.00		44.4	ug/L		89	(70%-130%)			
Xylenes (total)	150	U	0.00		114	ug/L		76	(70%-130%)			
cis-1,3-Dichloropropylene	50.0	U	0.00		43.9	ug/L		88	(70%-130%)			
trans-1,3-Dichloropropylene	50.0	U	0.00		47.4	ug/L		95	(70%-130%)			
**1,2-Dichloroethane-d4	50.0		73.1		54.7	ug/L		109	(81%-124%)			
**Bromofluorobenzene	50.0		60.7		49.6	ug/L		99	(70%-130%)			
**Toluene-d8	50.0		68.1		51.5	ug/L		103	(81%-120%)			
QC1203427954 384871001 PSD												
1,1,1-Trichloroethane	50.0	U	0.00		47.0	ug/L	5	94	(0%-20%)		11/06/15	16:47
1,1,2,2-Tetrachloroethane	50.0	U	0.00		50.3	ug/L	13	101	(0%-20%)			
1,1,2-Trichloroethane	50.0	U	0.00		44.1	ug/L	9	88	(0%-20%)			
1,1-Dichloroethane	50.0	U	0.00		45.6	ug/L	7	91	(0%-20%)			
1,1-Dichloroethylene	50.0	U	0.00		46.7	ug/L	6	93	(0%-20%)			
1,2-Dichloroethane	50.0	U	0.00		43.7	ug/L	9	87	(0%-20%)			
1,2-Dichloroethylene (total)	100	U	0.00		85.5	ug/L	7	86	(0%-20%)			
1,2-Dichloropropane	50.0	U	0.00		43.1	ug/L	8	86	(0%-20%)			
2-Butanone	250	U	0.00		245	ug/L	15	98	(0%-20%)			
2-Hexanone	250	U	0.00		243	ug/L	13	97	(0%-20%)			
4-Methyl-2-pentanone	250	U	0.00		250	ug/L	13	100	(0%-20%)			

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QC Summary

Workorder: **385002**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS												
Batch 1521179												
Acetone	250	U	0.00		230	ug/L	19	92	(0%-20%)	CDS1	11/06/15	16:47
Benzene	50.0	U	0.00		43.1	ug/L	8	86	(0%-20%)			
Bromodichloromethane	50.0	U	0.00		43.1	ug/L	9	86	(0%-20%)			
Bromoform	50.0	U	0.00		43.0	ug/L	13	86	(0%-20%)			
Bromomethane	50.0	U	0.00		49.8	ug/L	2	100	(0%-20%)			
Carbon disulfide	250	U	0.00		248	ug/L	6	99	(0%-20%)			
Carbon tetrachloride	50.0	U	0.00		43.7	ug/L	9	87	(0%-20%)			
Chlorobenzene	50.0	U	0.00		36.7	ug/L	6	73	(0%-20%)			
Chloroethane	50.0	U	0.00		46.1	ug/L	2	92	(0%-20%)			
Chloroform	50.0	U	0.00		43.3	ug/L	6	87	(0%-20%)			
Chloromethane	50.0	U	0.00		46.1	ug/L	0	92	(0%-20%)			
Dibromochloromethane	50.0	U	0.00		45.4	ug/L	9	91	(0%-20%)			
Ethylbenzene	50.0	U	0.00		35.5	ug/L	8	71	(0%-20%)			
Methylene chloride	50.0	U	0.00		45.9	ug/L	6	92	(0%-20%)			
Styrene	50.0	U	0.00		35.7	ug/L	6	71	(0%-20%)			
Tetrachloroethylene	50.0	U	0.00		36.1	ug/L	7	72	(0%-20%)			
Toluene	50.0	U	0.00		39.5	ug/L	8	79	(0%-20%)			
Trichloroethylene	50.0	U	0.00		39.7	ug/L	8	79	(0%-20%)			
Vinyl chloride	50.0	U	0.00		45.4	ug/L	2	91	(0%-20%)			
Xylenes (total)	150	U	0.00		106	ug/L	7	71	(0%-20%)			
cis-1,3-Dichloropropylene	50.0	U	0.00		40.4	ug/L	8	81	(0%-20%)			

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QC Summary

Workorder: **385002**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS												
Batch 1521179												
trans-1,3-Dichloropropylene	50.0	U	0.00		42.8	ug/L	10	86	(0%-20%)			
**1,2-Dichloroethane-d4	50.0		73.1		54.9	ug/L		110	(81%-124%)	CDS1	11/06/15	16:47
**Bromofluorobenzene	50.0		60.7		51.0	ug/L		102	(70%-130%)			
**Toluene-d8	50.0		68.1		51.0	ug/L		102	(81%-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
- N Spike Sample recovery is outside control limits.
- 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 (0rganics 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.

GEL Laboratories LLC

Report Date: November 17 2015

Volatile

Surrogate Recovery Report

SDG Number: GEL385002

Matrix Type: SOLID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1203427952	LCS for batch 1521178	105	101	101
1203427951	MB for batch 1521178	111	109	92
1203427953	B33BX1PS	109	103	99
1203427954	B33BX1PSD	110	102	102
1203429179	LCS for batch 1521178	107	105	102
1203429178	MB for batch 1521178	110	103	92
385002001	B33BY0	147 *	136 *	121
385002002	B33BY4	123	113	97
385002003	B33C01	123	114	105

Surrogate		Acceptance Limits
DCED4	= 1,2-Dichloroethane-d4	(81%-124%)
TOL	= Toluene-d8	(81%-120%)
BFB	= Bromofluorobenzene	(70%-130%)

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

Miscellaneous

GEL Laboratories LLC
Form GEL-DER

DER Report No.: 1466436
Revision No.: 1

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
13-NOV-15	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
VOA GC/MS	SW846 5035/8260C	Solid	CPRC
Batch ID:	**Sample Numbers:**		
1521179	See Below		

Potentially affected work order(s)(SDG): 384871(GEL384871),385002(GEL385002)

Application Issues:

Other

Failed Recovery for LCS/LCSD

Failed Yield for Surrogates

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for LCS/LCSD: QC 1203427952LCS 2. Failed Yield for Surrogates: 384871 001,002 385002 001 3. The percent drift for Bromomethane was outside of the accetpance limits in the calibration verification sample with high bias. The compound was not detected in the associated samples. The associated samples are GEL384871.	1. The LCS (See Below) recoveries were not all within the acceptance limits. There were no detected analytes in the samples. The results are reported. 1203427952 (LCS) Carbon disulfide [131* (70%-130%)]. 2. Surrogate recoveries, in samples (See Below) were outside the acceptance limits. Sample re-analysis confirmed matrix interference. The initial results are reported. 384871001 (B33BX1) 1,2-Dichloroethane-d4 [146* (81%-124%)], Toluene-d8 [136* (81%-120%)]. 384871002 (B33BW4) 1,2-Dichloroethane-d4 [146* (81%-124%)] and Toluene-d8 [140* (81%-120%)]. Surrogate recoveries, in sample (See Below) was outside the acceptance limits. Sample re-analysis confirmed matrix interference. The re-analysis results are reported. 385002001 (B33BY0) 1,2-Dichloroethane-d4 [147* (81%-124%)] and Toluene-d8 [136* (81%-120%)]. 3. The data is reported.

Originator's Name:
Crystal Stacey 13-NOV-15

Data Validator/Group Leader:
Patricia Steele 17-NOV-15