



February 16, 2015

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

Re: CHPRC SAF W15-001
Work Order: 365758
SDG: GEL365758

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on January 24, 2015. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

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

Sincerely,

Heather Shaffer
Project Manager

Purchase Order: 300071
Chain of Custody: W15-001-109, W15-001-112, W15-001-113, W15-001-189 and W15-001-206
Enclosures



Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....4

Data Review Qualifier Definitions.....11

Laboratory Certifications.....14

Volatile Analysis.....16

 Case Narrative.....17

 Sample Data Summary.....22

 Quality Control Summary.....31

 Miscellaneous.....45

Metals Analysis.....48

 Case Narrative.....49

 Sample Data Summary.....54

 Quality Control Summary.....75

Radiological Analysis.....81

 Sample Data Summary.....85

 Quality Control Data.....92

Case Narrative

February 20, 2015

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF W15-001
SDG: GEL365758

February 16, 2015

Laboratory Identification:

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

Summary

Sample receipt

The sample(s) arrived at GEL Laboratories, LLC, Charleston, South Carolina on January 24, 2015, for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

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

Sample Identification

The laboratory received the following samples:

<u>Laboratory Identification</u>	<u>Sample Description</u>
365758001	B2YWH9
365758002	B2YWJ0
365758003	B2YWK7
365758004	B2YWK5
365758005	B2YWK8
365758006	B2YWK6
365758007	B2YWJ3
365758008	B2YWJ4
365758009	B303X1
365758010	B2YWL2

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.

February 20, 2015

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, Metals and Radiochemistry.

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

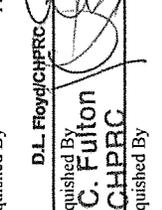
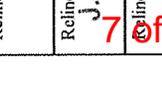


Heather Shaffer
Project Manager

Chain of Custody and Supporting Documentation

February 20, 2015

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST <i>365758</i>				C.O.C. # W15-001-109 Page 1 of 1	
Collector D.L. Floyd/CHPRC	Contact/Requester Karen Waters-Husted	Telephone No. 509-376-4650	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
SAF No. W15-001	Sampling Origin Hanford Site	Purchase Order/Charge Code 300071					
Project Title RCRA, JANUARY 2015	Logbook No. HNF-N-506 67177	Ice Chest No. GWS-435					
Shipped To (Lab) GEL Laboratories, LLC	Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No. 972692440228					
Protocol RCRA	Priority: 30 Days	Offsite Property No. 53023					
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				
Sample No.	Filter *	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B2YWH9	N	1-23-15	0829	1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2
B2YWH9	N	/	/	4x40-mL aGs*	8260_VOA_GCMS: COMMON; 8260_VOA_GCMS: GW 01	14 Days	HCl or H2SO4 to pH <2/Cool <=6C
B2YWH9	N	/	/	1x500-mL G/P	KPA_UTOT: COMMON	6 Months	HNO3 to pH <2
B2YWJ0	Y	1-23-15	0829	1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2

Relinquished By D.L. Floyd/CHPRC	Print 	Sign J.C. Fulton CHPRC	Received By J.C. Fulton CHPRC	Date/Time JAN 23 2015	Date/Time JAN 23 2015	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 J.C. Fulton CHPRC	Print 	Sign FEDEX	Received By FEDEX	Date/Time JAN 23 2015 1400	Date/Time JAN 23 2015		
Relinquished By Fed Ex	Print 	Sign M. Kinslow	Received By M. Kinslow	Date/Time 1-24-15 0835	Date/Time 1-24-15 0835		
Relinquished By Fed Ex	Print 	Sign M. Kinslow	Received By M. Kinslow	Date/Time 1-24-15 0835	Date/Time 1-24-15 0835		

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

February 20, 2015

CH2MHill Plateau Remediation Company
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST
 C.O.C. # **W15-001-112**
 Page 1 of 1

Collector D.L. Floyd/CHPRC
Contact/Requester Karen Waters-Husted
Telephone No. 509-376-4650
SAF No. W15-001
Sampling Origin Hanford Site
Purchase Order/Charge Code 300071
Project Title RCRA, JANUARY 2015
Logbook No. HNF-N-506 69177
Ice Chest No. 625-433
Shipped To (Lab) GEL Laboratories, LLC
Method of Shipment Commercial Carrier
Bill of Lading/Air Bill No. 77269244 0228
Protocol RCRA
Priority: 30 Days
Offsite Property No. 53603

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	No/Type Container	Sample Analysis	Holding Time	Preservative
B2YWK7	Y	W	1-23-15	1041	1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2
B2YWK5	N	W	/	/	1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2
B2YWK5	N	W	/	/	4x40-mL aGs*	8260_VOA_GCMS: COMMON; 8260_VOA_GCMS: GW 01	14 Days	HCl or H2SO4 to pH <2/Cool <=6C
B2YWK5	N	W	1-23-15	1041	1x500-mL G/P	KPA_UTOT: COMMON	6 Months	HNO3 to pH <2

SPECIAL INSTRUCTIONS Hold Time
Priority: 30 Days
Matrix *
 S = Soil DS = Drum Solids
 SE = Sediment DL = Drum Liquids
 SO = Solid T = Tissue
 SL = Sludge WL = Wipe
 W = Water L = Liquid
 O = Oil V = Vegetation
 A = Air X = Other

Relinquished By	Print	Sign	Date/Time	Received By	Sign	Date/Time
D.L. Floyd/CHPRC			JAN 23 2015 1050	J.C. Fulton		JAN 23 2015
J.C. Fulton			JAN 23 2015 1400	CHPRC		
8 of 9			JAN 23 2015	FEDEX		
Relinquished By				Received By		1-24-15 0735
Relinquished By				Received By		

February 20, 2015

CH2MHill Plateau Remediation Company
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST
 C.O.C. # **W15-001-113**
 Page 1 of 1

Collector D.L. Floyd/CHPRC
Contact/Requester Karen Waters-Husted
Telephone No. 509-376-4650
SAF No. W15-001
Sampling Origin Hanford Site
Purchase Order/Charge Code 300071
Project Title RCRA, JANUARY 2015
Logbook No. HNF-N-506 69177
Ice Chest No. 6205-435
Shipped To (Lab) GEL Laboratories, LLC
Method of Shipment Commercial Carrier
Bill of Lading/Air Bill No. 1726 9244 0228
Protocol RCRA
Priority: 30 Days
Offsite Property No. 53623

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

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B2YWK8	Y	W	1-23-15	1041	1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2
B2YWK6	N	W	/	/	1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2
B2YWK6	N	W	/	/	4x40-mL aGs*	8260_VOA_GCMS: COMMON; 8260_VOA_GCMS: GW 01	14 Days	HCl or H2SO4 to pH <2/Cool <=6C
B2YWK6	N	W	1-23-15	1041	1x500-mL G/P	KPA_UTOT: COMMON	6 Months	HNO3 to pH <2

SPECIAL INSTRUCTIONS Hold Time
 Total Activity Exemption: Yes No

Relinquished By	Print	Sign	Date/Time	Received By	Sign	Date/Time	Matrix *
D.L. Floyd/CHPRC			JAN 23 2015	J.C. Fulton CHPRC		JAN 23 2015	DS = Drum Solids DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other
J.C. Fulton CHPRC			JAN 23 2015 1400	M. Kinslow FEDEX		1-24-15 0835	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By							
Relinquished By							

February 20, 2015

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C. # W15-001-189
		Page 1 of 1				
Collector	D.L. Floyd/CHPRC	Contact/Requester	Karen Waters-Husted			Telephone No.
SAF No.	W15-001	Sampling Origin	Hanford Site			Purchase Order/Charge Code
Project Title	RCRA, JANUARY 2015	Logbook No.	HNF-N-506 69177			Ice Chest No.
Shipped To (Lab)	TestAmerica-St-Louis-666	Method of Shipment	Commercial Carrier			Bill of Lading/Air Bill No.
Protocol	RCRA	Priority:	30 Days	PRIORITY	Offsite Property No.	
POSSIBLE SAMPLE HAZARDS/REMARKS		SPECIAL INSTRUCTIONS		Hold Time	Total Activity Exemption:	
*** 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		6010_METALS_ICP: COMMON		Holding Time	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Sample No.	Filter	Date	No/Type Container	Sample Analysis	Preservative	
B2YWJ3	N	1-23-15	1x500-mL G/P	6010_METALS_ICP: COMMON	HNO3 to pH <2	
B2YWJ3	N	1	4x40-mL aGs*	8260_VOA_GCMS: COMMON; 8260_VOA_GCMS: GW 01	HCl or H2SO4 to pH <2/Cool <=6C	
B2YWJ4	Y	1-23-15	1x500-mL G/P	6010_METALS_ICP: COMMON	HNO3 to pH <2	

Relinquished By	Print	Sign	Date/Time	Received By	Sign	Date/Time	Matrix *
D.L. Floyd/CHPRC			JAN 23 2015 1020	J.C. Fulton CHPRC		JAN 23 2015 1025	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By	Print	Sign	Date/Time	Received By	Sign	Date/Time	DS = Drum Solids DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other
J.C. Fulton CHPRC			JAN 23 2015 1400	PEDEX		JAN 23 2015 1400	
Relinquished By	Print	Sign	Date/Time	Received By	Sign	Date/Time	
				M. Kinslow		1-24-15 0835	
Relinquished By	Print	Sign	Date/Time	Received By	Sign	Date/Time	
				J.C. Fulton			

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C. # W15-001-206
		Page 1 of 1				
Collector	D.L. Floyd/CHPRC	Contact/Requester	Karen Waters-Husted		Telephone No.	509-376-4650
SAF No.	W15-001	Sampling Origin	Hanford Site		Purchase Order/Charge Code	300071
Project Title	RCRA, JANUARY 2015	Logbook No.	HNF-N-506 69/77		Ice Chest No.	6WS-435
Shipped To (Lab)	GEL Laboratories, LLC	Method of Shipment	Commercial Carrier		Bill of Lading/Air Bill No.	772692440220
Protocol	RCRA	Priority:	30 Days		Offsite Property No.	53603
POSSIBLE SAMPLE HAZARDS/REMARKS		SPECIAL INSTRUCTIONS		Hold Time	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
*** 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	No/Type Container	Sample Analysis
B303X1	N	W	1-23-15	0956	1x500-mL G/P	6010_METALS_ICP: COMMON
B2YWL2	Y	W	1-23-15	0956	1x500-mL G/P	6010_METALS_ICP: COMMON
						Holding Time
						6 Months
						6 Months
						Preservative
						HNO3 to pH <2
						HNO3 to pH <2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D.L. Floyd/CHPRC			JAN 23 2015 1050	J.C. Fulton	CHPRC		JAN 23 2015 1050
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
CHPRC			JAN 23 2015 1400	FEDEX			1-23-15 0835
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
CHPRC			JAN 23 2015 1400	Mr. Kinsew			1-23-15 0835
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
CHPRC			JAN 23 2015 1400	Mr. Kinsew			1-23-15 0835

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Date/Time

Client: <u>Open</u>		SDG/AR/COC/Work Order: <u>305758</u>
Received By: <u>ML</u>		Date Received: <u>1-24-15</u>
Suspected Hazard Information	Yes	No
COC/Samples marked as radioactive?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Classified Radioactive II or III by RSO?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
COC/Samples marked containing PCBs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Package, COC, and/or Samples marked as beryllium or asbestos containing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Shipped as a DOT Hazardous?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Samples identified as Foreign Soil?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)																														
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)																														
2 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Preservation Method: <u>Ice bags</u> Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius																														
2a Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>130532776</u> Secondary Temperature Device Serial # (If Applicable):																														
3 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																															
4 Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)																														
5 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's, containers affected and observed pH: If Preservation added, Lot#:																														
6 VOA vials free of headspace (defined as < 6mm bubble)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:																														
7 Are Encore containers present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)																														
8 Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:																														
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:																														
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:																														
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:																														
12 Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																															
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																															
14 Carrier and tracking number.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: <table border="0"> <tr> <td><u>FedEx Air</u></td> <td>FedEx Ground</td> <td>UPS</td> <td>Field Services</td> <td>Courier</td> <td>Other</td> </tr> <tr> <td>7726 9244 0228</td> <td></td> <td></td> <td></td> <td>1.7c</td> <td></td> </tr> <tr> <td>7726 9243 9614</td> <td></td> <td></td> <td></td> <td>1.9c</td> <td></td> </tr> <tr> <td>7726 9243 9820</td> <td></td> <td></td> <td></td> <td>2.2c</td> <td></td> </tr> <tr> <td>7726 8808 5403</td> <td></td> <td></td> <td></td> <td>1.9c</td> <td></td> </tr> </table>	<u>FedEx Air</u>	FedEx Ground	UPS	Field Services	Courier	Other	7726 9244 0228				1.7c		7726 9243 9614				1.9c		7726 9243 9820				2.2c		7726 8808 5403				1.9c	
<u>FedEx Air</u>	FedEx Ground	UPS	Field Services	Courier	Other																													
7726 9244 0228				1.7c																														
7726 9243 9614				1.9c																														
7726 9243 9820				2.2c																														
7726 8808 5403				1.9c																														

Comments (Use Continuation Form if needed):

MS 1/26/15 1 1

Data Review Qualifier Definitions

Project Specific Qualifier Definitions for GEL Client Code: **CPRC**

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

Project Specific Qualifier Definitions for GEL Client Code: **CPRC**

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

Laboratory Certifications

List of current GEL Certifications as of 16 February 2015

State	Certification
Alaska	UST-110
Arkansas	88-0651
CLIA	42D0904046
California	2940 Interim
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC000122013-10
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-12-00283, P330-12-00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC000122013-10
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA150001
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC000122013-10
Nebraska	NE-OS-26-13
Nevada	SC000122014-1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68-00485
Plant Material Permit	PDEP-12-00260
South Carolina Chemistry	10120001
South Carolina GVL	23611001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235-15-10
Utah NELAP	SC000122014-16
Vermont	VT87156
Virginia NELAP	460202
Washington	C780-12

Volatile Analysis

Case Narrative

February 20, 2015
GC/MS Volatile
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL365758
Work Order #: 365758

Method/Analysis Information

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

Analytical Method: SW846 8260C

Analytical Batch Number: 1452976 1454155

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
365758001	B2YWH9
365758004	B2YWK5
365758006	B2YWK6
365758007	B2YWJ3
1203251578	365749002(B30188) Post Spike (PS)
1203251579	365749002(B30188) Post Spike Duplicate (PSD)
1203251580	365749002(B30188) Post Spike (PS)
1203251581	365749002(B30188) Post Spike Duplicate (PSD)
1203254660	Method Blank (MB)
1203254661	Laboratory Control Sample (LCS)
1203254662	Laboratory Control Sample (LCS)
1203254811	Method Blank (MB)
1203254812	Laboratory Control Sample (LCS)
1203254813	Laboratory Control Sample (LCS)
1203254814	365992007(B30195) Post Spike (PS)
1203254815	365992007(B30195) Post Spike Duplicate (PSD)
1203254816	365992007(B30195) Post Spike (PS)
1203254817	365992007(B30195) 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

All associated calibration verification standard(s) (CCV) met the acceptance criteria.

Quality Control (QC) Information

Blank (MB) Statement

The blanks analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries

Surrogate recoveries in 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

Samples 365749002 (B30188) and 365992007 (B30195) were designated for spike analysis.

Matrix Spike/Matrix Spike Duplicate Recovery Statement

The spike and/or spike duplicate 1203251578 (Non SDG 365749002PS), 1203251579 (Non SDG 365749002PSD), 1203254814 (Non SDG 365992007PS) and 1203254815 (Non SDG 365992007PSD) recoveries were not all within the acceptance limits.

Relative Percent Difference (RPD) Statement

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

Internal Standard (ISTD) Acceptance

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

Technical Information

Holding Time Specifications

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

Sample Preservation and Integrity

All samples met the sample preservation and integrity requirements.

Sample Dilutions/Methanol Dilutions

The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis

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

Miscellaneous Information

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation

The following DER was generated for this SDG: 1377629. The following DER was generated for this SDG: 1379261.

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

Certification Statement

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

February 20, 2015

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: GEL365758 GEL Work Order: 365758

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.

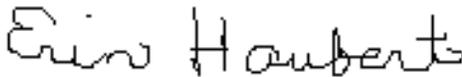
RA Indicates that sample is re-analyzed without re-extraction.

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: 19 FEB 2015

Title: Data Validator

Sample Data Summary

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF W15-001**

Report Date: February 18, 2015

Client Sample ID:	B2YWH9	Project:	CPRC0W15001
Sample ID:	365758001	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	23-JAN-15 08:29		
Receive Date:	24-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Volatile Organics										
<i>8260VOA_GCMS: COMMON + GW 01 "As Received"</i>										
1,1,1-Trichloroethane 71-55-6	U	0.00	0.300	5.00	ug/L	1	CDS1 01/30/15	1108	1454155	1
1,1,2-Trichloroethane 79-00-5	U	0.00	0.300	5.00	ug/L	1				
1,1-Dichloroethane 75-34-3	U	0.00	0.300	10.0	ug/L	1				
1,1-Dichloroethylene 75-35-4	U	0.00	0.300	10.0	ug/L	1				
1,2-Dichloroethane 107-06-2	U	0.00	0.300	5.00	ug/L	1				
1,4-Dichlorobenzene 106-46-7	U	0.00	0.300	5.00	ug/L	1				
2-Butanone 78-93-3	TU	0.00	3.00	10.0	ug/L	1				
4-Methyl-2-pentanone 108-10-1	U	0.00	3.00	10.0	ug/L	1				
Acetone 67-64-1	TU	0.00	3.00	20.0	ug/L	1				
Benzene 71-43-2	U	0.00	0.300	5.00	ug/L	1				
Carbon disulfide 75-15-0	U	0.00	1.60	10.0	ug/L	1				
Carbon tetrachloride 56-23-5	U	0.00	0.300	5.00	ug/L	1				
Chlorobenzene 108-90-7	U	0.00	0.300	5.00	ug/L	1				
Chloroform 67-66-3	U	0.00	0.300	5.00	ug/L	1				
Ethylbenzene 100-41-4	U	0.00	0.300	5.00	ug/L	1				
Methylene chloride 75-09-2	U	0.00	1.60	5.00	ug/L	1				
Propionitrile 107-12-0	U	0.00	3.00	10.0	ug/L	1				
Tetrachloroethylene 127-18-4	U	0.00	0.300	5.00	ug/L	1				

~~February 20, 2015~~
GEL LABORATORIES LLC

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

Certificate of Analysis

Company : CH2MHill Plateau Remediation Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF W15-001**

Report Date: February 18, 2015

Client Sample ID: B2YWH9 Project: CPRC0W15001
 Sample ID: 365758001 Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatile Organics											
<i>8260VOA_GCMS: COMMON + GW 01 "As Received"</i>											
Tetrahydrofuran	U	0.00	1.50	50.0	ug/L	1					
109-99-9											
Toluene	U	0.00	0.300	5.00	ug/L	1					
108-88-3											
Trichloroethylene	U	0.00	0.300	5.00	ug/L	1					
79-01-6											
Vinyl chloride	U	0.00	0.300	10.0	ug/L	1					
75-01-4											
Xylenes (total)	U	0.00	0.300	10.0	ug/L	1					
1330-20-7											
cis-1,2-Dichloroethylene	U	0.00	0.300	5.00	ug/L	1					
156-59-2											
n-Butyl alcohol	U	0.00	83.3	250	ug/L	1					
71-36-3											
trans-1,2-Dichloroethylene	U	0.00	0.300	5.00	ug/L	1					
156-60-5											

The following Analytical Methods were performed

Method	Description	Analyst	Comments
1	SW846 8260C		

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	8260VOA_GCMS: COMMON + GW 01 "As Received"	50.4 ug/L	50.0	101	(77%-123%)
Bromofluorobenzene	8260VOA_GCMS: COMMON + GW 01 "As Received"	53.5 ug/L	50.0	107	(80%-120%)
Toluene-d8	8260VOA_GCMS: COMMON + GW 01 "As Received"	46.6 ug/L	50.0	93.1	(80%-120%)

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF W15-001**

Report Date: February 18, 2015

Client Sample ID:	B2YWK5	Project:	CPRC0W15001
Sample ID:	365758004	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	23-JAN-15 10:41		
Receive Date:	24-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Volatile Organics										
<i>8260VOA_GCMS: COMMON + GW 01 "As Received"</i>										
1,1,1-Trichloroethane 71-55-6	U	0.00	0.300	5.00	ug/L	1	CDS1 01/30/15	1138	1454155	1
1,1,2-Trichloroethane 79-00-5	U	0.00	0.300	5.00	ug/L	1				
1,1-Dichloroethane 75-34-3	U	0.00	0.300	10.0	ug/L	1				
1,1-Dichloroethylene 75-35-4	U	0.00	0.300	10.0	ug/L	1				
1,2-Dichloroethane 107-06-2	U	0.00	0.300	5.00	ug/L	1				
1,4-Dichlorobenzene 106-46-7	U	0.00	0.300	5.00	ug/L	1				
2-Butanone 78-93-3	TU	0.00	3.00	10.0	ug/L	1				
4-Methyl-2-pentanone 108-10-1	U	0.00	3.00	10.0	ug/L	1				
Acetone 67-64-1	JT	3.07	3.00	20.0	ug/L	1				
Benzene 71-43-2	U	0.00	0.300	5.00	ug/L	1				
Carbon disulfide 75-15-0	U	0.00	1.60	10.0	ug/L	1				
Carbon tetrachloride 56-23-5	U	0.00	0.300	5.00	ug/L	1				
Chlorobenzene 108-90-7	U	0.00	0.300	5.00	ug/L	1				
Chloroform 67-66-3	U	0.00	0.300	5.00	ug/L	1				
Ethylbenzene 100-41-4	U	0.00	0.300	5.00	ug/L	1				
Methylene chloride 75-09-2	U	0.00	1.60	5.00	ug/L	1				
Propionitrile 107-12-0	U	0.00	3.00	10.0	ug/L	1				
Tetrachloroethylene 127-18-4	U	0.00	0.300	5.00	ug/L	1				

Certificate of Analysis

Company : CH2MHill Plateau Remediation Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF W15-001**

Report Date: February 18, 2015

Client Sample ID: B2YWK5 Project: CPRC0W15001
 Sample ID: 365758004 Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatile Organics											
<i>8260VOA_GCMS: COMMON + GW 01 "As Received"</i>											
Tetrahydrofuran	U	0.00	1.50	50.0	ug/L	1					
109-99-9											
Toluene	U	0.00	0.300	5.00	ug/L	1					
108-88-3											
Trichloroethylene	U	0.00	0.300	5.00	ug/L	1					
79-01-6											
Vinyl chloride	U	0.00	0.300	10.0	ug/L	1					
75-01-4											
Xylenes (total)	U	0.00	0.300	10.0	ug/L	1					
1330-20-7											
cis-1,2-Dichloroethylene	U	0.00	0.300	5.00	ug/L	1					
156-59-2											
n-Butyl alcohol	U	0.00	83.3	250	ug/L	1					
71-36-3											
trans-1,2-Dichloroethylene	U	0.00	0.300	5.00	ug/L	1					
156-60-5											

The following Analytical Methods were performed

Method	Description	Analyst	Comments
1	SW846 8260C		

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	8260VOA_GCMS: COMMON + GW 01 "As Received"	51.1 ug/L	50.0	102	(77%-123%)
Bromofluorobenzene	8260VOA_GCMS: COMMON + GW 01 "As Received"	54.6 ug/L	50.0	109	(80%-120%)
Toluene-d8	8260VOA_GCMS: COMMON + GW 01 "As Received"	47.1 ug/L	50.0	94.2	(80%-120%)

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF W15-001**

Report Date: February 18, 2015

Client Sample ID:	B2YWK6	Project:	CPRC0W15001
Sample ID:	365758006	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	23-JAN-15 10:41		
Receive Date:	24-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Volatile Organics										
<i>8260VOA_GCMS: COMMON + GW 01 "As Received"</i>										
1,1,1-Trichloroethane 71-55-6	U	0.00	0.300	5.00	ug/L	1	CDS1 01/30/15	1208	1454155	1
1,1,2-Trichloroethane 79-00-5	U	0.00	0.300	5.00	ug/L	1				
1,1-Dichloroethane 75-34-3	U	0.00	0.300	10.0	ug/L	1				
1,1-Dichloroethylene 75-35-4	U	0.00	0.300	10.0	ug/L	1				
1,2-Dichloroethane 107-06-2	U	0.00	0.300	5.00	ug/L	1				
1,4-Dichlorobenzene 106-46-7	U	0.00	0.300	5.00	ug/L	1				
2-Butanone 78-93-3	TU	0.00	3.00	10.0	ug/L	1				
4-Methyl-2-pentanone 108-10-1	U	0.00	3.00	10.0	ug/L	1				
Acetone 67-64-1	TU	0.00	3.00	20.0	ug/L	1				
Benzene 71-43-2	U	0.00	0.300	5.00	ug/L	1				
Carbon disulfide 75-15-0	U	0.00	1.60	10.0	ug/L	1				
Carbon tetrachloride 56-23-5	U	0.00	0.300	5.00	ug/L	1				
Chlorobenzene 108-90-7	U	0.00	0.300	5.00	ug/L	1				
Chloroform 67-66-3	U	0.00	0.300	5.00	ug/L	1				
Ethylbenzene 100-41-4	U	0.00	0.300	5.00	ug/L	1				
Methylene chloride 75-09-2	U	0.00	1.60	5.00	ug/L	1				
Propionitrile 107-12-0	U	0.00	3.00	10.0	ug/L	1				
Tetrachloroethylene 127-18-4	U	0.00	0.300	5.00	ug/L	1				

Certificate of Analysis

Company : CH2MHill Plateau Remediation Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF W15-001**

Report Date: February 18, 2015

Client Sample ID: B2YWK6 Project: CPRC0W15001
 Sample ID: 365758006 Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatile Organics											
<i>8260VOA_GCMS: COMMON + GW 01 "As Received"</i>											
Tetrahydrofuran	U	0.00	1.50	50.0	ug/L	1					
109-99-9											
Toluene	U	0.00	0.300	5.00	ug/L	1					
108-88-3											
Trichloroethylene	U	0.00	0.300	5.00	ug/L	1					
79-01-6											
Vinyl chloride	U	0.00	0.300	10.0	ug/L	1					
75-01-4											
Xylenes (total)	U	0.00	0.300	10.0	ug/L	1					
1330-20-7											
cis-1,2-Dichloroethylene	U	0.00	0.300	5.00	ug/L	1					
156-59-2											
n-Butyl alcohol	U	0.00	83.3	250	ug/L	1					
71-36-3											
trans-1,2-Dichloroethylene	U	0.00	0.300	5.00	ug/L	1					
156-60-5											

The following Analytical Methods were performed

Method	Description	Analyst	Comments
1	SW846 8260C		

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	8260VOA_GCMS: COMMON + GW 01 "As Received"	49.8 ug/L	50.0	99.5	(77%-123%)
Bromofluorobenzene	8260VOA_GCMS: COMMON + GW 01 "As Received"	55.2 ug/L	50.0	110	(80%-120%)
Toluene-d8	8260VOA_GCMS: COMMON + GW 01 "As Received"	47.9 ug/L	50.0	95.8	(80%-120%)

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF W15-001**

Report Date: February 18, 2015

Client Sample ID:	B2YWJ3	Project:	CPRC0W15001
Sample ID:	365758007	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	23-JAN-15 09:01		
Receive Date:	24-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Volatile Organics										
<i>8260VOA_GCMS: COMMON + GW 01 "As Received"</i>										
1,1,1-Trichloroethane 71-55-6	U	0.00	0.300	5.00	ug/L	1	CDS1 01/28/15	1258	1452976	1
1,1,2-Trichloroethane 79-00-5	U	0.00	0.300	5.00	ug/L	1				
1,1-Dichloroethane 75-34-3	U	0.00	0.300	10.0	ug/L	1				
1,1-Dichloroethylene 75-35-4	U	0.00	0.300	10.0	ug/L	1				
1,2-Dichloroethane 107-06-2	U	0.00	0.300	5.00	ug/L	1				
1,4-Dichlorobenzene 106-46-7	U	0.00	0.300	5.00	ug/L	1				
2-Butanone 78-93-3	TU	0.00	3.00	10.0	ug/L	1				
4-Methyl-2-pentanone 108-10-1	U	0.00	3.00	10.0	ug/L	1				
Acetone 67-64-1	TU	2.75	3.00	20.0	ug/L	1				
Benzene 71-43-2	U	0.00	0.300	5.00	ug/L	1				
Carbon disulfide 75-15-0	U	0.00	1.60	10.0	ug/L	1				
Carbon tetrachloride 56-23-5	U	0.00	0.300	5.00	ug/L	1				
Chlorobenzene 108-90-7	U	0.00	0.300	5.00	ug/L	1				
Chloroform 67-66-3	U	0.00	0.300	5.00	ug/L	1				
Ethylbenzene 100-41-4	U	0.00	0.300	5.00	ug/L	1				
Methylene chloride 75-09-2	U	1.04	1.60	5.00	ug/L	1				
Propionitrile 107-12-0	U	0.00	3.00	10.0	ug/L	1				
Tetrachloroethylene 127-18-4	U	0.00	0.300	5.00	ug/L	1				

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF W15-001**

Report Date: February 18, 2015

Client Sample ID: B2YWJ3 Project: CPRC0W15001
 Sample ID: 365758007 Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatile Organics											
<i>8260VOA_GCMS: COMMON + GW 01 "As Received"</i>											
Tetrahydrofuran	U	0.00	1.50	50.0	ug/L	1					
109-99-9											
Toluene	U	0.00	0.300	5.00	ug/L	1					
108-88-3											
Trichloroethylene	U	0.00	0.300	5.00	ug/L	1					
79-01-6											
Vinyl chloride	U	0.00	0.300	10.0	ug/L	1					
75-01-4											
Xylenes (total)	U	0.00	0.300	10.0	ug/L	1					
1330-20-7											
cis-1,2-Dichloroethylene	U	0.00	0.300	5.00	ug/L	1					
156-59-2											
n-Butyl alcohol	U	0.00	83.3	250	ug/L	1					
71-36-3											
trans-1,2-Dichloroethylene	U	0.00	0.300	5.00	ug/L	1					
156-60-5											

The following Analytical Methods were performed

Method	Description	Analyst	Comments
1	SW846 8260C		

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	8260VOA_GCMS: COMMON + GW 01 "As Received"	49.8 ug/L	50.0	99.7	(77%-123%)
Bromofluorobenzene	8260VOA_GCMS: COMMON + GW 01 "As Received"	53.1 ug/L	50.0	106	(80%-120%)
Toluene-d8	8260VOA_GCMS: COMMON + GW 01 "As Received"	47.7 ug/L	50.0	95.3	(80%-120%)

Quality Control Summary

February 20, 2015
GEL LABORATORIES LLC

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

QC Summary

Report Date: February 18, 2015

Page 1 of 13

CH2MHill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 365758

Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS										
Batch	1452976									
QC1203254661	LCS									
1,1,1-Trichloroethane	50.0		49.2	ug/L		98.5	(70%-130%)	CDS1	01/28/15	09:29
1,1,2-Trichloroethane	50.0		48.1	ug/L		96.3	(70%-130%)			
1,1-Dichloroethane	50.0		44.7	ug/L		89.4	(70%-130%)			
1,1-Dichloroethylene	50.0		43.5	ug/L		86.9	(70%-130%)			
1,2-Dichloroethane	50.0		50.0	ug/L		100	(70%-130%)			
1,4-Dichlorobenzene	50.0		45.8	ug/L		91.7	(70%-130%)			
2-Butanone	250		267	ug/L		107	(70%-130%)			
4-Methyl-2-pentanone	250		249	ug/L		99.5	(70%-130%)			
Acetone	250		281	ug/L		112	(70%-130%)			
Benzene	50.0		44.0	ug/L		88	(70%-130%)			
Carbon disulfide	250		220	ug/L		87.8	(70%-130%)			
Carbon tetrachloride	50.0		48.7	ug/L		97.3	(70%-130%)			
Chlorobenzene	50.0		45.3	ug/L		90.5	(70%-130%)			
Chloroform	50.0		47.0	ug/L		94	(70%-130%)			
Ethylbenzene	50.0		46.0	ug/L		92	(70%-130%)			
Methylene chloride	50.0		41.8	ug/L		83.6	(70%-130%)			
Tetrachloroethylene	50.0		43.7	ug/L		87.5	(70%-130%)			
Toluene	50.0		42.5	ug/L		85.1	(70%-130%)			
Trichloroethylene	50.0		45.2	ug/L		90.5	(70%-130%)			
Vinyl chloride	50.0		46.2	ug/L		92.4	(70%-130%)			

February 20, 2015
GEL LABORATORIES LLC

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

QC Summary

Workorder: 365758

Page 2 of 13

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1452976										
Xylenes (total)	150			139	ug/L		92.4	(70%-130%)	CDS1	01/28/15	09:29
cis-1,2-Dichloroethylene	50.0			45.7	ug/L		91.3	(70%-130%)			
n-Butyl alcohol	5000			5300	ug/L		106	(70%-130%)			
trans-1,2-Dichloroethylene	50.0			43.7	ug/L		87.4	(70%-130%)			
**1,2-Dichloroethane-d4	50.0			51.2	ug/L		102	(77%-123%)			
**Bromofluorobenzene	50.0			49.7	ug/L		99.4	(80%-120%)			
**Toluene-d8	50.0			47.6	ug/L		95.1	(80%-120%)			
QC1203254662	LCS										
Propionitrile	250			237	ug/L		94.6	(70%-130%)		01/28/15	09:58
Tetrahydrofuran	250			235	ug/L		93.8	(70%-130%)			
**1,2-Dichloroethane-d4	50.0			51.0	ug/L		102	(77%-123%)			
**Bromofluorobenzene	50.0			52.1	ug/L		104	(80%-120%)			
**Toluene-d8	50.0			46.1	ug/L		92.2	(80%-120%)			
QC1203254660	MB										
1,1,1-Trichloroethane			U	0.300	ug/L					01/28/15	10:28
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-Dichloroethane			U	0.300	ug/L						
1,4-Dichlorobenzene			U	0.300	ug/L						
2-Butanone			U	3.00	ug/L						
4-Methyl-2-pentanone			U	3.00	ug/L						
Acetone			U	3.00	ug/L						

February 20, 2015
GEL LABORATORIES LLC

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

QC Summary

Workorder: 365758

Page 3 of 13

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1452976										
Benzene			U	0.300	ug/L				CDS1	01/28/15	10:28
Carbon disulfide			U	1.60	ug/L						
Carbon tetrachloride			U	0.300	ug/L						
Chlorobenzene			U	0.300	ug/L						
Chloroform			U	0.300	ug/L						
Ethylbenzene			U	0.300	ug/L						
Methylene chloride			U	1.60	ug/L						
Propionitrile			U	3.00	ug/L						
Tetrachloroethylene			U	0.300	ug/L						
Tetrahydrofuran			U	1.50	ug/L						
Toluene			U	0.300	ug/L						
Trichloroethylene			U	0.300	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						
n-Butyl alcohol			U	83.3	ug/L						
trans-1,2-Dichloroethylene			U	0.300	ug/L						
**1,2-Dichloroethane-d4	50.0			51.0	ug/L		102	(77%-123%)			
**Bromofluorobenzene	50.0			52.9	ug/L		106	(80%-120%)			
**Toluene-d8	50.0			46.6	ug/L		93.3	(80%-120%)			
QC1203251578 365749002 PS											
1,1,1-Trichloroethane	50.0	U	0.00	59.1	ug/L		118	(70%-130%)		01/28/15	13:58

February 20, 2015
GEL LABORATORIES LLC

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

QC Summary

Workorder: 365758

Page 4 of 13

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1452976										
1,1,2-Trichloroethane	50.0	U	0.00		51.0	ug/L	102	(70%-130%)	CDS1	01/28/15	13:58
1,1-Dichloroethane	50.0	U	0.00		55.0	ug/L	110	(70%-130%)			
1,1-Dichloroethylene	50.0	U	0.00		56.8	ug/L	114	(70%-130%)			
1,2-Dichloroethane	50.0	U	0.00		53.0	ug/L	106	(70%-130%)			
1,4-Dichlorobenzene	50.0	U	0.00		53.1	ug/L	106	(70%-130%)			
2-Butanone	250	TU	0.00	T	153	ug/L	61.3*	(70%-130%)			
4-Methyl-2-pentanone	250	U	0.00		232	ug/L	92.7	(70%-130%)			
Acetone	250	TU	0.00	T	107	ug/L	42.9*	(70%-130%)			
Benzene	50.0	U	0.00		54.5	ug/L	109	(70%-130%)			
Carbon disulfide	250	U	0.00		291	ug/L	116	(70%-130%)			
Carbon tetrachloride	50.0	U	0.00		60.5	ug/L	121	(70%-130%)			
Chlorobenzene	50.0	U	0.00		54.1	ug/L	108	(70%-130%)			
Chloroform	50.0	U	0.00		54.4	ug/L	109	(70%-130%)			
Ethylbenzene	50.0	U	0.00		57.4	ug/L	115	(70%-130%)			
Methylene chloride	50.0	J	4.18		51.2	ug/L	94	(70%-130%)			
Tetrachloroethylene	50.0	U	0.00		55.0	ug/L	110	(70%-130%)			
Toluene	50.0	U	0.00		52.6	ug/L	105	(70%-130%)			
Trichloroethylene	50.0	U	0.00		56.7	ug/L	113	(70%-130%)			
Vinyl chloride	50.0	U	0.00		49.7	ug/L	99.3	(70%-130%)			
Xylenes (total)	150	U	0.00		168	ug/L	112	(70%-130%)			
cis-1,2-Dichloroethylene	50.0	U	0.00		55.6	ug/L	111	(70%-130%)			

February 20, 2015
GEL LABORATORIES LLC

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

QC Summary

Workorder: 365758

Page 5 of 13

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1452976										
n-Butyl alcohol	5000	U	0.00	5390	ug/L		108	(70%-130%)			
trans-1,2-Dichloroethylene	50.0	U	0.00	55.9	ug/L		112	(70%-130%)	CDS1	01/28/15	13:58
**1,2-Dichloroethane-d4	50.0		51.4	49.4	ug/L		98.7	(77%-123%)			
**Bromofluorobenzene	50.0		53.2	49.0	ug/L		98	(80%-120%)			
**Toluene-d8	50.0		46.5	47.7	ug/L		95.5	(80%-120%)			
QC1203251580 365749002 PS											
Propionitrile	250	U	0.00	244	ug/L		97.6	(70%-130%)		01/28/15	14:59
Tetrahydrofuran	250	U	0.00	238	ug/L		95.3	(70%-130%)			
**1,2-Dichloroethane-d4	50.0		51.4	50.0	ug/L		100	(77%-123%)			
**Bromofluorobenzene	50.0		53.2	54.0	ug/L		108	(80%-120%)			
**Toluene-d8	50.0		46.5	47.4	ug/L		94.8	(80%-120%)			
QC1203251579 365749002 PSD											
1,1,1-Trichloroethane	50.0	U	0.00	59.3	ug/L	0.304	119	(0%-20%)		01/28/15	14:28
1,1,2-Trichloroethane	50.0	U	0.00	51.1	ug/L	0.274	102	(0%-20%)			
1,1-Dichloroethane	50.0	U	0.00	54.3	ug/L	1.28	109	(0%-20%)			
1,1-Dichloroethylene	50.0	U	0.00	56.1	ug/L	1.24	112	(0%-20%)			
1,2-Dichloroethane	50.0	U	0.00	53.1	ug/L	0.207	106	(0%-20%)			
1,4-Dichlorobenzene	50.0	U	0.00	52.1	ug/L	1.75	104	(0%-20%)			
2-Butanone	250	TU	0.00	T 153	ug/L	0.379	61.1*	(0%-20%)			
4-Methyl-2-pentanone	250	U	0.00	238	ug/L	2.44	95	(0%-20%)			
Acetone	250	TU	0.00	T 112	ug/L	4.23	44.8*	(0%-20%)			
Benzene	50.0	U	0.00	53.0	ug/L	2.88	106	(0%-20%)			
Carbon disulfide	250	U	0.00	278	ug/L	4.57	111	(0%-20%)			
Carbon tetrachloride	50.0	U	0.00	59.7	ug/L	1.30	119	(0%-20%)			

February 20, 2015
GEL LABORATORIES LLC

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

QC Summary

Workorder: **365758**

Page 6 of 13

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1452976										
Chlorobenzene	50.0	U	0.00	52.9	ug/L	2.15	106	(0%-20%)	CDS1	01/28/15	14:28
Chloroform	50.0	U	0.00	54.4	ug/L	0.00	109	(0%-20%)			
Ethylbenzene	50.0	U	0.00	55.7	ug/L	3.04	111	(0%-20%)			
Methylene chloride	50.0	J	4.18	50.9	ug/L	0.549	93.4	(0%-20%)			
Tetrachloroethylene	50.0	U	0.00	54.1	ug/L	1.63	108	(0%-20%)			
Toluene	50.0	U	0.00	51.3	ug/L	2.64	103	(0%-20%)			
Trichloroethylene	50.0	U	0.00	55.1	ug/L	2.93	110	(0%-20%)			
Vinyl chloride	50.0	U	0.00	47.3	ug/L	4.97	94.5	(0%-20%)			
Xylenes (total)	150	U	0.00	164	ug/L	2.46	109	(0%-20%)			
cis-1,2-Dichloroethylene	50.0	U	0.00	55.3	ug/L	0.667	111	(0%-20%)			
n-Butyl alcohol	5000	U	0.00	5300	ug/L	1.78	106	(0%-20%)			
trans-1,2-Dichloroethylene	50.0	U	0.00	54.7	ug/L	2.21	109	(0%-20%)			
**1,2-Dichloroethane-d4	50.0		51.4	50.6	ug/L		101	(77%-123%)			
**Bromofluorobenzene	50.0		53.2	50.5	ug/L		101	(80%-120%)			
**Toluene-d8	50.0		46.5	48.2	ug/L		96.4	(80%-120%)			
QC1203251581 365749002 PSD											
Propionitrile	250	U	0.00	247	ug/L	1.22	98.8	(0%-20%)		01/28/15	15:29
Tetrahydrofuran	250	U	0.00	241	ug/L	0.935	96.2	(0%-20%)			
**1,2-Dichloroethane-d4	50.0		51.4	51.3	ug/L		103	(77%-123%)			
**Bromofluorobenzene	50.0		53.2	52.7	ug/L		105	(80%-120%)			
**Toluene-d8	50.0		46.5	46.8	ug/L		93.6	(80%-120%)			
Batch	1454155										

February 20, 2015
GEL LABORATORIES LLC

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

QC Summary

Workorder: 365758

Page 7 of 13

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1454155										
QC1203254812	LCS										
1,1,1-Trichloroethane	50.0			52.4	ug/L		105	(70%-130%)	CDS1	01/30/15	07:03
1,1,2-Trichloroethane	50.0			48.8	ug/L		97.5	(70%-130%)			
1,1-Dichloroethane	50.0			50.2	ug/L		100	(70%-130%)			
1,1-Dichloroethylene	50.0			50.5	ug/L		101	(70%-130%)			
1,2-Dichloroethane	50.0			47.4	ug/L		94.7	(70%-130%)			
1,4-Dichlorobenzene	50.0			48.9	ug/L		97.7	(70%-130%)			
2-Butanone	250			283	ug/L		113	(70%-130%)			
4-Methyl-2-pentanone	250			270	ug/L		108	(70%-130%)			
Acetone	250			290	ug/L		116	(70%-130%)			
Benzene	50.0			49.8	ug/L		99.5	(70%-130%)			
Carbon disulfide	250			263	ug/L		105	(70%-130%)			
Carbon tetrachloride	50.0			52.1	ug/L		104	(70%-130%)			
Chlorobenzene	50.0			49.0	ug/L		98	(70%-130%)			
Chloroform	50.0			48.8	ug/L		97.5	(70%-130%)			
Ethylbenzene	50.0			51.7	ug/L		103	(70%-130%)			
Methylene chloride	50.0			45.1	ug/L		90.2	(70%-130%)			
Tetrachloroethylene	50.0			50.3	ug/L		101	(70%-130%)			
Toluene	50.0			48.8	ug/L		97.7	(70%-130%)			
Trichloroethylene	50.0			49.5	ug/L		98.9	(70%-130%)			
Vinyl chloride	50.0			43.2	ug/L		86.5	(70%-130%)			
Xylenes (total)	150			154	ug/L		103	(70%-130%)			
cis-1,2-Dichloroethylene	50.0			50.6	ug/L		101	(70%-130%)			

February 20, 2015
GEL LABORATORIES LLC

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

QC Summary

Workorder: 365758

Page 8 of 13

Parname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1454155										
n-Butyl alcohol	5000			5420	ug/L		108	(70%-130%)	CDS1	01/30/15	07:03
trans-1,2-Dichloroethylene	50.0			50.2	ug/L		100	(70%-130%)			
**1,2-Dichloroethane-d4	50.0			52.2	ug/L		104	(77%-123%)			
**Bromofluorobenzene	50.0			49.7	ug/L		99.5	(80%-120%)			
**Toluene-d8	50.0			49.2	ug/L		98.4	(80%-120%)			
QC1203254813	LCS										
Propionitrile	250			220	ug/L		87.9	(70%-130%)		01/30/15	08:38
Tetrahydrofuran	250			221	ug/L		88.3	(70%-130%)			
**1,2-Dichloroethane-d4	50.0			49.4	ug/L		98.8	(77%-123%)			
**Bromofluorobenzene	50.0			51.7	ug/L		103	(80%-120%)			
**Toluene-d8	50.0			46.7	ug/L		93.3	(80%-120%)			
QC1203254811	MB										
1,1,1-Trichloroethane			U	0.300	ug/L					01/30/15	10:08
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-Dichloroethane			U	0.300	ug/L						
1,4-Dichlorobenzene			U	0.300	ug/L						
2-Butanone			U	3.00	ug/L						
4-Methyl-2-pentanone			U	3.00	ug/L						
Acetone			U	3.00	ug/L						
Benzene			U	0.300	ug/L						
Carbon disulfide			U	1.60	ug/L						

February 20, 2015
GEL LABORATORIES LLC

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

QC Summary

Workorder: 365758

Page 9 of 13

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1454155										
Carbon tetrachloride			U	0.300	ug/L				CDS1	01/30/15	10:08
Chlorobenzene			U	0.300	ug/L						
Chloroform			U	0.300	ug/L						
Ethylbenzene			U	0.300	ug/L						
Methylene chloride			U	1.60	ug/L						
Propionitrile			U	3.00	ug/L						
Tetrachloroethylene			U	0.300	ug/L						
Tetrahydrofuran			U	1.50	ug/L						
Toluene			U	0.300	ug/L						
Trichloroethylene			U	0.300	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						
n-Butyl alcohol			U	83.3	ug/L						
trans-1,2-Dichloroethylene			U	0.300	ug/L						
**1,2-Dichloroethane-d4	50.0			50.7	ug/L		101	(77%-123%)			
**Bromofluorobenzene	50.0			51.3	ug/L		103	(80%-120%)			
**Toluene-d8	50.0			46.5	ug/L		93.1	(80%-120%)			
QC1203254814 365992007 PS											
1,1,1-Trichloroethane	50.0	U	0.00	55.3	ug/L		111	(70%-130%)		01/30/15	16:42
1,1,2-Trichloroethane	50.0	U	0.00	52.8	ug/L		106	(70%-130%)			
1,1-Dichloroethane	50.0	U	0.00	54.5	ug/L		109	(70%-130%)			

February 20, 2015
GEL LABORATORIES LLC

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

QC Summary

Workorder: 365758

Page 10 of 13

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1454155										
1,1-Dichloroethylene	50.0	U	0.00		54.0	ug/L	108	(70%-130%)	CDS1	01/30/15	16:42
1,2-Dichloroethane	50.0	U	0.00		53.3	ug/L	107	(70%-130%)			
1,4-Dichlorobenzene	50.0	U	0.00		50.9	ug/L	102	(70%-130%)			
2-Butanone	250	TU	0.00		176	ug/L	70.6	(70%-130%)			
4-Methyl-2-pentanone	250	U	0.00		261	ug/L	105	(70%-130%)			
Acetone	250	TU	0.00	T	125	ug/L	50.2*	(70%-130%)			
Benzene	50.0	U	0.00		53.2	ug/L	106	(70%-130%)			
Carbon disulfide	250	U	0.00		284	ug/L	114	(70%-130%)			
Carbon tetrachloride	50.0	U	0.00		55.8	ug/L	112	(70%-130%)			
Chlorobenzene	50.0	U	0.00		52.7	ug/L	105	(70%-130%)			
Chloroform	50.0	U	0.00		53.9	ug/L	108	(70%-130%)			
Ethylbenzene	50.0	U	0.00		54.8	ug/L	110	(70%-130%)			
Methylene chloride	50.0	U	0.00		49.1	ug/L	98.2	(70%-130%)			
Tetrachloroethylene	50.0	U	0.00		51.0	ug/L	102	(70%-130%)			
Toluene	50.0	U	0.00		50.4	ug/L	101	(70%-130%)			
Trichloroethylene	50.0	U	0.00		53.5	ug/L	107	(70%-130%)			
Vinyl chloride	50.0	U	0.00		54.5	ug/L	109	(70%-130%)			
Xylenes (total)	150	U	0.00		164	ug/L	109	(70%-130%)			
cis-1,2-Dichloroethylene	50.0	U	0.00		55.5	ug/L	111	(70%-130%)			
n-Butyl alcohol	5000	U	0.00		6070	ug/L	121	(70%-130%)			
trans-1,2-Dichloroethylene	50.0	U	0.00		54.9	ug/L	110	(70%-130%)			

February 20, 2015
GEL LABORATORIES LLC

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

QC Summary

Workorder: 365758

Page 11 of 13

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1454155										
**1,2-Dichloroethane-d4	50.0	50.5		50.5	ug/L		101	(77%-123%)			
**Bromofluorobenzene	50.0	52.8		49.8	ug/L		99.7	(80%-120%)	CDS1	01/30/15	16:42
**Toluene-d8	50.0	45.8		47.6	ug/L		95.3	(80%-120%)			
QC1203254816 365992007 PS											
Propionitrile	250	U	0.00		236	ug/L		94.5	(70%-130%)		01/30/15 17:42
Tetrahydrofuran	250	U	0.00		230	ug/L		92	(70%-130%)		
**1,2-Dichloroethane-d4	50.0	50.5		50.5	ug/L		101	(77%-123%)			
**Bromofluorobenzene	50.0	52.8		53.9	ug/L		108	(80%-120%)			
**Toluene-d8	50.0	45.8		47.7	ug/L		95.3	(80%-120%)			
QC1203254815 365992007 PSD											
1,1,1-Trichloroethane	50.0	U	0.00		55.6	ug/L	0.631	111	(0%-20%)		01/30/15 17:12
1,1,2-Trichloroethane	50.0	U	0.00		50.8	ug/L	4.00	102	(0%-20%)		
1,1-Dichloroethane	50.0	U	0.00		53.4	ug/L	2.00	107	(0%-20%)		
1,1-Dichloroethylene	50.0	U	0.00		53.7	ug/L	0.427	107	(0%-20%)		
1,2-Dichloroethane	50.0	U	0.00		53.1	ug/L	0.226	106	(0%-20%)		
1,4-Dichlorobenzene	50.0	U	0.00		50.6	ug/L	0.690	101	(0%-20%)		
2-Butanone	250	TU	0.00	T	163	ug/L	7.98	65.1 *	(0%-20%)		
4-Methyl-2-pentanone	250	U	0.00		249	ug/L	5.03	99.5	(0%-20%)		
Acetone	250	TU	0.00	T	120	ug/L	4.78	47.8 *	(0%-20%)		
Benzene	50.0	U	0.00		52.0	ug/L	2.19	104	(0%-20%)		
Carbon disulfide	250	U	0.00		272	ug/L	4.30	109	(0%-20%)		
Carbon tetrachloride	50.0	U	0.00		56.0	ug/L	0.465	112	(0%-20%)		
Chlorobenzene	50.0	U	0.00		51.5	ug/L	2.42	103	(0%-20%)		
Chloroform	50.0	U	0.00		53.4	ug/L	0.802	107	(0%-20%)		

February 20, 2015
GEL LABORATORIES LLC

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

QC Summary

Workorder: 365758

Page 12 of 13

Parname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1454155										
Ethylbenzene	50.0	U	0.00	53.1	ug/L	3.13	106	(0%-20%)	CDS1	01/30/15	17:12
Methylene chloride	50.0	U	0.00	48.4	ug/L	1.37	96.9	(0%-20%)			
Tetrachloroethylene	50.0	U	0.00	49.9	ug/L	2.14	99.9	(0%-20%)			
Toluene	50.0	U	0.00	49.6	ug/L	1.70	99.1	(0%-20%)			
Trichloroethylene	50.0	U	0.00	52.5	ug/L	1.98	105	(0%-20%)			
Vinyl chloride	50.0	U	0.00	54.8	ug/L	0.677	110	(0%-20%)			
Xylenes (total)	150	U	0.00	158	ug/L	3.85	105	(0%-20%)			
cis-1,2-Dichloroethylene	50.0	U	0.00	54.0	ug/L	2.87	108	(0%-20%)			
n-Butyl alcohol	5000	U	0.00	5630	ug/L	7.61	113	(0%-20%)			
trans-1,2-Dichloroethylene	50.0	U	0.00	53.3	ug/L	2.88	107	(0%-20%)			
**1,2-Dichloroethane-d4	50.0		50.5	50.5	ug/L		101	(77%-123%)			
**Bromofluorobenzene	50.0		52.8	50.1	ug/L		100	(80%-120%)			
**Toluene-d8	50.0		45.8	47.7	ug/L		95.4	(80%-120%)			
QC1203254817 365992007 PSD											
Propionitrile	250	U	0.00	244	ug/L	3.41	97.8	(0%-20%)		01/30/15	18:12
Tetrahydrofuran	250	U	0.00	239	ug/L	3.76	95.5	(0%-20%)			
**1,2-Dichloroethane-d4	50.0		50.5	50.8	ug/L		102	(77%-123%)			
**Bromofluorobenzene	50.0		52.8	53.5	ug/L		107	(80%-120%)			
**Toluene-d8	50.0		45.8	47.3	ug/L		94.6	(80%-120%)			

Notes:

The Qualifiers in this report are defined as follows:

- A The TIC is a suspected aldol-condensation product

February 20, 2015
GEL LABORATORIES LLC

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

QC Summary

Workorder: 365758

Page 13 of 13

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

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

DATA EXCEPTION REPORT			
Mo.Day Yr. 30-JAN-15	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: VOA GC/MS	Test / Method: SW846 8260C	Matrix Type: Liquid	Client Code: CPRC
Batch ID: 1452976	Sample Numbers: See Below		
<p>Potentially affected work order(s)(SDG): 365553(GEL365553),365663(GEL365663),365668(GEL365668),365700(GEL365700),365749(GEL365749),365755(GEL365755),365758(GEL365758),365759(GEL365759)</p> <p>Application Issues:</p> <p>Failed Recovery for PS/PSD Failed Recovery for MS/MSD, or PS/PSD</p>			
Specification and Requirements Exception Description:		DER Disposition:	
<p>1. The recoveries for Acetone and 2-Butanone were outside of acceptance limits in the matrix spike and in the matrix spike duplicate performed on sample 365749002. The calculated relative percent differences between the MS and MSD were within acceptance limits for all client requested compounds.</p>		<p>1. Narrate and report data.</p>	

Originator's Name:
Crystal Stacey 30-JAN-15

Data Validator/Group Leader:
Erin Haubert 18-FEB-15

DATA EXCEPTION REPORT

Mo.Day Yr. 05-FEB-15	Division: Federal	Quality Criteria: SOP	Type: Process
Instrument Type: VOA GC/MS	Test / Method: 8260C	Matrix Type: Liquid	Client Code: CPRC001
Batch ID: 1454155	Sample Numbers: See Below		
<p>Potentially affected work order(s)(SDG): 365758(GEL365758),365858(GEL365858),365860(GEL365860),365992(GEL365992),366005(GEL366005)</p> <p>Application Issues: Failed Recovery for MS/MSD, or PS/PSD Failed Recovery for PS/PSD</p>			
Specification and Requirements Exception Description:		DER Disposition:	
<p>1. The recovery for Acetone was outside of acceptance limits in the MS and in the MSD performed on sample 365992007.</p> <p>2. The recovery for 2-Butanone was outside of acceptance limits in the MSD performed on sample 365992007. The recovery was within limits in the MS but near the lower control limit.</p>		<p>1,2. Narrate and report data. The calculated relative percent differences between the MS and MSD were within acceptance limits for all client requested compounds.</p>	

Originator's Name:
Crystal Stacey 05-FEB-15

Data Validator/Group Leader:
Kelle Bellamy 18-FEB-15

Metals Analysis

Case Narrative

February 20, 2015

Metals

Technical Case Narrative

CH2M Hill Plateau Remediation Company (CPRC)

SDG #: GEL365758

Work Order #: 365758

Sample ID	Client ID
365758001	B2YWH9
365758002	B2YWJ0
365758003	B2YWK7
365758004	B2YWK5
365758005	B2YWK8
365758006	B2YWK6
365758007	B2YWJ3
365758008	B2YWJ4
365758009	B303X1
365758010	B2YWL2
1203251026	Method Blank (MB)ICP
1203251027	Laboratory Control Sample (LCS)
1203251030	365758001(B2YWH9L) Serial Dilution (SD)
1203251028	365758001(B2YWH9S) Matrix Spike (MS)
1203251029	365758001(B2YWH9SD) Matrix Spike Duplicate (MSD)

Sample Analysis

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

Method/Analysis Information

Analytical Batch:	1452750
Prep Batch :	1452749
Standard Operating Procedures:	GL-MA-E-013 REV# 23 and GL-MA-E-006 REV# 11
Analytical Method:	SW846 3005A/6010C
Prep Method :	SW846 3005A

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with an ESI SC-FAST introduction, cyclonic spray chamber, and yttrium or scandium internal standard.

Calibration Information

Instrument Calibration

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

CRDL/PQL Requirements

The CRDL/PQL standard recoveries met the referenced advisory control limits.

ICSA/ICSAB Statement

All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blanks (CCB) Requirements

All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements

All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement

The method blanks (MB) analyzed with this SDG met the acceptance criteria. The zinc concentration in blank 1203251026 (MB) was greater than the MDL. In instances where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement

The following sample was selected as the quality control (QC) sample for this SDG: 365758001 (B2YWH9).

Matrix Spike (MS/MSD) Recovery Statement

The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes.

MS/MSD Relative Percent Difference (RPD) Statement

The relative percent difference (RPD) obtained from the designated matrix spike duplicate (MSD) is evaluated based on acceptance criteria of 20%. The RPD values between qualifying analyte results in the MS and MSD were within the acceptance limits.

Serial Dilution % Difference Statement

All applicable analytes in the serial dilution (SDILT) demonstrated acceptable correlation to its associated sample and met the established acceptance percent difference criteria.

Technical Information

Holding Time Specifications

GEL assigns holding times based on the associated methodology. Holding time is measured by comparison of the date and time of sample collection to the date and time of sample preparation and analysis. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP.

Sample Dilutions

The samples in this SDG did not require dilutions.

Preparation Information

The samples in this SDG were not diluted and prepared according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation

A data exception report was not required for this SDG.

Additional Comments

Additional comments were not required for this SDG.

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.

February 20, 2015

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: GEL365758 GEL Work Order: 365758

The Qualifiers in this report are defined as follows:

* Duplicate analysis not within control limits

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).

D Results are reported from a diluted aliquot of sample.

N Spike 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.

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: Patricia Steele

Date: 19 FEB 2015

Title: Data Validator

Sample Data Summary

~~February 20, 2015~~
GEL LABORATORIES LLC

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

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF W15-001**

Report Date: February 19, 2015

Client Sample ID:	B2YWH9	Project:	CPRC0W15001
Sample ID:	365758001	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	23-JAN-15 08:29		
Receive Date:	24-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP												
<i>6010_METALS_ICP: COMMON "As Received"</i>												
Arsenic	U	3.00	+/-1.77	5.00	30.0	ug/L	1	HSC	02/09/15	1751	1452750	1
7440-38-2												
Barium		52.7	+/-10.5	1.00	5.00	ug/L	1					
7440-39-3												
Cadmium	U	0.179	+/-0.335	1.00	5.00	ug/L	1					
7440-43-9												
Calcium		38400	+/-7670	50.0	200	ug/L	1					
7440-70-2												
Chromium	B	2.35	+/-0.576	1.00	5.00	ug/L	1					
7440-47-3												
Cobalt	U	-0.0105	+/-0.333	1.00	5.00	ug/L	1					
7440-48-4												
Copper	U	0.273	+/-1.00	3.00	10.0	ug/L	1					
7440-50-8												
Iron	U	7.62	+/-10.1	30.0	100	ug/L	1					
7439-89-6												
Magnesium		10000	+/-2000	110	300	ug/L	1					
7439-95-4												
Manganese	U	0.205	+/-0.668	2.00	10.0	ug/L	1					
7439-96-5												
Nickel	B	2.23	+/-0.670	1.50	5.00	ug/L	1					
7440-02-0												
Potassium		5200	+/-1040	50.0	150	ug/L	1					
7440-09-7												
Silver	U	-0.0878	+/-0.334	1.00	5.00	ug/L	1					
7440-22-4												
Vanadium		11.2	+/-2.27	1.00	5.00	ug/L	1					
7440-62-2												
Zinc	U	0.369	+/-1.10	3.30	10.0	ug/L	1					
7440-66-6												
Antimony	U	0.961	+/-1.18	3.50	10.0	ug/L	1	HSC	02/16/15	1611	1452750	2
7440-36-0												
Sodium		19700	+/-3950	100	300	ug/L	1					
7440-23-5												

~~February 20, 2015~~
GEL LABORATORIES LLC

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

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF W15-001**

Report Date: February 19, 2015

Client Sample ID:	B2YWJ0	Project:	CPRC0W15001
Sample ID:	365758002	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	23-JAN-15 08:29		
Receive Date:	24-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP												
<i>6010_METALS_ICP: COMMON "As Received"</i>												
Arsenic	U	3.71	+/-1.82	5.00	30.0	ug/L	1	HSC	02/09/15	1841	1452750	1
7440-38-2												
Barium		52.4	+/-10.5	1.00	5.00	ug/L	1					
7440-39-3												
Cadmium	U	0.0701	+/-0.334	1.00	5.00	ug/L	1					
7440-43-9												
Calcium		37200	+/-7430	50.0	200	ug/L	1					
7440-70-2												
Chromium	B	1.91	+/-0.507	1.00	5.00	ug/L	1					
7440-47-3												
Cobalt	U	0.299	+/-0.339	1.00	5.00	ug/L	1					
7440-48-4												
Copper	U	-0.221	+/-1.00	3.00	10.0	ug/L	1					
7440-50-8												
Iron	U	4.19	+/-10.0	30.0	100	ug/L	1					
7439-89-6												
Magnesium		9670	+/-1930	110	300	ug/L	1					
7439-95-4												
Manganese	U	0.578	+/-0.677	2.00	10.0	ug/L	1					
7439-96-5												
Nickel	B	1.71	+/-0.606	1.50	5.00	ug/L	1					
7440-02-0												
Potassium		5000	+/-1000	50.0	150	ug/L	1					
7440-09-7												
Silver	U	0.520	+/-0.349	1.00	5.00	ug/L	1					
7440-22-4												
Vanadium		10.9	+/-2.20	1.00	5.00	ug/L	1					
7440-62-2												
Zinc	U	-0.337	+/-1.10	3.30	10.0	ug/L	1					
7440-66-6												
Antimony	U	3.49	+/-1.36	3.50	10.0	ug/L	1	HSC	02/16/15	1701	1452750	2
7440-36-0												
Sodium		19900	+/-3980	100	300	ug/L	1					
7440-23-5												

~~February 20, 2015~~
GEL LABORATORIES LLC

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

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF W15-001**

Report Date: February 19, 2015

Client Sample ID:	B2YWK7	Project:	CPRC0W15001
Sample ID:	365758003	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	23-JAN-15 10:41		
Receive Date:	24-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<i>6010_METALS_ICP: COMMON "As Received"</i>												
Arsenic	U	-0.0401	+/-1.67	5.00	30.0	ug/L	1	HSC	02/09/15	1851	1452750	1
7440-38-2		62.2	+/-12.4	1.00	5.00	ug/L	1					
Barium												
7440-39-3												
Cadmium	U	0.270	+/-0.338	1.00	5.00	ug/L	1					
7440-43-9												
Calcium		54500	+/-10900	50.0	200	ug/L	1					
7440-70-2												
Chromium	B	3.16	+/-0.715	1.00	5.00	ug/L	1					
7440-47-3												
Cobalt	U	0.0405	+/-0.333	1.00	5.00	ug/L	1					
7440-48-4												
Copper	U	-0.362	+/-1.00	3.00	10.0	ug/L	1					
7440-50-8												
Iron	U	8.95	+/-10.2	30.0	100	ug/L	1					
7439-89-6												
Magnesium		13100	+/-2620	110	300	ug/L	1					
7439-95-4												
Manganese	U	0.281	+/-0.669	2.00	10.0	ug/L	1					
7439-96-5												
Nickel	U	1.34	+/-0.568	1.50	5.00	ug/L	1					
7440-02-0												
Potassium		5510	+/-1100	50.0	150	ug/L	1					
7440-09-7												
Silver	U	0.658	+/-0.358	1.00	5.00	ug/L	1					
7440-22-4												
Vanadium		10.1	+/-2.04	1.00	5.00	ug/L	1					
7440-62-2												
Zinc	U	1.59	+/-1.14	3.30	10.0	ug/L	1					
7440-66-6												
Antimony	U	0.251	+/-1.17	3.50	10.0	ug/L	1	HSC	02/16/15	1710	1452750	2
7440-36-0												
Sodium		27500	+/-5490	100	300	ug/L	1					
7440-23-5												

~~February 20, 2015~~
GEL LABORATORIES LLC

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

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF W15-001**

Report Date: February 19, 2015

Client Sample ID:	B2YWK5	Project:	CPRC0W15001
Sample ID:	365758004	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	23-JAN-15 10:41		
Receive Date:	24-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<i>6010_METALS_ICP: COMMON "As Received"</i>												
Arsenic	U	0.0878	+/-1.67	5.00	30.0	ug/L	1	HSC	02/09/15	1854	1452750	1
7440-38-2		64.0	+/-12.8	1.00	5.00	ug/L	1					
Barium												
7440-39-3												
Cadmium	U	0.0572	+/-0.334	1.00	5.00	ug/L	1					
7440-43-9												
Calcium		55200	+/-11000	50.0	200	ug/L	1					
7440-70-2												
Chromium	B	4.51	+/-0.961	1.00	5.00	ug/L	1					
7440-47-3												
Cobalt	U	0.071	+/-0.334	1.00	5.00	ug/L	1					
7440-48-4												
Copper	U	-0.387	+/-1.00	3.00	10.0	ug/L	1					
7440-50-8												
Iron	U	16.0	+/-10.5	30.0	100	ug/L	1					
7439-89-6												
Magnesium		13600	+/-2710	110	300	ug/L	1					
7439-95-4												
Manganese	U	0.276	+/-0.669	2.00	10.0	ug/L	1					
7439-96-5												
Nickel	U	1.39	+/-0.572	1.50	5.00	ug/L	1					
7440-02-0												
Potassium		5570	+/-1120	50.0	150	ug/L	1					
7440-09-7												
Silver	U	0.0788	+/-0.334	1.00	5.00	ug/L	1					
7440-22-4												
Vanadium		10.2	+/-2.07	1.00	5.00	ug/L	1					
7440-62-2												
Zinc	U	2.00	+/-1.17	3.30	10.0	ug/L	1					
7440-66-6												
Antimony	U	2.00	+/-1.23	3.50	10.0	ug/L	1	HSC	02/16/15	1713	1452750	2
7440-36-0												
Sodium		27600	+/-5530	100	300	ug/L	1					
7440-23-5												

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF W15-001**

Report Date: February 19, 2015

Client Sample ID:	B2YWK8	Project:	CPRC0W15001
Sample ID:	365758005	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	23-JAN-15 10:41		
Receive Date:	24-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<i>6010_METALS_ICP: COMMON "As Received"</i>												
Arsenic	U	1.19	+/-1.68	5.00	30.0	ug/L	1	HSC	02/09/15	1857	1452750	1
7440-38-2												
Barium		61.5	+/-12.3	1.00	5.00	ug/L	1					
7440-39-3												
Cadmium	U	0.104	+/-0.334	1.00	5.00	ug/L	1					
7440-43-9												
Calcium		53200	+/-10600	50.0	200	ug/L	1					
7440-70-2												
Chromium	B	3.38	+/-0.754	1.00	5.00	ug/L	1					
7440-47-3												
Cobalt	U	0.411	+/-0.343	1.00	5.00	ug/L	1					
7440-48-4												
Copper	U	-0.332	+/-1.00	3.00	10.0	ug/L	1					
7440-50-8												
Iron	U	10.5	+/-10.2	30.0	100	ug/L	1					
7439-89-6												
Magnesium		13100	+/-2610	110	300	ug/L	1					
7439-95-4												
Manganese	U	0.668	+/-0.680	2.00	10.0	ug/L	1					
7439-96-5												
Nickel	U	1.43	+/-0.576	1.50	5.00	ug/L	1					
7440-02-0												
Potassium		5350	+/-1070	50.0	150	ug/L	1					
7440-09-7												
Silver	U	0.283	+/-0.338	1.00	5.00	ug/L	1					
7440-22-4												
Vanadium		10.0	+/-2.03	1.00	5.00	ug/L	1					
7440-62-2												
Zinc	U	2.01	+/-1.17	3.30	10.0	ug/L	1					
7440-66-6												
Antimony	U	0.745	+/-1.18	3.50	10.0	ug/L	1	HSC	02/16/15	1716	1452750	2
7440-36-0												
Sodium		26700	+/-5340	100	300	ug/L	1					
7440-23-5												

~~February 20, 2015~~
GEL LABORATORIES LLC

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

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF W15-001**

Report Date: February 19, 2015

Client Sample ID:	B2YWK6	Project:	CPRC0W15001
Sample ID:	365758006	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	23-JAN-15 10:41		
Receive Date:	24-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<i>6010_METALS_ICP: COMMON "As Received"</i>												
Arsenic	U	0.436	+/-1.67	5.00	30.0	ug/L	1	HSC	02/09/15	1900	1452750	1
7440-38-2		61.8	+/-12.4	1.00	5.00	ug/L	1					
Barium		61.8	+/-12.4	1.00	5.00	ug/L	1					
7440-39-3												
Cadmium	U	0.0691	+/-0.334	1.00	5.00	ug/L	1					
7440-43-9												
Calcium		53600	+/-10700	50.0	200	ug/L	1					
7440-70-2												
Chromium		5.22	+/-1.10	1.00	5.00	ug/L	1					
7440-47-3												
Cobalt	U	0.0739	+/-0.334	1.00	5.00	ug/L	1					
7440-48-4												
Copper	U	-0.612	+/-1.01	3.00	10.0	ug/L	1					
7440-50-8												
Iron	U	23.5	+/-11.0	30.0	100	ug/L	1					
7439-89-6												
Magnesium		13200	+/-2640	110	300	ug/L	1					
7439-95-4												
Manganese	U	0.323	+/-0.670	2.00	10.0	ug/L	1					
7439-96-5												
Nickel	U	1.32	+/-0.565	1.50	5.00	ug/L	1					
7440-02-0												
Potassium		5430	+/-1090	50.0	150	ug/L	1					
7440-09-7												
Silver	U	0.363	+/-0.341	1.00	5.00	ug/L	1					
7440-22-4												
Vanadium		9.95	+/-2.02	1.00	5.00	ug/L	1					
7440-62-2												
Zinc	U	1.26	+/-1.13	3.30	10.0	ug/L	1					
7440-66-6												
Antimony	U	0.756	+/-1.18	3.50	10.0	ug/L	1	HSC	02/16/15	1719	1452750	2
7440-36-0												
Sodium		27300	+/-5460	100	300	ug/L	1					
7440-23-5												

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF W15-001**

Report Date: February 19, 2015

Client Sample ID:	B2YWJ3	Project:	CPRC0W15001
Sample ID:	365758007	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	23-JAN-15 09:01		
Receive Date:	24-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP												
<i>6010_METALS_ICP: COMMON "As Received"</i>												
Arsenic	U	-3.28	+/-1.79	5.00	30.0	ug/L	1	HSC	02/09/15	1903	1452750	1
7440-38-2												
Barium		40.3	+/-8.06	1.00	5.00	ug/L	1					
7440-39-3												
Cadmium	U	0.160	+/-0.335	1.00	5.00	ug/L	1					
7440-43-9												
Calcium		14500	+/-2910	50.0	200	ug/L	1					
7440-70-2												
Chromium	B	3.76	+/-0.822	1.00	5.00	ug/L	1					
7440-47-3												
Cobalt	U	0.0032	+/-0.333	1.00	5.00	ug/L	1					
7440-48-4												
Copper	U	-0.199	+/-1.00	3.00	10.0	ug/L	1					
7440-50-8												
Iron		730	+/-146	30.0	100	ug/L	1					
7439-89-6												
Magnesium		6370	+/-1270	110	300	ug/L	1					
7439-95-4												
Manganese		79.9	+/-16.0	2.00	10.0	ug/L	1					
7439-96-5												
Nickel	B	2.27	+/-0.675	1.50	5.00	ug/L	1					
7440-02-0												
Potassium		5900	+/-1180	50.0	150	ug/L	1					
7440-09-7												
Silver	U	-0.0866	+/-0.334	1.00	5.00	ug/L	1					
7440-22-4												
Vanadium	U	0.392	+/-0.342	1.00	5.00	ug/L	1					
7440-62-2												
Zinc	U	0.986	+/-1.12	3.30	10.0	ug/L	1					
7440-66-6												
Antimony	U	1.49	+/-1.20	3.50	10.0	ug/L	1	HSC	02/16/15	1722	1452750	2
7440-36-0												
Sodium		49400	+/-9890	100	300	ug/L	1					
7440-23-5												

~~February 20, 2015~~
GEL LABORATORIES LLC

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

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF W15-001**

Report Date: February 19, 2015

Client Sample ID:	B2YWJ4	Project:	CPRC0W15001
Sample ID:	365758008	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	23-JAN-15 09:01		
Receive Date:	24-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP												
<i>6010_METALS_ICP: COMMON "As Received"</i>												
Arsenic	U	-1.19	+/-1.68	5.00	30.0	ug/L	1	HSC	02/09/15	1906	1452750	1
7440-38-2		40.0	+/-8.00	1.00	5.00	ug/L	1					
Barium		40.0	+/-8.00	1.00	5.00	ug/L	1					
7440-39-3												
Cadmium	U	0.142	+/-0.335	1.00	5.00	ug/L	1					
7440-43-9												
Calcium		14700	+/-2940	50.0	200	ug/L	1					
7440-70-2												
Chromium	U	0.391	+/-0.342	1.00	5.00	ug/L	1					
7440-47-3												
Cobalt	U	0.466	+/-0.346	1.00	5.00	ug/L	1					
7440-48-4												
Copper	U	-0.431	+/-1.00	3.00	10.0	ug/L	1					
7440-50-8												
Iron		698	+/-140	30.0	100	ug/L	1					
7439-89-6												
Magnesium		6400	+/-1280	110	300	ug/L	1					
7439-95-4												
Manganese		79.1	+/-15.8	2.00	10.0	ug/L	1					
7439-96-5												
Nickel	B	1.56	+/-0.589	1.50	5.00	ug/L	1					
7440-02-0												
Potassium		5940	+/-1190	50.0	150	ug/L	1					
7440-09-7												
Silver	U	-0.355	+/-0.341	1.00	5.00	ug/L	1					
7440-22-4												
Vanadium	U	0.446	+/-0.345	1.00	5.00	ug/L	1					
7440-62-2												
Zinc	U	0.483	+/-1.10	3.30	10.0	ug/L	1					
7440-66-6												
Antimony	U	0.382	+/-1.17	3.50	10.0	ug/L	1	HSC	02/16/15	1726	1452750	2
7440-36-0												
Sodium		49300	+/-9860	100	300	ug/L	1					
7440-23-5												

~~February 20, 2015~~
GEL LABORATORIES LLC

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

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF W15-001**

Report Date: February 19, 2015

Client Sample ID:	B303X1	Project:	CPRC0W15001
Sample ID:	365758009	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	23-JAN-15 09:56		
Receive Date:	24-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP												
<i>6010_METALS_ICP: COMMON "As Received"</i>												
Arsenic 7440-38-2	U	-1.66	+/-1.70	5.00	30.0	ug/L	1	HSC	02/09/15	1909	1452750	1
Barium 7440-39-3		60.8	+/-12.2	1.00	5.00	ug/L	1					
Cadmium 7440-43-9	U	0.036	+/-0.333	1.00	5.00	ug/L	1					
Calcium 7440-70-2		17400	+/-3470	50.0	200	ug/L	1					
Chromium 7440-47-3	U	0.740	+/-0.365	1.00	5.00	ug/L	1					
Cobalt 7440-48-4	U	-0.344	+/-0.340	1.00	5.00	ug/L	1					
Copper 7440-50-8	U	-0.175	+/-1.00	3.00	10.0	ug/L	1					
Iron 7439-89-6		457	+/-92.0	30.0	100	ug/L	1					
Magnesium 7439-95-4		6570	+/-1310	110	300	ug/L	1					
Manganese 7439-96-5		74.6	+/-14.9	2.00	10.0	ug/L	1					
Nickel 7440-02-0	U	0.755	+/-0.522	1.50	5.00	ug/L	1					
Potassium 7440-09-7		6380	+/-1280	50.0	150	ug/L	1					
Silver 7440-22-4	U	-0.629	+/-0.356	1.00	5.00	ug/L	1					
Vanadium 7440-62-2	U	0.240	+/-0.337	1.00	5.00	ug/L	1					
Zinc 7440-66-6	U	1.00	+/-1.12	3.30	10.0	ug/L	1					
Antimony 7440-36-0	U	1.49	+/-1.20	3.50	10.0	ug/L	1	HSC	02/16/15	1729	1452750	2
Sodium 7440-23-5		57800	+/-11600	100	300	ug/L	1					

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF W15-001**

Report Date: February 19, 2015

Client Sample ID:	B2YWL2	Project:	CPRC0W15001
Sample ID:	365758010	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	23-JAN-15 09:56		
Receive Date:	24-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<i>6010_METALS_ICP: COMMON "As Received"</i>												
Arsenic	U	-2.58	+/-1.74	5.00	30.0	ug/L	1	HSC	02/09/15	1912	1452750	1
7440-38-2		59.9	+/-12.0	1.00	5.00	ug/L	1					
Barium												
7440-39-3												
Cadmium	U	-0.0121	+/-0.333	1.00	5.00	ug/L	1					
7440-43-9												
Calcium		17200	+/-3450	50.0	200	ug/L	1					
7440-70-2												
Chromium	U	0.167	+/-0.335	1.00	5.00	ug/L	1					
7440-47-3												
Cobalt	U	0.731	+/-0.364	1.00	5.00	ug/L	1					
7440-48-4												
Copper	U	-0.316	+/-1.00	3.00	10.0	ug/L	1					
7440-50-8												
Iron		434	+/-87.5	30.0	100	ug/L	1					
7439-89-6												
Magnesium		6550	+/-1310	110	300	ug/L	1					
7439-95-4												
Manganese		73.9	+/-14.8	2.00	10.0	ug/L	1					
7439-96-5												
Nickel	U	0.915	+/-0.532	1.50	5.00	ug/L	1					
7440-02-0												
Potassium		6330	+/-1270	50.0	150	ug/L	1					
7440-09-7												
Silver	U	-0.176	+/-0.335	1.00	5.00	ug/L	1					
7440-22-4												
Vanadium	U	0.383	+/-0.342	1.00	5.00	ug/L	1					
7440-62-2												
Zinc	U	1.29	+/-1.13	3.30	10.0	ug/L	1					
7440-66-6												
Antimony	U	1.12	+/-1.19	3.50	10.0	ug/L	1	HSC	02/16/15	1732	1452750	2
7440-36-0												
Sodium		57700	+/-11500	100	300	ug/L	1					
7440-23-5												

Quality Control Summary

February 20, 2015
GEL LABORATORIES LLC

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

QC Summary

Report Date: February 19, 2015

Page 1 of 5

CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 365758

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1452750										
QC1203251027	LCS										
Antimony	500			517	ug/L		103	(80%-120%)	HSC	02/16/15	16:08
Arsenic	500			548	ug/L		110	(80%-120%)		02/09/15	17:48
Barium	500			543	ug/L		109	(80%-120%)			
Cadmium	500			544	ug/L		109	(80%-120%)			
Calcium	5000			5500	ug/L		110	(80%-120%)			
Chromium	500			552	ug/L		110	(80%-120%)			
Cobalt	500			564	ug/L		113	(80%-120%)			
Copper	500			543	ug/L		109	(80%-120%)			
Iron	5000			5390	ug/L		108	(80%-120%)			
Magnesium	5000			5560	ug/L		111	(80%-120%)			
Manganese	500			544	ug/L		109	(80%-120%)			
Nickel	500			547	ug/L		109	(80%-120%)			
Potassium	5000			5470	ug/L		109	(80%-120%)			
Silver	500			529	ug/L		106	(80%-120%)			
Sodium	5000			5510	ug/L		110	(80%-120%)		02/16/15	16:08
Vanadium	500			562	ug/L		112	(80%-120%)		02/09/15	17:48
Zinc	500			535	ug/L		107	(80%-120%)			
QC1203251026	MB										
Antimony			U	ND	ug/L					02/16/15	16:05
Arsenic			U	ND	ug/L					02/09/15	17:45

February 20, 2015
GEL LABORATORIES LLC

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

QC Summary

Workorder: 365758

Page 2 of 5

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1452750										
Barium			U	ND	ug/L						
Cadmium			U	ND	ug/L				HSC	02/09/15	17:45
Calcium			U	ND	ug/L						
Chromium			U	ND	ug/L						
Cobalt			U	ND	ug/L						
Copper			U	ND	ug/L						
Iron			U	ND	ug/L						
Magnesium			U	ND	ug/L						
Manganese			U	ND	ug/L						
Nickel			U	ND	ug/L						
Potassium			U	ND	ug/L						
Silver			U	ND	ug/L						
Sodium			U	ND	ug/L					02/16/15	16:05
Vanadium			U	ND	ug/L					02/09/15	17:45
Zinc			B	3.97	ug/L						
QC1203251028 365758001 MS											
Antimony	500	U	ND	526	ug/L		105	(75%-125%)		02/16/15	16:14
Arsenic	500	U	ND	553	ug/L		110	(75%-125%)		02/09/15	17:54
Barium	500		52.7	586	ug/L		107	(75%-125%)			
Cadmium	500	U	ND	533	ug/L		107	(75%-125%)			
Calcium	5000		38400	44800	ug/L		N/A	(75%-125%)			
Chromium	500	B	2.35	542	ug/L		108	(75%-125%)			
Cobalt	500	U	ND	548	ug/L		110	(75%-125%)			

February 20, 2015
GEL LABORATORIES LLC

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

QC Summary

Workorder: 365758

Page 3 of 5

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1452750										
Copper	500	U	ND	537	ug/L		107	(75%-125%)	HSC	02/09/15	17:54
Iron	5000	U	ND	5460	ug/L		109	(75%-125%)			
Magnesium	5000		10000	16000	ug/L		120	(75%-125%)			
Manganese	500	U	ND	527	ug/L		105	(75%-125%)			
Nickel	500	B	2.23	526	ug/L		105	(75%-125%)			
Potassium	5000		5200	10900	ug/L		115	(75%-125%)			
Silver	500	U	ND	522	ug/L		104	(75%-125%)			
Sodium	5000		19700	24600	ug/L		97.1	(75%-125%)		02/16/15	16:14
Vanadium	500		11.2	566	ug/L		111	(75%-125%)		02/09/15	17:54
Zinc	500	U	ND	523	ug/L		105	(75%-125%)			
QC1203251029 365758001 MSD											
Antimony	500	U	ND	530	ug/L	0.657	106	(0%-20%)		02/16/15	16:17
Arsenic	500	U	ND	551	ug/L	0.333	110	(0%-20%)		02/09/15	17:58
Barium	500		52.7	582	ug/L	0.634	106	(0%-20%)			
Cadmium	500	U	ND	531	ug/L	0.487	106	(0%-20%)			
Calcium	5000		38400	44700	ug/L	0.076	N/A	(0%-20%)			
Chromium	500	B	2.35	541	ug/L	0.214	108	(0%-20%)			
Cobalt	500	U	ND	544	ug/L	0.663	109	(0%-20%)			
Copper	500	U	ND	536	ug/L	0.272	107	(0%-20%)			
Iron	5000	U	ND	5450	ug/L	0.238	109	(0%-20%)			
Magnesium	5000		10000	16000	ug/L	0.0437	120	(0%-20%)			
Manganese	500	U	ND	525	ug/L	0.468	105	(0%-20%)			

February 20, 2015
GEL LABORATORIES LLC

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

QC Summary

Workorder: 365758

Page 4 of 5

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1452750										
Nickel	500	B	2.23	527	ug/L	0.0855	105	(0%-20%)	HSC	02/09/15	17:58
Potassium	5000		5200	10900	ug/L	0.146	114	(0%-20%)			
Silver	500	U	ND	520	ug/L	0.299	104	(0%-20%)			
Sodium	5000		19700	25100	ug/L	2.22	108	(0%-20%)		02/16/15	16:17
Vanadium	500		11.2	565	ug/L	0.218	111	(0%-20%)		02/09/15	17:58
Zinc	500	U	ND	521	ug/L	0.394	104	(0%-20%)			
QC1203251030 365758001 SDILT											
Antimony		U	ND DU	ND	ug/L	N/A		(0%-10%)		02/16/15	16:20
Arsenic		U	ND DU	ND	ug/L	N/A		(0%-10%)		02/09/15	18:01
Barium			52.7 D	10.1	ug/L	4.23		(0%-10%)			
Cadmium		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Calcium			38400 D	7480	ug/L	2.57		(0%-10%)			
Chromium		B	2.35 DU	ND	ug/L	N/A		(0%-10%)			
Cobalt		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Copper		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Iron		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Magnesium			10000 D	1990	ug/L	.923		(0%-10%)			
Manganese		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Nickel		B	2.23 DU	ND	ug/L	N/A		(0%-10%)			
Potassium			5200 D	966	ug/L	7.01		(0%-10%)			
Silver		U	ND DU	ND	ug/L	N/A		(0%-10%)			
Sodium			19700 D	3910	ug/L	.95		(0%-10%)		02/16/15	16:20

February 20, 2015
GEL LABORATORIES LLC

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

QC Summary

Workorder: 365758

Page 5 of 5

Parname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1452750										
Vanadium		11.2	D	2.50	ug/L	11.2		(0%-10%)	HSC	02/09/15	18:01
Zinc	U	ND	DU	ND	ug/L	N/A		(0%-10%)			

Notes:

The Qualifiers in this report are defined as follows:

- * Duplicate analysis not within control limits
- + Correlation coefficient for Method of Standard Additions (MSA) is < 0.995
- 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).
- 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.
- D Results are reported from a diluted aliquot of sample.
- E Reported value is estimated due to interferences. See comment in narrative.
- M Duplicate precision not met.
- N Spike Sample recovery is outside control limits.
- S Reported value determined by the Method of Standard Additions (MSA)
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- W Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.
- 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

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.

Radiological Analysis

February 20, 2015
Radiochemistry
Technical Case Narrative
CH2M Hill Plateau Remediation Company (CPRC)
SDG #: GEL365758
Work Order #: 365758

Method/Analysis Information

Product: KPA_UTOT: COMMON
Analytical Method: ASTM D 5174
Analytical Batch Number: 1452782

Sample ID	Client ID
365758001	B2YWH9
365758004	B2YWK5
365758006	B2YWK6
1203251107	MB for batch 1452782
1203251110	Laboratory Control Sample (LCS)
1203251111	Laboratory Control Sample (LCS)
1203251108	365758001(B2YWH9) Sample Duplicate (DUP)
1203251109	365758001(B2YWH9) Matrix Spike (MS)

The samples in this SDG were 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-023 REV# 19.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met. The calibration for Total Uranium is performed prior to each analysis and is located with the raw data.

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.

Designated QC

None of the samples were designated for QC analysis.

Technical Information:

Holding Time

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

Sample Re-prep/Re-analysis

Samples 365758001 (B2YWH9) and 365758004 (B2YWK5) were diluted 1:10, treated with a post-spike due to contractual requirements and reanalyzed to test for quenching. The post-spike verified the diluted results, so the diluted results are reported. Sample 365758006 (B2YWK6) was reanalyze due to initial analysis yielding zeroes for the results. The reanalyzed result verified the initial analysis. Sample was treated with a post-spike due to contractual requirements and reanalyzed to test for quenching. The post-spike verified the initial result, so the initial result is reported.

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

MB 1203251107 (MB) failed R2 and/or lifetime. This was due to insufficient uranium in the sample for measurement. The results are reported.

Qualifier Information

Qualifier	Reason	Analyte	Sample	Client Sample
D	Results are reported from a diluted aliquot of sample.	Total Uranium	365758001 365758004	B2YWH9 B2YWK5

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.

February 20, 2015

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: GEL365758 GEL Work Order: 365758

The Qualifiers in this report are defined as follows:

D Results are reported from a diluted aliquot of sample.

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

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:

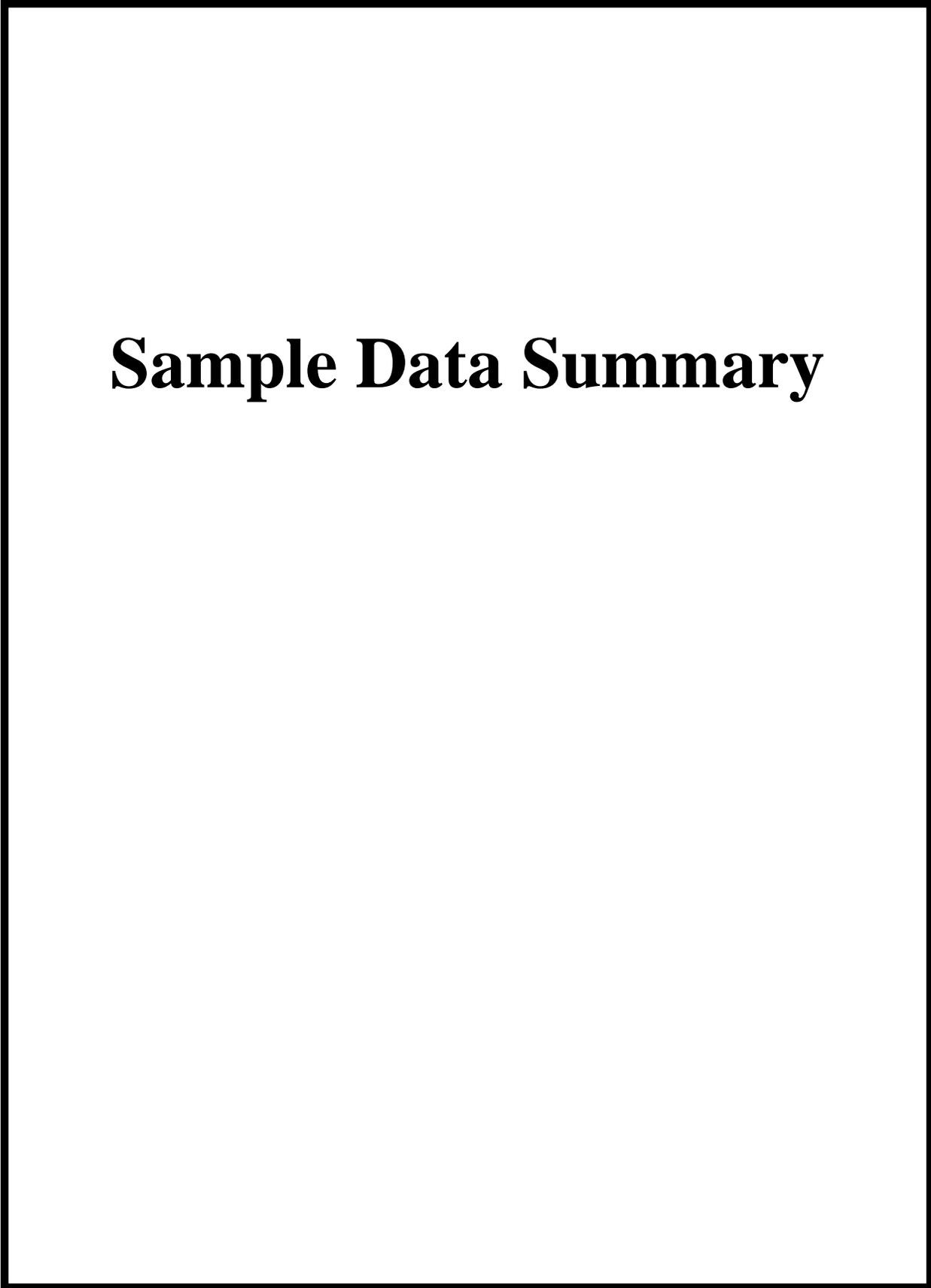
Signature:



Name: Kate Gellatly

Date: 17 FEB 2015

Title: Analyst I



Sample Data Summary

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF W15-001

Report Date: February 17, 2015

Client Sample ID:	B2YWH9	Project:	CPRC0W15001
Sample ID:	365758001	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	23-JAN-15		
Receive Date:	24-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Total Uranium													
<i>KPA_UTOT: COMMON "As Received"</i>													
Total Uranium	D	18.6	+/-0.553	2.45	+/-1.96	1.00	ug/L	10	CXP3	02/13/15	1006	1452782	1
7440-61-1													

The following Analytical Methods were performed

Method	Description
1	ASTM D 5174

Notes:
 TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96 sigma).
 The Qualifiers in this report are defined as follows :

- * Duplicate analysis not within control limits
- + Correlation coefficient for Method of Standard Additions (MSA) is < 0.995
- A The TIC is a suspected aldol-condensation product
- 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).
- 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
- 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.
- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- E Reported value is estimated due to interferences. See comment in narrative.
- 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
- M Duplicate precision not met.
- N Spike Sample recovery is outside control limits.
- P Aroclor target analyte with greater than 25% difference between column analyses.
- S Reported value determined by the Method of Standard Additions (MSA)
- 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
- W Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

February 20, 2015
GEL LABORATORIES LLC

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

Certificate of Analysis

Company : CH2MHill Plateau Remediation
Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF W15-001

Report Date: February 17, 2015

Client Sample ID: B2YWH9 Project: CPRC0W15001
Sample ID: 365758001 Client ID: CPRC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
-----------	-----------	--------	-------------	-----	-----	----	-------	----	---------	------	------------	------

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)
The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : CH2MHill Plateau Remediation Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF W15-001

Report Date: February 17, 2015

Client Sample ID:	B2YWK5	Project:	CPRC0W15001
Sample ID:	365758004	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	23-JAN-15		
Receive Date:	24-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
Rad Total Uranium												
<i>KPA_UTOT: COMMON "As Received"</i>												
Total Uranium 7440-61-1	D	44.7	+/-1.29	2.45	+/-4.72	1.00	ug/L	10	CXP3	02/13/15	1009 1452782	1

The following Analytical Methods were performed

Method	Description
1	ASTM D 5174

Notes:
 TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96 sigma).
 The Qualifiers in this report are defined as follows :

- * Duplicate analysis not within control limits
- + Correlation coefficient for Method of Standard Additions (MSA) is < 0.995
- A The TIC is a suspected aldol-condensation product
- 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).
- 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
- 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.
- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- E Reported value is estimated due to interferences. See comment in narrative.
- 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
- M Duplicate precision not met.
- N Spike Sample recovery is outside control limits.
- P Aroclor target analyte with greater than 25% difference between column analyses.
- S Reported value determined by the Method of Standard Additions (MSA)
- 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
- W Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.
- 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

February 20, 2015
GEL LABORATORIES LLC

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

Certificate of Analysis

Company : CH2MHill Plateau Remediation
Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF W15-001

Report Date: February 17, 2015

Client Sample ID: B2YWK5 Project: CPRC0W15001
Sample ID: 365758004 Client ID: CPRC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
-----------	-----------	--------	-------------	-----	-----	----	-------	----	---------	------	------	-------	------

Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
o Analyte failed to recover within LCS limits (Organics only)
The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : CH2MHill Plateau Remediation Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF W15-001

Report Date: February 17, 2015

Client Sample ID:	B2YWK6	Project:	CPRC0W15001
Sample ID:	365758006	Client ID:	CPRC001
Matrix:	WATER		
Collect Date:	23-JAN-15		
Receive Date:	24-JAN-15		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
Rad Total Uranium												
<i>KPA_UTOT: COMMON "As Received"</i>												
Total Uranium 7440-61-1	U	0.00	+/-0.00	0.245	+/-0.00	1.00	ug/L	1	CXP3	02/13/15	0902 1452782	1

The following Analytical Methods were performed

Method	Description
1	ASTM D 5174

Notes:
 TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96 sigma).
 The Qualifiers in this report are defined as follows :

- * Duplicate analysis not within control limits
- + Correlation coefficient for Method of Standard Additions (MSA) is < 0.995
- A The TIC is a suspected aldol-condensation product
- 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).
- 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
- 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.
- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- E Reported value is estimated due to interferences. See comment in narrative.
- 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
- M Duplicate precision not met.
- N Spike Sample recovery is outside control limits.
- P Aroclor target analyte with greater than 25% difference between column analyses.
- S Reported value determined by the Method of Standard Additions (MSA)
- 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
- W Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.
- 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

February 20, 2015
GEL LABORATORIES LLC

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

Certificate of Analysis

Company : CH2MHill Plateau Remediation
Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF W15-001

Report Date: February 17, 2015

Client Sample ID: B2YWK6 Project: CPRC0W15001
Sample ID: 365758006 Client ID: CPRC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
-----------	-----------	--------	-------------	-----	-----	----	-------	----	---------	------	------	-------	------

Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
o Analyte failed to recover within LCS limits (Organics only)
The above sample is reported on an "as received" basis.

Quality Control Data

QC Summary

Report Date: February 17, 2015
 Page 1 of 2

Client : CH2MHill Plateau Remediation Company
 MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352

Contact: Mr. Scot Fitzgerald

Workorder: 365758

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Total U									
Batch	1452782								
QC1203251107	MB								
Total Uranium			U	-0.0006	ug/L			CXP3	02/13/1509:13
				Uncert: +/-0.00					
				TPU: +/-4.95E-05					
QC1203251108	365758001	DUP							
Total Uranium		D	18.6	19.5	ug/L				02/13/1509:16
			Uncert: +/-0.553	+/-0.559		RPD: 5	(0% - 20%)		
			TPU: +/-1.96	+/-1.70		RER: 0.722	(0-2)		
QC1203251109	365758001	MS							
Total Uranium	50.0	D	18.6	67.4	ug/L	REC: 98	(75%-125%)		02/13/1509:21
			Uncert: +/-0.553	+/-4.40					
			TPU: +/-1.96	+/-7.09					
QC1203251110	LCS								
Total Uranium	50.0			51.6	ug/L	REC: 103	(80%-120%)		02/13/1509:24
				Uncert: +/-3.38					
				TPU: +/-5.44					
QC1203251111	LCS								
Total Uranium	5.00			5.31	ug/L	REC: 106	(80%-120%)		02/13/1509:25
				Uncert: +/-0.153					
				TPU: +/-0.464					

Notes:

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

The Qualifiers in this report are defined as follows:

- * Duplicate analysis not within control limits
- + Correlation coefficient for Method of Standard Additions (MSA) is < 0.995
- A The TIC is a suspected aldol-condensation product
- 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).
- 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
- 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.
- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- E Reported value is estimated due to interferences. See comment in narrative.
- 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
- M Duplicate precision not met.
- N Spike Sample recovery is outside control limits.
- P Aroclor target analyte with greater than 25% difference between column analyses.

QC Summary

Workorder: 365758

Page 2 of 2

Parname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date	Time
S	Reported value determined by the Method of Standard Additions (MSA)									
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									
W	Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.									
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier									
Y	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier									
Z	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier									
o	Analyte failed to recover within LCS limits (Organics only)									

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

** 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.