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: 160-18021-1
TestAmerica Sample Delivery Group: SL2237
Client Project/Site: F16-047

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

Attn: Mr. Scot Fitzgerald

Authorized for release by:
7/15/2016 3:27:52 PM

Jayna Awalt, Project Manager II
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Case Narrative

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-047

TestAmerica Job ID: 160-18021-1
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Job ID: 160-18021-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

CH2MHill Plateau Remediation Company
P.O. Box 1600
Richland, Washington 99352
July 15, 2016
Attention: Scot Fitzgerald

SDG	: SL2237
Number of Samples	: 3 samples
Sample Matrix	: Water
Data Deliverable	: Summary
Date SDG Closed	: June 30, 2016

II. Introduction

On June 30, 3 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: F16-047

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 solid matrices, all Metals analyses (including Hg) use a Standard Reference Material for the Laboratory Control Sample (LCS). Certificate for this source material may be obtained from TASL.

For Anion analysis, samples have been started at a 2x dilution per CHPRC direction. The samples are flagged accordingly with a “D” flag if sample concentration is above the MDL/RL. Non-conformance will be included in the below section only if dilution is greater than 2x.

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.

Per CHPRC direction, due to the short hold times for Nitrate, Nitrite and Phosphate by IC (48 hours) as well as pH analysis (24 hours), a SIR request is not needed when samples are run outside 1x hold but within 2x hold. A narrative comment will be included below if a sample is run outside the lab-specified hold time for waters.

Case Narrative

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-047

TestAmerica Job ID: 160-18021-1
SDG: SL2237

Job ID: 160-18021-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

For extractable and volatile organic analyses, several analytes are considered poor performers and will not meet CHPRC QC limits. Per CHPRC direction, the lab's statistical limits have been reported. Excursions outside these statistical limits will include a non-conformance in the sections below.

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

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.

Ammonia as N

Batch: 260721

Ammonia as N was detected in method blank MB 160-260721/38 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "B". If the associated sample reported a result above the MDL and/or RL and is not greater than 5x the method blank, the result has been flagged "C".

The following matrix spike (MS) recoveries for NH3 analytical batch 160-260721 were outside control limits: (160-18021-C-1 MS). Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits. 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:

Sulfide
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

Case Narrative

Job ID: 160-18021-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

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: 160-18021-1
SDG Number: SL2237

Login Number: 18021
List Number: 1
Creator: McKinney, Gerrod E

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	1.6°, 1.7°
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.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F16-047-021	PAGE 1 OF 1
COLLECTOR Kevin Patterson CHPRC SL2237	**COMPANY CONTACT** SUMNER, LC	**TELEPHONE NO.** 376-3922	**PROJECT COORDINATOR** SUMNER, LC	**PRICE CODE** 7C	**DATA TURNAROUND**
SAMPLING LOCATION 289-T, Effluent Tank, Valve V07-Y80C*	**PROJECT DESIGNATION** 200 West Pump & Treat - Fluidized Bed Reactor (FBR) Micronutrient Analys		**SAF NO.** F16-047	**AIR QUALITY** ☐	**15 Days / 15 Days**
ICE CHEST NO. GWS-502	**FIELD LOGBOOK NO.** HNF-N-491 15	**ACTUAL SAMPLE DEPTH** N/A	**COA** 303111	**METHOD OF SHIPMENT** FEDERAL EXPRESS	**ORIGINAL**
SHIPPED TO TestAmerica St. Louis	**OFFSITE PROPERTY NO.** N/A		**BILL OF LADING/AIR BILL NO.** 7766 2493 9436		

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 be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. NA

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION				H2SO4 to pH <2/Cool <=6C	HCl or H2SO4 to pH <2/Cool	H2SO4 to pH <2/Cool <=6C
HOLDING TIME				28 Days	28 Days	28 Days
TYPE OF CONTAINER				G/P	aG	G/P
NO. OF CONTAINER(S)				1	1	1
VOLUME				500mL	250mL	500mL
SAMPLE ANALYSIS				410.4_COD: COMMON {Chemical Oxygen Demand};	9060_TOC: COMMON {Total organic carbon};	350.1_AMMONIA: COMMON;
SAMPLE NO.	**MATRIX***	**SAMPLE DATE**	**SAMPLE TIME**			
B35WF9	WATER	JUN 27 2016	1220	✓	✓	✓

FILTER

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	**DATE/TIME**	**RECEIVED BY/STORED IN**	**DATE/TIME**
Kevin Patterson CHPRC	JUN 27 2016 1310	J.C. Fulton CHPRC	JUN 27 2016 1310
J.C. Fulton CHPRC	JUN 27 2016 1325	SSU-1	JUN 27 2016 1325
SSU-1	JUN 28 2016 0800	Lesly Wall /CHPRC	JUN 28 2016 0800
Lesly Wall /CHPRC	JUN 28 2016 1400	FEDEX	
FEDEX		Gerrod McKinney	063016 1215

SPECIAL INSTRUCTIONS
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.

FILTER

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

PRINTED ON 5/26/2016 **FSR ID = FSR32752** **TRVL NUM = TRVL-16-157** A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F16-047-020	PAGE 1 OF 1
COLLECTOR SL2237 Kevin Patterson CHPRC	**COMPANY CONTACT** SUMNER, LC	**TELEPHONE NO.** 376-3922	**PROJECT COORDINATOR** SUMNER, LC	**PRICE CODE** 7C **AIR QUALITY** ☐	**DATA TURNAROUND** 15 Days / 15 Days
SAMPLING LOCATION 289-T, Effluent Tank, Valve V07-Y80C*	**PROJECT DESIGNATION** 200 West Pump & Treat - Fluidized Bed Reactor (FBR) Micronutrient Analys		**SAF NO.** F16-047		
ICE CHEST NO. GWS-502	**FIELD LOGBOOK NO.** HNF-N-491 15	**ACTUAL SAMPLE DEPTH** N/A	**COA** 303111	**METHOD OF SHIPMENT** FEDERAL EXPRESS	**ORIGINAL**
SHIPPED TO TestAmerica St. Louis	**OFFSITE PROPERTY NO.** N/A		**BILL OF LADING/AIR BILL NO.** 7766 2493 9436		

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 be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. NA

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	ZnAc+NaOH to pH > 9
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	
B35WF8	WATER	JUN 27 2016	1220	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM Kevin Patterson CHPRC	**DATE/TIME** JUN 27 2016 1310	**RECEIVED BY/STORED IN** J.C. Fulton CHPRC	**DATE/TIME** JUN 27 2016 1310	The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-16-129
RELINQUISHED BY/REMOVED FROM J.C. Fulton CHPRC	**DATE/TIME** JUN 27 2016 1325	**RECEIVED BY/STORED IN** SSU-1	**DATE/TIME** JUN 27 2016 1325	
RELINQUISHED BY/REMOVED FROM SSU-1	**DATE/TIME** JUN 28 2016 0800	**RECEIVED BY/STORED IN** Lesly Wall /CHPRC	**DATE/TIME** JUN 28 2016 0800	
RELINQUISHED BY/REMOVED FROM Lesly Wall /CHPRC FED EX	**DATE/TIME** JUN 28 2016 1400	**RECEIVED BY/STORED IN** FEDEX	**DATE/TIME**	
RELINQUISHED BY/REMOVED FROM	**DATE/TIME**	**RECEIVED BY/STORED IN** GERROD MCKINNEY	**DATE/TIME** 063016 1015	
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 5/26/2016 **FSR ID = FSR32752** **TRVL NUM = TRVL-16-157** A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F16-047-004	PAGE 1 OF 1
COLLECTOR Kevin Patterson CHPRC SL2237	**COMPANY CONTACT** SUMNER, LC	**TELEPHONE NO.** 376-3922	**PROJECT COORDINATOR** SUMNER, LC	**PRICE CODE** 7C **DATA TURNAROUND**
SAMPLING LOCATION 289-T, Influent Tank, Valve V12-Y30	**PROJECT DESIGNATION** 200 West Pump & Treat - Fluidized Bed Reactor (FBR) Micronutrient Analys		**SAF NO.** F16-047	**AIR QUALITY** ☐ **15 Days / 15 Days**
ICE CHEST NO. GWS-502	**FIELD LOGBOOK NO.** ~~HNF-N~~ 49115	**ACTUAL SAMPLE DEPTH** N/A	**COA** 303111	**METHOD OF SHIPMENT** FEDERAL EXPRESS **ORIGINAL**
SHIPPED TO TestAmerica St. Louis	**OFFSITE PROPERTY NO.** N/A		**BILL OF LADING/AIR BILL NO.** 7766 2493 9436	

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
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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. NA

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION			H2SO4 to pH <2/Cool <=6C	HCl or H2SO4 to pH <2/Cool	H2SO4 to pH <2/Cool <=6C
HOLDING TIME			28 Days	28 Days	28 Days
TYPE OF CONTAINER			G/P	aG	G/P
NO. OF CONTAINER(S)			1	1	1
VOLUME			500mL	250mL	500mL
SAMPLE ANALYSIS			410.4_COD: COMMON {Chemical Oxygen Demand};	9060_TOC: COMMON {Total organic carbon};	350.1_AMMONIA: COMMON;
SAMPLE NO.	**MATRIX***	**SAMPLE DATE**	**SAMPLE TIME**			
B35WD2	WATER	JUN 27 2016	1332	✓	✓	✓

FILTER

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM Kevin Patterson CHPRC	**DATE/TIME** JUN 27 2016 1415	**RECEIVED BY/STORED IN** SSU-1	**DATE/TIME** JUN 27 2016 1415
RELINQUISHED BY/REMOVED FROM SSU-1	**DATE/TIME** JUN 28 2016 0800	**RECEIVED BY/STORED IN** Lesly Wall /CHPRC	**DATE/TIME** JUN 28 2016 0800
RELINQUISHED BY/REMOVED FROM Lesly Wall /CHPRC	**DATE/TIME** JUN 28 2016 1400	**RECEIVED BY/STORED IN** FEDEX	**DATE/TIME**
RELINQUISHED BY/REMOVED FROM FED EX	**DATE/TIME**	**RECEIVED BY/STORED IN** GERROD McKINNEY	**DATE/TIME** 063014 1215
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**

SPECIAL INSTRUCTIONS
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.

FILTER

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

PRINTED ON 5/26/2016 **FSR ID = FSR32749** **TRVL NUM = TRVL-16-157** A-6003-618 (REV 2)

FedEx ® Tracking

776624939436

Ship date:
Tue 6/28/2016

RICHLAND, WA US

Delivered
Signed for by: B.DANIELS

Actual delivery:
Thu 6/30/2016 12:13 pm

EARTH CITY, MO US

Travel History

Date/Time	Activity	Location
- 6/30/2016 - Thursday		
12:13 pm	Delivered	EARTH CITY, MO
7:40 am	On FedEx vehicle for delivery	EARTH CITY, MO
7:34 am	At local FedEx facility	EARTH CITY, MO
- 6/29/2016 - Wednesday		
9:37 pm	At destination sort facility	BERKELEY, MO
4:14 pm	Departed FedEx location	MEMPHIS, TN
5:36 am	In transit	MEMPHIS, TN
3:50 am	In transit	MEMPHIS, TN
1:35 am	Arrived at FedEx location	MEMPHIS, TN
- 6/28/2016 - Tuesday		
5:13 pm	Left FedEx origin facility	PASCO, WA
3:23 pm	Picked up	PASCO, WA
12:41 pm	Shipment information sent to FedEx	

Shipment Facts

Tracking number	776624939436	**Service**	FedEx Standard Overnight
Weight	61 lbs / 27.67 kgs	**Dimensions**	12x9x11 in.
Delivered To	Shipping/Receiving	**Total pieces**	1
Total shipment weight	61 lbs / 27.67 kgs	**Terms**	Recipient
Shipper reference	GWS-502	**Packaging**	Your Packaging
Special handling section	Deliver Weekday, Additional Handling Surcharge		

Definitions/Glossary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-047

TestAmerica Job ID: 160-18021-1
SDG: SL2237

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Estimated result. Result is less than the RL, but greater than MDL
C	The analyte was detected in both the sample and the assoicated QC blank, and the sample concentration was </= 5X the blank concentration.
N	MS, MSD: Spike recovery is outside acceptance limits.
U	Analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-047

TestAmerica Job ID: 160-18021-1
SDG: SL2237

Method	Method Description	Protocol	Laboratory
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

Sample Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-047

TestAmerica Job ID: 160-18021-1
SDG: SL2237

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-18021-1	B35WF9	Water	06/27/16 12:20	06/30/16 12:15
160-18021-2	B35WF8	Water	06/27/16 12:20	06/30/16 12:15
160-18021-3	B35WD2	Water	06/27/16 13:32	06/30/16 12:15

Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-047

TestAmerica Job ID: 160-18021-1
SDG: SL2237

General Chemistry

Client Sample ID: B35WF9
Date Collected: 06/27/16 12:20
Date Received: 06/30/16 12:15

Lab Sample ID: 160-18021-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	**35.9**	**B N C**	50.0	22.3	ug/L			07/12/16 21:26	1
Chemical Oxygen Demand	**3.0**	**B**	5.0	1.1	mg/L		07/12/16 10:38	07/12/16 14:46	1
Total Organic Carbon	**1.2**		1.0	0.72	mg/L			07/05/16 21:17	1

Client Sample ID: B35WF8
Date Collected: 06/27/16 12:20
Date Received: 06/30/16 12:15

Lab Sample ID: 160-18021-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	0.45	U	1.0	0.45	mg/L			07/01/16 17:55	1

Client Sample ID: B35WD2
Date Collected: 06/27/16 13:32
Date Received: 06/30/16 12:15

Lab Sample ID: 160-18021-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	22.3	U N	50.0	22.3	ug/L			07/12/16 21:33	1
Chemical Oxygen Demand	1.1	U	5.0	1.1	mg/L		07/12/16 10:38	07/12/16 14:46	1
Total Organic Carbon	0.72	U	1.0	0.72	mg/L			07/05/16 21:29	1

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-047

TestAmerica Job ID: 160-18021-1
SDG: SL2237

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 160-260721/38
Matrix: Water
Analysis Batch: 260721

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	41.43	B	50.0	22.3	ug/L			07/12/16 21:21	1

Lab Sample ID: LCS 160-260721/39
Matrix: Water
Analysis Batch: 260721

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	481.2		ug/L		96	90 - 110		

Lab Sample ID: 160-18021-1 MS
Matrix: Water
Analysis Batch: 260721

Client Sample ID: B35WF9
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia as N	35.9	B N C	500	783.8	N	ug/L		150	90 - 110		

Lab Sample ID: 160-18021-1 DU
Matrix: Water
Analysis Batch: 260721

Client Sample ID: B35WF9
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Ammonia as N	35.9	B N C		33.17	B C	ug/L				8	20

Method: 376.1 - Sulfide

Lab Sample ID: MB 160-258937/1
Matrix: Water
Analysis Batch: 258937

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			07/01/16 17:33	1

Lab Sample ID: LCS 160-258937/2
Matrix: Water
Analysis Batch: 258937

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfide			10.0	9.40		mg/L		94	90 - 110		

Lab Sample ID: 160-18021-2 MS
Matrix: Water
Analysis Batch: 258937

Client Sample ID: B35WF8
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfide	0.45	U	10.0	9.00		mg/L		90	90 - 110		

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-047

TestAmerica Job ID: 160-18021-1
SDG: SL2237

Method: 376.1 - Sulfide (Continued)

Lab Sample ID: 160-18021-2 DU
Matrix: Water
Analysis Batch: 258937

Client Sample ID: B35WF8
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfide	0.45	U	0.45	U	mg/L		NC	20

Method: 410.4 - COD

Lab Sample ID: MB 160-260153/3-A
Matrix: Water
Analysis Batch: 260195

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 260153

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		07/12/16 10:38	07/12/16 14:46	1

Lab Sample ID: LCS 160-260153/4-A
Matrix: Water
Analysis Batch: 260195

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 260153

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

Lab Sample ID: 160-18021-1 MS
Matrix: Water
Analysis Batch: 260195

Client Sample ID: B35WF9
Prep Type: Total/NA
Prep Batch: 260153

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	3.0	B	50.0	58.00		mg/L		110	90 - 110

Lab Sample ID: 160-18021-1 DU
Matrix: Water
Analysis Batch: 260195

Client Sample ID: B35WF9
Prep Type: Total/NA
Prep Batch: 260153

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chemical Oxygen Demand	3.0	B	1.1	U	mg/L		NC	20

Method: 9060 - Organic Carbon, Total (TOC)

Lab Sample ID: MB 160-259381/5
Matrix: Water
Analysis Batch: 259381

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	0.72	U	1.0	0.72	mg/L			07/05/16 15:32	1

Lab Sample ID: LCS 160-259381/6
Matrix: Water
Analysis Batch: 259381

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	9.66		mg/L		97	90 - 110

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-047

TestAmerica Job ID: 160-18021-1
SDG: SL2237

Method: 9060 - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: 160-17938-E-1 MS
Matrix: Water
Analysis Batch: 259381

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
Total Organic Carbon	2.4		5.00	7.04		mg/L		93	76 - 120

Lab Sample ID: 160-17938-E-1 DU
Matrix: Water
Analysis Batch: 259381

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon	2.4		2.68		mg/L		12	20

QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-047

TestAmerica Job ID: 160-18021-1
SDG: SL2237

General Chemistry

Analysis Batch: 258937

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18021-2	B35WF8	Total/NA	Water	376.1	
160-18021-2 DU	B35WF8	Total/NA	Water	376.1	
160-18021-2 MS	B35WF8	Total/NA	Water	376.1	
LCS 160-258937/2	Lab Control Sample	Total/NA	Water	376.1	
MB 160-258937/1	Method Blank	Total/NA	Water	376.1	

Analysis Batch: 259381

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-17938-E-1 DU	Duplicate	Total/NA	Water	9060	
160-17938-E-1 MS	Matrix Spike	Total/NA	Water	9060	
160-18021-1	B35WF9	Total/NA	Water	9060	
160-18021-3	B35WD2	Total/NA	Water	9060	
LCS 160-259381/6	Lab Control Sample	Total/NA	Water	9060	
MB 160-259381/5	Method Blank	Total/NA	Water	9060	

Prep Batch: 260153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18021-1	B35WF9	Total/NA	Water	410.4	
160-18021-1 DU	B35WF9	Total/NA	Water	410.4	
160-18021-1 MS	B35WF9	Total/NA	Water	410.4	
160-18021-3	B35WD2	Total/NA	Water	410.4	
LCS 160-260153/4-A	Lab Control Sample	Total/NA	Water	410.4	
MB 160-260153/3-A	Method Blank	Total/NA	Water	410.4	

Analysis Batch: 260195

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18021-1	B35WF9	Total/NA	Water	410.4	260153
160-18021-1 DU	B35WF9	Total/NA	Water	410.4	260153
160-18021-1 MS	B35WF9	Total/NA	Water	410.4	260153
160-18021-3	B35WD2	Total/NA	Water	410.4	260153
LCS 160-260153/4-A	Lab Control Sample	Total/NA	Water	410.4	260153
MB 160-260153/3-A	Method Blank	Total/NA	Water	410.4	260153

Analysis Batch: 260721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18021-1	B35WF9	Total/NA	Water	350.1	
160-18021-1 DU	B35WF9	Total/NA	Water	350.1	
160-18021-1 MS	B35WF9	Total/NA	Water	350.1	
160-18021-3	B35WD2	Total/NA	Water	350.1	
LCS 160-260721/39	Lab Control Sample	Total/NA	Water	350.1	
MB 160-260721/38	Method Blank	Total/NA	Water	350.1	