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: 160-18223-1
TestAmerica Sample Delivery Group: SL2254
Client Project/Site: W16-007 / S16-007

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

Attn: Mr. Scot Fitzgerald

Authorized for release by:
8/16/2016 9:29:33 AM

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

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

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.

Table of Contents

Cover Page 1
Table of Contents 2
Case Narrative 3
Chain of Custody 6
Definitions/Glossary 15
Method Summary 16
Sample Summary 17
Client Sample Results 18
QC Sample Results 21
QC Association Summary 25

Case Narrative

Job ID: 160-18223-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

CH2MHill Plateau Remediation Company
P.O. Box 1600
Richland, Washington 99352
August 16, 2016
Attention: Scot Fitzgerald

SDG	: SL2254
Number of Samples	: 18 samples
Sample Matrix	: Water
Data Deliverable	: Summary
Date SDG Closed	: July 16, 2016

II. Introduction

On July 16, 18 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: W16-007 and S16-007

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.

Job ID: 160-18223-1 (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.

TOX

Batch: 264530

The following matrix spike (MS) recovered above the upper control limit of 117% (119%) in TOX analytical batch 160-264530: (160-18201-A-1-C 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.

The following samples in TOX analytical batch 160-264530 exhibited bottom column results greater than 10% of the combined sum of the top and bottom columns: B35PF8 (160-18223-9). However, the results are not believed to be adversely affected, as the samples did not contain any residual chlorine and the columns were not over-loaded. Thus, this excursion is attributed to column channeling and results may be reported, per method 9020B.

Batch: 264687

The following sample in TOX analytical batch 160-264687 exhibited bottom column results greater than 10% of the combined sum of the top and bottom columns: B35PL8 (160-18223-15). However, the results are not believed to be adversely affected, as the sample did not contain any residual chlorine and the columns were not over-loaded. Thus, this excursion is attributed to column channeling and results may be reported, per method 9020B.

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

Case Narrative

Job ID: 160-18223-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

Alkalinity
Cyanide
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: 160-18223-1
SDG Number: SL2254

Login Number: 18223
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	1.6, 0.9
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	

77165

CH2MHill Plateau Remediation Company

SL2254

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # W16-007-178

Collector	J.R. Aguilar/CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	W16-007	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	RCRA, JULY 2016	Logbook No.	HNF-N-506 82/84	Ice Chest No.	GWS-490
Shipped To (Lab)	TestAmerica St. Louis	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	7767 6737 5293
Protocol	RCRA	Priority:	30 Days PRIORITY	Offsite Property No.	N/A

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 Hold Time Total Activity Exemption: Yes ☑ No ☐

N/A
Special Handling:N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B35PL1	N	W	JUL 15 2016	1241	1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool <=6C
B35PL1	N	W			1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool <=6C
B35NR8	N	W			1x500-mL G/P	310.1_ALKALINITY: GW 01	14 Days	Cool <=6C
B35NR8	N	W			1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool <=6C
B35NR8	N	W			1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool <=6C
B35PL3	N	W			1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool <=6C
B35PL3	N	W			1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool <=6C
B35PL2	N	W			1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool <=6C
B35PL2	N	W	JUL 15 2016	1241	1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool <=6C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
J.R. Aguilar/CHPRC			JUL 15 2016 1300	Janelle Zunker CHPRC			JUL 15 2016 1300
Janelle Zunker CHPRC			JUL 15 2016 1400	FEDEX			
FEDEX				JILL CLARKE			7-16-16 0815

Matrix *

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

FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

PRINTED ON 5/26/2016 FSR ID = FSR10785 A-6004-842 (REV 2)

7 of 27 8/16/2016

CH2MHill Plateau Remediation Company

SL-2254

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # W16-007-181

Collector	J.R. Aguilar/CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	W16-007	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	RCRA, JULY 2016	Logbook No.	HNF-N-506 82 /86	Ice Chest No.	6W5-490
Shipped To (Lab)	TestAmerica St. Louis	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	776767375293
Protocol	RCRA	Priority:	30 Days PRIORITY	Offsite Property No.	N/A

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 Hold Time

N/A

Special Handling:N/A

Total Activity Exemption: Yes ☑ No ☐

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B35PM6	N	W	JUL 15 2016	0942	1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool <=6C
B35PM6	N	W			1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool <=6C
B35NW2	N	W			1x500-mL G/P	310.1_ALKALINITY: GW 01	14 Days	Cool <=6C
B35NW2	N	W			1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool <=6C
B35NW2	N	W			1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool <=6C
B35PM7	N	W			1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool <=6C
B35PM7	N	W			1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool <=6C
B35PM8	N	W			1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool <=6C
B35PM8	N	W	JUL 15 2016	0942	1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool <=6C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
J.R. Aguilar/CHPRC			JUL 15 2016 1115	Janelle Zunker CHPRC			JUL 15 2016 1115
Janelle Zunker CHPRC			JUL 15 2016 1400	FEDEX			
FEDEX				JILL CLARKE			7-16-16 0815

Matrix *

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

FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

PRINTED ON 6/9/2016 FSR ID = FSR32471 A-6004-842 (REV 2)

8 of 27 8/16/2016

CH2MHill Plateau Remediation Company

SL2254

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # W16-007-172

Collector	Kevin Patterson CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	W16-007	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	RCRA, JULY 2016	Logbook No.	HNF-N-506 85/94	Ice Chest No.	GWS531
Shipped To (Lab)	TestAmerica St. Louis	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	7767 6113 2529
Protocol	RCRA	Priority:	30 Days PRIORITY	Offsite Property No.	N/A

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 **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

Special Handling:N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B35PF8	N	W	JUL 14 2016	1324	1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool <=6C
B35PF8	N	W			1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool <=6C
B35PH0	N	W			1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool <=6C
B35PH0	N	W			1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool <=6C
B35PF9	N	W			1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool <=6C
B35PF9	N	W			1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool <=6C
B35NK5	N	W			1x500-mL G/P	310.1_ALKALINITY: GW 01	14 Days	Cool <=6C
B35NK5	N	W			1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool <=6C
B35NK5	N	W			1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool <=6C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Kevin Patterson CHPRC	JUL 14 2016 1400	SSU-1	JUL 14 2016 1400
SSU-1	JUL 15 2016 0945	Troy Bacon CHPRC Troy L. Bacon	JUL 15 2016 0945
Troy Bacon CHPRC Troy L. Bacon	JUL 15 2016 1400	FEDEX	
FEDEX		JILL CLARKE Jill Clarke 7-16-16	0815

Matrix *

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		

FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

PRINTED ON 5/26/2016 FSR ID = FSR18671 A-6004-842 (REV 2)

91105

CH2MHill Plateau Remediation Company

SL2254

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # W16-007-180

Collector	J.R. Aguilar/CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	W16-007	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	RCRA, JULY 2016	Logbook No.	HNF-N-506 82/86	Ice Chest No.	GWS-531 13 2529
Shipped To (Lab)	TestAmerica St. Louis	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	7767610 ~~7 6255~~
Protocol	RCRA	Priority:	30 Days PRIORITY	Offsite Property No.	N/A LW. 7/15/16

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 **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A
Special Handling:N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B35NV1	N	W	JUL 15 2016	0816	1x500-mL G/P	310.1_ALKALINITY: GW 01	14 Days	Cool <=6C
B35NV1	N	W			1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool <=6C
B35NV1	N	W			1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool <=6C
B35PM0	N	W			1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool <=6C
B35PM0	N	W			1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool <=6C
B35PL8	N	W			1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool <=6C
B35PL8	N	W			1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool <=6C
B35PM2	N	W			1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool <=6C
B35PM2	N	W	JUL 15 2016	0816	1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool <=6C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
J.R. Aguilar/CHPRC			JUL 15 2016 0905	Troy Bacon CHPRC		Troy L. Bacon	JUL 15 2016 0905
Troy Bacon CHPRC		Troy L. Bacon	JUL 15 2016 1400	FEDEX			
FEDEX				JILL CLARKE		Jill Clarke	7-16-16 0815

Matrix *

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

FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

PRINTED ON 6/7/2016 FSR ID = FSR32879 A-6004-842 (REV 2)

10 of 27 8/16/2016

CH2MHill Plateau Remediation Company

SL2254

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # W16-007-179

Collector	J.R. Aguilar/CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	W16-007	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	RCRA, JULY 2016	Logbook No.	HNF-N-506 82/86	Ice Chest No.	GWS-531
Shipped To (Lab)	TestAmerica St. Louis	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	7716711325279
Protocol	RCRA	Priority:	30 Days PRIORITY	Offsite Property No.	N/A

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 **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A
Special Handling:N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B35NV0	N	W	JUL 15 2016	0816	1x500-mL G/P	310.1_ALKALINITY: GW 01	14 Days	Cool <=6C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
J.R. Aguilar/CHPRC			JUL 15 2016 0905	Troy Bacon CHPRC		Troy L. Bacon	JUL 15 2016 0905
Troy Bacon CHPRC		Troy L. Bacon	JUL 15 2016 1400	FEDEX			
FEDEX				JILL CLARKE		Jill Clarke	7-16-16 0815

Matrix *

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

FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

PRINTED ON 6/7/2016 FSR ID = FSR32879 A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company 812254

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # S16-007-315

Collector	J.R. Aguilar/CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	S16-007	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	SURV, JULY 2016	Logbook No.	HNF-N-506 82/86	Ice Chest No.	GWS-490
Shipped To (Lab)	TestAmerica St. Louis	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	776767375293
Protocol	SURV	Priority:	30 Days PRIORITY	Offsite Property No.	N/A

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 **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A
Special Handling:N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B35TW1	N	W	JUL 15 2016	0942	1x250-mL G/P	9012_CYANIDE: COMMON	14 Days	NaOH to pH >=12/Cool <=6C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
J.R. Aguilar/CHPRC			JUL 15 2016 1115	Janelle Zunker CHPRC			JUL 15 2016 1115
Janelle Zunker CHPRC			JUL 15 2016 1400	FEDEX			
FEDEX				JILL CLARKE			7.16.16 0816

Matrix *

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

FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

PRINTED ON 6/9/2016 FSR ID = FSR32471 A-6004-842 (REV 2)

My Profile Support Locations English Search or tracking number Subi
FedEx Shipping Tracking Manage Learn FedEx Office ® Login

IMPORTANT!
RNC and DNC may cause delays and disruptions in the Cleveland and Philadelphia metro areas. Learn More

Delivered

Tracking No.or Nickname	Shipper city, state	Origin Terminal	Ship date	Status	Recipient city, state	Delivery date
776767375293	RICHLAND, WA	PASCO, WA	7/15/2016		EARTH CITY, MO	7/16/2016 8:12 am
776761132529	RICHLAND, WA	PASCO, WA	7/15/2016		EARTH CITY, MO	7/16/2016 8:12 am

Launch FedEx Tracking

776767375293

Ship date:
Fri 7/15/2016
RICHLAND, WA US

Delivered
Signed for by: J.CLARK

Actual delivery:
Sat 7/16/2016 8:12 am
EARTH CITY, MO US

Travel History

Date/Time	Activity	Location
- 7/16/2016 - Saturday		
8:12 am	Delivered	EARTH CITY, MO
7:28 am	On FedEx vehicle for delivery	EARTH CITY, MO
7:23 am	At local FedEx facility	EARTH CITY, MO
5:16 am	At destination sort facility	BRIDGETON, MO
4:30 am	Departed FedEx location	MEMPHIS, TN
12:17 am	Arrived at FedEx location	MEMPHIS, TN
- 7/15/2016 - Friday		
4:59 pm	Left FedEx origin facility	PASCO, WA
4:01 pm	Shipment information sent to FedEx	
3:21 pm	Picked up	PASCO, WA

Shipment Facts

Tracking number	776767375293	**Service**	FedEx Priority Overnight
Weight	77 lbs / 34.93 kgs	**Delivered To**	Shipping/Receiving
Total pieces	1	**Total shipment weight**	77 lbs / 34.93 kgs
Terms	Recipient	**Shipper reference**	GWS-490
Packaging	Your Packaging	**Special handling section**	For Saturday Delivery
Standard transit	7/16/2016 by 12:00 pm		

Ask FedEx

Your virtual support assistant

IMPORTANT!
RNC and DNC may cause delays and disruptions in the Cleveland and Philadelphia metro areas. Learn More

Delivered

Tracking No.or Nickname	Shipper city, state	Origin Terminal	Ship date	Status	Recipient city, state	Delivery date
776767375293	RICHLAND, WA	PASCO, WA	7/15/2016		EARTH CITY, MO	7/16/2016 8:12 am
776761132529	RICHLAND, WA	PASCO, WA	7/15/2016		EARTH CITY, MO	7/16/2016 8:12 am

Launch FedEx Tracking **776761132529**

Ship date:
Fri 7/15/2016

RICHLAND, WA US

Delivered
Signed for by: J.CLARK

Actual delivery:
Sat 7/16/2016 8:12 am

EARTH CITY, MO US

Travel History

Date/Time	Activity	Location
- 7/16/2016 - Saturday		
8:12 am	Delivered	[illegible]
7:34 am	On FedEx vehicle for delivery	[illegible]
7:31 am	At local FedEx facility	[illegible]
5:16 am	At destination sort facility	[illegible]
4:30 am	Departed FedEx location	[illegible]
12:17 am	Arrived at FedEx location	[illegible]
- 7/15/2016 - Friday		
4:59 pm	Left FedEx origin facility	[illegible]
3:21 pm	Picked up	[illegible]
12:34 pm	Shipment information sent to FedEx	

Shipment Facts

Tracking number	776761132529	**Service**	FedEx Priority Overnight
Weight	91 lbs / 41.28 kgs	**Delivered To**	Shipping/Receiving
Total pieces	1	**Total shipment weight**	91 lbs / 41.28 kgs
Terms	Recipient	**Shipper reference**	GWS531
Packaging	Your Packaging	**Special handling section**	For Saturday Delivery
Standard transit	7/16/2016 by 12:00 pm		

Ask FedEx

Your virtual support assistant

Definitions/Glossary

Client: CH2M Hill Plateau Remediation Company
Project/Site: W16-007 / S16-007

TestAmerica Job ID: 160-18223-1
SDG: SL2254

Qualifiers

General Chemistry

Qualifier	Qualifier Description
U	Analyzed for but not detected.
B	Estimated result. Result is less than the RL, but greater than MDL
N	MS, MSD: Spike recovery is outside acceptance limits.

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: W16-007 / S16-007

TestAmerica Job ID: 160-18223-1
SDG: SL2254

Method	Method Description	Protocol	Laboratory
310.1	Alkalinity	MCAWW	TAL SL
9012B	Cyanide, Total andor Amenable	SW846	TAL SL
9020B	Organic Halides, Total (TOX)	SW846	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: W16-007 / S16-007

TestAmerica Job ID: 160-18223-1
SDG: SL2254

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-18223-1	B35PL1	Water	07/15/16 12:41	07/16/16 08:15
160-18223-2	B35NR8	Water	07/15/16 12:41	07/16/16 08:15
160-18223-3	B35PL3	Water	07/15/16 12:41	07/16/16 08:15
160-18223-4	B35PL2	Water	07/15/16 12:41	07/16/16 08:15
160-18223-5	B35PM6	Water	07/15/16 09:42	07/16/16 08:15
160-18223-6	B35NW2	Water	07/15/16 09:42	07/16/16 08:15
160-18223-7	B35PM7	Water	07/15/16 09:42	07/16/16 08:15
160-18223-8	B35PM8	Water	07/15/16 09:42	07/16/16 08:15
160-18223-9	B35PF8	Water	07/14/16 13:24	07/16/16 08:15
160-18223-10	B35PH0	Water	07/14/16 13:24	07/16/16 08:15
160-18223-11	B35PF9	Water	07/14/16 13:24	07/16/16 08:15
160-18223-12	B35NK5	Water	07/14/16 13:24	07/16/16 08:15
160-18223-13	B35NV1	Water	07/15/16 08:16	07/16/16 08:15
160-18223-14	B35PM0	Water	07/15/16 08:16	07/16/16 08:15
160-18223-15	B35PL8	Water	07/15/16 08:16	07/16/16 08:15
160-18223-16	B35PM2	Water	07/15/16 08:16	07/16/16 08:15
160-18223-17	B35NV0	Water	07/15/16 08:16	07/16/16 08:15
160-18223-18	B35TW1	Water	07/15/16 09:42	07/16/16 08:15

Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: W16-007 / S16-007

TestAmerica Job ID: 160-18223-1
SDG: SL2254

General Chemistry

Client Sample ID: B35PL1 — **Lab Sample ID: 160-18223-1**
Date Collected: 07/15/16 12:41 — **Matrix: Water**
Date Received: 07/16/16 08:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	2.1	U	5.0	2.1	ug/L		08/05/16 15:00	08/09/16 14:07	1
Total Organic Carbon	0.72	U	1.0	0.72	mg/L			07/19/16 18:38	1

Client Sample ID: B35NR8 — **Lab Sample ID: 160-18223-2**
Date Collected: 07/15/16 12:41 — **Matrix: Water**
Date Received: 07/16/16 08:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**114**		5.0	0.54	mg/L			07/21/16 10:15	1
Bicarbonate Alkalinity	**114**		5.0	0.54	mg/L			07/21/16 10:15	1
Carbonate Alkalinity	0.54	U	5.0	0.54	mg/L			07/21/16 10:15	1
Hydroxide Alkalinity	0.54	U	5.0	0.54	mg/L			07/21/16 10:15	1
Halogens, Total Organic	**2.1**	**B**	5.0	2.1	ug/L		08/05/16 16:00	08/09/16 16:03	1
Total Organic Carbon	**0.74**	**B**	1.0	0.72	mg/L			07/19/16 19:13	1

Client Sample ID: B35PL3 — **Lab Sample ID: 160-18223-3**
Date Collected: 07/15/16 12:41 — **Matrix: Water**
Date Received: 07/16/16 08:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	2.1	U	5.0	2.1	ug/L		08/05/16 17:00	08/09/16 16:27	1
Total Organic Carbon	0.72	U	1.0	0.72	mg/L			07/19/16 19:56	1

Client Sample ID: B35PL2 — **Lab Sample ID: 160-18223-4**
Date Collected: 07/15/16 12:41 — **Matrix: Water**
Date Received: 07/16/16 08:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	2.1	U	5.0	2.1	ug/L		08/05/16 17:00	08/09/16 16:51	1
Total Organic Carbon	**0.72**	**B**	1.0	0.72	mg/L			07/19/16 20:07	1

Client Sample ID: B35PM6 — **Lab Sample ID: 160-18223-5**
Date Collected: 07/15/16 09:42 — **Matrix: Water**
Date Received: 07/16/16 08:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	**5.4**		5.0	2.1	ug/L		08/08/16 12:00	08/09/16 17:16	1
Total Organic Carbon	0.72	U	1.0	0.72	mg/L			07/19/16 20:19	1

Client Sample ID: B35NW2 — **Lab Sample ID: 160-18223-6**
Date Collected: 07/15/16 09:42 — **Matrix: Water**
Date Received: 07/16/16 08:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**110**		5.0	0.54	mg/L			07/21/16 10:15	1
Bicarbonate Alkalinity	**110**		5.0	0.54	mg/L			07/21/16 10:15	1
Carbonate Alkalinity	0.54	U	5.0	0.54	mg/L			07/21/16 10:15	1
Hydroxide Alkalinity	0.54	U	5.0	0.54	mg/L			07/21/16 10:15	1
Halogens, Total Organic	2.1	U	5.0	2.1	ug/L		08/08/16 12:00	08/09/16 17:44	1
Total Organic Carbon	0.72	U	1.0	0.72	mg/L			07/19/16 20:30	1

Client Sample ID: B35PM7 — **Lab Sample ID: 160-18223-7**
Date Collected: 07/15/16 09:42 — **Matrix: Water**
Date Received: 07/16/16 08:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	2.1	U	5.0	2.1	ug/L		08/08/16 13:00	08/09/16 18:27	1

Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: W16-007 / S16-007

TestAmerica Job ID: 160-18223-1
SDG: SL2254

General Chemistry (Continued)

Client Sample ID: B35PM7 — **Lab Sample ID: 160-18223-7**
Date Collected: 07/15/16 09:42 — **Matrix: Water**
Date Received: 07/16/16 08:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	0.72	U	1.0	0.72	mg/L			07/19/16 20:42	1

Client Sample ID: B35PM8 — **Lab Sample ID: 160-18223-8**
Date Collected: 07/15/16 09:42 — **Matrix: Water**
Date Received: 07/16/16 08:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	2.1	U	5.0	2.1	ug/L		08/08/16 13:00	08/09/16 18:51	1
Total Organic Carbon	0.72	U	1.0	0.72	mg/L			07/19/16 20:53	1

Client Sample ID: B35PF8 — **Lab Sample ID: 160-18223-9**
Date Collected: 07/14/16 13:24 — **Matrix: Water**
Date Received: 07/16/16 08:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	**6.3**	**N**	5.0	2.1	ug/L		08/04/16 15:00	08/05/16 14:43	1
Total Organic Carbon	0.72	U	1.0	0.72	mg/L			07/19/16 21:05	1

Client Sample ID: B35PH0 — **Lab Sample ID: 160-18223-10**
Date Collected: 07/14/16 13:24 — **Matrix: Water**
Date Received: 07/16/16 08:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	**2.5**	**B N**	5.0	2.1	ug/L		08/04/16 15:00	08/05/16 15:14	1
Total Organic Carbon	0.72	U	1.0	0.72	mg/L			07/19/16 21:16	1

Client Sample ID: B35PF9 — **Lab Sample ID: 160-18223-11**
Date Collected: 07/14/16 13:24 — **Matrix: Water**
Date Received: 07/16/16 08:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	**4.0**	**B N**	5.0	2.1	ug/L		08/04/16 16:00	08/05/16 16:01	1
Total Organic Carbon	0.72	U	1.0	0.72	mg/L			07/19/16 21:28	1

Client Sample ID: B35NK5 — **Lab Sample ID: 160-18223-12**
Date Collected: 07/14/16 13:24 — **Matrix: Water**
Date Received: 07/16/16 08:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**124**		5.0	0.54	mg/L			07/21/16 10:15	1
Bicarbonate Alkalinity	**124**		5.0	0.54	mg/L			07/21/16 10:15	1
Carbonate Alkalinity	0.54	U	5.0	0.54	mg/L			07/21/16 10:15	1
Hydroxide Alkalinity	0.54	U	5.0	0.54	mg/L			07/21/16 10:15	1
Halogens, Total Organic	2.1	U N	5.0	2.1	ug/L		08/04/16 16:00	08/05/16 16:55	1
Total Organic Carbon	0.72	U	1.0	0.72	mg/L			07/19/16 21:39	1

Client Sample ID: B35NV1 — **Lab Sample ID: 160-18223-13**
Date Collected: 07/15/16 08:16 — **Matrix: Water**
Date Received: 07/16/16 08:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**116**		5.0	0.54	mg/L			07/21/16 10:15	1
Bicarbonate Alkalinity	**116**		5.0	0.54	mg/L			07/21/16 10:15	1
Carbonate Alkalinity	0.54	U	5.0	0.54	mg/L			07/21/16 10:15	1
Hydroxide Alkalinity	0.54	U	5.0	0.54	mg/L			07/21/16 10:15	1
Halogens, Total Organic	2.1	U	5.0	2.1	ug/L		08/08/16 14:00	08/09/16 19:16	1
Total Organic Carbon	0.72	U	1.0	0.72	mg/L			07/19/16 21:51	1

Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: W16-007 / S16-007

TestAmerica Job ID: 160-18223-1
SDG: SL2254

Client Sample ID: B35PM0 — **Lab Sample ID: 160-18223-14**
Date Collected: 07/15/16 08:16 — **Matrix: Water**
Date Received: 07/16/16 08:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	**2.5**	**B**	5.0	2.1	ug/L		08/08/16 14:00	08/09/16 19:52	1
Total Organic Carbon	0.72	U	1.0	0.72	mg/L			07/19/16 22:02	1

Client Sample ID: B35PL8 — **Lab Sample ID: 160-18223-15**
Date Collected: 07/15/16 08:16 — **Matrix: Water**
Date Received: 07/16/16 08:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	**7.4**		5.0	2.1	ug/L		08/08/16 15:00	08/09/16 20:24	1
Total Organic Carbon	0.72	U	1.0	0.72	mg/L			07/19/16 22:13	1

Client Sample ID: B35PM2 — **Lab Sample ID: 160-18223-16**
Date Collected: 07/15/16 08:16 — **Matrix: Water**
Date Received: 07/16/16 08:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	**4.9**	**B**	5.0	2.1	ug/L		08/08/16 15:00	08/09/16 21:15	1
Total Organic Carbon	0.72	U	1.0	0.72	mg/L			07/19/16 22:25	1

Client Sample ID: B35NV0 — **Lab Sample ID: 160-18223-17**
Date Collected: 07/15/16 08:16 — **Matrix: Water**
Date Received: 07/16/16 08:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**110**		5.0	0.54	mg/L			07/21/16 10:15	1
Bicarbonate Alkalinity	**110**		5.0	0.54	mg/L			07/21/16 10:15	1
Carbonate Alkalinity	0.54	U	5.0	0.54	mg/L			07/21/16 10:15	1
Hydroxide Alkalinity	0.54	U	5.0	0.54	mg/L			07/21/16 10:15	1

Client Sample ID: B35TW1 — **Lab Sample ID: 160-18223-18**
Date Collected: 07/15/16 09:42 — **Matrix: Water**
Date Received: 07/16/16 08:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	**42.9**		5.0	3.1	ug/L		07/22/16 17:30	07/22/16 21:15	1

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: W16-007 / S16-007

TestAmerica Job ID: 160-18223-1
SDG: SL2254

Method: 310.1 - Alkalinity

Lab Sample ID: MB 160-261521/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 261521

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	0.54	U	5.0	0.54	mg/L			07/21/16 10:15	1
Bicarbonate Alkalinity	0.54	U	5.0	0.54	mg/L			07/21/16 10:15	1
Carbonate Alkalinity	0.54	U	5.0	0.54	mg/L			07/21/16 10:15	1
Hydroxide Alkalinity	0.54	U	5.0	0.54	mg/L			07/21/16 10:15	1

Lab Sample ID: HLCS 160-261521/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 261521

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	400	378.0		mg/L		95	90 - 110
Bicarbonate Alkalinity	400	378.0		mg/L		95	90 - 110

Lab Sample ID: LCS 160-261521/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 261521

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	200	186.0		mg/L		93	90 - 110
Bicarbonate Alkalinity	200	186.0		mg/L		93	90 - 110

Lab Sample ID: 160-18223-2 MS — **Client Sample ID: B35NR8**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 261521

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	114		100	203.5		mg/L		90	80 - 120
Bicarbonate Alkalinity	114		100	203.5		mg/L		90	80 - 120

Lab Sample ID: 160-18223-2 DU — **Client Sample ID: B35NR8**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 261521

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	114		112.0		mg/L		2	20
Bicarbonate Alkalinity	114		112.0		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: 9012B - Cyanide, Total andor Amenable

Lab Sample ID: MB 160-261760/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 261825 — **Prep Batch: 261760**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	3.1	U	5.0	3.1	ug/L		07/22/16 17:30	07/22/16 20:27	1

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: W16-007 / S16-007

TestAmerica Job ID: 160-18223-1
SDG: SL2254

Method: 9012B - Cyanide, Total andor Amenable (Continued)

Lab Sample ID: HLCS 160-261760/3-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 261825 — **Prep Batch: 261760**

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	400	393.3		ug/L		98	85 - 115

Lab Sample ID: LCS 160-261760/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 261825 — **Prep Batch: 261760**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	200	170.8		ug/L		85	85 - 115

Lab Sample ID: 160-18131-A-1-C MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 261825 — **Prep Batch: 261760**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	3.1	U	200	190.1		ug/L		95	66 - 120

Lab Sample ID: 160-18131-A-1-B DU — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 261825 — **Prep Batch: 261760**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cyanide, Total	3.1	U	3.1	U	ug/L		NC	20

Method: 9020B - Organic Halides, Total (TOX)

Lab Sample ID: MB 160-262899/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 264530 — **Prep Batch: 262899**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	2.1	U	5.0	2.1	ug/L		08/03/16 17:00	08/04/16 16:59	1

Lab Sample ID: LCS 160-262899/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 264530 — **Prep Batch: 262899**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Halogens, Total Organic	100	101.6		ug/L		102	90 - 116

Lab Sample ID: 160-18201-A-1-C MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 264530 — **Prep Batch: 262899**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Halogens, Total Organic	2.1	U N	100	118.5	N	ug/L		119	85 - 117

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: W16-007 / S16-007

TestAmerica Job ID: 160-18223-1
SDG: SL2254

Method: 9020B - Organic Halides, Total (TOX) (Continued)

Lab Sample ID: 160-18223-12 MS — **Client Sample ID: B35NK5**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 264530 — **Prep Batch: 262899**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Halogens, Total Organic	2.1	U N	100	101.1		ug/L		101	85 - 117

Lab Sample ID: 160-18201-A-1-B DU — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 264530 — **Prep Batch: 262899**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Halogens, Total Organic	2.1	U N	2.81	B	ug/L		NC	20

Lab Sample ID: MB 160-263966/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 264687 — **Prep Batch: 263966**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	2.1	U	5.0	2.1	ug/L		08/09/16 10:00	08/09/16 13:05	1

Lab Sample ID: LCS 160-263966/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 264687 — **Prep Batch: 263966**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Halogens, Total Organic	100	98.31		ug/L		98	90 - 116

Lab Sample ID: 160-18223-1 MS — **Client Sample ID: B35PL1**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 264687 — **Prep Batch: 263966**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Halogens, Total Organic	2.1	U	100	103.8		ug/L		104	85 - 117

Lab Sample ID: 160-18223-1 DU — **Client Sample ID: B35PL1**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 264687 — **Prep Batch: 263966**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Halogens, Total Organic	2.1	U	2.97	B	ug/L		NC	20

Method: 9060 - Organic Carbon, Total (TOC)

Lab Sample ID: MB 160-261337/13 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 261337

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			07/19/16 18:06	1

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: W16-007 / S16-007

TestAmerica Job ID: 160-18223-1
SDG: SL2254

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

Lab Sample ID: LCS 160-261337/14
Matrix: Water
Analysis Batch: 261337

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	9.91		mg/L		99	90 - 110		

Lab Sample ID: 160-18223-1 MS
Matrix: Water
Analysis Batch: 261337

Client Sample ID: B35PL1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon	0.72	U	5.00	5.41		mg/L		108	76 - 120		

Lab Sample ID: 160-18223-1 DU
Matrix: Water
Analysis Batch: 261337

Client Sample ID: B35PL1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Organic Carbon	0.72	U		0.72	U	mg/L				NC	20

QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: W16-007 / S16-007

TestAmerica Job ID: 160-18223-1
SDG: SL2254

General Chemistry

Analysis Batch: 261337

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18223-1	B35PL1	Total/NA	Water	9060	
160-18223-2	B35NR8	Total/NA	Water	9060	
160-18223-3	B35PL3	Total/NA	Water	9060	
160-18223-4	B35PL2	Total/NA	Water	9060	
160-18223-5	B35PM6	Total/NA	Water	9060	
160-18223-6	B35NW2	Total/NA	Water	9060	
160-18223-7	B35PM7	Total/NA	Water	9060	
160-18223-8	B35PM8	Total/NA	Water	9060	
160-18223-9	B35PF8	Total/NA	Water	9060	
160-18223-10	B35PH0	Total/NA	Water	9060	
160-18223-11	B35PF9	Total/NA	Water	9060	
160-18223-12	B35NK5	Total/NA	Water	9060	
160-18223-13	B35NV1	Total/NA	Water	9060	
160-18223-14	B35PM0	Total/NA	Water	9060	
160-18223-15	B35PL8	Total/NA	Water	9060	
160-18223-16	B35PM2	Total/NA	Water	9060	
MB 160-261337/13	Method Blank	Total/NA	Water	9060	
LCS 160-261337/14	Lab Control Sample	Total/NA	Water	9060	
160-18223-1 MS	B35PL1	Total/NA	Water	9060	
160-18223-1 DU	B35PL1	Total/NA	Water	9060	

Analysis Batch: 261521

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18223-2	B35NR8	Total/NA	Water	310.1	
160-18223-6	B35NW2	Total/NA	Water	310.1	
160-18223-12	B35NK5	Total/NA	Water	310.1	
160-18223-13	B35NV1	Total/NA	Water	310.1	
160-18223-17	B35NV0	Total/NA	Water	310.1	
MB 160-261521/1	Method Blank	Total/NA	Water	310.1	
HLCS 160-261521/3	Lab Control Sample	Total/NA	Water	310.1	
LCS 160-261521/2	Lab Control Sample	Total/NA	Water	310.1	
160-18223-2 MS	B35NR8	Total/NA	Water	310.1	
160-18223-2 DU	B35NR8	Total/NA	Water	310.1	

Prep Batch: 261760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18223-18	B35TW1	Total/NA	Water	9010C	
MB 160-261760/1-A	Method Blank	Total/NA	Water	9010C	
HLCS 160-261760/3-A	Lab Control Sample	Total/NA	Water	9010C	
LCS 160-261760/2-A	Lab Control Sample	Total/NA	Water	9010C	
160-18131-A-1-C MS	Matrix Spike	Total/NA	Water	9010C	
160-18131-A-1-B DU	Duplicate	Total/NA	Water	9010C	

Analysis Batch: 261825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18223-18	B35TW1	Total/NA	Water	9012B	261760
MB 160-261760/1-A	Method Blank	Total/NA	Water	9012B	261760
HLCS 160-261760/3-A	Lab Control Sample	Total/NA	Water	9012B	261760
LCS 160-261760/2-A	Lab Control Sample	Total/NA	Water	9012B	261760
160-18131-A-1-C MS	Matrix Spike	Total/NA	Water	9012B	261760
160-18131-A-1-B DU	Duplicate	Total/NA	Water	9012B	261760

QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: W16-007 / S16-007

TestAmerica Job ID: 160-18223-1
SDG: SL2254

Prep Batch: 262899

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18223-9	B35PF8	Total/NA	Water	Carbon Trap	
160-18223-10	B35PH0	Total/NA	Water	Carbon Trap	
160-18223-11	B35PF9	Total/NA	Water	Carbon Trap	
160-18223-12	B35NK5	Total/NA	Water	Carbon Trap	
MB 160-262899/1-A	Method Blank	Total/NA	Water	Carbon Trap	
LCS 160-262899/2-A	Lab Control Sample	Total/NA	Water	Carbon Trap	
160-18201-A-1-C MS	Matrix Spike	Total/NA	Water	Carbon Trap	
160-18223-12 MS	B35NK5	Total/NA	Water	Carbon Trap	
160-18201-A-1-B DU	Duplicate	Total/NA	Water	Carbon Trap	

Prep Batch: 263966

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18223-1	B35PL1	Total/NA	Water	Carbon Trap	
160-18223-2	B35NR8	Total/NA	Water	Carbon Trap	
160-18223-3	B35PL3	Total/NA	Water	Carbon Trap	
160-18223-4	B35PL2	Total/NA	Water	Carbon Trap	
160-18223-5	B35PM6	Total/NA	Water	Carbon Trap	
160-18223-6	B35NW2	Total/NA	Water	Carbon Trap	
160-18223-7	B35PM7	Total/NA	Water	Carbon Trap	
160-18223-8	B35PM8	Total/NA	Water	Carbon Trap	
160-18223-13	B35NV1	Total/NA	Water	Carbon Trap	
160-18223-14	B35PM0	Total/NA	Water	Carbon Trap	
160-18223-15	B35PL8	Total/NA	Water	Carbon Trap	
160-18223-16	B35PM2	Total/NA	Water	Carbon Trap	
MB 160-263966/1-A	Method Blank	Total/NA	Water	Carbon Trap	
LCS 160-263966/2-A	Lab Control Sample	Total/NA	Water	Carbon Trap	
160-18223-1 MS	B35PL1	Total/NA	Water	Carbon Trap	
160-18223-1 DU	B35PL1	Total/NA	Water	Carbon Trap	

Analysis Batch: 264530

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18223-9	B35PF8	Total/NA	Water	9020B	262899
160-18223-10	B35PH0	Total/NA	Water	9020B	262899
160-18223-11	B35PF9	Total/NA	Water	9020B	262899
160-18223-12	B35NK5	Total/NA	Water	9020B	262899
MB 160-262899/1-A	Method Blank	Total/NA	Water	9020B	262899
LCS 160-262899/2-A	Lab Control Sample	Total/NA	Water	9020B	262899
160-18201-A-1-C MS	Matrix Spike	Total/NA	Water	9020B	262899
160-18223-12 MS	B35NK5	Total/NA	Water	9020B	262899
160-18201-A-1-B DU	Duplicate	Total/NA	Water	9020B	262899

Analysis Batch: 264687

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18223-1	B35PL1	Total/NA	Water	9020B	263966
160-18223-2	B35NR8	Total/NA	Water	9020B	263966
160-18223-3	B35PL3	Total/NA	Water	9020B	263966
160-18223-4	B35PL2	Total/NA	Water	9020B	263966
160-18223-5	B35PM6	Total/NA	Water	9020B	263966
160-18223-6	B35NW2	Total/NA	Water	9020B	263966
160-18223-7	B35PM7	Total/NA	Water	9020B	263966
160-18223-8	B35PM8	Total/NA	Water	9020B	263966
160-18223-13	B35NV1	Total/NA	Water	9020B	263966
160-18223-14	B35PM0	Total/NA	Water	9020B	263966

QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: W16-007 / S16-007

TestAmerica Job ID: 160-18223-1
SDG: SL2254

General Chemistry (Continued)

Analysis Batch: 264687 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18223-15	B35PL8	Total/NA	Water	9020B	263966
160-18223-16	B35PM2	Total/NA	Water	9020B	263966
MB 160-263966/1-A	Method Blank	Total/NA	Water	9020B	263966
LCS 160-263966/2-A	Lab Control Sample	Total/NA	Water	9020B	263966
160-18223-1 MS	B35PL1	Total/NA	Water	9020B	263966
160-18223-1 DU	B35PL1	Total/NA	Water	9020B	263966