

July 14, 2017

# 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: 300-5650-1

TestAmerica Sample Delivery Group: WC2107

Client Project/Site: F12-024

For:

CH2M Hill Plateau Remediation Company

825 Jadwin Avenue

Richland, Washington 99352

Attn: CPP Sample Management



Authorized for release by:

7/14/2017 3:59:03 PM

Whitney Ritari, Project Manager I

(509)375-3131 ext164

[whitney.ritari@testamericainc.com](mailto:whitney.ritari@testamericainc.com)

### 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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## Qualifiers

### HPLC/IC

Qualifier	Qualifier Description
D	The reported value is from a dilution.
U	Analyzed for but not detected.
X	See case narrative notes for explanation of the 'X' flag

### 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: F12-024

TestAmerica Job ID: 300-5650-1  
SDG: WC2107

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**Job ID: 300-5650-1**

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**Laboratory: TestAmerica Richland**

**Narrative**

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**Job Narrative  
300-5650-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 6/13/2017 3:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 8.3° C.

**HPLC/IC**

Method 300.0: The matrix spike (MS) recoveries for sulfate for analytical batch 8260 were outside control limits. Non-homogeneity 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.





CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-024-273	PAGE 1 OF 1
COLLECTOR <b>CHRIS FULTON</b> <i>CHPRC</i>	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR SUMNER, LC	PRICE CODE 7H	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION 100-HX Process Bldg 689 Inft Tank Valve T-H3 (V-H3AA4) DUP	PROJECT DESIGNATION 100-HX Pump and Treat - INFLUENT/EFFLUENT/TRANSFER TANKS - WAT	FIELD LOGBOOK NO. HNF-N-49-16	ACTUAL SAMPLE DEPTH N/A	SAF NO. F12-024	<input type="checkbox"/> AIR QUALITY
ICE CHEST NO. NA	OFFSITE PROPERTY NO. NA	BILL OF LADING/AIR BILL NO. NA	METHOD OF SHIPMENT GOVERNMENT VEHICLE	<b>ORIGINAL</b>	
SHIPPED TO Testamerica Incorporated, Richland					

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	COOL <=6C
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Milpe X=Other	*Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR/DATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	HOLDING TIME	24 Hours
		TYPE OF CONTAINER	ag
		NO. OF CONTAINERS(S)	1
		VOLUME	60ml
		SAMPLE ANALYSIS	7196, CR6: COMMON;
SAMPLE NO. B3B323	MATRIX* WATER	SAMPLE DATE 6/13/17	SAMPLE TIME 1227

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CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>CHPRC</i>	DATE/TIME 6/13/17 1325	RECEIVED BY/STORED IN Toy Bacod CHPRC	DATE/TIME 6/13/17 1325	TRVL-17-134:** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.** The extraction wells associated with this SAF are all located at the Transfer Building.** The extraction wells associated with this SAF	
RELINQUISHED BY/REMOVED FROM Toy Bacod CHPRC	DATE/TIME JUN 13 2017 1500	RECEIVED BY/STORED IN <i>J. Bock TARK</i>	DATE/TIME JUN 13 2017 1500		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 5/8/2017      FSR ID = FSR45065      TRVL NUM = TRVL-17-134      A-6003-618 (REV 2)

July 14, 2017

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-024-269	PAGE 1 OF 1
COLLECTOR <b>CHRIS FULTON</b> CHERC	COMPANY CONTACT SUNNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR SUNNER, LC	PRICE CODE 7H	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION 100-HX Process Bldg 689 Influent Tank Valve T-H3 (V-H3AA4)	PROJECT DESIGNATION 100-HX Pump and Treat - INFLUENT/EFFLUENT/TRANSFER TANKS - WAT	FIELD LOGBOOK NO. HNF-N-491-16	SAF NO. F12-024	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT GOVERNMENT VEHICLE <b>ORIGINAL</b>
ICE CHEST NO. NA	ACTUAL SAMPLE DEPTH N/A	COA 302945	BILL OF LADING/AIR BILL NO. NA		
SHIPPED TO TestAmerica Incorporated, Richland	OFFSITE PROPERTY NO. NA				

MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WF=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS *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.	PRESERVATION	Cool <=6C
		HOLDING TIME	24 Hours
		TYPE OF CONTAINER	ag
		NO. OF CONTAINER(S)	1
		VOLUME	60mL
SPECIAL HANDLING AND/OR STORAGE NA	SAMPLE ANALYSIS	7196_CRB: COMMON;	
SAMPLE NO. B38319	MATRIX* WATER	SAMPLE DATE JUN 13 2017	SAMPLE TIME 12:47

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CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM CHRIS FULTON CHERC	RECEIVED BY/STORED IN Toy Bacon CHERC	TRVL-17-134:** The 100 Area S8GRP Characterization and Monitoring Sampling and Analysis GRI applies to this SAF.** The extraction wells associated with this SAF are all located at the Transfer Building.** The extraction wells associated with this SAF
DATE/TIME JUN 13 2017 15:45	DATE/TIME JUN 13 2017 13:45	
RELINQUISHED BY/REMOVED FROM Toy Bacon CHERC	RECEIVED BY/STORED IN Toy Bacon CHERC	
DATE/TIME JUN 13 2017 15:00	DATE/TIME JUN 13 2017 15:00	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
DATE/TIME	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
DATE/TIME	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
DATE/TIME	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
DATE/TIME	DATE/TIME	
LABORATORY SECTION	RECEIVED BY	TITLE
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DATE/TIME

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST		F12-024-272	PAGE 1 OF 1
COLLECTOR <b>CHRIS FULTON</b> CHPRC	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR SUMNER, LC	PRICE CODE 7H	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION 100-HX Process Bldg 689 Inft Tank Valve T-H3 (V-H3AA4) DUP	PROJECT DESIGNATION 100-HX Pump and Treat - INFLUENT/EFFLUENT/TRANSFER TANKS - WAT	FIELD LOGBOOK NO. HNF-N-191-36	ACTUAL SAMPLE DEPTH N/A	SAF NO. F12-024	AIR QUALITY <input type="checkbox"/>
ICE CHEST NO. NA	OFFSITE PROPERTY NO. NA	COA 302845	BILL OF LADING/AIR BILL NO. NA	METHOD OF SHIPMENT GOVERNMENT VEHICLE	<b>ORIGINAL</b>
SHIPPED TO TestAmerica Incorporated, Richland					

MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR/JATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESERVATION Cool <=6C	HOLDING TIME 28 Days/48 Hours	TYPE OF CONTAINER P	NO. OF CONTAINER(S) 1	VOLUME 500ml	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
SPECIAL HANDLING AND/OR STORAGE NA	SAMPLE ANALYSIS	SPECIAL INSTRUCTIONS					
SAMPLE NO. B3B322	MATRIX* WATER	SAMPLE DATE 6/13/17	SAMPLE TIME 1247	Su50 uvarion			

July 14 2017

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
REMOVED FROM CHPRC	DATE/TIME JUN 13 2017 1245	RECEIVED BY/STORED IN Troy Beack CHPRC	DATE/TIME JUN 13 2017 1345	TRVL-17-134:** The 100 Area S8GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.** The extraction wells associated with this SAF are all located at the Transfer Building.** The extraction wells associated with this SAF	
REMOVED FROM Troy Beack CHPRC	DATE/TIME JUN 13 2017 1500	RECEIVED BY/STORED IN J. Beck TRVL	DATE/TIME JUN 13 2017 1500	(1) 300.0_ANIONS_IC: COMMON {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate}; 300.0_ANIONS_IC: COMMON (Add-on) {Phosphorus in phosphate};	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME	

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-024-268	PAGE 1 OF 1
COLLECTOR <b>CHRIS FULTON</b> CHPRC	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR SUMNER, LC	PRICE CODE 7H	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION 100-HX Process Bldg 689 Influent Tank Valve T-H3 (V-H3AA4)	PROJECT DESIGNATION 100-HX Pump and Treat - INFLUENT/EFFLUENT/TRANSFER TANKS - WAT	FIELD LOGBOOK NO. HNF-N-29)-16	ACTUAL SAMPLE DEPTH N/A	SAF NO. F12-024	AIR QUALITY <input type="checkbox"/>
ICE CHEST NO. NA	OFFSITE PROPERTY NO. NA	COA 302845	METHOD OF SHIPMENT GOVERNMENT VEHICLE	<b>ORIGINAL</b>	
SHIPPED TO TestAmerica Incorporated, Richland	BILL OF LADING/AIR BILL NO. NA				

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	Cool <=6C
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WF=W/Pe X=Other	*Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR/JATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	HOLDING TIME	28 Days/48 Hours
		TYPE OF CONTAINER	P
		NO. OF CONTAINER(S)	1
		VOLUME	500mL
		SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
SAMPLE NO. B3B318	MATRIX* WATER	SAMPLE DATE JUN 13 2017	SAMPLE TIME 12:47

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CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <b>CHRIS FULTON</b> CHPRC	DATE/TIME JUN 13 2017 1345	RECEIVED BY/STORED IN Toy Beacoe CHPRC	DATE/TIME JUN 13 2017 1345	TRVL-17-134:** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.** The extraction wells associated with this SAF are all located at the Transfer Building.** The extraction wells associated with this SAF (1) 300.0_ANIONS_IC: COMMON {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate}; 300.0_ANIONS_IC: COMMON (Add-on) {Phosphorus in phosphate};	
RELINQUISHED BY/REMOVED FROM Toy Beacoe CHPRC	DATE/TIME JUN 13 2017 1500	RECEIVED BY/STORED IN J. Bock, TARI	DATE/TIME JUN 13 2017 1500		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME	DATE/TIME

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-024-275	PAGE 1 OF 1
COLLECTOR	CHRIS FULTON CHPRC	COMPANY CONTACT	SUMNER, LC	TELEPHONE NO.	376-3922
SAMPLING LOCATION	100-HX Process Bldg 689 Effluent Tank Valve T-H5 (V-H5A6AA)	PROJECT DESIGNATION	100-HX Pump and Treat - INFLUENT/EFFLUENT/TRANSFER TANKS - WAT	PROJECT COORDINATOR	SUMNER, LC
ICE CHEST NO.	NA	FIELD LOGBOOK NO.	HNF-N-491-16	SAF NO.	F12-024
SHIPPED TO	TestAmerica Incorporated, Richland	OFFSITE PROPERTY NO.	NA	ACTUAL SAMPLE DEPTH	N/A
				COA	302845
				BILL OF LADING/AIR BILL NO.	NA
				PRICE CODE	7H
				AIR QUALITY	<input type="checkbox"/>
				METHOD OF SHIPMENT	GOVERNMENT VEHICLE
					<b>ORIGINAL</b>
					DATA TURNAROUND 30 Days / 30 Days

MATRIX*	POSSIBLE SAMPLE HAZARDS/REMARKS	PRESERVATION	Cool <= 6C
A=Air	*Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR/JATTA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	HOLDING TIME	28 Days/48 Hours
DI=Drum		TYPE OF CONTAINER	P
LI=Liquid		NO. OF CONTAINER(S)	1
O=Oil		VOLUME	500mL
SE=Sediment			
T=Tissue			
V=Vegetation			
W=Water			
WI=Wipe			
X=Other			
SAMPLE NO.	WATER	MATRIX*	
B3B325		SAMPLE DATE	JUN 13 2017
		SAMPLE TIME	1235
			✓

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CHAIN OF POSSESSION		SIGN/PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	CHRIS FULTON	DATE/TIME	JUN 13 2017 1345	RECEIVED BY/STORED IN	TOY BEACON CHPRC Daryl Beeson
RELINQUISHED BY/REMOVED FROM	TOY BEACON	DATE/TIME	JUN 13 2017 1500	RECEIVED BY/STORED IN	1 Back TABLE JUN 13 2017 1500
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN	

TRVL-17-134:\*\* The 100 Area S&GP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.\*\* The extraction wells associated with this SAF are all located at the Transfer Building.\*\* The extraction wells associated with this SAF (1) 300.0\_ANIONS\_IC: COMMON {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate}; 300.0\_ANIONS\_IC: COMMON (Add on) {Phosphorus in phosphate};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME
PRINTED ON 5/8/2017			
FSR ID = FSR45066			
TRVL NUM = TRVL-17-134			
A-6003-618 (REV 2)			

July 14, 2017

# July 14, 2017 Detection Summary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F12-024

TestAmerica Job ID: 300-5650-1  
SDG: WC2107

## Client Sample ID: B3B326

Lab Sample ID: 300-5650-1

No Detections.

## Client Sample ID: B3B323

Lab Sample ID: 300-5650-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	0.011		0.0040	0.0015	mg/L	1		7196A	Total/NA

## Client Sample ID: B3B319

Lab Sample ID: 300-5650-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	0.011		0.0040	0.0015	mg/L	1		7196A	Total/NA

## Client Sample ID: B3B322

Lab Sample ID: 300-5650-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.0	D	0.40	0.20	mg/L	2		300.0	Total/NA
Nitrate as N	2.8	D	0.056	0.028	mg/L	2		300.0	Total/NA
Fluoride	0.24	D	0.10	0.050	mg/L	2		300.0	Total/NA
Sulfate	54	D	0.50	0.25	mg/L	2		300.0	Total/NA

## Client Sample ID: B3B318

Lab Sample ID: 300-5650-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.9	D	0.40	0.20	mg/L	2		300.0	Total/NA
Nitrate as N	2.7	D	0.056	0.028	mg/L	2		300.0	Total/NA
Fluoride	0.24	D	0.10	0.050	mg/L	2		300.0	Total/NA
Sulfate	53	D	0.50	0.25	mg/L	2		300.0	Total/NA

## Client Sample ID: B3B325

Lab Sample ID: 300-5650-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.7	D	0.40	0.20	mg/L	2		300.0	Total/NA
Nitrate as N	2.8	D	0.056	0.028	mg/L	2		300.0	Total/NA
Fluoride	0.23	D	0.10	0.050	mg/L	2		300.0	Total/NA
Sulfate	48	D	0.50	0.25	mg/L	2		300.0	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Richland

# July 14, 2017 Client Sample Results

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F12-024

TestAmerica Job ID: 300-5650-1  
SDG: WC2107

**Client Sample ID: B3B326**

**Lab Sample ID: 300-5650-1**

Date Collected: 06/13/17 12:35

Matrix: Water

Date Received: 06/13/17 15:00

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0015	U	0.0040	0.0015	mg/L			06/13/17 17:44	1

**Client Sample ID: B3B323**

**Lab Sample ID: 300-5650-2**

Date Collected: 06/13/17 12:47

Matrix: Water

Date Received: 06/13/17 15:00

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.011		0.0040	0.0015	mg/L			06/13/17 17:44	1

**Client Sample ID: B3B319**

**Lab Sample ID: 300-5650-3**

Date Collected: 06/13/17 12:47

Matrix: Water

Date Received: 06/13/17 15:00

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.011		0.0040	0.0015	mg/L			06/13/17 17:45	1

**Client Sample ID: B3B322**

**Lab Sample ID: 300-5650-4**

Date Collected: 06/13/17 12:47

Matrix: Water

Date Received: 06/13/17 15:00

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.0	D	0.40	0.20	mg/L			06/13/17 19:12	2
Nitrate as N	2.8	D	0.056	0.028	mg/L			06/13/17 19:12	2
Fluoride	0.24	D	0.10	0.050	mg/L			06/13/17 19:12	2
Nitrite as N	0.038	U D	0.076	0.038	mg/L			06/13/17 19:12	2
Orthophosphate as P	0.082	U D	0.16	0.082	mg/L			06/13/17 19:12	2
Sulfate	54	D	0.50	0.25	mg/L			06/13/17 19:12	2

**Client Sample ID: B3B318**

**Lab Sample ID: 300-5650-5**

Date Collected: 06/13/17 12:47

Matrix: Water

Date Received: 06/13/17 15:00

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.9	D	0.40	0.20	mg/L			06/13/17 19:57	2
Nitrate as N	2.7	D	0.056	0.028	mg/L			06/13/17 19:57	2
Fluoride	0.24	D	0.10	0.050	mg/L			06/13/17 19:57	2
Nitrite as N	0.038	U D	0.076	0.038	mg/L			06/13/17 19:57	2
Orthophosphate as P	0.082	U D	0.16	0.082	mg/L			06/13/17 19:57	2
Sulfate	53	D	0.50	0.25	mg/L			06/13/17 19:57	2

TestAmerica Richland

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F12-024

TestAmerica Job ID: 300-5650-1  
SDG: WC2107

**Client Sample ID: B3B325**

**Lab Sample ID: 300-5650-6**

Date Collected: 06/13/17 12:35

Matrix: Water

Date Received: 06/13/17 15:00

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.7	D	0.40	0.20	mg/L			06/13/17 20:12	2
Nitrate as N	2.8	D	0.056	0.028	mg/L			06/13/17 20:12	2
Fluoride	0.23	D	0.10	0.050	mg/L			06/13/17 20:12	2
Nitrite as N	0.038	U D	0.076	0.038	mg/L			06/13/17 20:12	2
Orthophosphate as P	0.082	U D	0.16	0.082	mg/L			06/13/17 20:12	2
Sulfate	48	D	0.50	0.25	mg/L			06/13/17 20:12	2

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F12-024

TestAmerica Job ID: 300-5650-1  
SDG: WC2107

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 300-8259/5  
Matrix: Water  
Analysis Batch: 8259

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			06/13/17 18:42	1
Nitrite as N	0.019	U	0.038	0.019	mg/L			06/13/17 18:42	1
Orthophosphate as P	0.041	U	0.082	0.041	mg/L			06/13/17 18:42	1

Lab Sample ID: LCS 300-8259/6  
Matrix: Water  
Analysis Batch: 8259

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	2.26		mg/L		100	80 - 120
Nitrite as N	3.04	3.09		mg/L		101	80 - 120
Orthophosphate as P	6.53	6.54		mg/L		100	80 - 120

Lab Sample ID: 300-5650-4 MS  
Matrix: Water  
Analysis Batch: 8259

Client Sample ID: B3B322  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.8	D	0.452	3.19	D	mg/L		94	75 - 125
Nitrite as N	0.038	U D	0.609	0.565	D	mg/L		93	75 - 125
Orthophosphate as P	0.082	U D	1.31	1.18	D	mg/L		90	75 - 125

Lab Sample ID: 300-5650-4 DU  
Matrix: Water  
Analysis Batch: 8259

Client Sample ID: B3B322  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrate as N	2.8	D	2.76	D	mg/L		0.1	20
Nitrite as N	0.038	U D	0.038	U D	mg/L		NC	20
Orthophosphate as P	0.082	U D	0.082	U D	mg/L		NC	20

Lab Sample ID: MB 300-8260/5  
Matrix: Water  
Analysis Batch: 8260

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			06/13/17 18:42	1
Fluoride	0.025	U	0.050	0.025	mg/L			06/13/17 18:42	1
Sulfate	0.13	U	0.25	0.13	mg/L			06/13/17 18:42	1

Lab Sample ID: LCS 300-8260/6  
Matrix: Water  
Analysis Batch: 8260

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	16.0		mg/L		100	80 - 120
Fluoride	4.00	3.89		mg/L		97	80 - 120
Sulfate	20.0	20.3		mg/L		101	80 - 120

TestAmerica Richland

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F12-024

TestAmerica Job ID: 300-5650-1  
SDG: WC2107

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

**Lab Sample ID: 300-5650-4 MS**  
**Matrix: Water**  
**Analysis Batch: 8260**

**Client Sample ID: B3B322**  
**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier		Result	Qualifier					
Chloride	8.0	D	3.20	11.1	D	mg/L		98	75 - 125	
Fluoride	0.24	D	0.800	0.970	D	mg/L		91	75 - 125	
Sulfate	54	D	4.00	57.1	D X	mg/L		74	75 - 125	

**Lab Sample ID: 300-5650-4 DU**  
**Matrix: Water**  
**Analysis Batch: 8260**

**Client Sample ID: B3B322**  
**Prep Type: Total/NA**

Analyte	Sample	Sample	DU		Unit	D	RPD	RPD	Limit
	Result	Qualifier	Result	Qualifier					
Chloride	8.0	D	7.90	D	mg/L		1	1	20
Fluoride	0.24	D	0.237	D	mg/L		1	1	20
Sulfate	54	D	53.3	D	mg/L		2	2	20

**Method: 7196A - Chromium, Hexavalent**

**Lab Sample ID: MB 300-8280/3**  
**Matrix: Water**  
**Analysis Batch: 8280**

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

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Cr (VI)	0.0015	U	0.0040	0.0015	mg/L			06/13/17 17:35	1

**Lab Sample ID: LCS 300-8280/4**  
**Matrix: Water**  
**Analysis Batch: 8280**

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

Analyte	Spike	Added	LCS	LCS	Unit	D	%Rec	%Rec.	Limits
			Result	Qualifier					
Cr (VI)	0.250	0.254			mg/L		102	80 - 120	

**Lab Sample ID: 300-5647-A-1 MS**  
**Matrix: Water**  
**Analysis Batch: 8280**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier		Result	Qualifier					
Cr (VI)	0.0023	B	0.0501	0.0536		mg/L		102	75 - 125	

**Lab Sample ID: 300-5647-A-1 DU**  
**Matrix: Water**  
**Analysis Batch: 8280**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample	Sample	DU		Unit	D	RPD	RPD	Limit
	Result	Qualifier	Result	Qualifier					
Cr (VI)	0.0023	B	0.00220	B	mg/L		4	4	20

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F12-024

TestAmerica Job ID: 300-5650-1  
SDG: WC2107

**HPLC/IC**

**Analysis Batch: 8259**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-5650-4	B3B322	Total/NA	Water	300.0	
300-5650-5	B3B318	Total/NA	Water	300.0	
300-5650-6	B3B325	Total/NA	Water	300.0	
MB 300-8259/5	Method Blank	Total/NA	Water	300.0	
LCS 300-8259/6	Lab Control Sample	Total/NA	Water	300.0	
300-5650-4 MS	B3B322	Total/NA	Water	300.0	
300-5650-4 DU	B3B322	Total/NA	Water	300.0	

**Analysis Batch: 8260**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-5650-4	B3B322	Total/NA	Water	300.0	
300-5650-5	B3B318	Total/NA	Water	300.0	
300-5650-6	B3B325	Total/NA	Water	300.0	
MB 300-8260/5	Method Blank	Total/NA	Water	300.0	
LCS 300-8260/6	Lab Control Sample	Total/NA	Water	300.0	
300-5650-4 MS	B3B322	Total/NA	Water	300.0	
300-5650-4 DU	B3B322	Total/NA	Water	300.0	

**General Chemistry**

**Analysis Batch: 8280**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-5650-1	B3B326	Total/NA	Water	7196A	
300-5650-2	B3B323	Total/NA	Water	7196A	
300-5650-3	B3B319	Total/NA	Water	7196A	
MB 300-8280/3	Method Blank	Total/NA	Water	7196A	
LCS 300-8280/4	Lab Control Sample	Total/NA	Water	7196A	
300-5647-A-1 MS	Matrix Spike	Total/NA	Water	7196A	
300-5647-A-1 DU	Duplicate	Total/NA	Water	7196A	



Client: CH2M Hill Plateau Remediation Company  
Project/Site: F12-024

TestAmerica Job ID: 300-5650-1  
SDG: WC2107

**Client Sample ID: B3B326**  
Date Collected: 06/13/17 12:35  
Date Received: 06/13/17 15:00

**Lab Sample ID: 300-5650-1**  
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			8280	06/13/17 17:44	HR	TAL RCH

**Client Sample ID: B3B323**  
Date Collected: 06/13/17 12:47  
Date Received: 06/13/17 15:00

**Lab Sample ID: 300-5650-2**  
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			8280	06/13/17 17:44	HR	TAL RCH

**Client Sample ID: B3B319**  
Date Collected: 06/13/17 12:47  
Date Received: 06/13/17 15:00

**Lab Sample ID: 300-5650-3**  
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			8280	06/13/17 17:45	HR	TAL RCH

**Client Sample ID: B3B322**  
Date Collected: 06/13/17 12:47  
Date Received: 06/13/17 15:00

**Lab Sample ID: 300-5650-4**  
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	300.0		2			8259	06/13/17 19:12	ALR	TAL RCH
Total/NA	Analysis	300.0		2			8260	06/13/17 19:12	ALR	TAL RCH

**Client Sample ID: B3B318**  
Date Collected: 06/13/17 12:47  
Date Received: 06/13/17 15:00

**Lab Sample ID: 300-5650-5**  
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			8259	06/13/17 19:57	ALR	TAL RCH
Total/NA	Analysis	300.0		2			8260	06/13/17 19:57	ALR	TAL RCH

**Client Sample ID: B3B325**  
Date Collected: 06/13/17 12:35  
Date Received: 06/13/17 15:00

**Lab Sample ID: 300-5650-6**  
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			8259	06/13/17 20:12	ALR	TAL RCH
Total/NA	Analysis	300.0		2			8260	06/13/17 20:12	ALR	TAL RCH

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F12-024

TestAmerica Job ID: 300-5650-1  
SDG: WC2107

**Client Sample ID: Method Blank**

**Lab Sample ID: MB 300-8259/5**

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			8259	06/13/17 18:42	ALR	TAL RCH

**Client Sample ID: Method Blank**

**Lab Sample ID: MB 300-8260/5**

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			8260	06/13/17 18:42	ALR	TAL RCH

**Client Sample ID: Method Blank**

**Lab Sample ID: MB 300-8280/3**

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			8280	06/13/17 17:35	HR	TAL RCH

**Client Sample ID: Lab Control Sample**

**Lab Sample ID: LCS 300-8259/6**

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			8259	06/13/17 18:57	ALR	TAL RCH

**Client Sample ID: Lab Control Sample**

**Lab Sample ID: LCS 300-8260/6**

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			8260	06/13/17 18:57	ALR	TAL RCH

**Client Sample ID: Lab Control Sample**

**Lab Sample ID: LCS 300-8280/4**

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			8280	06/13/17 17:35	HR	TAL RCH

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F12-024

TestAmerica Job ID: 300-5650-1  
SDG: WC2107

**Client Sample ID: Matrix Spike**

**Lab Sample ID: 300-5647-A-1 MS**

Date Collected: 06/13/17 10:30

Matrix: Water

Date Received: 06/13/17 15:00

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			8280	06/13/17 17:36	HR	TAL RCH

**Client Sample ID: B3B322**

**Lab Sample ID: 300-5650-4 MS**

Date Collected: 06/13/17 12:47

Matrix: Water

Date Received: 06/13/17 15:00

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			8259	06/13/17 19:27	ALR	TAL RCH
Total/NA	Analysis	300.0		2			8260	06/13/17 19:27	ALR	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: F12-024

TestAmerica Job ID: 300-5650-1  
SDG: WC2107

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



# July 14, 2017 Sample Summary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F12-024

TestAmerica Job ID: 300-5650-1  
SDG: WC2107

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-5650-1	B3B326	Water	06/13/17 12:35	06/13/17 15:00
300-5650-2	B3B323	Water	06/13/17 12:47	06/13/17 15:00
300-5650-3	B3B319	Water	06/13/17 12:47	06/13/17 15:00
300-5650-4	B3B322	Water	06/13/17 12:47	06/13/17 15:00
300-5650-5	B3B318	Water	06/13/17 12:47	06/13/17 15:00
300-5650-6	B3B325	Water	06/13/17 12:35	06/13/17 15:00

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

July 14, 2017

Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-5650-1

SDG Number: WC2107

Login Number: 5650

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.	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	

