

APPENDIX H.2 – Test America Reports – No Change for Rev. 4



**DOCUMENTATION OF TECHNICAL REVIEW
SUBCONTRACTOR WORK PRODUCT**

Project Name: Clinch River SMR Project

Project Number: 6468-13-1072

Project Manager: Steve Criscenzo

Project Technical Leads: Al Tice, Carl Tockstein

The reports described below have been prepared by the named subcontractor retained in accordance with the AMEC QAPD. The work and reports have been reviewed by an AMEC technically qualified person. Comments on the work or reports, if any, have been satisfactorily addressed by the subcontractor. The reports are approved in accordance with section QS-7 of AMEC's QAPD

REPORTS:

J4584-1 USD Level 2 Report Rev(1) Final Report

J4584-2 USD Level 2 Report Final Report

J4600-1 USD Level 2 Report Rev(1) Final Report

J4600-2 USD Level 2 Report Final Report

J4625-1 USD Level 2 Report Rev(1) Final Report

J4625-2 USD Level 2 Report Final Report

J4643-1 USD Level 2 Report Final Report

SUBCONTRACTOR: Test America

DATE OF ACCEPTANCE: 2/20/14

TECHNICAL REVIEWER: _____

Judith A. Hartness
Judith A. Hartness

PROJECT TECHNICAL LEAD: _____

Al Tice
Al Tice



4201 Stirrup Creek Dr. Durham, NC 27703

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

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

TestAmerica Job ID: 160-4584-1

Client Project/Site: Clinch River - 6468-13-1072
Revision: 1

For:

AMEC Environment & Infrastructure, Inc.
4021 Stirrup Creek Drive
Suite 100
Durham, North Carolina 27703

Attn: Mr. Allan Tice



Authorized for release by:
2/14/2014 4:08:50 PM

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Case Narrative

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Clinch River - 6468-13-1072

TestAmerica Job ID: 160-4584-1

Job ID: 160-4584-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: AMEC Environment & Infrastructure, Inc.

Project: Clinch River

Report Number: 160-4584-1 - Revision 1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client. This revision removes the LCS results for carbonate and bicarbonate alkalinity as they do not actually exist. In addition, an unnecessary note for a qualifier for ammonia results was removed. The CoC was added to the report. Finally, the cation/anion balance results were removed from this report. They will be reported in job 160-4584-2 due to the structure of the LIMS system and correction of the formula used to arrive at the results. See corrective action 01152014-1 sent apart from this deliverable.

RECEIPT

The samples were received on 11/20/2013; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.7 C.

METALS (ICPMS)

Samples OW 409-L-CC (160-4584-3), OW 409-U-C (160-4584-7), OW 423-U-C (160-4584-11), OW 101-L-CC (160-4584-15) and OW 101-L-C (160-4584-19) were analyzed for Metals (ICPMS) in accordance with EPA SW-846 Methods 6020A. The samples were prepared on 11/26/2013 and analyzed on 12/06/2013.

Preparation Batch 88197, Analytical Batch 90128:

The following samples were diluted to bring the concentration of target analytes within the calibration range: OW 101-L-CC (160-4584-15),

Case Narrative

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Clinch River - 6468-13-1072

TestAmerica Job ID: 160-4584-1

Job ID: 160-4584-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

OW 409-U-C (160-4584-7), OW 423-U-C (160-4584-11). Elevated reporting limits (RLs) are provided.

No other difficulties were encountered during the metals analysis. All quality control parameters were within the acceptance limits.

TOTAL DISSOLVED SOLIDS

Samples OW 409-L-AA (160-4584-1), OW 409-U-A (160-4584-5), OW 423-U-A (160-4584-9), OW 101-L-AA (160-4584-13) and OW 101-L-A (160-4584-17) were analyzed for total dissolved solids in accordance with EPA Method 160.1. The samples were analyzed on 11/27/2013.

No difficulties were encountered during the TDS analysis. All quality control parameters were within the acceptance limits.

ANIONS

Samples OW 409-L-AA (160-4584-1), OW 409-U-A (160-4584-5), OW 423-U-A (160-4584-9), OW 101-L-AA (160-4584-13) and OW 101-L-A (160-4584-17) were analyzed for anions in accordance with EPA Method 300.0. The samples were analyzed on 11/20/2013.

Batch 88825:

The following samples were diluted to bring the concentrations of Sulfate within the calibration range in IC batch 88825: OW 101-L-A (160-4584-17), OW 101-L-AA (160-4584-13), OW 409-L-AA (160-4584-1), OW 409-U-A (160-4584-5), OW 423-U-A (160-4584-9). Elevated reporting limits (RLs) are provided.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries were outside control limits for Nitrite in IC batch 88825. (160-4584-5 MS), (160-4584-5 MSD) The associated laboratory control sample (LCS) recovery met acceptance criteria, as did the MS/MSD recoveries for all other reported anions.

No other difficulties were encountered during the anions analysis. All other quality control parameters were within the acceptance limits.

ALKALINITY

Samples OW 409-L-BB (160-4584-2), OW 409-U-B (160-4584-6), OW 423-U-B (160-4584-10), OW 101-L-BB (160-4584-14) and OW 101-L-B (160-4584-18) were analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 12/03/2013.

No other difficulties were encountered during the alkalinity analysis. All other quality control parameters were within the acceptance limits.

AMMONIA

Samples OW 409-L-DD (160-4584-4), OW 409-U-D (160-4584-8), OW 423-U-D (160-4584-12), OW 101-L-DD (160-4584-16) and OW 101-L-D (160-4584-20) were analyzed for ammonia in accordance with EPA Method 350.1. The samples were analyzed on 12/23/2013.

Batch 84338:

The associated samples in NH3 Batch 94338 were analyzed outside of holding time, but within 2X hold: OW 101-L-D (160-4584-20), OW 101-L-DD (160-4584-16), OW 409-L-DD (160-4584-4), OW 409-U-D (160-4584-8), OW 423-U-D (160-4584-12)

The matrix spike (MS) recoveries for NH3 batch 94338 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No other difficulties were encountered during the ammonia analysis. All other quality control parameters were within the acceptance limits.

AMEC Environment & Infrastructure, Inc. Chain of Custody Form

Chain of Custody No. CRP-22
 AMEC Project Name Clinch River SMR Project
 AMEC Project Number 6468131072
 COC Date 11/19/13

Prepared By: Kim Charles-Smith
 Checked By: Kristen Lloyd
 Transferred From: Site
 Transferred To: Test America

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SAMPLE IDENTIFICATION	SAMPLE TYPE	COLLECTED BY ORGANIZATION	COLLECTION DATE	INTENDED USE	REMARKS
OW 409-L-AA	Water- 1000 ml	AMEC	11/19/13	TDS, Anions (Br, Cl, F, SO4, NO3, NO2)	Unpreserved
OW 409-L-BB	Water - 500 ml	AMEC	11/19/13	Alkalinity	Unpreserved
OW 409-L-CC	Water - 250 ml	AMEC	11/19/13	Metals	w/HNO3
OW 409-L-DD	Water - 500 ml	AMEC	11/19/13	NH3	w/H2SO4
OW 409-U-A	Water- 1000 ml	AMEC	11/19/13	TDS, Anions (Br, Cl, F, SO4, NO3, NO2)	Unpreserved
OW 409-U-B	Water - 500 ml	AMEC	11/19/13	Alkalinity	Unpreserved
OW 409-U-C	Water - 250 ml	AMEC	11/19/13	Metals	w/HNO3
OW 409-U-D	Water - 500 ml	AMEC	11/19/13	NH3	w/H2SO4
OW 423-U-A	Water- 1000 ml	AMEC	11/19/13	TDS, Anions (Br, Cl, F, SO4, NO3, NO2)	Unpreserved
OW 423-U-B	Water - 500 ml	AMEC	11/19/13	Alkalinity	Unpreserved
OW 423-U-C	Water - 250 ml	AMEC	11/19/13	Metals	w/HNO3
OW 423-U-D	Water - 500 ml	AMEC	11/19/13	NH3	w/H2SO4
1. Relinquished by: <u>[Signature]</u>	1. Received by: <u>[Signature]</u>	2. Relinquished by: <u>[Signature]</u>	2. Received by: <u>[Signature]</u>	2. Date/Time <u>11/20/13</u>	
3. Relinquished by: <u>[Signature]</u>	3. Received by: <u>[Signature]</u>	4. Relinquished by: <u>[Signature]</u>	4. Received by: <u>[Signature]</u>	4. Date/Time <u>11/20/13</u>	
5. Relinquished by: <u>[Signature]</u>	5. Received by: <u>[Signature]</u>	6. Relinquished by: <u>[Signature]</u>	6. Received by: <u>[Signature]</u>	6. Date/Time	

Work to be performed in accordance with AMEC Work Instruction 64

Remarks/Freight Bill/Tracking No: 8043-786-2026

Recipient: After signing for receipt, copy the form and forward to the AMEC Project Manager, _____
 Final sample disposition: _____

Keep original form with the samples.

WTP Form 8-01A (Rev 0)

RCN-CRP 0950.0

AMEC Environment & Infrastructure, Inc. Chain of Custody Form

Chain of Custody No.

CRP-22

AMEC Project Name

Clinch River SMR Project

AMEC Project Number

6468131072

COC Date

11/19/13

Prepared By: Kim Charles-Smith

Checked By: Kristen Lloyd

Transferred From: Site

Transferred To: Test America

Page 2 of 2

SAMPLE IDENTIFICATION	SAMPLE TYPE	COLLECTED BY ORGANIZATION	COLLECTION DATE	INTENDED USE	REMARKS
OW 101-L-AA	Water - 1000 ml	AMEC	11/19/13	TDS, Anions (Br, Cl, F, SO4, NO3, NO2)	Unpreserved
OW 101-L-BB	Water - 500 ml	AMEC	11/19/13	Alkalinity	Unpreserved
OW 101-L-CC	Water - 250 ml	AMEC	11/19/13	Metals	w/HNO3
OW 101-L-DD	Water - 500 ml	AMEC	11/19/13	NH3	w/H2SO4
OW 101-L-A	Water - 1000 ml	AMEC	11/19/13	TDS, Anions (Br, Cl, F, SO4, NO3, NO2)	Unpreserved
OW 101-L-B	Water - 500 ml	AMEC	11/19/13	Alkalinity	Unpreserved
OW 101-L-C	Water - 250 ml	AMEC	11/19/13	Metals	w/HNO3
OW 101-L-D	Water - 500 ml	AMEC	11/19/13	NH3	w/H2SO4
1. Relinquished by: <i>[Signature]</i>	1. Received by: <i>[Signature]</i>	1. Date/Time: 11/19/13 1845	2. Relinquished by: <i>[Signature]</i>	2. Received by: <i>[Signature]</i>	2. Date/Time: 11/19/13 0928
3. Relinquished by: <i>[Signature]</i>	3. Received by: <i>[Signature]</i>	3. Date/Time	4. Relinquished by: <i>[Signature]</i>	4. Received by: <i>[Signature]</i>	4. Date/Time
5. Relinquished by: <i>[Signature]</i>	5. Received by: <i>[Signature]</i>	5. Date/Time	6. Relinquished by: <i>[Signature]</i>	6. Received by: <i>[Signature]</i>	6. Date/Time

Work to be performed in accordance with AMEC Work Instruction 64

Remarks/Freight Bill/Tracking No: 8043-7436-2026

Recipient: After signing for receipt, copy the form and forward to the AMEC Project Manager,

Final sample disposition:

. Keep original form with the samples.

WTP Form 9-01A (Rev 0)

RCN CRP-0950.0

Login Sample Receipt Checklist

Client: AMEC Environment & Infrastructure, Inc.

Job Number: 160-4584-1

Login Number: 4584

List Source: TestAmerica St. Louis

List Number: 1

Creator: Daniels, Brian J

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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.	N/A	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Clinch River - 6468-13-1072

TestAmerica Job ID: 160-4584-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC exceeds the control limits.
H	Sample was prepped or analyzed beyond the specified holding time
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F	MS/MSD Recovery and/or RPD exceeds the control 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
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)

TestAmerica St. Louis

Method Summary

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Clinch River - 6468-13-1072

TestAmerica Job ID: 160-4584-1

Method	Method Description	Protocol	Laboratory
6020A	Metals (ICP/MS)	SW846	TAL SL
160.1	Solids, Total Dissolved (TDS)	MCAWW	TAL SL
300.0	Anions, Ion Chromatography	MCAWW	TAL SL
310.1	Alkalinity	MCAWW	TAL SL
350.1	Nitrogen, Ammonia	MCAWW	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

TestAmerica St. Louis

Sample Summary

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Clinch River - 6468-13-1072

TestAmerica Job ID: 160-4584-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-4584-1	OW 409-L-AA	Water	11/19/13 00:00	11/20/13 09:20
160-4584-2	OW 409-L-BB	Water	11/19/13 00:00	11/20/13 09:20
160-4584-3	OW 409-L-CC	Water	11/19/13 00:00	11/20/13 09:20
160-4584-4	OW 409-L-DD	Water	11/19/13 00:00	11/20/13 09:20
160-4584-5	OW 409-U-A	Water	11/19/13 00:00	11/20/13 09:20
160-4584-6	OW 409-U-B	Water	11/19/13 00:00	11/20/13 09:20
160-4584-7	OW 409-U-C	Water	11/19/13 00:00	11/20/13 09:20
160-4584-8	OW 409-U-D	Water	11/19/13 00:00	11/20/13 09:20
160-4584-9	OW 423-U-A	Water	11/19/13 00:00	11/20/13 09:20
160-4584-10	OW 423-U-B	Water	11/19/13 00:00	11/20/13 09:20
160-4584-11	OW 423-U-C	Water	11/19/13 00:00	11/20/13 09:20
160-4584-12	OW 423-U-D	Water	11/19/13 00:00	11/20/13 09:20
160-4584-13	OW 101-L-AA	Water	11/19/13 00:00	11/20/13 09:20
160-4584-14	OW 101-L-BB	Water	11/19/13 00:00	11/20/13 09:20
160-4584-15	OW 101-L-CC	Water	11/19/13 00:00	11/20/13 09:20
160-4584-16	OW 101-L-DD	Water	11/19/13 00:00	11/20/13 09:20
160-4584-17	OW 101-L-A	Water	11/19/13 00:00	11/20/13 09:20
160-4584-18	OW 101-L-B	Water	11/19/13 00:00	11/20/13 09:20
160-4584-19	OW 101-L-C	Water	11/19/13 00:00	11/20/13 09:20
160-4584-20	OW 101-L-D	Water	11/19/13 00:00	11/20/13 09:20

TestAmerica St. Louis

Client Sample Results

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Clinch River - 6468-13-1072

TestAmerica Job ID: 160-4584-1

Client Sample ID: OW 409-L-AA

Lab Sample ID: 160-4584-1

Date Collected: 11/19/13 00:00

Matrix: Water

Date Received: 11/20/13 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	520		5.0	3.5	mg/L			11/27/13 11:00	1
Nitrate as N	0.12		0.020	0.0040	mg/L			11/20/13 18:13	1
Nitrite as N	0.0052	J	0.020	0.0030	mg/L			11/20/13 18:13	1
Fluoride	0.37		0.10	0.010	mg/L			11/20/13 18:13	1
Chloride	2.2		0.20	0.020	mg/L			11/20/13 18:13	1
Bromide	ND		0.25	0.025	mg/L			11/20/13 18:13	1

General Chemistry - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	150		10	1.0	mg/L			11/20/13 18:28	20

Client Sample ID: OW 409-L-BB

Lab Sample ID: 160-4584-2

Date Collected: 11/19/13 00:00

Matrix: Water

Date Received: 11/20/13 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	300		5.0	0.54	mg/L			12/03/13 10:55	1
Bicarbonate Alkalinity as CaCO3	300		5.0	0.54	mg/L			12/03/13 10:55	1
Carbonate Alkalinity as CaCO3	ND		5.0	0.54	mg/L			12/03/13 10:55	1

Client Sample ID: OW 409-L-CC

Lab Sample ID: 160-4584-3

Date Collected: 11/19/13 00:00

Matrix: Water

Date Received: 11/20/13 09:20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	46000		100	68	ug/L		11/26/13 15:53	12/06/13 02:12	1
Iron	68		50	20	ug/L		11/26/13 15:53	12/06/13 02:12	1
Potassium	8100		100	42	ug/L		11/26/13 15:53	12/06/13 02:12	1
Magnesium	31000		50	5.6	ug/L		11/26/13 15:53	12/06/13 02:12	1
Manganese	17		2.0	0.25	ug/L		11/26/13 15:53	12/06/13 02:12	1
Sodium	99000		50	15	ug/L		11/26/13 15:53	12/06/13 02:12	1
Silicon	4600		250	18	ug/L		11/26/13 15:53	12/06/13 02:12	1
SiO2, Silica	9900		540	38	ug/L		11/26/13 15:53	12/06/13 02:12	1

Client Sample ID: OW 409-L-DD

Lab Sample ID: 160-4584-4

Date Collected: 11/19/13 00:00

Matrix: Water

Date Received: 11/20/13 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	710	H ^	50	9.2	ug/L			12/23/13 17:52	1

TestAmerica St. Louis

Client Sample Results

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Clinch River - 6468-13-1072

TestAmerica Job ID: 160-4584-1

Client Sample ID: OW 409-U-A

Lab Sample ID: 160-4584-5

Date Collected: 11/19/13 00:00

Matrix: Water

Date Received: 11/20/13 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	410		5.0	3.5	mg/L			11/27/13 11:00	1
Nitrate as N	0.88		0.020	0.0040	mg/L			11/20/13 16:13	1
Nitrite as N	ND		0.020	0.0030	mg/L			11/20/13 16:13	1
Fluoride	0.25		0.10	0.010	mg/L			11/20/13 16:13	1
Chloride	1.8		0.20	0.020	mg/L			11/20/13 16:13	1
Bromide	ND		0.25	0.025	mg/L			11/20/13 16:13	1

General Chemistry - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	83		10	1.0	mg/L			11/20/13 16:28	20

Client Sample ID: OW 409-U-B

Lab Sample ID: 160-4584-6

Date Collected: 11/19/13 00:00

Matrix: Water

Date Received: 11/20/13 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	270		5.0	0.54	mg/L			12/03/13 10:55	1
Bicarbonate Alkalinity as CaCO3	270		5.0	0.54	mg/L			12/03/13 10:55	1
Carbonate Alkalinity as CaCO3	ND		5.0	0.54	mg/L			12/03/13 10:55	1

Client Sample ID: OW 409-U-C

Lab Sample ID: 160-4584-7

Date Collected: 11/19/13 00:00

Matrix: Water

Date Received: 11/20/13 09:20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	140000		500	340	ug/L		11/26/13 15:53	12/06/13 02:53	5
Iron	220		50	20	ug/L		11/26/13 15:53	12/06/13 02:19	1
Potassium	1200		100	42	ug/L		11/26/13 15:53	12/06/13 02:19	1
Magnesium	23000		50	5.6	ug/L		11/26/13 15:53	12/06/13 02:19	1
Manganese	11		2.0	0.25	ug/L		11/26/13 15:53	12/06/13 02:19	1
Sodium	4800		50	15	ug/L		11/26/13 15:53	12/06/13 02:19	1
Silicon	7600		1300	89	ug/L		11/26/13 15:53	12/06/13 02:53	5
SiO2, Silica	16000		2700	190	ug/L		11/26/13 15:53	12/06/13 02:53	5

Client Sample ID: OW 409-U-D

Lab Sample ID: 160-4584-8

Date Collected: 11/19/13 00:00

Matrix: Water

Date Received: 11/20/13 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	99	H ^	50	9.2	ug/L			12/23/13 17:57	1

Client Sample ID: OW 423-U-A

Lab Sample ID: 160-4584-9

Date Collected: 11/19/13 00:00

Matrix: Water

Date Received: 11/20/13 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	340		5.0	3.5	mg/L			11/27/13 11:00	1

TestAmerica St. Louis

Client Sample Results

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Clinch River - 6468-13-1072

TestAmerica Job ID: 160-4584-1

Client Sample ID: OW 423-U-A

Lab Sample ID: 160-4584-9

Date Collected: 11/19/13 00:00

Matrix: Water

Date Received: 11/20/13 09:20

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.14		0.020	0.0040	mg/L			11/20/13 18:43	1
Nitrite as N	ND		0.020	0.0030	mg/L			11/20/13 18:43	1
Fluoride	0.090	J	0.10	0.010	mg/L			11/20/13 18:43	1
Chloride	2.7		0.20	0.020	mg/L			11/20/13 18:43	1
Bromide	ND		0.25	0.025	mg/L			11/20/13 18:43	1

General Chemistry - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	24		10	1.0	mg/L			11/20/13 18:58	20

Client Sample ID: OW 423-U-B

Lab Sample ID: 160-4584-10

Date Collected: 11/19/13 00:00

Matrix: Water

Date Received: 11/20/13 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	290		5.0	0.54	mg/L			12/03/13 10:55	1
Bicarbonate Alkalinity as CaCO3	290		5.0	0.54	mg/L			12/03/13 10:55	1
Carbonate Alkalinity as CaCO3	ND		5.0	0.54	mg/L			12/03/13 10:55	1

Client Sample ID: OW 423-U-C

Lab Sample ID: 160-4584-11

Date Collected: 11/19/13 00:00

Matrix: Water

Date Received: 11/20/13 09:20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	99000		100	68	ug/L		11/26/13 15:53	12/06/13 02:26	1
Iron	76		50	20	ug/L		11/26/13 15:53	12/06/13 02:26	1
Potassium	1300		100	42	ug/L		11/26/13 15:53	12/06/13 02:26	1
Magnesium	19000		50	5.6	ug/L		11/26/13 15:53	12/06/13 02:26	1
Manganese	51		2.0	0.25	ug/L		11/26/13 15:53	12/06/13 02:26	1
Sodium	8700		50	15	ug/L		11/26/13 15:53	12/06/13 02:26	1
Silicon	7200		1300	89	ug/L		11/26/13 15:53	12/06/13 02:59	5
SiO2, Silica	15000		2700	190	ug/L		11/26/13 15:53	12/06/13 02:59	5

Client Sample ID: OW 423-U-D

Lab Sample ID: 160-4584-12

Date Collected: 11/19/13 00:00

Matrix: Water

Date Received: 11/20/13 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	83	H ^	50	9.2	ug/L			12/23/13 17:59	1

Client Sample ID: OW 101-L-AA

Lab Sample ID: 160-4584-13

Date Collected: 11/19/13 00:00

Matrix: Water

Date Received: 11/20/13 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	370		5.0	3.5	mg/L			11/27/13 11:00	1
Nitrate as N	0.0054	J	0.020	0.0040	mg/L			11/20/13 19:42	1

TestAmerica St. Louis

Client Sample Results

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Clinch River - 6468-13-1072

TestAmerica Job ID: 160-4584-1

Client Sample ID: OW 101-L-AA

Lab Sample ID: 160-4584-13

Date Collected: 11/19/13 00:00

Matrix: Water

Date Received: 11/20/13 09:20

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.020	0.0030	mg/L			11/20/13 19:42	1
Fluoride	0.22		0.10	0.010	mg/L			11/20/13 19:42	1
Chloride	2.1		0.20	0.020	mg/L			11/20/13 19:42	1
Bromide	0.038	J	0.25	0.025	mg/L			11/20/13 19:42	1

General Chemistry - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	42		10	1.0	mg/L			11/20/13 19:57	20

Client Sample ID: OW 101-L-BB

Lab Sample ID: 160-4584-14

Date Collected: 11/19/13 00:00

Matrix: Water

Date Received: 11/20/13 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	300		5.0	0.54	mg/L			12/03/13 10:55	1
Bicarbonate Alkalinity as CaCO3	300		5.0	0.54	mg/L			12/03/13 10:55	1
Carbonate Alkalinity as CaCO3	ND		5.0	0.54	mg/L			12/03/13 10:55	1

Client Sample ID: OW 101-L-CC

Lab Sample ID: 160-4584-15

Date Collected: 11/19/13 00:00

Matrix: Water

Date Received: 11/20/13 09:20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	130000		500	340	ug/L		11/26/13 15:53	12/06/13 03:20	5
Iron	330		50	20	ug/L		11/26/13 15:53	12/06/13 02:32	1
Potassium	2100		100	42	ug/L		11/26/13 15:53	12/06/13 02:32	1
Magnesium	23000		50	5.6	ug/L		11/26/13 15:53	12/06/13 02:32	1
Manganese	50		2.0	0.25	ug/L		11/26/13 15:53	12/06/13 02:32	1
Sodium	7800		50	15	ug/L		11/26/13 15:53	12/06/13 02:32	1
Silicon	3900		250	18	ug/L		11/26/13 15:53	12/06/13 02:32	1
SiO2, Silica	8300		540	38	ug/L		11/26/13 15:53	12/06/13 02:32	1

Client Sample ID: OW 101-L-DD

Lab Sample ID: 160-4584-16

Date Collected: 11/19/13 00:00

Matrix: Water

Date Received: 11/20/13 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	310	H ^	50	9.2	ug/L			12/23/13 18:01	1

Client Sample ID: OW 101-L-A

Lab Sample ID: 160-4584-17

Date Collected: 11/19/13 00:00

Matrix: Water

Date Received: 11/20/13 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	370		5.0	3.5	mg/L			11/27/13 11:00	1
Nitrate as N	0.0099	J	0.020	0.0040	mg/L			11/20/13 19:13	1
Nitrite as N	ND		0.020	0.0030	mg/L			11/20/13 19:13	1

TestAmerica St. Louis

Client Sample Results

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Clinch River - 6468-13-1072

TestAmerica Job ID: 160-4584-1

Client Sample ID: OW 101-L-A

Lab Sample ID: 160-4584-17

Date Collected: 11/19/13 00:00

Matrix: Water

Date Received: 11/20/13 09:20

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.19		0.10	0.010	mg/L			11/20/13 19:13	1
Chloride	2.1		0.20	0.020	mg/L			11/20/13 19:13	1
Bromide	0.040	J	0.25	0.025	mg/L			11/20/13 19:13	1

General Chemistry - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	43		10	1.0	mg/L			11/20/13 19:27	20

Client Sample ID: OW 101-L-B

Lab Sample ID: 160-4584-18

Date Collected: 11/19/13 00:00

Matrix: Water

Date Received: 11/20/13 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	290		5.0	0.54	mg/L			12/03/13 10:55	1
Bicarbonate Alkalinity as CaCO3	290		5.0	0.54	mg/L			12/03/13 10:55	1
Carbonate Alkalinity as CaCO3	ND		5.0	0.54	mg/L			12/03/13 10:55	1

Client Sample ID: OW 101-L-C

Lab Sample ID: 160-4584-19

Date Collected: 11/19/13 00:00

Matrix: Water

Date Received: 11/20/13 09:20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	99000		100	68	ug/L		11/26/13 15:53	12/06/13 02:39	1
Iron	310		50	20	ug/L		11/26/13 15:53	12/06/13 02:39	1
Potassium	2100		100	42	ug/L		11/26/13 15:53	12/06/13 02:39	1
Magnesium	22000		50	5.6	ug/L		11/26/13 15:53	12/06/13 02:39	1
Manganese	48		2.0	0.25	ug/L		11/26/13 15:53	12/06/13 02:39	1
Sodium	7600		50	15	ug/L		11/26/13 15:53	12/06/13 02:39	1
Silicon	4200		250	18	ug/L		11/26/13 15:53	12/06/13 02:39	1
SiO2, Silica	9000		540	38	ug/L		11/26/13 15:53	12/06/13 02:39	1

Client Sample ID: OW 101-L-D

Lab Sample ID: 160-4584-20

Date Collected: 11/19/13 00:00

Matrix: Water

Date Received: 11/20/13 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	350	H ^	50	9.2	ug/L			12/23/13 18:03	1

TestAmerica St. Louis

QC Sample Results

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Clinch River - 6468-13-1072

TestAmerica Job ID: 160-4584-1

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 160-88197/1-A

Matrix: Water

Analysis Batch: 90128

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 88197

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		100	68	ug/L		11/26/13 15:53	12/06/13 01:59	1
Iron	ND		50	20	ug/L		11/26/13 15:53	12/06/13 01:59	1
Potassium	ND		100	42	ug/L		11/26/13 15:53	12/06/13 01:59	1
Magnesium	ND		50	5.6	ug/L		11/26/13 15:53	12/06/13 01:59	1
Manganese	ND		2.0	0.25	ug/L		11/26/13 15:53	12/06/13 01:59	1
Sodium	ND		50	15	ug/L		11/26/13 15:53	12/06/13 01:59	1
Silicon	ND		250	18	ug/L		11/26/13 15:53	12/06/13 01:59	1
SiO2, Silica	ND		540	38	ug/L		11/26/13 15:53	12/06/13 01:59	1

Lab Sample ID: LCS 160-88197/2-A

Matrix: Water

Analysis Batch: 90128

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 88197

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	10000	10500		ug/L		105	80 - 120
Iron	10000	10000		ug/L		100	80 - 120
Potassium	10000	10100		ug/L		101	80 - 120
Magnesium	10000	9980		ug/L		100	80 - 120
Manganese	1000	1070		ug/L		107	80 - 120
Sodium	10000	10100		ug/L		101	80 - 120
Silicon	5000	4560		ug/L		91	80 - 120

Method: 160.1 - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 160-87715/1

Matrix: Water

Analysis Batch: 87715

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		5.0	3.5	mg/L			11/27/13 11:00	1

Lab Sample ID: LCS 160-87715/2

Matrix: Water

Analysis Batch: 87715

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids (TDS)	500	486		mg/L		97	90 - 110

Lab Sample ID: 160-4584-1 DU

Matrix: Water

Analysis Batch: 87715

Client Sample ID: OW 409-L-AA

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids (TDS)	520		526		mg/L		0.6	20

TestAmerica St. Louis

QC Sample Results

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Clinch River - 6468-13-1072

TestAmerica Job ID: 160-4584-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 160-88825/3

Matrix: Water

Analysis Batch: 88825

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.020	0.0040	mg/L			11/20/13 15:29	1
Nitrite as N	ND		0.020	0.0030	mg/L			11/20/13 15:29	1
Fluoride	ND		0.10	0.010	mg/L			11/20/13 15:29	1
Chloride	ND		0.20	0.020	mg/L			11/20/13 15:29	1
Bromide	ND		0.25	0.025	mg/L			11/20/13 15:29	1
Sulfate	ND		0.50	0.050	mg/L			11/20/13 15:29	1

Lab Sample ID: LCS 160-88825/4

Matrix: Water

Analysis Batch: 88825

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.400	0.397		mg/L		99	90 - 110
Nitrite as N	0.160	0.164		mg/L		102	90 - 110
Fluoride	1.00	0.980		mg/L		98	90 - 110
Chloride	2.00	1.93		mg/L		97	90 - 110
Bromide	2.00	1.99		mg/L		100	90 - 110
Sulfate	8.00	7.74		mg/L		97	90 - 110

Lab Sample ID: 160-4584-5 MS

Matrix: Water

Analysis Batch: 88825

Client Sample ID: OW 409-U-A

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.88		0.400	1.29		mg/L		101	90 - 110
Nitrite as N	ND		0.100	0.171	F	mg/L		171	90 - 110
Fluoride	0.25		2.00	2.37		mg/L		106	90 - 110
Chloride	1.8		2.00	3.68		mg/L		94	90 - 110
Bromide	ND		2.00	2.09		mg/L		104	90 - 110

Lab Sample ID: 160-4584-5 MSD

Matrix: Water

Analysis Batch: 88825

Client Sample ID: OW 409-U-A

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Nitrate as N	0.88		0.400	1.30		mg/L		103	90 - 110	1	20
Nitrite as N	ND		0.100	0.181	F	mg/L		181	90 - 110	5	20
Fluoride	0.25		2.00	2.37		mg/L		106	90 - 110	0	20
Chloride	1.8		2.00	3.70		mg/L		94	90 - 110	0	20
Bromide	ND		2.00	2.13		mg/L		106	90 - 110	2	20

Method: 300.0 - Anions, Ion Chromatography - DL

Lab Sample ID: 160-4584-5 MS

Matrix: Water

Analysis Batch: 88825

Client Sample ID: OW 409-U-A

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate - DL	83		80.0	164		mg/L		101	90 - 110

TestAmerica St. Louis

QC Sample Results

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Clinch River - 6468-13-1072

TestAmerica Job ID: 160-4584-1

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

Lab Sample ID: 160-4584-5 MSD

Matrix: Water

Analysis Batch: 88825

Client Sample ID: OW 409-U-A

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate - DL	83		80.0	163		mg/L		100	90 - 110	0	20

Method: 310.1 - Alkalinity

Lab Sample ID: MB 160-89196/1

Matrix: Water

Analysis Batch: 89196

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		5.0	0.54	mg/L			12/03/13 10:55	1
Bicarbonate Alkalinity as CaCO3	ND		5.0	0.54	mg/L			12/03/13 10:55	1
Carbonate Alkalinity as CaCO3	ND		5.0	0.54	mg/L			12/03/13 10:55	1

Lab Sample ID: LCS 160-89196/3

Matrix: Water

Analysis Batch: 89196

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	400	369		mg/L		92	90 - 110

Lab Sample ID: LLCS 160-89196/2

Matrix: Water

Analysis Batch: 89196

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	200	184		mg/L		92	90 - 110

Lab Sample ID: 160-4584-2 MS

Matrix: Water

Analysis Batch: 89196

Client Sample ID: OW 409-L-BB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	300		20.0	316	4	mg/L		90	80 - 120

Lab Sample ID: 160-4584-2 DU

Matrix: Water

Analysis Batch: 89196

Client Sample ID: OW 409-L-BB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	300		299		mg/L		0.3	20
Bicarbonate Alkalinity as CaCO3	300		299		mg/L		0.3	20
Carbonate Alkalinity as CaCO3	ND		ND		mg/L		NC	20

TestAmerica St. Louis

QC Sample Results

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Clinch River - 6468-13-1072

TestAmerica Job ID: 160-4584-1

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 160-94338/12

Matrix: Water

Analysis Batch: 94338

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND	^	50	9.2	ug/L			12/23/13 17:48	1

Lab Sample ID: LCS 160-94338/13

Matrix: Water

Analysis Batch: 94338

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	500	523	^	ug/L		105	90 - 110

Lab Sample ID: 160-4584-4 MS

Matrix: Water

Analysis Batch: 94338

Client Sample ID: OW 409-L-DD

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	710	H ^	500	1280	F ^	ug/L		115	90 - 110

Lab Sample ID: 160-4643-C-1 MS

Matrix: Water

Analysis Batch: 94338

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	110	^	500	709	^ F	ug/L		119	90 - 110

Lab Sample ID: 160-4584-4 DU

Matrix: Water

Analysis Batch: 94338

Client Sample ID: OW 409-L-DD

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Ammonia	710	H ^	721	^	ug/L		2	20

TestAmerica St. Louis

QC Association Summary

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Clinch River - 6468-13-1072

TestAmerica Job ID: 160-4584-1

Metals

Prep Batch: 88197

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-4584-3	OW 409-L-CC	Total/NA	Water	3010A	
160-4584-7	OW 409-U-C	Total/NA	Water	3010A	
160-4584-11	OW 423-U-C	Total/NA	Water	3010A	
160-4584-15	OW 101-L-CC	Total/NA	Water	3010A	
160-4584-19	OW 101-L-C	Total/NA	Water	3010A	
LCS 160-88197/2-A	Lab Control Sample	Total/NA	Water	3010A	
MB 160-88197/1-A	Method Blank	Total/NA	Water	3010A	

Analysis Batch: 90128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-4584-3	OW 409-L-CC	Total/NA	Water	6020A	88197
160-4584-7	OW 409-U-C	Total/NA	Water	6020A	88197
160-4584-7	OW 409-U-C	Total/NA	Water	6020A	88197
160-4584-11	OW 423-U-C	Total/NA	Water	6020A	88197
160-4584-11	OW 423-U-C	Total/NA	Water	6020A	88197
160-4584-15	OW 101-L-CC	Total/NA	Water	6020A	88197
160-4584-15	OW 101-L-CC	Total/NA	Water	6020A	88197
160-4584-19	OW 101-L-C	Total/NA	Water	6020A	88197
LCS 160-88197/2-A	Lab Control Sample	Total/NA	Water	6020A	88197
MB 160-88197/1-A	Method Blank	Total/NA	Water	6020A	88197

General Chemistry

Analysis Batch: 87715

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-4584-1	OW 409-L-AA	Total/NA	Water	160.1	
160-4584-1 DU	OW 409-L-AA	Total/NA	Water	160.1	
160-4584-5	OW 409-U-A	Total/NA	Water	160.1	
160-4584-9	OW 423-U-A	Total/NA	Water	160.1	
160-4584-13	OW 101-L-AA	Total/NA	Water	160.1	
160-4584-17	OW 101-L-A	Total/NA	Water	160.1	
LCS 160-87715/2	Lab Control Sample	Total/NA	Water	160.1	
MB 160-87715/1	Method Blank	Total/NA	Water	160.1	

Analysis Batch: 88825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-4584-1	OW 409-L-AA	Total/NA	Water	300.0	
160-4584-1 - DL	OW 409-L-AA	Total/NA	Water	300.0	
160-4584-5	OW 409-U-A	Total/NA	Water	300.0	
160-4584-5 - DL	OW 409-U-A	Total/NA	Water	300.0	
160-4584-5 MS	OW 409-U-A	Total/NA	Water	300.0	
160-4584-5 MS - DL	OW 409-U-A	Total/NA	Water	300.0	
160-4584-5 MSD	OW 409-U-A	Total/NA	Water	300.0	
160-4584-5 MSD - DL	OW 409-U-A	Total/NA	Water	300.0	
160-4584-9	OW 423-U-A	Total/NA	Water	300.0	
160-4584-9 - DL	OW 423-U-A	Total/NA	Water	300.0	
160-4584-13	OW 101-L-AA	Total/NA	Water	300.0	
160-4584-13 - DL	OW 101-L-AA	Total/NA	Water	300.0	
160-4584-17	OW 101-L-A	Total/NA	Water	300.0	
160-4584-17 - DL	OW 101-L-A	Total/NA	Water	300.0	

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QC Association Summary

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Clinch River - 6468-13-1072

TestAmerica Job ID: 160-4584-1

General Chemistry (Continued)

Analysis Batch: 88825 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 160-88825/4	Lab Control Sample	Total/NA	Water	300.0	
MB 160-88825/3	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 89196

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-4584-2	OW 409-L-BB	Total/NA	Water	310.1	
160-4584-2 DU	OW 409-L-BB	Total/NA	Water	310.1	
160-4584-2 MS	OW 409-L-BB	Total/NA	Water	310.1	
160-4584-6	OW 409-U-B	Total/NA	Water	310.1	
160-4584-10	OW 423-U-B	Total/NA	Water	310.1	
160-4584-14	OW 101-L-BB	Total/NA	Water	310.1	
160-4584-18	OW 101-L-B	Total/NA	Water	310.1	
LCS 160-89196/3	Lab Control Sample	Total/NA	Water	310.1	
LLCS 160-89196/2	Lab Control Sample	Total/NA	Water	310.1	
MB 160-89196/1	Method Blank	Total/NA	Water	310.1	

Analysis Batch: 94338

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-4584-4	OW 409-L-DD	Total/NA	Water	350.1	
160-4584-4 DU	OW 409-L-DD	Total/NA	Water	350.1	
160-4584-4 MS	OW 409-L-DD	Total/NA	Water	350.1	
160-4584-8	OW 409-U-D	Total/NA	Water	350.1	
160-4584-12	OW 423-U-D	Total/NA	Water	350.1	
160-4584-16	OW 101-L-DD	Total/NA	Water	350.1	
160-4584-20	OW 101-L-D	Total/NA	Water	350.1	
160-4643-C-1 MS	Matrix Spike	Total/NA	Water	350.1	
LCS 160-94338/13	Lab Control Sample	Total/NA	Water	350.1	
MB 160-94338/12	Method Blank	Total/NA	Water	350.1	

TestAmerica St. Louis

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

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

TestAmerica Job ID: 160-4584-2

Client Project/Site: Clinch River - 6468-13-1072

For:

AMEC Environment & Infrastructure, Inc.
4021 Stirrup Creek Drive
Suite 100
Durham, North Carolina 27703

Attn: Mr. Allan Tice



Authorized for release by:
2/14/2014 5:07:14 PM

Ivan Vania, Project Manager II
(314)298-8566
ivan.vania@testamericainc.com

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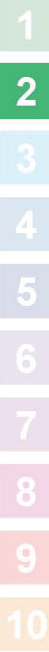
www.testamericainc.com

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.

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Case Narrative

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Clinch River - 6468-13-1072

TestAmerica Job ID: 160-4584-2

Job ID: 160-4584-2

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: AMEC Environment & Infrastructure, Inc.

Project: Clinch River - 6468-13-1072

Report Number: 160-4584-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client. This report is a supplement to the report for job 160-4584-1. The results for cation/anion balance analysis are reported in this job due to a limitation of the LIMS system and a correction of the calculation for the analysis.

RECEIPT

The samples were received on 11/20/2013; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.7 C.

CATION ANION BALANCE

Samples OW 409-L-CC (160-4584-3), OW 409-U-C (160-4584-7), OW 423-U-C (160-4584-11), OW 101-L-CC (160-4584-15) and OW 101-L-C (160-4584-19) were analyzed for Cation Anion Balance in accordance with Cation Anion Balance. The samples were analyzed on 12/30/2013.

Refer to corrective action report 01152014-01 delivered separately for further information regarding this analysis.

No other difficulties were encountered during the Cation Anion Balance analysis. All quality control parameters were within the acceptance limits.

AMEC Environment & Infrastructure, Inc. Chain of Custody Form

Chain of Custody No. CRP-22 Prepared By: Kim Charles-Smith
 AMEC Project Name Clinch River SMR Project Checked By: Kristen Lloyd
 AMEC Project Number 6468131072 Transferred From: Site
 COC Date 11/19/13 Transferred To: Test America

Page 1 of 2

SAMPLE IDENTIFICATION	SAMPLE TYPE	COLLECTED BY ORGANIZATION	COLLECTION DATE	INTENDED USE	REMARKS
OW 409-L-AA	Water- 1000 ml	AMEC	11/19/13	TDS, Anions (Br, Cl, F, SO4, NO3, NO2)	Unpreserved
OW 409-L-BB	Water - 500 ml	AMEC	11/19/13	Alkalinity	Unpreserved
OW 409-L-CC	Water - 250 ml	AMEC	11/19/13	Metals	w/HNO3
OW 409-L-DD	Water - 500 ml	AMEC	11/19/13	NH3	w/H2SO4
OW 409-U-A	Water- 1000 ml	AMEC	11/19/13	TDS, Anions (Br, Cl, F, SO4, NO3, NO2)	Unpreserved
OW 409-U-B	Water - 500 ml	AMEC	11/19/13	Alkalinity	Unpreserved
OW 409-U-C	Water - 250 ml	AMEC	11/19/13	Metals	w/HNO3
OW 409-U-D	Water - 500 ml	AMEC	11/19/13	NH3	w/H2SO4
OW 423-U-A	Water- 1000 ml	AMEC	11/19/13	TDS, Anions (Br, Cl, F, SO4, NO3, NO2)	Unpreserved
OW 423-U-B	Water - 500 ml	AMEC	11/19/13	Alkalinity	Unpreserved
OW 423-U-C	Water - 250 ml	AMEC	11/19/13	Metals	w/HNO3
OW 423-U-D	Water - 500 ml	AMEC	11/19/13	NH3	w/H2SO4
1. Relinquished by: <u>[Signature]</u>	1. Received by: <u>[Signature]</u>	1. Date/Time <u>11/19/13 1845</u>	2. Relinquished by: <u>[Signature]</u>	2. Received by: <u>[Signature]</u>	2. Date/Time <u>11/20/13 0920</u>
3. Relinquished by: <u>[Signature]</u>	3. Received by: <u>[Signature]</u>	3. Date/Time	4. Relinquished by: <u>[Signature]</u>	4. Received by: <u>[Signature]</u>	4. Date/Time
5. Relinquished by: <u>[Signature]</u>	5. Received by: <u>[Signature]</u>	5. Date/Time	6. Relinquished by: <u>[Signature]</u>	6. Received by: <u>[Signature]</u>	6. Date/Time

Work to be performed in accordance with AMEC Work Instruction 64

Remarks/Freight Bill/Tracking No: 8043-786-2026

Recipient: After signing for receipt, copy the form and forward to the AMEC Project Manager, [Signature]. Keep original form with the samples.
 Final sample disposition: [Signature]

WTP Form 8-01A (Rev 0)

RCN-CRP 0950.0

AMEC Environment & Infrastructure, Inc. Chain of Custody Form

Chain of Custody No.

CRP-22

AMEC Project Name

Clinch River SMR Project

AMEC Project Number

6468131072

COC Date

11/19/13

Prepared By: Kim Charles-Smith

Checked By: Kristen Lloyd

Transferred From: Site

Transferred To: Test America

Page 2 of 2

SAMPLE IDENTIFICATION	SAMPLE TYPE	COLLECTED BY ORGANIZATION	COLLECTION DATE	INTENDED USE	REMARKS
OW 101-L-AA	Water - 1000 ml	AMEC	11/19/13	TDS, Anions (Br, Cl, F, SO4, NO3, NO2)	Unpreserved
OW 101-L-BB	Water - 500 ml	AMEC	11/19/13	Alkalinity	Unpreserved
OW 101-L-CC	Water - 250 ml	AMEC	11/19/13	Metals	w/HNO3
OW 101-L-DD	Water - 500 ml	AMEC	11/19/13	NH3	w/H2SO4
OW 101-L-A	Water - 1000 ml	AMEC	11/19/13	TDS, Anions (Br, Cl, F, SO4, NO3, NO2)	Unpreserved
OW 101-L-B	Water - 500 ml	AMEC	11/19/13	Alkalinity	Unpreserved
OW 101-L-C	Water - 250 ml	AMEC	11/19/13	Metals	w/HNO3
OW 101-L-D	Water - 500 ml	AMEC	11/19/13	NH3	w/H2SO4
1. Relinquished by: <i>[Signature]</i>	1. Received by: <i>[Signature]</i>	1. Date/Time: 11/19/13 1845	2. Relinquished by: <i>[Signature]</i>	2. Received by: <i>[Signature]</i>	2. Date/Time: 11/19/13 0928
3. Relinquished by: <i>[Signature]</i>	3. Received by: <i>[Signature]</i>	3. Date/Time	4. Relinquished by: <i>[Signature]</i>	4. Received by: <i>[Signature]</i>	4. Date/Time
5. Relinquished by: <i>[Signature]</i>	5. Received by: <i>[Signature]</i>	5. Date/Time	6. Relinquished by: <i>[Signature]</i>	6. Received by: <i>[Signature]</i>	6. Date/Time

Work to be performed in accordance with AMEC Work Instruction 64

Remarks/Freight Bill/Tracking No: 8043-7436-2026

Recipient: After signing for receipt, copy the form and forward to the AMEC Project Manager,

Final sample disposition:

. Keep original form with the samples.

WTP Form 9-01A (Rev 0)

ACN CRP-0950.0

Login Sample Receipt Checklist

Client: AMEC Environment & Infrastructure, Inc.

Job Number: 160-4584-2

Login Number: 4584

List Source: TestAmerica St. Louis

List Number: 1

Creator: Daniels, Brian J

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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.	N/A	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Clinch River - 6468-13-1072

TestAmerica Job ID: 160-4584-2

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
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)

TestAmerica St. Louis