

APRIL 24, 2013

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-2038-1

TestAmerica Sample Delivery Group: SL1373
Client Project/Site: F13-028

For:

CH2M Hill Plateau Remediation Company
PO BOX 1600, MS H8-41
Richland, Washington 99352

Attn: General Mailbox



Authorized for release by:
4/24/2013 2:33:51 PM

Jayna Awalt
Project Manager I
jayna.awalt@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 160-2038-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

CH2MHill Plateau Remediation Company
P.O. Box 1600
MS B3-60
Richland, Washington 99352
April 24, 2013
Attention: Scot Fitzgerald

SDG : SL1373
Number of Samples : 1 sample
Sample Matrix : Other Solid
Data Deliverable : Summary
Date SDG Closed : April 9, 2013

II. Introduction

On April 9, 2013, 1 sample was received by TestAmerica - St. Louis for chemical analysis. The sample was received within temperature criteria. See the COC and CUR forms for documentation of any variations on receipt conditions and temperature. Upon receipt, the samples were given laboratory Ids to correspond with specific client Ids. Please refer to the Sample Summary sheets attached to this case narrative. This report is incomplete without the narrative.

The following SAFs are associated with this SDG: F13-028

III. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits. All results are based upon samples as they were received, i.e. wet weight, unless otherwise noted on the data sheets. See the attached Methods Summary Form for the methods used in this SDG.

MS/MSD/Dup analysis was done per the client requirements. Analytical batches that did not contain matrix QC were analyzed with a LCS/LCS duplicate.

Deviation from Request: None

IV. Definitions

- QCBLK- Quality Control Blank, Method Blank
- QCLCS- Quality Control Laboratory Control Sample, Blank Spike
- DUP- Laboratory Duplicate
- MS- Matrix Spike
- MSD- Matrix Spike Duplicate

The term "Detection Limit" used in the analytical data report refers to either the lab's standard reporting limits or contractually required reporting limits, whichever is applicable.

The following data qualifiers may be applicable to the results in this report, as appropriate.

- **B** - For inorganic analyses, the sample result is greater than the MDL but less than the RL.
- **B** - For organic analyses, Method Blank contamination. The Method Blank contains the target analyte at a concentration above the



Job ID: 160-2038-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

MDL.

- **J** - For organic analyses, the sample is estimated and less than the RL.
- **C** - For inorganic analyses, Method Blank contamination. The Method Blank contains the target analyte at a concentration above the MDL.
- **D** - For all analyses, the sample result was obtained from the analysis of a dilution.
- **N** - For inorganics and GC analyses, the spike/spike duplicate recoveries are outside QC limits.
- **T** - For GCMS analyses, the spike/spike duplicate recoveries are outside QC limits.
- **O** - For all analyses, the LCS (LCSD) recoveries are outside QC limits.
- **M** - For inorganic analyses, the precision was outside control limits.
- **P** - For organic analyses (PCB/Pests only), the aroclor target analyte has greater than 25% difference for detected concentrations between the two GC columns.

TOC/TIC

Batch: 47373

Total Organic Carbon was detected in method blank MB 160-47109/15-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "B". The associated samples had concentrations greater than 5x the method blank making qualification unnecessary.

Due to the matrix, the initial weights used for the following samples in TOC Batch 47373 deviated from the standard procedure, and were analyzed at a 2X reduced aliquot of 50mg, based on the results of the TC analysis: (160-2038-1 DU), (160-2038-1 MS), B2P5L5 (160-2038-1). For the TC analysis (no batch, only analyzed to obtain the TIC result), the samples were analyzed at a 10X reduced aliquot of 10mg, based on the appearance of the matrix. Due to TALS limitations, the RLs cannot be adjusted without also multiplying the final result. All samples that are reported have results within the adjusted calibration ranges. (200 mg/kg - 20,000 mg/kg for the TOC soils, and 1,000 mg/kg - 100,000 mg/kg for the TC soils)

I certify that this Summary Package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. The Laboratory Manager or a designee, as verified by the signature on the cover page has authorized release of the data contained in this hard copy data package.

Reviewed and approved:

Jayna Awalt
St. Louis Project Manager

9165

CUL NEW

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		FL3-028-001	PAGE 1 OF 1
COLLECTOR C. Fu Hon 91373	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 9C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 100-KW P&T 199-K-137 SOLIDS FROM FILTER	PROJECT DESIGNATION 100-KW Pump & Treat - Well 199-K-137 - Unknown Solid	SAF NO. FL3-028	COA 302878ES10	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT FEDERAL EXPRESS
ICE CHEST NO. GWS-226	FIELD LOGBOOK NO. HNF-N-507-24	ACTUAL SAMPLE DEPTH (NA)	BILL OF LADING/AIR BILL NO. SEE PTR 19946851 0165		ORIGINAL
SHIPPED TO TestAmerica St. Louis	OFFSITE PROPERTY NO. SEE PTR				

MATRIX*	PRESERVATION	None
A=Air	HOLDING TIME	28 Days
DL=Drum	TYPE OF CONTAINER	ag
Liquids	NO. OF CONTAINER(S)	1
DS=Drum	VOLUME	60ml
Solids	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
L=Liquid	SAMPLE DATE	4/8/13
O=Oil	SAMPLE TIME	0905
S=Soil		
SE=Sediment		
T=Tissue		
V=Vegetation		
W=Water		
WI=Wipe		
X=Other		

Page 1 of 14

CHAIN OF POSSESSION		SIGN / PRINT NAMES	
RELINQUISHED BY/REMOVED FROM C. Fu Hon	DATE/TIME 4/8/13 1000	RECEIVED BY/STORED IN L.D. Wall	DATE/TIME 4/8/13 1000
RELINQUISHED BY/REMOVED FROM L.D. Wall	DATE/TIME APR 08 2013 1400	RECEIVED BY/STORED IN EDEX	DATE/TIME
RELINQUISHED BY/REMOVED FROM Fed Ex	DATE/TIME	RECEIVED BY/STORED IN J. J. Jones	DATE/TIME 4/8/13 0910
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

TRVL-13-045

SPECIAL INSTRUCTIONS
 TRVL13-045
 ** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
 ** Two distinct material types coat the filter cartridge; a brown, granular sand-like material and a black clay-like material. NCOs will sample only the black, clay-like material from the filter cartridge.
 (1) 9060_TOC: COMMON {Total Inorganic Carbon, Total organic carbon};



IMPORTANT!

Explosions and increased security measures are causing delays and disruptions. Learn More



799468510165

Ship (P/U) date :
Mon 4/08/2013 4:20 pm

RICHLAND, WA US



Delivered

Signed for by: B.DANIELS

Actual delivery :

Tues 4/09/2013 9:06 am

EARTH CITY, MO US

Travel History

Date/Time	Activity	Location
- 4/09/2013 - Tuesday		
9:06 am	Delivered	EARTH CITY, MO
7:01 am	On FedEx vehicle for delivery	EARTH CITY, MO
6:55 am	At local FedEx facility	EARTH CITY, MO
5:18 am	At destination sort facility	BERKELEY, MO
4:35 am	Departed FedEx location	MEMPHIS, TN
12:42 am	Arrived at FedEx location	MEMPHIS, TN
- 4/08/2013 - Monday		
5:11 pm	Left FedEx origin facility	PASCO, WA
4:20 pm	Picked up	PASCO, WA
1:01 pm	Shipment information sent to FedEx	

Local Scan Time

Shipment Facts

Tracking number	799468510165	Service	FedEx Priority Overnight
Weight	9 lbs	Delivered To	Shipping/Receiving
Total pieces	1	Total shipment weight	9 lbs / 4.1 kgs
Shipper reference	GWS-226	Packaging	Your Packaging
Special handling section	Deliver Weekday		

Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 160-2038-1

SDG Number: SL1373

Login Number: 2038

List Number: 1

Creator: Daniels, Brian

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Estimated result. Result is less than the RL, but greater than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: CH2M Hill Plateau Remediation Company
Project/Site: F13-028

TestAmerica Job ID: 160-2038-1
SDG: SL1373

Method	Method Description	Protocol	Laboratory
9060	Organic Carbon, Total (TOC)	SW846	TAL SL
9060	Total Inorganic Carbon	SW846	TAL SL

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



APRIL 24, 2013
Sample Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F13-028

TestAmerica Job ID: 160-2038-1
SDG: SL1373

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-2038-1	B2P5L5	Solid	04/08/13 09:05	04/09/13 09:10

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APRIL 24, 2013
Detection Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F13-028

TestAmerica Job ID: 160-2038-1
SDG: SL1373

Client Sample ID: B2P5L5

Lab Sample ID: 160-2038-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	621		100	33.4	mg/Kg	1		9060	Total/NA
Total Inorganic Carbon	4630		100	33.4	mg/Kg	1		9060	Total/NA

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This Detection Summary does not include radiochemical test results.

TestAmerica St. Louis

APRIL 24 2013
Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F13-028

TestAmerica Job ID: 160-2038-1
SDG: SL1373

General Chemistry

Client Sample ID: B2P5L5
Date Collected: 04/08/13 09:05
Date Received: 04/09/13 09:10

Lab Sample ID: 160-2038-1
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	621		100	33.4	mg/Kg		04/17/13 18:35	04/23/13 15:20	1
Total Inorganic Carbon	4630		100	33.4	mg/Kg			04/24/13 13:35	1

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Client: CH2M Hill Plateau Remediation Company
Project/Site: F13-028

TestAmerica Job ID: 160-2038-1
SDG: SL1373

Method: 9060 - Organic Carbon, Total (TOC)

Lab Sample ID: MB 160-47109/15-A
Matrix: Solid
Analysis Batch: 47373

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 47109

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	57.64	B	100	33.4	mg/Kg		04/17/13 18:35	04/23/13 14:56	1

Lab Sample ID: LCS 160-47109/16-A
Matrix: Solid
Analysis Batch: 47373

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 47109

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	3320	2921		mg/Kg		88	33 - 140

Lab Sample ID: 160-2038-1 MS
Matrix: Solid
Analysis Batch: 47373

Client Sample ID: B2P5L5
Prep Type: Total/NA
Prep Batch: 47109

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	621		2000	2537		mg/Kg		96	50 - 150

Lab Sample ID: 160-2038-1 DU
Matrix: Solid
Analysis Batch: 47373

Client Sample ID: B2P5L5
Prep Type: Total/NA
Prep Batch: 47109

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total Organic Carbon	621		494.5		mg/Kg		23	30

APRIL 24, 2013
QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F13-028

TestAmerica Job ID: 160-2038-1
SDG: SL1373

General Chemistry

Prep Batch: 47109

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-2038-1	B2P5L5	Total/NA	Solid	None	
160-2038-1 DU	B2P5L5	Total/NA	Solid	None	
160-2038-1 MS	B2P5L5	Total/NA	Solid	None	
LCS 160-47109/16-A	Lab Control Sample	Total/NA	Solid	None	
MB 160-47109/15-A	Method Blank	Total/NA	Solid	None	

Analysis Batch: 47373

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-2038-1	B2P5L5	Total/NA	Solid	9060	47109
160-2038-1 DU	B2P5L5	Total/NA	Solid	9060	47109
160-2038-1 MS	B2P5L5	Total/NA	Solid	9060	47109
LCS 160-47109/16-A	Lab Control Sample	Total/NA	Solid	9060	47109
MB 160-47109/15-A	Method Blank	Total/NA	Solid	9060	47109

Analysis Batch: 47565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-2038-1	B2P5L5	Total/NA	Solid	9060	

