

July 13, 2016



gel.com

July 13, 2016

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

Re: CHPRC SAF X16-030
Work Order: 399469
SDG: GEL399469

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 16, 2016. 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,

B Luthman
Brielle Luthman for
Heather Shaffer
Project Manager

Purchase Order: 300071 - 7H
Chain of Custody: X16-030-006, X16-030-007, X16-030-008, X16-030-009, X16-030-010, X16-030-011, X16-030-012, X16-030-013, X16-030-014, X16-030-015, X16-030-016, X16-030-017, X16-030-018, X16-030-019, X16-030-020, X16-030-021, X16-030-022, X16-030-023, X16-030-024, X16-030-025, X16-030-026, X16-030-027, X16-030-028, X16-030-029, X16-030-030, X16-030-031, X16-030-032, X16-030-033, X16-030-034, X16-030-035, X16-030-036, X16-030-037, X16-030-038 and X16-030-039
Enclosures



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Case Narrative

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF X16-030
SDG: GEL399469

July 13, 2016

Laboratory Identification:

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

Summary

Sample receipt

The sample(s) arrived at GEL Laboratories, LLC, Charleston, South Carolina on June 16, 2016, for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

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

Sample Identification

The laboratory received the following samples:

<u>Laboratory Identification</u>	<u>Sample Description</u>
399469001	B34T07
399469002	B34T08
399469003	B34T09
399469004	B34V36
399469005	B34V37
399469006	B34V38
399469007	B34T00
399469008	B34T01
399469009	B34T02
399469010	B34T04
399469011	B34T05
399469012	B34T03
399469013	B34T06
399469014	B34V12
399469015	B34V13
399469016	B34V14
399469017	B34V15
399469018	B34V16
399469019	B34V17
399469020	B34V18
399469021	B34V19
399469022	B34V20

399469023	B34V21
399469024	B34V22
399469025	B34V23
399469026	B34V24
399469027	B34V25
399469028	B34V26
399469029	B34V27
399469030	B34V28
399469031	B34V29
399469032	B34V30
399469033	B34V31
399469034	B34V32
399469035	B34V33
399469036	B34V34
399469037	B34V35

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

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

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


Brielle Luthman for
Heather Shaffer
Project Manager

**Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL399469
Work Order #: 399469**

GC/MS Volatile

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

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

Calibration Information

Continuing Calibration Verification Requirements

All of the requested target analytes met the calibration verification requirements.

Quality Control (QC) Information

Matrix Spike/Matrix Spike Duplicate Recovery Statement

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

Sample	Analyte	Value
1203572275 (Non SDG 399704021PS)	2-Butanone	58* (70%-130%)
	Acetone	47* (70%-130%)
1203572276 (Non SDG 399704021PSD)	2-Butanone	50* (70%-130%)
	4-Methyl-2-pentanone	67* (70%-130%)
	Acetone	41* (70%-130%)

Technical Information

Sample Dilutions/Methanol Dilutions

Samples 399469007 (B34T00), 399469008 (B34T01) and 399469009 (B34T02) were diluted because target analyte concentrations exceeded the calibration range.

Analyte	399469		
	007	008	009
Carbon tetrachloride	10X	10X	10X
Chloroform	10X	10X	10X
Trichloroethylene	10X	10X	10X

Metals

Determination of Metals by ICP

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Determination of Metals by ICP-MS

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

Quality Control (QC) Information

Method Blank (MB) Statement

The method blanks (MB) analyzed with this SDG met the exception criteria with the exception of antimony, thallium and strontium. In instances where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data. 1203568971 (MB).

Technical Information

Sample Dilutions

Samples 399469007 (B34T00), 399469008 (B34T01) and 399469009 (B34T02) were diluted to ensure that the analyte concentrations were within the linear calibration range of the instrument.

Analyte	399469		
	007	008	009
Uranium	20X	20X	20X

Determination of Metals by ICP-MS

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

General Chemistry

Carbon, Total Organic

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Cyanide, Total

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

Technical Information

Sample Dilutions

The following samples 399469007 (B34T00), 399469008 (B34T01) and 399469009 (B34T02) were diluted because target analyte concentrations exceeded the calibration range.

Analyte	399469		
	007	008	009
Cyanide, Total	2X	2X	2X

Total Organic Halogens (TOX)

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Ion Chromatography

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

Technical Information

Sample Dilutions

The following samples 1203568701 (B34T09DUP), 1203568702 (B34T09PS), 399469001 (B34T07), 399469002 (B34T08) and 399469003 (B34T09) were diluted because target analyte concentrations exceeded the calibration range.

Analyte	399469		
	001	002	003
Chloride	10X	10X	10X
Nitrate	10X	10X	10X

Hexavalent Chromium

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

Technical Information

Sample Dilutions

The following samples 1203568707 (B34V36DUP), 1203568708 (B34V36PS), 399469004 (B34V36), 399469005 (B34V37) and 399469006 (B34V38) in this sample group were diluted due to matrix interference.

Analyte	399469		
	004	005	006
Hexavalent Chromium	4X	4X	4X

Radiochemistry

PUISO_PRECIP_AEA:COMMON

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

Technical Information

Recounts

Sample 399469030 (B34V28) was recounted due to poor resolution. The recount is reported.

Miscellaneous Information

GAMMA_GS:COMMON

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

Quality Control (QC) Information

QC Information

The sample and the duplicate, 1203570526 (Non SDG 399283007DUP), did not meet the Cs-137 relative error ratio requirement; however, both results are less than their respective MDCs.

I129LL_SEP_LEPS_GS: COMMON (low level)

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

9310_ALPHABETA_GPC: COMMON

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

Technical Information

Gross Alpha/Beta Preparation Information

High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating.

Recounts

Samples 1203574715 (Non SDG 399366006MSD) and 1203574716 (LCS) were recounted due to high recovery. The recounts are reported.

Miscellaneous Information

Additional Comments

The matrix spike and matrix spike duplicate, 1203574714 (Non SDG 399366006MS) and 1203574715 (Non SDG 399366006MSD), aliquots were reduced to conserve sample volume.

SRISO_SEP_PRECIP_GPC: COMMON

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

Technical Information

Recounts

Samples 1203574873 (Non SDG 399283005DUP), 399469032 (B34V30), 399469033 (B34V31) and 399469034 (B34V32) were verified by recounting at least five days from the separation date. The recounts are reported.

TC99_EIE_LSC: COMMON

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

TRITIUM_DIST_LSC: COMMON

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

C14_LSC: COMMON

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

Technical Information

Recounts

Samples 399469020 (B34V18), 399469021 (B34V19) and 399469022 (B34V20) were recounted to verify sample results. Recounts are reported.

TC99_EIE_LSC: COMMON

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Certification Statement

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

Chain of Custody and Supporting Documentation

CH2MHill Plateau Remediation Company		C.O.C. # X16-030-010	
399469		Page 1 of 1	
Collector	Scott King CHPRC	Contact/Requester	WATERS-HUSTED, K
SAF No.	X16-030	Telephone No.	376-4650
Project Title	GW Sitewide Background, April 2016	Purchase Order/Charge Code	300071
Shipped To (Lab)	GEL Laboratories, LLC	Ice Chest No.	CWS-423
Protocol	SURV	Bill of Lading/Air Bill No.	716529099355
POSSIBLE SAMPLE HAZARDS/REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.		Priority:	30 Days
SPECIAL INSTRUCTIONS		Hold Time	6732
N/A		Total Activity Exemption:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sample No.	B34T07	Filter	N
Date	JUN 15 2016	Time	0830
No/Type Container	1x250-mL GIP	Sample Analysis	9056_ANIONS_IC: COMMON
Holding Time	48 Hours	Preservative	Cool <=6C

Relinquished By	Scott King CHPRC	Print	Sign	Date/Time	130
Relinquished By	Scott King CHPRC	Received By	Leahy West CHPRC	Sign	JUN 15 2016 1130
Relinquished By	Leahy West CHPRC	Received By	FEDEX	Date/Time	
Relinquished By	Fery	Received By	M. Keston	Sign	6-16-16 0915
Relinquished By		Received By		Date/Time	

S	=	Soil	DS	=	Drum Solids
SE	=	Sediment	DL	=	Drum Liquids
SO	=	Solid	T	=	Tissue
SL	=	Sludge	WI	=	Wipe
W	=	Water	L	=	Liquid
O	=	Oil	V	=	Vegetation
A	=	Air	X	=	Other

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

CH2M Hill Plateau Remediation Company		C.O.C. # X16-030-011	
3994609		Page 1 of 1	
Collector	Scott King CHPRC	Contact/Requester	WATERS-HUSTED, K
SAF No.	X16-030	Telephone No.	376-4650
Project Title	GW Sitewide Background, April 2016	Sampling Origin	Hanford Site
Shipped To (Lab)	GEL Laboratories, LLC	Logbook No.	HNF-N-50682-PII
Protocol	SURV	Method of Shipment	Commercial Carrier
POSSIBLE SAMPLE HAZARDS/REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/JATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.		Priority:	30 Days PRIORITY
SPECIAL INSTRUCTIONS		Hold Time	
N/A		Offsite Property No.	6732
Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Sample No.	Filter	* Date	Time
B34T08	N	JUN 15 2016	0830
No/Type Container	Sample Analysis	Holding Time	Preservative
1x250-ml G/P	9056_ANIONS_IC: COMMON	48 Hours	Cool <=6C

Relinquished By	Scott King CHPRC	Print	Jedry Wall	Sign	Jedry Wall	Received By	Leah Vail CHPRC	Date/Time	JUN 15 2016 1130
Relinquished By	Leah Vail CHPRC	Print	FEDEX	Sign	FEDEX	Received By	M. Kinshaw M. Kinshaw	Date/Time	JUN 15 2016 1400
Relinquished By	Fepey	Print		Sign		Received By		Date/Time	6-16-16 0915
Relinquished By		Print		Sign		Received By		Date/Time	

Matrix *	S = Soil	DS = Drum Solids
	SE = Sediment	DL = Drum Liquids
	SO = Solid	T = Tissue
	SL = Sludge	WI = Wipe
	W = Water	L = Liquid
	O = Oil	V = Vegetation
	A = Air	X = Other

CH2M Hill Plateau Remediation Company		C.O.C. # X16-030-012	
399469		Page 1 of 1	
Collector	Scott King CHERC	Contact/Requester	WATERS-HUSTED, K
SAF No.	X16-030	Sampling Origin	Hanford Site
Project Title	GW Sitewide Background, April 2016	Logbook No.	HNF-N-50683/91
Shipped To (Lab)	GEL Laboratories, LLC	Method of Shipment	Commercial Carrier
Protocol	SURV	Priority:	30 Days PRIORITY
POSSIBLE SAMPLE HAZARDS/REMARKS		SPECIAL INSTRUCTIONS	
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/ATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.		N/A	
Sample No.	B34T09	No/Type Container	1x250-mL G/P
Filter	N	Date	JUN 15 2016 0830
Time		Sample Analysis	9056_ANIONS_IC: COMMON
Holding Time	48 Hours	Hold Time	
Preservative	Cool <=6C	Total Activity Exemption:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Telephone No.	376-4650	Offsite Property No.	6732
Purchase Order/Charge Code	300071	Bill of Lading/Air Bill No.	776529099355
Ice Chest No.	605-423		

Relinquished By	Scott King CHERC	Print	<i>Scott King</i>	Sign		Received By	Lesly Wall CHERC	Print	<i>Lesly Wall</i>	Sign		Date/Time	JUN 15 2016 1130
Relinquished By	Lesly Wall CHERC	Print	<i>Lesly Wall</i>	Sign		Received By	FEDEX	Print		Sign		Date/Time	
Relinquished By		Print		Sign		Received By	M. Karston MEL FULAN	Print	<i>M. Karston</i>	Sign	<i>MEL FULAN</i>	Date/Time	6-16-16 0915
Relinquished By		Print		Sign		Received By		Print		Sign		Date/Time	

Matrix *

S	= Soil	DS	= Drum Solids
SE	= Sediment	DL	= Drum Liquids
SO	= Solid	T	= Tissue
SL	= Sludge	WI	= Wipe
W	= Water	L	= Liquid
O	= Oil	V	= Vegetation
A	= Air	X	= Other

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

Disposed By

Date/Time

CH2M Hill Plateau Remediation Company		C.O.C. # X16-030-037	
399469		Page 1 of 1	
Collector	Scott King CHPRC	Contact/Requester	WATERS-HUSTED, K
SAF No.	X16-030	Sampling Origin	Hanford Site
Project Title	GW Sitewide Background, April 2016	Logbook No.	HNF-N-506 83/91
Shipped To (Lab)	GEL Laboratories, LLC	Method of Shipment	Commercial Carrier
Protocol	SURV	Priority:	30 Days PRIORITY
POSSIBLE SAMPLE HAZARDS/REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.		SPECIAL INSTRUCTIONS	Hold Time
		N/A	
Sample No.	Filter	No/Type Container	Sample Analysis
B34V36	N	1x500-mL aG	7196_CR6: COMMON
	Date	Time	Holding Time
	W JUN 15 2016	0830	24 Hours
			Preservative
			Cool <=6C
			Telephone No. 376-4650
			Purchase Order/Charge Code 300071
			Ice Chest No. GWS-304 58 lbs
			Bill of Lading/Air Bill No. 17765 29099263
			Offsite Property No. 6732
			Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time	Matrix *
Scott King CHPRC			Lesly Wall CHPRC	Judy Wall		JUN 15 2016 1130	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time	DS = Drum Solids DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other
Lesly Wall CHPRC			FEDEX			JUN 15 2016 1400	
Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time	
Frederick			Matthew M. K... CHPRC	Matthew M. K...		6-15-16 0915	
Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time	
FINAL SAMPLE DISPOSITION		Disposal Method (e.g., Return to customer, per lab procedure, used in process)		Disposed By		Date/Time	

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **X16-030-038** Page 1 of 1

CH2M Hill Plateau Remediation Company *3994469*

Collector: Scott King CHPRC Telephone No. 376-4650

SAF No. X16-030 Purchase Order/Charge Code 300071

Project Title: GW Sitewide Background, April 2016 Logbook No. HNF-N-506 *83/91*

Shipped To (Lab): GEL Laboratories, LLC Method of Shipment: Commercial Carrier Bill of Lading/Air Bill No. *776529099263*

Protocol: SURV Priority: **30 Days** **PRIORITY** Offsite Property No. *6732*

POSSIBLE SAMPLE HAZARDS/REMARKS

*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

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

Sample No.	Filter	* Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B34V37	N	JUN 15 2016 <i>0830</i>		1x500-mL aG	7196_CR6: COMMON	24 Hours	Cool <=6C

Relinquished By	Signature	Date/Time	Received By	Signature	Date/Time
Scott King CHPRC	<i>Scott King</i>	JUN 15 2016 1130	Lesly Wall CHPRC	<i>Lesly Wall</i>	JUN 15 2016 1130
Relinquished By			Received By		
Lesly Wall CHPRC	<i>Lesly Wall</i>	JUN 15 2016 1400	FEDEX		
Relinquished By			Received By		
	<i>SA</i>		<i>M. Kinton</i>	<i>6-16-16 0915</i>	
Relinquished By			Received By		

Matrix *

S = Soil	DS = Drum Solids
SE = Sediment	DL = Drum Liquids
SO = Solid	T = Tissue
SL = Sludge	WI = Wipe
W = Water	L = Liquid
O = Oil	V = Vegetation
A = Air	X = Other

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

Disposed By _____ Date/Time _____

PRINTED ON 3/23/2016 FSR ID = FSR29573 A-6004-842 (REV 2)

CH2M Hill Plateau Remediation Company		C.O.C. # X16-030-039	
Collector: Scott King / CHPRC		Page 1 of 1	
SAF No.:	X16-030	Contact/Requester:	WATERS-HUSTED, K
Project Title:	GW Sitewide Background, April 2016	Telephone No.:	376-4650
Shipped To (Lab):	GEL Laboratories, LLC	Purchase Order/Charge Code:	300071
Protocol:	SURV	Ice Chest No.:	605-304
POSSIBLE SAMPLE HAZARDS/REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/ATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.		Bill of Lading/Air Bill No.:	77652909 9263
Filter:	N	Offsite Property No.:	6732
Date:	JUN 15 2016	Priority:	30 Days PRIORITY
Time:	0830	SPECIAL INSTRUCTIONS:	Hold Time
No/Type Container:	1x500-mL aG		Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sample No.:	B34V38	Sample Analysis:	7196_CR6: COMMON
Sample No.:	B34V38	Holding Time:	24 Hours
Sample No.:	B34V38	Preservative:	Cool <=6C

Relinquished By:	Scott King / CHPRC	Date/Time:	JUN 15 2016 1130	Received By:	Lesly West / CHPRC	Date/Time:	JUN 15 2016 1130
Relinquished By:	Lesly West / CHPRC	Date/Time:	JUN 15 2016 1400	Received By:	FEDEX	Date/Time:	
Relinquished By:		Date/Time:		Received By:	M. Kadow	Date/Time:	6-16-16 0905
Relinquished By:		Date/Time:		Received By:		Date/Time:	
FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process)		Disposed By:		Date/Time:		Date/Time:	

CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **X16-030-006** Page 1 of 1

399469

Collector: Scott King CHPRC
 SAF No. X16-030
 Project Title: GW Sitewide Background, April 2016
 Shipped To (Lab): GEL Laboratories, LLC
 Protocol: SURV

Contact/Requester: WATERS-HUSTED, K
 Sampling Origin: Hanford Site
 Logbook No. HNF-N-506 83191
 Method of Shipment: Commercial Carrier
 Priority: 30 Days **PRIORITY**

Telephone No. 376-4650
 Purchase Order/Charge Code 300071
 Ice Chest No. 6005-304
 Bill of Lading/Air Bill No. 7765 2909 9263
 Offsite Property No. 6732

POSSIBLE SAMPLE HAZARDS/REMARKS
 *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/JATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

SPECIAL INSTRUCTIONS
 N/A

Hold Time

Total Activity Exemption: Yes No

Sample No.	Filter	* Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B34T00	N	W JUN 15 2016	0830	1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool <=6C
B34T00	N	W JUN 15 2016	0830	1x500-mL G/P	6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: GW 01; 7470_MERCURY_CV: COMMON (AQUEOUS)	6 Months	HNO3 to pH <2
B34T00	N	W JUN 15 2016	0830	4x40-mL aGs*	8260_VOA_GCMS: COMMON	14 Days	HCl or H2SO4 to pH <2/Cool <=6C
B34T00	N	W JUN 15 2016	0830	1x250-mL G/P	9012_CYANIDE: COMMON	14 Days	NaOH to pH >=12/Cool <=6C

Relinquished By Scott King CHPRC	Print <i>Scott King</i>	Sign <i>Scott King</i>	Date/Time JUN 15 2016 1130	Received By Lesly West CHPRC	Print <i>Lesly West</i>	Sign <i>Lesly West</i>	Date/Time JUN 15 2016 1130
Relinquished By Lesly West CHPRC	Print <i>Lesly West</i>	Sign <i>Lesly West</i>	Date/Time JUN 15 2016 1400	Received By FEDEX	Print FEDEX	Sign <i>FEDEX</i>	Date/Time JUN 15 2016 1400
Relinquished By <i>FX</i>	Print <i>FX</i>	Sign <i>FX</i>	Date/Time JUN 15 2016 1400	Received By <i>M. Krush</i>	Print <i>M. Krush</i>	Sign <i>M. Krush</i>	Date/Time JUN 15 2016 1400

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

Disposed By

Disposal Date/Time

Matrix *

S = Soil	DS = Drum Solids
SE = Sediment	DL = Drum Liquids
SO = Solid	T = Tissue
SL = Sludge	WI = Wipe
W = Water	L = Liquid
O = Oil	V = Vegetation
A = Air	X = Other

CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **X16-030-007** Page 1 of 1

3994609

Collector: Scott King CHPRC X16-030 Telephone No. 376-4650

SAF No. X16-030 Purchase Order/Charge Code 300071

Project Title: GW Sitewide Background, April 2016 Logbook No. HNF-N-5068391 Ice Chest No. 605-423

Shipped To (Lab): GEL Laboratories, LLC Method of Shipment: Commercial Carrier Bill of Lading/Air Bill No. 776529099355

Protocol: SURV Priority: 30 Days Offsite Property No. 6732

POSSIBLE SAMPLE HAZARDS/REMARKS

*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

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

Sample No.	Filter	* Date	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B34T01	N	W JUN 15 2016	JUN 15 2016	0830	1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool <=6C
B34T01	N	W JUN 15 2016	JUN 15 2016	0830	1x500-mL G/P	6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: GW 01; 7470_MERCURY_CV: COMMON (AQUEOUS)	6 Months	HNO3 to pH <2
B34T01	N	W JUN 15 2016	JUN 15 2016	0830	4x40-mL aGs*	8260_VOA_GCMS: COMMON	14 Days	HCl or H2SO4 to pH <2/Cool <=6C
B34T01	N	W JUN 15 2016	JUN 15 2016	0830	1x250-mL G/P	9012_CYANIDE: COMMON	14 Days	NaOH to pH >=12/Cool <=6C

Relinquished By: Scott King CHPRC	Print: [Signature]	Received By: Lesly Wall CHPRC	Print: [Signature]	Date/Time: JUN 15 2016 1130	Date/Time: JUN 15 2016 1130
Relinquished By: Lesly Wall CHPRC	Print: [Signature]	Received By: FEDEX	Print: [Signature]	Date/Time: JUN 15 2016 1400	Date/Time: JUN 15 2016 1400
Relinquished By: [Signature]	Print: [Signature]	Received By: M. Kinslow	Print: [Signature]	Date/Time: JUN 15 2016 0830	Date/Time: JUN 15 2016 0830
Relinquished By: [Signature]	Print: [Signature]	Received By: [Signature]	Print: [Signature]	Date/Time: JUN 15 2016 0830	Date/Time: JUN 15 2016 0830

Matrix *
 S = Soil DS = Drum Solids
 SE = Sediment DL = Drum Liquids
 SO = Solid T = Tissue
 SL = Sludge WI = Wipe
 W = Water L = Liquid
 O = Oil V = Vegetation
 A = Air X = Other

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

PRINTED ON 3/23/2016 FSR ID = FSR29573 A-6004-842 (REV 2)

59165
399469

C.O.C.#
X16-030-008
Page 1 of 1

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CH2M Hill Plateau Remediation
Company

Collector: Scott King CHPRC
 SAF No.: X16-030
 Project Title: GW Sitewide Background, April 2016
 Shipped To (Lab): GEL Laboratories, LLC
 Protocol: SURV

Contact/Requester: WATERS-HUSTED, K
 Sampling Origin: Hanford Site
 Logbook No.: HNF-N-506 83191
 Method of Shipment: Commercial Carrier
 Priority: 30 Days **PRIORITY**

Telephone No.: 376-4650
 Purchase Order/Charge Code: 300071
 Ice Chest No.: GWS-423
 Bill of Lading/Air Bill No.: 7765 2909 9355
 Offsite Property No.: 6732

POSSIBLE SAMPLE HAZARDS/REMARKS
 *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/ATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

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

Sample No.	Filter	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B34T02	N	JUN 15 2016	0830	1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool <=6C
B34T02	N			1x500-mL G/P	6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: GW 01; 7470_MERCURY_CV: COMMON (AQUEOUS)	6 Months	HNO3 to pH <2
B34T02	N			4x40-mL aGs*	8260_VOA_GCMS: COMMON	14 Days	HCl or H2SO4 to pH <2/Cool <=6C
B34T02	N	JUN 15 2016	0830	1x250-mL G/P	9012_CYANIDE: COMMON	14 Days	NaOH to pH >=12/Cool <=6C

Relinquished By: Scott King CHPRC	Print: Scott King	Sign: [Signature]	Date/Time: JUN 15 2016 1130	Received By: Lesly Wall CHPRC	Print: Lesly Wall	Sign: [Signature]	Date/Time: JUN 15 2016 1130
Relinquished By: Lesly Wall CHPRC	Print: Lesly Wall	Sign: [Signature]	Date/Time: JUN 15 2016 1400	Received By: FEDEX	Print: FEDEX	Sign: [Signature]	Date/Time: JUN 15 2016 1400
Relinquished By: [Signature]	Print: [Signature]	Sign: [Signature]	Date/Time: JUN 15 2016 0830	Received By: M. K... [Signature]	Print: [Signature]	Sign: [Signature]	Date/Time: JUN 15 2016 0830

Relinquished By: [Signature]

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

Disposed By: [Signature]

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

Disposed By: [Signature]

Matrix *

S	= Soil	DS	= Drum Solids
SE	= Sediment	DL	= Drum Liquids
SO	= Solid	T	= Tissue
SL	= Sludge	WI	= Wipe
W	= Water	L	= Liquid
O	= Oil	V	= Vegetation
A	= Air	X	= Other

CH2M Hill Plateau Remediation Company
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST
 C.O.C. # **X16-030-009**
 Page 1 of 1

Collector: **Scott King CHPRC** Telephone No. **376-4650**
 SAF No. **X16-030** Purchase Order/Charge Code **300071**
 Project Title: **GW Sitewide Background, April 2016** Sampling Origin: **Hanford Site**
 Shipped To (Lab): **GEL Laboratories, LLC** Logbook No. **HNF-N-506 83/91** Ice Chest No. **6WS-304**
 Protocol: **SURV** Method of Shipment: **Commercial Carrier** Bill of Lading/Air Bill No. **76529099263**
 Priority: **30 Days** Offsite Property No. **6732**
 SPECIAL INSTRUCTIONS: **PRIORITY** Total Activity Exemption: Yes No

POSSIBLE SAMPLE HAZARDS/REMARKS
 *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations that are not releasable per DOE Order 438.1.

Sample No.	Filter	* Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B34T04	N	W JUN 15 2016	0830	1x1-L aGs* 1	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool <=6C
B34T04	N	W JUN 15 2016	0830	1x250-mL aG	9060_TOX: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool <=6C
B34T05	N	W JUN 15 2016	0830	1x1-L aGs* 1	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool <=6C
B34T05	N	W JUN 15 2016	0830	1x250-mL aG	9060_TOX: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool <=6C
B34T03	N	W JUN 15 2016	0830	1x1-L aGs* 1	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool <=6C
B34T03	N	W JUN 15 2016	0830	1x250-mL aG	9060_TOX: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool <=6C
B34T06	N	W JUN 15 2016	0830	1x1-L aGs* 1	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool <=6C
B34T06	N	W JUN 15 2016	0830	1x250-mL aG	9060_TOX: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool <=6C

Relinquished By: Scott King CHPRC Sign: <i>[Signature]</i> Date/Time: JUN 15 2016 1130	Received By: Lesly Wall CHPRC Sign: <i>[Signature]</i> Date/Time: JUN 15 2016 1130
Relinquished By: Lesly Wall CHPRC Sign: <i>[Signature]</i> Date/Time: JUN 15 2016 1400	Received By: FEDEX Sign: <i>[Signature]</i> Date/Time: JUN 15 2016 0915
Relinquished By: [Signature] Sign: <i>[Signature]</i> Date/Time: JUN 15 2016 0915	Received By: M. Kambou M. Kambou Sign: <i>[Signature]</i> Date/Time: 6.16.16 0915

Matrix *
 S = Soil DS = Drum Solids
 SE = Sediment DL = Drum Liquids
 SO = Solid T = Tissue
 SL = Sludge WI = Wipe
 W = Water L = Liquid
 O = Oil V = Vegetation
 A = Air X = Other

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

FINAL SAMPLE DISPOSITION
 PRINTED ON 3/23/2016 FSR ID = FSR29573 A-6004-842 (REV.2)

CH2M Hill Plateau Remediation Company		C.O.C. # X16-030-013	
399469		Page 1 of 1	
Collector	Scott King CHPRC	Contact/Requester	WATERS-HUSTED, K
SAF No.	X16-030	Telephone No.	376-4650
Project Title	GW Sitewide Background, April 2016	Purchase Order/Charge Code	300071
Shipped To (Lab)	GEL Laboratories, LLC	Ice Chest No.	6WS-423
Protocol	SURV	Bill of Lading/Air Bill No.	7765 2909 9355
POSSIBLE SAMPLE HAZARDS/REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.		Offsite Property No.	6732
SPECIAL INSTRUCTIONS N/A		Hold Time	
Priority: 30 Days Priority: PRIORITY		Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Sample No.	Filter * Date	Sample Analysis	Preservative
B34V12	N JUN 15 2016 0830	9310_ALPHABETA_GPC: COMMON	HNO3 to pH <2
No/Type Container	Time	Holding Time	
2x1-L P	0830	6 Months	

Relinquished By	Print	Sign	Date/Time
Scott King CHPRC		Jeddy Wall	JUN 15 2016 1130
Relinquished By	Print	Sign	Date/Time
Lesly Wall CHPRC		FEDEX	
Relinquished By	Print	Sign	Date/Time
			6-16-16 0915
Relinquished By	Print	Sign	Date/Time
Disposed By Disposal Method (e.g., Return to customer, per lab procedure, used in process)		Date/Time	
FINAL SAMPLE DISPOSITION		Date/Time	

S	=	Soil	DS	=	Drum Solids
SE	=	Sediment	DL	=	Drum Liquids
SO	=	Solid	T	=	Tissue
SL	=	Sludge	WI	=	Wipe
W	=	Water	L	=	Liquid
O	=	Oil	V	=	Vegetation
A	=	Air	X	=	Other

CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.# **X16-030-014** Page 1 of 1

Collector: Scott King CHPRC
 SAF No. X16-030
 Telephone No. 376-4650

Project Title: GW Sitewide Background, April 2016
 Sampling Origin: Hanford Site
 Purchase Order/Charge Code: 300071

Shipped To (Lab): GEL Laboratories, LLC
 Logbook No. HNF-N-506 83191
 Ice Chest No. 6WS-423

Method of Shipment: Commercial Carrier
 Bill of Lading/Air Bill No. 7765 2909 9355

Protocol: SURV
 Priority: 30 Days
 Offsite Property No. 6732

POSSIBLE SAMPLE HAZARDS/REMARKS
 *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/ATA Dangerous Goods Regulations but are not releasable per DOE Order-458.1.

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

Sample No.	Filter	* Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B34V13	N	JUN 15 2016	0830	2x1-L P	9310_ALPHA BETA_GPC: COMMON	6 Months	HNO3 to pH <2

Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time	Matrix *
Scott King CHPRC			Leah West CHPRC			JUN 15 2016 1130	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
Leah West CHPRC			FEDEX			JUN 15 2016 1400	
Leah West CHPRC			M. K... (Signature)			JUN 16 0915	

Relinquished By: Scott King CHPRC
 Received By: Leah West CHPRC
 Disposed By: M. K...
 Disposal Method (e.g., Return to customer, per lab procedure, used in process)

FINAL SAMPLE DISPOSITION

PRINTED ON 3/23/2016 FSR ID = FSR29573 A-6004-842 (REV 2)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # X16-030-015		Page 1 of 1	
399469			
Collector	Scott King CHPRC	Contact/Requester	WATERS-HUSTED, K
SAF No.	X16-030	Telephone No.	376-4650
Project Title	GW Sitewide Background, April 2016	Sampling Origin	Hanford Site
Shipped To (Lab)	GEL Laboratories, LLC	Logbook No.	HNF-N-506 83,91
Protocol	SURV	Method of Shipment	Commercial Carrier
		Priority:	30 Days
		Offsite Property No.	6732
POSSIBLE SAMPLE HAZARDS/REMARKS		SPECIAL INSTRUCTIONS	
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/ATA Dangerous Goods Regulations that are not releasable per DOE Order-458.1.		Hold Time	
		N/A	
Sample No.	Filter	Date	Time
B34V14	N	JUN 15 2016	0830
	No/Type Container	2x1-L P	
	Sample Analysis	9310_ALPHABETA_GPC: COMMON	
	Holding Time	6 Months	
	Preservative	HNO3 to pH <2	
		Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Relinquished By	Scott King CHPRC	Print	Sign	Received By	Lesly Wall CHPRC	Date/Time	JUN 15 2016 1130	Matrix *	S = Soil	DS = Drum Solids
Relinquished By	Lesly Wall CHPRC	Print	Sign	Received By	FEDEX	Date/Time	JUN 15 2016 1400	SE = Sediment	DL = Drum Liquids	
Relinquished By	FEDEX	Print	Sign	Received By	Lesly Wall	Date/Time	JUN 15 2016 0915	SO = Solid	T = Tissue	
Relinquished By		Print	Sign	Received By		Date/Time		SL = Sludge	WI = Wipe	
		Print	Sign	Received By		Date/Time		W = Water	L = Liquid	
		Print	Sign	Received By		Date/Time		O = Oil	V = Vegetation	
		Print	Sign	Received By		Date/Time		A = Air	X = Other	

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

Disposed By

CH2M Hill Plateau Remediation Company		C.O.C. # X16-030-016	
399469		Page 1 of 1	
Collector	Scott King CHPRC	Contact/Requester	WATERS-HUSTED, K
SAF No.	X16-030	Telephone No.	376-4650
Project Title	GW Sitewide Background, April 2016	Purchase Order/Charge Code	300071
Shipped To (Lab)	GEL Laboratories, LLC	Ice Chest No.	605-189
Protocol	SURV	Bill of Lading/Air Bill No.	77652909 9572
POSSIBLE SAMPLE HAZARDS/REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.		Offsite Property No.	6732
Priority: 30 Days SPECIAL INSTRUCTIONS N/A		Hold Time	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sample No.	B34V15	Sample Analysis	Preservative
Filter	N	TRITIUM_DIST_LSC: COMMON	None
Date	JUN 15 2016 0830	Hold Time	6 Months
No/Type Container	1x500-mL P	Holding Time	

Relinquished By	Scott King CHPRC	Print	Sign	Received By	Lesly Wall CHPRC	Print	Sign	Date/Time	JUN 15 2016 1130
Relinquished By	Lesly Wall CHPRC	Print	Sign	Received By	FEDEX	Print	Sign	Date/Time	JUN 15 2016 1400
Relinquished By	FEDEX	Print	Sign	Received By	M. Carlson	Print	Sign	Date/Time	6-16-16 095
Relinquished By		Print	Sign	Received By		Print	Sign	Date/Time	

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

FINAL SAMPLE DISPOSITION

Disposed By

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **X16-030-017**
Page 1 of 1

CH2M Hill Plateau Remediation Company
399469

Collector: Scott King CHPRC
X16-030

Contact/Requester: WATERS-HUSTED, K
Telephone No. 376-4650

Sampling Origin: Hanford Site
Purchase Order/Charge Code: 300071

Project Title: GW Sitewide Background, April 2016
Logbook No. HNF-N-506 839A
Ice Chest No. 6WS-189

Shipped To (Lab): GEL Laboratories, LLC
Method of Shipment: Commercial Carrier
Bill of Lading/Air Bill No. 7765 2109 9572

Protocol: SURV
Priority: 30 Days
Offsite Property No. 6732

POSSIBLE SAMPLE HAZARDS/REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/ATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

SPECIAL INSTRUCTIONS
N/A

Hold Time: _____
Total Activity Exemption: Yes No

Sample No.	Filter	* Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B34V16	N	JUN 15 2016	0830	1x500-mL P	TRITIUM_DIST_LSC: COMMON	6 Months	None

Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time	Date/Time
Scott King CHPRC	<i>Scott King</i>	<i>Scott King</i>	Lesly Wall CHPRC	<i>Lesly Wall</i>	<i>Lesly Wall</i>	JUN 15 2016 1130	JUN 15 2016 1130
Relinquished By			Received By	FEDEX			
Lesly Wall CHPRC	<i>Lesly Wall</i>	<i>Lesly Wall</i>	M. Kryston	<i>M. Kryston</i>	<i>M. Kryston</i>	JUN 15 2016 1400	6-16-16 0915
Relinquished By			Received By				

Matrix *

S = Soil	DL = Drum Solids
SE = Sediment	DL = Drum Liquids
SO = Solid	T = Tissue
SL = Sludge	WI = Wipe
W = Water	L = Liquid
O = Oil	V = Vegetation
A = Air	X = Other

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

Disposed By _____ Date/Time _____

PRINTED ON 3/23/2016 FSR ID = FSR29573 A-6004-842 (REV 2)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **X16-030-020** Page 1 of 1

CH2M Hill Plateau Remediation Company

Collector: **Scott King CHPRC** Telephone No. **376-4650**

SAF No. **X16-030** Purchase Order/Charge Code **300071**

Project Title: **GW Sitewide Background, April 2016** Sampling Origin: **Hanford Site**

Shipped To (Lab): **GEL Laboratories, LLC** Logbook No. **HNF-N-506 83, 91** Ice Chest No. **605-189**

Protocol: **SURV** Method of Shipment: **Commercial Carrier** Bill of Lading/Air Bill No. **177652909 9572**

Priority: **30 Days** Priority: **PRIORITY** Offsite Property No. **6732**

POSSIBLE SAMPLE HAZARDS/REMARKS

*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

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

Sample No.	Filter	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B34V19	N	JUN 15 2016	0850	1x500-mL GIP	C14_LSC: COMMON	6 Months	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
Relinquished By: Scott King CHPRC	Scott King	<i>Scott King</i>	JUN 15 2016 1130	Received By: Lesly Wall CHPRC	Lesly Wall	<i>Lesly Wall</i>	JUN 15 2016 1130	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: Lesly Wall CHPRC	Lesly Wall	<i>Lesly Wall</i>	JUN 15 2016 1400	Received By: FEDEX	FEDEX			
Relinquished By: Greg	Greg	<i>Greg</i>		Received By: Matthew Mulheiser	Matthew Mulheiser	<i>Matthew Mulheiser</i>	6-16-16 0915	

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

Disposed By: _____ Date/Time: _____

PRINTED ON 3/23/2016 FSR ID = FSR29573 A-6004-842 (REV 2)

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C. # X16-030-021
Collector Scott King CHPRC		Contact/Requester WATERS-HUSTED, K	Telephone No.	376-4650		Page 1 of 1
SAF No.	X16-030	Sampling Origin Hanford Site	Purchase Order/Charge Code	300071		
Project Title	GW Sitedwide Background, April 2016	Logbook No.	HNF-N-506 83191		Ice Chest No.	6005-189
Shipped To (Lab)	GEL Laboratories, LLC	Method of Shipment	Commercial Carrier		Bill of Lading/Air Bill No.	17A6521699572
Protocol	SURV	Priority:	30 Days	PRIORITY	Offsite Property No.	4732
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 be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.		N/A				
Sample No.	Filter	* Date	Time	No/Type Container	Sample Analysis	Holding Time
B34V20	N	JUN 15 2016	0830	1x500-mL G/P	C14_LSC: COMMON	6 Months
						Preservative
						None

Relinquished By Scott King CHPRC	Signature <i>Scott King</i>	Date/Time JUN 15 2016 1130	Received By Lesly Wall CHPRC	Signature <i>Lesly Wall</i>	Date/Time JUN 15 2016 1130
Relinquished By Lesly Wall CHPRC	Signature <i>Lesly Wall</i>	Date/Time JUN 15 2016 1400	Received By FEDEX	Signature <i>FEDEX</i>	Date/Time JUN 15 2016 0915
Relinquished By	Signature <i>Lesly Wall</i>	Date/Time	Received By M. Easton Public	Signature <i>M. Easton</i>	Date/Time 6-16-16 0915
FINAL SAMPLE DISPOSITION		Disposal Method (e.g., Return to customer, per lab procedure, used in process)		Disposed By	
PRINTED ON 3/23/2016		FSR ID = FSR29573		A-6004-842 (REV 2)	

CH2M Hill Plateau Remediation Company		C.O.C. # X16-030-022	
399469		Page 1 of 1	
Collector	Scott King CHPRC	Contact/Requester	WATERS-HUSTED, K
SAF No.	X16-030	Sampling Origin	Hanford Site
Project Title	GW Sitewide Background, April 2016	Logbook No.	HNF-N-506 83191
Shipped To (Lab)	GEL Laboratories, LLC	Method of Shipment	Commercial Carrier
Protocol	SURV	Priority:	30 Days
POSSIBLE SAMPLE HAZARDS/REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/ATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.		SPECIAL INSTRUCTIONS	Hold Time
		N/A	
Sample No.	B34V21	Filter	N
*	W	Date	JUN 15 2016
Time	0830	No./Type Container	1x4-L G/P
Sample Analysis	GAMMA_GS: COMMON	Holding Time	6 Months
Preservative	HNO3 to pH <2	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Relinquished By	Scott King CHPRC	Sign	<i>Scott King</i>	Date/Time	JUN 15 2016 1130	Received By	Lesly Wal CHPRC	Sign	<i>Lesly Wal</i>	Date/Time	JUN 15 2016 1130	Matrix *	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By	Lesly Wal CHPRC	Sign	<i>Lesly Wal</i>	Date/Time	JUN 15 2016 1400	Received By	FEDEX	Sign	<i>FEDEX</i>	Date/Time	JUN 16 0915	DS = Drum Solids DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other	
Relinquished By		Sign	<i>Lesly Wal</i>	Date/Time		Received By	M. Gordon	Sign	<i>M. Gordon</i>	Date/Time			
Relinquished By		Sign		Date/Time		Received By		Sign		Date/Time			
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)										Disposed By		
PRINTED ON	3/23/2016	FSR ID = FSR29573										A-6004-842 (REV 2)	

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # X16-030-024		Page 1 of 1	
CH2MHill Plateau Remediation Company			
Collector	Scott King CHPRC	Contact/Requester	WATERS-HUSTED, K
SAF No.	X16-030	Telephone No.	376-4650
Project Title	GW Sitewide Background, April 2016	Sampling Origin	Hanford Site
Shipped To (Lab)	GEL Laboratories, LLC	Logbook No.	HNF-N-506 <i>83191</i>
Protocol	SURV	Method of Shipment	Commercial Carrier
Priority: 30 Days		Ice Chest No.	<i>6WS-109</i>
Special Instructions		Bill of Lading/Air Bill No.	<i>7765 20099572</i>
Hold Time		Offsite Property No.	<i>6732</i>
POSSIBLE SAMPLE HAZARDS/REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.			
Sample No.	Filter	Date	Time
B34V23	N	<i>JUN 15 2016</i>	<i>0850</i>
No/Type Container	1x4-L G/P	Sample Analysis	GAMMA_GS: COMMON
Holding Time	6 Months	Preservative	HNO3 to pH <2
SPECIAL INSTRUCTIONS		Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
N/A			

Relinquished By Scott King CHPRC	<i>Scott King</i>	Date/Time JUN 15 2016 1130	Received By Lesly Wall CHPRC	<i>Lesly Wall</i>	Date/Time JUN 15 2016 1130
Relinquished By Lesly Wall CHPRC	<i>Lesly Wall</i>	Date/Time JUN 15 2016 1400	Received By FEDEX		Date/Time
Relinquished By Ferry	<i>Ferry</i>	Date/Time JUN 15 2016	Received By <i>M. Kniskern</i>	<i>M. Kniskern</i>	Date/Time 6-16-16 0915
Relinquished By		Date/Time	Received By		Date/Time
FINAL SAMPLE DISPOSITION		Disposal Method (e.g., Return to customer, per lab procedure, used in process)		Disposed By	

S	=	Soil	DS	=	Drum Solids
SE	=	Sediment	DL	=	Drum Liquids
SO	=	Solid	T	=	Tissue
SL	=	Sludge	WI	=	Wipe
W	=	Water	L	=	Liquid
O	=	Oil	V	=	Vegetation
A	=	Air	X	=	Other

CH2M Hill Plateau Remediation Company		C.O.C. # X16-030-025	
399469		Page 1 of 1	
Collector	Scott King CHPRC	Contact/Requester	WATERS-HUSTED, K
SAF No.	X16-030	Telephone No.	376-4650
Project Title	GW Sitewide Background, April 2016	Purchase Order/Charge Code	300071
Shipped To (Lab)	GEL Laboratories, LLC	Ice Chest No.	605-395
Protocol	SURV	Bill of Lading/Air Bill No.	17165 29099193
POSSIBLE SAMPLE HAZARDS/REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/ATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.		Offsite Property No.	6732
Priority: 30 Days SPECIAL INSTRUCTIONS: N/A Hold Time:		Total Activity Exemption:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sample No.	Filter	No/Type Container	Sample Analysis
B34V24	N	2x4-L G/P	1129LL_SEP_LEPS_GS_LL: COMMON
Date	Time	Holding Time	Preservative
JUN 15 2016	0830	6 Months	None

Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time	Date/Time
Scott King			Lesly Wall			JUN 15 2016	JUN 15 2016 1130
Relinquished By			Received By			Date/Time	Date/Time
Lesly Wall			FEDEX				
Relinquished By			Received By			Date/Time	Date/Time
			M. Easton			JUN 15 2016	JUN 15 2016 0915
Relinquished By			Received By			Date/Time	Date/Time

S	=	Soil	DS	=	Drum Solids
SE	=	Sediment	DL	=	Drum Liquids
SO	=	Solid	T	=	Tissue
SL	=	Sludge	WI	=	Wipe
W	=	Water	L	=	Liquid
O	=	Oil	V	=	Vegetation
A	=	Air	X	=	Other

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

Disposed By

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **X16-030-026** Page 1 of 1

CH2M Hill Plateau Remediation Company **399469**

Collector: Scott King CHPRC
 SAF No.: X16-030
 Project Title: GW Sitewide Background, April 2016
 Shipped To (Lab): **GEL Laboratories, LLC**
 Protocol: SURV

Contact/Requester: WATERS-HUSTED, K
 Telephone No.: 376-4650
 Sampling Origin: Hanford Site
 Purchase Order/Charge Code: 300071
 Logbook No.: HNF-N-506 **83191**
 Ice Chest No.: **605-395**
 Method of Shipment: Commercial Carrier
 Bill of Lading/Air Bill No.: **7765 29699193**
 Priority: **30 Days** **PRIORITY**
 Offsite Property No.: **6732**

POSSIBLE SAMPLE HAZARDS/REMARKS
 *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

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

Sample No.	Filter	* Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B34V25	N	JUN 15 2016	0830	2x4-L G/P	I129LL_SEP_LEPS_GS_LL: COMMON	6 Months	None

Relinquished By	Print	Sign	Received By	Print	Sign	Date/Time	Date/Time	Matrix *
Scott King CHPRC			Loisy Will rCHPRC		Jerry Wald	JUN 15 2016 1130	JUN 15 2016 1130	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air
Loisy Will rCHPRC			FEDFX					DS = Drum Solids DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other
Loisy Will rCHPRC			M. Kistow rCHPRC			JUN 15 2016 1400	6-16-16 0915	
Loisy Will rCHPRC			FP					

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

Disposed By: _____ Date/Time: _____

PRINTED ON 3/23/2016 FSR ID = FSR29573

CH2M Hill Plateau Remediation Company		C.O.C. # X16-030-027	
Collector: Scott King CHPRC		Page 1 of 1	
SAF No.:	X16-030	Telephone No.:	376-4650
Project Title:	GW Sitewide Background, April 2016	Purchase Order/Charge Code:	300071
Shipped To (Lab):	GEL Laboratories, LLC	Ice Chest No.:	64105
Protocol:	SURV	Bill of Lading/Air Bill No.:	17765 2909 9193
POSSIBLE SAMPLE HAZARDS/REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.		Offsite Property No.:	6732
SPECIAL INSTRUCTIONS N/A		Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Sample No.:	B34V26	Filter:	N
Date:	JUN 15 2016	Time:	0830
No/Type Container:	2x4-L G/P	Sample Analysis:	1129LL_SEP_LEPS_GS_LL: COMMON
Holding Time:	6 Months	Preservative:	None

Relinquished By:	Scott King CHPRC	Date/Time:	JUN 15 2016 1130	Received By:	Lesly Wall CHPRC	Date/Time:	JUN 15 2016 1130
Relinquished By:	Lesly Wall CHPRC	Date/Time:	JUN 15 2016 1400	Received By:	FEDEX	Date/Time:	
Relinquished By:		Date/Time:		Received By:	M. Koston (ph) kuba	Date/Time:	6-16-16 0915
Relinquished By:		Date/Time:		Received By:		Date/Time:	

Matrix *	Soil	DS	Drum Solids
	Sediment	DL	Drum Liquids
	Solid	T	Tissue
	Sludge	WI	Wipe
	Water	L	Liquid
	Oil	V	Vegetation
	Air	X	Other

CH2M Hill Plateau Remediation Company		C.O.C. # X16-030-028	
399469		Page 1 of 1	
Collector	Scott King CHPRC	Contact/Requester	WATERS-HUSTED, K
SAF No.	X16-030	Sampling Origin	Hanford Site
Project Title	GW Sitewide Background, April 2016	Logbook No.	HNF-N-506 83191
Shipped To (Lab)	GEL Laboratories, LLC	Method of Shipment	Commercial Carrier
Protocol	SURV	Priority:	30 Days PRIORITY
POSSIBLE SAMPLE HAZARDS/REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.		SPECIAL INSTRUCTIONS	Hold Time
		N/A	
Sample No.	Filter	No/Type Container	Sample Analysis
B34V27	N	1x1-L G/P	PUISO_PLATE_AEA: COMMON
Date	Time	Holding Time	Preservative
JUN 15 2016	0830	6 Months	HNO3 to pH <2
Telephone No.	376-4650	Ice Chest No.	605-189
Purchase Order/Charge Code	300071	Bill of Lading/Air Bill No.	7765 29099573
Offsite Property No.	6732	Total Activity Exemption:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Relinquished By	Scott King CHPRC	Print	Sign	Received By	Lesly Wall CHPRC	Date/Time	JUN 15 2016 1130
Relinquished By	Lesly Wall CHPRC	Print	Sign	Received By	FEDEX	Date/Time	JUN 15 2016 1130
Relinquished By	Lesly Wall CHPRC	Print	Sign	Received By	M. Kinshon M. Kinshon	Date/Time	JUN 15 2016 0915
Relinquished By	Lesly Wall CHPRC	Print	Sign	Received By	FEDEX	Date/Time	JUN 15 2016 1400
Relinquished By	Lesly Wall CHPRC	Print	Sign	Received By	FEDEX	Date/Time	JUN 15 2016 1400

S	=	Soil	DS	=	Drum Solids
SE	=	Sediment	DL	=	Drum Liquids
SO	=	Solid	T	=	Tissue
SL	=	Sludge	WI	=	Wipe
W	=	Water	L	=	Liquid
O	=	Oil	V	=	Vegetation
A	=	Air	X	=	Other

Disposed By

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

CH2M Hill Plateau Remediation Company		C.O.C. # X16-030-029	
399469		Page 1 of 1	
Collector	Scott King CHPRC	Contact/Requester	WATERS-HUSTED, K
SAF No.	X16-030	Telephone No.	376-4650
Project Title	GW Sitewide Background, April 2016	Purchase Order/Charge Code	300071
Shipped To (Lab)	GEL Laboratories, LLC	Ice Chest No.	605-189
Protocol	SURV	Bill of Lading/Air Bill No.	77652909 9572
POSSIBLE SAMPLE HAZARDS/REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/HATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.		Priority: 30 Days	Offsite Property No. 6732
SPECIAL INSTRUCTIONS N/A		Hold Time	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sample No.	B34V28	Filter	N
*		Date	JUN 15 2016 0830
No/Type Container	1x1-L G/P	Sample Analysis	PUISO_PLATE_AEA: COMMON
Time		Holding Time	6 Months
		Preservative	HNO3 to pH <2

Relinquished By	Scott King CHPRC	Date/Time	JUN 15 2016 1130	Received By	Lesly Wall CHPRC	Date/Time	JUN 15 2016 1130
Relinquished By	Lesly Wall CHPRC	Date/Time	JUN 15 2016 1400	Received By	FEDEX	Date/Time	
Relinquished By	PP 4	Date/Time		Received By	M. K. ...	Date/Time	6-16-16 0915
Relinquished By		Date/Time		Received By		Date/Time	
FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process)		Disposed By		Date/Time		Date/Time	
PRINTED ON 3/23/2016		FSR ID = FSR29573		A-6004-842 (REV 2)			

CH2MHill Plateau Remediation Company		C.O.C.# X16-030-030	
Collector: Scott King CHPRC		Page 1 of 1	
SAF No. X16-030	Contact/Requester: WATERS-HUSTED, K	Telephone No. 376-4650	
Project Title: GW Sitewide Background, April 2016	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071	
Shipped To (Lab): GEL Laboratories, LLC	Logbook No. HNF-N-506 83191	Ice Chest No. 605-189	
Protocol: SURV	Method of Shipment: Commercial Carrier	Bill of Lading/Air Bill No. 7765 29099572	
Priority: 30 Days		Offsite Property No. 6732	
POSSIBLE SAMPLE HAZARDS/REMARKS		Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.		SPECIAL INSTRUCTIONS: Hold Time N/A	
Sample No. B34V29	Filter: N	No/Type Container: 1x1-L G/P	Sample Analysis: PUIISO_PLATE_AEA: COMMON
Date: JUN 15 2016 0850	Time: 0850	Holding Time: 6 Months	Preservative: HNO3 to pH <2

Relinquished By: Scott King CHPRC	Print: Scott King	Sign: [Signature]	Date/Time: JUN 15 2016 1130	Received By: Leahy Wall CHPRC	Print: Leahy Wall	Sign: [Signature]	Date/Time: JUN 15 2016 1130
Relinquished By: Leahy Wall CHPRC	Print: Leahy Wall	Sign: [Signature]	Date/Time: JUN 15 2016 1400	Received By: FEDEX	Print: FEDEX	Sign: [Signature]	Date/Time: JUN 15 2016 1400
Relinquished By: Leahy Wall	Print: Leahy Wall	Sign: [Signature]	Date/Time: JUN 15 2016 1400	Received By: M. Kinslow	Print: M. Kinslow	Sign: [Signature]	Date/Time: 6-16-16 0915
Relinquished By: Leahy Wall	Print: Leahy Wall	Sign: [Signature]	Date/Time: JUN 15 2016 1400	Received By: [Signature]	Print: [Signature]	Sign: [Signature]	Date/Time: 6-16-16 0915
FINAL SAMPLE DISPOSITION				Disposal Method (e.g., Return to customer, per lab procedure, used in process)			
PRINTED ON 3/23/2016				FSR ID = FSR29573			

77165

C.O.C.# X16-030-031
Page 1 of 1

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

3994609

Company CH2M Hill Plateau Remediation	Contact/Requester WATERS-HUSTED, K	Telephone No. 376-4650	C.O.C.# X16-030-031
Collector Scott King CHPRC	Sampling Origin Hanford Site	Purchase Order/Charge Code 300071	
SAF No. X16-030	Logbook No. HNF-N-506 83/91	Ice Chest No. 624-187	
Project Title GW Sitewide Background, April 2016	Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No. 776529099572	
Shipped To (Lab) GEL Laboratories, LLC	Priority: 30 Days	Offsite Property No. 4732	
Protocol SURV	SPECIAL INSTRUCTIONS Hold Time N/A		
POSSIBLE SAMPLE HAZARDS/REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.			
Sample No. B34V30	Filter N	Date JUN 15 2016	Time 0830
No/Type Container 3x1-L G/P	Sample Analysis SRISO_SEP_PRECIP_GPC: COMMON	Holding Time 6 Months	Preservative HNO3 to pH <2

Total Activity Exemption: Yes No

Relinquished By Scott King CHPRC	Date/Time JUN 15 2016 1130	Received By Lesly Wafi CHPRC	Date/Time JUN 15 2016 1130
Relinquished By Lesly Wafi CHPRC	Date/Time JUN 15 2016 1400	Received By FEDEX	Date/Time
Relinquished By FENE	Date/Time	Received By M. Krasnow	Date/Time 6-16-16 0915

Print Sign

Matrix *

S = Soil	DS = Drum Solids
SE = Sediment	DL = Drum Liquids
SO = Solid	T = Tissue
SL = Sludge	WI = Wipe
W = Water	L = Liquid
O = Oil	V = Vegetation
A = Air	X = Other

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

Disposited By

Disposal Method

Disposited By

Disposal Method

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **X16-030-032** Page 1 of 1

CH2M Hill Plateau Remediation Company *399469*

Collector: **Scott King CHPRC** Telephone No. **376-4650**

SAF No. **X16-030** Purchase Order/Charge Code **300071**

Project Title **GW Sitewide Background, April 2016** Sampling Origin **Hanford Site**

Shipped To (Lab) **GEL Laboratories, LLC** Logbook No. **HNF-N-50683191** Ice Chest No. **605-189**

Protocol **SURV** Method of Shipment **Commercial Carrier** Bill of Lading/Air Bill No. **7765 29099572**

Priority: **30 Days** **PRIORITY** Offsite Property No. **6732**

POSSIBLE SAMPLE HAZARDS/REMARKS SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes No

*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/JATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

Sample No.	Filter	* Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B34V31	N	W JUN 15 2016	0830	3x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
Relinquished By Scott King CHPRC	<i>Scott King</i>	<i>Scott King</i>	JUN 15 2016 1130	Received By <i>Lesly Wall</i> CHPRC	<i>Lesly Wall</i>	<i>Lesly Wall</i>	JUN 15 2016	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By <i>Lesly Wall</i> CHPRC	<i>Lesly Wall</i>	<i>Lesly Wall</i>	JUN 15 2016 1400	Received By <i>M. Kardon</i>	FEDEX	<i>M. Kardon</i>	JUN 16 2016 0815	DS = Drum Solids DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other
Relinquished By				Received By				

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

Disposed By _____ Date/Time _____

PRINTED ON 3/23/2016 FSR ID = FSR29573 A-6004-842 (REV 2)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CH2M Hill Plateau Remediation Company		C.O.C. # X16-030-034	
399469		Page 1 of 1	
Collector	Scott King CHPRC	Contact/Requester	WATERS-HUSTED, K
SAF No.	X16-030	Telephone No.	376-4650
Project Title	GW Sitewide Background, April 2016	Sampling Origin	Hanford Site
Shipped To (Lab)	GEL Laboratories, LLC	Logbook No.	HNF-N-506-3191
Protocol	SURV	Method of Shipment	Commercial Carrier
POSSIBLE SAMPLE HAZARDS/REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.		Priority:	30 Days PRIORITY
SPECIAL INSTRUCTIONS N/A		Hold Time	
Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Offsite Property No.	6732
Sample No.	Filter	Date	Time
B34V33	N	6-15-16	0830
No/Type Container	1x500-mL G/P	TC99_EIE_LSC:	COMMON
Sample Analysis		Holding Time	6 Months
Preservative			HNO3 to pH <2

Relinquished By	Scott King CHPRC	Print	Sign	Received By	Lesly Wall CHPRC	Date/Time	JUN 15 2016 1130
Relinquished By	Lesly Wall CHPRC	Print	Sign	Received By	FEDEX	Date/Time	
Relinquished By	Lesly Wall	Print	Sign	Received By	M. Gustaw	Date/Time	6-16-16 0915
Relinquished By	Lesly Wall	Print	Sign	Received By		Date/Time	

Matrix *
 S = Soil DS = Drum Solids
 SE = Sediment DL = Drum Liquids
 SO = Solid T = Tissue
 SL = Sludge WI = Wipe
 W = Water L = Liquid
 O = Oil V = Vegetation
 A = Air X = Other

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

FINAL SAMPLE DISPOSITION

CH2MHill Plateau Remediation Company		C.O.C. # X16-030-035	
399469		Page 1 of 1	
Collector	Scott King CHPRC	Contact/Requester	WATERS-HUSTED, K
SAF No.	X16-030	Telephone No.	376-4650
Project Title	GW Sitewide Background, April 2016	Purchase Order/Charge Code	300071
Shipped To (Lab)	GEL Laboratories, LLC	Ice Chest No.	6WS-189
Protocol	SURV	Bill of Lading/Air Bill No.	776529099572
POSSIBLE SAMPLE HAZARDS/REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.		Offsite Property No.	6732
Priority: 30 Days SPECIAL INSTRUCTIONS N/A		Hold Time	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sample No.	Filter	Date	Time
B34V34	N	JUN 15 2016	0830
No/Type Container	1x500-mL G/P	TC99_EIE_LSC: COMMON	Sample Analysis
Holding Time	6 Months	Preservative	HNO3 to pH <2

Relinquished By	Scott King CHPRC	Print	Sign	Received By	Lesly Wall CHPRC	Date/Time	JUN 15 2016 1130
Relinquished By	Lesly Wall CHPRC	Print	Sign	Received By	FEDEX	Date/Time	JUN 15 2016 1400
Relinquished By	Lesly Wall	Print	Sign	Received By	M. Kuyfow	Date/Time	6-16-16 0945
Relinquished By	Lesly Wall	Print	Sign	Received By		Date/Time	

S	=	Soil	DS	=	Drum Solids
SE	=	Sediment	DL	=	Drum Liquids
SO	=	Solid	T	=	Tissue
SL	=	Sludge	WI	=	Wipe
W	=	Water	L	=	Liquid
O	=	Oil	V	=	Vegetation
A	=	Air	X	=	Other

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

Disposed By

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C. # X16-030-036
		<i>3994609</i>				Page 1 of 1
Collector	Scott King CHPRC	Contact/Requester	WATERS-HUSTED, K		Telephone No.	376-4650
SAF No.	X16-030	Sampling Origin	Hanford Site		Purchase Order/Charge Code	300071
Project Title	GW Sitewide Background, April 2016	Logbook No.	HNF-N-506 <i>83/91</i>		Ice Chest No.	<i>6WS-189</i>
Shipped To (Lab)	GEL Laboratories, LLC	Method of Shipment	Commercial Carrier		Bill of Lading/Air Bill No.	<i>776529099572</i>
Protocol	SURV	Priority:	30 Days	PRIORITY	Offsite Property No.	<i>6732</i>
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 be regulated for transportation per 49 CFR/JATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.		N/A				
Sample No.	Filter	Date	Time	No/Type Container	Sample Analysis	Holding Time
B34V35	N	W JUN 15 2016	0830	1x500-mL G/P	TC99_EIE_LSC: COMMON	6 Months
				Preservative	HNO3 to pH <2	

Relinquished By Scott King CHPRC	<i>Scott King</i>	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
Relinquished By Leah Wall CHPRC	<i>Leah Wall</i>	JUN 15 2016	1130	1x500-mL G/P	TC99_EIE_LSC: COMMON	6 Months	HNO3 to pH <2
Relinquished By Leah Wall CHPRC	<i>Leah Wall</i>	JUN 15 2016	1400				
Relinquished By <i>FD ex</i>							
Received By Leah Wall CHPRC	<i>Leah Wall</i>	Date/Time	Sign	Print	Sign	Date/Time	Matrix *
Received By FEDEX	<i>FEDEX</i>	JUN 15 2016 1130					S = Soil DS = Drum Solids SE = Sediment DL = Drum Liquids SO = Solid T = Tissue SL = Sludge WI = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Received By <i>M. Kriston</i>	<i>M. Kriston</i>	Date/Time	Sign	Print	Sign	Date/Time	
Received By		JUN 15 2016 0915					
FINAL SAMPLE DISPOSITION		Disposal Method (e.g., Return to customer, per lab procedure, used in process)		Disposed By		Date/Time	

SAMPLE RECEIPT & REVIEW FORM

Client: <i>OPRC</i>		SDG/AR/COC/Work Order: <i>399469</i>	
Received By: <i>m/c</i>		Date Received: <i>6-16-16</i>	
Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?			Maximum Net Counts Observed* (Observed Counts - Area Background Counts):
Classified Radioactive II or III by RSO?			If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?			
Package, COC, and/or Samples marked as beryllium or asbestos containing?			If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?			Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?			

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>			Preservation Method: <u>Ice bags</u> Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius <i>1° 2°</i>
2a Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>			Temperature Device Serial #: <i>150462862</i> Secondary Temperature Device Serial # (if Applicable):
3 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
4 Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6 Do Low Level Perchlorate samples have headspace as required?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
7 VOA vials contain acid preservation?	<input checked="" type="checkbox"/>			(If unknown, select No)
8 VOA vials free of headspace (defined as < 6mm bubble)?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
9 Are Encore containers present?	<input checked="" type="checkbox"/>			(If yes, immediately deliver to Volatiles laboratory)
10 Samples received within holding time?	<input checked="" type="checkbox"/>			ID's and tests affected:
11 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
12 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected:
13 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected:
14 Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>			
15 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			
16 Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other <i>7765 2909 9355 2c</i> <i>9263 2c</i> <i>01193 20c NO ICE</i> <i>9024 1c</i> <i>9355 21c NO ICE</i> <i>7765 2689 1840 1c</i> <i>1390 2c</i>
Comments (Use Continuation Form if needed):				

PM (or PMA) review: Initials *CS* Date *6/16/16* Page *1* of *1*

Data Review Qualifier Definitions

Project Specific Qualifier Definitions for GEL Client Code: CPRC

Qualifier	Qualifier Definition	Department	Fraction
U	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.		
J	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate). Value is estimated	Organics	
P	Aroclor target analyte with greater than 25% difference between column analyses.	Organics	
C	Analyte has been confirmed by GC/MS analysis	Organics	Pesticide
B	The analyte was detected in both the associated QC blank and in the sample.	Organics	
E	Concentration exceeds the calibration range of the instrument	Organics	
A	The TIC is a suspected aldol-condensation product	Organics	Semi-Volatile
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier		
N	Spike Sample recovery is outside control limits.		
*	Duplicate analysis not within control limits	Inorganics	
>	Result greater than quantifiable range or greater than upper limit of the analysis range	General Chemistry	
Z	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier		
B	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).	Inorganics	Metals
D	Results are reported from a diluted aliquot of sample.		
E	Reported value is estimated due to interferences. See comment in narrative.	Inorganics	Metals
M	Duplicate precision not met.	Inorganics	Metals
o	Analyte failed to recover within LCS limits (Organics only)	Organics	
S	Reported value determined by the Method of Standard Additions (MSA)	Inorganics	
T	Spike and/or spike duplicate sample recovery is outside control limits.	Organics	
W	Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.	Inorganics	
B	The associated QC sample blank has a result >= 2X the MDA and, after corrections, result is >= MDA for this sample	Radiological	
Y	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier		
+	Correlation coefficient for Method of Standard Additions (MSA) is < 0.995	Inorganics	
B	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).	General Chemistry	
C	Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.	Inorganics	Metals
C	Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.	General Chemistry	
<	Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide	General Chemistry	
UX	Gamma Spectroscopy--Uncertain identification	Radiological	

Laboratory Certifications

List of current GEL Certifications as of 13 July 2016

State	Certification
Alaska	UST-0110
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA160006
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122016-1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania NELAP	68-00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-16-11
Utah NELAP	SC000122016-20
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Volatile Analysis

Case Narrative

**GC/MS Volatile
 Technical Case Narrative
 CH2MHill Plateau Remediation Company (CPRC)
 SDG #: GEL399469
 Work Order #: 399469**

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

Analytical Method: SW846 8260C

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

Analytical Batch: 1576428

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
399469007	B34T00
399469008	B34T01
399469009	B34T02
1203572273	Method Blank (MB)
1203572274	Laboratory Control Sample (LCS)
1203572275	399704021(NonSDG) Post Spike (PS)
1203572276	399704021(NonSDG) Post Spike Duplicate (PSD)
1203575238	Method Blank (MB)
1203575239	Laboratory Control Sample (LCS)

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

Data Summary:

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

Calibration Information

Continuing Calibration Verification Requirements

All of the requested target analytes met the calibration verification requirements.

Quality Control (QC) Information

Matrix Spike/Matrix Spike Duplicate Recovery Statement

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

Sample	Analyte	Value
1203572275 (Non SDG 399704021PS)	2-Butanone	58* (70%-130%)
	Acetone	47* (70%-130%)
1203572276 (Non SDG 399704021PSD)	2-Butanone	50* (70%-130%)
	4-Methyl-2-pentanone	67* (70%-130%)
	Acetone	41* (70%-130%)

Technical Information

Sample Dilutions/Methanol Dilutions

Samples 399469007 (B34T00), 399469008 (B34T01) and 399469009 (B34T02) were diluted because target analyte concentrations exceeded the calibration range.

Analyte	399469		
	007	008	009
Carbon tetrachloride	10X	10X	10X
Chloroform	10X	10X	10X
Trichloroethylene	10X	10X	10X

Certification Statement

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

GEL LABORATORIES LLC

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

**Qualifier Definition Report
for**

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL399469 GEL Work Order: 399469

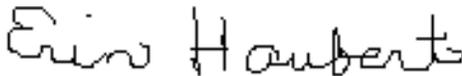
The Qualifiers in this report are defined as follows:

- 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
- 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: 12 JUL 2016

Title: Data Validator

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 1

SDG Number:	GEL399469	Date Collected:	06/15/2016 08:30	Matrix:	WATER
Lab Sample ID:	399469007	Date Received:	06/16/2016 09:15	Client:	CPRC001
Client ID:	B34T00	Method:	SW846 8260C	Project:	CPRC0X16030
Batch ID:	1576428	Inst:	VOA3.I	SOP Ref:	GL-OA-E-038
Run Date:	06/22/2016 15:57	Analyst:	CDS1	Dilution:	1
Prep Date:	06/22/2016 15:57	Column:	DB-624	Purge Vol:	5 mL
Data File:	062216V3\3O317.D				

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	2.00	5.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	2.00	5.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	2.00	5.00
71-43-2	Benzene	U	0.300	ug/L	0.300	2.00	5.00
75-15-0	Carbon disulfide	U	1.60	ug/L	1.60	10.0	5.00
108-90-7	Chlorobenzene	U	0.300	ug/L	0.300	2.00	5.00
100-41-4	Ethylbenzene	U	0.300	ug/L	0.300	2.00	5.00
75-09-2	Methylene chloride	U	1.60	ug/L	1.60	5.00	5.00
127-18-4	Tetrachloroethylene		13.4	ug/L	0.300	2.00	5.00
108-88-3	Toluene	U	0.300	ug/L	0.300	2.00	5.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	2.00	10.0
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	2.00	10.0
78-93-3	2-Butanone	JT	3.13	ug/L	3.00	10.0	10.0
108-10-1	4-Methyl-2-pentanone	TU	3.00	ug/L	3.00	10.0	10.0
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	2.00	10.0
1330-20-7	Xylenes (total)	U	0.300	ug/L	0.300	6.00	10.0
67-64-1	Acetone	TU	3.00	ug/L	3.00	10.0	20.0

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 1

SDG Number:	GEL399469	Date Collected:	06/15/2016 08:30	Matrix:	WATER
Lab Sample ID:	399469007	Date Received:	06/16/2016 09:15	Client:	CPRC001
Client ID:	B34T00DL	Method:	SW846 8260C	Project:	CPRC0X16030
Batch ID:	1576428	Inst:	VOA3.I	SOP Ref:	GL-OA-E-038
Run Date:	06/23/2016 13:04	Analyst:	CDS1	Dilution:	10
Prep Date:	06/23/2016 13:04	Column:	DB-624	Purge Vol:	5 mL
Data File:	062316V3\3O409.D				

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
56-23-5	Carbon tetrachloride	D	649	ug/L	3.00	20.0	5.00
67-66-3	Chloroform	D	266	ug/L	3.00	20.0	5.00
79-01-6	Trichloroethylene	D	263	ug/L	3.00	20.0	5.00

Volatile
Certificate of Analysis
Sample Summary

Page 1 of 1

SDG Number: GEL399469	Date Collected: 06/15/2016 08:30	Matrix: WATER
Lab Sample ID: 399469008	Date Received: 06/16/2016 09:15	
Client ID: B34T01	Client: CPRC001	Project: CPRC0X16030
Batch ID: 1576428	Method: SW846 8260C	SOP Ref: GL-OA-E-038
Run Date: 06/22/2016 16:27	Inst: VOA3.I	Dilution: 1
Prep Date: 06/22/2016 16:27	Analyst: CDS1	Purge Vol: 5 mL
Data File: 062216V3\3O318.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	2.00	5.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	2.00	5.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	2.00	5.00
71-43-2	Benzene	U	0.300	ug/L	0.300	2.00	5.00
75-15-0	Carbon disulfide	U	1.60	ug/L	1.60	10.0	5.00
108-90-7	Chlorobenzene	U	0.300	ug/L	0.300	2.00	5.00
100-41-4	Ethylbenzene	U	0.300	ug/L	0.300	2.00	5.00
75-09-2	Methylene chloride	U	1.60	ug/L	1.60	5.00	5.00
127-18-4	Tetrachloroethylene		12.1	ug/L	0.300	2.00	5.00
108-88-3	Toluene	U	0.300	ug/L	0.300	2.00	5.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	2.00	10.0
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	2.00	10.0
78-93-3	2-Butanone	JT	3.06	ug/L	3.00	10.0	10.0
108-10-1	4-Methyl-2-pentanone	TU	3.00	ug/L	3.00	10.0	10.0
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	2.00	10.0
1330-20-7	Xylenes (total)	U	0.300	ug/L	0.300	6.00	10.0
67-64-1	Acetone	TU	3.00	ug/L	3.00	10.0	20.0

Volatile
Certificate of Analysis
Sample Summary

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SDG Number: GEL399469	Date Collected: 06/15/2016 08:30	Matrix: WATER
Lab Sample ID: 399469008	Date Received: 06/16/2016 09:15	
Client ID: B34T01DL	Client: CPRC001	Project: CPRC0X16030
Batch ID: 1576428	Method: SW846 8260C	SOP Ref: GL-OA-E-038
Run Date: 06/23/2016 13:34	Inst: VOA3.I	Dilution: 10
Prep Date: 06/23/2016 13:34	Analyst: CDS1	Purge Vol: 5 mL
Data File: 062316V3\3O410.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
56-23-5	Carbon tetrachloride	D	600	ug/L	3.00	20.0	5.00
67-66-3	Chloroform	D	260	ug/L	3.00	20.0	5.00
79-01-6	Trichloroethylene	D	249	ug/L	3.00	20.0	5.00

Volatile
Certificate of Analysis
Sample Summary

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SDG Number: GEL399469	Date Collected: 06/15/2016 08:30	Matrix: WATER
Lab Sample ID: 399469009	Date Received: 06/16/2016 09:15	
Client ID: B34T02	Client: CPRC001	Project: CPRC0X16030
Batch ID: 1576428	Method: SW846 8260C	SOP Ref: GL-OA-E-038
Run Date: 06/22/2016 16:58	Inst: VOA3.I	Dilution: 1
Prep Date: 06/22/2016 16:58	Analyst: CDS1	Purge Vol: 5 mL
Data File: 062216V3\3O319.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	2.00	5.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	2.00	5.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	2.00	5.00
71-43-2	Benzene	U	0.300	ug/L	0.300	2.00	5.00
75-15-0	Carbon disulfide	U	1.60	ug/L	1.60	10.0	5.00
108-90-7	Chlorobenzene	U	0.300	ug/L	0.300	2.00	5.00
100-41-4	Ethylbenzene	U	0.300	ug/L	0.300	2.00	5.00
75-09-2	Methylene chloride	U	1.60	ug/L	1.60	5.00	5.00
127-18-4	Tetrachloroethylene		12.2	ug/L	0.300	2.00	5.00
108-88-3	Toluene	U	0.300	ug/L	0.300	2.00	5.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	2.00	10.0
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	2.00	10.0
78-93-3	2-Butanone	TU	3.00	ug/L	3.00	10.0	10.0
108-10-1	4-Methyl-2-pentanone	TU	3.00	ug/L	3.00	10.0	10.0
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	2.00	10.0
1330-20-7	Xylenes (total)	U	0.300	ug/L	0.300	6.00	10.0
67-64-1	Acetone	TU	3.00	ug/L	3.00	10.0	20.0

Volatile
Certificate of Analysis
Sample Summary

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SDG Number:	GEL399469	Date Collected:	06/15/2016 08:30	Matrix:	WATER
Lab Sample ID:	399469009	Date Received:	06/16/2016 09:15	Client:	CPRC001
Client ID:	B34T02DL	Method:	SW846 8260C	Project:	CPRC0X16030
Batch ID:	1576428	Inst:	VOA3.I	SOP Ref:	GL-OA-E-038
Run Date:	06/23/2016 14:05	Analyst:	CDS1	Dilution:	10
Prep Date:	06/23/2016 14:05	Column:	DB-624	Purge Vol:	5 mL
Data File:	062316V3\3O411.D				

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	RDL
56-23-5	Carbon tetrachloride	D	579	ug/L	3.00	20.0	5.00
67-66-3	Chloroform	D	265	ug/L	3.00	20.0	5.00
79-01-6	Trichloroethylene	D	246	ug/L	3.00	20.0	5.00

Quality Control Summary

July 13, 2016

GEL LABORATORIES LLC

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

QC Summary

Report Date: July 8, 2016

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CH2MHill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 399469

Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS										
Batch	1576428									
QC1203572274	LCS									
1,1,1-Trichloroethane	50.0		56.6	ug/L		113	(70%-130%)	CDS1	06/22/16	08:44
1,1,2-Trichloroethane	50.0		50.1	ug/L		100	(70%-130%)			
1,1-Dichloroethane	50.0		51.2	ug/L		102	(70%-130%)			
1,1-Dichloroethylene	50.0		56.5	ug/L		113	(70%-130%)			
1,2-Dichloroethane	50.0		45.1	ug/L		90	(70%-130%)			
2-Butanone	250		238	ug/L		95	(70%-130%)			
4-Methyl-2-pentanone	250		201	ug/L		80	(70%-130%)			
Acetone	250		249	ug/L		100	(70%-130%)			
Benzene	50.0		52.0	ug/L		104	(70%-130%)			
Carbon disulfide	250		277	ug/L		111	(70%-130%)			
Carbon tetrachloride	50.0		54.4	ug/L		109	(70%-130%)			
Chlorobenzene	50.0		52.2	ug/L		104	(70%-130%)			
Chloroform	50.0		50.1	ug/L		100	(70%-130%)			
Ethylbenzene	50.0		50.1	ug/L		100	(70%-130%)			
Methylene chloride	50.0		54.5	ug/L		109	(70%-130%)			
Tetrachloroethylene	50.0		55.9	ug/L		112	(70%-130%)			
Toluene	50.0		50.6	ug/L		101	(70%-130%)			
Trichloroethylene	50.0		54.8	ug/L		110	(70%-130%)			
Vinyl chloride	50.0		49.6	ug/L		99	(70%-130%)			
Xylenes (total)	150		153	ug/L		102	(70%-130%)			

July 13, 2016

GEL LABORATORIES LLC

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QC Summary

Workorder: 399469

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1576428										
**1,2-Dichloroethane-d4	50.0			47.8	ug/L		96	(70%-130%)	CDS1	06/22/16	08:44
**Bromofluorobenzene	50.0			48.8	ug/L		98	(70%-130%)			
**Toluene-d8	50.0			48.6	ug/L		97	(70%-130%)			
QC1203575239	LCS										
1,1,1-Trichloroethane	50.0			55.6	ug/L		111	(70%-130%)		06/23/16	10:51
1,1,2-Trichloroethane	50.0			49.7	ug/L		99	(70%-130%)			
1,1-Dichloroethane	50.0			50.9	ug/L		102	(70%-130%)			
1,1-Dichloroethylene	50.0			51.5	ug/L		103	(70%-130%)			
1,2-Dichloroethane	50.0			44.1	ug/L		88	(70%-130%)			
2-Butanone	250			225	ug/L		90	(70%-130%)			
4-Methyl-2-pentanone	250			185	ug/L		74	(70%-130%)			
Acetone	250			234	ug/L		94	(70%-130%)			
Benzene	50.0			51.9	ug/L		104	(70%-130%)			
Carbon disulfide	250			263	ug/L		105	(70%-130%)			
Carbon tetrachloride	50.0			55.3	ug/L		111	(70%-130%)			
Chlorobenzene	50.0			51.6	ug/L		103	(70%-130%)			
Chloroform	50.0			50.2	ug/L		100	(70%-130%)			
Ethylbenzene	50.0			48.8	ug/L		98	(70%-130%)			
Methylene chloride	50.0			52.5	ug/L		105	(70%-130%)			
Tetrachloroethylene	50.0			57.1	ug/L		114	(70%-130%)			
Toluene	50.0			49.9	ug/L		100	(70%-130%)			
Trichloroethylene	50.0			54.0	ug/L		108	(70%-130%)			

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QC Summary

Workorder: 399469

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1576428										
Vinyl chloride	50.0			47.1	ug/L		94	(70%-130%)	CDS1	06/23/16	10:51
Xylenes (total)	150			151	ug/L		101	(70%-130%)			
**1,2-Dichloroethane-d4	50.0			46.1	ug/L		92	(70%-130%)			
**Bromofluorobenzene	50.0			47.7	ug/L		95	(70%-130%)			
**Toluene-d8	50.0			48.0	ug/L		96	(70%-130%)			
QC1203572273 MB											
1,1,1-Trichloroethane			U	0.300	ug/L					06/22/16	09:51
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						
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						
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						
Tetrachloroethylene			U	0.300	ug/L						

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QC Summary

Workorder: 399469

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1576428										
Toluene			U	0.300	ug/L				CDS1	06/22/16	09:51
Trichloroethylene			U	0.300	ug/L						
Vinyl chloride			U	0.300	ug/L						
Xylenes (total)			U	0.300	ug/L						
**1,2-Dichloroethane-d4	50.0			47.8	ug/L		96	(70%-130%)			
**Bromofluorobenzene	50.0			46.6	ug/L		93	(70%-130%)			
**Toluene-d8	50.0			49.6	ug/L		99	(70%-130%)			
QC1203575238	MB										
1,1,1-Trichloroethane			U	0.300	ug/L					06/23/16	11:52
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						
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						
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						

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QC Summary

Workorder: 399469

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1576428										
Methylene chloride			U	1.60	ug/L				CDS1	06/23/16	11:52
Tetrachloroethylene			U	0.300	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						
**1,2-Dichloroethane-d4	50.0			49.2	ug/L		98	(70%-130%)			
**Bromofluorobenzene	50.0			45.4	ug/L		91	(70%-130%)			
**Toluene-d8	50.0			50.9	ug/L		102	(70%-130%)			
QC1203572275 399704021 PS											
1,1,1-Trichloroethane	50.0	U	0.00	48.4	ug/L		97	(70%-130%)		06/22/16	19:00
1,1,2-Trichloroethane	50.0	U	0.00	49.0	ug/L		98	(70%-130%)			
1,1-Dichloroethane	50.0	U	0.00	45.1	ug/L		90	(70%-130%)			
1,1-Dichloroethylene	50.0	U	0.00	44.7	ug/L		89	(70%-130%)			
1,2-Dichloroethane	50.0	U	0.00	42.3	ug/L		85	(70%-130%)			
2-Butanone	250	TU	0.00 T	145	ug/L		58 *	(70%-130%)			
4-Methyl-2-pentanone	250	TU	0.00	193	ug/L		77	(70%-130%)			
Acetone	250	TU	0.00 T	117	ug/L		47 *	(70%-130%)			
Benzene	50.0	U	0.00	45.8	ug/L		92	(70%-130%)			
Carbon disulfide	250	U	0.00	227	ug/L		91	(70%-130%)			
Carbon tetrachloride	50.0	J	1.05	47.9	ug/L		94	(70%-130%)			
Chlorobenzene	50.0	U	0.00	47.2	ug/L		94	(70%-130%)			

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QC Summary

Workorder: 399469

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1576428										
Chloroform	50.0	J	0.500	46.1	ug/L		91	(70%-130%)	CDS1	06/22/16	19:00
Ethylbenzene	50.0	U	0.00	45.1	ug/L		90	(70%-130%)			
Methylene chloride	50.0	U	0.00	48.3	ug/L		97	(70%-130%)			
Tetrachloroethylene	50.0	U	0.00	51.3	ug/L		103	(70%-130%)			
Toluene	50.0	U	0.00	45.8	ug/L		92	(70%-130%)			
Trichloroethylene	50.0	U	0.00	47.5	ug/L		95	(70%-130%)			
Vinyl chloride	50.0	U	0.00	43.4	ug/L		87	(70%-130%)			
Xylenes (total)	150	U	0.00	137	ug/L		91	(70%-130%)			
**1,2-Dichloroethane-d4	50.0		50.1	49.0	ug/L		98	(70%-130%)			
**Bromofluorobenzene	50.0		44.2	49.6	ug/L		99	(70%-130%)			
**Toluene-d8	50.0		51.2	49.4	ug/L		99	(70%-130%)			
QC1203572276 399704021 PSD											
1,1,1-Trichloroethane	50.0	U	0.00	47.5	ug/L	2	95	(0%-20%)		06/22/16	19:30
1,1,2-Trichloroethane	50.0	U	0.00	45.3	ug/L	8	91	(0%-20%)			
1,1-Dichloroethane	50.0	U	0.00	42.7	ug/L	5	85	(0%-20%)			
1,1-Dichloroethylene	50.0	U	0.00	41.9	ug/L	7	84	(0%-20%)			
1,2-Dichloroethane	50.0	U	0.00	40.7	ug/L	4	81	(0%-20%)			
2-Butanone	250	TU	0.00	T	124	ug/L	15	50*	(0%-20%)		
4-Methyl-2-pentanone	250	TU	0.00	T	167	ug/L	15	67*	(0%-20%)		
Acetone	250	TU	0.00	T	102	ug/L	13	41*	(0%-20%)		
Benzene	50.0	U	0.00	43.9	ug/L	4	88	(0%-20%)			
Carbon disulfide	250	U	0.00	214	ug/L	6	86	(0%-20%)			

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QC Summary

Workorder: 399469

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch	1576428										
Carbon tetrachloride	50.0	J	1.05	46.0	ug/L	4	90	(0%-20%)	CDS1	06/22/16	19:30
Chlorobenzene	50.0	U	0.00	44.4	ug/L	6	89	(0%-20%)			
Chloroform	50.0	J	0.500	44.9	ug/L	3	89	(0%-20%)			
Ethylbenzene	50.0	U	0.00	42.7	ug/L	5	85	(0%-20%)			
Methylene chloride	50.0	U	0.00	48.2	ug/L	0	96	(0%-20%)			
Tetrachloroethylene	50.0	U	0.00	47.7	ug/L	7	95	(0%-20%)			
Toluene	50.0	U	0.00	43.0	ug/L	6	86	(0%-20%)			
Trichloroethylene	50.0	U	0.00	45.9	ug/L	4	92	(0%-20%)			
Vinyl chloride	50.0	U	0.00	43.9	ug/L	1	88	(0%-20%)			
Xylenes (total)	150	U	0.00	132	ug/L	4	88	(0%-20%)			
**1,2-Dichloroethane-d4	50.0		50.1	46.3	ug/L		93	(70%-130%)			
**Bromofluorobenzene	50.0		44.2	46.0	ug/L		92	(70%-130%)			
**Toluene-d8	50.0		51.2	48.9	ug/L		98	(70%-130%)			

Notes:

The Qualifiers in this report are defined as follows:

- A The TIC is a suspected aldol-condensation product
- B The analyte was detected in both the associated QC blank and in the sample.
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate). Value is estimated
- N Spike Sample recovery is outside control limits.
- P Aroclor target analyte with greater than 25% difference between column analyses.
- T Spike and/or spike duplicate sample recovery is outside control limits.

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QC Summary

Workorder: 399469

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

Surrogate Recovery Report

SDG Number: GEL399469

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC	
1203572274	LCS for batch 1576428	96	97	98	
1203572273	MB for batch 1576428	96	99	93	
399469007	B34T00	97	110	95	
399469008	B34T01	96	101	87	
399469009	B34T02	92	103	91	
1203572275	B35D79PS	98	99	99	
1203572276	B35D79PSD	93	98	92	
1203575239	LCS for batch 1576428	92	96	95	
1203575238	MB for batch 1576428	98	102	91	
399469007	B34T00DL	98	D 105	D 92	D
399469008	B34T01DL	90	D 103	D 88	D
399469009	B34T02DL	91	D 99	D 89	D

Surrogate

DCED4 = 1,2-Dichloroethane-d4

TOL = Toluene-d8

BFB = Bromofluorobenzene

Acceptance Limits

(70%-130%)

(70%-130%)

(70%-130%)

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

Metals Analysis

Case Narrative

Metals
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL399469
Work Order #: 399469

Product: Determination of Metals by ICP-MS

Analytical Method: 6020_METALS_ICPMS

Analytical Procedure: GL-MA-E-014 REV# 28

Analytical Batches: 1575102 and 1581063

Product: Determination of Metals by ICP

Analytical Method: 6010_METALS_ICP

Analytical Procedure: GL-MA-E-013 REV# 26

Analytical Batch: 1575117

Product: Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer

Analytical Method: 7470_HG_CVAA

Analytical Procedure: GL-MA-E-010 REV# 31

Analytical Batch: 1575650

Preparation Method: SW846 3005A

Preparation Procedure: GL-MA-E-006 REV# 13

Preparation Batches: 1575101, 1575116 and 1581062

Preparation Method: SW846 7470A Prep

Preparation Procedure: GL-MA-E-010 REV# 31

Preparation Batch: 1575649

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
399469007	B34T00
399469008	B34T01
399469009	B34T02
1203569005	Method Blank (MB) ICP
1203569006	Laboratory Control Sample (LCS)
1203569009	399469007(B34T00L) Serial Dilution (SD)
1203569007	399469007(B34T00S) Matrix Spike (MS)
1203569008	399469007(B34T00SD) Matrix Spike Duplicate (MSD)
1203568971	Method Blank (MB) ICP-MS
1203583231	Method Blank (MB) ICP-MS
1203568972	Laboratory Control Sample (LCS)
1203583232	Laboratory Control Sample (LCS)
1203568975	399469007(B34T00L) Serial Dilution (SD)
1203583235	399469008(B34T01L) Serial Dilution (SD)
1203568973	399469007(B34T00S) Matrix Spike (MS)
1203583233	399469008(B34T01S) Matrix Spike (MS)
1203568974	399469007(B34T00SD) Matrix Spike Duplicate (MSD)
1203583234	399469008(B34T01SD) Matrix Spike Duplicate (MSD)
1203570219	Method Blank (MB) CVAA
1203570220	Laboratory Control Sample (LCS)

1203570223 399469007(B34T00L) Serial Dilution (SD)
1203570221 399469007(B34T00D) Sample Duplicate (DUP)
1203570222 399469007(B34T00S) Matrix Spike (MS)

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

Data Summary:

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

Quality Control (QC) Information

Method Blank (MB) Statement

The method blanks (MB) analyzed with this SDG met the exception criteria with the exception of antimony, thallium and strontium. In instances where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data. 1203568971 (MB)-ICP-MS.

Technical Information

Sample Dilutions

Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. Samples 399469007 (B34T00), 399469008 (B34T01) and 399469009 (B34T02)-ICP-MS were diluted to ensure that the analyte concentrations were within the linear calibration range of the instrument.

Analyte	399469		
	007	008	009
Uranium	20X	20X	20X

Certification Statement

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

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**Qualifier Definition Report
for**

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL399469 GEL Work Order: 399469

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).
- C 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.
- 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: Nik-Cole Elmore

Date: 13 JUL 2016

Title: Data Validator

Sample Data Summary

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL399469

CONTRACT: CPRC0X16030

METHOD TYPE: SW846

SAMPLE ID:399469007

BASIS: As Received

DATE COLLECTED 15-JUN-16

CLIENT ID: B34T00

LEVEL: Low

DATE RECEIVED 16-JUN-16

MATRIX: WATER

%SOLIDS: 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	15	ug/L	U	15	50	50	1	MS	BAJ	07/07/16 19:37	160707-4	1575102
7440-36-0	Antimony	1	ug/L	U	1	3	3	1	MS	BAJ	07/07/16 19:37	160707-4	1575102
7440-38-2	Arsenic	1.7	ug/L	U	1.7	5	5	1	MS	BAJ	07/07/16 19:37	160707-4	1575102
7440-39-3	Barium	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	07/07/16 19:37	160707-4	1575102
7440-41-7	Beryllium	5.14	ug/L		0.2	0.5	0.5	1	MS	SKJ	07/13/16 09:35	160712-20	1581063
7440-42-8	Boron	49.3	ug/L	B	15	50	50	1	P	HSC	06/21/16 14:37	062116A-1	1575117
7440-43-9	Cadmium	0.110	ug/L	U	0.11	1	1	1	MS	BAJ	07/07/16 19:37	160707-4	1575102
7440-70-2	Calcium	50	ug/L	U	50	200	200	1	P	HSC	06/21/16 14:37	062116A-1	1575117
7440-47-3	Chromium	52	ug/L		2	10	10	1	MS	BAJ	07/07/16 19:37	160707-4	1575102
7440-48-4	Cobalt	53.4	ug/L		0.1	1	1	1	MS	BAJ	07/07/16 19:37	160707-4	1575102
7440-50-8	Copper	53.4	ug/L		0.35	1	1	1	MS	BAJ	07/07/16 19:37	160707-4	1575102
7439-89-6	Iron	30	ug/L	U	30	100	100	1	P	HSC	06/21/16 14:37	062116A-1	1575117
7439-92-1	Lead	0.50	ug/L	U	0.5	2	2	1	MS	BAJ	07/07/16 19:37	160707-4	1575102
7439-95-4	Magnesium	110	ug/L	U	110	300	300	1	P	HSC	06/21/16 14:37	062116A-1	1575117
7439-96-5	Manganese	51.5	ug/L		1	5	5	1	MS	BAJ	07/07/16 19:37	160707-4	1575102
7439-97-6	Mercury	4.91	ug/L		0.067	0.2	0.2	1	AV	MTM1	06/21/16 11:21	062116W1-21	1575650
7439-98-7	Molybdenum	0.165	ug/L	U	0.165	0.5	0.5	1	MS	BAJ	07/08/16 17:47	160708-5	1575102
7440-02-0	Nickel	54.1	ug/L		0.5	2	2	1	MS	BAJ	07/07/16 19:37	160707-4	1575102
7440-09-7	Potassium	50	ug/L	U	50	150	150	1	P	HSC	06/21/16 14:37	062116A-1	1575117
7782-49-2	Selenium	1.5	ug/L	U	1.5	5	5	1	MS	BAJ	07/07/16 19:37	160707-4	1575102
7440-22-4	Silver	0.20	ug/L	U	0.2	1	1	1	MS	BAJ	07/07/16 19:37	160707-4	1575102
7440-23-5	Sodium	100	ug/L	U	100	300	300	1	P	HSC	06/21/16 14:37	062116A-1	1575117
7440-24-6	Strontium	2.71	ug/L	CB	2	10	10	1	MS	BAJ	07/11/16 17:29	160711-11	1575102
7440-28-0	Thallium	0.450	ug/L	U	0.45	2	2	1	MS	BAJ	07/07/16 19:37	160707-4	1575102
7440-29-1	Thorium	2.76	ug/L		0.383	2	2	1	MS	BAJ	07/12/16 09:56	160711-19	1575102
7440-31-5	Tin	1	ug/L	U	1	5	5	1	MS	BAJ	07/07/16 15:46	160707-2	1575102
7440-61-1	Uranium	324	ug/L	D	1.34	4	4	20	MS	BAJ	07/11/16 13:02	160711-6	1575102
7440-62-2	Vanadium	1	ug/L	U	1	5	5	1	P	HSC	06/21/16 14:37	062116A-1	1575117
7440-66-6	Zinc	51.6	ug/L		3.5	10	10	1	MS	BAJ	07/07/16 19:37	160707-4	1575102

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1575102	1575101	SW846 3005A	50	mL	50	mL	06/17/16	SXW1
1575117	1575116	SW846 3005A	50	mL	50	mL	06/17/16	SXW1

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

1575650	1575649	SW846 7470A Prep	20	mL	20	mL	06/20/16	AXS5
1581063	1581062	SW846 3005A	50	mL	50	mL	07/12/16	SXW1

***Analytical Methods:**

P SW846 3005A/6010C
MS SW846 3005A/6020A
AV SW846 7470A

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL399469

CONTRACT: CPRC0X16030

METHOD TYPE: SW846

SAMPLE ID:399469008

BASIS: As Received

DATE COLLECTED 15-JUN-16

CLIENT ID: B34T01

LEVEL: Low

DATE RECEIVED 16-JUN-16

MATRIX: WATER

%SOLIDS: 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	15	ug/L	U	15	50	50	1	MS	BAJ	07/07/16 19:57	160707-4	1575102
7440-36-0	Antimony	1	ug/L	U	1	3	3	1	MS	BAJ	07/07/16 19:57	160707-4	1575102
7440-38-2	Arsenic	1.7	ug/L	U	1.7	5	5	1	MS	BAJ	07/07/16 19:57	160707-4	1575102
7440-39-3	Barium	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	07/07/16 19:57	160707-4	1575102
7440-41-7	Beryllium	4.87	ug/L		0.2	0.5	0.5	1	MS	SKJ	07/13/16 09:39	160712-20	1581063
7440-42-8	Boron	48.7	ug/L	B	15	50	50	1	P	HSC	06/21/16 14:31	062116A-1	1575117
7440-43-9	Cadmium	0.110	ug/L	U	0.11	1	1	1	MS	BAJ	07/07/16 19:57	160707-4	1575102
7440-70-2	Calcium	50	ug/L	U	50	200	200	1	P	HSC	06/21/16 14:31	062116A-1	1575117
7440-47-3	Chromium	53.1	ug/L		2	10	10	1	MS	BAJ	07/07/16 19:57	160707-4	1575102
7440-48-4	Cobalt	53.7	ug/L		0.1	1	1	1	MS	BAJ	07/07/16 19:57	160707-4	1575102
7440-50-8	Copper	54.1	ug/L		0.35	1	1	1	MS	BAJ	07/07/16 19:57	160707-4	1575102
7439-89-6	Iron	30	ug/L	U	30	100	100	1	P	HSC	06/21/16 14:31	062116A-1	1575117
7439-92-1	Lead	0.50	ug/L	U	0.5	2	2	1	MS	BAJ	07/07/16 19:57	160707-4	1575102
7439-95-4	Magnesium	110	ug/L	U	110	300	300	1	P	HSC	06/21/16 14:31	062116A-1	1575117
7439-96-5	Manganese	52.6	ug/L		1	5	5	1	MS	BAJ	07/07/16 19:57	160707-4	1575102
7439-97-6	Mercury	5.91	ug/L		0.067	0.2	0.2	1	AV	MTM1	06/21/16 11:29	062116W1-21	1575650
7439-98-7	Molybdenum	0.165	ug/L	U	0.165	0.5	0.5	1	MS	BAJ	07/08/16 17:52	160708-5	1575102
7440-02-0	Nickel	54.5	ug/L		0.5	2	2	1	MS	BAJ	07/07/16 19:57	160707-4	1575102
7440-09-7	Potassium	50	ug/L	U	50	150	150	1	P	HSC	06/21/16 14:31	062116A-1	1575117
7782-49-2	Selenium	1.5	ug/L	U	1.5	5	5	1	MS	BAJ	07/07/16 19:57	160707-4	1575102
7440-22-4	Silver	0.20	ug/L	U	0.2	1	1	1	MS	BAJ	07/07/16 19:57	160707-4	1575102
7440-23-5	Sodium	100	ug/L	U	100	300	300	1	P	HSC	06/21/16 14:31	062116A-1	1575117
7440-24-6	Strontium	2.19	ug/L	CB	2	10	10	1	MS	BAJ	07/11/16 17:35	160711-11	1575102
7440-28-0	Thallium	0.453	ug/L	CB	0.45	2	2	1	MS	BAJ	07/07/16 19:57	160707-4	1575102
7440-29-1	Thorium	1.47	ug/L	B	0.383	2	2	1	MS	BAJ	07/12/16 10:01	160711-19	1575102
7440-31-5	Tin	1	ug/L	U	1	5	5	1	MS	BAJ	07/07/16 16:06	160707-2	1575102
7440-61-1	Uranium	322	ug/L	D	1.34	4	4	20	MS	BAJ	07/11/16 13:07	160711-6	1575102
7440-62-2	Vanadium	1	ug/L	U	1	5	5	1	P	HSC	06/21/16 14:31	062116A-1	1575117
7440-66-6	Zinc	51.5	ug/L		3.5	10	10	1	MS	BAJ	07/07/16 19:57	160707-4	1575102

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1575102	1575101	SW846 3005A	50	mL	50	mL	06/17/16	SXW1
1575117	1575116	SW846 3005A	50	mL	50	mL	06/17/16	SXW1

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

1575650	1575649	SW846 7470A Prep	20	mL	20	mL	06/20/16	AXS5
1581063	1581062	SW846 3005A	50	mL	50	mL	07/12/16	SXW1

***Analytical Methods:**

P SW846 3005A/6010C
MS SW846 3005A/6020A
AV SW846 7470A

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL399469

CONTRACT: CPRC0X16030

METHOD TYPE: SW846

SAMPLE ID:399469009

BASIS: As Received

DATE COLLECTED 15-JUN-16

CLIENT ID: B34T02

LEVEL: Low

DATE RECEIVED 16-JUN-16

MATRIX: WATER

%SOLIDS: 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	15	ug/L	U	15	50	50	1	MS	BAJ	07/07/16 20:00	160707-4	1575102
7440-36-0	Antimony	1	ug/L	U	1	3	3	1	MS	BAJ	07/07/16 20:00	160707-4	1575102
7440-38-2	Arsenic	1.7	ug/L	U	1.7	5	5	1	MS	BAJ	07/07/16 20:00	160707-4	1575102
7440-39-3	Barium	0.60	ug/L	U	0.6	2	2	1	MS	BAJ	07/07/16 20:00	160707-4	1575102
7440-41-7	Beryllium	4.7	ug/L		0.2	0.5	0.5	1	MS	SKJ	07/13/16 09:45	160712-20	1581063
7440-42-8	Boron	47.3	ug/L	B	15	50	50	1	P	HSC	06/21/16 14:34	062116A-1	1575117
7440-43-9	Cadmium	0.110	ug/L	U	0.11	1	1	1	MS	BAJ	07/07/16 20:00	160707-4	1575102
7440-70-2	Calcium	50	ug/L	U	50	200	200	1	P	HSC	06/21/16 14:34	062116A-1	1575117
7440-47-3	Chromium	51.6	ug/L		2	10	10	1	MS	BAJ	07/07/16 20:00	160707-4	1575102
7440-48-4	Cobalt	54	ug/L		0.1	1	1	1	MS	BAJ	07/07/16 20:00	160707-4	1575102
7440-50-8	Copper	53.7	ug/L		0.35	1	1	1	MS	BAJ	07/07/16 20:00	160707-4	1575102
7439-89-6	Iron	30	ug/L	U	30	100	100	1	P	HSC	06/21/16 14:34	062116A-1	1575117
7439-92-1	Lead	0.50	ug/L	U	0.5	2	2	1	MS	BAJ	07/07/16 20:00	160707-4	1575102
7439-95-4	Magnesium	110	ug/L	U	110	300	300	1	P	HSC	06/21/16 14:34	062116A-1	1575117
7439-96-5	Manganese	51.4	ug/L		1	5	5	1	MS	BAJ	07/07/16 20:00	160707-4	1575102
7439-97-6	Mercury	4.98	ug/L		0.067	0.2	0.2	1	AV	MTM1	06/21/16 11:31	062116W1-21	1575650
7439-98-7	Molybdenum	0.165	ug/L	U	0.165	0.5	0.5	1	MS	BAJ	07/08/16 17:53	160708-5	1575102
7440-02-0	Nickel	55.1	ug/L		0.5	2	2	1	MS	BAJ	07/07/16 20:00	160707-4	1575102
7440-09-7	Potassium	50	ug/L	U	50	150	150	1	P	HSC	06/21/16 14:34	062116A-1	1575117
7782-49-2	Selenium	1.5	ug/L	U	1.5	5	5	1	MS	BAJ	07/07/16 20:00	160707-4	1575102
7440-22-4	Silver	0.20	ug/L	U	0.2	1	1	1	MS	BAJ	07/07/16 20:00	160707-4	1575102
7440-23-5	Sodium	100	ug/L	U	100	300	300	1	P	HSC	06/21/16 14:34	062116A-1	1575117
7440-24-6	Strontium	2	ug/L	U	2	10	10	1	MS	BAJ	07/11/16 17:37	160711-11	1575102
7440-28-0	Thallium	0.450	ug/L	U	0.45	2	2	1	MS	BAJ	07/07/16 20:00	160707-4	1575102
7440-29-1	Thorium	0.680	ug/L	B	0.383	2	2	1	MS	BAJ	07/12/16 10:03	160711-19	1575102
7440-31-5	Tin	1	ug/L	U	1	5	5	1	MS	BAJ	07/07/16 16:09	160707-2	1575102
7440-61-1	Uranium	328	ug/L	D	1.34	4	4	20	MS	BAJ	07/11/16 13:08	160711-6	1575102
7440-62-2	Vanadium	1	ug/L	U	1	5	5	1	P	HSC	06/21/16 14:34	062116A-1	1575117
7440-66-6	Zinc	53	ug/L		3.5	10	10	1	MS	BAJ	07/07/16 20:00	160707-4	1575102

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1575102	1575101	SW846 3005A	50	mL	50	mL	06/17/16	SXW1
1575117	1575116	SW846 3005A	50	mL	50	mL	06/17/16	SXW1

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

1575650	1575649	SW846 7470A Prep	20	mL	20	mL	06/20/16	AXS5
1581063	1581062	SW846 3005A	50	mL	50	mL	07/12/16	SXW1

***Analytical Methods:**

P SW846 3005A/6010C
MS SW846 3005A/6020A
AV SW846 7470A

Quality Control Summary

July 13, 2016

GEL LABORATORIES LLC

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

QC Summary

Report Date: July 13, 2016

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CH2MHill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 399469

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1575102										
QC1203568972	LCS										
Aluminum	2000			2170	ug/L		109	(80%-120%)	BAJ	07/07/16	19:34
Antimony	50.0			50.2	ug/L		100	(80%-120%)			
Arsenic	50.0			54.7	ug/L		109	(80%-120%)			
Barium	50.0			53.0	ug/L		106	(80%-120%)			
Cadmium	50.0			51.9	ug/L		104	(80%-120%)			
Chromium	50.0			51.2	ug/L		102	(80%-120%)			
Cobalt	50.0			51.8	ug/L		104	(80%-120%)			
Copper	50.0			55.6	ug/L		111	(80%-120%)			
Lead	50.0			51.9	ug/L		104	(80%-120%)			
Manganese	50.0			52.1	ug/L		104	(80%-120%)			
Molybdenum	50.0			53.4	ug/L		107	(80%-120%)		07/08/16	17:46
Nickel	50.0			53.3	ug/L		107	(80%-120%)		07/07/16	19:34
Selenium	50.0			55.3	ug/L		111	(80%-120%)			
Silver	50.0			54.3	ug/L		109	(80%-120%)			
Strontium	50.0			57.7	ug/L		115	(80%-120%)		07/11/16	17:27
Thallium	50.0			50.8	ug/L		102	(80%-120%)		07/07/16	19:34
Thorium	50.0			52.0	ug/L		104	(80%-120%)		07/12/16	09:54
Tin	50.0			53.0	ug/L		106	(80%-120%)		07/07/16	15:43
Uranium	50.0			57.2	ug/L		114	(80%-120%)		07/11/16	13:01
Zinc	50.0			52.9	ug/L		106	(80%-120%)		07/07/16	19:34

July 13, 2016

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QC Summary

Workorder: 399469

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1575102										
QC1203568971		MB									
Aluminum			U	15.0	ug/L				BAJ	07/07/16	19:32
Antimony			B	2.15	ug/L						
Arsenic			U	1.70	ug/L						
Barium			U	0.600	ug/L						
Cadmium			U	0.110	ug/L						
Chromium			U	2.00	ug/L						
Cobalt			U	0.100	ug/L						
Copper			U	0.350	ug/L						
Lead			U	0.500	ug/L						
Manganese			U	1.00	ug/L						
Molybdenum			U	0.165	ug/L					07/08/16	17:45
Nickel			U	0.500	ug/L					07/07/16	19:32
Selenium			U	1.50	ug/L						
Silver			U	0.200	ug/L						
Strontium			B	2.33	ug/L					07/11/16	17:26
Thallium			B	0.717	ug/L					07/07/16	19:32
Thorium			U	0.383	ug/L					07/12/16	09:53
Tin			U	1.00	ug/L					07/07/16	15:41
Uranium			U	0.067	ug/L					07/11/16	12:59
Zinc			U	3.50	ug/L					07/07/16	19:32
QC1203568973		399469007	MS								
Aluminum	2000	U	15.0	2180	ug/L		109	(75%-125%)		07/07/16	19:39

July 13, 2016

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QC Summary

Workorder: 399469

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1575102										
Antimony	50.0	U	1.00	50.2	ug/L		98.9	(75%-125%)	BAJ	07/07/16	19:39
Arsenic	50.0	U	1.70	53.7	ug/L		105	(75%-125%)			
Barium	50.0	U	0.600	52.4	ug/L		104	(75%-125%)			
Cadmium	50.0	U	0.110	51.2	ug/L		102	(75%-125%)			
Chromium	50.0		52.0	104	ug/L		105	(75%-125%)			
Cobalt	50.0		53.4	105	ug/L		103	(75%-125%)			
Copper	50.0		53.4	108	ug/L		109	(75%-125%)			
Lead	50.0	U	0.500	51.7	ug/L		103	(75%-125%)			
Manganese	50.0		51.5	99.5	ug/L		96	(75%-125%)			
Molybdenum	50.0	U	0.165	53.1	ug/L		106	(75%-125%)		07/08/16	17:48
Nickel	50.0		54.1	106	ug/L		104	(75%-125%)		07/07/16	19:39
Selenium	50.0	U	1.50	54.0	ug/L		107	(75%-125%)			
Silver	50.0	U	0.200	55.1	ug/L		110	(75%-125%)			
Strontium	50.0	BC	2.71	53.8	ug/L		102	(75%-125%)		07/11/16	17:30
Thallium	50.0	U	0.450	51.3	ug/L		102	(75%-125%)		07/07/16	19:39
Thorium	50.0		2.76	53.1	ug/L		101	(75%-125%)		07/12/16	09:57
Tin	50.0	U	1.00	52.5	ug/L		104	(75%-125%)		07/07/16	15:49
Uranium	50.0	D	324	D	390	ug/L	N/A	(75%-125%)		07/11/16	13:03
Zinc	50.0		51.6	108	ug/L		112	(75%-125%)		07/07/16	19:39
QC1203568974 399469007 MSD											
Aluminum	2000	U	15.0	2200	ug/L	0.813	110	(0%-20%)		07/07/16	19:42
Antimony	50.0	U	1.00	49.8	ug/L	0.782	98.1	(0%-20%)			

July 13, 2016

GEL LABORATORIES LLC

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QC Summary

Workorder: 399469

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1575102										
Arsenic	50.0	U	1.70	54.0	ug/L	0.57	106	(0%-20%)	BAJ	07/07/16	19:42
Barium	50.0	U	0.600	52.3	ug/L	0.283	104	(0%-20%)			
Cadmium	50.0	U	0.110	50.9	ug/L	0.629	102	(0%-20%)			
Chromium	50.0		52.0	103	ug/L	1.36	102	(0%-20%)			
Cobalt	50.0		53.4	104	ug/L	0.485	102	(0%-20%)			
Copper	50.0		53.4	109	ug/L	1.13	112	(0%-20%)			
Lead	50.0	U	0.500	50.6	ug/L	2.06	101	(0%-20%)			
Manganese	50.0		51.5	101	ug/L	1.58	99.2	(0%-20%)			
Molybdenum	50.0	U	0.165	52.0	ug/L	2.18	104	(0%-20%)		07/08/16	17:50
Nickel	50.0		54.1	108	ug/L	1.94	108	(0%-20%)		07/07/16	19:42
Selenium	50.0	U	1.50	53.2	ug/L	1.43	106	(0%-20%)			
Silver	50.0	U	0.200	54.3	ug/L	1.54	109	(0%-20%)			
Strontium	50.0	BC	2.71	54.8	ug/L	1.74	104	(0%-20%)		07/11/16	17:32
Thallium	50.0	U	0.450	48.9	ug/L	4.78	97	(0%-20%)		07/07/16	19:42
Thorium	50.0		2.76	53.8	ug/L	1.34	102	(0%-20%)		07/12/16	09:59
Tin	50.0	U	1.00	52.8	ug/L	0.691	105	(0%-20%)		07/07/16	15:51
Uranium	50.0	D	324	D	360	ug/L	7.84	N/A		07/11/16	13:04
Zinc	50.0		51.6	105	ug/L	2.14	107	(0%-20%)		07/07/16	19:42
QC1203568975	399469007	SDILT									
Aluminum		U	6.75	DU	75.0	ug/L	N/A	(0%-10%)		07/07/16	19:47
Antimony		U	0.751	DU	5.00	ug/L	N/A	(0%-10%)			
Arsenic		U	1.03	DU	8.50	ug/L	N/A	(0%-10%)			

July 13, 2016

GEL LABORATORIES LLC

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QC Summary

Workorder: 399469

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1575102										
Barium	U	0.175	DU	3.00	ug/L	N/A		(0%-10%)	BAJ	07/07/16	19:47
Cadmium	U	0.054	DU	0.550	ug/L	N/A		(0%-10%)			
Chromium		52.0	D	10.3	ug/L	.608		(0%-10%)			
Cobalt		53.4	D	10.3	ug/L	3.71		(0%-10%)			
Copper		53.4	D	10.5	ug/L	1.54		(0%-10%)			
Lead	U	0.196	DU	2.50	ug/L	N/A		(0%-10%)			
Manganese		51.5	D	10.1	ug/L	2.32		(0%-10%)			
Molybdenum	U	-0.004	DU	0.825	ug/L	N/A		(0%-10%)		07/08/16	17:51
Nickel		54.1	D	10.6	ug/L	2.39		(0%-10%)		07/07/16	19:47
Selenium	U	0.393	DU	7.50	ug/L	N/A		(0%-10%)			
Silver	U	0.020	DU	1.00	ug/L	N/A		(0%-10%)			
Strontium	BC	2.71	BD	2.03	ug/L	274		(0%-10%)		07/11/16	17:33
Thallium	U	0.442	BD	0.834	ug/L	N/A		(0%-10%)		07/07/16	19:47
Thorium		2.76	BD	1.15	ug/L	108		(0%-10%)		07/12/16	10:00
Tin	U	0.307	DU	5.00	ug/L	N/A		(0%-10%)		07/07/16	15:56
Uranium	D	16.2	D	3.21	ug/L	.858		(0%-10%)		07/11/16	13:05
Zinc		51.6	D	11.6	ug/L	12		(0%-10%)		07/07/16	19:47
Batch	1581063										
QC1203583232	LCS										
Beryllium	50.0			52.2	ug/L		104	(80%-120%)	SKJ	07/13/16	09:33
QC1203583231	MB										
Beryllium			U	0.200	ug/L					07/13/16	09:32
QC1203583233	399469008 MS										
Beryllium	50.0	4.87		55.6	ug/L		101	(75%-125%)		07/13/16	09:41

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QC Summary

Workorder: 399469

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1581063										
QC1203583234	399469008	MSD									
Beryllium	50.0	4.87		55.6	ug/L	0.0468	101	(0%-20%)	SKJ	07/13/16	09:42
QC1203583235	399469008	SDILT									
Beryllium		4.87	D	1.06	ug/L	8.97		(0%-10%)		07/13/16	09:43
Metals Analysis-ICP											
Batch	1575117										
QC1203569006	LCS										
Boron	500			498	ug/L		99.7	(80%-120%)	HSC	06/21/16	14:28
Calcium	5000			5180	ug/L		104	(80%-120%)			
Iron	5000			5150	ug/L		103	(80%-120%)			
Magnesium	5000			5040	ug/L		101	(80%-120%)			
Potassium	5000			5190	ug/L		104	(80%-120%)			
Sodium	5000			5520	ug/L		110	(80%-120%)			
Vanadium	500			503	ug/L		101	(80%-120%)			
QC1203569005	MB										
Boron			U	15.0	ug/L					06/21/16	14:25
Calcium			U	50.0	ug/L						
Iron			U	30.0	ug/L						
Magnesium			U	110	ug/L						
Potassium			U	50.0	ug/L						
Sodium			U	100	ug/L						
Vanadium			U	1.00	ug/L						
QC1203569007	399469007	MS									
Boron	500	B	49.3	530	ug/L		96.1	(75%-125%)		06/21/16	14:40
Calcium	5000	U	50.0	5070	ug/L		101	(75%-125%)			

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QC Summary

Workorder: 399469

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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	1575117										
Iron	5000	U	30.0	5060	ug/L		101	(75%-125%)			
Magnesium	5000	U	110	4910	ug/L		97.9	(75%-125%)	HSC	06/21/16	14:40
Potassium	5000	U	50.0	5090	ug/L		101	(75%-125%)			
Sodium	5000	U	100	5120	ug/L		102	(75%-125%)			
Vanadium	500	U	1.00	490	ug/L		98.1	(75%-125%)			
QC1203569008	399469007 MSD										
Boron	500	B	49.3	528	ug/L	0.361	95.7	(0%-20%)		06/21/16	14:43
Calcium	5000	U	50.0	5050	ug/L	0.419	100	(0%-20%)			
Iron	5000	U	30.0	5040	ug/L	0.42	101	(0%-20%)			
Magnesium	5000	U	110	4880	ug/L	0.691	97.3	(0%-20%)			
Potassium	5000	U	50.0	5090	ug/L	0.0943	101	(0%-20%)			
Sodium	5000	U	100	5110	ug/L	0.117	102	(0%-20%)			
Vanadium	500	U	1.00	485	ug/L	1.01	97.1	(0%-20%)			
QC1203569009	399469007 SDILT										
Boron		B	49.3	DU	75.0	ug/L	N/A	(0%-10%)		06/21/16	14:46
Calcium		U	41.7	DU	250	ug/L	N/A	(0%-10%)			
Iron		U	1.44	DU	150	ug/L	N/A	(0%-10%)			
Magnesium		U	12.7	DU	550	ug/L	N/A	(0%-10%)			
Potassium		U	24.3	DU	250	ug/L	N/A	(0%-10%)			
Sodium		U	20.1	DU	500	ug/L	N/A	(0%-10%)			
Vanadium		U	-0.275	DU	5.00	ug/L	N/A	(0%-10%)			
Metals Analysis-Mercury											
Batch	1575650										
QC1203570221	399469007 DUP										
Mercury			4.91		4.84	ug/L	1.38	(0%-20%)	MTM1	06/21/16	11:23

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QC Summary

Workorder: 399469

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-Mercury											
Batch	1575650										
QC1203570220	LCS										
Mercury	2.00			2.03	ug/L		101	(80%-120%)	MTM1	06/21/16	11:19
QC1203570219	MB										
Mercury			U	0.067	ug/L					06/21/16	11:14
QC1203570222	399469007	MS									
Mercury	2.00	4.91		7.06	ug/L		108	(75%-125%)		06/21/16	11:24
QC1203570223	399469007	SDILT									
Mercury		4.91	D	0.994	ug/L	1.3		(0%-10%)		06/21/16	11:26

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.

General Chem Analysis

Case Narrative

General Chemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL399469
Work Order #: 399469

Product: Carbon, Total Organic
Analytical Method: SW846 9060A
Analytical Procedure: GL-GC-E-093 REV# 14
Analytical Batch: 1575007

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
399469010	B34T04
399469011	B34T05
399469012	B34T03
399469013	B34T06
1203568737	Method Blank (MB)
1203568738	Laboratory Control Sample (LCS)
1203568739	399469013(B34T06) Sample Duplicate (DUP)
1203568741	399469013(B34T06) Post Spike (PS)

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

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: Cyanide, Total

Analytical Method: 9012_CYANIDE

Analytical Procedure: GL-GC-E-095 REV# 18

Analytical Batches: 1574559 and 1574558

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
399469007	B34T00
399469008	B34T01
399469009	B34T02
1203567620	Method Blank (MB)
1203567621	Laboratory Control Sample (LCS)
1203567623	399283013(NonSDG) Sample Duplicate (DUP)
1203567625	399283013(NonSDG) Matrix Spike (MS)

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

Data Summary:

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

Technical Information

Sample Dilutions

The following samples 399469007 (B34T00), 399469008 (B34T01) and 399469009 (B34T02) were diluted because target analyte concentrations exceeded the calibration range.

Analyte	399469		
	007	008	009
Cyanide, Total	2X	2X	2X

Product: Total Organic Halogens (TOX)
Analytical Method: 9020_TOX
Analytical Procedure: GL-GC-E-007 REV# 14
Analytical Batch: 1575212

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
399469007	B34T00
399469008	B34T01
399469009	B34T02
399469010	B34T04
399469011	B34T05
399469012	B34T03
399469013	B34T06
1203569259	Method Blank (MB)
1203569260	Laboratory Control Sample (LCS)
1203569261	399469007(B34T00) Sample Duplicate (DUP)
1203569262	399469007(B34T00) Post Spike (PS)

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

Data Summary:

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

Miscellaneous Information

Additional Comments

A pair of nitrate wash blanks is analyzed at the start of the batch. Although they are designated as ICB, they are performed for calculating purposes only. The value of the nitrate wash blanks are averaged and subtracted from all samples. Neither of these values should exceed 0.6 ug Cl. The PQL limit typically applied to ICB results does not apply in this application, since the results are used only to determine background concentrations and are subtracted from all calculated results.

Breakthrough effect

Breakthrough effect: If the value for a sample is greater than the reporting limit (10 ug/L), the result for the second slug should not be greater than 25% of the combined value of the first and second slug. Results which do not meet these criteria are designated with a "Fail" comment in the Breakthrough effect column on the Logbook page; however, the "fail" designation is not applicable for samples with a result of less than 10 ug/L.

Product: Ion Chromatography

Analytical Method: 9056_ANIONS_IC

Analytical Procedure: GL-GC-E-086 REV# 25

Analytical Batch: 1575000

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
399469001	B34T07
399469002	B34T08
399469003	B34T09
1203568699	Method Blank (MB)
1203568700	Laboratory Control Sample (LCS)
1203568701	399469003(B34T09) Sample Duplicate (DUP)
1203568702	399469003(B34T09) Post Spike (PS)

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

Data Summary:

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

Technical Information

Sample Dilutions

The following samples 1203568701 (B34T09DUP), 1203568702 (B34T09PS), 399469001 (B34T07), 399469002 (B34T08) and 399469003 (B34T09) were diluted because target analyte concentrations exceeded the calibration range.

Analyte	399469		
	001	002	003
Chloride	10X	10X	10X
Nitrate	10X	10X	10X

Product: Hexavalent Chromium

Analytical Method: 7196_CR6

Analytical Procedure: GL-GC-E-044 REV# 21

Analytical Batch: 1575002

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
399469004	B34V36
399469005	B34V37
399469006	B34V38
1203568705	Method Blank (MB)
1203568706	Laboratory Control Sample (LCS)
1203568707	399469004(B34V36) Sample Duplicate (DUP)
1203568708	399469004(B34V36) Post Spike (PS)

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

Data Summary:

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

Technical Information

Sample Dilutions

The following samples 1203568707 (B34V36DUP), 1203568708 (B34V36PS), 399469004 (B34V36), 399469005 (B34V37) and 399469006 (B34V38) in this sample group were diluted due to matrix interference.

Analyte	399469		
	004	005	006
Hexavalent Chromium	4X	4X	4X

Certification Statement

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

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**Qualifier Definition Report
for**

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL399469 GEL Work Order: 399469

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: Kristen Mizzell

Date: 05 JUL 2016

Title: Analyst I

Sample Data Summary

July 13, 2016

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Certificate of Analysis

Report Date: July 5, 2016

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF X16-030

Client Sample ID: B34T07
Sample ID: 399469001
Matrix: WATER
Collect Date: 15-JUN-16 08:30
Receive Date: 16-JUN-16
Collector: Client
Project: CPRC0X16030
Client ID: CPRC001

Table with columns: Parameter, Qualifier, Result, DL, RL, Units, DF, Analyst, Date, Time Batch, Method. Rows include Ion Chromatography and various chemical analysis results like Fluoride, Nitrite-N, Sulfate, Chloride, Nitrate-N.

The following Analytical Methods were performed:

Table with columns: Method, Description, Analyst Comments. Rows 1 and 2 describe the 9056_ANIONS_IC method.

Notes:

July 13, 2016

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Certificate of Analysis

Report Date: July 5, 2016

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF X16-030

Client Sample ID: B34T08
Sample ID: 399469002
Matrix: WATER
Collect Date: 15-JUN-16 08:30
Receive Date: 16-JUN-16
Collector: Client
Project: CPRC0X16030
Client ID: CPRC001

Table with columns: Parameter, Qualifier, Result, DL, RL, Units, DF, Analyst, Date, Time Batch, Method. Rows include Ion Chromatography and various anion results like Fluoride, Nitrite-N, Sulfate, Chloride, Nitrate-N.

The following Analytical Methods were performed:

Table with columns: Method, Description, Analyst Comments. Rows 1 and 2 describe 9056_ANIONS_IC.

Notes:

July 13, 2016

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Certificate of Analysis

Report Date: July 5, 2016

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF X16-030

Client Sample ID: B34T09
Sample ID: 399469003
Matrix: WATER
Collect Date: 15-JUN-16 08:30
Receive Date: 16-JUN-16
Collector: Client
Project: CPRC0X16030
Client ID: CPRC001

Table with columns: Parameter, Qualifier, Result, DL, RL, Units, DF, Analyst, Date, Time Batch, Method. Rows include Ion Chromatography and various anion results like Fluoride, Nitrite-N, Sulfate, Chloride, Nitrate-N.

The following Analytical Methods were performed:

Table with columns: Method, Description, Analyst Comments. Rows 1 and 2 describe 9056_ANIONS_IC.

Notes:

July 13, 2016

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Certificate of Analysis

Report Date: July 5, 2016

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF X16-030

Client Sample ID: B34V36
Sample ID: 399469004
Matrix: WATER
Collect Date: 15-JUN-16 08:30
Receive Date: 16-JUN-16
Collector: Client
Project: CPRC0X16030
Client ID: CPRC001

Table with 11 columns: Parameter, Qualifier, Result, DL, RL, Units, DF, Analyst, Date, Time Batch, Method. Row 1: Spectrometric Analysis, 7196_CR6: COMMON "As Received", Hexavalent Chromium, D, 0.0658, 0.012, 0.040, mg/L, 4, AMB, 06/16/16, 1038, 1575002, 1.

The following Analytical Methods were performed:

Table with 3 columns: Method, Description, Analyst Comments. Row 1: 1, 7196_CR6.

Notes:

July 13, 2016

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Certificate of Analysis

Report Date: July 5, 2016

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF X16-030

Client Sample ID: B34V37
Sample ID: 399469005
Matrix: WATER
Collect Date: 15-JUN-16 08:30
Receive Date: 16-JUN-16
Collector: Client
Project: CPRC0X16030
Client ID: CPRC001

Table with 11 columns: Parameter, Qualifier, Result, DL, RL, Units, DF, Analyst, Date, Time Batch, Method. Row 1: Spectrometric Analysis, 7196_CR6: COMMON "As Received", Hexavalent Chromium, D, 0.0703, 0.012, 0.040, mg/L, 4, AMB, 06/16/16, 1040, 1575002, 1.

The following Analytical Methods were performed:

Table with 3 columns: Method, Description, Analyst Comments. Row 1: 1, 7196_CR6.

Notes:

July 13, 2016

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Certificate of Analysis

Report Date: July 5, 2016

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF X16-030

Client Sample ID: B34V38
Sample ID: 399469006
Matrix: WATER
Collect Date: 15-JUN-16 08:30
Receive Date: 16-JUN-16
Collector: Client
Project: CPRC0X16030
Client ID: CPRC001

Table with 11 columns: Parameter, Qualifier, Result, DL, RL, Units, DF, Analyst, Date, Time Batch, Method. Row 1: Spectrometric Analysis, 7196_CR6: COMMON "As Received", Hexavalent Chromium, D, 0.0794, 0.012, 0.040, mg/L, 4, AMB, 06/16/16, 1041, 1575002, 1.

The following Analytical Methods were performed:

Table with 3 columns: Method, Description, Analyst Comments. Row 1: 1, 7196_CR6, (empty).

Notes:

July 13, 2016

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Certificate of Analysis

Report Date: July 5, 2016

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF X16-030

Client Sample ID: B34T00
Sample ID: 399469007
Matrix: WATER
Collect Date: 15-JUN-16 08:30
Receive Date: 16-JUN-16
Collector: Client
Project: CPRC0X16030
Client ID: CPRC001

Table with 12 columns: Parameter, Qualifier, Result, DL, RL, Units, DF, Analyst, Date, Time, Batch, Method. Rows include Flow Injection Analysis (9012_CYANIDE) and Halogen Analysis (9020_TOX).

The following Prep Methods were performed:

Table with 6 columns: Method, Description, Analyst, Date, Time, Prep Batch. Row: SW846 9010C Distillation, SW846 9010C Prep, AXH3, 06/21/16, 1020, 1574558.

The following Analytical Methods were performed:

Table with 3 columns: Method, Description, Analyst Comments. Rows: 1, 9012_CYANIDE; 2, 9020_TOX.

Notes:

July 13, 2016

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Certificate of Analysis

Report Date: July 5, 2016

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF X16-030

Client Sample ID: B34T01
Sample ID: 399469008
Matrix: WATER
Collect Date: 15-JUN-16 08:30
Receive Date: 16-JUN-16
Collector: Client
Project: CPRC0X16030
Client ID: CPRC001

Table with 12 columns: Parameter, Qualifier, Result, DL, RL, Units, DF, Analyst, Date, Time, Batch, Method. Rows include Flow Injection Analysis (9012_CYANIDE) and Halogen Analysis (9020_TOX).

The following Prep Methods were performed:

Table with 6 columns: Method, Description, Analyst, Date, Time, Prep Batch. Row: SW846 9010C Distillation, SW846 9010C Prep, AXH3, 06/21/16, 1020, 1574558.

The following Analytical Methods were performed:

Table with 3 columns: Method, Description, Analyst Comments. Rows: 1, 9012_CYANIDE; 2, 9020_TOX.

Notes:

July 13, 2016

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: July 5, 2016

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF X16-030

Client Sample ID: B34T02 Project: CPRC0X16030
Sample ID: 399469009 Client ID: CPRC001
Matrix: WATER
Collect Date: 15-JUN-16 08:30
Receive Date: 16-JUN-16
Collector: Client

Table with 12 columns: Parameter, Qualifier, Result, DL, RL, Units, DF, Analyst, Date, Time, Batch, Method. Rows include Flow Injection Analysis (9012_CYANIDE) and Halogen Analysis (9020_TOX).

The following Prep Methods were performed:

Table with 6 columns: Method, Description, Analyst, Date, Time, Prep Batch. Row: SW846 9010C Distillation, SW846 9010C Prep, AXH3, 06/21/16, 1020, 1574558.

The following Analytical Methods were performed:

Table with 3 columns: Method, Description, Analyst Comments. Rows: 1, 9012_CYANIDE; 2, 9020_TOX.

Notes:

July 13, 2016

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: July 5, 2016

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF X16-030

Client Sample ID: B34T04
Sample ID: 399469010
Matrix: WATER
Collect Date: 15-JUN-16 08:30
Receive Date: 16-JUN-16
Collector: Client
Project: CPRC0X16030
Client ID: CPRC001

Table with 12 columns: Parameter, Qualifier, Result, DL, RL, Units, DF, Analyst, Date, Time, Batch, Method. Rows include Carbon Analysis (9060_TOX) and Halogen Analysis (9020_TOX).

The following Analytical Methods were performed:

Table with 3 columns: Method, Description, Analyst Comments. Rows 1 and 2 describe methods SW846 9060A and 9020_TOX.

Notes:

July 13, 2016

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Certificate of Analysis

Report Date: July 5, 2016

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF X16-030

Client Sample ID: B34T05
Sample ID: 399469011
Matrix: WATER
Collect Date: 15-JUN-16 08:30
Receive Date: 16-JUN-16
Collector: Client
Project: CPRC0X16030
Client ID: CPRC001

Table with 12 columns: Parameter, Qualifier, Result, DL, RL, Units, DF, Analyst, Date, Time, Batch, Method. Rows include Carbon Analysis (9060_TOX) and Halogen Analysis (9020_TOX).

The following Analytical Methods were performed:

Table with 3 columns: Method, Description, Analyst Comments. Rows 1 and 2 describe methods SW846 9060A and 9020_TOX.

Notes:

July 13, 2016

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: July 5, 2016

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF X16-030

Client Sample ID: B34T03
Sample ID: 399469012
Matrix: WATER
Collect Date: 15-JUN-16 08:30
Receive Date: 16-JUN-16
Collector: Client
Project: CPRC0X16030
Client ID: CPRC001

Table with 12 columns: Parameter, Qualifier, Result, DL, RL, Units, DF, Analyst, Date, Time, Batch, Method. Rows include Carbon Analysis (9060_TOX) and Halogen Analysis (9020_TOX).

The following Analytical Methods were performed:

Table with 3 columns: Method, Description, Analyst Comments. Rows 1 and 2 describe methods SW846 9060A and 9020_TOX.

Notes:

July 13, 2016

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: July 5, 2016

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF X16-030

Client Sample ID: B34T06
Sample ID: 399469013
Matrix: WATER
Collect Date: 15-JUN-16 08:30
Receive Date: 16-JUN-16
Collector: Client
Project: CPRC0X16030
Client ID: CPRC001

Table with 12 columns: Parameter, Qualifier, Result, DL, RL, Units, DF, Analyst, Date, Time, Batch, Method. Rows include Carbon Analysis (9060_TOX) and Halogen Analysis (9020_TOX).

The following Analytical Methods were performed:

Table with 3 columns: Method, Description, Analyst Comments. Rows 1 and 2 describe methods SW846 9060A and 9020_TOX.

Notes:

Quality Control Summary

July 13, 2016

GEL LABORATORIES LLC

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

QC Summary

Report Date: July 5, 2016

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CH2MHill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 399469

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Carbon Analysis											
Batch	1575007										
QC1203568739	399469013	DUP									
Total Organic Carbon Average		2380		2370	ug/L	0.673	^	(+/-1000)	TSM	06/18/16	16:19
QC1203568738	LCS										
Total Organic Carbon Average	10000			10700	ug/L			(80%-120%)		06/18/16	10:24
QC1203568737	MB										
Total Organic Carbon Average			U	330	ug/L					06/18/16	10:14
QC1203568741	399469013	PS									
Total Organic Carbon Average	10.0	2.38		12.5	mg/L			(75%-125%)		06/18/16	17:00
Flow Injection Analysis											
Batch	1574559										
QC1203567623	399283013	DUP									
Cyanide, Total		5.98		5.12	ug/L	15.5	^	(+/-5.00)	AXH3	06/21/16	10:48
QC1203567621	LCS										
Cyanide, Total	50.0			48.4	ug/L			(80%-120%)		06/21/16	10:42
QC1203567620	MB										
Cyanide, Total			U	1.67	ug/L					06/21/16	10:41
QC1203567625	399283013	MS									
Cyanide, Total	100	5.98		105	ug/L			(75%-125%)		06/21/16	10:49
Halogen Analysis											
Batch	1575212										
QC1203569261	399469007	DUP									
Total Organic Halogens		173		188	ug/L	8.62		(0%-20%)	RMJ	06/28/16	19:02
QC1203569260	LCS										
Total Organic Halogens	100			104	ug/L			(80%-120%)		06/28/16	18:17
QC1203569259	MB										
Total Organic Halogens			U	3.33	ug/L					06/28/16	17:54
QC1203569262	399469007	PS									
Total Organic Halogens	200	173		324	ug/L			(75%-125%)		06/28/16	19:46
Ion Chromatography											
Batch	1575000										

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GEL LABORATORIES LLC

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

QC Summary

Workorder: 399469

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ion Chromatography											
Batch	1575000										
QC1203568701	399469003 DUP										
Chloride	D	30300	D	30500	ug/L	0.477		(0%-20%)	MAR1	06/16/16	15:53
Fluoride		3140		3140	ug/L	0.127		(0%-20%)		06/16/16	12:11
Nitrate-N	D	43300	D	43400	ug/L	0.171		(0%-20%)		06/16/16	15:53
Nitrite-N		628		632	ug/L	0.54	^	(+/-250)		06/16/16	12:11
Sulfate		13600		13500	ug/L	0.297		(0%-20%)			
QC1203568700	LCS										
Chloride	5000			5120	ug/L		102	(80%-120%)		06/16/16	10:03
Fluoride	2500			2630	ug/L		105	(80%-120%)			
Nitrate-N	2500			2560	ug/L		102	(80%-120%)			
Nitrite-N	2500			2590	ug/L		104	(80%-120%)			
Sulfate	10000			10400	ug/L		104	(80%-120%)			
QC1203568699	MB										
Chloride			U	67.0	ug/L					06/16/16	09:32
Fluoride			U	33.0	ug/L						
Nitrate-N			U	33.0	ug/L						
Nitrite-N			U	33.0	ug/L						
Sulfate			U	133	ug/L						
QC1203568702	399469003 PS										
Chloride	5.00	D	3.03	D	8.20	mg/L		103	(75%-125%)	06/16/16	16:25
Fluoride	2.50		3.14		5.78	mg/L		106	(75%-125%)	06/16/16	15:22
Nitrate-N	2.50	D	4.33	D	7.13	mg/L		112	(75%-125%)	06/16/16	16:25
Nitrite-N	2.50		0.628		2.98	mg/L		93.9	(75%-125%)	06/16/16	15:22
Sulfate	10.0		13.6		24.5	mg/L		109	(75%-125%)		

Spectrometric Analysis

GEL LABORATORIES LLC

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

QC Summary

Workorder: 399469

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Spectrometric Analysis											
Batch	1575002										
QC1203568707	399469004	DUP									
Hexavalent Chromium		D	0.0658	D	0.0658	mg/L	0 ^	(+/-0.040)	AMB	06/16/16	10:39
QC1203568706	LCS										
Hexavalent Chromium	0.050				0.0483	mg/L		96.6 (80%-120%)		06/16/16	10:20
QC1203568705	MB										
Hexavalent Chromium				U	0.003	mg/L				06/16/16	10:20
QC1203568708	399469004	PS									
Hexavalent Chromium	0.050	D	0.0164	D	0.0699	mg/L		107 (75%-125%)		06/16/16	10:40

Notes:

The Qualifiers in this report are defined as follows:

- < Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide
- > Result greater than quantifiable range or greater than upper limit of the analysis range
- 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.
- 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.
- 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

Case Narrative

Radiochemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL399469
Work Order #: 399469

Product: PUISO_PRECIP_AEA:COMMON
Analytical Method: PUISO_PRECIP_AEA
Analytical Procedure: GL-RAD-A-011 REV# 26
Analytical Batch: 1576179

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
399469029	B34V27
399469030	B34V28
399469031	B34V29
1203571626	Method Blank (MB)
1203571627	399479001(NonSDG) Sample Duplicate (DUP)
1203571628	Laboratory Control Sample (LCS)

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

Data Summary:

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

Technical Information

Recounts

Sample 399469030 (B34V28) was recounted due to poor resolution. The recount is reported.

Miscellaneous Information

1. The Pu-242 tracer for sample 399469030 does not meet the resolution requirements of having a full width half maximum of 100 keV or less. 1. The tracer peak is within the Pu-242 ROI and the tracer yield recovery does meet the client acceptance criteria. Reporting results.

Product: GAMMA_GS:COMMON
Analytical Method: 901.1_GAMMA_GS
Analytical Procedure: GL-RAD-A-013 REV# 25
Analytical Batch: 1575754

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
399469023	B34V21
399469024	B34V22

399469025	B34V23
1203570525	Method Blank (MB)
1203570526	399283007(NonSDG) Sample Duplicate (DUP)
1203570527	Laboratory Control Sample (LCS)

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

Data Summary:

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

Quality Control (QC) Information

QC Information

All of the QC samples meet the required acceptance limits with the following exceptions: The sample and the duplicate, 1203570526 (Non SDG 399283007DUP), did not meet the Cs-137 relative error ratio requirement; however, both results are less than their respective MDCs.

Product: I129LL_SEP_LEPS_GS: COMMON (low level)

Analytical Method: DOE EML HASL-300,I-01 Modified

Analytical Procedure: GL-RAD-A-006 REV# 21

Analytical Batch: 1575923

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
399469026	B34V24
399469027	B34V25
399469028	B34V26
1203571035	Method Blank (MB)
1203571036	399283007(NonSDG) Sample Duplicate (DUP)
1203571037	399283007(NonSDG) Matrix Spike (MS)
1203571038	Laboratory Control Sample (LCS)

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

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Qualifier Information

Qualifier	Reason	Analyte	Sample	Client Sample
X	Data rejected due to high counting uncertainty.	Iodine-129	399469028	B34V26
X	Data rejected due to no valid peak.		399469026	B34V24

Product: 9310_ALPHABETA_GPC: COMMON

Analytical Method: 9310_ALPHABETA_GPC

Analytical Procedure: GL-RAD-A-001 REV# 18

Analytical Batch: 1577403

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
399469014	B34V12
399469015	B34V13
399469016	B34V14
1203574712	Method Blank (MB)
1203574713	399366006(NonSDG) Sample Duplicate (DUP)
1203574714	399366006(NonSDG) Matrix Spike (MS)
1203574715	399366006(NonSDG) Matrix Spike Duplicate (MSD)
1203574716	Laboratory Control Sample (LCS)

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

Data Summary:

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

Technical Information

Gross Alpha/Beta Preparation Information

High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating.

Recounts

Samples 1203574715 (Non SDG 399366006MSD) and 1203574716 (LCS) were recounted due to high recovery. The recounts are reported.

Miscellaneous Information

Additional Comments

The matrix spike and matrix spike duplicate, 1203574714 (Non SDG 399366006MS) and 1203574715 (Non SDG 399366006MSD), aliquots were reduced to conserve sample volume.

Product: SRISO_SEP_PRECIP_GPC: COMMON

Analytical Method: SRISO_SEP_PRECIP_GPC

Analytical Procedure: GL-RAD-A-004 REV# 17

Analytical Batch: 1577445

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
399469032	B34V30
399469033	B34V31
399469034	B34V32
1203574872	Method Blank (MB)
1203574873	399283005(NonSDG) Sample Duplicate (DUP)
1203574874	Laboratory Control Sample (LCS)

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

Data Summary:

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

Technical Information

Recounts

Samples 1203574873 (Non SDG 399283005DUP), 399469032 (B34V30), 399469033 (B34V31) and 399469034 (B34V32) were verified by recounting at least five days from the separation date. The recounts are reported.

Product: TC99_EIE_LSC: COMMON

Analytical Method: TC99_EIE_LSC

Analytical Procedure: GL-RAD-A-059 REV# 4

Analytical Batch: 1575749

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
399469036	B34V34
399469037	B34V35
1203570510	Method Blank (MB)
1203570511	399283007(NonSDG) Sample Duplicate (DUP)
1203570512	Laboratory Control Sample (LCS)

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

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this

report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: TRITIUM_DIST_LSC: COMMON

Analytical Method: TRITIUM_DIST_LSC

Analytical Procedure: GL-RAD-A-002 REV# 21

Analytical Batch: 1576839

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
399469017	B34V15
399469018	B34V16
399469019	B34V17
1203573300	Method Blank (MB)
1203573301	399283007(NonSDG) Sample Duplicate (DUP)
1203573302	399283007(NonSDG) Matrix Spike (MS)
1203573303	Laboratory Control Sample (LCS)

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

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: C14_LSC: COMMON

Analytical Method: C14_LSC

Analytical Procedure: GL-RAD-A-003 REV# 15

Analytical Batch: 1576854

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
399469020	B34V18
399469021	B34V19
399469022	B34V20
1203573364	Method Blank (MB)
1203573365	399283007(NonSDG) Sample Duplicate (DUP)
1203573367	399283007(NonSDG) Matrix Spike (MS)
1203573369	Laboratory Control Sample (LCS)

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

Data Summary:

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

Technical Information

Recounts

Samples 399469020 (B34V18), 399469021 (B34V19) and 399469022 (B34V20) were recounted to verify sample results. Recounts are reported.

Product: TC99_EIE_LSC: COMMON

Analytical Method: TC99_EIE_LSC

Analytical Procedure: GL-RAD-A-059 REV# 4

Analytical Batch: 1578958

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
399469035	B34V33
1203578395	Method Blank (MB)
1203578396	399469035(B34V33) Sample Duplicate (DUP)
1203578397	Laboratory Control Sample (LCS)

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

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Certification Statement

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

GEL LABORATORIES LLC

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

**Qualifier Definition Report
for**

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL399469 GEL Work Order: 399469

The Qualifiers in this report are defined as follows:

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

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature:



Name: Theresa Austin

Date: 12 JUL 2016

Title: Group Leader

Sample Data Summary

Rad
Certificate of Analysis
Sample Summary

Page 1 of 1

SDG Number: GEL399469
 Lab Sample ID: 399469014

Client: CPRC001
 Date Collected: 06/15/2016 08:30
 Date Received: 06/16/2016 09:15

Project: CPRC0X16030
 Matrix: WATER

Client ID: B34V12
 Batch ID: 1577403
 Run Date: 07/01/2016 11:30
 Data File: AB1577403rr.xls
 Prep Batch: 1577403
 Prep Date: 06/30/2016 14:18

Method: 9310_ALPHABETA_GPC
 Analyst: JXC9
 Aliquot: 150 mL
 Prep Method: EPA 900.0/SW846 9310

Prep Basis: "As Received"
 SOP Ref: GL-RAD-A-001
 Instrument: PIC4D
 Count Time: 210 min

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
12587-46-1	Alpha ALPHA		98.6	pCi/L	+/-7.08	18.2	2.94	3.00
12587-47-2	Beta BETA		77.4	pCi/L	+/-3.69	13.4	2.87	4.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

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

The MDC is a sample specific MDC.

Rad
 Certificate of Analysis
 Sample Summary

SDG Number: GEL399469
 Lab Sample ID: 399469015

Client: CPRC001
 Date Collected: 06/15/2016 08:30
 Date Received: 06/16/2016 09:15

Project: CPRC0X16030
 Matrix: WATER

Client ID: B34V13
 Batch ID: 1577403
 Run Date: 07/01/2016 11:30
 Data File: AB1577403rr.xls
 Prep Batch: 1577403
 Prep Date: 06/30/2016 14:18

Method: 9310_ALPHABETA_GPC
 Analyst: JXC9
 Aliquot: 150 mL
 Prep Method: EPA 900.0/SW846 9310

Prep Basis: "As Received"
 SOP Ref: GL-RAD-A-001
 Instrument: PIC3B
 Count Time: 240 min

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
12587-46-1	Alpha ALPHA		74.8	pCi/L	+/-5.86	14.0	2.99	3.00
12587-47-2	Beta BETA		74.2	pCi/L	+/-3.36	12.9	2.52	4.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

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

Rad
Certificate of Analysis
Sample Summary

Page 1 of 1

SDG Number: GEL399469
 Lab Sample ID: 399469016

Client: CPRC001
 Date Collected: 06/15/2016 08:30
 Date Received: 06/16/2016 09:15

Project: CPRC0X16030
 Matrix: WATER

Client ID: B34V14
 Batch ID: 1577403
 Run Date: 07/01/2016 11:30
 Data File: AB1577403rr.xls
 Prep Batch: 1577403
 Prep Date: 06/30/2016 14:18

Method: 9310_ALPHABETA_GPC
 Analyst: JXC9
 Aliquot: 150 mL
 Prep Method: EPA 900.0/SW846 9310

Prep Basis: "As Received"
 SOP Ref: GL-RAD-A-001
 Instrument: PIC4B
 Count Time: 230 min

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
12587-46-1	Alpha ALPHA		88.1	pCi/L	+/-6.68	15.9	3.00	3.00
12587-47-2	Beta BETA		66.2	pCi/L	+/-3.29	12.0	2.54	4.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

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

The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number: GEL399469	Client: CPRC001	Project: CPRC0X16030
Lab Sample ID: 399469017	Date Collected: 06/15/2016 08:30	Matrix: WATER
	Date Received: 06/16/2016 09:15	
Client ID: B34V15	Method: TRITIUM_DIST_LSC	Prep Basis: "As Received"
Batch ID: 1576839	Analyst: TXJ1	SOP Ref: GL-RAD-A-002
Run Date: 06/30/2016 09:25	Aliquot: 50 mL	Instrument: LSCRED
Data File: T1576839.xls	Prep Method: EPA 906.0 Modified	Count Time: 40 min
Prep Batch: 1576839		
Prep Date: 06/29/2016 15:40		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		1010	pCi/L	+/-237	308	332	400

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits

Comments:

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

Rad
 Certificate of Analysis
 Sample Summary

SDG Number: GEL399469	Client: CPRC001	Project: CPRC0X16030
Lab Sample ID: 399469018	Date Collected: 06/15/2016 08:30	Matrix: WATER
	Date Received: 06/16/2016 09:15	
Client ID: B34V16	Method: TRITIUM_DIST_LSC	Prep Basis: "As Received"
Batch ID: 1576839	Analyst: TXJ1	SOP Ref: GL-RAD-A-002
Run Date: 06/30/2016 10:07	Aliquot: 50 mL	Instrument: LSCRED
Data File: T1576839.xls	Prep Method: EPA 906.0 Modified	Count Time: 40 min
Prep Batch: 1576839		
Prep Date: 06/29/2016 15:40		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		901	pCi/L	+/-231	289	330	400

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

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

Rad
Certificate of Analysis
Sample Summary

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SDG Number: GEL399469
 Lab Sample ID: 399469019

Client: CPRC001
 Date Collected: 06/15/2016 08:30
 Date Received: 06/16/2016 09:15

Project: CPRC0X16030
 Matrix: WATER

Client ID: B34V17
 Batch ID: 1576839
 Run Date: 06/30/2016 10:49
 Data File: T1576839.xls
 Prep Batch: 1576839
 Prep Date: 06/29/2016 15:40

Method: TRITIUM_DIST_LSC
 Analyst: TXJ1
 Aliquot: 50 mL
 Prep Method: EPA 906.0 Modified

Prep Basis: "As Received"
 SOP Ref: GL-RAD-A-002
 Instrument: LSCRED
 Count Time: 40 min

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		858	pCi/L	+/-227	282	327	400

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

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

Rad
 Certificate of Analysis
 Sample Summary

SDG Number: GEL399469	Client: CPRC001	Project: CPRC0X16030
Lab Sample ID: 399469020	Date Collected: 06/15/2016 08:30	Matrix: WATER
	Date Received: 06/16/2016 09:15	
Client ID: B34V18	Method: C14_LSC	Prep Basis: "As Received"
Batch ID: 1576854	Analyst: TXJ1	SOP Ref: GL-RAD-A-003
Run Date: 07/03/2016 17:35	Aliquot: 60 mL	Instrument: LSCBROWN
Data File: C1576854R.xls	Prep Method: EPA EERF C-01 Modified	Count Time: 30 min
Prep Batch: 1576854		
Prep Date: 06/30/2016 16:07		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14		698	pCi/L	+/-35.0	134	32.5	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

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

**Rad
Certificate of Analysis
Sample Summary**

SDG Number: GEL399469	Client: CPRC001	Project: CPRC0X16030
Lab Sample ID: 399469021	Date Collected: 06/15/2016 08:30	Matrix: WATER
	Date Received: 06/16/2016 09:15	
Client ID: B34V19	Method: C14_LSC	Prep Basis: "As Received"
Batch ID: 1576854	Analyst: TXJ1	SOP Ref: GL-RAD-A-003
Run Date: 07/03/2016 18:06	Aliquot: 60 mL	Instrument: LSCBROWN
Data File: C1576854R.xls	Prep Method: EPA EERF C-01 Modified	Count Time: 30 min
Prep Batch: 1576854		
Prep Date: 06/30/2016 16:07		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14		629	pCi/L	+/-33.7	122	32.6	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number: GEL399469	Client: CPRC001	Project: CPRC0X16030
Lab Sample ID: 399469022	Date Collected: 06/15/2016 08:30	Matrix: WATER
	Date Received: 06/16/2016 09:15	
Client ID: B34V20	Method: C14_LSC	Prep Basis: "As Received"
Batch ID: 1576854	Analyst: TXJ1	SOP Ref: GL-RAD-A-003
Run Date: 07/03/2016 18:38	Aliquot: 60 mL	Instrument: LSCBROWN
Data File: C1576854R.xls	Prep Method: EPA EERF C-01 Modified	Count Time: 30 min
Prep Batch: 1576854		
Prep Date: 06/30/2016 16:07		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14762-75-5	Carbon-14		686	pCi/L	+/-34.7	132	32.5	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number: GEL399469
Lab Sample ID: 399469023

Client ID: B34V21
Batch ID: 1575754
Run Date: 06/28/2016 09:30
Data File: G399469023.CNF;1
Prep Batch: 1575754
Prep Date: 06/24/2016 00:00

Client: CPRC001
Date Collected: 06/15/2016 08:30
Date Received: 06/16/2016 09:15

Method: 901.1_GAMMA_GS
Analyst: MXR1
Aliquot: 2 L
Prep Method: EPA 901.1

Project: CPRC0X16030
Matrix: WATER

Prep Basis: "As Received"
SOP Ref: GL-RAD-A-013
Instrument: GAM36
Count Time: 120 min

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137		109	pCi/L	+/-14.9	15.6	9.90	15.0
10198-40-0	Cobalt-60		122	pCi/L	+/-17.2	17.8	9.45	
14683-23-9	Europium-152	U	-1.71	pCi/L	+/-13.6	13.6	24.9	
15585-10-1	Europium-154	U	3.06	pCi/L	+/-11.9	12.0	25.9	
14391-16-3	Europium-155	U	5.47	pCi/L	+/-15.4	15.6	25.9	

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
The MDC is a sample specific MDC.

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Sample Summary

SDG Number: GEL399469
Lab Sample ID: 399469024

Client ID: B34V22
Batch ID: 1575754
Run Date: 06/28/2016 09:31
Data File: G399469024.CNF;1
Prep Batch: 1575754
Prep Date: 06/24/2016 00:00

Client: CPRC001
Date Collected: 06/15/2016 08:30
Date Received: 06/16/2016 09:15

Method: 901.1_GAMMA_GS
Analyst: MXR1
Aliquot: 2 L
Prep Method: EPA 901.1

Project: CPRC0X16030
Matrix: WATER

Prep Basis: "As Received"
SOP Ref: GL-RAD-A-013
Instrument: GAM41
Count Time: 120 min

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137		113	pCi/L	+/-13.7	16.6	7.17	15.0
10198-40-0	Cobalt-60		117	pCi/L	+/-14.2	16.8	5.88	
14683-23-9	Europium-152	U	-8.5	pCi/L	+/-10.9	11.6	18.7	
15585-10-1	Europium-154	U	8.98	pCi/L	+/-12.8	13.4	26.7	
14391-16-3	Europium-155	U	-4.14	pCi/L	+/-10.6	10.8	18.5	

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number: GEL399469
Lab Sample ID: 399469025

Client ID: B34V23
Batch ID: 1575754
Run Date: 06/28/2016 09:31
Data File: G399469025.CNF;1
Prep Batch: 1575754
Prep Date: 06/24/2016 00:00

Client: CPRC001
Date Collected: 06/15/2016 08:30
Date Received: 06/16/2016 09:15

Method: 901.1_GAMMA_GS
Analyst: MXR1
Aliquot: 2 L
Prep Method: EPA 901.1

Project: CPRC0X16030
Matrix: WATER

Prep Basis: "As Received"
SOP Ref: GL-RAD-A-013
Instrument: GAM43
Count Time: 120 min

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10045-97-3	Cesium-137		105	pCi/L	+/-11.9	15.0	7.68	15.0
10198-40-0	Cobalt-60		120	pCi/L	+/-14.0	16.9	8.45	
14683-23-9	Europium-152	U	-3.85	pCi/L	+/-12.0	12.1	21.3	
15585-10-1	Europium-154	U	-1.66	pCi/L	+/-11.1	11.1	20.9	
14391-16-3	Europium-155	U	15.9	pCi/L	+/-20.0	21.3	26.9	

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
The MDC is a sample specific MDC.

Rad
 Certificate of Analysis
 Sample Summary

SDG Number: GEL399469	Client: CPRC001	Project: CPRC0X16030
Lab Sample ID: 399469026	Date Collected: 06/15/2016 08:30	Matrix: WATER
	Date Received: 06/16/2016 09:15	
Client ID: B34V24	Method: DOE EML HASL-300,I-01 Mo	Prep Basis: "As Received"
Batch ID: 1575923	Analyst: MJH1	SOP Ref: GL-RAD-A-006
Run Date: 06/30/2016 14:27	Aliquot: 1.5 L	Instrument: XRAY6
Data File: I399469026.CNF;1	Prep Method: DOE EML HASL-300,I-01 M	Count Time: 60 min
Prep Batch: 1575923		
Prep Date: 06/29/2016 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	UX	0.00	pCi/L	+/-0.881	0.897	0.901	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

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

Rad
 Certificate of Analysis
 Sample Summary

SDG Number: GEL399469	Client: CPRC001	Project: CPRC0X16030
Lab Sample ID: 399469027	Date Collected: 06/15/2016 08:30	Matrix: WATER
	Date Received: 06/16/2016 09:15	
Client ID: B34V25	Method: DOE EML HASL-300,I-01 Mo	Prep Basis: "As Received"
Batch ID: 1575923	Analyst: MJH1	SOP Ref: GL-RAD-A-006
Run Date: 06/30/2016 15:41	Aliquot: 1.5 L	Instrument: XRAY1
Data File: I399469027.CNF;1	Prep Method: DOE EML HASL-300,I-01 M	Count Time: 120 min
Prep Batch: 1575923		
Prep Date: 06/29/2016 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129		1.59	pCi/L	+/-0.508	0.531	0.588	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number: GEL399469	Client: CPRC001	Project: CPRC0X16030
Lab Sample ID: 399469028	Date Collected: 06/15/2016 08:30	Matrix: WATER
	Date Received: 06/16/2016 09:15	
Client ID: B34V26	Method: DOE EML HASL-300,I-01 Mo	Prep Basis: "As Received"
Batch ID: 1575923	Analyst: MJH1	SOP Ref: GL-RAD-A-006
Run Date: 06/30/2016 15:41	Aliquot: 1.5 L	Instrument: XRAY2
Data File: I399469028.CNF;1	Prep Method: DOE EML HASL-300,I-01 M	Count Time: 120 min
Prep Batch: 1575923		
Prep Date: 06/29/2016 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
15046-84-1	Iodine-129	UX	0.00	pCi/L	+/-0.766	0.772	0.920	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

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

Rad
Certificate of Analysis
Sample Summary

SDG Number: GEL399469	Client: CPRC001	Project: CPRC0X16030
Lab Sample ID: 399469029	Date Collected: 06/15/2016 08:30	Matrix: WATER
	Date Received: 06/16/2016 09:15	
Client ID: B34V27	Method: PUIISO_PRECIP_AEA	Prep Basis: "As Received"
Batch ID: 1576179	Analyst: MXS2	SOP Ref: GL-RAD-A-011
Run Date: 07/02/2016 10:52	Aliquot: 0.4 L	Instrument: 1213
Data File: S0399469029_PU.1A.gcnf	Prep Method: DOE EML HASL-300, Pu-11-	Count Time: 240 min
Prep Batch: 1576179		
Prep Date: 07/01/2016 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
I3981-16-3	Plutonium-238	U	0.0112	pCi/L	+/-0.0621	0.0622	0.119	1.00
OER-100-70	Plutonium-239/240		8.98	pCi/L	+/-0.864	1.54	0.142	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	4.23	4.93	pCi/L	85.7	(30%-105%)

Comments:

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
 TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
 The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number: GEL399469	Client: CPRC001	Project: CPRC0X16030
Lab Sample ID: 399469030	Date Collected: 06/15/2016 08:30	Matrix: WATER
	Date Received: 06/16/2016 09:15	
Client ID: B34V28	Method: PUIISO_PRECIP_AEA	Prep Basis: "As Received"
Batch ID: 1576179	Analyst: MXS2	SOP Ref: GL-RAD-A-011
Run Date: 07/05/2016 11:02	Aliquot: 0.4 L	Instrument: 1103
Data File: S0399469030_PU.1B.gcnf	Prep Method: DOE EML HASL-300, Pu-11-	Count Time: 239.9998 min
Prep Batch: 1576179		
Prep Date: 07/01/2016 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
I3981-16-3	Plutonium-238	U	-0.0118	pCi/L	+/-0.0356	0.0356	0.0999	1.00
OER-100-70	Plutonium-239/240		8.48	pCi/L	+/-0.732	1.29	0.121	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	4.23	4.93	pCi/L	85.8	(30%-105%)

Comments:

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
 TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
 The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number: GEL399469	Client: CPRC001	Project: CPRC0X16030
Lab Sample ID: 399469031	Date Collected: 06/15/2016 08:30	Matrix: WATER
	Date Received: 06/16/2016 09:15	
Client ID: B34V29	Method: PUIISO_PRECIP_AEA	Prep Basis: "As Received"
Batch ID: 1576179	Analyst: MXS2	SOP Ref: GL-RAD-A-011
Run Date: 07/02/2016 10:52	Aliquot: 0.4 L	Instrument: 1215
Data File: S0399469031_PU.1A.gcnf	Prep Method: DOE EML HASL-300, Pu-11-	Count Time: 240 min
Prep Batch: 1576179		
Prep Date: 07/01/2016 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
I3981-16-3	Plutonium-238	U	0.00192	pCi/L	+/-0.0883	0.0883	0.194	1.00
OER-100-70	Plutonium-239/240		10.3	pCi/L	+/-0.978	1.81	0.194	1.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Plutonium-242 Tracer	4.21	4.93	pCi/L	85.4	(30%-105%)

Comments:

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
 TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
 The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number: GEL399469	Client: CPRC001	Project: CPRC0X16030
Lab Sample ID: 399469032	Date Collected: 06/15/2016 08:30	Matrix: WATER
	Date Received: 06/16/2016 09:15	
Client ID: B34V30	Method: SRISO_SEP_PRECIP_GPC	Prep Basis: "As Received"
Batch ID: 1577445	Analyst: KSD1	SOP Ref: GL-RAD-A-004
Run Date: 07/06/2016 09:12	Aliquot: 300 mL	Instrument: PIC11B
Data File: S1577445r.xls	Prep Method: EPA 905.0 Modified/DOE RP5	Count Time: 70 min
Prep Batch: 1577445		
Prep Date: 06/30/2016 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10098-97-2	Strontium-90		5.32	pCi/L	+/-1.03	1.32	1.05	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	5.20	7.37	mg	70.6	(40%-110%)

Comments:

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

The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number: GEL399469	Client: CPRC001	Project: CPRC0X16030
Lab Sample ID: 399469033	Date Collected: 06/15/2016 08:30	Matrix: WATER
	Date Received: 06/16/2016 09:15	
Client ID: B34V31	Method: SRISO_SEP_PRECIP_GPC	Prep Basis: "As Received"
Batch ID: 1577445	Analyst: KSD1	SOP Ref: GL-RAD-A-004
Run Date: 07/06/2016 09:12	Aliquot: 300 mL	Instrument: PIC13B
Data File: S1577445r.xls	Prep Method: EPA 905.0 Modified/DOE RP5	Count Time: 70 min
Prep Batch: 1577445		
Prep Date: 06/30/2016 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10098-97-2	Strontium-90		5.11	pCi/L	+/-1.07	1.34	1.01	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	4.40	7.37	mg	59.7	(40%-110%)

Comments:

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

The MDC is a sample specific MDC.

Rad
 Certificate of Analysis
 Sample Summary

SDG Number: GEL399469	Client: CPRC001	Project: CPRC0X16030
Lab Sample ID: 399469034	Date Collected: 06/15/2016 08:30	Matrix: WATER
	Date Received: 06/16/2016 09:15	
Client ID: B34V32	Method: SRISO_SEP_PRECIP_GPC	Prep Basis: "As Received"
Batch ID: 1577445	Analyst: KSD1	SOP Ref: GL-RAD-A-004
Run Date: 07/06/2016 09:06	Aliquot: 300 mL	Instrument: PIC8B
Data File: S1577445r.xls	Prep Method: EPA 905.0 Modified/DOE RP5	Count Time: 70 min
Prep Batch: 1577445		
Prep Date: 06/30/2016 00:00		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10098-97-2	Strontium-90		3.57	pCi/L	+/-1.11	1.26	1.23	2.00

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Strontium Carrier	3.10	7.37	mg	42.1	(40%-110%)

Comments:

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

Rad
 Certificate of Analysis
 Sample Summary

SDG Number: GEL399469	Client: CPRC001	Project: CPRC0X16030
Lab Sample ID: 399469035	Date Collected: 06/15/2016 08:30	Matrix: WATER
	Date Received: 06/16/2016 09:15	
Client ID: B34V33	Method: TC99_EIE_LSC	Prep Basis: "As Received"
Batch ID: 1578958	Analyst: CXS7	SOP Ref: GL-RAD-A-059
Run Date: 07/10/2016 09:52	Aliquot: 100 mL	Instrument: LSCGREEN
Data File: E1578958.xls	Prep Method: DOE EML HASL-300, Tc-02-	Count Time: 25 min
Prep Batch: 1578958		
Prep Date: 07/05/2016 12:46		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		214	pCi/L	+/-27.3	36.2	36.4	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	31300	35700	CPM	87.7	(30%-105%)

Comments:

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

The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

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SDG Number: GEL399469
 Lab Sample ID: 399469036

Client: CPRC001
 Date Collected: 06/15/2016 08:30
 Date Received: 06/16/2016 09:15

Project: CPRC0X16030
 Matrix: WATER

Client ID: B34V34
 Batch ID: 1575749
 Run Date: 07/05/2016 18:36
 Data File: E1575749.xls
 Prep Batch: 1575749
 Prep Date: 06/30/2016 12:36

Method: TC99_EIE_LSC
 Analyst: CXS7
 Aliquot: 100 mL
 Prep Method: DOE EML HASL-300, Tc-02-

Prep Basis: "As Received"
 SOP Ref: GL-RAD-A-059
 Instrument: LSCBLUE
 Count Time: 30 min

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		195	pCi/L	+/-22.4	31.1	28.6	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	37600	43800	CPM	85.9	(30%-105%)

Comments:

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

The MDC is a sample specific MDC.

Rad
Certificate of Analysis
Sample Summary

SDG Number: GEL399469	Client: CPRC001	Project: CPRC0X16030
Lab Sample ID: 399469037	Date Collected: 06/15/2016 08:30	Matrix: WATER
	Date Received: 06/16/2016 09:15	
Client ID: B34V35	Method: TC99_EIE_LSC	Prep Basis: "As Received"
Batch ID: 1575749	Analyst: CXS7	SOP Ref: GL-RAD-A-059
Run Date: 07/05/2016 19:08	Aliquot: 100 mL	Instrument: LSCBLUE
Data File: E1575749.xls	Prep Method: DOE EML HASL-300, Tc-02-	Count Time: 30 min
Prep Batch: 1575749		
Prep Date: 06/30/2016 12:36		

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
14133-76-7	Technetium-99		201	pCi/L	+/-22.9	32.0	29.2	50.0

Surrogate/Tracer recovery	Result	Nominal	Units	Recovery%	Acceptable Limits
Technetium-99m Tracer	36800	43800	CPM	84	(30%-105%)

Comments:

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

The MDC is a sample specific MDC.

Quality Control Summary

July 13, 2016

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QC Summary

Report Date: July 12, 2016
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Client : CH2MHill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Workorder: 399469

Table with columns: Parmname, NOM, Sample, Qual, QC, Units, QC Criteria, Range, Analyst, Date Time. Contains data for Rad Alpha Spec and Rad Gamma Spec, including various Plutonium and Cesium isotopes with their respective measurements and uncertainties.

July 13, 2016

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QC Summary

Workorder: 399469

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Table with columns: Parmname, NOM, Sample, Qual, QC, Units, QC Criteria, Range, Analyst, Date Time. Rows include Rad Gamma Spec, Europium-155, Cesium-137, Cobalt-60, Americium-241, Iodine-129, etc.

July 13, 2016

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QC Summary

Workorder: 399469

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Parname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Gamma Spec									
Batch	1575923								
		Uncert:	+/-0.361	+/-3.28					
		TPU:	+/-0.369	+/-4.14					
QC1203571038	LCS								
Iodine-129	27.7			26.2	pCi/L	REC: 95	(80%-120%)		07/01/1611:08
		Uncert:		+/-2.90					
		TPU:		+/-3.88					
Rad Gas Flow									
Batch	1577403								
QC1203574712	MB								
Alpha			U	-0.427	pCi/L			JXC9	07/01/1611:46
		Uncert:		+/-1.27					
		TPU:		+/-1.27					
Beta			U	-0.345	pCi/L				
		Uncert:		+/-1.58					
		TPU:		+/-1.58					
QC1203574713	399366006	DUP							
Alpha	27.6			27.2	pCi/L				07/01/1611:46
		Uncert:	+/-4.33	+/-6.85		RPD: 1	(0% - 20%)		
		TPU:	+/-6.28	+/-8.17		RER: 0.0727	(0-2)		
Beta	49.0			48.8	pCi/L				
		Uncert:	+/-3.23	+/-5.21		RPD: 0	(0% - 20%)		
		TPU:	+/-8.75	+/-9.63		RER: 0.0305	(0-2)		
QC1203574714	399366006	MS							
Alpha	240	27.6		283	pCi/L	REC: 107	(75%-125%)		07/01/1611:50
		Uncert:	+/-4.33	+/-33.6					
		TPU:	+/-6.28	+/-59.1					
Beta	876	49.0		1130	pCi/L	REC: 124	(75%-125%)		
		Uncert:	+/-3.23	+/-41.0					
		TPU:	+/-8.75	+/-193					
QC1203574715	399366006	MSD							
Alpha	240	27.6		252	pCi/L	REC: 94	(75%-125%)		07/06/1614:30
		Uncert:	+/-4.33	+/-31.8		RPD: 12	(0%-20%)		
		TPU:	+/-6.28	+/-52.1		RER: 0.769	(0-2)		
Beta	876	49.0		925	pCi/L	REC: 100	(75%-125%)		
		Uncert:	+/-3.23	+/-36.7		RPD: 20	(0%-20%)		
		TPU:	+/-8.75	+/-158		RER: 1.64	(0-2)		
QC1203574716	LCS								
Alpha	79.9			89.2	pCi/L	REC: 112	(80%-120%)		07/07/1610:00
		Uncert:		+/-8.19					
		TPU:		+/-16.9					
Beta	292			345	pCi/L	REC: 118	(80%-120%)		
		Uncert:		+/-12.3					
		TPU:		+/-58.2					
Batch	1577445								
QC1203574872	MB								
Strontium-90			U	-0.204	pCi/L			KSD1	07/05/1617:04
		Uncert:		+/-0.365					
		TPU:		+/-0.365					
**Strontium Carrier	7.37			5.90	mg	REC: 80	(40%-110%)		
QC1203574873	399283005	DUP							

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QC Summary

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Table with columns: Parmname, NOM, Sample, Qual, QC, Units, QC Criteria, Range, Analyst, Date Time. Rows include Rad Gas Flow, Rad Liquid Scintillation, and various isotopes like Strontium-90, Technetium-99, Tritium, and Carbon-14.

QC Summary

Workorder: 399469

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Parname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date	Time
Rad Liquid Scintillation										
Batch	1576854									
Carbon-14		U	0.650	U	1.82	pCi/L				
		Uncert:	+/-18.9		+/-18.9		RPD:	0	N/A	
		TPU:	+/-18.9		+/-18.9		RER:	0.0861	(0-2)	
QC1203573367	399283007	MS								
Carbon-14	1260	U	0.650		1210	pCi/L	REC:	96	(75%-125%)	07/01/1614:53
		Uncert:	+/-18.9		+/-43.1					
		TPU:	+/-18.9		+/-229					
QC1203573369	LCS									
Carbon-14	1260				1250	pCi/L	REC:	99	(80%-120%)	07/01/1615:25
		Uncert:			+/-43.7					
		TPU:			+/-237					
Batch	1578958									
QC1203578395	MB									
Technetium-99				U	-3.74	pCi/L			CXS7	07/10/1611:12
		Uncert:			+/-24.1					
		TPU:			+/-24.1					
**Technetium-99m Tracer	35700				27500	CPM	REC:	77	(30%-105%)	
QC1203578396	399469035	DUP								
Technetium-99			214		204	pCi/L				07/10/1611:38
		Uncert:	+/-27.3		+/-27.6		RPD:	5	(0% - 20%)	
		TPU:	+/-36.2		+/-35.7		RER:	0.4	(0-2)	
**Technetium-99m Tracer	35700		31300		30900	CPM	REC:	87	(30%-105%)	
QC1203578397	LCS									
Technetium-99	861				819	pCi/L	REC:	95	(80%-120%)	07/10/1612:05
		Uncert:			+/-39.7					
		TPU:			+/-99.2					
**Technetium-99m Tracer	35700				31800	CPM	REC:	89	(30%-105%)	

Notes:

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

The Qualifiers in this report are defined as follows:

- * Duplicate analysis not within control limits
- + Correlation coefficient for Method of Standard Additions (MSA) is < 0.995
- < Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide
- > Result greater than quantifiable range or greater than upper limit of the analysis range
- 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

July 13, 2016

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QC Summary

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Parname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date	Time
M										
N										
P										
S										
T										
U										
UX										
W										
X										
Y										
Z										
o										

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.