

# 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: 300-6523-1  
TestAmerica Sample Delivery Group: WC2585  
Client Project/Site: S18-012

For:  
CH2M Hill Plateau Remediation Company  
825 Jadwin Avenue  
Richland, Washington 99352

Attn: CPP Sample Management



Authorized for release by:  
12/20/2017 3:26:43 PM  
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### LINKS

Review your project results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://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.*

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## Definitions/Glossary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S18-012

TestAmerica Job ID: 300-6523-1  
SDG: WC2585

### Qualifiers

#### HPLC/IC

Qualifier	Qualifier Description
D	The reported value is from a dilution.
N	MS, MSD: Spike recovery is outside acceptance limits.
U	Analyzed for but not detected.

#### 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)

### Case Narrative

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S18-012

TestAmerica Job ID: 300-6523-1  
SDG: WC2585

**Job ID: 300-6523-1**

**Laboratory: TestAmerica Richland**

**Narrative**

**Job Narrative  
300-6523-1**

**Receipt**

The samples were received on 12/7/2017 10:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.7° C.

**HPLC/IC**

Method(s) 300.0: The matrix spike / matrix spike duplicate (MS/MSD) recovery for Orthophosphate as P in batch 300-9887 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) 300.0: The matrix spike / matrix spike duplicate (MS/MSD) recovery for Sulfate in analytical batch 300-9888 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

**General Chemistry**

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





CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.#  
S18-012-275  
Page 1 of 1

**Collector:** Larry Rosang /CHPRC  
**SAF No.:** S18-012  
**Project Title:** SURV, DECEMBER 2017  
**Shipped To (Lab):** TestAmerica Incorporated, Rich  
**Protocol:** SURV  
**Contact/Requester:** Karen Waters-Husted  
**Sampling Origin:** Hanford Site  
**Logbook No.:** HNF-N-506 98/10  
**Method of Shipment:** GOVERNMENT VEHICLE  
**Priority:** 15 Days PRIORITY  
**Telephone No.:** 509-376-4650  
**Purchase Order/Charge Code:** 300071  
**Ice Chest No.:** N/A  
**Bill of Lading/Air Bill No.:** N/A  
**Offsite Property No.:** N/A

**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

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3FJN3	Y	W	12-6-17	1301	1x60-ml ag	7196_CR6: COMMON	24 Hours	Cool <=6C
B3FJN0	N	W	12-6-17	1301	1x60-ml ag	7196_CR6: COMMON	24 Hours	Cool <=6C

WSZ3  
WLR 2585

**Relinquished By:** Larry Rosang /CHPRC  
**Print First and Last Name:** Larry Rosang  
**Signature:** [Signature]  
**Date/Time:** DEC 06 2017 1400

**Received By:** SSU-1  
**Print First and Last Name:** SSU-1  
**Signature:** [Signature]  
**Date/Time:** DEC 06 2017 1400

**Relinquished By:** Frank Hagg /CHPRC  
**Print First and Last Name:** Frank Hagg  
**Signature:** [Signature]  
**Date/Time:** DEC 07 2017 0830

**Received By:** Frank Hagg /CHPRC  
**Print First and Last Name:** Frank Hagg  
**Signature:** [Signature]  
**Date/Time:** DEC 07 2017 0830

**Relinquished By:** Frank Hagg /CHPRC  
**Print First and Last Name:** Frank Hagg  
**Signature:** [Signature]  
**Date/Time:** DEC 07 2017 1010

**Received By:** B. JOHNSON TARB  
**Print First and Last Name:** B. JOHNSON TARB  
**Signature:** [Signature]  
**Date/Time:** 12-07-17 1010

**Relinquished By:** [Blank]  
**Print First and Last Name:** [Blank]  
**Signature:** [Blank]  
**Date/Time:** [Blank]

**Received By:** [Blank]  
**Print First and Last Name:** [Blank]  
**Signature:** [Blank]  
**Date/Time:** [Blank]

**FINAL SAMPLE DISPOSITION** Disposal Method (e.g., Return to customer, per lab procedure, used in process): [Blank]

**Disposal Method:** [Blank]

Matrix \*  
 S = Soil  
 SE = Sediment  
 SO = Solid  
 SL = Sludge  
 W = Water  
 O = Oil  
 A = Air

DS = Drum Solids  
 DL = Drum Liquid  
 T = Tissue  
 WI = Wipe  
 L = Liquid  
 V = Vegetation  
 X = Other

CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.# S18-012-274 Page 1 of 1

Collector: Larry Rosane /CHPRC  
 SAF No.: S18-012  
 Project Title: SURV, DECEMBER 2017  
 Shipped To (Lab): TestAmerica Incorporated, Rich  
 Protocol: SURV

Contact/Requester: Karen Waters-Husted  
 Sampling Origin: Hanford Site  
 Logbook No.: HNF-N-506 98/10  
 Method of Shipment: GOVERNMENT VEHICLE  
 Priority: 15 Days PRIORITY

Telephone No.: 509-376-4650  
 Purchase Order/Charge Code: 300071  
 Ice Chest No.: N/A  
 Bill of Lading/Air Bill No.: N/A  
 Offsite Property No.: N/A

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

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3FJUN1	N	W	12-6-17	1301	1X125-ml P	300.0_ANTIONS_IC: COMMON; 300.0_ANTIONS_IC: GW 02	48 Hours	COOL <=6C

6523  
W 2585

Relinquished By: Larry Rosane /CHPRC  
 Received By: SSU-1  
 Relinquished By: SSU-1  
 Received By: SSU-1  
 Relinquished By: Frank Hat /CHPRC  
 Received By: B. Jorgenson, TARI  
 Relinquished By: Frank Hat /CHPRC  
 Received By: B. Jorgenson, TARI

Signature: [Signature]  
 Signature: [Signature]  
 Signature: [Signature]  
 Signature: [Signature]  
 Signature: [Signature]  
 Signature: [Signature]

Date/Time: DEC 06 2017 1400  
 Date/Time: DEC 06 2017 1400  
 Date/Time: DEC 07 2017 0830  
 Date/Time: DEC 07 2017  
 Date/Time: DEC 07 2017 1900  
 Date/Time: DEC 07 2017 1207-17 1010

Print First and Last Name: [Name]  
 Print First and Last Name: [Name]

Disposal Method (e.g., Return to customer, per lab procedure, used in process):  
 Disposed By: [Name]  
 Date/Time: [Date/Time]

- Matrix \*
- S = Soil
  - SE = Sediment
  - SO = Solid
  - SL = Sludge
  - W = Water
  - O = Oil
  - A = Air
  - DS = Drum Solids
  - DL = Drum Liquid
  - T = Tissue
  - WI = Wipe
  - L = Liquid
  - V = Vegetation
  - X = Other

CH2MH11 Plateau  
Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.#  
S18-012-272  
Page 1 of 1

Collector: Larry Rossane ICHPERC		Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650
SAF No.: S18-012		Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071
Project Title: SURV, DECEMBER 2017		Logbook No.: HNF-N-506 98/10	Ice Chest No.: N/A
Shipped To (Lab): TestAmerica Incorporated, Rich		Method of Shipment: GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.: N/A
Protocol: SURV		Priority: 15 Days PRIORITY	Offsite Property No.: N/A
<b>POSSIBLE SAMPLE HAZARDS/REMARK</b> ** ** 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		<b>SPECIAL INSTRUCTIONS</b> N/A	
Sample No. B3FJM4	Filter N	Date 12-6-17	Time 12:12
No/Type Container 1x125-ml P		Sample Analysis 300.0_ANTIONS_IC: COMMON; 300.0_ANTIONS_IC: GW 02	
48 Hours	48 Hours	48 Hours	48 Hours
Preservative Cool <=6C	Preservative Cool <=6C	Preservative Cool <=6C	Preservative Cool <=6C

W07 7585  
W07 7523

Relinquished By: Larry Rossane ICHPERC	Signature: <i>[Signature]</i>	Date/Time: DEC 06 2017 14:00	Received By: SSU-1	Signature: <i>[Signature]</i>	Date/Time: DEC 06 2017 14:00	Matrix * S = Soil DS = Drum Solids SE = Sediment DL = Drum Liquid SO = Solid T = Tissue SL = Sludge WI = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By: SSU-1	Signature: <i>[Signature]</i>	Date/Time: DEC 07 2017	Received By: Frank Hat ICHPERC	Signature: <i>[Signature]</i>	Date/Time: DEC 07 2017	
Relinquished By: Frank Hat ICHPERC	Signature: <i>[Signature]</i>	Date/Time: DEC 07 2017	Received By: B. Jorgenson, TARL	Signature: <i>[Signature]</i>	Date/Time: 12-07-17 10:10	
Relinquished By: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Date/Time: <i>[Date/Time]</i>	Received By: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Date/Time: <i>[Date/Time]</i>	

Print First and Last Name	Signature	Date/Time	Print First and Last Name	Signature	Date/Time	Disposed By:	Date/Time:
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## Detection Summary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S18-012

TestAmerica Job ID: 300-6523-1  
SDG: WC2585

## Client Sample ID: B3FJM6

## Lab Sample ID: 300-6523-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	0.0037	B	0.0040	0.0015	mg/L	1		7196A	Total/NA

## Client Sample ID: B3FJM3

## Lab Sample ID: 300-6523-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	0.0037	B	0.0040	0.0015	mg/L	1		7196A	Total/NA

## Client Sample ID: B3FJN3

## Lab Sample ID: 300-6523-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	0.0049		0.0040	0.0015	mg/L	1		7196A	Total/NA

## Client Sample ID: B3FJN0

## Lab Sample ID: 300-6523-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	0.0046		0.0040	0.0015	mg/L	1		7196A	Total/NA

## Client Sample ID: B3FJN1

## Lab Sample ID: 300-6523-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	110	D	4.0	2.0	mg/L	20		300.0	Total/NA
Nitrate as N	18	D	0.56	0.28	mg/L	20		300.0	Total/NA
Fluoride	0.30	D	0.10	0.050	mg/L	2		300.0	Total/NA
Nitrite as N	0.17	D	0.076	0.038	mg/L	2		300.0	Total/NA
Sulfate	110	D	5.0	2.5	mg/L	20		300.0	Total/NA
Bromide	0.34	D	0.25	0.13	mg/L	2		300.0	Total/NA

## Client Sample ID: B3FJM4

## Lab Sample ID: 300-6523-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	19	D	0.40	0.20	mg/L	2		300.0	Total/NA
Nitrate as N	4.6	D	0.14	0.070	mg/L	5		300.0	Total/NA
Fluoride	0.54	D	0.10	0.050	mg/L	2		300.0	Total/NA
Nitrite as N	0.083	D	0.076	0.038	mg/L	2		300.0	Total/NA
Sulfate	100	D	1.3	0.63	mg/L	5		300.0	Total/NA
Bromide	0.28	D	0.25	0.13	mg/L	2		300.0	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Richland

Client Sample Results

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: S18-012

TestAmerica Job ID: 300-6523-1  
 SDG: WC2585

**Client Sample ID: B3FJM6**  
 Date Collected: 12/06/17 12:12  
 Date Received: 12/07/17 10:10

**Lab Sample ID: 300-6523-1**  
 Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0037	B	0.0040	0.0015	mg/L			12/07/17 11:33	1

**Client Sample ID: B3FJM3**  
 Date Collected: 12/06/17 12:12  
 Date Received: 12/07/17 10:10

**Lab Sample ID: 300-6523-2**  
 Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0037	B	0.0040	0.0015	mg/L			12/07/17 11:33	1

**Client Sample ID: B3FJN3**  
 Date Collected: 12/06/17 13:01  
 Date Received: 12/07/17 10:10

**Lab Sample ID: 300-6523-3**  
 Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0049		0.0040	0.0015	mg/L			12/07/17 11:34	1

**Client Sample ID: B3FJN0**  
 Date Collected: 12/06/17 13:01  
 Date Received: 12/07/17 10:10

**Lab Sample ID: 300-6523-4**  
 Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0046		0.0040	0.0015	mg/L			12/07/17 11:34	1

**Client Sample ID: B3FJN1**  
 Date Collected: 12/06/17 13:01  
 Date Received: 12/07/17 10:10

**Lab Sample ID: 300-6523-5**  
 Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	110	D	4.0	2.0	mg/L			12/07/17 14:12	20
Nitrate as N	18	D	0.56	0.28	mg/L			12/07/17 14:12	20
Fluoride	0.30	D	0.10	0.050	mg/L			12/07/17 13:12	2
Nitrite as N	0.17	D	0.076	0.038	mg/L			12/07/17 13:12	2
Orthophosphate as P	0.082	U D N	0.16	0.082	mg/L			12/07/17 13:12	2
Sulfate	110	D	5.0	2.5	mg/L			12/07/17 14:12	20
Bromide	0.34	D	0.25	0.13	mg/L			12/07/17 13:12	2

**Client Sample ID: B3FJM4**  
 Date Collected: 12/06/17 12:12  
 Date Received: 12/07/17 10:10

**Lab Sample ID: 300-6523-6**  
 Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	19	D	0.40	0.20	mg/L			12/07/17 12:27	2
Nitrate as N	4.6	D	0.14	0.070	mg/L			12/07/17 13:27	5
Fluoride	0.54	D	0.10	0.050	mg/L			12/07/17 12:27	2
Nitrite as N	0.083	D	0.076	0.038	mg/L			12/07/17 12:27	2

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### Client Sample Results

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: S18-012

TestAmerica Job ID: 300-6523-1  
 SDG: WC2585

**Client Sample ID: B3FJM4**  
**Date Collected: 12/06/17 12:12**  
**Date Received: 12/07/17 10:10**

**Lab Sample ID: 300-6523-6**  
**Matrix: Water**

**Method: 300.0 - Anions, Ion Chromatography (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Orthophosphate as P	0.082	U D N	0.16	0.082	mg/L			12/07/17 12:27	2
<b>Sulfate</b>	<b>100</b>	<b>D</b>	1.3	0.63	mg/L			12/07/17 13:27	5
<b>Bromide</b>	<b>0.28</b>	<b>D</b>	0.25	0.13	mg/L			12/07/17 12:27	2

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QC Sample Results

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S18-012

TestAmerica Job ID: 300-6523-1  
SDG: WC2585

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 300-9887/5  
Matrix: Water  
Analysis Batch: 9887

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

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			12/07/17 11:57	1
Nitrite as N	0.019	U	0.038	0.019	mg/L			12/07/17 11:57	1
Orthophosphate as P	0.041	U	0.082	0.041	mg/L			12/07/17 11:57	1

Lab Sample ID: LCS 300-9887/6  
Matrix: Water  
Analysis Batch: 9887

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.26	2.28		mg/L		101	80 - 120
Nitrite as N	3.04	3.24		mg/L		106	80 - 120
Orthophosphate as P	6.53	6.54		mg/L		100	80 - 120

Lab Sample ID: 300-6523-6 MS  
Matrix: Water  
Analysis Batch: 9887

Client Sample ID: B3FJM4  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	0.083	D	0.609	0.595	D	mg/L		84	75 - 125
Orthophosphate as P	0.082	U D N	1.31	0.888	D N	mg/L		68	75 - 125

Lab Sample ID: 300-6523-6 MS  
Matrix: Water  
Analysis Batch: 9887

Client Sample ID: B3FJM4  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	4.6	D	1.13	5.54	D	mg/L		86	75 - 125

Lab Sample ID: 300-6523-6 DU  
Matrix: Water  
Analysis Batch: 9887

Client Sample ID: B3FJM4  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrite as N	0.083	D	0.0832	D	mg/L		0.5	20
Orthophosphate as P	0.082	U D N	0.082	U D	mg/L		NC	20

Lab Sample ID: 300-6523-6 DU  
Matrix: Water  
Analysis Batch: 9887

Client Sample ID: B3FJM4  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrate as N	4.6	D	4.40	D	mg/L		4	20

Lab Sample ID: MB 300-9888/5  
Matrix: Water  
Analysis Batch: 9888

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.10	U	0.20	0.10	mg/L			12/07/17 11:57	1

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QC Sample Results

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S18-012

TestAmerica Job ID: 300-6523-1  
SDG: WC2585

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 300-9888/5  
Matrix: Water  
Analysis Batch: 9888

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.025	U	0.050	0.025	mg/L			12/07/17 11:57	1
Sulfate	0.13	U	0.25	0.13	mg/L			12/07/17 11:57	1
Bromide	0.063	U	0.13	0.063	mg/L			12/07/17 11:57	1

Lab Sample ID: LCS 300-9888/6  
Matrix: Water  
Analysis Batch: 9888

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	16.0	16.4		mg/L		103	80 - 120
Fluoride	4.00	4.14		mg/L		104	80 - 120
Sulfate	20.0	20.8		mg/L		104	80 - 120
Bromide	10.0	10.5		mg/L		105	80 - 120

Lab Sample ID: 300-6523-6 MS  
Matrix: Water  
Analysis Batch: 9888

Client Sample ID: B3FJM4  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	19	D	3.20	21.4	D	mg/L		84	75 - 125
Fluoride	0.54	D	0.800	1.32	D	mg/L		98	75 - 125
Bromide	0.28	D	2.00	1.99	D	mg/L		85	75 - 125

Lab Sample ID: 300-6523-6 MS  
Matrix: Water  
Analysis Batch: 9888

Client Sample ID: B3FJM4  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	100	D	10.0	108	D	mg/L		69	75 - 125

Lab Sample ID: 300-6523-6 DU  
Matrix: Water  
Analysis Batch: 9888

Client Sample ID: B3FJM4  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	19	D	18.0	D	mg/L		4	20
Fluoride	0.54	D	0.518	D	mg/L		4	20
Bromide	0.28	D	0.272	D	mg/L		2	20

Lab Sample ID: 300-6523-6 DU  
Matrix: Water  
Analysis Batch: 9888

Client Sample ID: B3FJM4  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	100	D	99.4	D	mg/L		2	20

QC Sample Results

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: S18-012

TestAmerica Job ID: 300-6523-1  
 SDG: WC2585

Method: 7196A - Chromium, Hexavalent

Lab Sample ID: MB 300-9894/3  
 Matrix: Water  
 Analysis Batch: 9894

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	-		12/07/17 11:29	1

Lab Sample ID: LCS 300-9894/4  
 Matrix: Water  
 Analysis Batch: 9894

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	0.255		mg/L	-	102	80 - 120

Lab Sample ID: 300-6523-1 MS  
 Matrix: Water  
 Analysis Batch: 9894

Client Sample ID: B3FJM6  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	0.0037	B	0.0501	0.0561		mg/L	-	105	75 - 125

Lab Sample ID: 300-6523-1 DU  
 Matrix: Water  
 Analysis Batch: 9894

Client Sample ID: B3FJM6  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cr (VI)	0.0037	B	0.00370	B	mg/L	-	0	20

## QC Association Summary

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: S18-012

TestAmerica Job ID: 300-6523-1  
 SDG: WC2585

## HPLC/IC

## Analysis Batch: 9887

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-6523-5	B3FJN1	Total/NA	Water	300.0	
300-6523-5	B3FJN1	Total/NA	Water	300.0	
300-6523-6	B3FJM4	Total/NA	Water	300.0	
300-6523-6	B3FJM4	Total/NA	Water	300.0	
MB 300-9887/5	Method Blank	Total/NA	Water	300.0	
LCS 300-9887/6	Lab Control Sample	Total/NA	Water	300.0	
300-6523-6 MS	B3FJM4	Total/NA	Water	300.0	
300-6523-6 MS	B3FJM4	Total/NA	Water	300.0	
300-6523-6 DU	B3FJM4	Total/NA	Water	300.0	
300-6523-6 DU	B3FJM4	Total/NA	Water	300.0	

## Analysis Batch: 9888

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-6523-5	B3FJN1	Total/NA	Water	300.0	
300-6523-5	B3FJN1	Total/NA	Water	300.0	
300-6523-6	B3FJM4	Total/NA	Water	300.0	
300-6523-6	B3FJM4	Total/NA	Water	300.0	
MB 300-9888/5	Method Blank	Total/NA	Water	300.0	
LCS 300-9888/6	Lab Control Sample	Total/NA	Water	300.0	
300-6523-6 MS	B3FJM4	Total/NA	Water	300.0	
300-6523-6 MS	B3FJM4	Total/NA	Water	300.0	
300-6523-6 DU	B3FJM4	Total/NA	Water	300.0	
300-6523-6 DU	B3FJM4	Total/NA	Water	300.0	

## General Chemistry

## Analysis Batch: 9894

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-6523-1	B3FJM6	Total/NA	Water	7196A	
300-6523-2	B3FJM3	Total/NA	Water	7196A	
300-6523-3	B3FJN3	Total/NA	Water	7196A	
300-6523-4	B3FJN0	Total/NA	Water	7196A	
MB 300-9894/3	Method Blank	Total/NA	Water	7196A	
LCS 300-9894/4	Lab Control Sample	Total/NA	Water	7196A	
300-6523-1 MS	B3FJM6	Total/NA	Water	7196A	
300-6523-1 DU	B3FJM6	Total/NA	Water	7196A	

Lab Chronicle

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: S18-012

TestAmerica Job ID: 300-6523-1  
 SDG: WC2585

**Client Sample ID: B3FJM6**  
**Date Collected: 12/06/17 12:12**  
**Date Received: 12/07/17 10:10**

**Lab Sample ID: 300-6523-1**  
**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			9894	12/07/17 11:33	TRH	TAL RCH

**Client Sample ID: B3FJM3**  
**Date Collected: 12/06/17 12:12**  
**Date Received: 12/07/17 10:10**

**Lab Sample ID: 300-6523-2**  
**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			9894	12/07/17 11:33	TRH	TAL RCH

**Client Sample ID: B3FJN3**  
**Date Collected: 12/06/17 13:01**  
**Date Received: 12/07/17 10:10**

**Lab Sample ID: 300-6523-3**  
**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			9894	12/07/17 11:34	TRH	TAL RCH

**Client Sample ID: B3FJN0**  
**Date Collected: 12/06/17 13:01**  
**Date Received: 12/07/17 10:10**

**Lab Sample ID: 300-6523-4**  
**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			9894	12/07/17 11:34	TRH	TAL RCH

**Client Sample ID: B3FJN1**  
**Date Collected: 12/06/17 13:01**  
**Date Received: 12/07/17 10:10**

**Lab Sample ID: 300-6523-5**  
**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			9887	12/07/17 13:12	RTQ	TAL RCH
Total/NA	Analysis	300.0		2			9888	12/07/17 13:12	RTQ	TAL RCH
Total/NA	Analysis	300.0		20			9887	12/07/17 14:12	RTQ	TAL RCH
Total/NA	Analysis	300.0		20			9888	12/07/17 14:12	RTQ	TAL RCH

**Client Sample ID: B3FJM4**  
**Date Collected: 12/06/17 12:12**  
**Date Received: 12/07/17 10:10**

**Lab Sample ID: 300-6523-6**  
**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			9887	12/07/17 12:27	RTQ	TAL RCH
Total/NA	Analysis	300.0		2			9888	12/07/17 12:27	RTQ	TAL RCH
Total/NA	Analysis	300.0		5			9887	12/07/17 13:27	RTQ	TAL RCH

TestAmerica Richland

Lab Chronicle

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: S18-012

TestAmerica Job ID: 300-6523-1  
 SDG: WC2585

**Client Sample ID: B3FJM4**

**Lab Sample ID: 300-6523-6**

**Date Collected: 12/06/17 12:12**

**Matrix: Water**

**Date Received: 12/07/17 10:10**

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		5			9888	12/07/17 13:27	RTQ	TAL RCH

**Client Sample ID: Method Blank**

**Lab Sample ID: MB 300-9887/5**

**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			9887	12/07/17 11:57	RTQ	TAL RCH

**Client Sample ID: Method Blank**

**Lab Sample ID: MB 300-9888/5**

**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			9888	12/07/17 11:57	RTQ	TAL RCH

**Client Sample ID: Method Blank**

**Lab Sample ID: MB 300-9894/3**

**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			9894	12/07/17 11:29	TRH	TAL RCH

**Client Sample ID: Lab Control Sample**

**Lab Sample ID: LCS 300-9887/6**

**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			9887	12/07/17 12:12	RTQ	TAL RCH

**Client Sample ID: Lab Control Sample**

**Lab Sample ID: LCS 300-9888/6**

**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			9888	12/07/17 12:12	RTQ	TAL RCH

Lab Chronicle

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: S18-012

TestAmerica Job ID: 300-6523-1  
 SDG: WC2585

**Client Sample ID: Lab Control Sample**

**Lab Sample ID: LCS 300-9894/4**

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			9894	12/07/17 11:30	TRH	TAL RCH

**Client Sample ID: B3FJM6**

**Lab Sample ID: 300-6523-1 MS**

Date Collected: 12/06/17 12:12

Matrix: Water

Date Received: 12/07/17 10:10

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			9894	12/07/17 11:30	TRH	TAL RCH

**Client Sample ID: B3FJM4**

**Lab Sample ID: 300-6523-6 MS**

Date Collected: 12/06/17 12:12

Matrix: Water

Date Received: 12/07/17 10:10

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			9887	12/07/17 12:42	RTQ	TAL RCH
Total/NA	Analysis	300.0		2			9888	12/07/17 12:42	RTQ	TAL RCH
Total/NA	Analysis	300.0		5			9887	12/07/17 13:42	RTQ	TAL RCH
Total/NA	Analysis	300.0		5			9888	12/07/17 13:42	RTQ	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: S18-012

TestAmerica Job ID: 300-6523-1  
SDG: WC2585

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: S18-012

TestAmerica Job ID: 300-6523-1  
SDG: WC2585

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-6523-1	B3FJM6	Water	12/06/17 12:12	12/07/17 10:10
300-6523-2	B3FJM3	Water	12/06/17 12:12	12/07/17 10:10
300-6523-3	B3FJN3	Water	12/06/17 13:01	12/07/17 10:10
300-6523-4	B3FJN0	Water	12/06/17 13:01	12/07/17 10:10
300-6523-5	B3FJN1	Water	12/06/17 13:01	12/07/17 10:10
300-6523-6	B3FJM4	Water	12/06/17 12:12	12/07/17 10:10

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

## Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-6523-1

SDG Number: WC2585

**Login Number: 6523****List Number: 1****Creator: Jorgenson, Briana F****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.	N/A	
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 (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").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	