

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-110499-2
TestAmerica Sample Delivery Group: DN0389
Client Project/Site: W18-005

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

Attn: Mr. Scot Fitzgerald



Authorized for release by:
6/20/2018 6:23:59 PM

Darlene Bandy, Project Manager I
(303)736-0188
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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10



Table of Contents

Cover Page	1
Table of Contents	2
Case Narrative	3
Chain of Custody	4
Definitions	8
Method Summary	9
Sample Summary	10
Client Sample Results	11
QC Sample Results	12
QC Association	13

Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-005

TestAmerica Job ID: 280-110499-2
SDG: DN0389

Job ID: 280-110499-2

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: CH2M Hill Plateau Remediation Company

Project: W18-005

Report Number: 280-110499-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 6/5/2018 at 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.9° C.

TOTAL ORGANIC CARBON

Samples B3JWM0 (280-110499-18), B3JWM1 (280-110499-19), B3JWM3 (280-110499-20) and B3JWM2 (280-110499-21) were analyzed for total organic carbon in accordance with EPA SW-846 Method 9060A. The samples were analyzed on 06/15/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

We certify that this data package 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 signature on this report.

Reviewed and approved:

Darlene Bandy
Project Manager



Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 280-110499-2

SDG Number: DN0389

Login Number: 110499**List Number: 1****Creator: Pottruff, Reed W****List Source: TestAmerica Denver**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	70 CPM
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	1.9 C
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 (excluding tests with immediate HTs)	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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

CH2M Hill Plateau Remediation Company	920-18 10015	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C.# W18-005-256
			Page 1 of 2

Collector: C.C. HOFFMAN/CHPRC 6-6-18 6-6-18	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650 07 0-178
SAF No.: W18-005 DN0389	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071
Project Title: RCRA, May 2018	Logbook No.: HNF-N-506 - 100	Ice Chest No.: GWS-419
Shipped To (Lab): TestAmerica Denver	Method of Shipment: Commercial Carrier	Bill of Lading/Air Bill No.: 77238946 4724
Protocol: RCRA	Priority: 15 Days PRIORITY	Offsite Property No.: 95104

POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1	SPECIAL INSTRUCTIONS N/A
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Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3JWM0	N	W	6/1/18	1153	1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2 / Cool <=6C
B3JWM1	N	W			1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2 / Cool <=6C
B3JWM3	N	W			1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2 / Cool <=6C
B3JWM2	N	W			1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2 / Cool <=6C

Relinquished By: C.C. HOFFMAN/CHPRC <i>[Signature]</i> JUN 01 2018 1250	Received By: <i>[Signature]</i> JUN 01 2018 1250	Matrix * S = Soil DS = Drum Solids SE = Sediment DL = Drum Liquids SO = Solid T = Tissue SL = Sludge WI = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By: <i>[Signature]</i> JUN 01 2018 1400	Received By: <i>[Signature]</i> JUN 01 2018 1400	
Relinquished By: Janelle Zunker CHPRC <i>[Signature]</i> JUN 01 2018 1415	Received By: SSU-1 <i>[Signature]</i> JUN 01 2018 1415	
Relinquished By: SSU-1 <i>[Signature]</i> JUN 04 2018 0810	Received By: <i>[Signature]</i> JUN 04 2018 0810	

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:
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Page 5 of 11

06/20/2018

REV.0



CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST (continued)

C.O.C. No. **W18-005-2514**
 Page **2** of **2**

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	Lesly Wall	<i>[Signature]</i>	JUN 04 2018 1400	FEDEX			
	FedEx			Reed	Patterson	<i>[Signature]</i>	6-5-18 0900
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
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Page 6 of 13

6 of 13
6/20/2018

06/20/2018

REV.0





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FedEx® Tracking

772389464724

Ship date:

Mon 6/04/2018

Actual delivery:

Tue 6/05/2018 8:53 am

Richland, WA US

Delivered

Signed for by: A.GOMEZ

ARVADA, CO US

Travel History

Date/Time	Activity	Location
- 6/05/2018 - Tuesday		
8:53 am	Delivered	ARVADA, CO
8:31 am	On FedEx vehicle for delivery	ARVADA, CO
7:57 am	At local FedEx facility	ARVADA, CO
5:19 am	At destination sort facility	DENVER, CO
4:18 am	Departed FedEx location	MEMPHIS, TN
12:12 am	Arrived at FedEx location	MEMPHIS, TN
- 6/04/2018 - Monday		
4:42 pm	Left FedEx origin facility	PASCO, WA
3:00 pm	Picked up	PASCO, WA
2:28 pm	Shipment information sent to FedEx	

Shipment Facts

Tracking Number	772389464724	Service	FedEx Priority Overnight
Weight	75 lbs / 34.02 kgs	Dimensions	28x16x16 in.
Signature services	Direct signature required	Delivered To	Shipping/Receiving
Total pieces	1	Total shipment weight	75 lbs / 34.02 kgs
Terms	Third Party	Shipper reference	9514/GWS-419
Packaging	Your Packaging	Special handling section	Deliver Weekday, Additional Handling Surcharge, Direct Signature Required
Standard transit	6/05/2018 by 10:30 am		

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Client: CH2M Hill Plateau Remediation Company
 Project/Site: W18-005

TestAmerica Job ID: 280-110499-2
 SDG: DN0389

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Estimated result. Result is less than the RL, but greater than MDL
U	Analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
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: W18-005

TestAmerica Job ID: 280-110499-2
SDG: DN0389

Method	Method Description	Protocol	Laboratory
9060A	Organic Carbon, Total (TOC)	SW846	TAL DEN

Protocol References:

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

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100



Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-005

TestAmerica Job ID: 280-110499-2
SDG: DN0389

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-110499-18	B3JWM0	Water	06/01/18 11:53	06/05/18 09:00
280-110499-19	B3JWM1	Water	06/01/18 11:53	06/05/18 09:00
280-110499-20	B3JWM3	Water	06/01/18 11:53	06/05/18 09:00
280-110499-21	B3JWM2	Water	06/01/18 11:53	06/05/18 09:00

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

06/20/2018
Client Sample Results

REV.0

Client: CH2M Hill Plateau Remediation Company
 Project/Site: W18-005

TestAmerica Job ID: 280-110499-2
 SDG: DN0389

General Chemistry

Client Sample ID: B3JWM0
Date Collected: 06/01/18 11:53
Date Received: 06/05/18 09:00

Lab Sample ID: 280-110499-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Average	737	B	1000	155	ug/L			06/15/18 22:15	1

Client Sample ID: B3JWM1
Date Collected: 06/01/18 11:53
Date Received: 06/05/18 09:00

Lab Sample ID: 280-110499-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Average	783	B	1000	155	ug/L			06/15/18 21:55	1

Client Sample ID: B3JWM3
Date Collected: 06/01/18 11:53
Date Received: 06/05/18 09:00

Lab Sample ID: 280-110499-20
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Average	911	B	1000	155	ug/L			06/15/18 21:36	1

Client Sample ID: B3JWM2
Date Collected: 06/01/18 11:53
Date Received: 06/05/18 09:00

Lab Sample ID: 280-110499-21
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Average	795	B	1000	155	ug/L			06/15/18 20:51	1

Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-005

TestAmerica Job ID: 280-110499-2
SDG: DN0389

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 280-418821/35
Matrix: Water
Analysis Batch: 418821

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Average	155	U	1000	155	ug/L			06/15/18 19:17	1

Lab Sample ID: LCS 280-418821/34
Matrix: Water
Analysis Batch: 418821

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Average	25000	23880		ug/L		96	80 - 120

Lab Sample ID: 280-110499-21 MS
Matrix: Water
Analysis Batch: 418821

Client Sample ID: B3JWM2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Average	795	B	25000	25710		ug/L		100	75 - 125

Lab Sample ID: 280-110499-21 MSD
Matrix: Water
Analysis Batch: 418821

Client Sample ID: B3JWM2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Average	795	B	25000	25750		ug/L		100	75 - 125	0	20

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

06/20/2018
QC Association Summary

REV.0

Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-005

TestAmerica Job ID: 280-110499-2
SDG: DN0389

General Chemistry

Analysis Batch: 418821

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-110499-18	B3JWM0	Total/NA	Water	9060A	
280-110499-19	B3JWM1	Total/NA	Water	9060A	
280-110499-20	B3JWM3	Total/NA	Water	9060A	
280-110499-21	B3JWM2	Total/NA	Water	9060A	
MB 280-418821/35	Method Blank	Total/NA	Water	9060A	
LCS 280-418821/34	Lab Control Sample	Total/NA	Water	9060A	
280-110499-21 MS	B3JWM2	Total/NA	Water	9060A	
280-110499-21 MSD	B3JWM2	Total/NA	Water	9060A	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10