

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: 160-4744-1

Client Project/Site: RFP-CBA-022 (7 DAY TAT)

For:

Westinghouse Electric Company LLC
3300 State Road P
Festus, Missouri 63028

Attn: Martin Swanson



Authorized for release by:
12/12/2013 3:00:06 PM

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

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

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Case Narrative

Client: Westinghouse Electric Company LLC
Project/Site: RFP-CBA-022 (7 DAY TAT)

TestAmerica Job ID: 160-4744-1

Job ID: 160-4744-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Westinghouse Electric Company LLC

Project: RFP-CBA-022 (7 DAY TAT)

Report Number: 160-4744-1

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.

RECEIPT

The samples were received on 12/03/2013; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 20.0 C.

TECHNETIUM-99 (ICPMS)

Samples L100701BUB00 (160-4744-1), L100702BES00 (160-4744-2), L100703BSS00 (160-4744-3), L100704BRQ00 (160-4744-4), L100704BRS00 (160-4744-5), L100705BES00 (160-4744-6), L100706BRS00 (160-4744-7), L100707BES00 (160-4744-8), L100708BES00 (160-4744-9), L100709BRS00 (160-4744-10), L100710BES00 (160-4744-11), L100711BRS00 (160-4744-12), L100712BES00 (160-4744-13), L100713BRS00 (160-4744-14) and L100714BES00 (160-4744-15) were analyzed for Technetium-99 (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 12/09/2013 and analyzed on 12/11/2013.

No difficulties were encountered during the Tc-99 analysis. All quality control parameters were within the acceptance limits.

PERCENT SOLIDS

Samples L100701BUB00 (160-4744-1), L100702BES00 (160-4744-2), L100703BSS00 (160-4744-3), L100704BRQ00 (160-4744-4),

Case Narrative

Client: Westinghouse Electric Company LLC
Project/Site: RFP-CBA-022 (7 DAY TAT)

TestAmerica Job ID: 160-4744-1

Job ID: 160-4744-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

L100704BRS00 (160-4744-5), L100705BES00 (160-4744-6), L100706BRS00 (160-4744-7), L100707BES00 (160-4744-8), L100708BES00 (160-4744-9), L100709BRS00 (160-4744-10), L100710BES00 (160-4744-11), L100711BRS00 (160-4744-12), L100712BES00 (160-4744-13), L100713BRS00 (160-4744-14) and L100714BES00 (160-4744-15) were analyzed for percent solids in accordance with EPA Method 160.3 MOD. The samples were analyzed on 12/04/2013.

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

Hematite Decommissioning Project

Procedure HDP-PR-QA-006, Chain of Custody

Revision: 3

Page 1 of 1

Westinghouse Non-Proprietary Class 3

FORM HDP-PR-QA-006-1

CHAIN OF CUSTODY

Instructions: Each time the container is transferred to another organization, a person from each organization should sign the CoC. The Laboratory/End User must verify that the sample is correctly identified before the sample is released for use or analysis and send the completed CoC to HDP.

Chain of Custody ID No. F-120213-01 Page 1/2				Requested Analysis												Laboratory Name:	
Project Name:				Comp (C) or Grab (G)	Gamma Spec	Isotopic Uranium	Tc-99	Gamma Spec (21 day ingrow for Ra-226)							Total Containers	Laboratory Name:	
Westinghouse Electric Company																TA-MO	
Contact Person:																Laboratory Address:	
Gerald Rood																13715 Rider Trail North	
Phone Number:																Phone No.	
314-810-3382				314-298-8566													
Sampler Name				Laboratory Contact Person:													
Scott Jenkins				Joe Walker													
				Phone No.													
				708-870-8453													
				Turn Around Time													
				Rush (7 days)													
				Remarks													
Sample ID	Date	Time	Matrix														
L100701BUB00	11/20/2013	9:45	S	C			X	X							1	LSA 10-07 Bias	
L100702BES00	11/26/2013	16:00	S	C			X	X							1	LSA 10-07 Sys.	
L100703BSS00	11/27/2013	14:30	S	C			X	X							1	LSA 10-07 Sys	
L100704BRQ00	11/27/2013	14:50	S	C			X	X							1	LSA 10-07 Q.C.	
L100704BRS00	11/27/2013	14:50	S	C			X	X							1	LSA 10-07 Sys	
L100705BES00	11/26/2013	15:50	S	C			X	X							1		
L100706BRS00	11/27/2013	14:10	S	C			X	X							1		
L100707BES00	11/27/2013	14:15	S	C			X	X							1		
L100708BES00	11/27/2013	10:00	S	C			X	X							1		
L100709BRS00	11/26/2013	15:30	S	C			X	X							1		
L100710BES00	11/26/2013	15:35	S	C			X	X							1		
L100711BRS00	11/27/2013	10:20	S	C			X	X							1	LSA 10-07 Sys	
Relinquished by: <i>[Signature]</i>		Date/Time		Received by: <i>[Signature]</i>		Date/Time		Total		Cooler Temperature:							
Company Name: <i>WEL</i>		12-3-13 1605		Company Name: <i>Crossroads</i>		12-3 1605		15		Ambient							
Received by:		Date/Time		Relinquished by: <i>[Signature]</i>		Date/Time		Cooler ID:		Shipper and Number:							
Company Name:				Company Name: <i>Crossroads</i>		12-3 1810		1202-02									
Relinquished by:		Date/Time		Received by: <i>[Signature]</i>		Date/Time		Comments: Please analyze samples for Tc-99 on a 7 TAT. Please analyze samples for Gamma Spec after a 21 day ingrowth period.									
Company Name:				Company Name: <i>TestAmerica</i>		12-03-13 18:10											
Relinquished by:		Date/Time		Received by:		Date/Time		Verified By: <i>[Signature]</i>									
Company Name:																	

47-147

FORM HDP-PR-QA-006-1
CHAIN OF CUSTODY

Instructions: Each time the container is transferred to another organization, a person from each organization should sign the CoC. The Laboratory/End User must verify that the sample is correctly identified before the sample is released for use or analysis and send the completed CoC to HDP.

[illegible]

Login Sample Receipt Checklist

Client: Westinghouse Electric Company LLC

Job Number: 160-4744-1

Login Number: 4744

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.	N/A	
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	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (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: Westinghouse Electric Company LLC
Project/Site: RFP-CBA-022 (7 DAY TAT)

TestAmerica Job ID: 160-4744-1

Qualifiers

Rad

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

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)

Method Summary

Client: Westinghouse Electric Company LLC
Project/Site: RFP-CBA-022 (7 DAY TAT)

TestAmerica Job ID: 160-4744-1

Method	Method Description	Protocol	Laboratory
6020A	Metals (ICP/MS), Tc-99	SW846	TAL SL
Moisture	Percent Moisture	EPA	TAL SL
6020A	Metals (ICP/MS), Tc-99 in Activity	SW846	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

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: Westinghouse Electric Company LLC
Project/Site: RFP-CBA-022 (7 DAY TAT)

TestAmerica Job ID: 160-4744-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-4744-1	L100701BUB00	Solid	11/20/13 09:45	12/03/13 18:10
160-4744-2	L100702BES00	Solid	11/26/13 16:00	12/03/13 18:10
160-4744-3	L100703BSS00	Solid	11/27/13 14:30	12/03/13 18:10
160-4744-4	L100704BRQ00	Solid	11/27/13 14:50	12/03/13 18:10
160-4744-5	L100704BRS00	Solid	11/27/13 14:50	12/03/13 18:10
160-4744-6	L100705BES00	Solid	11/26/13 15:50	12/03/13 18:10
160-4744-7	L100706BRS00	Solid	11/27/13 14:10	12/03/13 18:10
160-4744-8	L100707BES00	Solid	11/27/13 14:15	12/03/13 18:10
160-4744-9	L100708BES00	Solid	11/27/13 10:00	12/03/13 18:10
160-4744-10	L100709BRS00	Solid	11/26/13 15:30	12/03/13 18:10
160-4744-11	L100710BES00	Solid	11/26/13 15:35	12/03/13 18:10
160-4744-12	L100711BRS00	Solid	11/27/13 10:20	12/03/13 18:10
160-4744-13	L100712BES00	Solid	11/27/13 10:25	12/03/13 18:10
160-4744-14	L100713BRS00	Solid	11/27/13 10:50	12/03/13 18:10
160-4744-15	L100714BES00	Solid	11/27/13 11:00	12/03/13 18:10

Client Sample Results

Client: Westinghouse Electric Company LLC
Project/Site: RFP-CBA-022 (7 DAY TAT)

TestAmerica Job ID: 160-4744-1

Client Sample ID: L100701BUB00

Date Collected: 11/20/13 09:45

Date Received: 12/03/13 18:10

Lab Sample ID: 160-4744-1

Matrix: Solid

Percent Solids: 83.2

Method: 6020A - Metals (ICP/MS), Tc-99

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000064	0.000019	mg/Kg	☼	12/09/13 10:55	12/11/13 11:55	1

Method: 6020A - Metals (ICP/MS), Tc-99 in Activity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	-0.0280	U	-0.0338	0.0361	1.29	0.221	pCi/g	12/09/13 10:55	12/11/13 11:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	94		30 - 110					12/09/13 10:55	12/11/13 11:55	1

Client Sample ID: L100702BES00

Date Collected: 11/26/13 16:00

Date Received: 12/03/13 18:10

Lab Sample ID: 160-4744-2

Matrix: Solid

Percent Solids: 81.9

Method: 6020A - Metals (ICP/MS), Tc-99

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000066	0.000020	mg/Kg	☼	12/09/13 10:55	12/11/13 12:07	1

Method: 6020A - Metals (ICP/MS), Tc-99 in Activity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	-0.0215	U	-0.0625	0.0670	1.31	0.224	pCi/g	12/09/13 10:55	12/11/13 12:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	93		30 - 110					12/09/13 10:55	12/11/13 12:07	1

Client Sample ID: L100703BSS00

Date Collected: 11/27/13 14:30

Date Received: 12/03/13 18:10

Lab Sample ID: 160-4744-3

Matrix: Solid

Percent Solids: 81.4

Method: 6020A - Metals (ICP/MS), Tc-99

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000068	0.000020	mg/Kg	☼	12/09/13 10:55	12/11/13 12:11	1

Method: 6020A - Metals (ICP/MS), Tc-99 in Activity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	0.193	U	0.100	0.112	1.36	0.232	pCi/g	12/09/13 10:55	12/11/13 12:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	91		30 - 110					12/09/13 10:55	12/11/13 12:11	1

TestAmerica St. Louis

Client Sample Results

Client: Westinghouse Electric Company LLC
Project/Site: RFP-CBA-022 (7 DAY TAT)

TestAmerica Job ID: 160-4744-1

Client Sample ID: L100704BRQ00

Lab Sample ID: 160-4744-4

Date Collected: 11/27/13 14:50

Matrix: Solid

Date Received: 12/03/13 18:10

Percent Solids: 85.6

Method: 6020A - Metals (ICP/MS), Tc-99

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000062	0.000019	mg/Kg	☼	12/09/13 10:55	12/11/13 12:15	1

Method: 6020A - Metals (ICP/MS), Tc-99 in Activity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	-0.00597	U	-0.0363	0.0388	1.25	0.213	pCi/g	12/09/13 10:55	12/11/13 12:15	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	94		30 - 110					12/09/13 10:55	12/11/13 12:15	1

Client Sample ID: L100704BRS00

Lab Sample ID: 160-4744-5

Date Collected: 11/27/13 14:50

Matrix: Solid

Date Received: 12/03/13 18:10

Percent Solids: 85.0

Method: 6020A - Metals (ICP/MS), Tc-99

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000063	0.000019	mg/Kg	☼	12/09/13 10:55	12/11/13 12:18	1

Method: 6020A - Metals (ICP/MS), Tc-99 in Activity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	-0.00664	U	-0.00984	0.0104	1.25	0.214	pCi/g	12/09/13 10:55	12/11/13 12:18	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	95		30 - 110					12/09/13 10:55	12/11/13 12:18	1

Client Sample ID: L100705BES00

Lab Sample ID: 160-4744-6

Date Collected: 11/26/13 15:50

Matrix: Solid

Date Received: 12/03/13 18:10

Percent Solids: 80.8

Method: 6020A - Metals (ICP/MS), Tc-99

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000071	0.000021	mg/Kg	☼	12/09/13 10:55	12/11/13 12:22	1

Method: 6020A - Metals (ICP/MS), Tc-99 in Activity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	-0.0315	U	-0.0179	0.0207	1.43	0.245	pCi/g	12/09/13 10:55	12/11/13 12:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	87		30 - 110					12/09/13 10:55	12/11/13 12:22	1

Client Sample ID: L100706BRS00

Lab Sample ID: 160-4744-7

Date Collected: 11/27/13 14:10

Matrix: Solid

Date Received: 12/03/13 18:10

Percent Solids: 83.7

Method: 6020A - Metals (ICP/MS), Tc-99

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000064	0.000019	mg/Kg	☼	12/09/13 10:55	12/11/13 12:34	1

TestAmerica St. Louis

Client Sample Results

Client: Westinghouse Electric Company LLC
Project/Site: RFP-CBA-022 (7 DAY TAT)

TestAmerica Job ID: 160-4744-1

Client Sample ID: L100706BRS00

Lab Sample ID: 160-4744-7

Date Collected: 11/27/13 14:10

Matrix: Solid

Date Received: 12/03/13 18:10

Percent Solids: 83.7

Method: 6020A - Metals (ICP/MS), Tc-99 in Activity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	0.0983	U	0.0581	0.0622	1.27	0.218	pCi/g	12/09/13 10:55	12/11/13 12:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	95		30 - 110					12/09/13 10:55	12/11/13 12:34	1

Client Sample ID: L100707BES00

Lab Sample ID: 160-4744-8

Date Collected: 11/27/13 14:15

Matrix: Solid

Date Received: 12/03/13 18:10

Percent Solids: 83.4

Method: 6020A - Metals (ICP/MS), Tc-99

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000065	0.000019	mg/Kg	☼	12/09/13 10:55	12/11/13 12:38	1

Method: 6020A - Metals (ICP/MS), Tc-99 in Activity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	0.0398	U	0.0267	0.0293	1.30	0.222	pCi/g	12/09/13 10:55	12/11/13 12:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	92		30 - 110					12/09/13 10:55	12/11/13 12:38	1

Client Sample ID: L100708BES00

Lab Sample ID: 160-4744-9

Date Collected: 11/27/13 10:00

Matrix: Solid

Date Received: 12/03/13 18:10

Percent Solids: 81.5

Method: 6020A - Metals (ICP/MS), Tc-99

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000068	0.000020	mg/Kg	☼	12/09/13 10:55	12/11/13 12:42	1

Method: 6020A - Metals (ICP/MS), Tc-99 in Activity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	-0.0348	U	-0.0530	0.0582	1.35	0.232	pCi/g	12/09/13 10:55	12/11/13 12:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	91		30 - 110					12/09/13 10:55	12/11/13 12:42	1

Client Sample ID: L100709BRS00

Lab Sample ID: 160-4744-10

Date Collected: 11/26/13 15:30

Matrix: Solid

Date Received: 12/03/13 18:10

Percent Solids: 81.4

Method: 6020A - Metals (ICP/MS), Tc-99

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000066	0.000020	mg/Kg	☼	12/09/13 10:55	12/11/13 12:46	1

TestAmerica St. Louis

Client Sample Results

Client: Westinghouse Electric Company LLC
Project/Site: RFP-CBA-022 (7 DAY TAT)

TestAmerica Job ID: 160-4744-1

Client Sample ID: L100709BRS00

Lab Sample ID: 160-4744-10

Date Collected: 11/26/13 15:30

Matrix: Solid

Date Received: 12/03/13 18:10

Percent Solids: 81.4

Method: 6020A - Metals (ICP/MS), Tc-99 in Activity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	-0.0166	U	-0.0650	0.0691	1.31	0.224	pCi/g	12/09/13 10:55	12/11/13 12:46	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	94		30 - 110					12/09/13 10:55	12/11/13 12:46	1

Client Sample ID: L100710BES00

Lab Sample ID: 160-4744-11

Date Collected: 11/26/13 15:35

Matrix: Solid

Date Received: 12/03/13 18:10

Percent Solids: 80.7

Method: 6020A - Metals (ICP/MS), Tc-99

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000067	0.000020	mg/Kg	☼	12/09/13 10:55	12/11/13 12:49	1

Method: 6020A - Metals (ICP/MS), Tc-99 in Activity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	-0.0149	U	-0.0690	0.0748	1.34	0.230	pCi/g	12/09/13 10:55	12/11/13 12:49	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	92		30 - 110					12/09/13 10:55	12/11/13 12:49	1

Client Sample ID: L100711BRS00

Lab Sample ID: 160-4744-12

Date Collected: 11/27/13 10:20

Matrix: Solid

Date Received: 12/03/13 18:10

Percent Solids: 82.3

Method: 6020A - Metals (ICP/MS), Tc-99

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000065	0.000019	mg/Kg	☼	12/09/13 10:55	12/11/13 12:53	1

Method: 6020A - Metals (ICP/MS), Tc-99 in Activity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	-0.0293	U	-0.0469	0.0503	1.30	0.222	pCi/g	12/09/13 10:55	12/11/13 12:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	93		30 - 110					12/09/13 10:55	12/11/13 12:53	1

Client Sample ID: L100712BES00

Lab Sample ID: 160-4744-13

Date Collected: 11/27/13 10:25

Matrix: Solid

Date Received: 12/03/13 18:10

Percent Solids: 81.3

Method: 6020A - Metals (ICP/MS), Tc-99

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000066	0.000020	mg/Kg	☼	12/09/13 10:55	12/11/13 12:57	1

TestAmerica St. Louis

Client Sample Results

Client: Westinghouse Electric Company LLC
Project/Site: RFP-CBA-022 (7 DAY TAT)

TestAmerica Job ID: 160-4744-1

Client Sample ID: L100712BES00

Lab Sample ID: 160-4744-13

Date Collected: 11/27/13 10:25

Matrix: Solid

Date Received: 12/03/13 18:10

Percent Solids: 81.3

Method: 6020A - Metals (ICP/MS), Tc-99 in Activity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	-0.0202	U	-0.110	0.117	1.31	0.224	pCi/g	12/09/13 10:55	12/11/13 12:57	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	94		30 - 110					12/09/13 10:55	12/11/13 12:57	1

Client Sample ID: L100713BRS00

Lab Sample ID: 160-4744-14

Date Collected: 11/27/13 10:50

Matrix: Solid

Date Received: 12/03/13 18:10

Percent Solids: 81.0

Method: 6020A - Metals (ICP/MS), Tc-99

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000067	0.000020	mg/Kg	☼	12/09/13 10:55	12/11/13 13:01	1

Method: 6020A - Metals (ICP/MS), Tc-99 in Activity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	-0.00737	U	-0.0698	0.0755	1.35	0.230	pCi/g	12/09/13 10:55	12/11/13 13:01	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	93		30 - 110					12/09/13 10:55	12/11/13 13:01	1

Client Sample ID: L100714BES00

Lab Sample ID: 160-4744-15

Date Collected: 11/27/13 11:00

Matrix: Solid

Date Received: 12/03/13 18:10

Percent Solids: 79.9

Method: 6020A - Metals (ICP/MS), Tc-99

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000067	0.000020	mg/Kg	☼	12/09/13 10:55	12/11/13 13:05	1

Method: 6020A - Metals (ICP/MS), Tc-99 in Activity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	0.0213	U	0.0151	0.0163	1.34	0.230	pCi/g	12/09/13 10:55	12/11/13 13:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	93		30 - 110					12/09/13 10:55	12/11/13 13:05	1

TestAmerica St. Louis

QC Sample Results

Client: Westinghouse Electric Company LLC
Project/Site: RFP-CBA-022 (7 DAY TAT)

TestAmerica Job ID: 160-4744-1

Method: 6020A - Metals (ICP/MS), Tc-99

Lab Sample ID: MB 160-90407/1-A

Matrix: Solid

Analysis Batch: 91401

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 90407

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000051	0.000015	mg/Kg		12/09/13 10:55	12/11/13 11:48	1

Lab Sample ID: LCS 160-90407/2-A

Matrix: Solid

Analysis Batch: 91401

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 90407

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Technetium 99	0.00234	0.00232		mg/Kg		99	80 - 120

Lab Sample ID: 160-4744-1 MS

Matrix: Solid

Analysis Batch: 91401

Client Sample ID: L100701BUB00

Prep Type: Total/NA

Prep Batch: 90407

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Technetium 99	ND		0.00282	0.00273		mg/Kg	☼	97	75 - 125

Lab Sample ID: 160-4744-1 MSD

Matrix: Solid

Analysis Batch: 91401

Client Sample ID: L100701BUB00

Prep Type: Total/NA

Prep Batch: 90407

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Technetium 99	ND		0.00282	0.00266		mg/Kg	☼	94	75 - 125	2	30

Method: 6020A - Metals (ICP/MS), Tc-99 in Activity

Lab Sample ID: MB 160-90407/1-A

Matrix: Solid

Analysis Batch: 91402

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 90407

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	-0.02478	U	-0.0489	0.0504	1.03	0.176	pCi/g	12/09/13 10:55	12/11/13 11:48	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Re	97		30 - 110	12/09/13 10:55	12/11/13 11:48	1

Lab Sample ID: LCS 160-90407/2-A

Matrix: Solid

Analysis Batch: 91402

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 90407

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Technetium 99	40.1	39.65		3.89	1.02	0.175	pCi/g	99	80 - 120

Carrier	LCS %Yield	LCS Qualifier	Limits
Re	98		30 - 110

TestAmerica St. Louis

QC Sample Results

Client: Westinghouse Electric Company LLC
Project/Site: RFP-CBA-022 (7 DAY TAT)

TestAmerica Job ID: 160-4744-1

Method: 6020A - Metals (ICP/MS), Tc-99 in Activity (Continued)

Lab Sample ID: 160-4744-1 MS

Matrix: Solid

Analysis Batch: 91402

Client Sample ID: L100701BUB00

Prep Type: Total/NA

Prep Batch: 90407

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Technetium 99	-0.0280	U	48.3	46.74		5.55	1.32	0.226	pCi/g	97	75 - 125		
Carrier	MS %Yield	MS Qualifier	Limits										
Re	92		30 - 110										

Lab Sample ID: 160-4744-1 MSD

Matrix: Solid

Analysis Batch: 91402

Client Sample ID: L100701BUB00

Prep Type: Total/NA

Prep Batch: 90407

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Technetium 99	-0.0280	U	48.3	45.59		4.45	1.27	0.218	pCi/g	94	75 - 125	0.12	1
Carrier	MSD %Yield	MSD Qualifier	Limits										
Re	95		30 - 110										

QC Association Summary

Client: Westinghouse Electric Company LLC
Project/Site: RFP-CBA-022 (7 DAY TAT)

TestAmerica Job ID: 160-4744-1

Metals

Prep Batch: 90407

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-4744-1	L100701BUB00	Total/NA	Solid	None	
160-4744-1 MS	L100701BUB00	Total/NA	Solid	None	
160-4744-1 MSD	L100701BUB00	Total/NA	Solid	None	
160-4744-2	L100702BES00	Total/NA	Solid	None	
160-4744-3	L100703BSS00	Total/NA	Solid	None	
160-4744-4	L100704BRQ00	Total/NA	Solid	None	
160-4744-5	L100704BRS00	Total/NA	Solid	None	
160-4744-6	L100705BES00	Total/NA	Solid	None	
160-4744-7	L100706BRS00	Total/NA	Solid	None	
160-4744-8	L100707BES00	Total/NA	Solid	None	
160-4744-9	L100708BES00	Total/NA	Solid	None	
160-4744-10	L100709BRS00	Total/NA	Solid	None	
160-4744-11	L100710BES00	Total/NA	Solid	None	
160-4744-12	L100711BRS00	Total/NA	Solid	None	
160-4744-13	L100712BES00	Total/NA	Solid	None	
160-4744-14	L100713BRS00	Total/NA	Solid	None	
160-4744-15	L100714BES00	Total/NA	Solid	None	
LCS 160-90407/2-A	Lab Control Sample	Total/NA	Solid	None	
MB 160-90407/1-A	Method Blank	Total/NA	Solid	None	

Analysis Batch: 91401

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-4744-1	L100701BUB00	Total/NA	Solid	6020A	90407
160-4744-1 MS	L100701BUB00	Total/NA	Solid	6020A	90407
160-4744-1 MSD	L100701BUB00	Total/NA	Solid	6020A	90407
160-4744-2	L100702BES00	Total/NA	Solid	6020A	90407
160-4744-3	L100703BSS00	Total/NA	Solid	6020A	90407
160-4744-4	L100704BRQ00	Total/NA	Solid	6020A	90407
160-4744-5	L100704BRS00	Total/NA	Solid	6020A	90407
160-4744-6	L100705BES00	Total/NA	Solid	6020A	90407
160-4744-7	L100706BRS00	Total/NA	Solid	6020A	90407
160-4744-8	L100707BES00	Total/NA	Solid	6020A	90407
160-4744-9	L100708BES00	Total/NA	Solid	6020A	90407
160-4744-10	L100709BRS00	Total/NA	Solid	6020A	90407
160-4744-11	L100710BES00	Total/NA	Solid	6020A	90407
160-4744-12	L100711BRS00	Total/NA	Solid	6020A	90407
160-4744-13	L100712BES00	Total/NA	Solid	6020A	90407
160-4744-14	L100713BRS00	Total/NA	Solid	6020A	90407
160-4744-15	L100714BES00	Total/NA	Solid	6020A	90407
LCS 160-90407/2-A	Lab Control Sample	Total/NA	Solid	6020A	90407
MB 160-90407/1-A	Method Blank	Total/NA	Solid	6020A	90407

General Chemistry

Analysis Batch: 89681

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-4744-1	L100701BUB00	Total/NA	Solid	Moisture	
160-4744-1 DU	L100701BUB00	Total/NA	Solid	Moisture	
160-4744-2	L100702BES00	Total/NA	Solid	Moisture	
160-4744-3	L100703BSS00	Total/NA	Solid	Moisture	

TestAmerica St. Louis

QC Association Summary

Client: Westinghouse Electric Company LLC
Project/Site: RFP-CBA-022 (7 DAY TAT)

TestAmerica Job ID: 160-4744-1

General Chemistry (Continued)

Analysis Batch: 89681 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-4744-4	L100704BRQ00	Total/NA	Solid	Moisture	
160-4744-5	L100704BRS00	Total/NA	Solid	Moisture	
160-4744-6	L100705BES00	Total/NA	Solid	Moisture	
160-4744-7	L100706BRS00	Total/NA	Solid	Moisture	
160-4744-8	L100707BES00	Total/NA	Solid	Moisture	
160-4744-9	L100708BES00	Total/NA	Solid	Moisture	
160-4744-10	L100709BRS00	Total/NA	Solid	Moisture	
160-4744-11	L100710BES00	Total/NA	Solid	Moisture	
160-4744-12	L100711BRS00	Total/NA	Solid	Moisture	
160-4744-13	L100712BES00	Total/NA	Solid	Moisture	
160-4744-14	L100713BRS00	Total/NA	Solid	Moisture	
160-4744-15	L100714BES00	Total/NA	Solid	Moisture	

Rad

Prep Batch: 90407

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-4744-1	L100701BUB00	Total/NA	Solid	None	
160-4744-1 MS	L100701BUB00	Total/NA	Solid	None	
160-4744-1 MSD	L100701BUB00	Total/NA	Solid	None	
160-4744-2	L100702BES00	Total/NA	Solid	None	
160-4744-3	L100703BSS00	Total/NA	Solid	None	
160-4744-4	L100704BRQ00	Total/NA	Solid	None	
160-4744-5	L100704BRS00	Total/NA	Solid	None	
160-4744-6	L100705BES00	Total/NA	Solid	None	
160-4744-7	L100706BRS00	Total/NA	Solid	None	
160-4744-8	L100707BES00	Total/NA	Solid	None	
160-4744-9	L100708BES00	Total/NA	Solid	None	
160-4744-10	L100709BRS00	Total/NA	Solid	None	
160-4744-11	L100710BES00	Total/NA	Solid	None	
160-4744-12	L100711BRS00	Total/NA	Solid	None	
160-4744-13	L100712BES00	Total/NA	Solid	None	
160-4744-14	L100713BRS00	Total/NA	Solid	None	
160-4744-15	L100714BES00	Total/NA	Solid	None	
LCS 160-90407/2-A	Lab Control Sample	Total/NA	Solid	None	
MB 160-90407/1-A	Method Blank	Total/NA	Solid	None	

Tracer/Carrier Summary

Client: Westinghouse Electric Company LLC
Project/Site: RFP-CBA-022 (7 DAY TAT)

TestAmerica Job ID: 160-4744-1

Method: 6020A - Metals (ICP/MS), Tc-99 in Activity

Matrix: Solid

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Re (30-110)	
160-4744-1	L100701BUB00	94	
160-4744-1 MS	L100701BUB00	92	
160-4744-1 MSD	L100701BUB00	95	
160-4744-2	L100702BES00	93	
160-4744-3	L100703BSS00	91	
160-4744-4	L100704BRQ00	94	
160-4744-5	L100704BRS00	95	
160-4744-6	L100705BES00	87	
160-4744-7	L100706BRS00	95	
160-4744-8	L100707BES00	92	
160-4744-9	L100708BES00	91	
160-4744-10	L100709BRS00	94	
160-4744-11	L100710BES00	92	
160-4744-12	L100711BRS00	93	
160-4744-13	L100712BES00	94	
160-4744-14	L100713BRS00	93	
160-4744-15	L100714BES00	93	
LCS 160-90407/2-A	Lab Control Sample	98	
MB 160-90407/1-A	Method Blank	97	

Tracer/Carrier Legend

Re = Re