

April 20, 2015

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-11222-1

TestAmerica Sample Delivery Group: SL1780
Client Project/Site: F13-018

For:

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

Attn: General Mailbox



Authorized for release by:
4/20/2015 7:03:52 PM

Jayna Awalt, Project Manager II
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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 160-11222-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

CH2MHill Plateau Remediation Company
P.O. Box 1600
Richland, Washington 99352
April 20, 2015
Attention: Scot Fitzgerald

SDG : SL1780
Number of Samples : 9 samples
Sample Matrix : Water
Data Deliverable : Summary
Date SDG Closed : April 7, 2015

II. Introduction

On April 7, 9 samples were received by TestAmerica - St. Louis for chemical analysis. The samples were received within temperature criteria. See the COC and receipt checklists for documentation of any variations on receipt conditions and temperature. Upon receipt, samples were given laboratory Ids to correspond with specific client Ids. Please refer to the Sample Summary sheets attached to this case narrative. This report is incomplete without the narrative.

The following SAFs are associated with this SDG: F13-018

III. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits. All results are based upon samples as they were received, i.e. wet weight, unless otherwise noted on the data sheets. See the attached Methods Summary Form for the methods used in this SDG.

MS/MSD/Dup analysis was done per the client requirements. Analytical batches that did not contain matrix QC were analyzed with an LCS/LCS duplicate.

Note: For Metals analyses, per standard practice, all 6020 water and soil samples are initially prepared at 2x dilution. This standard dilution does not affect reporting limits as MDL studies are also prepared in the same manner. These dilutions do not necessitate flagging unless otherwise noted in the case narrative.

For WTPH methods, the lab utilizes method 8015B. Per CHPRC direction, the method name in the electronic data has been modified to read WTPH in the place of 8015B.

Per CHPRC direction (June 2014), Boron will be reported for Metals using method 6010. Boron will no longer be reported by method 6020.

IV. Definitions

- QCBLK- Quality Control Blank, Method Blank
- QCLCS- Quality Control Laboratory Control Sample, Blank Spike
- DUP- Laboratory Duplicate
- MS- Matrix Spike
- MSD- Matrix Spike Duplicate

Job ID: 160-11222-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

The term "Detection Limit" used in the analytical data report refers to either the lab's standard reporting limits or contractually required reporting limits, whichever is applicable.

The following data qualifiers may be applicable to the results in this report, as appropriate.

- **B** - For inorganic analyses, the sample result is greater than the MDL but less than the RL.
- **B** - For organic analyses, Method Blank contamination. The Method Blank contains the target analyte at a concentration above the MDL.
- **J** - For organic analyses, the sample is estimated and less than the RL.
- **C** - For inorganic analyses, Method Blank contamination. The Method Blank contains the target analyte at a concentration above the MDL.
- **D** - For all analyses, the sample result was obtained from the analysis of a dilution. For Metals analyses, per standard practice, all solid samples are initially prepared at a 2x dilution. This standard dilution does not affect reporting limits as MDL studies are also prepared in the same manner. These dilutions do not necessitate qualification unless otherwise noted in the case narrative.
- **N** - For inorganics and GC analyses, the spike/spike duplicate recoveries are outside QC limits.
- **T** - For GCMS analyses, the spike/spike duplicate recoveries are outside QC limits.
- **O** - For all analyses, the LCS (LCSD) recoveries are outside QC limits.
- **M** - For inorganic analyses, the precision was outside control limits.
- **P** - For organic analyses (PCB/Pests only), the aroclor target analyte has greater than 25% difference for detected concentrations between the two GC columns.

Volatiles

Batch: 184432

The following samples were analyzed at reduced volume due to high concentrations of target analytes: B312D7 (160-11222-2) and B312F2 (160-11222-5). The reporting limits have been elevated by the appropriate factor. These analytes have been qualified accordingly with a "D" flag in the associated samples.

Ammonia

Batch: 185021

The matrix spike (MS) recovery for Ammonia Batch 185021 was outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits. (160-11177-E-2 MS) This analyte has been qualified accordingly with an "N" flag in the associated samples.

Sulfide

Batch: 185103

The following sample in Sulfide batch 185103 was analyzed at dilution due to matrix interference in the undiluted analysis which prevented proper color change: B312D7 (160-11222-2). As a result, this sample is reported as non-detect (ND) at dilution. The reporting limit (RL) has been adjusted for dilution.

The matrix spike (MS) recovery for Sulfide batch 185103 was outside control limits. Sample matrix interference is suspected, because the associated laboratory control sample (LCS) recovery was within acceptance limits. (160-11222-E-2 MS) This analyte has been qualified accordingly with an "N" flag in the associated samples.

There were no observations or non-conformances associated with the following methods:



Client: CH2M Hill Plateau Remediation Company
Project/Site: F13-018

TestAmerica Job ID: 160-11222-1
SDG: SL1780

Job ID: 160-11222-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

COD
TOC

We certify that this data package is in compliance with the SOW, both technically and for completeness, including a full description of, explanation of, and corrective actions for, any and all deviations, from either the analyses requested or the case narrative requested. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager or designee and the laboratory's client services representative as verified by their signature on this report.

Reviewed and approved:

Jayna Awalt
St. Louis Project Manager



Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 160-11222-1

SDG Number: SL1780

Login Number: 11222

List Number: 1

Creator: Clarke, Jill C

List Source: TestAmerica St. Louis

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	0.6, 1.1
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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F13-018-256	PAGE 1 OF 1
COLLECTOR	D.L. Floyd/CHPRC	COMPANY CONTACT	EVANS, RT	TELEPHONE NO.	373-7924
SAMPLING LOCATION	289-T, MBR Effluent, Valve V15-Y50	PROJECT DESIGNATION	200W Pump & Treat - FBR Micronutrient Analysis - Water	PROJECT COORDINATOR	EVANS, RT
ICE CHEST NO.	6005-826	FIELD LOGBOOK NO.	HNF-N-491-9/29	SAF NO.	F13-018
SHIPPED TO	TestAmerica St. Louis	OFFSITE PROPERTY NO.	N/A	ACTUAL SAMPLE DEPTH	N/A
MATRIX*	A=Air DL=Drum L=Liquid DS=Drum S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	PRESERVATION	HCl or H2SO4 to pH <2/Cool 14 Days	COA	303110
POSSIBLE SAMPLE HAZARDS/ REMARKS	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	HOLDING TIME	agS*	METHOD OF SHIPMENT	FEDERAL EXPRESS
SPECIAL HANDLING AND/OR STORAGE	N/A	NO. OF CONTAINER(S)	4	BILL OF LADING/AIR BILL NO.	7733 0263 3471
VOLUME	40mL	SAMPLE ANALYSIS	8260, VOA, GCM, S, COMMON (Carbon tetrachloride);		
SAMPLE NO.	WATER	MATRIX*			

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	DATE/TIME	DATE/TIME
RELINQUISHED BY/REMOVED FROM D.L. Floyd/CHPRC	RECEIVED BY/STORED IN L.D. Wall	APR 06 2015 1320	APR 06 2015 1320
RELINQUISHED BY/REMOVED FROM L.D. Wall	RECEIVED BY/STORED IN FEDEX	APR 06 2015 1400	
RELINQUISHED BY/REMOVED FROM FED EX	RECEIVED BY/STORED IN J. Clark-Jill Clark		4-7-15 0920
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN		
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN		
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN		
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN		

SPECIAL INSTRUCTIONS
The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-15-059

7733 0263 3471

TF/A-15-059

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

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4/20/2015

PRINTED ON 3/24/2015

A-6003-618 (REV 2)



CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F13-018-242	PAGE 1 OF 1
COLLECTOR	D.L. Floyd/CHPRC	COMPANY CONTACT	EVANS, RT	PROJECT COORDINATOR	EVANS, RT
SAMPLING LOCATION	289-T, FBR-A Effluent, valve V25-Y40A1	PROJECT DESIGNATION	200W Pump & Treat - FBR Micronutrient Analysis - Water	PRICE CODE	7C
ICE CHEST NO.	6W5-826	FIELD LOGBOOK NO.	HNF-N-481-9/25	AIR QUALITY	<input type="checkbox"/>
SHIPPED TO	TestAmerica St. Louis	OFFSITE PROPERTY NO.	N/A	METHOD OF SHIPMENT	FEDERAL EXPRESS
MATRIX*	A=Air DL=Drum L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	ACTUAL SAMPLE DEPTH	N/A	COA	303110
POSSIBLE SAMPLE HAZARDS/ REMARKS	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	TELEPHONE NO.	373-7924	BILL OF LADING/AIR BILL NO.	7733 0263 3471
SPECIAL HANDLING AND/OR STORAGE	N/A	PROJECT DESIGNATION	200W Pump & Treat - FBR Micronutrient Analysis - Water	METHOD OF SHIPMENT	FEDERAL EXPRESS
		FIELD LOGBOOK NO.	HNF-N-481-9/25		
		OFFSITE PROPERTY NO.	N/A		

PRESERVATION	HOLDING TIME	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS
HCl or H2SO4 to pH <2/Cool	14 Days	aGs*	4	40mL	8260_VOA_GCM S: COMMON (Carbon tetrachloride);
ZnAc+NaOH to pH > 9	7 Days		1	1L	376.1_TOTAL SULFIDE; COMMON;

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-15-059	
D.L. Floyd/CHPRC	APR 06 2015 1320	L.D. Wall	APR 06 2015 1320		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
L.D. Wall	APR 06 2015 1400	FEDEX			
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
FEDEX		Jill Clarke	4-15-2015		
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		

TRVL-15-059

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F13-018-252	PAGE 1 OF 1
COLLECTOR D.L. Floyd/CHPRC	91180	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 7C
SAMPLING LOCATION 289-T, Effluent Tank, Valve V07-Y80D		PROJECT DESIGNATION 200W Pump & Treat - FBR Micronutrient Analysis - Water	SAF NO. F13-018	SAF NO.	AIR QUALITY <input type="checkbox"/>
ICE CHEST NO. GWS-826		FIELD LOGBOOK NO. HNF-N-381-9/25	ACTUAL SAMPLE DEPTH N/A	COA 303110	METHOD OF SHIPMENT FEDERAL EXPRESS
SHIPPED TO TestAmerica St. Louis		OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. 7733 0263 3471	

MATRIX* A=Air DL=Drum 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 be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	ZnAc+NaOH to pH > 9
PRESERVATION	HOLDING TIME	7 Days
TYPE OF CONTAINER		G/P
NO. OF CONTAINER(S)		1
VOLUME		1L
SAMPLE ANALYSIS		376.1 TOTAL SULFIDE, COMMON;

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B312F7	WATER	APR 06 2015	1225

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM D.L. Floyd/CHPRC	DATE/TIME APR 06 2015 1340	RECEIVED BY/STORED IN Chris Fulton	DATE/TIME APR 06 2015 1530
RELINQUISHED BY/REMOVED FROM Chris Fulton	DATE/TIME APR 06 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME
RELINQUISHED BY/REMOVED FROM FEDEX	DATE/TIME	RECEIVED BY/STORED IN Jill Clarke-Jim Clarke	DATE/TIME 4-7-15 0920
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	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	
PRINTED ON 3/24/2015		TRVL-15-059	

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F13-018-259	PAGE 1 OF 1
COLLECTOR D.L. Floyd/CHPRC	81780	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 7C
SAMPLING LOCATION 289-T, Air-Strip Effluent, Valve V05-Y63		PROJECT DESIGNATION 200W Pump & Treat - FBR Micronutrient Analysis - Water		SAF NO. F13-018	AIR QUALITY <input type="checkbox"/>
ICE CHEST NO. 605-826		FIELD LOGBOOK NO. HNF-N-991-5/28	ACTUAL SAMPLE DEPTH N/A	COA 303110	METHOD OF SHIPMENT FEDERAL EXPRESS
SHIPPED TO TestAmerica St. Louis		OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. 7733 0263 3471	

MATRIX* A=Air DL=Drum L=Liquid DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESERVATION HCl or H2SO4 to pH <2/Cool 14 Days	HOLDING TIME	TYPE OF CONTAINER aGs*	NO. OF CONTAINER(S) 4	VOLUME 40mL	SAMPLE ANALYSIS 8260_VOA_GCM S_COMMON (Carbon tetrachloride);
SPECIAL HANDLING AND/OR STORAGE N/A							
SAMPLE NO. B312H4	MATRIX* WATER	SAMPLE DATE APR 06 2015	SAMPLE TIME 1144				

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM D.L. Floyd/CHPRC	DATE/TIME APR 06 2015 1320	RECEIVED BY/STORED IN L.D. Wall	DATE/TIME APR 06 2015 1320	The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-15-059	
RELINQUISHED BY/REMOVED FROM L.D. Wall	DATE/TIME APR 06 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME APR 06 2015 1400	TRVL-15-059	
RELINQUISHED BY/REMOVED FROM FED EX	DATE/TIME	RECEIVED BY/STORED IN Jill Clarke	DATE/TIME 4-17-15 0920		
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		F13-018-248	PAGE 1 OF 1
COLLECTOR	D.L. Floyd/CHPRC	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE
SAMPLING LOCATION	289-T, FBR-B Effluent, valve V25-Y40B1	PROJECT DESIGNATION	200W Pump & Treat - FBR Micronutrient Analysis - Water	EVANS, RT	7C
ICE CHEST NO.	GWS-026	FIELD LOGBOOK NO.	HNF-N-481-9/129	SAF NO.	AIR QUALITY
SHIPPED TO	TestAmerica St. Louis	OFFSITE PROPERTY NO.	N/A	F13-018	15 Days / 15 Days
MATRIX*	A=Air DL=Drum L=Liquid DS=Drum S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	ACTUAL SAMPLE DEPTH	N/A	COA	METHOD OF SHIPMENT
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.	FIELD LOGBOOK NO.	HNF-N-481-9/129	303110	FEDERAL EXPRESS
SPECIAL HANDLING AND/OR STORAGE	N/A	OFFSITE PROPERTY NO.	N/A	BILL OF LADING/AIR BILL NO.	
				7733	0263 3471

PRESERVATION	H2SO4 to pH <2/Cool <=6C	H2SO4 to pH <2/Cool <=6C	H2SO4 to pH <2/Cool <=6C	HCl or H2SO4 to pH <2/Cool 28 Days
HOLDING TIME	28 Days	28 Days	28 Days	28 Days
TYPE OF CONTAINER	G/P	G/P	G/P	aG
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	500mL	500mL	500mL	250mL
SAMPLE ANALYSIS	350.1 AMMONIUM-NITROGEN (Ammonia);	410.4 COD: CHROMIUM (Chemical Oxygen Demand);	9060.10000 CHLORIDE (Total organic carbon);	✓
SAMPLE DATE	APR 06 2015	APR 06 2015	APR 06 2015	APR 06 2015
SAMPLE TIME	1100	1100	1100	1320

FILTER

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM D.L. Floyd/CHPRC	RECEIVED BY/STORED IN L.D. Wall	Filtering shall be performed by SGRP Field Sampling Services using a (0.45µm) filter while in the field. The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-15-059
RELINQUISHED BY/REMOVED FROM L.D. Wall	RECEIVED BY/STORED IN CHPRC	FILTER TRVL-15-059
RELINQUISHED BY/REMOVED FROM FED EX	RECEIVED BY/STORED IN Jill Clarke	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
LABORATORY SECTION	RECEIVED BY	TITLE
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY

70/65

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F13-018-238	PAGE 1 OF 1
COLLECTOR	D.L. Floyd/CHPRC	COMPANY CONTACT	EVANS, RT	PROJECT COORDINATOR	EVANS, RT
SAMPLING LOCATION	289-T, Influent Tank, Valve V04-Y30	PROJECT DESIGNATION	200W Pump & Treat - FBR Micronutrient Analysis - Water	PRICE CODE	7C
ICE CHEST NO.	6WS-417	FIELD LOGBOOK NO.	HNF-N-491-9/129	AIR QUALITY	<input type="checkbox"/>
SHIPPED TO	TestAmerica St. Louis	OFFSITE PROPERTY NO.	N/A	METHOD OF SHIPMENT	FEDERAL EXPRESS
MATRIX* A=Air DL=Drum L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Wipe X=Other		PRESERVATION		H2SO4 to pH <2/Cool <=6C 28 Days	
*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.		HOLDING TIME		HCl or H2SO4 to pH <2/Cool 28 Days	
SPECIAL HANDLING AND/OR STORAGE		TYPE OF CONTAINER		SAF NO. F13-018	
N/A		NO. OF CONTAINER(S)		COA 303110	
N/A		VOLUME		BILL OF LADING/AIR BILL NO. 7733 0091 5375	
N/A		SAMPLE ANALYSIS		METHOD OF SHIPMENT	
N/A		350.1 AMMONIUM A: COMMON (Ammonia);		FEDERAL EXPRESS	
N/A		410.4 COD: COMMON (Chemical Oxygen Demand);		ORIGINAL	
N/A		9060 TOC: COMMON (Total organic carbon);			

SAMPLE NO.	MATRIX*	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
B312D3	WATER	APR 06 2015 0854	L.D. Wall	APR 06 2015 1100
			RECEIVED BY/STORED IN	DATE/TIME
			FEDEX	
			RECEIVED BY/STORED IN	DATE/TIME
			J. Clark	4-15-15
			RECEIVED BY/STORED IN	DATE/TIME
			RECEIVED BY/STORED IN	DATE/TIME
			RECEIVED BY/STORED IN	DATE/TIME
			RECEIVED BY/STORED IN	DATE/TIME

FILTER

CHAIN OF POSSESSION		SIGN/PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	Filtering shall be performed by SGRP Field Sampling Services using a (0.45µm) filter while in the field. The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-15-059	
D.L. Floyd/CHPRC	APR 06 2015 1100	L.D. Wall	APR 06 2015 1100	FILTER	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
L.D. Wall	APR 06 2015	FEDEX			
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
FED EX		J. Clark	4-15-15		
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	





Ship

Track

Manage

Learn

FedEx Office®

My Profile

Delivered

Tracking No. or Nickname	Shipper city, state	Origin Terminal	Ship (P/U) date	Status
773302633471	RICHLAND, WA	PASCO, WA	4/06/2015 3:24 pm	
773300915375	RICHLAND, WA	PASCO, WA	4/06/2015 3:24 pm	

Delivered

773300915375

Travel History

Date/Time	Activity
- 4/07/2015 - Tuesday	
9:15 am	Delivered
6:59 am	On FedEx vehicle for delivery
6:54 am	At local FedEx facility
5:21 am	At destination sort facility
4:34 am	Departed FedEx location
12:49 am	Arrived at FedEx location
- 4/06/2015 - Monday	
5:04 pm	Left FedEx origin facility
3:24 pm	Picked up
2:46 pm	Shipment information sent to FedEx

Shipment Facts

Tracking number	773300915375	Service	FedEx F
Weight	70 lbs / 31.75 kgs	Delivered To	Shipping
Total pieces	1	Total shipment weight	70 lbs / ;
Shipper reference	GWS-417	Packaging	Your Pa
Social			

My Profile



Ship

Track

Manage

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FedEx Office®

Delivered

Tracking No. or Nickname	Shipper city, state	Origin Terminal	Ship (P/U) date	Status
773302633471	RICHLAND, WA	PASCO, WA	4/06/2015 3:24 pm	
773300915375	RICHLAND, WA	PASCO, WA	4/06/2015 3:24 pm	

Delivered

773302633471

Travel History

Date/Time	Activity
- 4/07/2015 - Tuesday	
9:15 am	Delivered
7:22 am	On FedEx vehicle for delivery
7:16 am	At local FedEx facility
5:21 am	At destination sort facility
4:34 am	Departed FedEx location
12:49 am	Arrived at FedEx location
- 4/06/2015 - Monday	
5:04 pm	Left FedEx origin facility
4:05 pm	Shipment information sent to FedEx
3:24 pm	Picked up

Shipment Facts

Tracking number	773302633471	Service	FedEx F
Weight	85 lbs / 38.56 kgs	Delivered To	Shipping
Total pieces	1	Total shipment weight	85 lbs / 38.56 kgs
Shipper reference	gws-826	Packaging	Your Pa
Social			

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
U	Analyzed for but not detected.

GC/MS VOA TICs

Qualifier	Qualifier Description
N	Presumptive evidence of material.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
U	Analyzed for but not detected.
N	MS, MSD: Spike recovery exceeds upper or lower control limits.
D	The reported value is from a dilution.
B	Estimated result. Result is less than the RL, but greater than MDL

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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: CH2M Hill Plateau Remediation Company
Project/Site: F13-018

TestAmerica Job ID: 160-11222-1
SDG: SL1780

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds (GC/MS)	SW846	TAL SL
350.1	Nitrogen, Ammonia	MCAWW	TAL SL
376.1	Sulfide	MCAWW	TAL SL
410.4	COD	MCAWW	TAL SL
9060	Organic Carbon, Total (TOC)	SW846	TAL SL

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 SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



April 20, 2015
Sample Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F13-018

TestAmerica Job ID: 160-11222-1
SDG: SL1780

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-11222-1	B312H1	Water	04/06/15 11:35	04/07/15 09:20
160-11222-2	B312D7	Water	04/06/15 11:16	04/07/15 09:20
160-11222-3	B312F7	Water	04/06/15 12:25	04/07/15 09:20
160-11222-4	B312F8	Water	04/06/15 12:25	04/07/15 09:20
160-11222-5	B312F2	Water	04/06/15 11:00	04/07/15 09:20
160-11222-6	B312D8	Water	04/06/15 11:16	04/07/15 09:20
160-11222-7	B312H4	Water	04/06/15 11:44	04/07/15 09:20
160-11222-8	B312F3	Water	04/06/15 11:00	04/07/15 09:20
160-11222-9	B312D3	Water	04/06/15 08:54	04/07/15 09:20



April 20, 2015
Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F13-018

TestAmerica Job ID: 160-11222-1
SDG: SL1780

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: B312H1
Date Collected: 04/06/15 11:35
Date Received: 04/07/15 09:20

Lab Sample ID: 160-11222-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Carbon tetrachloride	21		1.0	0.13	ug/L			04/09/15 14:05	1	
Tentatively Identified Compound										
Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac		
Unknown	79	N		2.84			04/09/15 14:05	1		
Unknown	2.3	N		8.11			04/09/15 14:05	1		
Surrogate										
%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac					
1,2-Dichloroethane-d4 (Surr)	109		75 - 129			04/09/15 14:05	1			
4-Bromofluorobenzene (Surr)	116		81 - 130			04/09/15 14:05	1			
Dibromofluoromethane (Surr)	116		81 - 124			04/09/15 14:05	1			
Toluene-d8 (Surr)	109		87 - 128			04/09/15 14:05	1			

Client Sample ID: B312D7
Date Collected: 04/06/15 11:16
Date Received: 04/07/15 09:20

Lab Sample ID: 160-11222-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Carbon tetrachloride	360	D	25	3.3	ug/L			04/09/15 12:07	25	
Tentatively Identified Compound										
Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac		
Tentatively Identified Compound	None						04/09/15 12:07	25		
Surrogate										
%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac					
1,2-Dichloroethane-d4 (Surr)	102		75 - 129			04/09/15 12:07	25			
4-Bromofluorobenzene (Surr)	116		81 - 130			04/09/15 12:07	25			
Dibromofluoromethane (Surr)	112		81 - 124			04/09/15 12:07	25			
Toluene-d8 (Surr)	108		87 - 128			04/09/15 12:07	25			

Client Sample ID: B312F2
Date Collected: 04/06/15 11:00
Date Received: 04/07/15 09:20

Lab Sample ID: 160-11222-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Carbon tetrachloride	370	D	25	3.3	ug/L			04/09/15 12:30	25	
Tentatively Identified Compound										
Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac		
Tentatively Identified Compound	None						04/09/15 12:30	25		
Surrogate										
%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac					
1,2-Dichloroethane-d4 (Surr)	107		75 - 129			04/09/15 12:30	25			
4-Bromofluorobenzene (Surr)	115		81 - 130			04/09/15 12:30	25			
Dibromofluoromethane (Surr)	117		81 - 124			04/09/15 12:30	25			
Toluene-d8 (Surr)	106		87 - 128			04/09/15 12:30	25			

Client Sample ID: B312H4
Date Collected: 04/06/15 11:44
Date Received: 04/07/15 09:20

Lab Sample ID: 160-11222-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Carbon tetrachloride	0.13	U	1.0	0.13	ug/L			04/09/15 14:28	1	
Tentatively Identified Compound										
Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac		
Unknown	82	N		2.85			04/09/15 14:28	1		

TestAmerica St. Louis

April 20, 2015
Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F13-018

TestAmerica Job ID: 160-11222-1
SDG: SL1780

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	115		75 - 129		04/09/15 14:28	1
4-Bromofluorobenzene (Surr)	111		81 - 130		04/09/15 14:28	1
Dibromofluoromethane (Surr)	113		81 - 124		04/09/15 14:28	1
Toluene-d8 (Surr)	108		87 - 128		04/09/15 14:28	1

General Chemistry

Client Sample ID: B312F7
Date Collected: 04/06/15 12:25
Date Received: 04/07/15 09:20

Lab Sample ID: 160-11222-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	0.45	U N	1.0	0.45	mg/L			04/13/15 08:01	1

Client Sample ID: B312F8
Date Collected: 04/06/15 12:25
Date Received: 04/07/15 09:20

Lab Sample ID: 160-11222-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	112	N	50.0	8.3	ug/L			04/10/15 15:57	1
Chemical Oxygen Demand	1.1	U	5.0	1.1	mg/L		04/15/15 13:41	04/15/15 16:18	1
Total Organic Carbon	1.5		1.0	0.35	mg/L			04/16/15 09:28	1

Client Sample ID: B312F2
Date Collected: 04/06/15 11:00
Date Received: 04/07/15 09:20

Lab Sample ID: 160-11222-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	0.47	B N	1.0	0.45	mg/L			04/13/15 08:01	1

Client Sample ID: B312D8
Date Collected: 04/06/15 11:16
Date Received: 04/07/15 09:20

Lab Sample ID: 160-11222-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	10.9	B N	50.0	8.3	ug/L			04/10/15 15:59	1
Chemical Oxygen Demand	41.0		5.0	1.1	mg/L		04/15/15 13:41	04/15/15 16:18	1
Total Organic Carbon	16.3		1.0	0.35	mg/L			04/16/15 10:03	1

Client Sample ID: B312F3
Date Collected: 04/06/15 11:00
Date Received: 04/07/15 09:20

Lab Sample ID: 160-11222-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	9.2	B N	50.0	8.3	ug/L			04/10/15 16:01	1
Chemical Oxygen Demand	10.0		5.0	1.1	mg/L		04/15/15 13:41	04/15/15 16:18	1
Total Organic Carbon	3.5		1.0	0.35	mg/L			04/16/15 10:21	1

Client Sample ID: B312D3
Date Collected: 04/06/15 08:54
Date Received: 04/07/15 09:20

Lab Sample ID: 160-11222-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	8.3	U N	50.0	8.3	ug/L			04/10/15 16:03	1
Chemical Oxygen Demand	1.1	U	5.0	1.1	mg/L		04/15/15 13:41	04/15/15 16:18	1
Total Organic Carbon	1.3		1.0	0.35	mg/L			04/16/15 10:33	1

TestAmerica St. Louis

April 20, 2015
Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F13-018

TestAmerica Job ID: 160-11222-1
SDG: SL1780

General Chemistry - DL

Client Sample ID: B312D7
Date Collected: 04/06/15 11:16
Date Received: 04/07/15 09:20

Lab Sample ID: 160-11222-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	1.8	U N	4.0	1.8	mg/L			04/13/15 08:01	4

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

Client: CH2M Hill Plateau Remediation Company
Project/Site: F13-018

TestAmerica Job ID: 160-11222-1
SDG: SL1780

Method: 8260C - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 160-184432/8
Matrix: Water
Analysis Batch: 184432

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	0.13	U	1.0	0.13	ug/L			04/09/15 08:59	1
Tentatively Identified Compound									
Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L					04/09/15 08:59	1
Naphthalene	0.238	J	ug/L		16.37	91-20-3		04/09/15 08:59	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		75 - 129					04/09/15 08:59	1
4-Bromofluorobenzene (Surr)	112		81 - 130					04/09/15 08:59	1
Dibromofluoromethane (Surr)	103		81 - 124					04/09/15 08:59	1
Toluene-d8 (Surr)	105		87 - 128					04/09/15 08:59	1

Lab Sample ID: LCS 160-184432/5
Matrix: Water
Analysis Batch: 184432

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon tetrachloride	10.0	11.2		ug/L		112	83 - 125
Surrogate							
Surrogate	%Recovery	Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	108		75 - 129				
4-Bromofluorobenzene (Surr)	104		81 - 130				
Dibromofluoromethane (Surr)	110		81 - 124				
Toluene-d8 (Surr)	103		87 - 128				

Lab Sample ID: LCSD 160-184432/6
Matrix: Water
Analysis Batch: 184432

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon tetrachloride	10.0	11.0		ug/L		110	83 - 125	2	20
Surrogate									
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	100		75 - 129						
4-Bromofluorobenzene (Surr)	105		81 - 130						
Dibromofluoromethane (Surr)	108		81 - 124						
Toluene-d8 (Surr)	103		87 - 128						

Lab Sample ID: 160-11195-B-21 MS
Matrix: Water
Analysis Batch: 184432

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon tetrachloride	0.13	U	10.0	11.2		ug/L		112	77 - 131

Client: CH2M Hill Plateau Remediation Company
Project/Site: F13-018

TestAmerica Job ID: 160-11222-1
SDG: SL1780

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 160-11195-B-21 MS
Matrix: Water
Analysis Batch: 184432

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

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		75 - 129
4-Bromofluorobenzene (Surr)	103		81 - 130
Dibromofluoromethane (Surr)	112		81 - 124
Toluene-d8 (Surr)	104		87 - 128

Lab Sample ID: 160-11195-C-21 MSD
Matrix: Water
Analysis Batch: 184432

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon tetrachloride	0.13	U	10.0	10.7		ug/L		107	77 - 131	5	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		75 - 129
4-Bromofluorobenzene (Surr)	102		81 - 130
Dibromofluoromethane (Surr)	111		81 - 124
Toluene-d8 (Surr)	102		87 - 128

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 160-185021/12
Matrix: Water
Analysis Batch: 185021

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	8.3	U	50.0	8.3	ug/L			04/10/15 15:27	1

Lab Sample ID: LCS 160-185021/13
Matrix: Water
Analysis Batch: 185021

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia as N	500	509.6		ug/L		102	90 - 110

Lab Sample ID: 160-11177-E-2 MS
Matrix: Water
Analysis Batch: 185021

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia as N	8.3	U N	500	718.3	N	ug/L		144	90 - 110

Lab Sample ID: 160-11177-E-2 DU
Matrix: Water
Analysis Batch: 185021

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Ammonia as N	8.3	U N	8.3	U	ug/L		NC	20

Client: CH2M Hill Plateau Remediation Company
Project/Site: F13-018

TestAmerica Job ID: 160-11222-1
SDG: SL1780

Method: 376.1 - Sulfide

Lab Sample ID: MB 160-185103/1
Matrix: Water
Analysis Batch: 185103

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	0.45	U	1.0	0.45	mg/L			04/13/15 08:01	1

Lab Sample ID: LCS 160-185103/2
Matrix: Water
Analysis Batch: 185103

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	9.99	10.47		mg/L		105	90 - 110

Method: 376.1 - Sulfide - DL

Lab Sample ID: 160-11222-2 MS
Matrix: Water
Analysis Batch: 185103

Client Sample ID: B312D7
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide - DL	1.8	U N	40.0	58.67	D N	mg/L		147	90 - 110

Lab Sample ID: 160-11222-2 DU
Matrix: Water
Analysis Batch: 185103

Client Sample ID: B312D7
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfide - DL	1.8	U N	1.8	U	mg/L		NC	20

Method: 410.4 - COD

Lab Sample ID: MB 160-185868/3-A
Matrix: Water
Analysis Batch: 185891

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 185868

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	1.1	U	5.0	1.1	mg/L		04/15/15 13:41	04/15/15 16:18	1

Lab Sample ID: LCS 160-185868/4-A
Matrix: Water
Analysis Batch: 185891

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 185868

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	50.0	51.00		mg/L		102	90 - 110

Lab Sample ID: 160-11222-4 MS
Matrix: Water
Analysis Batch: 185891

Client Sample ID: B312F8
Prep Type: Total/NA
Prep Batch: 185868

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	1.1	U	50.0	54.00		mg/L		108	90 - 110

Client: CH2M Hill Plateau Remediation Company
Project/Site: F13-018

TestAmerica Job ID: 160-11222-1
SDG: SL1780

Method: 410.4 - COD (Continued)

Lab Sample ID: 160-11222-4 DU
Matrix: Water
Analysis Batch: 185891

Client Sample ID: B312F8
Prep Type: Total/NA
Prep Batch: 185868

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Chemical Oxygen Demand	1.1	U	1.1	U	mg/L		NC	20

Method: 9060 - Organic Carbon, Total (TOC)

Lab Sample ID: MB 160-186423/63
Matrix: Water
Analysis Batch: 186423

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	0.35	U	1.0	0.35	mg/L			04/16/15 08:56	1

Lab Sample ID: LCS 160-186423/64
Matrix: Water
Analysis Batch: 186423

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.47		mg/L		95	90 - 110

Lab Sample ID: 160-11222-4 MS
Matrix: Water
Analysis Batch: 186423

Client Sample ID: B312F8
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	1.5		5.00	6.98		mg/L		109	76 - 120

Lab Sample ID: 160-11222-4 DU
Matrix: Water
Analysis Batch: 186423

Client Sample ID: B312F8
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total Organic Carbon	1.5		1.48		mg/L		3	20

April 20, 2015
QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F13-018

TestAmerica Job ID: 160-11222-1
SDG: SL1780

GC/MS VOA

Analysis Batch: 184432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-11195-B-21 MS	Matrix Spike	Total/NA	Water	8260C	
160-11195-C-21 MSD	Matrix Spike Duplicate	Total/NA	Water	8260C	
160-11222-1	B312H1	Total/NA	Water	8260C	
160-11222-2	B312D7	Total/NA	Water	8260C	
160-11222-5	B312F2	Total/NA	Water	8260C	
160-11222-7	B312H4	Total/NA	Water	8260C	
LCS 160-184432/5	Lab Control Sample	Total/NA	Water	8260C	
LCSD 160-184432/6	Lab Control Sample Dup	Total/NA	Water	8260C	
MB 160-184432/8	Method Blank	Total/NA	Water	8260C	

General Chemistry

Analysis Batch: 185021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-11177-E-2 DU	Duplicate	Total/NA	Water	350.1	
160-11177-E-2 MS	Matrix Spike	Total/NA	Water	350.1	
160-11222-4	B312F8	Total/NA	Water	350.1	
160-11222-6	B312D8	Total/NA	Water	350.1	
160-11222-8	B312F3	Total/NA	Water	350.1	
160-11222-9	B312D3	Total/NA	Water	350.1	
LCS 160-185021/13	Lab Control Sample	Total/NA	Water	350.1	
MB 160-185021/12	Method Blank	Total/NA	Water	350.1	

Analysis Batch: 185103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-11222-2 - DL	B312D7	Total/NA	Water	376.1	
160-11222-2 DU - DL	B312D7	Total/NA	Water	376.1	
160-11222-2 MS - DL	B312D7	Total/NA	Water	376.1	
160-11222-3	B312F7	Total/NA	Water	376.1	
160-11222-5	B312F2	Total/NA	Water	376.1	
LCS 160-185103/2	Lab Control Sample	Total/NA	Water	376.1	
MB 160-185103/1	Method Blank	Total/NA	Water	376.1	

Prep Batch: 185868

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-11222-4	B312F8	Total/NA	Water	410.4	
160-11222-4 DU	B312F8	Total/NA	Water	410.4	
160-11222-4 MS	B312F8	Total/NA	Water	410.4	
160-11222-6	B312D8	Total/NA	Water	410.4	
160-11222-8	B312F3	Total/NA	Water	410.4	
160-11222-9	B312D3	Total/NA	Water	410.4	
LCS 160-185868/4-A	Lab Control Sample	Total/NA	Water	410.4	
MB 160-185868/3-A	Method Blank	Total/NA	Water	410.4	

Analysis Batch: 185891

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-11222-4	B312F8	Total/NA	Water	410.4	185868
160-11222-4 DU	B312F8	Total/NA	Water	410.4	185868
160-11222-4 MS	B312F8	Total/NA	Water	410.4	185868
160-11222-6	B312D8	Total/NA	Water	410.4	185868

TestAmerica St. Louis

April 20, 2015
QC Association Summary

Client: CH2M Hill Plateau Remediation Company
 Project/Site: F13-018

TestAmerica Job ID: 160-11222-1
 SDG: SL1780

General Chemistry (Continued)

Analysis Batch: 185891 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-11222-8	B312F3	Total/NA	Water	410.4	185868
160-11222-9	B312D3	Total/NA	Water	410.4	185868
LCS 160-185868/4-A	Lab Control Sample	Total/NA	Water	410.4	185868
MB 160-185868/3-A	Method Blank	Total/NA	Water	410.4	185868

Analysis Batch: 186423

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-11222-4	B312F8	Total/NA	Water	9060	
160-11222-4 DU	B312F8	Total/NA	Water	9060	
160-11222-4 MS	B312F8	Total/NA	Water	9060	
160-11222-6	B312D8	Total/NA	Water	9060	
160-11222-8	B312F3	Total/NA	Water	9060	
160-11222-9	B312D3	Total/NA	Water	9060	
LCS 160-186423/64	Lab Control Sample	Total/NA	Water	9060	
MB 160-186423/63	Method Blank	Total/NA	Water	9060	

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

Client: CH2M Hill Plateau Remediation Company
 Project/Site: F13-018

TestAmerica Job ID: 160-11222-1
 SDG: SL1780

Method: 8260C - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (75-129)	BFB (81-130)	DBFM (81-124)	TOL (87-128)
160-11195-B-21 MS	Matrix Spike	101	103	112	104
160-11195-C-21 MSD	Matrix Spike Duplicate	96	102	111	102
160-11222-1	B312H1	109	116	116	109
160-11222-2	B312D7	102	116	112	108
160-11222-5	B312F2	107	115	117	106
160-11222-7	B312H4	115	111	113	108
LCS 160-184432/5	Lab Control Sample	108	104	110	103
LCSD 160-184432/6	Lab Control Sample Dup	100	105	108	103
MB 160-184432/8	Method Blank	99	112	103	105

Surrogate Legend

- 12DCE = 1,2-Dichloroethane-d4 (Surr)
- BFB = 4-Bromofluorobenzene (Surr)
- DBFM = Dibromofluoromethane (Surr)
- TOL = Toluene-d8 (Surr)

