

June 28, 2016

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: 160-17615-1

TestAmerica Sample Delivery Group: SL2209
Client Project/Site: X16-033

For:

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

Attn: Mr. Scot Fitzgerald



Authorized for release by:
6/28/2016 2:42:44 PM

Jayna Awalt, Project Manager II
(314)298-8566
jayna.awalt@testamericainc.com

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

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Case Narrative

Client: CH2M Hill Plateau Remediation Company
Project/Site: X16-033

TestAmerica Job ID: 160-17615-1
SDG: SL2209

Job ID: 160-17615-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

CH2MHill Plateau Remediation Company
P.O. Box 1600
Richland, Washington 99352
June 28, 2016
Attention: Scot Fitzgerald

SDG : SL2209
Number of Samples : 5 samples
Sample Matrix : Water
Data Deliverable : Summary
Date SDG Closed : June 4, 2016

II. Introduction

On June 2 and 4, 5 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: X16-033

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: X16-033

TestAmerica Job ID: 160-17615-1
SDG: SL2209

Job ID: 160-17615-1 (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.

TOC

Batch: 255921

Total Organic Carbon was detected in method blank MB 160-255921/31 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".

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

DRO

Alkalinity

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:

June 28, 2016

Case Narrative

Client: CH2M Hill Plateau Remediation Company
Project/Site: X16-033

TestAmerica Job ID: 160-17615-1
SDG: SL2209

Job ID: 160-17615-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

Jayna Awalt
St. Louis Project Manager

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Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 160-17615-1
SDG Number: SL2209

Login Number: 17615
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	0.8
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	

SA-2209

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.# X16-033-113
Page 1 of 1

Collector: D.L. Floyd/CHPRC
 Contact/Requester: Karen Waters-Husted
 Telephone No.: 509-376-4650
 SAF No.: X16-033
 Sampling Origin: Hanford Site
 Purchase Order/Charge Code: 303064
 Project Title: AQUIFER TUBES, JUNE 2016
 Logbook No.: HNF-N-506 791 < 3
 Ice Chest No.: GWS-484 6916
 Shipped To (Lab): TestAmerica St. Louis
 Method of Shipment: Commercial Carrier
 Bill of Lading/Air Bill No.:
 Protocol: CERCLA
 Priority: 30 Days
 Offsite Property No.: 776415567538

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

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B358N2	N	W	5-31-16	1226	1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool <=6C
B358N2	N	W			3x1-L aG	WTPH_DIESEL: COMMON	14/40 Days	HCl to pH <2/Cool <=6C

SPECIAL INSTRUCTIONS: N/A
 Hold Time: Hold Time
 Total Activity Exemption: Yes No

June 28, 2016

Relinquished By: D.L. Floyd/CHPRC
 Relinquished By: SSA #1
 Relinquished By: Dan Wehle CHPRC
 Relinquished By: JILL CLARKE
 Date/Time: MAY 31 2016
 Date/Time: 6-1-16 0800
 Date/Time: 6-1-16 0800
 Date/Time: 6-2-16 0930
 Sign: [Signature]
 Sign: [Signature]
 Sign: [Signature]
 Sign: [Signature]
 Print: [Signature]
 Print: [Signature]
 Print: [Signature]
 Print: [Signature]
 Received By: SSA #1
 Received By: Dan Wehle CHPRC
 Received By: JILL CLARKE
 Date/Time: MAY 31 2016
 Date/Time: 6-1-16 0800
 Date/Time: 6-1-16 0800
 Date/Time: 6-2-16 0930
 Disposed By: [Signature]
 Disposal Method (e.g., Return to customer, per lab procedure, used in process):
 Disposed By: JILL CLARKE
 Date/Time: 6-2-16 0930
 Matrix: *
 S = Soil, SE = Sediment, SO = Solid, SL = Sludge, W = Water, O = Oil, A = Air
 DS = Drum Solids, DL = Drum Liquids, T = Tissue, WI = Wipe, L = Liquid, V = Vegetation, X = Other



6/28/2016 7:08:24

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Collector: D.L. Floyd/CHPRC
 Telephone No. 509-376-4650
 SAF No. X16-033
 Purchase Order/Charge Code 303064
 Project Title: AQUIFER TUBES, JUNE 2016
 Logbook No. HNF-N-506 79123
 Icc Chest No. GWS-484 6916
 Shipped To (Lab): TestAmerica St. Louis
 Method of Shipment: Commercial Carrier
 Bill of Lading/Air Bill No.
 Protocol: CERCLA
 Priority: 30 Days
 Offsite Property No. 776415567538

POSSIBLE SAMPLE HAZARDS/REMARKS
 *** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1
 SPECIAL INSTRUCTIONS: N/A
 Hold Time
 Total Activity Exemption: Yes No

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B358N7	N	W	5-31-16	1318	1x500-mL G/P	310.1_ALKALINITY: GW 01	14 Days	Cool <=6C
B358N7	N	W			3x1-L aG	WTPH_DIESEL: COMMON	14/40 Days	HCl to pH <2/Cool <=6C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
D.L. Floyd/CHPRC	[Signature]	[Signature]	MAY 31 2016	5566	[Signature]	[Signature]	MAY 31 2016	S = Soil, SE = Sediment, SO = Solid, SL = Sludge, W = Water, O = Oil, A = Air, DS = Drum Solids, DL = Drum Liquids, T = Tissue, WI = Wipe, L = Liquid, V = Vegetation, X = Other
SSU II				Don Uebelcke	CHPRC		6-1-16 0800	
Don Uebelcke				FEDEX				
Don Uebelcke				JILL CLARKE			6-2-16 0930	

Disposal Method (e.g., Return to customer, per lab procedure, used in process)
 Disposed By: JILL CLARKE
 Date/Time: 6-2-16 0930





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776415567538

Ship date

Wed 6/01/2016

RICHLAND, WA US

Actual delivery

Thu 6/02/2016 9:27 am

EARTH CITY, MO US

Delivered

Signed for by: J. CLARKE

Travel History

Table with columns: Date/Time, Activity, Location. Shows travel history for 6/02/2016 and 6/01/2016.

Shipment Facts

Table with shipment facts: Tracking number, Weight, Delivered To, Total shipment weight, Shipper reference, Special handling section, Service, Dimensions, Total pieces, Terms, Packaging.



Search or tracking number Subr

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Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 160-17668-1
SDG Number: SL2209

Login Number: 17668
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	1.5
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	

CH2M Hill Plateau Remediation Company 522209		C.O.C.# X16-033-115 Page 1 of 1	
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			
Collector	E.L. Kauer/CHPRC	Contact/Requester	Karen Waters-Husted
SAF No.	X16-033	Sampling Origin	Hanford Site
Project Title	AQUIFER TUBES, JUNE 2016	Logbook No.	HNF-N-50679124
Shipped To (Lab)	TestAmerica St. Louis	Method of Shipment	Commercial Carrier
Protocol	CERCLA	Priority:	30 Days PRIORITY
POSSIBLE SAMPLE HAZARDS/REMARKS *** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1		SPECIAL INSTRUCTIONS N/A	Hold Time N/A
Sample No.	Filter	No/Type Container	Sample Analysis
B358P8	N	3x1-L aG	WTPH_DIESEL: COMMON
Date	Time	Holding Time	Preservative
JUN 02 2016	1110	14/40 Days	HCl to pH <2/Cool <=6C
Telephone No.	509-376-4650	Offsite Property No.	N/A
Purchase Order/Charge Code	303064	Bill of Lading/Air Bill No.	7764 4133 2237
Ice Chest No.	605-509	Total Activity Exemption:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Relinquished By	E.L. Kauer/CHPRC	Print	Sign	Date/Time	Received By	SSU-1	Print	Sign	Date/Time
				JUN 02 2016 1413					JUN 02 2016 1413
Relinquished By	SSU-1	Print	Sign	Date/Time	Received By	Lesly Wall CHPRC	Print	Sign	Date/Time
				JUN 03 2016 0645					JUN 03 2016 0645
Relinquished By	Lesly Wall CHPRC	Print	Sign	Date/Time	Received By	FEDEX	Print	Sign	Date/Time
				JUN 03 2016 1400					JUN 03 2016 1400
Relinquished By	FEDEX	Print	Sign	Date/Time	Received By	C. McS GERROD McMINNEY 060416 0850	Print	Sign	Date/Time

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



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6/28/2016

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Ship date:

Fri 6/03/2016

Actual delivery:

Sat 6/04/2016 8:14 am

RICHLAND, WA US

Delivered

EARTH CITY, MO US

Signed for by: J. CLARK

Travel History

Date/Time	Activity	Location
- 6/04/2016 - Saturday		
8:14 am	Delivered	EARTH CITY, MO
7:32 am	On FedEx vehicle for delivery	EARTH CITY, MO
7:26 am	At local FedEx facility	EARTH CITY, MO
5:14 am	At destination sort facility	BERKELEY, MO
4:30 am	Departed FedEx location	MEMPHIS, TN
12:28 am	Arrived at FedEx location	MEMPHIS, TN
- 6/03/2016 - Friday		
5:00 pm	Left FedEx origin facility	PASCO, WA
3:23 pm	Picked up	PASCO, WA
2:15 pm	Shipment information sent to FedEx	

Shipment Facts

Tracking number	776441332237	Service	FedEx Priority Overnight
Weight	78 lbs / 35.38 kgs	Dimensions	28x15x15 in.
Delivered To	Shipping/Receiving:	Total pieces	1
Total shipment weight	78 lbs / 35.38 kgs	Terms	Recipient
Shipper reference	GWS-509	Packaging	Your Packaging
Special handling section	For Saturday Delivery, Additional Handling Surcharge		



Search or tracking number | Subr

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 Small Business Center
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Definitions/Glossary

Client: CH2M Hill Plateau Remediation Company
 Project/Site: X16-033

TestAmerica Job ID: 160-17615-1
 SDG: SL2209

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
U	Analyzed for but not detected.
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
C	The analyte was detected in both the sample and the associated QC blank, and the sample concentration was $\leq 5X$ the blank concentration.
U	Analyzed for but not detected.
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)

Method Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: X16-033

TestAmerica Job ID: 160-17615-1
SDG: SL2209

Method	Method Description	Protocol	Laboratory
8015B	Diesel Range Organics (DRO) (GC)	SW846	TAL SL
310.1	Alkalinity	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



June 28, 2016

Sample Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: X16-033

TestAmerica Job ID: 160-17615-1
SDG: SL2209

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-17615-1	B358N2	Water	05/31/16 12:26	06/02/16 09:30
160-17615-2	B358N7	Water	05/31/16 13:18	06/02/16 09:30
160-17668-1	B358L5	Water	06/02/16 12:53	06/04/16 08:20
160-17668-2	B358P8	Water	06/02/16 11:10	06/04/16 08:20
160-17668-3	B358R3	Water	06/02/16 11:56	06/04/16 08:20

TestAmerica St. Louis

Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: X16-033

TestAmerica Job ID: 160-17615-1
SDG: SL2209

Method: 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: B358N2
Date Collected: 05/31/16 12:26
Date Received: 06/02/16 09:30

Lab Sample ID: 160-17615-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	0.017	U	0.50	0.017	mg/L		06/07/16 11:14	06/13/16 16:45	1
Surrogate	%Recovery	Qualifier	Limits						
<i>o</i> -Terphenyl	74		47 - 136						
Prepared	Analyzed	Dil Fac							
06/07/16 11:14	06/13/16 16:45	1							

Client Sample ID: B358N7
Date Collected: 05/31/16 13:18
Date Received: 06/02/16 09:30

Lab Sample ID: 160-17615-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	0.018	U	0.52	0.018	mg/L		06/07/16 11:14	06/13/16 17:12	1
Surrogate	%Recovery	Qualifier	Limits						
<i>o</i> -Terphenyl	74		47 - 136						
Prepared	Analyzed	Dil Fac							
06/07/16 11:14	06/13/16 17:12	1							

Client Sample ID: B358L5
Date Collected: 06/02/16 12:53
Date Received: 06/04/16 08:20

Lab Sample ID: 160-17668-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	0.016	U	0.48	0.016	mg/L		06/07/16 11:14	06/13/16 18:32	1
Surrogate	%Recovery	Qualifier	Limits						
<i>o</i> -Terphenyl	57		47 - 136						
Prepared	Analyzed	Dil Fac							
06/07/16 11:14	06/13/16 18:32	1							

Client Sample ID: B358P8
Date Collected: 06/02/16 11:10
Date Received: 06/04/16 08:20

Lab Sample ID: 160-17668-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	0.24	J	0.48	0.016	mg/L		06/07/16 11:14	06/13/16 19:26	1
Surrogate	%Recovery	Qualifier	Limits						
<i>o</i> -Terphenyl	68		47 - 136						
Prepared	Analyzed	Dil Fac							
06/07/16 11:14	06/13/16 19:26	1							

Client Sample ID: B358R3
Date Collected: 06/02/16 11:56
Date Received: 06/04/16 08:20

Lab Sample ID: 160-17668-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	0.016	U	0.48	0.016	mg/L		06/07/16 11:14	06/13/16 19:52	1
Surrogate	%Recovery	Qualifier	Limits						
<i>o</i> -Terphenyl	73		47 - 136						
Prepared	Analyzed	Dil Fac							
06/07/16 11:14	06/13/16 19:52	1							

General Chemistry

Client Sample ID: B358N2
Date Collected: 05/31/16 12:26
Date Received: 06/02/16 09:30

Lab Sample ID: 160-17615-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.3	C	1.0	0.72	mg/L			06/10/16 01:56	1

Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: X16-033

TestAmerica Job ID: 160-17615-1
SDG: SL2209

General Chemistry

Client Sample ID: B358N7
Date Collected: 05/31/16 13:18
Date Received: 06/02/16 09:30

Lab Sample ID: 160-17615-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	98.0		5.0	0.54	mg/L			06/09/16 16:48	1
Bicarbonate Alkalinity	98.0		5.0	0.54	mg/L			06/09/16 16:48	1
Carbonate Alkalinity	0.54	U	5.0	0.54	mg/L			06/09/16 16:48	1
Hydroxide Alkalinity	0.54	U	5.0	0.54	mg/L			06/09/16 16:48	1

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: X16-033

TestAmerica Job ID: 160-17615-1
SDG: SL2209

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 160-255198/1-A
Matrix: Water
Analysis Batch: 256139

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 255198

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	0.017	U	0.50	0.017	mg/L		06/07/16 11:14	06/13/16 14:31	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	73		47 - 136				06/07/16 11:14	06/13/16 14:31	1

Lab Sample ID: LCS 160-255198/2-A
Matrix: Water
Analysis Batch: 256139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 255198

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Diesel Range Organics [C10-C28]	2.50	1.56		mg/L		62	30 - 100
Surrogate	%Recovery	LCS Qualifier	Limits				
<i>o</i> -Terphenyl	62		47 - 136				

Lab Sample ID: 160-17615-2 MS
Matrix: Water
Analysis Batch: 256139

Client Sample ID: B358N7
Prep Type: Total/NA
Prep Batch: 255198

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Diesel Range Organics [C10-C28]	0.018	U	2.69	2.01		mg/L		75	28 - 115
Surrogate	%Recovery	MS Qualifier	Limits						
<i>o</i> -Terphenyl	76		47 - 136						

Lab Sample ID: 160-17615-2 MSD
Matrix: Water
Analysis Batch: 256139

Client Sample ID: B358N7
Prep Type: Total/NA
Prep Batch: 255198

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	0.018	U	2.77	2.00		mg/L		72	28 - 115	1	20
Surrogate	%Recovery	MSD Qualifier	Limits								
<i>o</i> -Terphenyl	78		47 - 136								

Method: 310.1 - Alkalinity

Lab Sample ID: MB 160-255877/1
Matrix: Water
Analysis Batch: 255877

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	0.54	U	5.0	0.54	mg/L			06/09/16 15:54	1
Bicarbonate Alkalinity	0.54	U	5.0	0.54	mg/L			06/09/16 15:54	1

TestAmerica St. Louis

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: X16-033

TestAmerica Job ID: 160-17615-1
SDG: SL2209

Method: 310.1 - Alkalinity (Continued)

Lab Sample ID: MB 160-255877/1
Matrix: Water
Analysis Batch: 255877

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbonate Alkalinity	0.54	U	5.0	0.54	mg/L			06/09/16 15:54	1
Hydroxide Alkalinity	0.54	U	5.0	0.54	mg/L			06/09/16 15:54	1

Lab Sample ID: LCS 160-255877/2
Matrix: Water
Analysis Batch: 255877

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	201	189.0		mg/L		94	90 - 110
Bicarbonate Alkalinity	201	189.0		mg/L		94	90 - 110

Lab Sample ID: 160-17615-2 MS
Matrix: Water
Analysis Batch: 255877

Client Sample ID: B358N7
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	98.0		101	192.0		mg/L		93	80 - 120
Bicarbonate Alkalinity	98.0		101	192.0		mg/L		93	80 - 120

Lab Sample ID: 160-17615-2 DU
Matrix: Water
Analysis Batch: 255877

Client Sample ID: B358N7
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	98.0		96.00		mg/L		2	20
Bicarbonate Alkalinity	98.0		96.00		mg/L		2	20
Carbonate Alkalinity	0.54	U	0.54	U	mg/L		NC	20
Hydroxide Alkalinity	0.54	U	0.54	U	mg/L		NC	20

Method: 9060 - Organic Carbon, Total (TOC)

Lab Sample ID: MB 160-255921/31
Matrix: Water
Analysis Batch: 255921

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	0.724	B	1.0	0.72	mg/L			06/10/16 00:56	1

Lab Sample ID: LCS 160-255921/32
Matrix: Water
Analysis Batch: 255921

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	9.88		mg/L		99	90 - 110

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
 Project/Site: X16-033

TestAmerica Job ID: 160-17615-1
 SDG: SL2209

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

Lab Sample ID: 160-17615-1 MS
 Matrix: Water
 Analysis Batch: 255921

Client Sample ID: B358N2
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	1.3	C	5.00	6.40		mg/L		102	76 - 120

Lab Sample ID: 160-17615-1 DU
 Matrix: Water
 Analysis Batch: 255921

Client Sample ID: B358N2
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon	1.3	C	1.27	C	mg/L		3	20



QC Association Summary

Client: CH2M Hill Plateau Remediation Company
 Project/Site: X16-033

TestAmerica Job ID: 160-17615-1
 SDG: SL2209

GC Semi VOA

Prep Batch: 255198

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-17615-1	B358N2	Total/NA	Water	3510C	
160-17615-2	B358N7	Total/NA	Water	3510C	
160-17615-2 MS	B358N7	Total/NA	Water	3510C	
160-17615-2 MSD	B358N7	Total/NA	Water	3510C	
160-17668-1	B358L5	Total/NA	Water	3510C	
160-17668-2	B358P8	Total/NA	Water	3510C	
160-17668-3	B358R3	Total/NA	Water	3510C	
LCS 160-255198/2-A	Lab Control Sample	Total/NA	Water	3510C	
MB 160-255198/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 256139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-17615-1	B358N2	Total/NA	Water	8015B	255198
160-17615-2	B358N7	Total/NA	Water	8015B	255198
160-17615-2 MS	B358N7	Total/NA	Water	8015B	255198
160-17615-2 MSD	B358N7	Total/NA	Water	8015B	255198
160-17668-1	B358L5	Total/NA	Water	8015B	255198
160-17668-2	B358P8	Total/NA	Water	8015B	255198
160-17668-3	B358R3	Total/NA	Water	8015B	255198
LCS 160-255198/2-A	Lab Control Sample	Total/NA	Water	8015B	255198
MB 160-255198/1-A	Method Blank	Total/NA	Water	8015B	255198

General Chemistry

Analysis Batch: 255877

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-17615-2	B358N7	Total/NA	Water	310.1	
160-17615-2 DU	B358N7	Total/NA	Water	310.1	
160-17615-2 MS	B358N7	Total/NA	Water	310.1	
LCS 160-255877/2	Lab Control Sample	Total/NA	Water	310.1	
MB 160-255877/1	Method Blank	Total/NA	Water	310.1	

Analysis Batch: 255921

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-17615-1	B358N2	Total/NA	Water	9060	
160-17615-1 DU	B358N2	Total/NA	Water	9060	
160-17615-1 MS	B358N2	Total/NA	Water	9060	
LCS 160-255921/32	Lab Control Sample	Total/NA	Water	9060	
MB 160-255921/31	Method Blank	Total/NA	Water	9060	

Surrogate Summary

Client: CH2M Hill Plateau Remediation Company
 Project/Site: X16-033

TestAmerica Job ID: 160-17615-1
 SDG: SL2209

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTPH1 (47-136)
160-17615-1	B358N2	74
160-17615-2	B358N7	74
160-17615-2 MS	B358N7	76
160-17615-2 MSD	B358N7	78
160-17668-1	B358L5	57
160-17668-2	B358P8	68
160-17668-3	B358R3	73
LCS 160-255198/2-A	Lab Control Sample	62
MB 160-255198/1-A	Method Blank	73

Surrogate Legend

OTPH = o-Terphenyl

