

September 14, 2015

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Richland
2800 George Washington Way
Richland, WA 99352
Tel: (509)375-3131

TestAmerica Job ID: 300-665-1
TestAmerica Sample Delivery Group: WC0299
Client Project/Site: CH2M Hill Chemical

For:
CH2M Hill Plateau Remediation Company
PO BOX 1600
Mail Stop R3-50
Richland, Washington 99352

Attn: CPP Sample Management



Authorized for release by:
9/14/2015 6:12:24 PM

Whitney Ritari, Project Manager I
(509)375-3131 ext164
whitney.ritari@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed in this package. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the attached signature.

The laboratory is accredited to EPA 7196A in Solid and Chemical Materials, per Washington State Department of Ecology this is approved for non-discharge water samples. The sample/ sample duplicate RPD agreement is not applicable if one or both results are elss than five times the MDL.



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Client: CH2M Hill Plateau Remediation Company
Project/Site: CH2M Hill ChemicalTestAmerica Job ID: 300-665-1
SDG: WC0299

Qualifiers

General Chemistry

Qualifier	Qualifier Description
U	Analyzed for but not detected.

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
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
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)
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
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: CH2M Hill Chemical

TestAmerica Job ID: 300-665-1
SDG: WC0299

Job ID: 300-665-1

Laboratory: TestAmerica Richland

Narrative

**Job Narrative
300-665-1**

Comments

No additional comments.

Receipt

The samples were received on 8/31/2015 2:40 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.1° C.

General Chemistry

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

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CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

FLS-028-038 PAGE 1 OF 1

COLLECTOR
White ehac

COMPANY CONTACT
TODAK, D

TELEPHONE NO.
376-6427

PROJECT COORDINATOR
TODAK, D

PRICE CODE 7H
AIR QUALITY
METHOD OF SHIPMENT
GOVERNMENT VEHICLE
DATA TURNAROUND
30 Days / 30 Days
ORIGINAL

SAMPLING LOCATION
C8797, Interval W-3 DUPLICATE

PROJECT DESIGNATION
100-KE Characterization Boreholes - Water

FIELD LOGBOOK NO.
HUS-N-645-3/21

SAF NO.
FLS-028

COA
303581

BILL OF LADING/AIR BILL NO.
N/A

ICE CHEST NO.
N/A

FIELD LOGBOOK NO.
HUS-N-645-3/21

ACTUAL SAMPLE DEPTH
50.11

COA
303581

BILL OF LADING/AIR BILL NO.
N/A

MATRIX*
A=Air
DL=Drum
Liquids
DS=Drum
Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WF=White
X=Other

PRESERVATION
Cool <=6C

HOLDING TIME
24 Hours

TYPE OF CONTAINER
3G

NO. OF CONTAINER(S)
1

VOLUME
60mL

SPECIAL HANDLING AND/OR STORAGE
*Refractate in 532013
Jut 8/29/15*

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR/LATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

SAMPLE NO. B31TW7

MATRIX* WATER

SAMPLE DATE
AUG 31 2015

SAMPLE TIME
1010

300-665 COC



300-665 COC

#665
WCO299

September 14, 2015

CHAIN OF POSSESSION

SIGN/ PRINT NAMES

SPECIAL INSTRUCTIONS
TRVL-15-112

RELINQUISHED BY/REMOVED FROM
White ehac
DATE/TIME
AUG 31 2015 1300

RECEIVED BY/STORED IN
LD. Wall
DATE/TIME
AUG 31 2015 1440

DATE/TIME
AUG 31 2015 1440

RELINQUISHED BY/REMOVED FROM

RECEIVED BY/STORED IN

DATE/TIME

LABORATORY SECTION

RECEIVED BY

TITLE

DISPOSED BY

DATE/TIME

FINAL SAMPLE DISPOSITION

DISPOSAL METHOD

TITLE

DISPOSED BY

DATE/TIME

PRINTED ON 8/19/2015

FSR ID = FSR4783

TRVL NUM = TRVL-15-112

A-6003-618 (REV 2)

COLLECTOR White chere
SAMPLING LOCATION C8797, Interval W-3
ICE CHEST NO. N/A
COMPANY CONTACT TODAK, D 376-6427
PROJECT DESIGNATION 100-KE Characterization Boreholes - Water
FIELD LOGBOOK NO. 1456-N-645-3/21
OFFSITE PROPERTY NO. N/A
ACTUAL SAMPLE DEPTH 90.11
PROJECT COORDINATOR TODAK, D
SAF NO. F15-028
COA 303581
METHOD OF SHIPMENT GOVERNMENT VEHICLE
PRICE CODE 7H
AIR QUALITY
TURNAROUND 30 Days / 30 Days
DATA ORIGINAL

SHIPPED TO TestAmerica Incorporated, Richland
BILL OF LADING / AIR BILL NO. N/A

MATRIX*	PRESERVATION	HOLDING TIME	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	COOL <=6C
A=Air DL=Drum L=Liquid DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe O=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/JATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	24 Hours	ag	1	60mL	
SPECIAL HANDLING AND/OR STORAGE -RADIOACTIVE THE 10-62333- Jct 8/23/15						

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B31TX2	WATER	AUG 31 2015	1010

#1665
 WCC0299

September 14, 2015

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	SIGN/PRINT NAMES	SPECIAL INSTRUCTIONS
M.A. White CH2M 10/10/2015 AUG 31 2015 1440	AUG 31 2015 1400 DATE/TIME	CH2M J. Friesz, TARI AUG 31 2015 1440 DATE/TIME	AUG 31 2015 1400 DATE/TIME	[Signature] [Signature]	TRVL-15-112
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

FINAL SAMPLE DISPOSITION DISPOSAL METHOD

Client: CH2M Hill Plateau Remediation Company
Project/Site: CH2M Hill Chemical

TestAmerica Job ID: 300-665-1
SDG: WC0299

Client Sample ID: B31TW7

Lab Sample ID: 300-665-1

No Detections.

Client Sample ID: B31TX2

Lab Sample ID: 300-665-2

No Detections.

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This Detection Summary does not include radiochemical test results.

September 14, 2015
Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: CH2M Hill Chemical

TestAmerica Job ID: 300-665-1
SDG: WC0299

Client Sample ID: B31TW7
Date Collected: 08/31/15 10:10
Date Received: 08/31/15 14:40

Lab Sample ID: 300-665-1
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0015	U	0.0040	0.0015	mg/L	-		08/31/15 17:18	1

Client Sample ID: B31TX2
Date Collected: 08/31/15 10:10
Date Received: 08/31/15 14:40

Lab Sample ID: 300-665-2
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0015	U	0.0040	0.0015	mg/L	-		08/31/15 17:18	1

Client: CH2M Hill Plateau Remediation Company
 Project/Site: CH2M Hill Chemical

TestAmerica Job ID: 300-665-1
 SDG: WC0299

Method: 7196A - Chromium, Hexavalent

Lab Sample ID: MB 300-961/3
Matrix: Water
Analysis Batch: 961

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0015	U	0.0040	0.0015	mg/L			08/31/15 17:14	1

Lab Sample ID: LCS 300-961/4
Matrix: Water
Analysis Batch: 961

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	0.250	0.260		mg/L		104	85 - 115

Lab Sample ID: 300-665-1 MS
Matrix: Water
Analysis Batch: 961

Client Sample ID: B31TW7
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	0.0015	U	0.0501	0.0537		mg/L		107	85 - 115

Lab Sample ID: 300-665-1 DU
Matrix: Water
Analysis Batch: 961

Client Sample ID: B31TW7
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cr (VI)	0.0015	U	0.0015	U	mg/L		NC	20

September 14, 2015
QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: CH2M Hill Chemical

TestAmerica Job ID: 300-665-1
SDG: WC0299

General Chemistry

Analysis Batch: 961

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-665-1	B31TW7	Total/NA	Water	7196A	
300-665-1 DU	B31TW7	Total/NA	Water	7196A	
300-665-1 MS	B31TW7	Total/NA	Water	7196A	
300-665-2	B31TX2	Total/NA	Water	7196A	
LCS 300-961/4	Lab Control Sample	Total/NA	Water	7196A	
MB 300-961/3	Method Blank	Total/NA	Water	7196A	

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Client: CH2M Hill Plateau Remediation Company
Project/Site: CH2M Hill Chemical

TestAmerica Job ID: 300-665-1
SDG: WC0299

Client Sample ID: B31TW7
Date Collected: 08/31/15 10:10
Date Received: 08/31/15 14:40

Lab Sample ID: 300-665-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			961	08/31/15 17:18	AMC	TAL RCH

Client Sample ID: B31TX2
Date Collected: 08/31/15 10:10
Date Received: 08/31/15 14:40

Lab Sample ID: 300-665-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			961	08/31/15 17:18	AMC	TAL RCH

Client Sample ID: B31TW7
Date Collected: 08/31/15 10:10
Date Received: 08/31/15 14:40

Lab Sample ID: 300-665-1 DU
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			961	08/31/15 17:18	AMC	TAL RCH

Client Sample ID: Lab Control Sample
Date Collected: N/A
Date Received: N/A

Lab Sample ID: LCS 300-961/4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			961	08/31/15 17:15	AMC	TAL RCH

Client Sample ID: Method Blank
Date Collected: N/A
Date Received: N/A

Lab Sample ID: MB 300-961/3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			961	08/31/15 17:14	AMC	TAL RCH

Client Sample ID: B31TW7
Date Collected: 08/31/15 10:10
Date Received: 08/31/15 14:40

Lab Sample ID: 300-665-1 MS
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1		3.0 mL	961	08/31/15 17:15	AMC	TAL RCH

Laboratory References:

TAL RCH = TestAmerica Richland, 2800 George Washington Way, Richland, WA 99352, TEL (509)375-3131

Client: CH2M Hill Plateau Remediation Company
Project/Site: CH2M Hill Chemical

TestAmerica Job ID: 300-665-1
SDG: WC0299

Method	Method Description	Protocol	Laboratory
7196A	Chromium, Hexavalent	SW846	TAL RCH

Protocol References:

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

Laboratory References:

TAL RCH = TestAmerica Richland, 2800 George Washington Way, Richland, WA 99352, TEL (509)375-3131



Client: CH2M Hill Plateau Remediation Company
Project/Site: CH2M Hill Chemical

TestAmerica Job ID: 300-665-1
SDG: WC0299

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-665-1	B31TW7	Water	08/31/15 10:10	08/31/15 14:40
300-665-2	B31TX2	Water	08/31/15 10:10	08/31/15 14:40

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Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-665-1

SDG Number: WC0299

Login Number: 665

List Number: 1

Creator: Friesz, Jordan D

List Source: TestAmerica Richland

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.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

