GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178

www.gel.com

January 06, 2015

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

Re: CHPRC SAF S15-012
Work Order: 362992
SDG: GEL362992

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on December 12, 2014. 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,

Hope Taylor for
Heather Shaffer
Project Manager

Purchase Order: 300071JDBA - 7H
Chain of Custody: S15-012-223, S15-012-224, S15-012-344 and S15-012-345
Enclosures

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Case Narrative

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF S15-012
SDG: GEL362992

January 06, 2015

Laboratory Identification:

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

Summary

Sample receipt

The sample(s) arrived at GEL Laboratories, LLC, Charleston, South Carolina on December 12, 2014, for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

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

Sample Identification
The laboratory received the following samples:

Laboratory Identification	Sample Description
362992001	B2YKP1
362992002	B2YMC2
362992003	B2YKP0
362992004	B2YKP3
362992005	B2YMC1

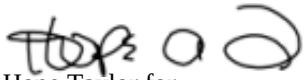
Case Narrative

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: General Chemistry and Radiochemistry.

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



Hope Taylor for
Heather Shaffer
Project Manager

Chain of Custody and Supporting Documentation

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 362992	C.O.C. # S15-012-224 Page 1 of 1

Collector	S.W. King/CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	S15-012	**Sampling Origin**	Hanford Site 25	**Purchase Order/Charge Code**	300071JDBA
Project Title	SURV, DECEMBER 2014	**Logbook No.**	HNF-N-506 71 / 27 Aqua-Hill	**Ice Chest No.**	GWS-331
Shipped To (Lab)	GEL Laboratories, LLC	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	7721 9693 0921
Protocol	SURV	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	5269

POSSIBLE SAMPLE HAZARDS/REMARKS

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B2YKP1	N	W	DEC 11 2014	1150	1x250-mL G/P	9056_ANIONS_IC: COMMON	28 Days/48 Hours	Cool <=6C

Relinquished By	Print / Sign	Date/Time	Received By	Print / Sign	Date/Time
S.W. King/CHPRC		DEC 11 2014 1330	F.M. Hall/CHPRC		DEC 11 2014 1330
F.M. Hall/CHPRC		DEC 11 2014 1400	FEDEX		12-11-14 DEC 11 2014
FED EX			Patricia Dent P. Dent		12.12.14 0935

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) | Disposed By | Date/Time

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A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 362992	C.O.C. # S15-012-345 Page 1 of 1

Collector	S.W. King/CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	S15-012	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	300071JDBA
Project Title	SURV, DECEMBER 2014	**Logbook No.**	HNF-N-506 72-123	**Ice Chest No.**	GWS-403
Shipped To (Lab)	GEL Laboratories, LLC	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	7712189941046
Protocol	SURV	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	5268

POSSIBLE SAMPLE HAZARDS/REMARKS

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B2YMC2	N	W	DEC 10 2014	1250	1x250-mL G/P	9056_ANIONS_IC: COMMON	28 Days/48 Hours	Cool <=6C

January 7, 2015

Relinquished By	Print / Sign	Date/Time	Received By	Print / Sign	Date/Time
S.W. King/CHPRC		DEC 10 2014 1530	SSU-1		DEC 10 2014 1530
SSU-1		DEC 11 2014 0930	F.M. Hall/CHPRC		DEC 11 2014 0930
F.M. Hall/CHPRC		DEC 11 2014 1400	FEDEX		
FED EX			Patricia Dent P. Dent		12.12.14 0935

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) Disposed By Date/Time

8015

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A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 362992	C.O.C. # S15-012-223 Page 1 of 1

Collector	S.W. King/CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	S15-012	**Sampling Origin**	Hanford Site 25	**Purchase Order/Charge Code**	300071JDBA
Project Title	SURV, DECEMBER 2014	**Logbook No.**	HNF-N-506 71 ~~ZH~~ 92 12HH4	**Ice Chest No.**	GCS-331
Shipped To (Lab)	GEL Laboratories, LLC	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	7721 9693 0921
Protocol	SURV	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	5269

POSSIBLE SAMPLE HAZARDS/REMARKS

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B2YKP0	N	W	DEC 1 1 2014	1150	1x500-mL G/P	KPA_UTOT: COMMON	6 Months	HNO3 to pH <2
B2YKP0	N	W			3x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2
B2YKP0	N	W			1x500-mL G/P	TC99_EIE_LSC: COMMON	6 Months	HNO3 to pH <2
B2YKP0	N	W			1x500-mL P	TRITIUM_DIST_LSC: COMMON	6 Months	None
B2YKP3	Y	W	DEC 1 1 2014	1150	1x250-mL G/P	2320_ALKALINITY: GW 01	14 Days	Cool <=6C

Relinquished By	Print / Sign	Date/Time	Received By	Print / Sign	Date/Time
S.W. King/CHPRC	S.W. King	DEC 1 1 2014 1330	F.M. Hall/CHPRC	F.M. Hall	DEC 1 1 2014 1330
F.M. Hall/CHPRC	F.M. Hall	DEC 1 1 2014 1400	FEDEX		
FED EX			Patricia Dent	P. Dent	12.12.14 0935

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) | Disposed By | Date/Time

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A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 362992	C.O.C. # S15-012-344 Page 1 of 1

Collector	S.W. King/CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	S15-012	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	300071JDBA
Project Title	SURV, DECEMBER 2014	**Logbook No.**	HNF-N-506 72/ 23	**Ice Chest No.**	GWS-403
Shipped To (Lab)	GEL Laboratories, LLC	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	772189941044
Protocol	SURV	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	5268

POSSIBLE SAMPLE HAZARDS/REMARKS

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B2YMC1	N	W	DEC 10 2014	1250	1x2-L P	9310_ALPHABETA_GPC: COMMON	6 Months	HNO3 to pH <2
B2YMC1	N	W	↓	↓	1x2-L P	TRITIUM_ELECT_LSC_ML: COMMON	6 Months	None

Relinquished By	Print / Sign	Date/Time	Received By	Print / Sign	Date/Time
S.W. King/CHPRC		DEC 10 2014 1530	SSU-1		DEC 10 2014 1530
SSU-1		DEC 11 2014 0930	F.M. Hall/CHPRC		DEC 11 2014 0930
F.M. Hall/CHPRC		DEC 11 2014 1400	FEDEX		
FED EX			Patricia Dent		12.12.14 0935

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) Disposed By Date/Time

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A-6004-842 (REV 2)

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: CPRC	SDG/AR/COC/Work Order: 362992
Received By: P. Albert	Date Received: 12.12.14

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?		X	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 cpm
Classified Radioactive II or III by RSO?		X	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		X	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		X	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		X	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	X			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *~~all temperatures~~ are recorded in Celsius 1.2C
2a	Daily check performed and passed on IR temperature gun?	X			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): 130462966
3	Chain of custody documents included with shipment?	X			
4	Sample containers intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?	X			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?		X		Sample ID's and containers affected:
7	Are Encore containers present?			X	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	X			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	X			Sample ID's affected:
11	Number of containers received match number indicated on COC?	X			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			X	
13	COC form is properly signed in relinquished/received sections?	X			
14	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 7721 9893 0921 7721 9893 0748 7721 8994 1044 7721 9893 0005

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials HS Date 12/15/14 Page 1 of 1

GL-CHL-SR-001

Data Review Qualifier Definitions

GEL LABORATORIES LLC

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

Report Date: 06−JAN−15

Project Specific Qualifier Definitions for GEL Client Code: CPRC

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

Laboratory Certifications

List of current GEL Certifications as of 06 January 2015

State	Certification
Alaska	UST−110
Arkansas	88−0651
CLIA	42D0904046
California	2940 Interim
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC000122013−10
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−12−00283, P330−12−00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC000122013−10
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA150001
Maryland	270
Massachusetts	M−SC012
Michigan	9976
Mississippi	SC000122013−10
Nebraska	NE−OS−26−13
Nevada	SC000122014−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
Plant Material Permit	PDEP−12−00260
South Carolina Chemistry	10120001
South Carolina GVL	23611001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−14−9
Utah NELAP	SC000122014−16
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

General Chem Analysis

Case Narrative

General Chemistry Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG GEL362992

Method/Analysis Information

Product:	**Ion Chromatography**		
Analytical Batch:	1443170	**Method:**	9056_ANIONS_IC: COMMON

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9056A:

Sample ID	Client ID
362992001	B2YKP1
362992002	B2YMC2
1203227860	Method Blank (MB)
1203227861	Laboratory Control Sample (LCS)
1203227862	362977001(B2YB06) Sample Duplicate (DUP)
1203228292	363057002(B2YT87) Sample Duplicate (DUP)
1203227863	362977001(B2YB06) Post Spike (PS)
1203228293	363057002(B2YT87) Post Spike (PS)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 23.

Preparation/Analytical Method Verification

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

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

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

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 362977001 (B2YB06) and 363057002 (B2YT87).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1203228293 (B2YT87PS). The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 1203228293 (B2YT87PS).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
The following samples from this sample group were accidentally analyzed outside of the method specified holding time. See the Data Exception Report (DER) section of this narrative for more information. 1203228292 (B2YT87DUP), 1203228293 (B2YT87PS) and 362992002 (B2YMC2).

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1203227862 (B2YB06DUP), 1203227863 (B2YB06PS), 362992001 (B2YKP1) and 362992002 (B2YMC2). The following samples in this sample group were diluted due to matrix interference: 1203227862 (B2YB06DUP), 1203227863 (B2YB06PS) and 362992002 (B2YMC2). The following samples were diluted based on historical data: 1203227862 (B2YB06DUP), 1203227863 (B2YB06PS), 1203228292 (B2YT87DUP), 1203228293 (B2YT87PS), 362992001 (B2YKP1) and 362992002 (B2YMC2).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation

The following DER was generated for this SDG: 1369366. 1203228292 (B2YT87DUP), 1203228293 (B2YT87PS) and 362992002 (B2YMC2).

Manual Integrations
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1203227862 (B2YB06DUP), 1203227863 (B2YB06PS), 1203228292 (B2YT87DUP), 1203228293 (B2YT87PS), 362992001 (B2YKP1) and 362992002 (B2YMC2).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Alkalinity**		
Analytical Batch:	1445064	**Method:**	2320_ALKALINITY: GW 01

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SM 2320B:

Sample ID	Client ID
362992004	B2YKP3
1203232328	Method Blank (MB)
1203232330	Laboratory Control Sample (LCS)
1203232334	363005007(B2Y0F5) Sample Duplicate (DUP)
1203232337	363005007(B2Y0F5) Matrix Spike (MS)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 11.

Preparation/Analytical Method Verification

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

Calibration Information

The Titration and Ion analysis was performed on a manually operated buret.

Initial Standardization
The titrant was properly standardized

Quality Control (QC) Information

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

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 363005007 (B2Y0F5).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

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

Additional Comments
50mL of sample was used due to limited quantity. 1203232334 (B2Y0F5DUP) and 1203232337 (B2Y0F5MS).

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

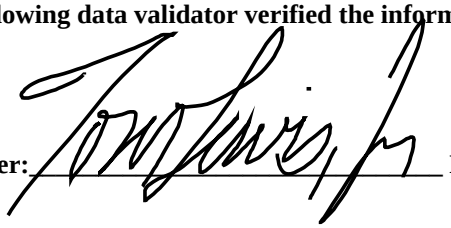
Certification Statement

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.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:  **Date:** 06Jan15

Sample Data Summary

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

Certificate of Analysis Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL362992 GEL Work Order: 362992

The Qualifiers in this report are defined as follows:

B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).

D Results are reported from a diluted aliquot of sample.

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

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 Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Heather Shaffer.

Reviewed by 

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

Certificate of Analysis

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: **CHPRC SAF S15-012**

Report Date: January 5, 2015

Client Sample ID: B2YKP1
Sample ID: 362992001
Matrix: WATER
Collect Date: 11-DEC-14 11:50
Receive Date: 12-DEC-14
Collector: Client

Project: CPRC0S15012
Client ID: CPRC001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Ion Chromatography											
9056_ANIONS_IC: COMMON "As Received"											
Fluoride 16984-48-8	B	200	+/-12.9	33.0	500	ug/L	1	RXB5 12/12/14	1651	1443170	1
Nitrite-N 14797-65-0	U	0.00	+/-12.7	38.0	250	ug/L	1				
Chloride 16887-00-6	D	13400	+/-499	670	2000	ug/L	10	RXB5 12/13/14	0238	1443170	2
Nitrate-N 14797-55-8	D	5020	+/-200	330	1000	ug/L	10				
Sulfate 14808-79-8	D	65800	+/-2240	1330	4000	ug/L	10				

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9056A	

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Certificate of Analysis

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: **CHPRC SAF S15-012**

Report Date: January 5, 2015

Client Sample ID: B2YMC2
Sample ID: 362992002
Matrix: WATER
Collect Date: 10-DEC-14 12:50
Receive Date: 12-DEC-14
Collector: Client

Project: CPRC0S15012
Client ID: CPRC001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Ion Chromatography											
9056_ANIONS_IC: COMMON "As Received"											
Fluoride 16984-48-8	B	169	+/-12.4	33.0	500	ug/L	1	RXB5 12/12/14	1721	1443170	1
Nitrite-N 14797-65-0	UX	0.00	+/-12.7	38.0	250	ug/L	1				
Chloride 16887-00-6	D	21200	+/-743	670	2000	ug/L	10	RXB5 12/13/14	0309	1443170	2
Nitrate-N 14797-55-8	DX	20100	+/-680	330	1000	ug/L	10				
Sulfate 14808-79-8	D	54900	+/-1880	1330	4000	ug/L	10				

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9056A	

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Certificate of Analysis

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: **CHPRC SAF S15-012**

Report Date: January 5, 2015

Client Sample ID: B2YKP3
Sample ID: 362992004
Matrix: WATER
Collect Date: 11-DEC-14 11:50
Receive Date: 12-DEC-14
Collector: Client

Project: CPRC0S15012
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Titration and Ion Analysis											
2320_ALKALINITY: GW 01 "As Received"											
Alkalinity, Total as CaCO3 ALKALINITY		112000	725	1000	ug/L		PXO1	12/20/14	1517	1445064	1
Bicarbonate alkalinity (CaCO3) 71-52-3		112000	725	1000	ug/L						
Carbonate alkalinity (CaCO3) CO3ALKALINITY	U	0.00	725	1000	ug/L						
Hydroxide alkalinity as CaCO3 84625-61-6	U	0.00	725	1000	ug/L						

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SM 2320B	

Quality Control Summary

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

QC Summary

Report Date: January 5, 2015

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

Contact: **Mr. Scot Fitzgerald**

Workorder: **362992**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 1443170										
QC1203227862 362977001 DUP										
Chloride	D	9810	D	9790	ug/L	0.265		(0%-20%)	RXB5	12/13/14 04:11
Fluoride	B	163	B	165	ug/L	0.854 ^		(+/-500)		12/12/14 20:58
Nitrate-N	D	3620	D	3620	ug/L	0.0553		(0%-20%)		12/13/14 04:11
Nitrite-N	U	38.0	U	38.0	ug/L	N/A				12/12/14 20:58
Sulfate	D	29300	D	29400	ug/L	0.402		(0%-20%)		12/13/14 04:11
QC1203228292 363057002 DUP										
Chloride	D	179000	D	179000	ug/L	0.206		(0%-20%)		12/14/14 02:52
Fluoride	B	332	B	332	ug/L	0.121 ^		(+/-500)		12/12/14 18:23
Nitrate-N	DU	330	DU	330	ug/L	N/A				12/12/14 22:30
Nitrite-N	U	38.0	U	38.0	ug/L	N/A				12/12/14 18:23
Sulfate	D	56600	D	57100	ug/L	0.851		(0%-20%)		12/12/14 22:30
QC1203227861 LCS										
Chloride	5000			4780	ug/L		95.6	(90%-110%)		12/13/14 05:44
Fluoride	2500			2410	ug/L		96.5	(90%-110%)		
Nitrate-N	2500			2420	ug/L		96.6	(90%-110%)		
Nitrite-N	2500			2560	ug/L		102	(90%-110%)		
Sulfate	10000			9620	ug/L		96.2	(90%-110%)		
QC1203227860 MB										
Chloride			U	67.0	ug/L					12/13/14 05:13
Fluoride			U	33.0	ug/L					
Nitrate-N			U	33.0	ug/L					

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QC Summary

Workorder: **362992**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1443170											
Nitrite-N				U	38.0	ug/L					
Sulfate				U	133	ug/L				RXB5	12/13/14 05:13
QC1203227863 362977001 PS											
Chloride	5.00	D	0.981	D	6.10	mg/L		102	(90%-110%)		12/13/14 04:42
Fluoride	2.50	B	0.163		2.70	mg/L		101	(90%-110%)		12/12/14 21:28
Nitrate-N	2.50	D	0.362	D	2.92	mg/L		102	(90%-110%)		12/13/14 04:42
Nitrite-N	2.50	U	0.00		2.73	mg/L		109	(90%-110%)		12/12/14 21:28
Sulfate	10.0	D	2.93	D	13.3	mg/L		104	(90%-110%)		12/13/14 04:42
QC1203228293 363057002 PS											
Chloride	5.00	D	4.46	D	10.1	mg/L		114*	(90%-110%)		12/14/14 03:23
Fluoride	2.50	B	0.332		2.76	mg/L		97.2	(90%-110%)		12/12/14 18:54
Nitrate-N	2.50	DU	0.00	D	2.51	mg/L		100	(90%-110%)		12/12/14 23:01
Nitrite-N	2.50	U	0.00		1.78	mg/L		71*	(90%-110%)		12/12/14 18:54
Sulfate	10.0	D	5.66	D	16.3	mg/L		106	(90%-110%)		12/12/14 23:01
Titration and Ion Analysis											
Batch 1445064											
QC1203232334 363005007 DUP											
Alkalinity, Total as CaCO3			109000		111000	ug/L	1.92		(0%-20%)	PXO1	12/20/14 15:24
QC1203232330 LCS											
Alkalinity, Total as CaCO3	50000				52400	ug/L		105	(90%-110%)		12/20/14 14:31
QC1203232328 MB											
Alkalinity, Total as CaCO3				U	725	ug/L					12/20/14 14:31
Bicarbonate alkalinity (CaCO3)				U	725	ug/L					
Carbonate alkalinity (CaCO3)				U	725	ug/L					
Hydroxide alkalinity as CaCO3				U	725	ug/L					
QC1203232337 363005007 MS											
Alkalinity, Total as CaCO3	100000		109000		213000	ug/L		104	(80%-120%)		12/20/14 15:26

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QC Summary

Workorder: **362992**

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

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.

Miscellaneous

GEL Laboratories LLC
Form GEL-DER

DER Report No.: 1369366
Revision No.: 2

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
30-DEC-14	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
IC	SW846 9056A	Liquid	CPRC
Batch ID:	**Sample Numbers:**		
1443170	See Below		

Potentially affected work order(s)(SDG): 362977(GEL362977),362983(GEL362983),362992(GEL362992),363005(GEL363005),363057(GEL363057)

Application Issues:

Failed Recovery for MS/PS

Sample Analyzed out of Holding

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS/PS: QC 1203228293PS 2. Sample Analyzed out of Holding: 362992 002 363057 002 QC 1203228292DUP, 1203228293PS	1. The PS failed required acceptance limits for Nitrite and Bromide due to matrix interference. Of the remaining anions in the PS, several met required acceptance limits. This failure is attributed to the matrix of the sample because the successful recovery of the other compounds indicate that the laboratory process was in control. This variance is judged to have no negative impact on the data. The deviation is noted in the Case Narrative and DER, and the data has been reported. 2. Analyst was given incorrect information regarding the sample hold date. The sample collect date was initially entered incorrectly, which caused the hold date to appear a day later than it actually was. Analyst put samples on the instrument according to hold date/times.

Originator's Name:

Rachael Bell 30-DEC-14

Data Validator/Group Leader:

Thomas Lewis 05-JAN-15

Radiological Analysis

Radiochemistry Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG GEL362992
Work Order 362992

Method/Analysis Information

Product:	**9310_ALPHABETA_GPC: COMMON**
Analytical Method:	EPA 900.0/SW846 9310
Analytical Batch Number:	1443984

Sample ID	Client ID
362992005	B2YMC1
1203229929	MB for batch 1443984
1203229933	Laboratory Control Sample (LCS)
1203229930	362787003(B2YPD1) Sample Duplicate (DUP)
1203229931	362787003(B2YPD1) Matrix Spike (MS)
1203229932	362787003(B2YPD1) Matrix Spike Duplicate (MSD)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001 REV# 18.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

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

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

Quality Control (QC) Information:

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

Designated QC
The following sample was used for QC: 362787003 (B2YPD1).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:

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

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

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
Sample 1203229933 (LCS) was recounted due to high recovery. The recount is reported.

Miscellaneous Information:

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

Manual Integration
No manual integrations were performed on data in this batch.

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

Additional Comments
The matrix spike and matrix spike duplicate, 1203229931 (B2YPD1MS) and 1203229932 (B2YPD1MSD), aliquots were reduced to conserve sample volume.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**SRISO_SEP_PRECIP_GPC: COMMON**
Analytical Method:	EPA 905.0 Modified
Analytical Batch Number:	1446313

Sample ID	Client ID
362992003	B2YKP0
1203235387	MB for batch 1446313
1203235389	Laboratory Control Sample (LCS)
1203235388	363297008(B2YKR0) Sample Duplicate (DUP)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 17.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

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

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

Quality Control (QC) Information:

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

Designated QC
The following sample was used for QC: 363297008 (B2YKR0).

QC Information
All of the QC samples met the required acceptance limits.

Technical Information:

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

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Recounts
None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation

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

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

Additional Comments
Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**KPA_UTOT: COMMON**
Analytical Method:	ASTM D 5174
Analytical Batch Number:	1442655

Sample ID	Client ID
362992003	B2YKP0
1203226530	MB for batch 1442655
1203226533	Laboratory Control Sample (LCS)
1203226534	Laboratory Control Sample (LCS)
1203226531	362787003(B2YPD1) Sample Duplicate (DUP)
1203226532	362787003(B2YPD1) Matrix Spike (MS)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-023 REV# 19.

Calibration Information:

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

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

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

Quality Control (QC) Information:

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

Designated QC
The following sample was used for QC: 362787003 (B2YPD1).

Technical Information:

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

Sample Re-prep/Re-analysis
Sample 1203226530 (MB) was reanalyzed due to a high negative result. The reanalyzed result is repeorted.

Recounts
None of the samples in this sample set were recounted.

Miscellaneous Information:

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

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

Additional Comments
MB 1203226530 (MB) failed R2 and/or lifetime. This was due to insufficient uranium in the sample for measurement. The results are reported.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**TC99_EIE_LSC: COMMON**
Analytical Method:	DOE EML HASL-300, Tc-02-RC Modified
Analytical Batch Number:	1443917

Sample ID	Client ID
362992003	B2YKP0
1203229732	MB for batch 1443917
1203229735	Laboratory Control Sample (LCS)
1203229733	362775015(B2YLN4) Sample Duplicate (DUP)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-059 REV# 3.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

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

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

Quality Control (QC) Information:

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

Designated QC
The following sample was used for QC: 362775015 (B2YLN4).

QC Information
All of the QC samples met the required acceptance limits.

Technical Information:

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

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Recounts
None of the samples in this sample set were recounted.

Miscellaneous Information:

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

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

Additional Comments
Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**TRITIUM_DIST_LSC: COMMON**
Analytical Method:	EPA 906.0 Modified
Analytical Batch Number:	1443948

Sample ID	Client ID
362992003	B2YKP0
362992005	B2YMC1
1203229799	MB for batch 1443948
1203229802	Laboratory Control Sample (LCS)
1203229800	363131009(B2YL90) Sample Duplicate (DUP)
1203229801	363131009(B2YL90) Matrix Spike (MS)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-002 REV# 21.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

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

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

Quality Control (QC) Information:

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

Designated QC
The following sample was used for QC: 363131009 (B2YL90).

QC Information
All of the QC samples met the required acceptance limits.

Technical Information:

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

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Recounts
None of the samples in this sample set were recounted.

Miscellaneous Information:

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

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

Additional Comments
Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

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

GEL LABORATORIES LLC

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Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL362992 GEL Work Order: 362992

The Qualifiers in this report are defined as follows:

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

Review/Validation

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

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

Signature: Heather McCarty **Name:** **Heather McCarty**

Date: **06 JAN 2015** **Title:** **Analyst II**

Sample Data Summary

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Certificate of Analysis

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF S15-012

Report Date: January 6, 2015

Client Sample ID: B2YKP0
Sample ID: 362992003
Matrix: WATER
Collect Date: 11-DEC-14
Receive Date: 12-DEC-14
Collector: Client

Project: CPRC0S15012
Client ID: CPRC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gas Flow Proportional Counting													
SRISO_SEP_PRECIP_GPC: COMMON "As Received"													
Total Strontium SR-RAD		1.69	+/-0.957	1.44	+/-1.04	2.00	pCi/L		KSD1	01/06/15	0735	1446313	1
Rad Liquid Scintillation Analysis													
TC99_EIE_LSC: COMMON "As Received"													
Technetium-99 14133-76-7	U	-2.37	+/-6.38	11.2	+/-6.38	15.0	pCi/L		MYM1	12/28/14	2132	1443917	2
TRITIUM_DIST_LSC: COMMON "As Received"													
Tritium 10028-17-8		1260	+/-110	87.5	+/-267	100	pCi/L		BYS1	01/05/15	0217	1443948	3
Rad Total Uranium													
KPA_UTOT: COMMON "As Received"													
Total Uranium 7440-61-1		2.71	+/-0.0833	0.233	+/-0.239	1.00	ug/L	1	JAOC	12/19/14	0827	1442655	4

The following Analytical Methods were performed

Method	Description
1	EPA 905.0 Modified
2	DOE EML HASL-300, Tc-02-RC Modified
3	EPA 906.0 Modified
4	ASTM D 5174

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Strontium Carrier	SRISO_SEP_PRECIP_GPC: COM	79.0	(25%-125%)
Technetium-99m Tracer	TC99_EIE_LSC: COMMON "As I	103	(15%-125%)

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

B The associated QC sample blank has a result >= 2X the MDA and, after corrections, result is >= MDA for this sample
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

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Certificate of Analysis

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF S15-012

Report Date: January 6, 2015

Client Sample ID: B2YKP0 Project: CPRC0S15012
Sample ID: 362992003 Client ID: CPRC001

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

Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
The above sample is reported on an "as received" basis.

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Certificate of Analysis

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF S15-012

Report Date: January 6, 2015

Client Sample ID: B2YMC1
Sample ID: 362992005
Matrix: WATER
Collect Date: 10-DEC-14
Receive Date: 12-DEC-14
Collector: Client

Project: CPRC0S15012
Client ID: CPRC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gas Flow Proportional Counting													
9310_ALPHABETA_GPC: COMMON "As Received"													
Alpha 12587-46-1		4.77	+/-2.50	2.90	+/-2.63	3.00	pCi/L		GXR1	12/30/14	0831	1443984	1
Beta 12587-47-2		5.84	+/-1.81	2.36	+/-2.05	4.00	pCi/L						
Rad Liquid Scintillation Analysis													
TRITIUM_DIST_LSC: COMMON "As Received"													
Tritium 10028-17-8	U	76.3	+/-55.1	88.8	+/-57.0	100	pCi/L		BYS1	01/05/15	0349	1443948	2

The following Analytical Methods were performed

Method	Description
1	EPA 900.0/SW846 9310
2	EPA 906.0 Modified

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

B The associated QC sample blank has a result >= 2X the MDA and, after corrections, result is >= MDA for this sample
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
The above sample is reported on an "as received" basis.

Quality Control Data

GEL LABORATORIES LLC
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QC Summary

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

Workorder: **362992**

Report Date: January 6, 2015

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Gas Flow									
Batch 1443984									
QC1203229929 MB									
Alpha			U	-0.90	pCi/L			GXR1	12/30/1408:31
Uncert:				+/-0.815					
TPU:				+/-0.815					
Beta			U	-0.498	pCi/L				
Uncert:				+/-1.27					
TPU:				+/-1.27					
QC1203229930 362787003 DUP									
Alpha		3.67	U	2.36	pCi/L				12/30/1408:36
Uncert:		+/-2.33		+/-1.97		RPD:	43	(0% - 100%)	
TPU:		+/-2.42		+/-2.01		RER:	0.817	(0-2)	
Beta		6.27		8.55	pCi/L				
Uncert:		+/-1.70		+/-1.98		RPD:	31	(0% - 100%)	
TPU:		+/-2.03		+/-2.43		RER:	1.41	(0-2)	
QC1203229931 362787003 MS									
Alpha	243	3.67		224	pCi/L	REC:	90	(75%-125%)	12/30/1408:09
Uncert:		+/-2.33		+/-25.8					
TPU:		+/-2.42		+/-45.0					
Beta	952	6.27		1090	pCi/L	REC:	114	(75%-125%)	
Uncert:		+/-1.70		+/-38.4					
TPU:		+/-2.03		+/-185					
QC1203229932 362787003 MSD									
Alpha	243	3.67		234	pCi/L	REC:	95	(75%-125%)	12/30/1408:09
Uncert:		+/-2.33		+/-28.2		RPD:	5	(0%-20%)	
TPU:		+/-2.42		+/-49.4		RER:	0.311	(0-2)	
Beta	952	6.27		1110	pCi/L	REC:	116	(75%-125%)	
Uncert:		+/-1.70		+/-37.9		RPD:	2	(0%-20%)	
TPU:		+/-2.03		+/-186		RER:	0.140	(0-2)	
QC1203229933 LCS									
Alpha	81.1			89.6	pCi/L	REC:	111	(80%-120%)	12/31/1407:36
Uncert:				+/-8.49					
TPU:				+/-17.3					
Beta	317			359	pCi/L	REC:	113	(80%-120%)	
Uncert:				+/-12.5					
TPU:				+/-59.6					
Batch 1446313									
QC1203235387 MB									
Total Strontium			U	0.152	pCi/L			KSD1	01/06/1507:38
Uncert:				+/-0.584					
TPU:				+/-0.585					
QC1203235388 363297008 DUP									
Total Strontium	U	0.068	U	0.662	pCi/L				01/06/1508:43
Uncert:		+/-0.721		+/-0.660		RPD:	0	N/A	
TPU:		+/-0.721		+/-0.677		RER:	1.18	(0-2)	
QC1203235389 LCS									

QC Summary

Workorder: 362992

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Gas Flow									
Batch 1446313									
Total Strontium	79.3			82.5	pCi/L	REC: 104	(80%-120%)		
Uncert:				+/-3.95					
TPU:				+/-19.4					
Rad Liquid Scintillation									
Batch 1443917									
QC1203229732 MB									
Technetium-99			U	-0.758	pCi/L			MYM1	12/28/1422:59
Uncert:				+/-6.73					
TPU:				+/-6.73					
QC1203229733 362775015 DUP									
Technetium-99		10100		10700	pCi/L				12/28/1423:21
Uncert:		+/-71.7		+/-72.8		RPD: 6	(0% - 20%)		
TPU:		+/-1130		+/-1190		RER: 0.714	(0-2)		
QC1203229735 LCS									
Technetium-99	290			272	pCi/L	REC: 94	(80%-120%)		12/28/1423:43
Uncert:				+/-13.6					
TPU:				+/-33.1					
Batch 1443948									
QC1203229799 MB									
Tritium			U	15.4	pCi/L			BYS1	01/05/1514:48
Uncert:				+/-50.9					
TPU:				+/-51.0					
QC1203229800 363131009 DUP									
Tritium		608		700	pCi/L				01/05/1516:20
Uncert:		+/-86.3		+/-89.6		RPD: 14	(0% - 20%)		
TPU:		+/-146		+/-162		RER: 0.828	(0-2)		
QC1203229801 363131009 MS									
Tritium	1880	608		2370	pCi/L	REC: 93	(75%-125%)		01/05/1517:53
Uncert:		+/-86.3		+/-352					
TPU:		+/-146		+/-577					
QC1203229802 LCS									
Tritium	1880			1910	pCi/L	REC: 101	(80%-120%)		01/05/1518:10
Uncert:				+/-322					
TPU:				+/-489					
Rad Total U									
Batch 1442655									
QC1203226530 MB									
Total Uranium			U	-0.0159	ug/L			JAOC	12/19/1410:44
Uncert:				+/-0.0131					
TPU:				+/-0.0131					
QC1203226531 362787003 DUP									
Total Uranium		2.08		2.14	ug/L				12/19/1408:32
Uncert:		+/-0.0659		+/-0.0675		RPD: 3	(0% - 20%)		
TPU:		+/-0.184		+/-0.189		RER: 0.462	(0-2)		
QC1203226532 362787003 MS									
Total Uranium	50.0	2.08		56.2	ug/L	REC: 108	(75%-125%)		12/19/1408:38
Uncert:		+/-0.0659		+/-3.51					
TPU:		+/-0.184		+/-5.81					
QC1203226533 LCS									
						REC:			

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QC Summary

Workorder: 362992

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Total U									
Batch 1442655									
Total Uranium	50.0			52.7	ug/L	105	(80%-120%)		
	Uncert:			+/-3.34					
	TPU:			+/-5.49					
QC1203226534 LCS									
Total Uranium	5.00			4.80	ug/L	REC: 96	(80%-120%)		12/19/1408:43
	Uncert:			+/-0.146					
	TPU:			+/-0.422					

Notes:

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

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).
B	The associated QC sample blank has a result >= 2X the MDA and, after corrections, result is >= MDA for this sample
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.
** Indicates analyte is a surrogate compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence 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.