

OCTOBER 2, 2014



a member of **The GEL Group** INC



PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407

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www.gel.com

October 01, 2014

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

Re: CHPRC SAF F14-025 | LERF Basin Air Filter
Work Order: 356066
SDG: GEL356066

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on September 05, 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,

A handwritten signature in cursive script that reads "Heather Shaffer".

Heather Shaffer
Project Manager

Purchase Order: 300025JDBA
Chain of Custody: F14-025-005, F14-025-006 and F14-025-008
Enclosures



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Case Narrative

**General Narrative
for
Hanford MSA (51204)
CHPRC SAF F14-025 | LERF Basin Air Filter
SDG: GEL356066**

October 02, 2014

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 September 05, 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 samples were received and analyzed within hold time.

Sample Identification

The laboratory received the following samples:

<u>Laboratory Identification</u>	<u>Sample Description</u>
356066001	S932255
356066002	S932257
356066003	S932259
356066004	S932261

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.

OCTOBER 2, 2014

Data Package

The enclosed data package contains the following sections: General Narrative, Chain of Custody and Supporting Documentation, and data from the following fractions: Radiochemistry. This package, to the best of my knowledge, is in compliance with technical and administrative requirements.

Heather Shaffer

Heather Shaffer
Project Manager

Chain of Custody and Supporting Documentation

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F14-025-006	PAGE 1 OF 1
COLLECTOR <i>Dougherty/Poston</i>	COMPANY CONTACT MEDLEY, HA	TELEPHONE NO. 373-6909	PROJECT COORDINATOR MEDLEY, HA	PRICE CODE 9H	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION LERF Basin 44, N581	PROJECT DESIGNATION LERF Basin Air Filter	FIELD LOGBOOK NO. <i>NA</i>	SAF NO. F14-025	AIR QUALITY	METHOD OF SHIPMENT FEDERAL EXPRESS
ICE CHEST NO. <i>NA</i>	OFFSITE PROPERTY NO. <i>NA</i>	ACTUAL SAMPLE DEPTH <i>NA</i>	COA 300025ES30	ORIGINAL	
SHIPPED TO GEL Laboratories, LLC	SEE PTR <i>20.9/14/14 5059</i>	BILL OF LADING/AIR BILL NO. <i>771043148664</i>			

MATRIX* A=Air DL=Drum L=Liquid DS=Drum S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	None	6 Months	Filter	1	1 sample	ALPHA, GPC: COMMON; BETA, GPC: COMMON;
SPECIAL HANDLING AND/OR STORAGE							
SAMPLE NO. S932257	MATRIX* OTHER SOLID	SAMPLE DATE <i>07/23/14</i>	SAMPLE TIME <i>0830</i>				

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>Poston/Kato</i>	DATE/TIME <i>09/04/0850</i>	RECEIVED BY/STORED IN <i>L.D. Wall</i>	DATE/TIME <i>SEP 04 2014 0830</i>	*Follow LERF Basin Air Monitoring project specific requirements for analytical and reporting requirements. * Matrix is Air Filters *TRVL-14-114	
RELINQUISHED BY/REMOVED FROM <i>L.D. Wall</i>	DATE/TIME <i>SEP 04 2014</i>	RECEIVED BY/STORED IN FEDEx	DATE/TIME	* please email <i>60D text file.</i> <i>DAW 7/28/14</i>	
RELINQUISHED BY/REMOVED FROM FEDEx	DATE/TIME	RECEIVED BY/STORED IN <i>Sarah Edwards</i>	DATE/TIME <i>9.5.14/0930</i>		
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		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME	

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F14-025-008	PAGE 1 OF 1
COLLECTOR <i>Kaufmann/Bur + Poston</i>	COMPANY CONTACT MEDLEY, HA	TELEPHONE NO. 373-6909	PROJECT COORDINATOR MEDLEY, HA	PRICE CODE 9H	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION LERF Basin 44, N581	PROJECT DESIGNATION LERF Basin Air Filter	FIELD LOGBOOK NO. NA	SAF NO. F14-025	AIR QUALITY	METHOD OF SHIPMENT FEDERAL EXPRESS
ICE CHEST NO. NA	OFFSITE PROPERTY NO. 5059	ACTUAL SAMPLE DEPTH NA	COA 300025ES30	ORIGINAL	
SHIPPED TO GEL Laboratories, LLC	SEE PTR <i>AW 9/4/14</i>	BILL OF LADING/AIR BILL NO. 7710 4314 8664	SEE PTR <i>AW 9/4/14</i>		
MATRIX* A=Air DL=Drum L=Liquids DS=Drum S=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 are not regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	None			
	PRESERVATION	6 Months			
	HOLDING TIME	Filter			
	TYPE OF CONTAINER	1			
	NO. OF CONTAINER(S)	1 sample			
	VOLUME	ALPHA.GPC: COMMON; BETA.GPC: COMMON;			
	SAMPLE ANALYSIS				
SPECIAL HANDLING AND/OR STORAGE					
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
S932259	OTHER SOLID	08/04/2014	0830		
S932261	OTHER SOLID	08/18/2014	1410		

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>Poston/Bur</i>	DATE/TIME 09/04/14 0830	RECEIVED BY/STORED IN <i>L.D. Wall</i>	DATE/TIME SEP 04 2014 0850	*Follow LERF Basin Air Monitoring project specific requirements for analytical and reporting requirements. * Matrix is Air Filters *TRVL-14-114 *sample results need to be reported in uCi/sample	
RELINQUISHED BY/REMOVED FROM <i>L.D. Wall</i>	DATE/TIME SEP 04 2014 1400	RECEIVED BY/STORED IN <i>FEDEX</i>	DATE/TIME		
RELINQUISHED BY/REMOVED FROM <i>FEDEX</i>	DATE/TIME	RECEIVED BY/STORED IN <i>Sarah Edwards</i>	DATE/TIME 9/5/14/0930		
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		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME		
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME		
PRINTED ON 8/26/2014				A-6003-618 (REV 2)	



SAMPLE RECEIPT & REVIEW FORM

Client: <u>HMSA</u>		SDG/AR/COC/Work Order: <u>350000</u>
Received By: <u>SE</u>		Date Received: <u>9.5.14</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</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"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>			Preservation Method: 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"/>			Temperature Device Serial #: <u>130532992</u> Secondary Temperature Device Serial # (If Applicable):
3 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
4 Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6 VOA vials free of headspace (defined as < 6mm bubble)?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
7 Are Encore containers present?	<input checked="" type="checkbox"/>			(If yes, immediately deliver to Volatiles laboratory)
8 Samples received within holding time?	<input checked="" type="checkbox"/>			ID's and tests affected:
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected:
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected:
12 Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>			
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			
14 Carrier and tracking number.				Circle Applicable: <u>FedEx Air</u> FedEx Ground UPS Field Services Courier Other <u>7710 4314 8664</u>

Comments (Use Continuation Form if needed):

Data Review Qualifier Definitions

Project Specific Qualifier Definitions for GEL Client Code: HMSA

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

Laboratory Certifications

List of current GEL Certifications as of 01 October 2014

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	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	SC000122014-14
Vermont	VT87156
Virginia NELAP	460202
Washington	C780-12
Wisconsin	999887790

Radiological Analysis

**Radiochemistry Case Narrative
Hanford MSA (HMSA)
SDG GEL356066
Work Order 356066**

Method/Analysis Information

Product: Gross Alpha/Beta (Am Cal)Filter

Analytical Method: 9310_ALPHABETA_GPC

Analytical Batch Number: 1419646

Sample ID	Client ID
356066001	S932255
356066002	S932257
356066003	S932259
356066004	S932261
1203168863	MB for batch 1419646

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-001B REV# 17.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met. The discrimination settings are calibrated in beta discriminating mode to reduce beta to alpha crosstalk.

Standards Information

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

Sample Geometry

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

Quality Control (QC) Information:

Blank Information

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

Designated QC

None of the samples were designated for QC analysis.

QC Information

All of the QC samples meet the required acceptance limits with the following exceptions: The blank 1203168863 (MB) beta result is greater than the MDC and required detection limit. The blank was provided by the client. The blank, 1203168863 (MB), did not meet the alpha detection limit due to keeping the blank volume consistent with the other sample aliquots. All other samples met the detection 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

None of the samples have been flamed.

Recounts

Sample 1203168863 (MB) was recounted to verify sample result. The second count 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.

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.

Special Prep

Not applicable

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: GEL356066 GEL Work Order: 356066

The Qualifiers in this report are defined as follows:

B The associated QC sample blank has a result $\geq 2X$ the MDA and, after corrections, result is \geq MDA for this 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: 02 OCT 2014

Title: Analyst I

Sample Data Summary

OCTOBER 2, 2014

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: October 2, 2014

Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF F14-025 | LERF Basin Air Filter

Client Sample ID: S932255
Sample ID: 356066001
Matrix: OTHERSOLID
Collect Date: 08-JUL-14
Receive Date: 05-SEP-14
Collector: Client

Project: HMSA00171
Client ID: HMSA001

Table with columns: Parameter, Qualifier, Result, Uncertainty, MDC, TPU, RL, Units, DF, Analyst, Date, Time, Batch, Mtd.
Rad Gas Flow Proportional Counting
Gross Alpha/Beta (Am Cal)Filter "As Received"
Alpha: 2.10E-06, +/-5.88E-07, 4.43E-07, +/-5.99E-07, 1.10E-07 uCi/sample, AF1, 09/25/14 1008 1419646 1
Beta: 4.68E-05, +/-1.76E-06, 5.62E-07, +/-2.57E-06, 1.10E-06 uCi/sample

The following Analytical Methods were performed

Table with columns: Method, Description
1 EPA 900.0/SW846 9310/SM 7110B Modified

Table with columns: Surrogate/Tracer Recovery, Test, Batch ID, Recovery%, Acceptable Limits

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

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: October 2, 2014

Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF F14-025 | LERF Basin Air Filter

Client Sample ID: S932257
 Sample ID: 356066002
 Matrix: OTHERSOLID
 Collect Date: 23-JUL-14
 Receive Date: 05-SEP-14
 Collector: Client

Project: HMSA00171
 Client ID: HMSA001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gas Flow Proportional Counting													
<i>Gross Alpha/Beta (Am Cal)Filter "As Received"</i>													
Alpha		3.04E-06	+/-6.70E-07	4.36E-07	+/-6.93E-07	1.10E-07	uCi/sample		AF1	09/25/14	1008	1419646	1
Beta	B	5.30E-05	+/-1.86E-06	5.29E-07	+/-3.00E-06	1.10E-06	uCi/sample						

The following Analytical Methods were performed

Method	Description
1	EPA 900.0/SW846 9310/SM 7110B Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
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Notes:
 TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: October 2, 2014

Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF F14-025 | LERF Basin Air Filter

Client Sample ID: S932259
 Sample ID: 356066003
 Matrix: OTHERSOLID
 Collect Date: 04-AUG-14
 Receive Date: 05-SEP-14
 Collector: Client

Project: HMSA00171
 Client ID: HMSA001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gas Flow Proportional Counting													
<i>Gross Alpha/Beta (Am Cal)Filter "As Received"</i>													
Alpha		2.46E-06	+/-6.19E-07	4.30E-07	+/-6.34E-07	1.10E-07	uCi/sample		AF1	09/25/14	1008	1419646	1
Beta	B	8.70E-05	+/-2.38E-06	5.41E-07	+/-3.86E-06	1.10E-06	uCi/sample						

The following Analytical Methods were performed

Method	Description
1	EPA 900.0/SW846 9310/SM 7110B Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
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Notes:
 TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: October 2, 2014

Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF F14-025 | LERF Basin Air Filter

Client Sample ID: S932261
 Sample ID: 356066004
 Matrix: OTHERSOLID
 Collect Date: 18-AUG-14
 Receive Date: 05-SEP-14
 Collector: Client

Project: HMSA00171
 Client ID: HMSA001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gas Flow Proportional Counting													
<i>Gross Alpha/Beta (Am Cal)Filter "As Received"</i>													
Alpha		1.57E-06	+/-4.63E-07	4.28E-07	+/-4.66E-07	1.10E-07	uCi/sample		AF1	09/25/14	1009	1419646	1
Beta	B	0.000103	+/-2.59E-06	5.69E-07	+/-5.23E-06	1.10E-06	uCi/sample						

The following Analytical Methods were performed

Method	Description
1	EPA 900.0/SW846 9310/SM 7110B Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
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Notes:
 TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Quality Control Data

GEL LABORATORIES LLC

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

QC Summary

Report Date: October 2, 2014

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Client : CH2MHill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Workorder: 356066

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date	Time
Rad Gas Flow										
Batch	1419646									
QC1203168863	MB									
Alpha			U	-2.00E-07	uCi/sample			AF1	09/25/1414:06	
				Uncert:	+/-1.57E-07					
				TPU:	+/-1.57E-07					
Beta			B	2.03E-06	uCi/sample					
				Uncert:	+/-3.89E-07					
				TPU:	+/-3.98E-07					

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

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

** Indicates analyte is a surrogate compound.

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

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

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