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: 300-1747-1
TestAmerica Sample Delivery Group: WC0660
Client Project/Site: S16-012

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

Attn: CPP Sample Management

Authorized for release by:
12/8/2015 9:21:35 AM
Steven Campbell, Quality Assurance Assistant
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Designee for

Whitney Ritari, Project Manager I
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LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

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 desingee 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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Definitions/Glossary

Client: CH2M Hill Plateau Remediation Company
Project/Site: S16-012

TestAmerica Job ID: 300-1747-1
SDG: WC0660

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
D	The reported value is from a dilution.
U	Analyzed for but not detected.
B	Estimated result. Result is less than the RL, but greater than MDL

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)

Case Narrative

Job ID: 300-1747-1

Laboratory: TestAmerica Richland

Narrative

Job Narrative
300-1747-1

Comments
No additional comments.

Receipt
The samples were received on 12/3/2015 3:15 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 7.9º C.

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

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

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # S16-012-363 Page 1 of 1

Collector	D.J. Woehle/CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	S16-012	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	SURV, DECEMBER 2016	Logbook No.	HNF-N-506 82 / 16	Ice Chest No.	N/A
Shipped To (Lab)	TestAmerica Incorporated, Richland	Method of Shipment	GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.	N/A
Protocol	SURV	Priority:	30 Days PRIORITY	Offsite Property No.	N/A

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B33HK6	Y	W	12-3-15	1006	1x60-mL aG	7196_CR6: COMMON	24 Hours	Cool <=6C
B33HK4	N	W	12-3-15	1006	1x60-mL aG	7196_CR6: COMMON	24 Hours	Cool <=6C

#1747
WC0440
Due 12-18-15

300-1747 COC

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D.J. Woehle/CHPRC			DEC 03 2015 1200	F.M. Hall/CHPRC			DEC 03 2015 1200
F.M. Hall/CHPRC			DEC 03 2015 1515	J. Bock, TARL			DEC 03 2015 1515

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		

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

PRINTED ON 10/22/2015 FSR ID = FSR8508 A-6004-842 (REV 2)

December 08, 2015

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # S16-012-327 Page 1 of 1

Collector	D. Woehle	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	S16-012	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	SURV, DECEMBER 2016	Logbook No.	HNF-N-506 82-116	Ice Chest No.	N/A
Shipped To (Lab)	TestAmerica Incorporated, Richland	Method of Shipment	GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.	N/A
Protocol	SURV	Priority:	30 Days PRIORITY	Offsite Property No.	N/A

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B33H55	Y	W	12-3-15	1214	1x60-mL aG	7196_CR6: COMMON	24 Hours	Cool <=6C
B33H53	N	W	12-3-15	1214	1x60-mL aG	7196_CR6: COMMON	24 Hours	Cool <=6C

≥ 1747
WC0660

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	D.J. Woehle/CHPRC		DEC 03 2015 1225		F.M. Hall/CHPRC		DEC 03 2015 1225
	F.M. Hall/CHPRC		DEC 03 2015 1515		J. Bock, TARL		DEC 03 2015 1515

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

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

December 08, 2015

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **S16-012-334**

Page 1 of 1

Collector	D.J. Woehle/CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	S16-012	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	300071
Project Title	SURV, DECEMBER 2016	**Logbook No.**	HNF-N-506 82 / 16	**Ice Chest No.**	N/A
Shipped To (Lab)	TestAmerica Incorporated, Richland	**Method of Shipment**	GOVERNMENT VEHICLE	**Bill of Lading/Air Bill No.**	N/A
Protocol	SURV	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	N/A

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B33H76	N	W	12-3-15	0856	1x60-mL aG	7196_CR6: COMMON	24 Hours	Cool <=6C
B33H78	Y	W	12-3-15	0856	1x60-mL aG	7196_CR6: COMMON	24 Hours	Cool <=6C

1149
WC0660

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D.J. Woehle/CHPRC			DEC 0 3 2015 1200	F.M. Hall/CHPRC			DEC 0 3 2015 1200
F.M. Hall/CHPRC			DEC 0 3 2015 1515	J. Bock, TARL			DEC 0 3 2015 1515

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		

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

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12/8/2015
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CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **S16-012-362**

Page 1 of 1

Collector	D.J. Woehle/CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	S16-012	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	300071
Project Title	SURV, DECEMBER 2016	**Logbook No.**	HNF-N-506 82/16	**Ice Chest No.**	N/A
Shipped To (Lab)	TestAmerica Incorporated, Richland	**Method of Shipment**	GOVERNMENT VEHICLE	**Bill of Lading/Air Bill No.**	N/A
Protocol	SURV	**Priority:**	**30 Days** **PRIORITY**	**Offsite Property No.**	N/A

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B33HK3	N	W	12-3-15	1006	1x500-mL P	300.0_ANIONS_IC: COMMON	48 Hours	Cool <=6C

1747
WC0660

300-1747 COC

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D.J. Woehle/CHPRC			DEC 03 2015 1200	F.M. Hall/CHPRC			DEC 03 2015 1200
F.M. Hall/CHPRC			DEC 03 2015 1515		J. Bock, TARL		DEC 03 2015 1515

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

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

PRINTED ON 10/22/2015 FSR ID = FSR8508 A-6004-842 (REV 2)

December 08, 2015

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # S16-012-326 Page 1 of 1

Collector	D.J. Woehle/CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	S16-012	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	SURV, DECEMBER 2016	Logbook No.	HNF-N-506 87/16	Ice Chest No.	N/A
Shipped To (Lab)	TestAmerica Incorporated, Richland	Method of Shipment	GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.	N/A
Protocol	SURV	Priority:	30 Days PRIORITY	Offsite Property No.	N/A

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B33H52	N	W	12-3-15	1214	1x500-mL P	300.0_ANIONS_IC: COMMON	48 Hours	Cool <=6C

#1744
WC0060

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D.J. Woehle/CHPRC			DEC 03 2015 1225	F.M. Hall/CHPRC			DEC 03 2015 1225
F.M. Hall/CHPRC			DEC 03 2015 1515	J. Bock, TARL			DEC 03 2015 1515

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		

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

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December 08, 2015

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # S16-012-173 Page 1 of 1

Collector	D.J. Woehle/CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	S16-012	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	SURV, DECEMBER 2016	Logbook No.	HNF-N-506 82 / 26	Ice Chest No.	N/A
Shipped To (Lab)	TestAmerica Incorporated, Richland	Method of Shipment	GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.	N/A
Protocol	SURV	Priority:	30 Days PRIORITY	Offsite Property No.	N/A

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B33H75	N	W	12-3-15	0856	1x500-mL P	300.0_ANIONS_IC: COMMON; 300.0_ANIONS_IC: GW 02	48 Hours	Cool <=6C

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Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D.J. Woehle/CHPRC			DEC 0 3 2015 1200	F.M. Hall/CHPRC			DEC 0 3 2015 1200
F.M. Hall/CHPRC			DEC 0 3 2015 1515		J. Bock, TARL		DEC 0 3 2015 1515

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		

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

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December 08, 2015

Detection Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: S16-012

TestAmerica Job ID: 300-1747-1
SDG: WC0660

Client Sample ID: B33HK6 — Lab Sample ID: 300-1747-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	0.0061		0.0040	0.0015	mg/L	1		7196A	Total/NA

Client Sample ID: B33HK4 — Lab Sample ID: 300-1747-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	0.0059		0.0040	0.0015	mg/L	1		7196A	Total/NA

Client Sample ID: B33H55 — Lab Sample ID: 300-1747-3

No Detections.

Client Sample ID: B33H53 — Lab Sample ID: 300-1747-4

No Detections.

Client Sample ID: B33H76 — Lab Sample ID: 300-1747-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	0.0058		0.0040	0.0015	mg/L	1		7196A	Total/NA

Client Sample ID: B33H78 — Lab Sample ID: 300-1747-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	0.0056		0.0040	0.0015	mg/L	1		7196A	Total/NA

Client Sample ID: B33HK3 — Lab Sample ID: 300-1747-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.6	D	0.40	0.20	mg/L	2		300.0	Total/NA
Nitrate as N	3.5	D	0.056	0.028	mg/L	2		300.0	Total/NA
Fluoride	0.16	D	0.10	0.050	mg/L	2		300.0	Total/NA
Sulfate	94	D	0.50	0.25	mg/L	2		300.0	Total/NA

Client Sample ID: B33H52 — Lab Sample ID: 300-1747-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	9.4	D	0.40	0.20	mg/L	2		300.0	Total/NA
Nitrate as N	3.5	D	0.056	0.028	mg/L	2		300.0	Total/NA
Fluoride	0.22	D	0.10	0.050	mg/L	2		300.0	Total/NA
Sulfate	86	D	0.50	0.25	mg/L	2		300.0	Total/NA

Client Sample ID: B33H75 — Lab Sample ID: 300-1747-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.6	D	0.40	0.20	mg/L	2		300.0	Total/NA
Nitrate as N	3.3	D	0.056	0.028	mg/L	2		300.0	Total/NA
Fluoride	0.16	D	0.10	0.050	mg/L	2		300.0	Total/NA
Sulfate	93	D	0.50	0.25	mg/L	2		300.0	Total/NA
Bromide	0.15	B D	0.25	0.13	mg/L	2		300.0	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: S16-012

TestAmerica Job ID: 300-1747-1
SDG: WC0660

Client Sample ID: B33HK6 — Lab Sample ID: 300-1747-1

Date Collected: 12/03/15 10:06 — **Matrix: Water**
Date Received: 12/03/15 15:15

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0061		0.0040	0.0015	mg/L			12/03/15 19:42	1

Client Sample ID: B33HK4 — Lab Sample ID: 300-1747-2

Date Collected: 12/03/15 10:06 — **Matrix: Water**
Date Received: 12/03/15 15:15

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0059		0.0040	0.0015	mg/L			12/03/15 19:43	1

Client Sample ID: B33H55 — Lab Sample ID: 300-1747-3

Date Collected: 12/03/15 12:14 — **Matrix: Water**
Date Received: 12/03/15 15:15

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0015	U	0.0040	0.0015	mg/L			12/03/15 19:43	1

Client Sample ID: B33H53 — Lab Sample ID: 300-1747-4

Date Collected: 12/03/15 12:14 — **Matrix: Water**
Date Received: 12/03/15 15:15

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0015	U	0.0040	0.0015	mg/L			12/03/15 19:43	1

Client Sample ID: B33H76 — Lab Sample ID: 300-1747-5

Date Collected: 12/03/15 08:56 — **Matrix: Water**
Date Received: 12/03/15 15:15

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0058		0.0040	0.0015	mg/L			12/03/15 19:46	1

Client Sample ID: B33H78 — Lab Sample ID: 300-1747-6

Date Collected: 12/03/15 08:56 — **Matrix: Water**
Date Received: 12/03/15 15:15

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0056		0.0040	0.0015	mg/L			12/03/15 19:46	1

Client Sample ID: B33HK3 — Lab Sample ID: 300-1747-7

Date Collected: 12/03/15 10:06 — **Matrix: Water**
Date Received: 12/03/15 15:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.6	D	0.40	0.20	mg/L			12/03/15 21:49	2
Nitrate as N	3.5	D	0.056	0.028	mg/L			12/03/15 21:49	2
Fluoride	0.16	D	0.10	0.050	mg/L			12/03/15 21:49	2

Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: S16-012

TestAmerica Job ID: 300-1747-1
SDG: WC0660

Client Sample ID: B33HK3
Lab Sample ID: 300-1747-7
Date Collected: 12/03/15 10:06
Matrix: Water
Date Received: 12/03/15 15:15

Method: 300.0 - Anions, Ion Chromatography (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	0.038	U	0.076	0.038	mg/L			12/03/15 21:49	2
Sulfate	**94**	**D**	0.50	0.25	mg/L			12/03/15 21:49	2

Client Sample ID: B33H52
Lab Sample ID: 300-1747-8
Date Collected: 12/03/15 12:14
Matrix: Water
Date Received: 12/03/15 15:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**9.4**	**D**	0.40	0.20	mg/L			12/03/15 23:04	2
Nitrate as N	**3.5**	**D**	0.056	0.028	mg/L			12/03/15 23:04	2
Fluoride	**0.22**	**D**	0.10	0.050	mg/L			12/03/15 23:04	2
Nitrite as N	0.038	U	0.076	0.038	mg/L			12/03/15 23:04	2
Sulfate	**86**	**D**	0.50	0.25	mg/L			12/03/15 23:04	2

Client Sample ID: B33H75
Lab Sample ID: 300-1747-9
Date Collected: 12/03/15 08:56
Matrix: Water
Date Received: 12/03/15 15:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**8.6**	**D**	0.40	0.20	mg/L			12/03/15 23:19	2
Nitrate as N	**3.3**	**D**	0.056	0.028	mg/L			12/03/15 23:19	2
Fluoride	**0.16**	**D**	0.10	0.050	mg/L			12/03/15 23:19	2
Nitrite as N	0.038	U	0.076	0.038	mg/L			12/03/15 23:19	2
Orthophosphate as P	0.082	U	0.16	0.082	mg/L			12/03/15 23:19	2
Sulfate	**93**	**D**	0.50	0.25	mg/L			12/03/15 23:19	2
Bromide	**0.15**	**B D**	0.25	0.13	mg/L			12/03/15 23:19	2

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: S16-012

TestAmerica Job ID: 300-1747-1
SDG: WC0660

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 300-2228/27 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 2228

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.014	U	0.028	0.014	mg/L			12/03/15 19:34	1
Nitrite as N	0.019	U	0.038	0.019	mg/L			12/03/15 19:34	1
Orthophosphate as P	0.041	U	0.082	0.041	mg/L			12/03/15 19:34	1

Lab Sample ID: LCS 300-2228/28 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 2228

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.26	2.38		mg/L		105	80 - 120
Nitrite as N	3.04	3.22		mg/L		106	80 - 120
Orthophosphate as P	6.53	6.87		mg/L		105	80 - 120

Lab Sample ID: 300-1744-A-3 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 2228

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.2	D	0.452	2.73	D	mg/L		108	75 - 125
Nitrite as N	0.038	U	0.609	0.582	D	mg/L		96	75 - 125
Orthophosphate as P	0.082	U	1.31	1.20	D	mg/L		92	75 - 125

Lab Sample ID: 300-1744-A-3 DU — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 2228

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrate as N	2.2	D	2.26	D	mg/L		0.6	20
Nitrite as N	0.038	U	0.038	U	mg/L		NC	20
Orthophosphate as P	0.082	U	0.082	U	mg/L		NC	20

Lab Sample ID: MB 300-2229/27 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 2229

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.10	U	0.20	0.10	mg/L			12/03/15 19:34	1
Fluoride	0.025	U	0.050	0.025	mg/L			12/03/15 19:34	1
Sulfate	0.13	U	0.25	0.13	mg/L			12/03/15 19:34	1
Bromide	0.063	U	0.13	0.063	mg/L			12/03/15 19:34	1

Lab Sample ID: LCS 300-2229/28 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 2229

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	16.0	16.6		mg/L		104	80 - 120
Fluoride	4.00	4.18		mg/L		105	80 - 120
Sulfate	20.0	21.0		mg/L		105	80 - 120

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 300-2229/28 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 2229

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Bromide			10.0	10.5		mg/L		105	80 - 120		

Lab Sample ID: 300-1744-A-3 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 2229

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	5.9	D	3.20	9.30	D	mg/L		106	75 - 125		
Fluoride	0.18	D	0.800	0.972	D	mg/L		99	75 - 125		
Sulfate	60	D	4.00	64.4	D	mg/L		99	75 - 125		
Bromide	0.13	U	2.00	1.97	D	mg/L		98	75 - 125		

Lab Sample ID: 300-1744-A-3 DU — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 2229

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chloride	5.9	D		5.95	D	mg/L				0.7	20
Fluoride	0.18	D		0.184	D	mg/L				0.2	20
Sulfate	60	D		60.9	D	mg/L				0.7	20
Bromide	0.13	U		0.13	U	mg/L				NC	20

Method: 7196A - Chromium, Hexavalent

Lab Sample ID: MB 300-2248/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 2248

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0015	U	0.0040	0.0015	mg/L			12/03/15 19:33	1

Lab Sample ID: LCS 300-2248/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 2248

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cr (VI)			0.250	0.268		mg/L		107	80 - 120		

Lab Sample ID: 300-1744-A-1 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 2248

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cr (VI)	0.0066		0.0500	0.0580		mg/L		103	85 - 115		

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: S16-012

TestAmerica Job ID: 300-1747-1
SDG: WC0660

Method: 7196A - Chromium, Hexavalent (Continued)

Lab Sample ID: 300-1744-A-1 DU
Matrix: Water
Analysis Batch: 2248

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Cr (VI)	0.0066			0.00640		mg/L				3	20

QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: S16-012

TestAmerica Job ID: 300-1747-1
SDG: WC0660

HPLC/IC

Analysis Batch: 2228

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-1744-A-3 DU	Duplicate	Total/NA	Water	300.0	
300-1744-A-3 MS	Matrix Spike	Total/NA	Water	300.0	
300-1747-7	B33HK3	Total/NA	Water	300.0	
300-1747-8	B33H52	Total/NA	Water	300.0	
300-1747-9	B33H75	Total/NA	Water	300.0	
LCS 300-2228/28	Lab Control Sample	Total/NA	Water	300.0	
MB 300-2228/27	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 2229

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-1744-A-3 DU	Duplicate	Total/NA	Water	300.0	
300-1744-A-3 MS	Matrix Spike	Total/NA	Water	300.0	
300-1747-7	B33HK3	Total/NA	Water	300.0	
300-1747-8	B33H52	Total/NA	Water	300.0	
300-1747-9	B33H75	Total/NA	Water	300.0	
LCS 300-2229/28	Lab Control Sample	Total/NA	Water	300.0	
MB 300-2229/27	Method Blank	Total/NA	Water	300.0	

General Chemistry

Analysis Batch: 2248

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-1744-A-1 DU	Duplicate	Total/NA	Water	7196A	
300-1744-A-1 MS	Matrix Spike	Total/NA	Water	7196A	
300-1747-1	B33HK6	Total/NA	Water	7196A	
300-1747-2	B33HK4	Total/NA	Water	7196A	
300-1747-3	B33H55	Total/NA	Water	7196A	
300-1747-4	B33H53	Total/NA	Water	7196A	
300-1747-5	B33H76	Total/NA	Water	7196A	
300-1747-6	B33H78	Total/NA	Water	7196A	
LCS 300-2248/4	Lab Control Sample	Total/NA	Water	7196A	
MB 300-2248/3	Method Blank	Total/NA	Water	7196A	

Lab Chronicle

Client: CH2M Hill Plateau Remediation Company
Project/Site: S16-012

TestAmerica Job ID: 300-1747-1
SDG: WC0660

Client Sample ID: B33HK6 — Lab Sample ID: 300-1747-1

Date Collected: 12/03/15 10:06 — **Matrix: Water**
Date Received: 12/03/15 15:15

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			2248	12/03/15 19:42	AMC	TAL RCH

Client Sample ID: B33HK4 — Lab Sample ID: 300-1747-2

Date Collected: 12/03/15 10:06 — **Matrix: Water**
Date Received: 12/03/15 15:15

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			2248	12/03/15 19:43	AMC	TAL RCH

Client Sample ID: B33H55 — Lab Sample ID: 300-1747-3

Date Collected: 12/03/15 12:14 — **Matrix: Water**
Date Received: 12/03/15 15:15

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			2248	12/03/15 19:43	AMC	TAL RCH

Client Sample ID: B33H53 — Lab Sample ID: 300-1747-4

Date Collected: 12/03/15 12:14 — **Matrix: Water**
Date Received: 12/03/15 15:15

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			2248	12/03/15 19:43	AMC	TAL RCH

Client Sample ID: B33H76 — Lab Sample ID: 300-1747-5

Date Collected: 12/03/15 08:56 — **Matrix: Water**
Date Received: 12/03/15 15:15

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			2248	12/03/15 19:46	AMC	TAL RCH

Client Sample ID: B33H78 — Lab Sample ID: 300-1747-6

Date Collected: 12/03/15 08:56 — **Matrix: Water**
Date Received: 12/03/15 15:15

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			2248	12/03/15 19:46	AMC	TAL RCH

Lab Chronicle

Client: CH2M Hill Plateau Remediation Company
Project/Site: S16-012

TestAmerica Job ID: 300-1747-1
SDG: WC0660

Client Sample ID: B33HK3 — Lab Sample ID: 300-1747-7

Date Collected: 12/03/15 10:06 — **Matrix: Water**
Date Received: 12/03/15 15:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		2	10 mL		2228	12/03/15 21:49	CPM	TAL RCH
Total/NA	Analysis	300.0		2	10 mL		2229	12/03/15 21:49	CPM	TAL RCH

Client Sample ID: B33H52 — Lab Sample ID: 300-1747-8

Date Collected: 12/03/15 12:14 — **Matrix: Water**
Date Received: 12/03/15 15:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		2	10 mL		2228	12/03/15 23:04	CPM	TAL RCH
Total/NA	Analysis	300.0		2	10 mL		2229	12/03/15 23:04	CPM	TAL RCH

Client Sample ID: B33H75 — Lab Sample ID: 300-1747-9

Date Collected: 12/03/15 08:56 — **Matrix: Water**
Date Received: 12/03/15 15:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		2	10 mL		2228	12/03/15 23:19	CPM	TAL RCH
Total/NA	Analysis	300.0		2	10 mL		2229	12/03/15 23:19	CPM	TAL RCH

Client Sample ID: Duplicate — Lab Sample ID: 300-1744-A-1 DU

Date Collected: 12/03/15 11:02 — **Matrix: Water**
Date Received: 12/03/15 15:28

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			2248	12/03/15 19:42	AMC	TAL RCH

Client Sample ID: Duplicate — Lab Sample ID: 300-1744-A-3 DU

Date Collected: 12/03/15 11:02 — **Matrix: Water**
Date Received: 12/03/15 15:28

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		2	10 mL		2228	12/03/15 20:34	CPM	TAL RCH
Total/NA	Analysis	300.0		2	10 mL		2229	12/03/15 20:34	CPM	TAL RCH

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 300-2228/28

Date Collected: N/A — **Matrix: Water**
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	10 mL		2228	12/03/15 19:49	CPM	TAL RCH

Lab Chronicle

Client: CH2M Hill Plateau Remediation Company
Project/Site: S16-012

TestAmerica Job ID: 300-1747-1
SDG: WC0660

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 300-2229/28

Date Collected: N/A — **Matrix: Water**
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	10 mL		2229	12/03/15 19:49	CPM	TAL RCH

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 300-2248/4

Date Collected: N/A — **Matrix: Water**
Date Received: N/A

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			2248	12/03/15 19:33	AMC	TAL RCH

Client Sample ID: Method Blank — Lab Sample ID: MB 300-2228/27

Date Collected: N/A — **Matrix: Water**
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	10 mL		2228	12/03/15 19:34	CPM	TAL RCH

Client Sample ID: Method Blank — Lab Sample ID: MB 300-2229/27

Date Collected: N/A — **Matrix: Water**
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	10 mL		2229	12/03/15 19:34	CPM	TAL RCH

Client Sample ID: Method Blank — Lab Sample ID: MB 300-2248/3

Date Collected: N/A — **Matrix: Water**
Date Received: N/A

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			2248	12/03/15 19:33	AMC	TAL RCH

Client Sample ID: Matrix Spike — Lab Sample ID: 300-1744-A-1 MS

Date Collected: 12/03/15 11:02 — **Matrix: Water**
Date Received: 12/03/15 15:28

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	2248	12/03/15 19:38	AMC	TAL RCH

Lab Chronicle

Client: CH2M Hill Plateau Remediation Company
Project/Site: S16-012

TestAmerica Job ID: 300-1747-1
SDG: WC0660

Client Sample ID: Matrix Spike

Date Collected: 12/03/15 11:02
Date Received: 12/03/15 15:28

Lab Sample ID: 300-1744-A-3 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	300.0		2	10 mL		2228	12/03/15 20:19	CPM	TAL RCH
Total/NA	Analysis	300.0		2	10 mL		2229	12/03/15 20:19	CPM	TAL RCH

Laboratory References:

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

Method Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: S16-012

TestAmerica Job ID: 300-1747-1
SDG: WC0660

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL RCH
7196A	Chromium, Hexavalent	SW846	TAL RCH

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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

Sample Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: S16-012

TestAmerica Job ID: 300-1747-1
SDG: WC0660

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-1747-1	B33HK6	Water	12/03/15 10:06	12/03/15 15:15
300-1747-2	B33HK4	Water	12/03/15 10:06	12/03/15 15:15
300-1747-3	B33H55	Water	12/03/15 12:14	12/03/15 15:15
300-1747-4	B33H53	Water	12/03/15 12:14	12/03/15 15:15
300-1747-5	B33H76	Water	12/03/15 08:56	12/03/15 15:15
300-1747-6	B33H78	Water	12/03/15 08:56	12/03/15 15:15
300-1747-7	B33HK3	Water	12/03/15 10:06	12/03/15 15:15
300-1747-8	B33H52	Water	12/03/15 12:14	12/03/15 15:15
300-1747-9	B33H75	Water	12/03/15 08:56	12/03/15 15:15

Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-1747-1
SDG Number: WC0660

Login Number: 1747
List Number: 1
Creator: Bock, Julie A

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.	True	
Residual Chlorine Checked.	N/A	