

January 5, 2015



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

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www.gel.com

January 02, 2015

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

Re: CHPRC SAF F14-027 | CWC Air Filter
Work Order: 363429
SDG: GEL363429

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on December 18, 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,

Heather Shaffer
Project Manager

Purchase Order: 302285ES30 - 9H
Chain of Custody: F14-027-003
Enclosures



Table of Contents

Case Narrative.....1

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

Data Review Qualifier Definitions.....7

Laboratory Certifications.....9

Radiological Analysis.....11

 Sample Data Summary.....15

 Quality Control Data.....17

Case Narrative

January 5, 2015

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF F14-027 | CWC Air Filter
SDG: GEL363429

January 02, 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 18, 2014, 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.

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 sample:

Laboratory Identification	Sample Description
363429001	S950161

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: 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 Manager (or designee) and the laboratory's client services representative as verified by their signatures on this report.

January 5, 2015
Heather Shaffer

Heather Shaffer
Project Manager

Chain of Custody and Supporting Documentation

January 5, 2015

1101

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F14-027-003	PAGE 1 OF 1
COLLECTOR C. Fish	COMPANY CONTACT MEDLEY, HA	TELEPHONE NO. 373-6909	PROJECT COORDINATOR MEDLEY, HA	PRICE CODE 9H	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION CWC, W-130	PROJECT DESIGNATION CWC Air Filter	FIELD LOGBOOK NO. N/A	ACTUAL SAMPLE DEPTH N/A	AIR QUALITY	METHOD OF SHIPMENT FEDERAL EXPRESS
ICE CHEST NO. N/A	OFFSITE PROPERTY NO. 5289	SEE PTR 12/17/14	COA 302285	BILL OF LADING/AIR BILL NO. 772280259926	ORIGINAL

MATRIX* A=Air DL=Drum L=Liquid S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	PRESCRIPTION None	HOLDING TIME 6 Months	TYPE OF CONTAINER Filter	NO. OF CONTAINER(S) 1	VOLUME 1 sample	SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS
SPECIAL HANDLING AND/OR STORAGE	SAMPLE DATE 12/15/14	SAMPLE TIME 0914	MATRIX*	OTHER SOLID		
S950161						

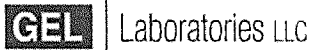
362429

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM C. Fish	DATE/TIME 12/15/14 0940	RECEIVED BY/STORED IN Red box	DATE/TIME 12/15/14 0930	*Follow CWC Air Monitoring project specific requirements for analytical and reporting requirements.	
RELINQUISHED BY/REMOVED FROM Red box	DATE/TIME 12-13-14 1315	RECEIVED BY/STORED IN M. Damsdale	DATE/TIME 12-17-15 1305	* Matrix is Air Filters	
RELINQUISHED BY/REMOVED FROM M. Damsdale	DATE/TIME 12-17-14 1352	RECEIVED BY/STORED IN L.D. Wall	DATE/TIME DEC 17 2014 1352	* email the EDD text file	
RELINQUISHED BY/REMOVED FROM L.D. Wall	DATE/TIME DEC 17 2014 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME 12/14/14 0930	* report results in ug/sample units	
RELINQUISHED BY/REMOVED FROM FEDEX	DATE/TIME 12/14/14 0930	RECEIVED BY/STORED IN H. Taylor	DATE/TIME 12/14/14 0930	TRVL-14-129	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	(1) ALPHA_GPC: COMMON {Gross alpha}; BETA_GPC: COMMON {Gross beta};	
LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME		
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME		

A-6003-618 (REV 2)

PRINTED ON 11/3/2014

January 5, 2015



SAMPLE RECEIPT & REVIEW FORM

Client: <u>CPRC</u>		SDG/AR/COC/Work Order: <u>H. Taylor 363429</u>	
Received By: <u>H. Taylor</u>		Date Received: <u>12/18/14</u>	
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0cpm</u>
Classified Radioactive II or III by RSO?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Package, COC, and/or Samples marked as beryllium or asbestos containing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	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"/>	<input type="checkbox"/>	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Preservation Method: Ice bags Blue ice Dry ice <u>(None)</u> Other (describe) *all temperatures are recorded in Celsius <u>12</u>
2a Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>130532792</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 FedEx Ground UPS Field Services Courier Other <u>7722 8825 9926</u>

Comments (Use Continuation Form if needed):

Data Review Qualifier Definitions

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

Code	Status	Qualifier Definition	CofA	Department	Fraction	Additional Comments
U	Programmed	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.	Y			Includes MDA, TPU, count uncert.
J	Programmed	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate). Value is estimated	Y	Organics		Organics only
P	Programmed	Aroclor target analyte with greater than 25% difference between column analyses.	Y	Organics		PCB only
C	Manual	Analyte has been confirmed by GC/MS analysis	Y	Organics	Pesticide	IF GC/MS confirmation was attempted but unsuccessful do not qualify with C
B	Programmed	The analyte was detected in both the associated QC blank and in the sample.	Y	Organics		
E	Manual	Concentration exceeds the calibration range of the instrument	Y	Organics		Qualifier Uploaded
A	Manual	The TIC is a suspected aldol-condensation product	Y	Organics	Semi-Volatile	Uploaded with TIC
X	Programmed	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier	Y			Replaces H Hold Date In RAD replaces UI. Same usage as standard X as well.
N	Programmed	Spike Sample recovery is outside control limits.	Y			
*	Programmed	Duplicate analysis not within control limits	Y	Inorganics		
>	Programmed	Result greater than quantifiable range or greater than upper limit of the analysis range	Y	General Chemistry		
Z	Manual	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier	Y			
B	Programmed	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).	Y	Inorganics	Metals	Replaces J Estimated Value
D	Programmed	Results are reported from a diluted aliquot of sample.	Y			Dilution
E	Programmed	Reported value is estimated due to interferences. See comment in narrative.	Y	Inorganics	Metals	GEL E
M	Manual	Duplicate precision not met.	Y	Inorganics	Metals	Replaces *
o	Programmed	Analyte failed to recover within LCS limits (Organics only)	Y	Organics		
S	Manual	Reported value determined by the Method of Standard Additions (MSA)	Y	Inorganics		Not coded B/C Rarely 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 02 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

Radiological Analysis

January 5, 2015
Radiochemistry Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG GEL363429
Work Order 363429

Method/Analysis Information

Product: Gross Alpha/Beta (Am Cal)Filter
Analytical Method: EPA 900.0/SW846 9310/SM 7110B Modified
Analytical Batch Number: 1445356

Sample ID	Client ID
363429001	S950161
1203233050	MB for batch 1445356

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 1203233050 (MB) beta result is greater than the MDC but less than the detection limit. Similar filter media was counted for the blank.

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

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.

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

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.

January 5, 2015

GEL LABORATORIES LLC

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

**Qualifier Definition Report
for**

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL363429 GEL Work Order: 363429

The Qualifiers in this report are defined as follows:

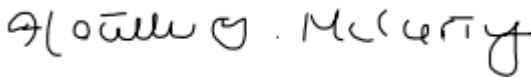
B The associated QC sample blank has a result $\geq 2X$ the MDA and, after corrections, result is \geq MDA for this sample

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: Heather McCarty

Date: 02 JAN 2015

Title: Analyst II

Sample Data Summary

Certificate of Analysis

Company : CH2MHill Plateau Remediation Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF F14-027 | CWC Air Filter

Report Date: January 2, 2015

Client Sample ID:	S950161	Project:	CPRC0F14027
Sample ID:	363429001	Client ID:	CPRC001
Matrix:	OTHERSOLID		
Collect Date:	15-DEC-14		
Receive Date:	18-DEC-14		
Collector:	Client		

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 12587-46-1		5.59	+/-0.790	0.353	+/-0.792	0.500	pCi/sample		GXR1	01/02/15	0805	1445356	1
Beta 12587-47-2	B	67.4	+/-2.14	0.572	+/-2.57	10.0	pCi/sample						

The following Analytical Methods were performed

Method	Description
1	EPA 900.0/SW846 9310/SM 7110B 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 $\geq 2X$ the MDA and, after corrections, result is \geq 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

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

QC Summary

Report Date: January 2, 2015
Page 1 of 1

Client : CH2MHill Plateau Remediation Company
 MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Workorder: 363429

Parmname	NOM	Sample	Qual	QC	Units	QC Criteria	Range	Analyst	Date Time
Rad Gas Flow									
Batch	1445356								
QC1203233050	MB								
Alpha			U	0.140	pCi/sample			GXR1	01/02/1508:05
				Uncert:	+/-0.189				
				TPU:	+/-0.189				
Beta			B	3.27	pCi/sample				
				Uncert:	+/-0.522				
				TPU:	+/-0.523				

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 $\geq 2X$ the MDA and, after corrections, result is \geq 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.