



November 15, 2013

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

Re: CHPRC SAF F11-031 | Spent GAC
Work Order: 333588
SDG: GEL333588

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on September 18, 2013. This revised data report has been prepared and reviewed in accordance with GEL's standard operating procedures. This data package was initially revised to apply a D qualifier to the Total U data. The data was revised a second time to add in the dilution attribute.

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

Sincerely,

Heather Shaffer
Project Manager

Purchase Order: 302853ES20
Chain of Custody: F11-031-057
Enclosures



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Case Narrative

This data package was initially revised to apply a D qualifier to the Total U data. The data was revised a second time to add in the dilution attribute.

**Receipt Narrative
for
Hanford MSA (51204)
SDG: GEL333588
Work Order: 333588**

November 15, 2013

Laboratory Identification:

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

Summary:

Sample receipt: The sample arrived at GEL Laboratories LLC, Charleston, South Carolina on September 18, 2013 for analysis. The sample was delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Sample Identification: The laboratory received the following sample:

<u>Laboratory ID</u>	<u>Client ID</u>
333588001	B2RKF7

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's 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.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Radiochemistry.

Heather Shaffer

Heather Shaffer
Project Manager

Chain of Custody and Supporting Documentation

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F11-031-057	PAGE 1 OF 1
COLLECTOR KAVAN FLOYD CROW	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 9C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 200-PW-10 GAC COMPOSITE	PROJECT DESIGNATION 200-PW-1 & 200-ZP-1 Spent GAC Canisters and Filters	FIELD LOGBOOK NO. 140200481-9/72 N/A		AIR QUALITY	
ICE CHEST NO. GWS-276	OFFSITE PROPERTY NO. 45387	ACTUAL SAMPLE DEPTH N/A	COA 302853E510	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	BILL OF LADING/AIR BILL NO. SEE PTR 011113 7967 0298 1771				

MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS **Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 438.1.**	PRESERVATION None	None	None	None
		HOLDING TIME 6 Months	6 Months	6 Months	6 Months
		TYPE OF CONTAINER G/P	G/P	G/P	G/P
		NO. OF CONTAINER(S) 1	1	1	1
		VOLUME 60mL	60mL	60mL	60mL
		SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS	THIS IS IE PLAT E.AER. COMMON (Thomson-232).	SEP9_SEP_IE_L SC. COMMON;	
SAMPLE NO. B2RKF7	MATRIX* OTHER SOLID	SAMPLE DATE 8-13-13	SAMPLE TIME 1045		

333588

TRVL-13-092

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM S. E. Briggs	DATE/TIME 9-13-13 / 1114	RECEIVED BY/STORED IN SSO #1	DATE/TIME 7-13-13 / 1114	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-13-092; COMPOSITE OF CANISTER AE-1104 AND AE-1082	
RELINQUISHED BY/REMOVED FROM B.E. Briggs	DATE/TIME AUG 17 2013 0700	RECEIVED BY/STORED IN CHPRC BeBriggs	DATE/TIME AUG 17 2013 0700	(1) TC99_SEP_GPC: COMMON; I129_SEP_LEPS_GS: COMMON; TRITIUM_DIST_LSC: COMMON; C14_LSC: COMMON; NI63_LSC: COMMON; UTOT_KPA: COMMON;	
RELINQUISHED BY/REMOVED FROM B.E. Briggs	DATE/TIME AUG 17 2013 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN Jennifer Pellegrini	DATE/TIME 9-18-13 0900		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY		TITLE		
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD		DISPOSED BY		

Client: <u>HMSA</u>		SDG/AR/COC/Work Order: <u>333586 / 333588</u>
Received By: <u>JP</u>		Date Received: <u>9-18-13</u>
Suspected Hazard Information	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?	<input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0 cpm</u>
Classified Radioactive II or III by RSO?	<input checked="" type="checkbox"/>	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?	<input checked="" type="checkbox"/>	
Package, COC, and/or Samples marked as beryllium or asbestos containing?	<input checked="" type="checkbox"/>	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?	<input checked="" type="checkbox"/>	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?	<input checked="" type="checkbox"/>	

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Preservation Method: Ice bags Blue ice Dry ice <u>None</u> Other (describe) *all temperatures are recorded in Celsius
2a Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>4150209</u> Secondary Temperature Device Serial # (If Applicable):
3 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4 Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6 VOA vials free of headspace (defined as < 6mm bubble)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
7 Are Encore containers present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
8 Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
12 Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14 Carrier and tracking number.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: FedEx Air <u>FedEx Air</u> FedEx Ground UPS Field Services Courier Other

7967 0298 1771

Comments (Use Continuation Form if needed):

From: (509) 376-7492
1162 Shipping
US DOE c/o MSA
2355 Stevens Dr
Richland, WA 99354

Origin ID: PSCA



Ship Date: 17SEP13
ActWgt: 7.0 LB
CAD: 105266502/INET3430

Delivery Address Bar Code



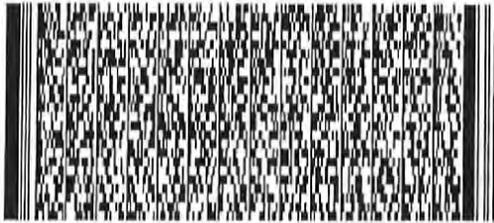
SHIP TO: (843) 556-8171
HEATHER SHAFFER
GEL
2040 SAVAGE ROAD
PTR4539
CHARLESTON, SC 29407

BILL THIRD PARTY

Ref # 2EK00 300072 ES10
Invoice #
PO #
Dept #

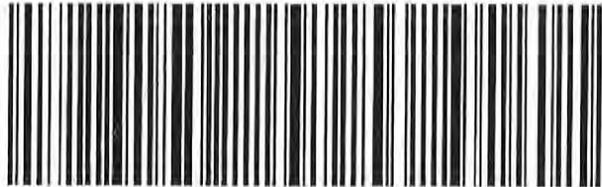
WED - 18 SEP 10:30A
PRIORITY OVERNIGHT

TRK# 7967 0298 1771
0201



XX CHSA

29407
SC-US
CHS



51AG1B2561A6E

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Problem and Discrepancy Report

Problem and Discrepancy Report**GEL****SDGs GEL333588****11/11/2013**

1. The data package has the following issues:

- a) For the KPA, Total U analysis, the narrative indicates that the samples were diluted in addition to their usual method dilution. Please apply D qualifiers to the data that an additional dilution was performed on.

Resolution: *Provide correction.***Lab Response:** **The data package will be revised to include the D qualifier to the Total U analysis. GEL will also submit a revised EDD.**

Please correct the issues and resubmit the hard copy/electronic data package.

Provide a resolution to each issue noted on the report

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Laboratory Certifications

List of current GEL Certifications as of 15 November 2013

State	Certification
Alaska	UST-110
Arkansas	88-0651
CLIA	42D0904046
California NELAP	01151CA
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	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA130005
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC000122013-10
Nebraska	NE-OS-26-13
Nevada	SC000122013-2
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	T104704235-13-8
Utah NELAP	SC000122013-11
Vermont	VT87156
Virginia NELAP	460202
Washington	C780-12
Wisconsin	999887790

Radiological Analysis

Method/Analysis Information

Product: Alphaspec Th, Solid (Th232)
Analytical Method: THISO_IE_PLATE_AEA
Prep Method: Dry Soil Prep
Analytical Batch Number: 1332003
Prep Batch Number: 1331969

Sample ID	Client ID
333588001	B2RKF7
1202949833	Method Blank (MB)
1202949834	333588001(B2RKF7) Sample Duplicate (DUP)
1202949835	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" 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-038 REV# 16.

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: 333588001 (B2RKF7).

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: 333588001 (B2RKF7).

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.

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.

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product: KPA, Total U, Solid

Analytical Method: UTOT_KPA

Prep Method: Dry Soil Prep

Analytical Batch Number: 1334076

Prep Batch Number: 1331969

Sample ID	Client ID
333588001	B2RKF7
1202955098	Method Blank (MB)
1202955099	333588001(B2RKF7) Sample Duplicate (DUP)
1202955100	333588001(B2RKF7) Matrix Spike (MS)
1202955101	Laboratory Control Sample (LCS)
1202955102	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" 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.

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: 333588001 (B2RKF7).

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

The initial concentration in the MB was greater than the MDA. All samples and QC's were treated with a dilution of 1:10 and reanalyzed. The reanalysis meets all specifications, so the diluted results are 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.

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Qualifier	Reason	Analyte	Sample	Client Sample
D	Results are reported from a diluted aliquot of sample.	Total Uranium	333588001	B2RKF7
			1202955098	MB for batch 1334076
			1202955099	B2RKF7(333588001DUP)
			1202955100	B2RKF7(333588001MS)
			1202955101	LCS for batch 1334076
			1202955102	LCS for batch 1334076

Method/Analysis Information

Product: Liquid Scint Se79, Solid
Analytical Method: SE79_SEP_IE_LSC
Prep Method: Dry Soil Prep
Analytical Batch Number: 1332038
Prep Batch Number: 1331969

Sample ID	Client ID
333588001	B2RKF7
1202949932	Method Blank (MB)
1202949933	333588001(B2RKF7) Sample Duplicate (DUP)
1202949934	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" 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-031 REV# 10.

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: 333588001 (B2RKF7).

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

Sample 1202949934 (LCS) was recounted due to the quench number being outside the calibration range. The recount is reported. Sample 1202949932 (MB) was recounted due to the quench number being outside the calibration range and then recounted due to results more negative than the three sigma TPU. The third count is reported. Samples 1202949933 (B2RKF7) and 333588001 (B2RKF7) were recounted due to the quench number being outside the calibration range, then recounted due to results more negative than the three sigma TPU, and finally recounted due to high relative percent difference/relative error ratio. The fourth counts are reported.

Chemical Recoveries

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

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. The following DER was generated for this SDG: DER 1226328 was generated due to Result is more negative than the three sigma TPU. 1. Sample 333588001 has a negative activity greater than three times the absolute value of the 1-sigma TPU. 1. The sample was recounted for verification. The recount result confirms the negative activity. Reporting results.

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information**Product:** Liquid Scint Tc99, Solid

Analytical Method: TC99_EIE_LSC

Analytical Batch Number: 1332041

Sample ID	Client ID
333588001	B2RKF7
1202949942	Method Blank (MB)
1202949943	333588001(B2RKF7) Sample Duplicate (DUP)
1202949944	Laboratory Control Sample (LCS)

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# 2.

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: 333588001 (B2RKF7).

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.

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.

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product: LSC, Tritium Dist, Solid
Analytical Method: TRITIUM_DIST_LSC
Analytical Batch Number: 1332044

Sample ID	Client ID
333588001	B2RKF7
1202949953	Method Blank (MB)
1202949954	333588001(B2RKF7) Sample Duplicate (DUP)
1202949955	333588001(B2RKF7) Matrix Spike (MS)
1202949956	Laboratory Control Sample (LCS)

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: 333588001 (B2RKF7).

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.

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.

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	Liquid Scint Ni63, Solid
Analytical Method:	NI63_LSC
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1334497
Prep Batch Number:	1331969

Sample ID	Client ID
333588001	B2RKF7
1202956138	Method Blank (MB)
1202956139	333588001(B2RKF7) Sample Duplicate (DUP)
1202956140	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" 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-022 REV# 16.

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: 333588001 (B2RKF7).

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

Samples were re-prepped due to high recovery. The re-analysis is being 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.

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product: Liquid Scint C14, Solid

Analytical Method: C14_LSC

Analytical Batch Number: 1334502

Sample ID	Client ID
333588001	B2RKF7
1202956153	Method Blank (MB)
1202956154	333588001(B2RKF7) Sample Duplicate (DUP)
1202956155	333588001(B2RKF7) Matrix Spike (MS)
1202956156	Laboratory Control Sample (LCS)

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-003 REV# 15.

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: 333588001 (B2RKF7).

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

Samples were re-prepped due to low recovery. The re-analysis is being 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.

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

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

**Qualifier Definition Report
for**

HMSA001 Hanford MSA (51204)

Client SDG: GEL333588 GEL Work Order: 333588

The Qualifiers in this report are defined as follows:

D Results are reported from a diluted aliquot of sample.

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

Review/Validation

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

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

Signature:



Name: Kate Gellatly

Date: 13 NOV 2013

Title: Analyst I

DATA EXCEPTION REPORT			
Mo.Day Yr. 30-SEP-13	Division: Radiochemistry	Quality Criteria: Specifications	Type: Process
Instrument Type: LSC	Test / Method: NERC ORD	Matrix Type: Solid	Client Code: HMSA
Batch ID: 1332038	Sample Numbers: See below		
Potentially affected work order(s)(SDG): 333588(GEL333588)			
Application Issues: Result is more negative than the three sigma TPU			
Specification and Requirements Exception Description:		DER Disposition:	
1. Sample 333588001 has a negative activity greater than three times the absolute value of the 1-sigma TPU.		1. The sample was recounted for verification. The recount result confirms the negative activity. Reporting results.	

Originator's Name:
Lyndsey Pace 30-SEP-13

Data Validator/Group Leader:
Angela Johnson 01-OCT-13

Sample Data Summary

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Address : Company
 MISN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF F11-031 | Spent GAC

Report Date: November 15, 2013

Client Sample ID: B2RKF7	Project: HMSA00111
Sample ID: 333588001	Client ID: HMSA001
Matrix: OTHER SOLID	
Collect Date: 13-SEP-13	
Receive Date: 18-SEP-13	
Collector: Client	
Moisture: 8.04%	

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
<i>Alphaspec Th, Solid (Th232) "Dry Weight Corrected"</i>													
Thorium-232	U	0.177	+/-0.293	0.420	+/-0.294	1.00	pCi/g		JXH2	09/24/13	2059	1332003	1
Rad Gamma Spec Analysis													
<i>Gamma I129, Solid "As Received"</i>													
Iodine-129	U	0.0827	+/-0.414	0.709	+/-0.415	2.00	pCi/g		MJH1	09/28/13	1108	1333599	2
Rad Liquid Scintillation Analysis													
<i>LSC, Tritium Dist, Solid "As Received"</i>													
Tritium	U	-1.27	+/-13.6	24.2	+/-13.6	30.0	pCi/g		BYS1	09/23/13	1237	1332044	3
<i>Liquid Scint C14, Solid "As Received"</i>													
Carbon-14	U	-1.63	+/-2.58	4.50	+/-2.58	5.00	pCi/g		BYS1	09/28/13	0451	1334502	4
<i>Liquid Scint Ni63, Solid "Dry Weight Corrected"</i>													
Nickel-63	U	0.184	+/-2.68	4.70	+/-2.68	10.0	pCi/g		TYJ1	10/01/13	0443	1334497	5
<i>Liquid Scint Se79, Solid "Dry Weight Corrected"</i>													
Selenium-79	U	-3.89	+/-1.94	3.41	+/-1.94	10.0	pCi/g		EXK2	09/29/13	1220	1332038	6
<i>Liquid Scint Tc99, Solid "As Received"</i>													
Technetium-99	U	-0.00903	+/-4.64	8.17	+/-4.64	15.0	pCi/g		MYM1	09/24/13	0924	1332041	7
Rad Total Uranium													
<i>KPA, Total U, Solid "Dry Weight Corrected"</i>													
Total Uranium	D	1.97	+/-0.0463	0.139	+/-0.674	1.00	ug/g	10	KDF1	10/02/13	1531	1334076	8

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	09/18/13	1354	1331969

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Th-01-RC Modified
2	DOE EML HASL-300,I-01 Modified
3	EPA 906.0 Modified
4	EPA EERF C-01 Modified
5	DOE RESL Ni-1, Modified
6	NERC ORD
7	DOE EML HASL-300, Tc-02-RC Modified
8	ASTM D 5174 Modified

Surrogate/Tracer Recovery	Test	Batch ID Recovery% Acceptable Limits
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Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Address : Company
 MISN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF F11-031 | Spent GAC
 Client Sample ID: B2RKF7
 Sample ID: 333588001

Report Date: November 15, 2013

Project: HMSA00111
 Client ID: HMSA001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test							Batch ID	Recovery%	Acceptable Limits			
Thorium-229 Tracer		Alphaspec Th, Solid (Th232) "Dry Weight Corrected"					1332003			92.5			(15%-125%)
Nickel Carrier		Liquid Scint Ni63, Solid "Dry Weight Corrected"					1334497			66.1			(25%-125%)
Selenium Carrier		Liquid Scint Se79, Solid "Dry Weight Corrected"					1332038			83.5			(25%-125%)
Technetium-99m Tracer		Liquid Scint Tc99, Solid "As Received"					1332041			67.6			(15%-125%)

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

Quality Control Data

QC Summary

Report Date: November 13, 2013
 Page 1 of 4

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

Contact: Mr. Scot Fitzgerald

Workorder: 333588

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Alpha Spec									
Batch	1332003								
QC1202949833	MB								
Thorium-232			U	0.057	pCi/g			JXH2	09/24/1320:59
				Uncert: +/-0.239					
				TPU: +/-0.240					
QC1202949834	333588001	DUP							
Thorium-232		U	0.177	U	0.176				09/24/1320:59
				Uncert: +/-0.293		RPD: 0	N/A		
				TPU: +/-0.294		RER: 0.00532	(0-2)		
QC1202949835	LCS								
Thorium-230		18.9		19.5	pCi/g	REC: 103	(80%-120%)		09/24/1320:59
				Uncert: +/-2.36					
				TPU: +/-3.86					
Thorium-232			U	-0.00688	pCi/g				
				Uncert: +/-0.148					
				TPU: +/-0.148					
Rad Gamma Spec									
Batch	1333599								
QC1202953820	MB								
Iodine-129			U	-0.199	pCi/g			MJH1	09/28/1311:09
				Uncert: +/-0.552					
				TPU: +/-0.560					
QC1202953821	333588001	DUP							
Iodine-129		U	0.0827	U	-0.00806				09/28/1311:10
				Uncert: +/-0.414		RPD: 0	N/A		
				TPU: +/-0.415		RER: 0.272	(0-2)		
QC1202953822	333588001	MS							
Iodine-129		37.2	U	0.0827	pCi/g	REC: 93	(75%-125%)		09/28/1311:11
				Uncert: +/-0.414					
				TPU: +/-0.415					
QC1202953823	LCS								
Iodine-129		35.3		41.8	pCi/g	REC: 118	(80%-120%)		09/28/1312:22
				Uncert: +/-4.99					
				TPU: +/-6.53					
Rad Liquid Scintillation									
Batch	1332038								
QC1202949932	MB								
Selenium-79			U	-2.45	pCi/g			EXK2	09/27/1312:43
				Uncert: +/-1.66					
				TPU: +/-1.66					
QC1202949933	333588001	DUP							
Selenium-79		U	-3.89	U	-2.35				09/29/1314:22
				Uncert: +/-1.94		RPD: 0	N/A		
				TPU: +/-1.94		RER: 1.14	(0-2)		
QC1202949934	LCS								

QC Summary

Workorder: 333588

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Parname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Liquid Scintillation									
Batch	1332038								
Selenium-79	1300			1240	pCi/g	REC: 95	(80%-120%)		
				Uncert: +/-24.9					
				TPU: +/-279					
Batch	1332041								
QC1202949942	MB								
Technetium-99			U	-0.338	pCi/g			MYM1	09/24/1309:57
				Uncert: +/-2.55					
				TPU: +/-2.55					
QC1202949943	333588001	DUP							
Technetium-99		U	-0.00903	U	-3.14				09/24/1310:29
			Uncert: +/-4.64		+/-4.83	RPD: 0	N/A		
			TPU: +/-4.64		+/-4.83	RER: 0.916	(0-2)		
QC1202949944	LCS								
Technetium-99	252			237	pCi/g	REC: 94	(80%-120%)		09/24/1311:02
				Uncert: +/-12.3					
				TPU: +/-30.6					
Batch	1332044								
QC1202949953	MB								
Tritium			U	-4.88	pCi/g			BYS1	09/23/1313:13
				Uncert: +/-13.5					
				TPU: +/-13.5					
QC1202949954	333588001	DUP							
Tritium		U	-1.27	U	0.877				09/23/1313:50
			Uncert: +/-13.6		+/-14.0	RPD: 0	N/A		
			TPU: +/-13.6		+/-14.0	RER: 0.216	(0-2)		
QC1202949955	333588001	MS							
Tritium	120	U	-1.27		107	pCi/g	REC: 89	(75%-125%)	09/23/1314:27
			Uncert: +/-13.6		+/-19.0				
			TPU: +/-13.6		+/-30.8				
QC1202949956	LCS								
Tritium	120				114	pCi/g	REC: 95	(80%-120%)	09/23/1315:04
					Uncert: +/-19.0				
					TPU: +/-32.1				
Batch	1334497								
QC1202956138	MB								
Nickel-63			U	0.190	pCi/g			TYJ1	10/01/1304:59
				Uncert: +/-2.63					
				TPU: +/-2.63					
QC1202956139	333588001	DUP							
Nickel-63		U	0.184	U	0.723				10/01/1305:15
			Uncert: +/-2.68		+/-2.77	RPD: 0	N/A		
			TPU: +/-2.68		+/-2.77	RER: 0.274	(0-2)		
QC1202956140	LCS								
Nickel-63	125				127	pCi/g	REC: 102	(80%-120%)	10/01/1305:31
					Uncert: +/-6.83				
					TPU: +/-24.4				
Batch	1334502								
QC1202956153	MB								
Carbon-14			U	-0.106	pCi/g			BYS1	09/28/1305:39

QC Summary

Workorder: 333588

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Parname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Liquid Scintillation									
Batch	1334502								
				Uncert:					
				TPU:					
QC1202956154	333588001	DUP							
Carbon-14		U	-1.63	U	-0.471	pCi/g			09/28/1306:26
				Uncert:	+/-2.58			RPD: 0	N/A
				TPU:	+/-2.58			RER: 0.616	(0-2)
QC1202956155	333588001	MS							
Carbon-14		186	U	-1.63	192	pCi/g	REC: 103	(75%-125%)	09/28/1307:13
				Uncert:	+/-2.58				
				TPU:	+/-2.58				
QC1202956156	LCS								
Carbon-14		174			168	pCi/g	REC: 97	(80%-120%)	09/28/1308:00
				Uncert:	+/-5.44				
				TPU:	+/-13.6				
Rad Total U									
Batch	1334076								
QC1202955098	MB								
Total Uranium				DU	0.0449	ug/g		KDF1	10/02/1315:34
				Uncert:	+/-0.00155				
				TPU:	+/-0.0153				
QC1202955099	333588001	DUP							
Total Uranium		D	1.97	D	2.05	ug/g			10/02/1315:37
				Uncert:	+/-0.0463			RPD: 4	(0% - 20%)
				TPU:	+/-0.674			RER: 0.166	(0-2)
QC1202955100	333588001	MS							
Total Uranium		4.42	D	1.97	D	7.29	ug/g	REC: 120	(75%-125%)
				Uncert:	+/-0.0463				
				TPU:	+/-0.674				
QC1202955101	LCS								
Total Uranium		4.42		D	3.93	ug/g	REC: 89	(80%-120%)	10/02/1315:42
				Uncert:	+/-0.0924				
				TPU:	+/-1.33				
QC1202955102	LCS								
Total Uranium		0.442		D	0.379	ug/g	REC: 86	(80%-120%)	10/02/1315:44
				Uncert:	+/-0.0106				
				TPU:	+/-0.129				

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

QC Summary

Workorder: 333588

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Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date	Time
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N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.

** 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.