

June 28, 2016

REV. 1



gel.com

June 27, 2016

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

Re: CHPRC SAF I16-017
Work Order: 393165
SDG: GEL393165

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on March 15, 2016. This revised data report has been prepared and reviewed in accordance with GEL's standard operating procedures. Per change order, this package was revised to correct the Appedix IX Volatiles reporting list.

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,

A handwritten signature in black ink that reads "Heather Shaffer".

Heather Shaffer
Project Manager

Purchase Order: 300071JDBA
Chain of Custody: I16-017-018 and I16-017-025
Enclosures

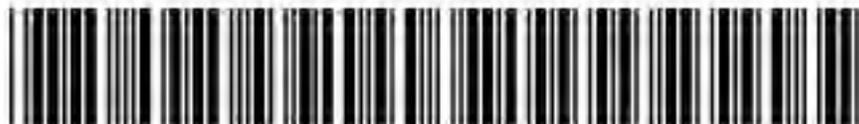


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SAMPLE ISSUE RESOLUTION	SIR NUM	SIR16-478
	REV NUM	0
	DATE INITIATED	7/7/2016

SAMPLE EVENT INFORMATION

SAF NUM(S) 116-017
OPERABLE UNIT(S) 200-ZP-1
PROJECT(S) CERC16
SAMPLE EVENT TITLE(S) CERC16
LABORATORY GEL Laboratories, LLC

SAMPLING INFORMATION

NUMBER OF SAMPLES 2
SAMPLE NUMBERS B34CB5, B34CF2
SAMPLE MATRIX WATER
COLLECTION DATE 3/11/2016 - 3/13/2016
SDG NUM GEL393165

ISSUE BACKGROUND

CLASS Sample Management Issues
TYPE Analyte Correction
DESCRIPTION SMR discovered the 8260_VOA_GCMS_IX: COMMON service list for GEL inadvertently omitted several compounds. Omitted compounds were: Bromodichloromethane (75-27-4), bromomethane (74-83-9), ethyl cyanide (107-12-0), Methyl methacrylate (80-62-6), trichlorofluoromethane (75-69-4), cis-1,2-dichloroethene (156-59-2) and 1,4-dichlorobenzene (106-46-7).

DISPOSITION

DESCRIPTION Please add the omitted compounds.
JUSTIFICATION Final Disposition: Add the compounds and re-issue the report.
 SUBMITTED BY: Doris Ayres DATE: 07/07/2016
 ACCEPTED BY: Heather Shaffer DATE: 07/07/2016

Case Narrative

Per change order, this package was revised to correct the Appedix IX Volatiles reporting list.

**General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF I16-017
SDG: GEL393165**

June 27, 2016

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 March 15, 2016, 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
393165001	B34CF2
393165002	B34CB5

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 and Radiochemistry.

We certify that this package 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.

June 28, 2016

Revision #1 28-JUN-2016

REV. 1

Heather Shaffer

Heather Shaffer
Project Manager

Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL393165
Work Order #: 393165

GC/MS Volatile

Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Matrix Spike/Matrix Spike Duplicate Recovery Statement

The spike and/or spike duplicate (See Below) recoveries were not all within the acceptance limits. The recoveries were similar. It is believed possible matrix interference has been demonstrated.

Sample	Analyte	Value
1203512048 (B34CF2PS)	Acetone	60* (70.0%-130.0%)
1203512049 (B34CF2PSD)	2-Hexanone	69* (70.0%-130.0%)
	Acetone	58* (70.0%-130.0%)

Radiochemistry

TC99_EIE_LSC: COMMON

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Recounts

Sample 393165002 (B34CB5) was recounted to verify sample results. The recount results are similar to the original results. Original results are reported.

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.

Chain of Custody and Supporting Documentation

393/65 3644

CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # I16-017-018
Page 1 of 1

Collector **K.C. Patterson/CHPRC** Contact/Requester **Karen Waters-Husted** Telephone No. **509-376-4650**

SAF No. **I16-017** Sampling Origin **Hanford Site** Purchase Order/Charge Code **300071**

Project Title **200-ZP-1, MARCH 2016** Logbook No. **HNF-N-506 82152** Ice Chest No. **6005-150**

Shipped To (Lab) **GEL Laboratories, LLC** Method of Shipment **Commercial Carrier** Bill of Lading/Air Bill No. **7758 6626 4694**

Protocol **CERCLA** Priority: **30 Days** **PRIORITY** Offsite Property No. **6430**

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 438.1

SPECIAL INSTRUCTIONS **N/A** Hold Time **14 Days** Total Activity Exemption: Yes No

Sample No.	Filter	* Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B34CB5	N	W MAR 11 2016	1257	4x40-mL aGs*	8260_VOA_GCMS_IX: COMMON	14 Days	HCl or H2SO4 to pH <2/Cool <=6C
B34CB5	N	W ↓	↓	1x500-mL G/P	TC99_EIE_LSC: COMMON	6 Months	HNO3 to pH <2

Relinquished By K.C. Patterson/CHPRC	Print 	Sign SSU#1	Received By SSU#1	Print SSU#1	Sign SSU#1	Date/Time MAR 11 2016 1500	Matrix * S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other
Relinquished By SSU#1	Print 	Sign CHPRC	Received By L.D. Wall	Print CHPRC	Sign CHPRC	Date/Time MAR 14 2016 0910	
Relinquished By L.D. Wall	Print 	Sign CHPRC	Received By CHPRC	Print CHPRC	Sign FEDEX	Date/Time MAR 14 2016 1400	
Relinquished By FED EX	Print 	Sign Patricia Dent	Received By Patricia Dent	Print Patricia Dent	Sign Patricia Dent	Date/Time MAR 15 2016 09:10	

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposed By **Patricia Dent** Date/Time **3/15/16 09:10**

CH2M Hill Plateau Remediation Company		C.O.C.# I16-017-025	
393/65		Page 1 of 1	
Collector	D.L. Floyd/CHPRC	Contact/Requester	Karen Waters-Husted
SAF No.	I16-017	Sampling Origin	Hanford Site
Project Title	200-ZP-1, MARCH 2016	Logbook No.	HNF-N-506 82153
Shipped To (Lab)	GEL Laboratories, LLC	Method of Shipment	Commercial Carrier
Protocol	CERCLA	Priority:	30 Days PRIORITY
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		SPECIAL INSTRUCTIONS	Hold Time
		N/A	
Sample No.	Filter	Date	Time
B34CF2	N	W	MAR 13 2016 1504
No/Type Container	4x40-mL aGs*	Sample Analysis	Holding Time
		8260_VOA_GCMS_IX: COMMON	14 Days
		Offsite Property No.	6430
		Telephone No.	509-376-4650
		Purchase Order/Charge Code	300071
		Ice Chest No.	6WS-150
		Bill of Lading/Air Bill No.	775866264614
		Total Activity Exemption:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Relinquished By	D.L. Floyd/CHPRC	Print	[Signature]	Sign		Date/Time	MAR 13 2016 1600
Received By	SSU-1	Print		Sign		Date/Time	MAR 13 2016 1600
Relinquished By	L.D. Wall CHPRC	Print	[Signature]	Sign		Date/Time	MAR 14 2016 0910
Received By	CHPRC	Print		Sign		Date/Time	MAR 14 2016 0910
Relinquished By	L.D. Wall CHPRC	Print	[Signature]	Sign		Date/Time	MAR 14 2016 1400
Received By	FEDEX	Print		Sign		Date/Time	MAR 14 2016 1400
Relinquished By	[Signature]	Print		Sign		Date/Time	MAR 14 2016 1400
Received By	Paterine Dent	Print		Sign		Date/Time	3/15/16 09:10
FINAL SAMPLE DISPOSITION	46	Disposal Method (e.g., Return to customer, per lab procedure, used in process)		Disposed By		Date/Time	



SAMPLE RECEIPT & REVIEW FORM

Client: CPBC		SDG/AR/COC/Work Order: 393165	
Received By: P. Hunt		Date Received: 3/15/16	
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?		<input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0/cpm
Classified Radioactive II or III by RSO?		<input checked="" type="checkbox"/>	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?		<input checked="" type="checkbox"/>	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		<input checked="" type="checkbox"/>	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		<input checked="" type="checkbox"/>	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		<input checked="" type="checkbox"/>	

Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius IC
2a	Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): 2014 04337
3	Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
4	Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	Do Low Level Perchlorate samples have headspace as required?			<input checked="" type="checkbox"/>	Sample ID's and containers affected:
7	VOA vials contain acid preservation?	<input checked="" type="checkbox"/>			(If unknown, select No)
8	VOA vials free of headspace (defined as < 6mm bubble)?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
9	Are Encore containers present?			<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
10	Samples received within holding time?	<input checked="" type="checkbox"/>			ID's and tests affected:
11	Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
12	Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected:
13	Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected:
14	Are sample containers identifiable as GEL provided?			<input checked="" type="checkbox"/>	
15	COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			
16	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 7758 6950 1870 7758 6626 4694 7758 6626 5154 7758 6626 4720

Comments (Use Continuation Form if needed):

Data Review Qualifier Definitions

GEL LABORATORIES LLC

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

Report Date: 27-JUN-16

Project Specific Qualifier Definitions for GEL Client Code: CPRC

Revision #1 28-JUN-2016

Qualifier	Qualifier Definition	Department	Fraction
U	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.		
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	Organics	
P	Aroclor target analyte with greater than 25% difference between column analyses.	Organics	
C	Analyte has been confirmed by GC/MS analysis	Organics	Pesticide
B	The analyte was detected in both the associated QC blank and in the sample.	Organics	
E	Concentration exceeds the calibration range of the instrument	Organics	
A	The TIC is a suspected aldol-condensation product	Organics	Semi-Volatile
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier		
N	Spike Sample recovery is outside control limits.		
*	Duplicate analysis not within control limits	Inorganics	
>	Result greater than quantifiable range or greater than upper limit of the analysis range	General Chemistry	
Z	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier		
B	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).	Inorganics	Metals
D	Results are reported from a diluted aliquot of sample.		
E	Reported value is estimated due to interferences. See comment in narrative.	Inorganics	Metals
M	Duplicate precision not met.	Inorganics	Metals
o	Analyte failed to recover within LCS limits (Organics only)	Organics	
S	Reported value determined by the Method of Standard Additions (MSA)	Inorganics	
T	Spike and/or spike duplicate sample recovery is outside control limits.	Organics	
W	Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.	Inorganics	
B	The associated QC sample blank has a result >= 2X the MDA and, after corrections, result is >= MDA for this sample	Radiological	
Y	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier		
+	Correlation coefficient for Method of Standard Additions (MSA) is < 0.995	Inorganics	
B	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).	General Chemistry	
C	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.	Inorganics	Metals
C	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.	General Chemistry	
<	Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide	General Chemistry	
UX	Gamma Spectroscopy--Uncertain identification	Radiological	

Laboratory Certifications

List of current GEL Certifications as of 27 June 2016

State	Certification
Alaska	UST-0110
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
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	LA160006
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122016-1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania NELAP	68-00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-16-11
Utah NELAP	SC000122016-20
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 #: GEL393165
 Work Order #: 393165**

Product: Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer

Analytical Method: SW846 8260C

Analytical Procedure: GL-OA-E-038 REV# 22

Analytical Batch: 1553700

The following samples were analyzed using the above methods and analytical procedure(s).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
393165001	B34CF2
393165002	B34CB5
1203512046	Method Blank (MB)
1203512047	Laboratory Control Sample (LCS)
1203512048	393165001(B34CF2) Post Spike (PS)
1203512049	393165001(B34CF2) Post Spike Duplicate (PSD)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Matrix Spike/Matrix Spike Duplicate Recovery Statement

The spike and/or spike duplicate (See Below) recoveries were not all within the acceptance limits. The recoveries were similar. It is believed possible matrix interference has been demonstrated.

Sample	Analyte	Value
1203512048 (B34CF2PS)	Acetone	60* (70.0%-130.0%)
1203512049 (B34CF2PSD)	2-Hexanone	69* (70.0%-130.0%)
	Acetone	58* (70.0%-130.0%)

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: GEL393165 GEL Work Order: 393165

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: 

Name: Erin Haubert

Date: 10 APR 2016

Title: Data Validator

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 2

SDG Number: GEL393165	Date Collected: 03/13/2016 15:04	Matrix: WATER
Lab Sample ID: 393165001	Date Received: 03/15/2016 09:10	
Client ID: B34CF2	Client: CPRC001	Project: CPRC0116017
Batch ID: 1553700	Method: SW846 8260C	SOP Ref: GL-OA-E-038
Run Date: 03/21/2016 13:20	Inst: VOA3.I	Dilution: 1
Prep Date: 03/21/2016 13:20	Analyst: CDS1	Purge Vol: 5 mL
Data File: 032116V3\3B112.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	0.300	ug/L	0.300	2.00
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	2.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	2.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	2.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	2.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	2.00
96-18-4	1,2,3-Trichloropropane	U	0.300	ug/L	0.300	2.00
96-12-8	1,2-Dibromo-3-chloropropane	U	0.500	ug/L	0.500	2.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	2.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	2.00
78-87-5	1,2-Dichloropropane	U	0.300	ug/L	0.300	2.00
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	2.00
78-93-3	2-Butanone	U	3.00	ug/L	3.00	10.0
126-99-8	2-Chloro-1,3-butadiene	U	0.300	ug/L	0.300	2.00
591-78-6	2-Hexanone	TU	3.00	ug/L	3.00	10.0
108-10-1	4-Methyl-2-pentanone	U	3.00	ug/L	3.00	10.0
67-64-1	Acetone	JT	3.49	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	16.7	ug/L	16.7	50.0
107-02-8	Acrolein	U	3.00	ug/L	3.00	10.0
107-13-1	Acrylonitrile	U	3.00	ug/L	3.00	10.0
107-05-1	Allyl chloride	U	3.00	ug/L	3.00	10.0
71-43-2	Benzene	U	0.300	ug/L	0.300	2.00
75-27-4	Bromodichloromethane	U	0.300	ug/L	0.300	2.00
75-25-2	Bromoform	U	0.300	ug/L	0.300	2.00
74-83-9	Bromomethane	U	0.300	ug/L	0.300	2.00
75-15-0	Carbon disulfide	U	1.60	ug/L	1.60	10.0
56-23-5	Carbon tetrachloride		4.49	ug/L	0.300	2.00
108-90-7	Chlorobenzene	U	0.300	ug/L	0.300	2.00
75-00-3	Chloroethane	U	0.300	ug/L	0.300	2.00
67-66-3	Chloroform	J	1.05	ug/L	0.300	2.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	2.00
124-48-1	Dibromochloromethane	U	0.300	ug/L	0.300	2.00
74-95-3	Dibromomethane	U	0.300	ug/L	0.300	2.00
75-71-8	Dichlorodifluoromethane	U	0.300	ug/L	0.300	2.00
97-63-2	Ethyl methacrylate	U	3.00	ug/L	3.00	10.0
100-41-4	Ethylbenzene	U	0.300	ug/L	0.300	2.00
74-88-4	Iodomethane	U	3.00	ug/L	3.00	10.0
78-83-1	Isobutyl alcohol	U	33.0	ug/L	33.0	100

Volatile
Certificate of Analysis
Sample Summary

Page 2 of 2

SDG Number: GEL393165	Date Collected: 03/13/2016 15:04	Matrix: WATER
Lab Sample ID: 393165001	Date Received: 03/15/2016 09:10	
Client ID: B34CF2	Client: CPRC001	Project: CPRC016017
Batch ID: 1553700	Method: SW846 8260C	SOP Ref: GL-OA-E-038
Run Date: 03/21/2016 13:20	Inst: VOA3.I	Dilution: 1
Prep Date: 03/21/2016 13:20	Analyst: CDS1	Purge Vol: 5 mL
Data File: 032116V3\3B112.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
126-98-7	Methacrylonitrile	U	3.00	ug/L	3.00	10.0
80-62-6	Methyl methacrylate	U	3.00	ug/L	3.00	10.0
75-09-2	Methylene chloride	U	1.60	ug/L	1.60	5.00
107-12-0	Propionitrile	U	3.00	ug/L	3.00	10.0
100-42-5	Styrene	U	0.300	ug/L	0.300	2.00
127-18-4	Tetrachloroethylene	U	0.300	ug/L	0.300	2.00
108-88-3	Toluene	U	0.300	ug/L	0.300	2.00
79-01-6	Trichloroethylene	U	0.300	ug/L	0.300	2.00
75-69-4	Trichlorofluoromethane	U	0.300	ug/L	0.300	2.00
108-05-4	Vinyl acetate	U	1.60	ug/L	1.60	5.00
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	2.00
1330-20-7	Xylenes (total)	U	0.300	ug/L	0.300	6.00
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	2.00
10061-01-5	cis-1,3-Dichloropropylene	U	0.300	ug/L	0.300	2.00
156-60-5	trans-1,2-Dichloroethylene	U	0.300	ug/L	0.300	2.00
10061-02-6	trans-1,3-Dichloropropylene	U	0.300	ug/L	0.300	2.00
110-57-6	trans-1,4-Dichloro-2-butene	U	1.50	ug/L	1.50	10.0

Volatile
Certificate of Analysis
Sample Summary

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SDG Number: GEL393165	Date Collected: 03/11/2016 12:59	Matrix: WATER
Lab Sample ID: 393165002	Date Received: 03/15/2016 09:10	
Client ID: B34CB5	Client: CPRC001	Project: CPRC0116017
Batch ID: 1553700	Method: SW846 8260C	SOP Ref: GL-OA-E-038
Run Date: 03/21/2016 13:51	Inst: VOA3.I	Dilution: 1
Prep Date: 03/21/2016 13:51	Analyst: CDS1	Purge Vol: 5 mL
Data File: 032116V3\3B113.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	0.300	ug/L	0.300	2.00
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	2.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	2.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	2.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	2.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	2.00
96-18-4	1,2,3-Trichloropropane	U	0.300	ug/L	0.300	2.00
96-12-8	1,2-Dibromo-3-chloropropane	U	0.500	ug/L	0.500	2.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	2.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	2.00
78-87-5	1,2-Dichloropropane	U	0.300	ug/L	0.300	2.00
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	2.00
78-93-3	2-Butanone	U	3.00	ug/L	3.00	10.0
126-99-8	2-Chloro-1,3-butadiene	U	0.300	ug/L	0.300	2.00
591-78-6	2-Hexanone	TU	3.00	ug/L	3.00	10.0
108-10-1	4-Methyl-2-pentanone	U	3.00	ug/L	3.00	10.0
67-64-1	Acetone	JT	8.27	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	16.7	ug/L	16.7	50.0
107-02-8	Acrolein	U	3.00	ug/L	3.00	10.0
107-13-1	Acrylonitrile	U	3.00	ug/L	3.00	10.0
107-05-1	Allyl chloride	U	3.00	ug/L	3.00	10.0
71-43-2	Benzene	U	0.300	ug/L	0.300	2.00
75-27-4	Bromodichloromethane	U	0.300	ug/L	0.300	2.00
75-25-2	Bromoform	U	0.300	ug/L	0.300	2.00
74-83-9	Bromomethane	U	0.300	ug/L	0.300	2.00
75-15-0	Carbon disulfide	U	1.60	ug/L	1.60	10.0
56-23-5	Carbon tetrachloride		65.0	ug/L	0.300	2.00
108-90-7	Chlorobenzene	U	0.300	ug/L	0.300	2.00
75-00-3	Chloroethane	U	0.300	ug/L	0.300	2.00
67-66-3	Chloroform	J	1.17	ug/L	0.300	2.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	2.00
124-48-1	Dibromochloromethane	U	0.300	ug/L	0.300	2.00
74-95-3	Dibromomethane	U	0.300	ug/L	0.300	2.00
75-71-8	Dichlorodifluoromethane	U	0.300	ug/L	0.300	2.00
97-63-2	Ethyl methacrylate	U	3.00	ug/L	3.00	10.0
100-41-4	Ethylbenzene	U	0.300	ug/L	0.300	2.00
74-88-4	Iodomethane	U	3.00	ug/L	3.00	10.0
78-83-1	Isobutyl alcohol	U	33.0	ug/L	33.0	100

Volatile
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Sample Summary

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SDG Number: GEL393165	Date Collected: 03/11/2016 12:59	Matrix: WATER
Lab Sample ID: 393165002	Date Received: 03/15/2016 09:10	
	Client: CPRC001	Project: CPRC0116017
Client ID: B34CB5	Method: SW846 8260C	SOP Ref: GL-OA-E-038
Batch ID: 1553700	Inst: VOA3.I	Dilution: 1
Run Date: 03/21/2016 13:51	Analyst: CDS1	Purge Vol: 5 mL
Prep Date: 03/21/2016 13:51		
Data File: 032116V3\3B113.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
126-98-7	Methacrylonitrile	U	3.00	ug/L	3.00	10.0
80-62-6	Methyl methacrylate	U	3.00	ug/L	3.00	10.0
75-09-2	Methylene chloride	U	1.60	ug/L	1.60	5.00
107-12-0	Propionitrile	U	3.00	ug/L	3.00	10.0
100-42-5	Styrene	U	0.300	ug/L	0.300	2.00
127-18-4	Tetrachloroethylene	U	0.300	ug/L	0.300	2.00
108-88-3	Toluene	U	0.300	ug/L	0.300	2.00
79-01-6	Trichloroethylene	U	0.300	ug/L	0.300	2.00
75-69-4	Trichlorofluoromethane	U	0.300	ug/L	0.300	2.00
108-05-4	Vinyl acetate	U	1.60	ug/L	1.60	5.00
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	2.00
1330-20-7	Xylenes (total)	U	0.300	ug/L	0.300	6.00
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	2.00
10061-01-5	cis-1,3-Dichloropropylene	U	0.300	ug/L	0.300	2.00
156-60-5	trans-1,2-Dichloroethylene	U	0.300	ug/L	0.300	2.00
10061-02-6	trans-1,3-Dichloropropylene	U	0.300	ug/L	0.300	2.00
110-57-6	trans-1,4-Dichloro-2-butene	U	1.50	ug/L	1.50	10.0

Quality Control Summary

GEL LABORATORIES LLC

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QC Summary

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CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 393165

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1553700										
QC1203512047	LCS										
1,1,1,2-Tetrachloroethane	50.0			49.8	ug/L		100	(70%-130%)	CDS1	03/21/16	08:29
1,1,1-Trichloroethane	50.0			54.9	ug/L		110	(70%-130%)			
1,1,2,2-Tetrachloroethane	50.0			49.8	ug/L		100	(70%-130%)			
1,1,2-Trichloroethane	50.0			48.9	ug/L		98	(70%-130%)			
1,1-Dichloroethane	50.0			50.4	ug/L		101	(70%-130%)			
1,1-Dichloroethylene	50.0			51.5	ug/L		103	(70%-130%)			
1,2,3-Trichloropropane	50.0			47.2	ug/L		94	(70%-130%)			
1,2-Dibromo-3-chloropropane	50.0			53.0	ug/L		106	(70%-130%)			
1,2-Dibromoethane	50.0			48.7	ug/L		97	(70%-130%)			
1,2-Dichloroethane	50.0			48.0	ug/L		96	(70%-130%)			
1,2-Dichloropropane	50.0			50.1	ug/L		100	(70%-130%)			
1,4-Dichlorobenzene	50.0			48.7	ug/L		97	(70%-130%)			
2-Butanone	250			304	ug/L		122	(70%-130%)			
2-Hexanone	250			290	ug/L		116	(70%-130%)			
4-Methyl-2-pentanone	250			234	ug/L		94	(70%-130%)			
Acetone	250			313	ug/L		125	(70%-130%)			
Acetonitrile	1250			1120	ug/L		90	(70%-130%)			
Benzene	50.0			49.9	ug/L		100	(70%-130%)			
Bromodichloromethane	50.0			53.0	ug/L		106	(70%-130%)			
Bromoform	50.0			55.2	ug/L		110	(70%-130%)			

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QC Summary

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1553700										
Bromomethane	50.0			52.2	ug/L		104	(70%-130%)	CDS1	03/21/16	08:29
Carbon disulfide	250			249	ug/L		99	(70%-130%)			
Carbon tetrachloride	50.0			52.6	ug/L		105	(70%-130%)			
Chlorobenzene	50.0			49.9	ug/L		100	(70%-130%)			
Chloroethane	50.0			58.6	ug/L		117	(70%-130%)			
Chloroform	50.0			49.5	ug/L		99	(70%-130%)			
Chloromethane	50.0			52.2	ug/L		104	(70%-130%)			
Dibromochloromethane	50.0			53.1	ug/L		106	(70%-130%)			
Dibromomethane	50.0			51.4	ug/L		103	(70%-130%)			
Dichlorodifluoromethane	50.0			58.9	ug/L		118	(70%-130%)			
Ethylbenzene	50.0			47.7	ug/L		95	(70%-130%)			
Iodomethane	250			237	ug/L		95	(70%-130%)			
Methylene chloride	50.0			49.8	ug/L		100	(70%-130%)			
Styrene	50.0			48.2	ug/L		96	(70%-130%)			
Tetrachloroethylene	50.0			49.0	ug/L		98	(70%-130%)			
Toluene	50.0			52.3	ug/L		105	(70%-130%)			
Trichloroethylene	50.0			53.1	ug/L		106	(70%-130%)			
Trichlorofluoromethane	50.0			58.5	ug/L		117	(70%-130%)			
Vinyl acetate	250			241	ug/L		97	(70%-130%)			
Vinyl chloride	50.0			53.0	ug/L		106	(70%-130%)			
Xylenes (total)	150			143	ug/L		95	(70%-130%)			

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QC Summary

Workorder: 393165

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1553700										
cis-1,2-Dichloroethylene	50.0			48.2	ug/L		96	(70%-130%)			
cis-1,3-Dichloropropylene	50.0			52.4	ug/L		105	(70%-130%)	CDS1	03/21/16	08:29
trans-1,2-Dichloroethylene	50.0			50.1	ug/L		100	(70%-130%)			
trans-1,3-Dichloropropylene	50.0			55.7	ug/L		111	(70%-130%)			
**1,2-Dichloroethane-d4	50.0			46.2	ug/L		92	(70%-130%)			
**Bromofluorobenzene	50.0			50.4	ug/L		101	(70%-130%)			
**Toluene-d8	50.0			50.1	ug/L		100	(70%-130%)			
QC1203512046 MB											
1,1,1,2-Tetrachloroethane			U	0.300	ug/L					03/21/16	09:49
1,1,1-Trichloroethane			U	0.300	ug/L						
1,1,2,2-Tetrachloroethane			U	0.300	ug/L						
1,1,2-Trichloroethane			U	0.300	ug/L						
1,1-Dichloroethane			U	0.300	ug/L						
1,1-Dichloroethylene			U	0.300	ug/L						
1,2,3-Trichloropropane			U	0.300	ug/L						
1,2-Dibromo-3-chloropropane			U	0.500	ug/L						
1,2-Dibromoethane			U	0.300	ug/L						
1,2-Dichloroethane			U	0.300	ug/L						
1,2-Dichloropropane			U	0.300	ug/L						
1,4-Dichlorobenzene			U	0.300	ug/L						
2-Butanone			U	3.00	ug/L						
2-Chloro-1,3-butadiene			U	0.300	ug/L						
2-Hexanone			U	3.00	ug/L						

GEL LABORATORIES LLC

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QC Summary

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1553700										
4-Methyl-2-pentanone			U	3.00	ug/L				CDS1	03/21/16	09:49
Acetone			U	3.00	ug/L						
Acetonitrile			U	16.7	ug/L						
Acrolein			U	3.00	ug/L						
Acrylonitrile			U	3.00	ug/L						
Allyl chloride			U	3.00	ug/L						
Benzene			U	0.300	ug/L						
Bromodichloromethane			U	0.300	ug/L						
Bromoform			U	0.300	ug/L						
Bromomethane			U	0.300	ug/L						
Carbon disulfide			U	1.60	ug/L						
Carbon tetrachloride			U	0.300	ug/L						
Chlorobenzene			U	0.300	ug/L						
Chloroethane			U	0.300	ug/L						
Chloroform			U	0.300	ug/L						
Chloromethane			U	0.300	ug/L						
Dibromochloromethane			U	0.300	ug/L						
Dibromomethane			U	0.300	ug/L						
Dichlorodifluoromethane			U	0.300	ug/L						
Ethyl methacrylate			U	3.00	ug/L						
Ethylbenzene			U	0.300	ug/L						

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QC Summary

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1553700										
Iodomethane			U	3.00	ug/L						
Isobutyl alcohol			U	33.0	ug/L				CDS1	03/21/16	09:49
Methacrylonitrile			U	3.00	ug/L						
Methyl methacrylate			U	3.00	ug/L						
Methylene chloride			U	1.60	ug/L						
Propionitrile			U	3.00	ug/L						
Styrene			U	0.300	ug/L						
Tetrachloroethylene			U	0.300	ug/L						
Toluene			U	0.300	ug/L						
Trichloroethylene			U	0.300	ug/L						
Trichlorofluoromethane			U	0.300	ug/L						
Vinyl acetate			U	1.60	ug/L						
Vinyl chloride			U	0.300	ug/L						
Xylenes (total)			U	0.300	ug/L						
cis-1,2-Dichloroethylene			U	0.300	ug/L						
cis-1,3-Dichloropropylene			U	0.300	ug/L						
trans-1,2-Dichloroethylene			U	0.300	ug/L						
trans-1,3-Dichloropropylene			U	0.300	ug/L						
trans-1,4-Dichloro-2-butene			U	1.50	ug/L						
**1,2-Dichloroethane-d4	50.0			49.6	ug/L		99	(70%-130%)			
**Bromofluorobenzene	50.0			47.8	ug/L		96	(70%-130%)			
**Toluene-d8	50.0			49.1	ug/L		98	(70%-130%)			

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1553700										
	QC1203512048 393165001 PS										
1,1,1,2-Tetrachloroethane	50.0	U	0.00		47.3	ug/L	95	(70%-130%)	CDS1	03/21/16	18:23
1,1,1-Trichloroethane	50.0	U	0.00		55.8	ug/L	112	(70%-130%)			
1,1,2,2-Tetrachloroethane	50.0	U	0.00		48.7	ug/L	97	(70%-130%)			
1,1,2-Trichloroethane	50.0	U	0.00		48.0	ug/L	96	(70%-130%)			
1,1-Dichloroethane	50.0	U	0.00		51.3	ug/L	103	(70%-130%)			
1,1-Dichloroethylene	50.0	U	0.00		51.5	ug/L	103	(70%-130%)			
1,2,3-Trichloropropane	50.0	U	0.00		47.5	ug/L	95	(70%-130%)			
1,2-Dibromo-3-chloropropane	50.0	U	0.00		51.9	ug/L	104	(70%-130%)			
1,2-Dibromoethane	50.0	U	0.00		48.2	ug/L	96	(70%-130%)			
1,2-Dichloroethane	50.0	U	0.00		50.6	ug/L	101	(70%-130%)			
1,2-Dichloropropane	50.0	U	0.00		50.9	ug/L	102	(70%-130%)			
1,4-Dichlorobenzene	50.0	U	0.00		45.7	ug/L	91	(70%-130%)			
2-Butanone	250	U	0.00		188	ug/L	75	(70%-130%)			
2-Hexanone	250	TU	0.00		181	ug/L	72	(70%-130%)			
4-Methyl-2-pentanone	250	U	0.00		226	ug/L	91	(70%-130%)			
Acetone	250	JT	3.49	T	153	ug/L	60*	(70%-130%)			
Acetonitrile	1250	U	0.00		1180	ug/L	95	(70%-130%)			
Benzene	50.0	U	0.00		50.3	ug/L	101	(70%-130%)			
Bromodichloromethane	50.0	U	0.00		53.5	ug/L	107	(70%-130%)			
Bromoform	50.0	U	0.00		53.8	ug/L	108	(70%-130%)			
Bromomethane	50.0	U	0.00		55.8	ug/L	112	(70%-130%)			
Carbon disulfide	250	U	0.00		240	ug/L	96	(70%-130%)			

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1553700										
Carbon tetrachloride	50.0		4.49	54.7	ug/L		100	(70%-130%)	CDS1	03/21/16	18:23
Chlorobenzene	50.0	U	0.00	47.6	ug/L		95	(70%-130%)			
Chloroethane	50.0	U	0.00	59.0	ug/L		118	(70%-130%)			
Chloroform	50.0	J	1.05	50.7	ug/L		99	(70%-130%)			
Chloromethane	50.0	U	0.00	55.1	ug/L		110	(70%-130%)			
Dibromochloromethane	50.0	U	0.00	52.3	ug/L		105	(70%-130%)			
Dibromomethane	50.0	U	0.00	52.3	ug/L		105	(70%-130%)			
Dichlorodifluoromethane	50.0	U	0.00	59.3	ug/L		119	(70%-130%)			
Ethylbenzene	50.0	U	0.00	45.5	ug/L		91	(70%-130%)			
Iodomethane	250	U	0.00	231	ug/L		92	(70%-130%)			
Methylene chloride	50.0	U	0.00	48.3	ug/L		97	(70%-130%)			
Styrene	50.0	U	0.00	45.2	ug/L		90	(70%-130%)			
Tetrachloroethylene	50.0	U	0.00	46.5	ug/L		93	(70%-130%)			
Toluene	50.0	U	0.00	48.9	ug/L		98	(70%-130%)			
Trichloroethylene	50.0	U	0.00	52.6	ug/L		105	(70%-130%)			
Trichlorofluoromethane	50.0	U	0.00	59.0	ug/L		118	(70%-130%)			
Vinyl acetate	250	U	0.00	260	ug/L		104	(70%-130%)			
Vinyl chloride	50.0	U	0.00	54.4	ug/L		109	(70%-130%)			
Xylenes (total)	150	U	0.00	135	ug/L		90	(70%-130%)			
cis-1,2-Dichloroethylene	50.0	U	0.00	48.6	ug/L		97	(70%-130%)			
cis-1,3-Dichloropropylene	50.0	U	0.00	55.7	ug/L		111	(70%-130%)			

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1553700										
trans-1,2-Dichloroethylene	50.0	U	0.00	49.6	ug/L		99	(70%-130%)			
trans-1,3-Dichloropropylene	50.0	U	0.00	53.1	ug/L		106	(70%-130%)	CDS1	03/21/16	18:23
**1,2-Dichloroethane-d4	50.0		51.2	48.9	ug/L		98	(70%-130%)			
**Bromofluorobenzene	50.0		48.3	48.7	ug/L		97	(70%-130%)			
**Toluene-d8	50.0		49.8	48.2	ug/L		96	(70%-130%)			
QC1203512049 393165001 PSD											
1,1,1,2-Tetrachloroethane	50.0	U	0.00	50.7	ug/L	7	101	(0%-20%)		03/21/16	18:53
1,1,1-Trichloroethane	50.0	U	0.00	61.8	ug/L	10	124	(0%-20%)			
1,1,2,2-Tetrachloroethane	50.0	U	0.00	48.2	ug/L	1	96	(0%-20%)			
1,1,2-Trichloroethane	50.0	U	0.00	50.1	ug/L	4	100	(0%-20%)			
1,1-Dichloroethane	50.0	U	0.00	55.5	ug/L	8	111	(0%-20%)			
1,1-Dichloroethylene	50.0	U	0.00	55.3	ug/L	7	111	(0%-20%)			
1,2,3-Trichloropropane	50.0	U	0.00	45.2	ug/L	5	90	(0%-20%)			
1,2-Dibromo-3-chloropropane	50.0	U	0.00	51.8	ug/L	0	104	(0%-20%)			
1,2-Dibromoethane	50.0	U	0.00	49.2	ug/L	2	98	(0%-20%)			
1,2-Dichloroethane	50.0	U	0.00	52.7	ug/L	4	105	(0%-20%)			
1,2-Dichloropropane	50.0	U	0.00	53.2	ug/L	4	106	(0%-20%)			
1,4-Dichlorobenzene	50.0	U	0.00	48.2	ug/L	5	96	(0%-20%)			
2-Butanone	250	U	0.00	178	ug/L	6	71	(0%-20%)			
2-Hexanone	250	TU	0.00	T	172	ug/L	5	69*	(0%-20%)		
4-Methyl-2-pentanone	250	U	0.00	214	ug/L	5	86	(0%-20%)			
Acetone	250	JT	3.49	T	150	ug/L	2	58*	(0%-20%)		
Acetonitrile	1250	U	0.00	1140	ug/L	4	91	(0%-20%)			

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QC Summary

Workorder: 393165

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1553700										
Benzene	50.0	U	0.00	53.7	ug/L	6	107	(0%-20%)	CDS1	03/21/16	18:53
Bromodichloromethane	50.0	U	0.00	56.7	ug/L	6	113	(0%-20%)			
Bromoform	50.0	U	0.00	54.2	ug/L	1	108	(0%-20%)			
Bromomethane	50.0	U	0.00	54.2	ug/L	3	108	(0%-20%)			
Carbon disulfide	250	U	0.00	259	ug/L	8	104	(0%-20%)			
Carbon tetrachloride	50.0		4.49	60.3	ug/L	10	112	(0%-20%)			
Chlorobenzene	50.0	U	0.00	49.8	ug/L	4	100	(0%-20%)			
Chloroethane	50.0	U	0.00	57.9	ug/L	2	116	(0%-20%)			
Chloroform	50.0	J	1.05	55.1	ug/L	8	108	(0%-20%)			
Chloromethane	50.0	U	0.00	53.5	ug/L	3	107	(0%-20%)			
Dibromochloromethane	50.0	U	0.00	53.8	ug/L	3	108	(0%-20%)			
Dibromomethane	50.0	U	0.00	54.8	ug/L	5	110	(0%-20%)			
Dichlorodifluoromethane	50.0	U	0.00	57.0	ug/L	4	114	(0%-20%)			
Ethylbenzene	50.0	U	0.00	49.2	ug/L	8	98	(0%-20%)			
Iodomethane	250	U	0.00	245	ug/L	6	98	(0%-20%)			
Methylene chloride	50.0	U	0.00	51.0	ug/L	5	102	(0%-20%)			
Styrene	50.0	U	0.00	46.7	ug/L	3	93	(0%-20%)			
Tetrachloroethylene	50.0	U	0.00	50.0	ug/L	7	100	(0%-20%)			
Toluene	50.0	U	0.00	50.8	ug/L	4	102	(0%-20%)			
Trichloroethylene	50.0	U	0.00	54.7	ug/L	4	109	(0%-20%)			
Trichlorofluoromethane	50.0	U	0.00	56.2	ug/L	5	112	(0%-20%)			

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QC Summary

Workorder: 393165

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1553700										
Vinyl acetate	250	U	0.00	248	ug/L	5	99	(0%-20%)			
Vinyl chloride	50.0	U	0.00	54.3	ug/L	0	109	(0%-20%)	CDS1	03/21/16	18:53
Xylenes (total)	150	U	0.00	145	ug/L	7	97	(0%-20%)			
cis-1,2-Dichloroethylene	50.0	U	0.00	52.2	ug/L	7	104	(0%-20%)			
cis-1,3-Dichloropropylene	50.0	U	0.00	58.2	ug/L	4	116	(0%-20%)			
trans-1,2-Dichloroethylene	50.0	U	0.00	53.5	ug/L	8	107	(0%-20%)			
trans-1,3-Dichloropropylene	50.0	U	0.00	51.5	ug/L	3	103	(0%-20%)			
**1,2-Dichloroethane-d4	50.0		51.2	48.7	ug/L		97	(70%-130%)			
**Bromofluorobenzene	50.0		48.3	51.0	ug/L		102	(70%-130%)			
**Toluene-d8	50.0		49.8	46.9	ug/L		94	(70%-130%)			

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 (Organics only)

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QC Summary

Workorder: 393165

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

Surrogate Recovery Report

SDG Number: GEL393165

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1203512047	LCS for batch 1553700	92	100	101
1203512046	MB for batch 1553700	99	98	96
393165001	B34CF2	102	100	97
393165002	B34CB5	100	103	95
1203512048	B34CF2PS	98	96	97
1203512049	B34CF2PSD	97	94	102

Surrogate**Acceptance Limits**

DCED4 = 1,2-Dichloroethane-d4

(70%-130%)

TOL = Toluene-d8

(70%-130%)

BFB = Bromofluorobenzene

(70%-130%)

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

Radiological Analysis

Case Narrative

**Radiochemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL393165
Work Order #: 393165**

Product: TC99_EIE_LSC: COMMON
Analytical Method: TC99_EIE_LSC
Analytical Procedure: GL-RAD-A-059 REV# 4
Analytical Batch: 1553683

The following samples were analyzed using the above methods and analytical procedure(s).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
393165002	B34CB5
1203512023	Method Blank (MB)
1203512024	393104002(NonSDG) Sample Duplicate (DUP)
1203512025	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Recounts

Sample 393165002 (B34CB5) was recounted to verify sample results. The recount results are similar to the original results. Original results are reported.

Certification Statement

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

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**Qualifier Definition Report
for**

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL393165 GEL Work Order: 393165

The Qualifiers in this report are defined as follows:

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

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: Theresa Austin

Date: 31 MAR 2016

Title: Group Leader

Sample Data Summary

Rad
Certificate of Analysis
Sample Summary

SDG Number: GEL393165	Client: CPRC001	Project: CPRC0116017
Lab Sample ID: 393165002	Date Collected: 03/11/2016 12:59	Matrix: WATER
	Date Received: 03/15/2016 09:10	
Client ID: B34CB5	Method: TC99_EIE_LSC	Prep Basis: "As Received"
Batch ID: 1553683	Analyst: MYM1	SOP Ref: GL-RAD-A-059
Run Date: 03/29/2016 08:33	Aliquot: 200 mL	Instrument: LSCBROWN
Data File: E1553683.xls	Prep Method: DOE EML HASL-300, Tc-02-	Count Time: 60 min
Prep Batch: 1553683		
Prep Date: 03/24/2016 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		76.7	pCi/L	+/-8.49	12.0	11.7	15.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	46600	50900	CPM	91.6	(30%-105%)

Comments:

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
 The MDC is a sample specific MDC.

Quality Control Summary

GEL LABORATORIES LLC

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QC Summary

Report Date: March 31, 2016
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Client : CH2MHill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Workorder: 393165

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Liquid Scintillation									
Batch	1553683								
QC1203512023	MB								
Technetium-99			U	-3.77	pCi/L			MYM1	03/29/1612:49
				Uncert: +/-6.52					
				TPU: +/-6.52					
*Technetium-99m Tracer	50900			46000	CPM	REC: 91	(30%-105%)		
QC1203512024	393104002	DUP							
Technetium-99		129		128	pCi/L				03/29/1613:52
				Uncert: +/-9.96		RPD: 1	(0% - 20%)		
				TPU: +/-17.4		RER: 0.0846	(0-2)		
*Technetium-99m Tracer	50900	44300		45800	CPM	REC: 90	(30%-105%)		
QC1203512025	LCS								
Technetium-99		430		411	pCi/L	REC: 95	(80%-120%)		03/29/1614:54
				Uncert: +/-13.3					
				TPU: +/-47.5					
*Technetium-99m Tracer	50900			46800	CPM	REC: 92	(30%-105%)		

Notes:

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

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 >= 2X the MDA and, after corrections, result is >= 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
- 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.
- UX Gamma Spectroscopy--Uncertain identification
- 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)

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QC Summary

Workorder: 393165

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Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date	Time
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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.

** Indicates analyte is a surrogate compound.

^ 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.

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.