

June 29, 2016

REV. 2



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 I16-008
Work Order: 389273
SDG: GEL389273

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on January 14, 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 cursive script that reads "Heather Shaffer".

Heather Shaffer
Project Manager

Purchase Order: 300071JDBA
Chain of Custody: I16-008-010
Enclosures



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SAMPLE ISSUE RESOLUTION	SIR NUM	SIR16-464
	REV NUM	0
	DATE INITIATED	7/7/2016

SAMPLE EVENT INFORMATION

SAF NUM(S) 116-008
OPERABLE UNIT(S) 200-ZP-1
PROJECT(S) CERC16
SAMPLE EVENT TITLE(S) CERC16
LABORATORY GEL Laboratories, LLC

SAMPLING INFORMATION

NUMBER OF SAMPLES 1
SAMPLE NUMBERS B33RK7
SAMPLE MATRIX WATER
COLLECTION DATE 1/13/2016 - 1/13/2016
SDG NUM GEL389273

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 I16-008
SDG: GEL389273**

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 January 14, 2016, for analysis. The sample was 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 sample:

Laboratory Identification	Sample Description
389273001	B33RK7

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 29, 2016

Revision #1 29-JUN-2016

REV. 2

Heather Shaffer

Heather Shaffer
Project Manager

Subject: Groundwater packages

From: "Waters-husted, Karen S" <Karen_S_Waters-husted@rl.gov>

Date: 11/10/2015 12:25 PM

To: "Awalt, Jayna" <Jayna.Awalt@testamericainc.com>, "Franks, Mike"

<Mike.Franks@testamericainc.com>, "Heather Shaffer (heather.shaffer@gel.com)"

<heather.shaffer@gel.com>, Julie Ellingson <Julie.Ellingson@ALSGlobal.com>, Nancy Mattern

<Nancy.Mattern@gel.com>, "Ritari, Whitney" <Whitney.Ritari@testamericainc.com>, "Sandra Seger

(Sandra.Seger@testamericainc.com)" <Sandra.Seger@testamericainc.com>, "Wagar, Rhonda"

<Rhonda.Wagar@testamericainc.com>, "Waters-husted, Karen S" <Karen_S_Waters-

husted@rl.gov>

CC: "Ayres, Doris E" <Doris_E_Ayres@rl.gov>, "Sumner, Laine C" <Laine_C_Sumner@rl.gov>,

"Gibson, Gayelyn G" <Gayelyn_G_Gibson@rl.gov>, "Lynch, Sherry A" <Sherry_A_Lynch@rl.gov>,

"Medley, Heather A" <Heather_A_Medley@rl.gov>, "Fitzgerald, Scot L" <Scot_L_Fitzgerald@rl.gov>,

^CPP Sample Management <CPP_Sample_Management@rl.gov>

The GW annual report is written for a calendar year. This means that we have requested all the samples collected through December 31 to be reported by January 31. However, this year our sampling work load is higher than normal for November and December. In order to meet the GW reporting needs and the large sampling events, CHPRC needs all GW (SAFs A, I, S, W, and some X) SDGs to be on 15 day TATs starting with samples received on 11-16-15 through 1-31-16. I will be adding the new TAT to the SAFs and re-sending them shortly.

Currently, all the November and December paperwork is out in the field, so we will not be recalling it all and making the changes on the chains due to the volume of paperwork impacted.

Please include this email in the data packages as the direction for the TAT change. A SIR will not be necessary.

Please let me know if you have any questions or any problems arise that will impact these packages.

Thank you,

Karen Waters-Husted

CH2M Plateau Remediation Company

Sample Management and Reporting

Groundwater Project Coordinator

200 East / MO-277 / 108

509-376-4650

Karen_S_Waters-husted@rl.gov

Chain of Custody and Supporting Documentation

CH2M Hill Plateau Remediation Company 389273		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST C.O.C. # 116-008-010 Page 1 of 1	
Collector J.R. Aguilan/CHPRC	Contact/Requester Karen Waters-Husted	Telephone No. 509-376-4650	Purchase Order/Charge Code 300071
SAF No. 116-008	Sampling Origin Hanford Site	Ice Chest No. 605-494	Bill of Lading/Air Bill No. 77541093 6829
Project Title 200-ZP-1, JANUARY 2016	Logbook No. HNF-N-506 80 / 71	Offsite Property No. 6276	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Shipped To (Lab) GEL Laboratories, LLC	Method of Shipment Commercial Carrier	SPECIAL INSTRUCTIONS N/A	Hold Time
Protocol CERCLA	Priority: 15 Days	SAMPLE ANALYSIS 8260_VOA_GCMS_IX: COMMON TC99_EIE_LSC: COMMON	Holding Time 14 Days 6 Months
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			
Sample No.	Filter	* Date	Time
B33RK7	N	W 01-13-16	1100
B33RK7	N	W 01-13-16	1100

Relinquished By J.R. Aguilan/CHPRC	Print J.R. Aguilan	Sign [Signature]	Date/Time JAN 13 2016 1240	Received By L.D. Wall CHPRC	Print L.D. Wall	Sign [Signature]	Date/Time JAN 13 2016 1240
Relinquished By L.B. Wall CHPRC	Print L.B. Wall	Sign [Signature]	Date/Time JAN 13 2016 1400	Received By FEDEX	Print FEDEX	Sign [Signature]	Date/Time JAN 13 2016 1400
Relinquished By [Signature]	Print [Signature]	Sign [Signature]	Date/Time JAN 13 2016 1400	Received By Patricia Dunt P. Aguilan	Print Patricia Dunt P. Aguilan	Sign [Signature]	Date/Time 1/14/16 0850
Relinquished By [Signature]	Print [Signature]	Sign [Signature]	Date/Time [Signature]	Received By [Signature]	Print [Signature]	Sign [Signature]	Date/Time [Signature]

FINAL SAMPLE DISPOSITION
 Disposal Method (e.g., Return to customer, per lab procedure, used in process)
 Disposed By
 Date/Time
 A-6004-842 (REV 2)
 FSR ID = FSR10786
 PRINTED ON 11/23/2015



SAMPLE RECEIPT & REVIEW FORM

Client: CPAC		SDG/AR/COC/Work Order: I16-008-010	
Received By: P. Dent		Date Received: 1/14/16	
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: <u>Ice bags</u> Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius 1.2c
2a Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): 801424436
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: <u>FedEx Air</u> FedEx Ground UPS Field Services Courier Other 7754 1093 6829 7754 1093 6704

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-JAN-16

Project Specific Qualifier Definitions for GEL Client Code: CPRC

Revision #1 29-JUN-2016

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 (Organics only)	Y	Organics		
S	Manual	Reported value determined by the Method of Standard Additions (MSA)	Y	Inorganics		Not coded B/C Rarely performed
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

June 29, 2016

REV. 2

GEL LABORATORIES LLC

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

Report Date: 27-JAN-16

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		

Revision #1 29-JUN-2016

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
CH2M Hill Plateau Remediation Company (CPRC)
SDG #: GEL389273
Work Order #: 389273**

Method/Analysis Information

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

Analytical Method: SW846 8260C

Analytical Batch Number: 1538040

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
389273001	B33RK7
1203470452	Method Blank (MB)
1203470453	Laboratory Control Sample (LCS)
1203470454	389273001(B33RK7) Post Spike (PS)
1203470455	389273001(B33RK7) Post Spike Duplicate (PSD)

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

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

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 21.

Calibration Information

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

Initial Calibration

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

Continuing Calibration Verification Requirements

The calibration verification standard requirements were not all met for samples . There were no positive results

for any of the analytes that were outside the calibration criteria. The results are reported.

Quality Control (QC) Information

Blank (MB) Statement

The blank analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries

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

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

QC Sample Designation

Sample 389273001 (B33RK7) was designated for spike analysis.

Matrix Spike/Matrix Spike Duplicate Recovery Statement

The spike and/or spike duplicate (See Below) recoveries were not all within the acceptance limits.

Sample	Analyte	Value
1203470454 (B33RK7PS)	Dichlorodifluoromethane	133* (70%-130%)

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
1203470454 (B33RK7PS)	2-Hexanone	63* (70%-130%)
	Acetone	56* (70%-130%)
1203470455 (B33RK7PSD)	2-Hexanone	66* (70%-130%)
	Acetone	55* (70%-130%)

Relative Percent Difference (RPD) Statement

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

Internal Standard (ISTD) Acceptance

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

Technical Information

Holding Time Specifications

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

Sample Preservation and Integrity

All samples met the sample preservation and integrity requirements.

Sample Dilutions/Methanol Dilutions

The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis

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

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

A data exception report (DER) 1485740 was generated for samples 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.

Residual Chlorine

Residual Chlorine was not detected in any of the samples in 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: GEL389273 GEL Work Order: 389273

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: 26 JAN 2016

Title: Data Validator

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 2

SDG Number: GEL389273	Date Collected: 01/13/2016 11:00	Matrix: WATER
Lab Sample ID: 389273001	Date Received: 01/14/2016 08:50	
	Client: CPRC001	Project: CPRC0116008
Client ID: B33RK7	Method: SW846 8260C	SOP Ref: GL-OA-E-038
Batch ID: 1538040	Inst: VOA3.I	Dilution: 1
Run Date: 01/18/2016 13:18	Analyst: CDS1	Purge Vol: 5 mL
Prep Date: 01/18/2016 13:18		
Data File: 011816V3\3S114.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	TU	3.00	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	U	0.300	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	U	0.300	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	TU	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

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SDG Number: GEL389273	Date Collected: 01/13/2016 11:00	Matrix: WATER
Lab Sample ID: 389273001	Date Received: 01/14/2016 08:50	
Client ID: B33RK7	Client: CPRC001	Project: CPRC0116008
Batch ID: 1538040	Method: SW846 8260C	SOP Ref: GL-OA-E-038
Run Date: 01/18/2016 13:18	Inst: VOA3.I	Dilution: 1
Prep Date: 01/18/2016 13:18	Analyst: CDS1	Purge Vol: 5 mL
Data File: 011816V3\3S114.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

Report Date: June 24, 2016

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CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 389273

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1538040										
QC1203470453	LCS										
1,1,1,2-Tetrachloroethane	50.0			45.6	ug/L		91	(70%-130%)	CDS1	01/18/16	07:00
1,1,1-Trichloroethane	50.0			53.4	ug/L		107	(70%-130%)			
1,1,2,2-Tetrachloroethane	50.0			48.0	ug/L		96	(70%-130%)			
1,1,2-Trichloroethane	50.0			45.8	ug/L		92	(70%-130%)			
1,1-Dichloroethane	50.0			46.7	ug/L		93	(70%-130%)			
1,1-Dichloroethylene	50.0			47.1	ug/L		94	(70%-130%)			
1,2,3-Trichloropropane	50.0			45.8	ug/L		92	(70%-130%)			
1,2-Dibromo-3-chloropropane	50.0			50.2	ug/L		100	(70%-130%)			
1,2-Dibromoethane	50.0			45.7	ug/L		91	(70%-130%)			
1,2-Dichloroethane	50.0			43.9	ug/L		88	(70%-130%)			
1,2-Dichloropropane	50.0			46.4	ug/L		93	(70%-130%)			
1,4-Dichlorobenzene	50.0			45.5	ug/L		91	(70%-130%)			
2-Butanone	250			256	ug/L		102	(70%-130%)			
2-Hexanone	250			224	ug/L		90	(70%-130%)			
4-Methyl-2-pentanone	250			220	ug/L		88	(70%-130%)			
Acetone	250			263	ug/L		105	(70%-130%)			
Acetonitrile	1250			1170	ug/L		94	(70%-130%)			
Benzene	50.0			48.2	ug/L		96	(70%-130%)			
Bromodichloromethane	50.0			49.1	ug/L		98	(70%-130%)			
Bromoform	50.0			50.5	ug/L		101	(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	1538040										
Bromomethane	50.0			55.3	ug/L		111	(70%-130%)	CDS1	01/18/16	07:00
Carbon disulfide	250			269	ug/L		107	(70%-130%)			
Carbon tetrachloride	50.0			49.4	ug/L		99	(70%-130%)			
Chlorobenzene	50.0			46.2	ug/L		92	(70%-130%)			
Chloroethane	50.0			54.6	ug/L		109	(70%-130%)			
Chloroform	50.0			46.8	ug/L		94	(70%-130%)			
Chloromethane	50.0			52.3	ug/L		105	(70%-130%)			
Dibromochloromethane	50.0			46.9	ug/L		94	(70%-130%)			
Dibromomethane	50.0			47.5	ug/L		95	(70%-130%)			
Dichlorodifluoromethane	50.0			63.5	ug/L		127	(70%-130%)			
Ethylbenzene	50.0			46.4	ug/L		93	(70%-130%)			
Iodomethane	250			243	ug/L		97	(70%-130%)			
Methylene chloride	50.0			46.1	ug/L		92	(70%-130%)			
Styrene	50.0			45.0	ug/L		90	(70%-130%)			
Tetrachloroethylene	50.0			48.3	ug/L		97	(70%-130%)			
Toluene	50.0			46.1	ug/L		92	(70%-130%)			
Trichloroethylene	50.0			48.8	ug/L		98	(70%-130%)			
Trichlorofluoromethane	50.0			58.3	ug/L		117	(70%-130%)			
Vinyl acetate	250			245	ug/L		98	(70%-130%)			
Vinyl chloride	50.0			46.6	ug/L		93	(70%-130%)			
Xylenes (total)	150			136	ug/L		91	(70%-130%)			

GEL LABORATORIES LLC

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QC Summary

Workorder: 389273

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1538040										
cis-1,2-Dichloroethylene	50.0			46.6	ug/L		93	(70%-130%)			
cis-1,3-Dichloropropylene	50.0			51.3	ug/L		103	(70%-130%)	CDS1	01/18/16	07:00
trans-1,2-Dichloroethylene	50.0			45.4	ug/L		91	(70%-130%)			
trans-1,3-Dichloropropylene	50.0			49.3	ug/L		99	(70%-130%)			
**1,2-Dichloroethane-d4	50.0			46.3	ug/L		93	(70%-130%)			
**Bromofluorobenzene	50.0			49.5	ug/L		99	(70%-130%)			
**Toluene-d8	50.0			46.7	ug/L		93	(70%-130%)			
QC1203470452 MB											
1,1,1,2-Tetrachloroethane			U	0.300	ug/L					01/18/16	08:12
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						

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QC Summary

Workorder: 389273

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch											1538040
4-Methyl-2-pentanone			U	3.00	ug/L				CDS1	01/18/16	08:12
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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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1538040										
Iodomethane			U	3.00	ug/L						
Isobutyl alcohol			U	33.0	ug/L				CDS1	01/18/16	08:12
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			49.9	ug/L		100	(70%-130%)			
**Bromofluorobenzene	50.0			46.7	ug/L		93	(70%-130%)			
**Toluene-d8	50.0			48.1	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	1538040										
	QC1203470454 389273001 PS										
1,1,1,2-Tetrachloroethane	50.0	U	0.00		46.3	ug/L	93	(70%-130%)	CDS1	01/18/16	17:54
1,1,1-Trichloroethane	50.0	U	0.00		59.6	ug/L	119	(70%-130%)			
1,1,2,2-Tetrachloroethane	50.0	U	0.00		47.4	ug/L	95	(70%-130%)			
1,1,2-Trichloroethane	50.0	U	0.00		45.9	ug/L	92	(70%-130%)			
1,1-Dichloroethane	50.0	U	0.00		51.7	ug/L	103	(70%-130%)			
1,1-Dichloroethylene	50.0	U	0.00		51.9	ug/L	104	(70%-130%)			
1,2,3-Trichloropropane	50.0	U	0.00		43.9	ug/L	88	(70%-130%)			
1,2-Dibromo-3-chloropropane	50.0	U	0.00		51.2	ug/L	102	(70%-130%)			
1,2-Dibromoethane	50.0	U	0.00		47.1	ug/L	94	(70%-130%)			
1,2-Dichloroethane	50.0	U	0.00		48.2	ug/L	96	(70%-130%)			
1,2-Dichloropropane	50.0	U	0.00		49.9	ug/L	100	(70%-130%)			
1,4-Dichlorobenzene	50.0	U	0.00		46.1	ug/L	92	(70%-130%)			
2-Butanone	250	U	0.00		177	ug/L	71	(70%-130%)			
2-Hexanone	250	TU	0.00	T	158	ug/L	63*	(70%-130%)			
4-Methyl-2-pentanone	250	U	0.00		211	ug/L	84	(70%-130%)			
Acetone	250	TU	0.00	T	141	ug/L	56*	(70%-130%)			
Acetonitrile	1250	U	0.00		1200	ug/L	96	(70%-130%)			
Benzene	50.0	U	0.00		51.7	ug/L	103	(70%-130%)			
Bromodichloromethane	50.0	U	0.00		52.0	ug/L	104	(70%-130%)			
Bromoform	50.0	U	0.00		49.4	ug/L	99	(70%-130%)			
Bromomethane	50.0	U	0.00		60.6	ug/L	121	(70%-130%)			
Carbon disulfide	250	U	0.00		295	ug/L	118	(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	1538040										
Carbon tetrachloride	50.0	U	0.00		53.9	ug/L	108	(70%-130%)	CDS1	01/18/16	17:54
Chlorobenzene	50.0	U	0.00		48.8	ug/L	98	(70%-130%)			
Chloroethane	50.0	U	0.00		57.5	ug/L	115	(70%-130%)			
Chloroform	50.0	U	0.00		51.8	ug/L	104	(70%-130%)			
Chloromethane	50.0	U	0.00		54.8	ug/L	110	(70%-130%)			
Dibromochloromethane	50.0	U	0.00		47.5	ug/L	95	(70%-130%)			
Dibromomethane	50.0	U	0.00		50.7	ug/L	101	(70%-130%)			
Dichlorodifluoromethane	50.0	TU	0.00	T	66.5	ug/L	133*	(70%-130%)			
Ethylbenzene	50.0	U	0.00		48.7	ug/L	97	(70%-130%)			
Iodomethane	250	U	0.00		264	ug/L	106	(70%-130%)			
Methylene chloride	50.0	U	0.00		50.6	ug/L	101	(70%-130%)			
Styrene	50.0	U	0.00		47.1	ug/L	94	(70%-130%)			
Tetrachloroethylene	50.0	U	0.00		50.9	ug/L	102	(70%-130%)			
Toluene	50.0	U	0.00		43.0	ug/L	86	(70%-130%)			
Trichloroethylene	50.0	U	0.00		53.5	ug/L	107	(70%-130%)			
Trichlorofluoromethane	50.0	U	0.00		62.6	ug/L	125	(70%-130%)			
Vinyl acetate	250	U	0.00		259	ug/L	104	(70%-130%)			
Vinyl chloride	50.0	U	0.00		51.9	ug/L	104	(70%-130%)			
Xylenes (total)	150	U	0.00		143	ug/L	95	(70%-130%)			
cis-1,2-Dichloroethylene	50.0	U	0.00		51.0	ug/L	102	(70%-130%)			
cis-1,3-Dichloropropylene	50.0	U	0.00		55.6	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	1538040										
trans-1,2-Dichloroethylene	50.0	U	0.00	49.7	ug/L		99	(70%-130%)			
trans-1,3-Dichloropropylene	50.0	U	0.00	45.4	ug/L		91	(70%-130%)	CDS1	01/18/16	17:54
**1,2-Dichloroethane-d4	50.0		57.3	56.4	ug/L		113	(70%-130%)			
**Bromofluorobenzene	50.0		41.6	45.0	ug/L		90	(70%-130%)			
**Toluene-d8	50.0		50.6	46.0	ug/L		92	(70%-130%)			
QC1203470455 389273001 PSD											
1,1,1,2-Tetrachloroethane	50.0	U	0.00	45.8	ug/L	1	92	(0%-20%)		01/18/16	18:25
1,1,1-Trichloroethane	50.0	U	0.00	58.2	ug/L	2	116	(0%-20%)			
1,1,2,2-Tetrachloroethane	50.0	U	0.00	48.5	ug/L	2	97	(0%-20%)			
1,1,2-Trichloroethane	50.0	U	0.00	46.0	ug/L	0	92	(0%-20%)			
1,1-Dichloroethane	50.0	U	0.00	51.2	ug/L	1	102	(0%-20%)			
1,1-Dichloroethylene	50.0	U	0.00	52.0	ug/L	0	104	(0%-20%)			
1,2,3-Trichloropropane	50.0	U	0.00	45.9	ug/L	4	92	(0%-20%)			
1,2-Dibromo-3-chloropropane	50.0	U	0.00	51.2	ug/L	0	102	(0%-20%)			
1,2-Dibromoethane	50.0	U	0.00	49.0	ug/L	4	98	(0%-20%)			
1,2-Dichloroethane	50.0	U	0.00	47.1	ug/L	2	94	(0%-20%)			
1,2-Dichloropropane	50.0	U	0.00	49.6	ug/L	1	99	(0%-20%)			
1,4-Dichlorobenzene	50.0	U	0.00	46.2	ug/L	0	92	(0%-20%)			
2-Butanone	250	U	0.00	175	ug/L	1	70	(0%-20%)			
2-Hexanone	250	TU	0.00	T 164	ug/L	4	66*	(0%-20%)			
4-Methyl-2-pentanone	250	U	0.00	219	ug/L	4	88	(0%-20%)			
Acetone	250	TU	0.00	T 138	ug/L	3	55*	(0%-20%)			
Acetonitrile	1250	U	0.00	1190	ug/L	1	95	(0%-20%)			

GEL LABORATORIES LLC

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1538040										
Benzene	50.0	U	0.00	50.9	ug/L	2	102	(0%-20%)	CDS1	01/18/16	18:25
Bromodichloromethane	50.0	U	0.00	50.4	ug/L	3	101	(0%-20%)			
Bromoform	50.0	U	0.00	50.1	ug/L	1	100	(0%-20%)			
Bromomethane	50.0	U	0.00	58.3	ug/L	4	117	(0%-20%)			
Carbon disulfide	250	U	0.00	281	ug/L	5	112	(0%-20%)			
Carbon tetrachloride	50.0	U	0.00	51.8	ug/L	4	104	(0%-20%)			
Chlorobenzene	50.0	U	0.00	48.5	ug/L	1	97	(0%-20%)			
Chloroethane	50.0	U	0.00	55.0	ug/L	4	110	(0%-20%)			
Chloroform	50.0	U	0.00	49.3	ug/L	5	99	(0%-20%)			
Chloromethane	50.0	U	0.00	51.4	ug/L	6	103	(0%-20%)			
Dibromochloromethane	50.0	U	0.00	49.9	ug/L	5	100	(0%-20%)			
Dibromomethane	50.0	U	0.00	49.1	ug/L	3	98	(0%-20%)			
Dichlorodifluoromethane	50.0	TU	0.00	63.6	ug/L	5	127	(0%-20%)			
Ethylbenzene	50.0	U	0.00	47.2	ug/L	3	94	(0%-20%)			
Iodomethane	250	U	0.00	251	ug/L	5	100	(0%-20%)			
Methylene chloride	50.0	U	0.00	49.2	ug/L	3	98	(0%-20%)			
Styrene	50.0	U	0.00	46.1	ug/L	2	92	(0%-20%)			
Tetrachloroethylene	50.0	U	0.00	50.5	ug/L	1	101	(0%-20%)			
Toluene	50.0	U	0.00	44.1	ug/L	2	88	(0%-20%)			
Trichloroethylene	50.0	U	0.00	52.2	ug/L	2	104	(0%-20%)			
Trichlorofluoromethane	50.0	U	0.00	61.2	ug/L	2	122	(0%-20%)			

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QC Summary

Workorder: 389273

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1538040										
Vinyl acetate	250	U	0.00	256	ug/L	1	102	(0%-20%)			
Vinyl chloride	50.0	U	0.00	49.4	ug/L	5	99	(0%-20%)	CDS1	01/18/16	18:25
Xylenes (total)	150	U	0.00	145	ug/L	1	96	(0%-20%)			
cis-1,2-Dichloroethylene	50.0	U	0.00	49.7	ug/L	3	99	(0%-20%)			
cis-1,3-Dichloropropylene	50.0	U	0.00	53.1	ug/L	5	106	(0%-20%)			
trans-1,2-Dichloroethylene	50.0	U	0.00	48.5	ug/L	2	97	(0%-20%)			
trans-1,3-Dichloropropylene	50.0	U	0.00	47.2	ug/L	4	94	(0%-20%)			
**1,2-Dichloroethane-d4	50.0		57.3	54.4	ug/L		109	(70%-130%)			
**Bromofluorobenzene	50.0		41.6	46.1	ug/L		92	(70%-130%)			
**Toluene-d8	50.0		50.6	45.9	ug/L		92	(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: 389273

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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.

Volatile
Surrogate Recovery Report

SDG Number: GEL389273

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1203470453	LCS for batch 1538040	93	93	99
1203470452	MB for batch 1538040	100	96	93
389273001	B33RK7	115	101	83
1203470454	B33RK7PS	113	92	90
1203470455	B33RK7PSD	109	92	92

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

**Radiochemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL389273
Work Order #: 389273**

Method/Analysis Information

Product: TC99_EIE_LSC: COMMON

Analytical Method: TC99_EIE_LSC

Analytical Batch Number: 1537809

Sample ID	Client ID
389273001	B33RK7
1203469746	Method Blank (MB)
1203469748	Laboratory Control Sample (LCS)
1203469747	389273001(B33RK7) Sample Duplicate (DUP)

Sample 389273 001 in this SDG was analyzed on an "as received" basis.

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-RAD-A-059 REV# 5.

Calibration Information:**Calibration Information**

All initial and continuing calibration requirements have been met.

Standards Information

Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:**Blank Information**

The blank volume is representative of the sample volume in this batch.

QC Information

All of the QC samples met the required acceptance limits.

Designated QC

The following sample was used for QC: 389273001 (B33RK7).

Technical Information:**Holding Time**

All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Recounts

None of the samples in this sample set were recounted.

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

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Sample-Specific MDA/MDC

The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

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: GEL389273 GEL Work Order: 389273

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: 27 JAN 2016

Title: Group Leader

Sample Data Summary

Rad
Certificate of Analysis
Sample Summary

SDG Number: GEL389273	Client: CPRC001	Project: CPRC0116008
Lab Sample ID: 389273001	Date Collected: 01/13/2016 11:00	Matrix: WATER
	Date Received: 01/14/2016 08:50	
Client ID: B33RK7	Method: TC99_EIE_LSC	Prep Basis: "As Received"
Batch ID: 1537809	Analyst: MYM1	SOP Ref: GL-RAD-A-059
Run Date: 01/24/2016 11:11	Aliquot: 200 mL	Instrument: LSCRED
Data File: E1537809.xls	Prep Method: DOE EML HASL-300, Tc-02-	Count Time: 50 min
Prep Batch: 1537809		
Prep Date: 01/19/2016 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		80.3	pCi/L	+/-8.99	12.7	12.6	15.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	61000	63900	CPM	95.5	(20%-105%)

Comments:

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

Quality Control Summary

GEL LABORATORIES LLC

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QC Summary

Report Date: January 27, 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: 389273

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date	Time
Rad Liquid Scintillation										
Batch	1537809									
QC1203469746	MB									
Technetium-99			U	2.94	pCi/L			MYM1	01/24/16	21:00
				Uncert: +/-7.22						
				TPU: +/-7.23						
*Technetium-99m Tracer	63900			62100	CPM	REC: 97	(20%-105%)			
QC1203469747	389273001	DUP								
Technetium-99		80.3		87.0	pCi/L				01/24/16	21:53
				Uncert: +/-8.99		RPD: 8	(0% - 20%)			
				TPU: +/-12.7		RER: 0.706	(0-2)			
*Technetium-99m Tracer	63900	61000		58700	CPM	REC: 92	(20%-105%)			
QC1203469748	LCS									
Technetium-99	430			441	pCi/L	REC: 102	(70%-130%)		01/24/16	22:45
				Uncert: +/-13.9						
				TPU: +/-50.9						
*Technetium-99m Tracer	63900			62600	CPM	REC: 98	(20%-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: 389273

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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.