

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica St. Louis
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Earth City, MO 63045
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TestAmerica Job ID: 160-3234-1

Client Project/Site: RFP-CBA-022 (7 DAY TAT)
Revision: 1

For:

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

Attn: Martin Swanson



Authorized for release by:
8/13/2013 5:15:07 PM

Ivan Vania, Project Manager I
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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: 160-3234-1

Job ID: 160-3234-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Westinghouse Electric Company LLC

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

Report Number: 160-3234-1

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 08/03/2013; the samples arrived in good condition, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 0.8° C, 2.2° C, 23.7° C and 25.1° C. Several of the samples were received on ice with a temperature of < 2C. For this job, there are only rad analyses requested. Samples for rad analysis do not require cold preservation.

TECHNETIUM-99 (ICPMS)

Samples L100801BRS00 (160-3234-1), L100802BES00 (160-3234-2), L100803BES00 (160-3234-3), L100804BRS00 (160-3234-4), L100805BES00 (160-3234-5), L100806BES00 (160-3234-6), L100807BRQ00 (160-3234-7), L100807BRS00 (160-3234-8), L100808BES00 (160-3234-9), L100809BES00 (160-3234-10), L100810BES00 (160-3234-11), L100811BRS00 (160-3234-12), L100812BES00 (160-3234-13), L100813BES00 (160-3234-14) and L100814BRS00 (160-3234-15) were analyzed for Technetium-99 (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 08/07/2013 and analyzed on 08/09/2013.

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

PERCENT SOLIDS

Case Narrative

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

TestAmerica Job ID: 160-3234-1

Job ID: 160-3234-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

Samples L100801BRS00 (160-3234-1), L100802BES00 (160-3234-2), L100803BES00 (160-3234-3), L100804BRS00 (160-3234-4), L100805BES00 (160-3234-5), L100806BES00 (160-3234-6), L100807BRQ00 (160-3234-7), L100807BRS00 (160-3234-8), L100808BES00 (160-3234-9), L100809BES00 (160-3234-10), L100810BES00 (160-3234-11), L100811BRS00 (160-3234-12), L100812BES00 (160-3234-13), L100813BES00 (160-3234-14) and L100814BRS00 (160-3234-15) were analyzed for percent solids in accordance with EPA Method 160.3 MOD. The samples were analyzed on 08/05/2013.

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

CESIUM-137 & OTHER GAMMA EMITTERS (GS)





Samples L100801BRS00 (160-3234-1), L100802BES00 (160-3234-2), L100803BES00 (160-3234-3), L100804BRS00 (160-3234-4), L100805BES00 (160-3234-5), L100806BES00 (160-3234-6), L100807BRQ00 (160-3234-7), L100807BRS00 (160-3234-8), L100808BES00 (160-3234-9), L100809BES00 (160-3234-10), L100810BES00 (160-3234-11), L100811BRS00 (160-3234-12), L100812BES00 (160-3234-13), L100813BES00 (160-3234-14) and L100814BRS00 (160-3234-15) were analyzed for Cesium-137 & Other Gamma Emitters (GS) in accordance with DOE GA-01-R. The samples were leached on 08/06/2013, prepared on 08/08/2013 and analyzed on 08/08/2013, 08/09/2013 and 08/12/2013.

Preparation Batch 65524:

Radium-226 is reported in these samples at the client's request. Radium-226 is reported from the 609.31 keV line of Bismuth-214. Because the samples have not had a 21-day ingrowth, the activity for Radium-226 is an estimated value and may be biased low. This bias is caused by the disruption of secular equilibrium between Radium-226 and Bismuth-214 by the loss of Radon-222 during sample preparation.

Lead-214 analyzed by gamma spectroscopy was detected above the MDC in the method blank. Variations in Compton backgrounds and statistical analyses allow for small area counts in the ROIs of this nuclide. Other Uranium decay chain products are not present in the blank to support Lead-214 identification. The data is reported. (160-3234-1 DU), (LCS 160-65524/2-A), (MB 160-65524/1-A), L100801BRS00 (160-3234-1), L100802BES00 (160-3234-2), L100803BES00 (160-3234-3), L100804BRS00 (160-3234-4), L100805BES00 (160-3234-5), L100806BES00 (160-3234-6), L100807BRQ00 (160-3234-7), L100807BRS00 (160-3234-8), L100808BES00 (160-3234-9), L100809BES00 (160-3234-10), L100810BES00 (160-3234-11), L100811BRS00 (160-3234-12), L100812BES00 (160-3234-13), L100813BES00 (160-3234-14), L100814BRS00 (160-3234-15)

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

Hematite Decommissioning Project				Procedure HDP-PR-QA-006, Chain of Custody												Page 1 of 1		
				Revision: 3														
				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-080213-02 Page 1/2				Requested Analysis												Laboratory Name: TA-MO Laboratory Address: 13715 Rider Trail North Phone No. 314-298-8566 Laboratory Contact Person: Joe Walker Phone No. 708-870-8453 Turn Around Time Rush (7 days) Remarks		
Project Name: Westinghouse Electric Company Contact Person: Gerald Rood Phone Number: 314-810-3382 Sampler Name: Scott Jenkins				Total Containers	Gamma Spec	Isotopic Uranium	Tc-99	Gamma Spec (21 day ingrowth for Ra-226)										
Sample ID	Date	Time	Matrix													Comp (C) or Grab (G)		
L100801BRS00	8/1/2013	15:14	S	C	X	X	X	X									1	
L100802BES00	8/1/2013	15:23	S	C	X	X	X	X									1	
L100803BES00	8/1/2013	15:54	S	C	X	X	X	X									1	
L100804BRS00	8/1/2013	16:02	S	C	X	X	X	X									1	
L100805BES00	8/1/2013	16:08	S	C	X	X	X	X									1	
L100806BES00	8/1/2013	16:16	S	C	X	X	X	X									1	
L100807BRQ00	8/1/2013	17:40	S	C	X	X	X	X									1	
L100807BRS00	8/1/2013	17:40	S	C	X	X	X	X									1	
L100808BES00	8/1/2013	17:45	S	C	X	X	X	X									1	
L100809BES00	8/1/2013	16:35	S	C	X	X	X	X									1	
L100810BES00	8/1/2013	16:48	S	C	X	X	X	X									1	
L100811BRS00	8/1/2013	18:15	S	C	X	X	X	X									1	
Relinquished by: 				Date/Time: 8-3-13 1500		Received by: 				Date/Time: 8-3-13 15:00		Total: 15		Cooler Temperature: 4 Degrees C				
Company Name: WEL						Company Name: WEL						Cooler ID: 0803-02		Shipper and Number:				
Received by: 				Date/Time: 8-5-13 1601		Relinquished by:				Date/Time:		Comments: Please re-analyze samples after a 21 day ingrowth period.						
Company Name: T4						Company Name:												
Relinquished by:				Date/Time:		Received by:				Date/Time:								
Company Name:						Company Name:						Verified By: 						

3234-1
3234-2

Sys-FSS Samples LSA 10-08

Sys-FSS Samples LSA 10-08

Westinghouse Non-Proprietary Class 3

FORM HDP-PR-OA-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: 160-3234-1

Login Number: 3234

List Source: TestAmerica St. Louis

List Number: 1

Creator: Vania, Ivan H

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.	True	
Samples were received on ice.	True	Where required
Cooler Temperature is acceptable.	True	See NCM
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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

Definitions/Glossary

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

TestAmerica Job ID: 160-3234-1

Qualifiers

Metals

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.

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)
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: 160-3234-1

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
GA-01-R	Cesium-137 & Other Gamma Emitters (GS)	DOE	TAL SL

Protocol References:

DOE = U.S. Department of Energy

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: 160-3234-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-3234-1	L100801BRS00	Solid	08/01/13 15:14	08/03/13 16:01
160-3234-2	L100802BES00	Solid	08/01/13 15:23	08/03/13 16:01
160-3234-3	L100803BES00	Solid	08/01/13 15:54	08/03/13 16:01
160-3234-4	L100804BRS00	Solid	08/01/13 16:02	08/03/13 16:01
160-3234-5	L100805BES00	Solid	08/01/13 16:08	08/03/13 16:01
160-3234-6	L100806BES00	Solid	08/01/13 16:16	08/03/13 16:01
160-3234-7	L100807BRQ00	Solid	08/01/13 17:40	08/03/13 16:01
160-3234-8	L100807BRS00	Solid	08/01/13 17:40	08/03/13 16:01
160-3234-9	L100808BES00	Solid	08/01/13 17:45	08/03/13 16:01
160-3234-10	L100809BES00	Solid	08/01/13 16:35	08/03/13 16:01
160-3234-11	L100810BES00	Solid	08/01/13 16:48	08/03/13 16:01
160-3234-12	L100811BRS00	Solid	08/01/13 18:15	08/03/13 16:01
160-3234-13	L100812BES00	Solid	08/01/13 18:09	08/03/13 16:01
160-3234-14	L100813BES00	Solid	08/01/13 17:01	08/03/13 16:01
160-3234-15	L100814BRS00	Solid	08/01/13 18:00	08/03/13 16:01

Client Sample Results

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

TestAmerica Job ID: 160-3234-1

Client Sample ID: L100801BRS00

Lab Sample ID: 160-3234-1

Date Collected: 08/01/13 15:14

Matrix: Solid

Date Received: 08/03/13 16:01

Percent Solids: 83.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.000035	J	0.00065	0.000020	mg/Kg	☆	08/07/13 10:55	08/09/13 20:54	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	0.591		0.0244	0.0648	1.30	0.223	pCi/g	08/07/13 10:55	08/09/13 20:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	92		30 - 110					08/07/13 10:55	08/09/13 20:54	1

Method: GA-01-R - Cesium-137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	0.856		0.137	0.162		0.125	pCi/g	08/08/13 09:35	08/12/13 21:23	1
Americium 241	0.0267	U	0.0743	0.0743		0.124	pCi/g	08/08/13 09:35	08/12/13 21:23	1
Bismuth 212	1.28		0.435	0.455		0.398	pCi/g	08/08/13 09:35	08/12/13 21:23	1
Bismuth 214	0.829		0.0961	0.129		0.0692	pCi/g	08/08/13 09:35	08/12/13 21:23	1
Lead 212	0.998		0.0655	0.145		0.0550	pCi/g	08/08/13 09:35	08/12/13 21:23	1
Lead 214	0.932		0.0831	0.128		0.0613	pCi/g	08/08/13 09:35	08/12/13 21:23	1
Potassium 40	15.2		1.03	1.86		0.294	pCi/g	08/08/13 09:35	08/12/13 21:23	1
Protactinium 231	-0.555	U	0.715	0.717		1.18	pCi/g	08/08/13 09:35	08/12/13 21:23	1
Radium 226	0.829		0.0961	0.129	1.00	0.0692	pCi/g	08/08/13 09:35	08/12/13 21:23	1
Thorium 234	5.71		0.464	0.756	1.00	0.927	pCi/g	08/08/13 09:35	08/12/13 21:23	1
Uranium 235	1.60		0.191	0.252		0.221	pCi/g	08/08/13 09:35	08/12/13 21:23	1
Protactinium 234m	10.5		4.41	4.54		3.99	pCi/g	08/08/13 09:35	08/12/13 21:23	1
Thorium 232	0.856		0.137	0.162		0.125	pCi/g	08/08/13 09:35	08/12/13 21:23	1
Other Detected Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.285		0.0417	0.0511		0.0341	pCi/g	08/08/13 09:35	08/12/13 21:23	1

Client Sample ID: L100802BES00

Lab Sample ID: 160-3234-2

Date Collected: 08/01/13 15:23

Matrix: Solid

Date Received: 08/03/13 16:01

Percent Solids: 82.8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.00066	0.000020	mg/Kg	☆	08/07/13 10:55	08/09/13 21:06	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	0.295		0.0459	0.0584	1.32	0.226	pCi/g	08/07/13 10:55	08/09/13 21:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	91		30 - 110					08/07/13 10:55	08/09/13 21:06	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-3234-1

Client Sample ID: L100802BES00

Lab Sample ID: 160-3234-2

Date Collected: 08/01/13 15:23

Matrix: Solid

Date Received: 08/03/13 16:01

Method: GA-01-R - Cesium-137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Actinium 228	1.07		0.171	0.203		0.155	pCi/g	08/08/13 09:35	08/08/13 20:21	1
Americium 241	-0.0177	U	0.0702	0.0702		0.118	pCi/g	08/08/13 09:35	08/08/13 20:21	1
Bismuth 212	1.82		0.488	0.523		0.349	pCi/g	08/08/13 09:35	08/08/13 20:21	1
Bismuth 214	0.889		0.121	0.153		0.0753	pCi/g	08/08/13 09:35	08/08/13 20:21	1
Lead 212	1.03		0.0865	0.159		0.0743	pCi/g	08/08/13 09:35	08/08/13 20:21	1
Lead 214	0.782		0.107	0.134		0.0819	pCi/g	08/08/13 09:35	08/08/13 20:21	1
Potassium 40	17.6		1.41	2.29		0.339	pCi/g	08/08/13 09:35	08/08/13 20:21	1
Protactinium 231	-0.735	U	0.976	0.980		1.61	pCi/g	08/08/13 09:35	08/08/13 20:21	1
Radium 226	0.889		0.121	0.153	1.00	0.0753	pCi/g	08/08/13 09:35	08/08/13 20:21	1
Thorium 234	1.42		0.657	0.674	1.00	0.891	pCi/g	08/08/13 09:35	08/08/13 20:21	1
Uranium 235	0.279		0.167	0.169		0.250	pCi/g	08/08/13 09:35	08/08/13 20:21	1
Protactinium 234m	1.69	U	4.71	4.72		7.81	pCi/g	08/08/13 09:35	08/08/13 20:21	1
Thorium 232	1.07		0.171	0.203		0.155	pCi/g	08/08/13 09:35	08/08/13 20:21	1
Other Detected										
Radionuclides	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Tl-208	0.338		0.0503	0.0613		0.0310	pCi/g	08/08/13 09:35	08/08/13 20:21	1

Client Sample ID: L100803BES00

Lab Sample ID: 160-3234-3

Date Collected: 08/01/13 15:54

Matrix: Solid

Date Received: 08/03/13 16:01

Percent Solids: 81.8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.00064	0.000019	mg/Kg	☆	08/07/13 10:55	08/09/13 21:10	1

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

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Technetium 99	0.255		0.0525	0.0611	1.29	0.220	pCi/g	08/07/13 10:55	08/09/13 21:10	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	94		30 - 110					08/07/13 10:55	08/09/13 21:10	1

Method: GA-01-R - Cesium-137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Actinium 228	0.976		0.116	0.153		0.0887	pCi/g	08/08/13 09:35	08/08/13 20:23	1
Americium 241	0.00230	U	0.0633	0.0633		0.107	pCi/g	08/08/13 09:35	08/08/13 20:23	1
Bismuth 212	0.993		0.309	0.326		0.278	pCi/g	08/08/13 09:35	08/08/13 20:23	1
Bismuth 214	0.712		0.0795	0.109		0.0533	pCi/g	08/08/13 09:35	08/08/13 20:23	1
Lead 212	1.04		0.0677	0.150		0.0533	pCi/g	08/08/13 09:35	08/08/13 20:23	1
Lead 214	0.797		0.0733	0.111		0.0590	pCi/g	08/08/13 09:35	08/08/13 20:23	1
Potassium 40	18.1		1.05	2.13		0.270	pCi/g	08/08/13 09:35	08/08/13 20:23	1
Protactinium 231	0.403	U	0.221	0.226		1.06	pCi/g	08/08/13 09:35	08/08/13 20:23	1
Radium 226	0.712		0.0795	0.109	1.00	0.0533	pCi/g	08/08/13 09:35	08/08/13 20:23	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-3234-1

Client Sample ID: L100803BES00

Lab Sample ID: 160-3234-3

Date Collected: 08/01/13 15:54

Matrix: Solid

Date Received: 08/03/13 16:01

Method: GA-01-R - Cesium-137 & Other Gamma Emitters (GS) (Continued)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Thorium 234	2.32		0.652	0.696	1.00	0.792	pCi/g	08/08/13 09:35	08/08/13 20:23	1
Uranium 235	0.391		0.148	0.153		0.162	pCi/g	08/08/13 09:35	08/08/13 20:23	1
Protactinium 234m	0.000	U	2.98	2.98		7.14	pCi/g	08/08/13 09:35	08/08/13 20:23	1
Thorium 232	0.976		0.116	0.153		0.0887	pCi/g	08/08/13 09:35	08/08/13 20:23	1
Other Detected										
Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.328		0.0436	0.0553		0.0316	pCi/g	08/08/13 09:35	08/08/13 20:23	1

Client Sample ID: L100804BRS00

Lab Sample ID: 160-3234-4

Date Collected: 08/01/13 16:02

Matrix: Solid

Date Received: 08/03/13 16:01

Percent Solids: 84.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.00065	0.000020	mg/Kg	☼	08/07/13 10:55	08/09/13 21:14	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	0.168	U	0.0663	0.0749	1.31	0.224	pCi/g	08/07/13 10:55	08/09/13 21:14	1
Carrier										
Re	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
	91		30 - 110					08/07/13 10:55	08/09/13 21:14	1

Method: GA-01-R - Cesium-137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	0.741		0.115	0.138		0.0897	pCi/g	08/08/13 09:35	08/08/13 20:24	1
Americium 241	0.0223	U	0.0553	0.0553		0.0922	pCi/g	08/08/13 09:35	08/08/13 20:24	1
Bismuth 212	1.24		0.364	0.386		0.300	pCi/g	08/08/13 09:35	08/08/13 20:24	1
Bismuth 214	0.662		0.0810	0.106		0.0574	pCi/g	08/08/13 09:35	08/08/13 20:24	1
Lead 212	0.791		0.0651	0.121		0.0697	pCi/g	08/08/13 09:35	08/08/13 20:24	1
Lead 214	0.734		0.0831	0.113		0.0624	pCi/g	08/08/13 09:35	08/08/13 20:24	1
Potassium 40	16.0		0.970	1.91		0.266	pCi/g	08/08/13 09:35	08/08/13 20:24	1
Protactinium 231	0.363	U	0.213	0.216		0.997	pCi/g	08/08/13 09:35	08/08/13 20:24	1
Radium 226	0.662		0.0810	0.106	1.00	0.0574	pCi/g	08/08/13 09:35	08/08/13 20:24	1
Thorium 234	1.52		0.602	0.622	1.00	0.732	pCi/g	08/08/13 09:35	08/08/13 20:24	1
Uranium 235	0.106	U	0.124	0.124		0.222	pCi/g	08/08/13 09:35	08/08/13 20:24	1
Protactinium 234m	1.52	U	2.29	2.30		4.18	pCi/g	08/08/13 09:35	08/08/13 20:24	1
Thorium 232	0.741		0.115	0.138		0.0897	pCi/g	08/08/13 09:35	08/08/13 20:24	1
Other Detected										
Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.239		0.0434	0.0500		0.0374	pCi/g	08/08/13 09:35	08/08/13 20:24	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-3234-1

Client Sample ID: L100805BES00

Lab Sample ID: 160-3234-5

Date Collected: 08/01/13 16:08

Matrix: Solid

Date Received: 08/03/13 16:01

Percent Solids: 81.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.00067	0.000020	mg/Kg	☼	08/07/13 10:55	08/09/13 21:25	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	0.278		0.0592	0.0713	1.35	0.231	pCi/g	08/07/13 10:55	08/09/13 21:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	90		30 - 110					08/07/13 10:55	08/09/13 21:25	1

Method: GA-01-R - Cesium-137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	0.863		0.107	0.139		0.103	pCi/g	08/08/13 09:35	08/08/13 20:25	1
Americium 241	0.0237	U	0.0530	0.0530		0.0888	pCi/g	08/08/13 09:35	08/08/13 20:25	1
Bismuth 212	1.07		0.304	0.323		0.242	pCi/g	08/08/13 09:35	08/08/13 20:25	1
Bismuth 214	0.683		0.0869	0.112		0.0593	pCi/g	08/08/13 09:35	08/08/13 20:25	1
Lead 212	0.896		0.0670	0.134		0.0542	pCi/g	08/08/13 09:35	08/08/13 20:25	1
Lead 214	0.690		0.0829	0.110		0.0674	pCi/g	08/08/13 09:35	08/08/13 20:25	1
Potassium 40	16.5		1.14	2.03		0.298	pCi/g	08/08/13 09:35	08/08/13 20:25	1
Protactinium 231	1.19		0.460	0.478		0.748	pCi/g	08/08/13 09:35	08/08/13 20:25	1
Radium 226	0.683		0.0869	0.112	1.00	0.0593	pCi/g	08/08/13 09:35	08/08/13 20:25	1
Thorium 234	0.793		0.288	0.300	1.00	0.738	pCi/g	08/08/13 09:35	08/08/13 20:25	1
Uranium 235	0.109	U	0.133	0.133		0.222	pCi/g	08/08/13 09:35	08/08/13 20:25	1
Protactinium 234m	0.629	U	2.83	2.83		5.00	pCi/g	08/08/13 09:35	08/08/13 20:25	1
Thorium 232	0.863		0.107	0.139		0.103	pCi/g	08/08/13 09:35	08/08/13 20:25	1
Other Detected			Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radionuclides	Result	Qualifier								
Tl-208	0.321		0.0454	0.0563		0.0309	pCi/g	08/08/13 09:35	08/08/13 20:25	1

Client Sample ID: L100806BES00

Lab Sample ID: 160-3234-6

Date Collected: 08/01/13 16:16

Matrix: Solid

Date Received: 08/03/13 16:01

Percent Solids: 86.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.00065	0.000019	mg/Kg	☼	08/07/13 10:55	08/09/13 21:29	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	0.188	U	0.117	0.132	1.29	0.221	pCi/g	08/07/13 10:55	08/09/13 21:29	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	89		30 - 110					08/07/13 10:55	08/09/13 21:29	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-3234-1

Client Sample ID: L100806BES00

Lab Sample ID: 160-3234-6

Date Collected: 08/01/13 16:16

Matrix: Solid

Date Received: 08/03/13 16:01

Method: GA-01-R - Cesium-137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Actinium 228	0.814		0.120	0.146		0.0686	pCi/g	08/08/13 09:35	08/08/13 20:26	1
Americium 241	-0.000761	U	0.0479	0.0479		0.0816	pCi/g	08/08/13 09:35	08/08/13 20:26	1
Bismuth 212	0.729		0.329	0.338		0.337	pCi/g	08/08/13 09:35	08/08/13 20:26	1
Bismuth 214	0.623		0.0879	0.109		0.0596	pCi/g	08/08/13 09:35	08/08/13 20:26	1
Lead 212	0.823		0.0682	0.126		0.0542	pCi/g	08/08/13 09:35	08/08/13 20:26	1
Lead 214	0.599		0.0766	0.0987		0.0816	pCi/g	08/08/13 09:35	08/08/13 20:26	1
Potassium 40	14.0		1.11	1.81		0.163	pCi/g	08/08/13 09:35	08/08/13 20:26	1
Protactinium 231	0.450	U	0.259	0.264		1.12	pCi/g	08/08/13 09:35	08/08/13 20:26	1
Radium 226	0.623		0.0879	0.109	1.00	0.0596	pCi/g	08/08/13 09:35	08/08/13 20:26	1
Thorium 234	0.835		0.304	0.316	1.00	0.784	pCi/g	08/08/13 09:35	08/08/13 20:26	1
Uranium 235	0.138	U	0.140	0.140		0.236	pCi/g	08/08/13 09:35	08/08/13 20:26	1
Protactinium 234m	-0.0317	U	3.19	3.19		5.78	pCi/g	08/08/13 09:35	08/08/13 20:26	1
Thorium 232	0.814		0.120	0.146		0.0686	pCi/g	08/08/13 09:35	08/08/13 20:26	1
Other Detected										
Radionuclides	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Tl-208	0.269		0.0442	0.0523		0.0319	pCi/g	08/08/13 09:35	08/08/13 20:26	1

Client Sample ID: L100807BRQ00

Lab Sample ID: 160-3234-7

Date Collected: 08/01/13 17:40

Matrix: Solid

Date Received: 08/03/13 16:01

Percent Solids: 80.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.00069	0.000021	mg/Kg	☼	08/07/13 10:55	08/09/13 21:33	1

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

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Technetium 99	0.276		0.0225	0.0375	1.38	0.237	pCi/g	08/07/13 10:55	08/09/13 21:33	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	90		30 - 110					08/07/13 10:55	08/09/13 21:33	1

Method: GA-01-R - Cesium-137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Actinium 228	0.772		0.0993	0.127		0.0477	pCi/g	08/08/13 09:35	08/08/13 20:27	1
Americium 241	0.000	U	0.0260	0.0260		0.0800	pCi/g	08/08/13 09:35	08/08/13 20:27	1
Bismuth 212	1.08		0.312	0.332		0.265	pCi/g	08/08/13 09:35	08/08/13 20:27	1
Bismuth 214	0.605		0.0790	0.101		0.0565	pCi/g	08/08/13 09:35	08/08/13 20:27	1
Lead 212	0.842		0.0605	0.125		0.0476	pCi/g	08/08/13 09:35	08/08/13 20:27	1
Lead 214	0.703		0.0742	0.104		0.0516	pCi/g	08/08/13 09:35	08/08/13 20:27	1
Potassium 40	13.2		0.918	1.63		0.286	pCi/g	08/08/13 09:35	08/08/13 20:27	1
Protactinium 231	0.416	U	0.288	0.291		0.853	pCi/g	08/08/13 09:35	08/08/13 20:27	1
Radium 226	0.605		0.0790	0.101	1.00	0.0565	pCi/g	08/08/13 09:35	08/08/13 20:27	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-3234-1

Client Sample ID: L100807BRQ00

Lab Sample ID: 160-3234-7

Date Collected: 08/01/13 17:40

Matrix: Solid

Date Received: 08/03/13 16:01

Method: GA-01-R - Cesium-137 & Other Gamma Emitters (GS) (Continued)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Thorium 234	1.14		0.585	0.597	1.00	0.745	pCi/g	08/08/13 09:35	08/08/13 20:27	1
Uranium 235	0.0427	U	0.0895	0.0896		0.193	pCi/g	08/08/13 09:35	08/08/13 20:27	1
Protactinium 234m	3.54	U	2.66	2.68		4.35	pCi/g	08/08/13 09:35	08/08/13 20:27	1
Thorium 232	0.772		0.0993	0.127		0.0477	pCi/g	08/08/13 09:35	08/08/13 20:27	1
Other Detected			Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radionuclides	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.293		0.0345	0.0460		0.0170	pCi/g	08/08/13 09:35	08/08/13 20:27	1

Client Sample ID: L100807BRS00

Lab Sample ID: 160-3234-8

Date Collected: 08/01/13 17:40

Matrix: Solid

Date Received: 08/03/13 16:01

Percent Solids: 74.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.00074	0.000022	mg/Kg	☆	08/07/13 10:55	08/09/13 21:37	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	0.194	U	0.121	0.136	1.47	0.252	pCi/g	08/07/13 10:55	08/09/13 21:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	90		30 - 110					08/07/13 10:55	08/09/13 21:37	1

Method: GA-01-R - Cesium-137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	0.764		0.0884	0.118		0.0793	pCi/g	08/08/13 09:35	08/08/13 21:22	1
Americium 241	0.0157	U	0.0480	0.0481		0.0804	pCi/g	08/08/13 09:35	08/08/13 21:22	1
Bismuth 212	0.937		0.225	0.245		0.163	pCi/g	08/08/13 09:35	08/08/13 21:22	1
Bismuth 214	0.573		0.0709	0.0926		0.0487	pCi/g	08/08/13 09:35	08/08/13 21:22	1
Lead 212	0.713		0.0528	0.106		0.0451	pCi/g	08/08/13 09:35	08/08/13 21:22	1
Lead 214	0.596		0.0692	0.0929		0.0541	pCi/g	08/08/13 09:35	08/08/13 21:22	1
Potassium 40	13.0		0.824	1.57		0.229	pCi/g	08/08/13 09:35	08/08/13 21:22	1
Protactinium 231	0.246	U	0.145	0.147		0.842	pCi/g	08/08/13 09:35	08/08/13 21:22	1
Radium 226	0.573		0.0709	0.0926	1.00	0.0487	pCi/g	08/08/13 09:35	08/08/13 21:22	1
Thorium 234	0.717		0.462	0.468	1.00	0.623	pCi/g	08/08/13 09:35	08/08/13 21:22	1
Uranium 235	0.155		0.124	0.125		0.152	pCi/g	08/08/13 09:35	08/08/13 21:22	1
Protactinium 234m	0.731	U	2.21	2.21		3.41	pCi/g	08/08/13 09:35	08/08/13 21:22	1
Thorium 232	0.764		0.0884	0.118		0.0793	pCi/g	08/08/13 09:35	08/08/13 21:22	1
Other Detected			Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radionuclides	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.258		0.0326	0.0422		0.0223	pCi/g	08/08/13 09:35	08/08/13 21:22	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-3234-1

Client Sample ID: L100808BES00

Lab Sample ID: 160-3234-9

Date Collected: 08/01/13 17:45

Matrix: Solid

Date Received: 08/03/13 16:01

Percent Solids: 78.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.00070	0.000021	mg/Kg	☼	08/07/13 10:55	08/09/13 21:41	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	0.0296	U	0.0793	0.0865	1.41	0.241	pCi/g	08/07/13 10:55	08/09/13 21:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	92		30 - 110					08/07/13 10:55	08/09/13 21:41	1

Method: GA-01-R - Cesium-137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	1.04		0.134	0.171		0.111	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Americium 241	0.00444	U	0.0681	0.0681		0.115	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Bismuth 212	0.589		0.374	0.379		0.564	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Bismuth 214	0.775		0.104	0.131		0.0616	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Lead 212	1.05		0.0809	0.158		0.0683	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Lead 214	0.765		0.0873	0.118		0.0839	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Potassium 40	18.1		1.33	2.28		0.293	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Protactinium 231	0.451	U	0.254	0.259		1.31	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Radium 226	0.775		0.104	0.131	1.00	0.0616	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Thorium 234	0.795	U	0.331	0.341	1.00	0.878	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Uranium 235	0.0326	U	0.100	0.100		0.276	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Protactinium 234m	1.84	U	3.12	3.12		5.28	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Thorium 232	1.04		0.134	0.171		0.111	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Other Detected Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.300		0.0571	0.0650		0.0449	pCi/g	08/08/13 09:35	08/08/13 22:11	1

Client Sample ID: L100809BES00

Lab Sample ID: 160-3234-10

Date Collected: 08/01/13 16:35

Matrix: Solid

Date Received: 08/03/13 16:01

Percent Solids: 88.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.000041	J	0.00064	0.000019	mg/Kg	☼	08/07/13 10:55	08/09/13 21:45	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	0.695		0.133	0.166	1.27	0.218	pCi/g	08/07/13 10:55	08/09/13 21:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	89		30 - 110					08/07/13 10:55	08/09/13 21:45	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-3234-1

Client Sample ID: L100809BES00

Lab Sample ID: 160-3234-10

Date Collected: 08/01/13 16:35

Matrix: Solid

Date Received: 08/03/13 16:01

Method: GA-01-R - Cesium-137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Actinium 228	0.911		0.0981	0.135		0.102	pCi/g	08/08/13 09:35	08/08/13 22:08	1
Americium 241	0.0190	U	0.0420	0.0420		0.0702	pCi/g	08/08/13 09:35	08/08/13 22:08	1
Bismuth 212	0.972		0.298	0.315		0.269	pCi/g	08/08/13 09:35	08/08/13 22:08	1
Bismuth 214	0.666		0.0837	0.109		0.0576	pCi/g	08/08/13 09:35	08/08/13 22:08	1
Lead 212	0.829		0.0604	0.123		0.0487	pCi/g	08/08/13 09:35	08/08/13 22:08	1
Lead 214	0.662		0.0673	0.0963		0.0586	pCi/g	08/08/13 09:35	08/08/13 22:08	1
Potassium 40	14.8		0.965	1.80		0.318	pCi/g	08/08/13 09:35	08/08/13 22:08	1
Protactinium 231	0.356	U	0.281	0.284		0.893	pCi/g	08/08/13 09:35	08/08/13 22:08	1
Radium 226	0.666		0.0837	0.109	1.00	0.0576	pCi/g	08/08/13 09:35	08/08/13 22:08	1
Thorium 234	1.42		0.649	0.666	1.00	0.782	pCi/g	08/08/13 09:35	08/08/13 22:08	1
Uranium 235	0.195		0.101	0.103		0.154	pCi/g	08/08/13 09:35	08/08/13 22:08	1
Protactinium 234m	2.78	U	2.80	2.82		4.52	pCi/g	08/08/13 09:35	08/08/13 22:08	1
Thorium 232	0.911		0.0981	0.135		0.102	pCi/g	08/08/13 09:35	08/08/13 22:08	1
Other Detected										
Radionuclides	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Tl-208	0.250		0.0353	0.0438		0.0260	pCi/g	08/08/13 09:35	08/08/13 22:08	1

Client Sample ID: L100810BES00

Lab Sample ID: 160-3234-11

Date Collected: 08/01/13 16:48

Matrix: Solid

Date Received: 08/03/13 16:01

Percent Solids: 86.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.00063	0.000019	mg/Kg	☼	08/07/13 10:55	08/09/13 21:48	1

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

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Technetium 99	0.266		0.0798	0.0909	1.25	0.215	pCi/g	08/07/13 10:55	08/09/13 21:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	92		30 - 110					08/07/13 10:55	08/09/13 21:48	1

Method: GA-01-R - Cesium-137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Actinium 228	0.780		0.107	0.133		0.0851	pCi/g	08/08/13 09:35	08/08/13 22:09	1
Americium 241	-0.000887	U	0.0473	0.0473		0.0800	pCi/g	08/08/13 09:35	08/08/13 22:09	1
Bismuth 212	0.788		0.397	0.406		0.365	pCi/g	08/08/13 09:35	08/08/13 22:09	1
Bismuth 214	0.457		0.0673	0.0824		0.0771	pCi/g	08/08/13 09:35	08/08/13 22:09	1
Lead 212	0.675		0.0592	0.105		0.0645	pCi/g	08/08/13 09:35	08/08/13 22:09	1
Lead 214	0.545		0.0712	0.0910		0.0601	pCi/g	08/08/13 09:35	08/08/13 22:09	1
Potassium 40	12.8		0.847	1.56		0.250	pCi/g	08/08/13 09:35	08/08/13 22:09	1
Protactinium 231	0.0973	U	0.181	0.181		0.724	pCi/g	08/08/13 09:35	08/08/13 22:09	1
Radium 226	0.457		0.0673	0.0824	1.00	0.0771	pCi/g	08/08/13 09:35	08/08/13 22:09	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-3234-1

Client Sample ID: L100810BES00

Lab Sample ID: 160-3234-11

Date Collected: 08/01/13 16:48

Matrix: Solid

Date Received: 08/03/13 16:01

Method: GA-01-R - Cesium-137 & Other Gamma Emitters (GS) (Continued)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Thorium 234	1.34		0.568	0.585	1.00	0.710	pCi/g	08/08/13 09:35	08/08/13 22:09	1
Uranium 235	0.0268	U	0.0468	0.0469		0.161	pCi/g	08/08/13 09:35	08/08/13 22:09	1
Protactinium 234m	5.02		2.61	2.66		2.48	pCi/g	08/08/13 09:35	08/08/13 22:09	1
Thorium 232	0.780		0.107	0.133		0.0851	pCi/g	08/08/13 09:35	08/08/13 22:09	1
Other Detected										
Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.243		0.0355	0.0435		0.0266	pCi/g	08/08/13 09:35	08/08/13 22:09	1

Client Sample ID: L100811BRS00

Lab Sample ID: 160-3234-12

Date Collected: 08/01/13 18:15

Matrix: Solid

Date Received: 08/03/13 16:01

Percent Solids: 83.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.00065	0.000020	mg/Kg	☼	08/07/13 10:55	08/09/13 21:52	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	0.0301	U	0.0676	0.0738	1.30	0.223	pCi/g	08/07/13 10:55	08/09/13 21:52	1
Carrier										
Re	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
	92		30 - 110					08/07/13 10:55	08/09/13 21:52	1

Method: GA-01-R - Cesium-137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	0.796		0.132	0.155		0.122	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Americium 241	0.0352	U	0.0477	0.0478		0.0793	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Bismuth 212	1.03		0.454	0.466		0.426	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Bismuth 214	0.705		0.0992	0.123		0.0707	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Lead 212	0.837		0.0697	0.129		0.0571	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Lead 214	0.820		0.0806	0.117		0.0660	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Potassium 40	13.4		1.12	1.77		0.306	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Protactinium 231	0.418	U	0.300	0.304		1.01	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Radium 226	0.705		0.0992	0.123	1.00	0.0707	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Thorium 234	0.657	U	0.270	0.278	1.00	0.808	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Uranium 235	-0.00434	U	0.134	0.134		0.230	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Protactinium 234m	1.04	U	3.05	3.06		5.34	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Thorium 232	0.796		0.132	0.155		0.122	pCi/g	08/08/13 09:35	08/08/13 22:11	1
Other Detected										
Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.277		0.0473	0.0554		0.0353	pCi/g	08/08/13 09:35	08/08/13 22:11	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-3234-1

Client Sample ID: L100812BES00

Lab Sample ID: 160-3234-13

Date Collected: 08/01/13 18:09

Matrix: Solid

Date Received: 08/03/13 16:01

Percent Solids: 76.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.00072	0.000022	mg/Kg	☼	08/07/13 10:55	08/09/13 21:56	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	0.0372	U	0.0681	0.0754	1.44	0.246	pCi/g	08/07/13 10:55	08/09/13 21:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	90		30 - 110					08/07/13 10:55	08/09/13 21:56	1

Method: GA-01-R - Cesium-137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	1.01		0.119	0.157		0.0742	pCi/g	08/08/13 09:35	08/09/13 10:03	1
Americium 241	0.00986	U	0.0541	0.0541		0.0911	pCi/g	08/08/13 09:35	08/09/13 10:03	1
Bismuth 212	0.554		0.286	0.292		0.418	pCi/g	08/08/13 09:35	08/09/13 10:03	1
Bismuth 214	0.709		0.0877	0.114		0.0626	pCi/g	08/08/13 09:35	08/09/13 10:03	1
Lead 212	0.989		0.0667	0.144		0.0501	pCi/g	08/08/13 09:35	08/09/13 10:03	1
Lead 214	0.834		0.0846	0.121		0.0795	pCi/g	08/08/13 09:35	08/09/13 10:03	1
Potassium 40	15.5		1.01	1.88		0.333	pCi/g	08/08/13 09:35	08/09/13 10:03	1
Protactinium 231	0.406	U	0.206	0.210		0.845	pCi/g	08/08/13 09:35	08/09/13 10:03	1
Radium 226	0.709		0.0877	0.114	1.00	0.0626	pCi/g	08/08/13 09:35	08/09/13 10:03	1
Thorium 234	1.15		0.428	0.444	1.00	0.662	pCi/g	08/08/13 09:35	08/09/13 10:03	1
Uranium 235	0.121	U	0.132	0.132		0.216	pCi/g	08/08/13 09:35	08/09/13 10:03	1
Protactinium 234m	0.663	U	2.69	2.70		4.69	pCi/g	08/08/13 09:35	08/09/13 10:03	1
Thorium 232	1.01		0.119	0.157		0.0742	pCi/g	08/08/13 09:35	08/09/13 10:03	1
Other Detected Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.302		0.0422	0.0526		0.0315	pCi/g	08/08/13 09:35	08/09/13 10:03	1

Client Sample ID: L100813BES00

Lab Sample ID: 160-3234-14

Date Collected: 08/01/13 17:01

Matrix: Solid

Date Received: 08/03/13 16:01

Percent Solids: 86.8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.00064	0.000019	mg/Kg	☼	08/07/13 10:55	08/09/13 22:00	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	0.250		0.0490	0.0601	1.27	0.217	pCi/g	08/07/13 10:55	08/09/13 22:00	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	90		30 - 110					08/07/13 10:55	08/09/13 22:00	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-3234-1

Client Sample ID: L100813BES00

Lab Sample ID: 160-3234-14

Date Collected: 08/01/13 17:01

Matrix: Solid

Date Received: 08/03/13 16:01

Method: GA-01-R - Cesium-137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Actinium 228	0.883		0.138	0.165		0.0968	pCi/g	08/08/13 09:35	08/08/13 22:43	1
Americium 241	-0.00274	U	0.0589	0.0589		0.100	pCi/g	08/08/13 09:35	08/08/13 22:43	1
Bismuth 212	1.41		0.372	0.400		0.233	pCi/g	08/08/13 09:35	08/08/13 22:43	1
Bismuth 214	0.613		0.0882	0.109		0.0465	pCi/g	08/08/13 09:35	08/08/13 22:43	1
Lead 212	0.760		0.0722	0.122		0.0657	pCi/g	08/08/13 09:35	08/08/13 22:43	1
Lead 214	0.598		0.0874	0.107		0.0724	pCi/g	08/08/13 09:35	08/08/13 22:43	1
Potassium 40	13.9		1.20	1.86		0.310	pCi/g	08/08/13 09:35	08/08/13 22:43	1
Protactinium 231	-0.592	U	0.776	0.778		1.28	pCi/g	08/08/13 09:35	08/08/13 22:43	1
Radium 226	0.613		0.0882	0.109	1.00	0.0465	pCi/g	08/08/13 09:35	08/08/13 22:43	1
Thorium 234	0.846	U	0.661	0.667	1.00	0.877	pCi/g	08/08/13 09:35	08/08/13 22:43	1
Uranium 235	0.00379	U	0.0551	0.0551		0.227	pCi/g	08/08/13 09:35	08/08/13 22:43	1
Protactinium 234m	-0.0531	U	3.37	3.37		6.17	pCi/g	08/08/13 09:35	08/08/13 22:43	1
Thorium 232	0.883		0.138	0.165		0.0968	pCi/g	08/08/13 09:35	08/08/13 22:43	1
Other Detected										
Radionuclides	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Tl-208	0.317		0.0506	0.0604		0.0329	pCi/g	08/08/13 09:35	08/08/13 22:43	1

Client Sample ID: L100814BRS00

Lab Sample ID: 160-3234-15

Date Collected: 08/01/13 18:00

Matrix: Solid

Date Received: 08/03/13 16:01

Percent Solids: 90.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.000026	J	0.00064	0.000019	mg/Kg	☆	08/07/13 10:55	08/09/13 22:12	1

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

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Technetium 99	0.444		0.0721	0.0949	1.28	0.218	pCi/g	08/07/13 10:55	08/09/13 22:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	87		30 - 110					08/07/13 10:55	08/09/13 22:12	1

Method: GA-01-R - Cesium-137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Actinium 228	0.658		0.0816	0.106		0.0829	pCi/g	08/08/13 09:35	08/08/13 22:44	1
Americium 241	0.00952	U	0.0479	0.0479		0.0806	pCi/g	08/08/13 09:35	08/08/13 22:44	1
Bismuth 212	0.660		0.289	0.297		0.280	pCi/g	08/08/13 09:35	08/08/13 22:44	1
Bismuth 214	0.526		0.0666	0.0861		0.0491	pCi/g	08/08/13 09:35	08/08/13 22:44	1
Lead 212	0.647		0.0537	0.0995		0.0467	pCi/g	08/08/13 09:35	08/08/13 22:44	1
Lead 214	0.599		0.0752	0.0976		0.0584	pCi/g	08/08/13 09:35	08/08/13 22:44	1
Potassium 40	10.7		0.823	1.37		0.340	pCi/g	08/08/13 09:35	08/08/13 22:44	1
Protactinium 231	0.383	U	0.309	0.311		0.827	pCi/g	08/08/13 09:35	08/08/13 22:44	1
Radium 226	0.526		0.0666	0.0861	1.00	0.0491	pCi/g	08/08/13 09:35	08/08/13 22:44	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-3234-1

Client Sample ID: L100814BRS00

Lab Sample ID: 160-3234-15

Date Collected: 08/01/13 18:00

Matrix: Solid

Date Received: 08/03/13 16:01

Method: GA-01-R - Cesium-137 & Other Gamma Emitters (GS) (Continued)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Thorium 234	0.947		0.570	0.579	1.00	0.713	pCi/g	08/08/13 09:35	08/08/13 22:44	1
Uranium 235	0.0719	U	0.110	0.110		0.182	pCi/g	08/08/13 09:35	08/08/13 22:44	1
Protactinium 234m	1.11	U	2.26	2.26		3.86	pCi/g	08/08/13 09:35	08/08/13 22:44	1
Thorium 232	0.658		0.0816	0.106		0.0829	pCi/g	08/08/13 09:35	08/08/13 22:44	1
Other Detected										
Radionuclides	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Tl-208	0.203		0.0303	0.0369		0.0221	pCi/g	08/08/13 09:35	08/08/13 22:44	1

QC Sample Results

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

TestAmerica Job ID: 160-3234-1

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

Lab Sample ID: MB 160-65318/1-A

Matrix: Solid

Analysis Batch: 65972

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 65318

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.00055	0.000017	mg/Kg		08/07/13 10:55	08/09/13 20:46	1

Lab Sample ID: LCS 160-65318/2-A

Matrix: Solid

Analysis Batch: 65972

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 65318

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Technetium 99	0.00251	0.00240		mg/Kg		95	80 - 120

Lab Sample ID: 160-3234-1 MS

Matrix: Solid

Analysis Batch: 65972

Client Sample ID: L100801BRS00

Prep Type: Total/NA

Prep Batch: 65318

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Technetium 99	0.000035	J	0.00306	0.00282		mg/Kg	☼	91	75 - 125

Lab Sample ID: 160-3234-1 MSD

Matrix: Solid

Analysis Batch: 65972

Client Sample ID: L100801BRS00

Prep Type: Total/NA

Prep Batch: 65318

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Technetium 99	0.000035	J	0.00300	0.00285		mg/Kg	☼	94	75 - 125	1	30

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

Lab Sample ID: MB 160-65318/1-A

Matrix: Solid

Analysis Batch: 65973

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 65318

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	0.002262	U	0.0602	0.0662	1.10	0.188	pCi/g	08/07/13 10:55	08/09/13 20:46	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Re	91		30 - 110	08/07/13 10:55	08/09/13 20:46	1

Lab Sample ID: LCS 160-65318/2-A

Matrix: Solid

Analysis Batch: 65973

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 65318

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Technetium 99	43.0	41.01		4.09	1.07	0.184	pCi/g	95	80 - 120

Carrier	LCS %Yield	LCS Qualifier	Limits
Re	93		30 - 110

TestAmerica St. Louis

QC Sample Results

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

TestAmerica Job ID: 160-3234-1

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

Lab Sample ID: 160-3234-1 MS

Matrix: Solid

Analysis Batch: 65973

Client Sample ID: L100801BRS00

Prep Type: Total/NA

Prep Batch: 65318

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Technetium 99	0.591		52.4	48.26		4.86	1.31	0.224	pCi/g	91	75 - 125
Carrier	MS %Yield	MS Qualifier	Limits								
Re	91		30 - 110								

Lab Sample ID: 160-3234-1 MSD

Matrix: Solid

Analysis Batch: 65973

Client Sample ID: L100801BRS00

Prep Type: Total/NA

Prep Batch: 65318

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	0.591		51.4	48.84		5.19	1.29	0.220	pCi/g	94	75 - 125	0.06	1
Carrier	MSD %Yield	MSD Qualifier	Limits										
Re	94		30 - 110										

Method: GA-01-R - Cesium-137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-65524/1-A

Matrix: Solid

Analysis Batch: 65949

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 65524

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	0.01002	U	0.0212	0.0212		0.128	pCi/g	08/08/13 09:35	08/09/13 07:07	1
Americium 241	0.002838	U	0.0145	0.0145		0.0261	pCi/g	08/08/13 09:35	08/09/13 07:07	1
Bismuth 212	0.04701	U	0.104	0.104		0.190	pCi/g	08/08/13 09:35	08/09/13 07:07	1
Bismuth 214	0.03108	U	0.0271	0.0273		0.0382	pCi/g	08/08/13 09:35	08/09/13 07:07	1
Lead 212	-0.003624	U	0.0337	0.0337		0.0319	pCi/g	08/08/13 09:35	08/09/13 07:07	1
Lead 214	0.04104		0.0266	0.0270		0.0339	pCi/g	08/08/13 09:35	08/09/13 07:07	1
Potassium 40	0.01743	U	0.137	0.137		0.330	pCi/g	08/08/13 09:35	08/09/13 07:07	1
Protactinium 231	-0.0003607	U	0.00216	0.00216		0.481	pCi/g	08/08/13 09:35	08/09/13 07:07	1
Radium 226	0.03108	U	0.0271	0.0273	1.00	0.0382	pCi/g	08/08/13 09:35	08/09/13 07:07	1
Thorium 234	0.02238	U	0.0301	0.0302	1.00	0.313	pCi/g	08/08/13 09:35	08/09/13 07:07	1
Uranium 235	0.01884	U	0.0422	0.0422		0.0733	pCi/g	08/08/13 09:35	08/09/13 07:07	1
Protactinium 234m	0.0000	U	0.424	0.424		1.56	pCi/g	08/08/13 09:35	08/09/13 07:07	1
Thorium 232	0.01002	U	0.0212	0.0212		0.128	pCi/g	08/08/13 09:35	08/09/13 07:07	1
Other Detected Radionuclides	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Other Detected Radionuclide	None						pCi/g	08/08/13 09:35	08/09/13 07:07	1

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QC Sample Results

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

TestAmerica Job ID: 160-3234-1

Method: GA-01-R - Cesium-137 & Other Gamma Emitters (GS) (Continued)

Lab Sample ID: LCS 160-65524/2-A
Matrix: Solid
Analysis Batch: 65553

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 65524

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium 241	97.7	86.79		9.03		0.490	pCi/g	89	87 - 116
Cesium 137	31.7	29.79		3.13	0.200	0.165	pCi/g	94	87 - 120
Cobalt 60	24.9	23.51		2.38		0.118	pCi/g	94	87 - 115

Lab Sample ID: 160-3234-1 DU
Matrix: Solid
Analysis Batch: 66068

Client Sample ID: L100801BRS00
Prep Type: Total/NA
Prep Batch: 65524

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Actinium 228	0.856		0.9078		0.144		0.0993	pCi/g	0.17	1
Americium 241	0.0267	U	0.02963	U	0.0597		0.0989	pCi/g	0.02	1
Bismuth 212	1.28		1.098		0.303		0.263	pCi/g	0.24	1
Bismuth 214	0.829		0.8260		0.113		0.0500	pCi/g	0.01	1
Lead 212	0.998		1.010		0.142		0.0459	pCi/g	0.04	1
Lead 214	0.932		0.9306		0.117		0.0621	pCi/g	0	1
Potassium 40	15.2		15.54		1.80		0.276	pCi/g	0.1	1
Protactinium 231	-0.555	U	0.3512	U	0.191		0.814	pCi/g	1.0	1
Radium 226	0.829		0.8260		0.113	1.00	0.0500	pCi/g	0.01	1
Thorium 234	5.71		5.822		0.745	1.00	0.875	pCi/g	0.08	1
Uranium 235	1.60		1.644		0.271		0.223	pCi/g	0.08	1
Protactinium 234m	10.5		14.88		4.21		3.26	pCi/g	0.50	1
Thorium 232	0.856		0.9078		0.144		0.0993	pCi/g	0.17	1

QC Association Summary

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

TestAmerica Job ID: 160-3234-1

Metals

Prep Batch: 65318

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3234-1	L100801BRS00	Total/NA	Solid	None	
160-3234-1 MS	L100801BRS00	Total/NA	Solid	None	
160-3234-1 MSD	L100801BRS00	Total/NA	Solid	None	
160-3234-2	L100802BES00	Total/NA	Solid	None	
160-3234-3	L100803BES00	Total/NA	Solid	None	
160-3234-4	L100804BRS00	Total/NA	Solid	None	
160-3234-5	L100805BES00	Total/NA	Solid	None	
160-3234-6	L100806BES00	Total/NA	Solid	None	
160-3234-7	L100807BRQ00	Total/NA	Solid	None	
160-3234-8	L100807BRS00	Total/NA	Solid	None	
160-3234-9	L100808BES00	Total/NA	Solid	None	
160-3234-10	L100809BES00	Total/NA	Solid	None	
160-3234-11	L100810BES00	Total/NA	Solid	None	
160-3234-12	L100811BRS00	Total/NA	Solid	None	
160-3234-13	L100812BES00	Total/NA	Solid	None	
160-3234-14	L100813BES00	Total/NA	Solid	None	
160-3234-15	L100814BRS00	Total/NA	Solid	None	
LCS 160-65318/2-A	Lab Control Sample	Total/NA	Solid	None	
MB 160-65318/1-A	Method Blank	Total/NA	Solid	None	

Analysis Batch: 65972

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3234-1	L100801BRS00	Total/NA	Solid	6020A	65318
160-3234-1 MS	L100801BRS00	Total/NA	Solid	6020A	65318
160-3234-1 MSD	L100801BRS00	Total/NA	Solid	6020A	65318
160-3234-2	L100802BES00	Total/NA	Solid	6020A	65318
160-3234-3	L100803BES00	Total/NA	Solid	6020A	65318
160-3234-4	L100804BRS00	Total/NA	Solid	6020A	65318
160-3234-5	L100805BES00	Total/NA	Solid	6020A	65318
160-3234-6	L100806BES00	Total/NA	Solid	6020A	65318
160-3234-7	L100807BRQ00	Total/NA	Solid	6020A	65318
160-3234-8	L100807BRS00	Total/NA	Solid	6020A	65318
160-3234-9	L100808BES00	Total/NA	Solid	6020A	65318
160-3234-10	L100809BES00	Total/NA	Solid	6020A	65318
160-3234-11	L100810BES00	Total/NA	Solid	6020A	65318
160-3234-12	L100811BRS00	Total/NA	Solid	6020A	65318
160-3234-13	L100812BES00	Total/NA	Solid	6020A	65318
160-3234-14	L100813BES00	Total/NA	Solid	6020A	65318
160-3234-15	L100814BRS00	Total/NA	Solid	6020A	65318
LCS 160-65318/2-A	Lab Control Sample	Total/NA	Solid	6020A	65318
MB 160-65318/1-A	Method Blank	Total/NA	Solid	6020A	65318

General Chemistry

Analysis Batch: 64712

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3234-1	L100801BRS00	Total/NA	Solid	Moisture	
160-3234-1 DU	L100801BRS00	Total/NA	Solid	Moisture	
160-3234-2	L100802BES00	Total/NA	Solid	Moisture	
160-3234-3	L100803BES00	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: 160-3234-1

General Chemistry (Continued)

Analysis Batch: 64712 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3234-4	L100804BRS00	Total/NA	Solid	Moisture	
160-3234-5	L100805BES00	Total/NA	Solid	Moisture	
160-3234-6	L100806BES00	Total/NA	Solid	Moisture	
160-3234-7	L100807BRQ00	Total/NA	Solid	Moisture	
160-3234-8	L100807BRS00	Total/NA	Solid	Moisture	
160-3234-9	L100808BES00	Total/NA	Solid	Moisture	
160-3234-10	L100809BES00	Total/NA	Solid	Moisture	
160-3234-11	L100810BES00	Total/NA	Solid	Moisture	
160-3234-12	L100811BRS00	Total/NA	Solid	Moisture	
160-3234-13	L100812BES00	Total/NA	Solid	Moisture	
160-3234-14	L100813BES00	Total/NA	Solid	Moisture	
160-3234-15	L100814BRS00	Total/NA	Solid	Moisture	

Rad

Leach Batch: 64984

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3234-1	L100801BRS00	Total/NA	Solid	Dry and Grind	
160-3234-1 DU	L100801BRS00	Total/NA	Solid	Dry and Grind	
160-3234-2	L100802BES00	Total/NA	Solid	Dry and Grind	
160-3234-3	L100803BES00	Total/NA	Solid	Dry and Grind	
160-3234-4	L100804BRS00	Total/NA	Solid	Dry and Grind	
160-3234-5	L100805BES00	Total/NA	Solid	Dry and Grind	
160-3234-6	L100806BES00	Total/NA	Solid	Dry and Grind	
160-3234-7	L100807BRQ00	Total/NA	Solid	Dry and Grind	
160-3234-8	L100807BRS00	Total/NA	Solid	Dry and Grind	
160-3234-9	L100808BES00	Total/NA	Solid	Dry and Grind	
160-3234-10	L100809BES00	Total/NA	Solid	Dry and Grind	
160-3234-11	L100810BES00	Total/NA	Solid	Dry and Grind	
160-3234-12	L100811BRS00	Total/NA	Solid	Dry and Grind	
160-3234-13	L100812BES00	Total/NA	Solid	Dry and Grind	
160-3234-14	L100813BES00	Total/NA	Solid	Dry and Grind	
160-3234-15	L100814BRS00	Total/NA	Solid	Dry and Grind	

Prep Batch: 65318

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3234-1	L100801BRS00	Total/NA	Solid	None	
160-3234-1 MS	L100801BRS00	Total/NA	Solid	None	
160-3234-1 MSD	L100801BRS00	Total/NA	Solid	None	
160-3234-2	L100802BES00	Total/NA	Solid	None	
160-3234-3	L100803BES00	Total/NA	Solid	None	
160-3234-4	L100804BRS00	Total/NA	Solid	None	
160-3234-5	L100805BES00	Total/NA	Solid	None	
160-3234-6	L100806BES00	Total/NA	Solid	None	
160-3234-7	L100807BRQ00	Total/NA	Solid	None	
160-3234-8	L100807BRS00	Total/NA	Solid	None	
160-3234-9	L100808BES00	Total/NA	Solid	None	
160-3234-10	L100809BES00	Total/NA	Solid	None	
160-3234-11	L100810BES00	Total/NA	Solid	None	
160-3234-12	L100811BRS00	Total/NA	Solid	None	

TestAmerica St. Louis

QC Association Summary

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

TestAmerica Job ID: 160-3234-1

Rad (Continued)

Prep Batch: 65318 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3234-13	L100812BES00	Total/NA	Solid	None	
160-3234-14	L100813BES00	Total/NA	Solid	None	
160-3234-15	L100814BRS00	Total/NA	Solid	None	
LCS 160-65318/2-A	Lab Control Sample	Total/NA	Solid	None	
MB 160-65318/1-A	Method Blank	Total/NA	Solid	None	

Prep Batch: 65524

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3234-1	L100801BRS00	Total/NA	Solid	Fill_Geo-0	64984
160-3234-1 DU	L100801BRS00	Total/NA	Solid	Fill_Geo-0	64984
160-3234-2	L100802BES00	Total/NA	Solid	Fill_Geo-0	64984
160-3234-3	L100803BES00	Total/NA	Solid	Fill_Geo-0	64984
160-3234-4	L100804BRS00	Total/NA	Solid	Fill_Geo-0	64984
160-3234-5	L100805BES00	Total/NA	Solid	Fill_Geo-0	64984
160-3234-6	L100806BES00	Total/NA	Solid	Fill_Geo-0	64984
160-3234-7	L100807BRQ00	Total/NA	Solid	Fill_Geo-0	64984
160-3234-8	L100807BRS00	Total/NA	Solid	Fill_Geo-0	64984
160-3234-9	L100808BES00	Total/NA	Solid	Fill_Geo-0	64984
160-3234-10	L100809BES00	Total/NA	Solid	Fill_Geo-0	64984
160-3234-11	L100810BES00	Total/NA	Solid	Fill_Geo-0	64984
160-3234-12	L100811BRS00	Total/NA	Solid	Fill_Geo-0	64984
160-3234-13	L100812BES00	Total/NA	Solid	Fill_Geo-0	64984
160-3234-14	L100813BES00	Total/NA	Solid	Fill_Geo-0	64984
160-3234-15	L100814BRS00	Total/NA	Solid	Fill_Geo-0	64984
LCS 160-65524/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-0	
MB 160-65524/1-A	Method Blank	Total/NA	Solid	Fill_Geo-0	

Tracer/Carrier Summary

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

TestAmerica Job ID: 160-3234-1

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)	
160-3234-1	L100801BRS00	92	
160-3234-1 MS	L100801BRS00	91	
160-3234-1 MSD	L100801BRS00	94	
160-3234-2	L100802BES00	91	
160-3234-3	L100803BES00	94	
160-3234-4	L100804BRS00	91	
160-3234-5	L100805BES00	90	
160-3234-6	L100806BES00	89	
160-3234-7	L100807BRQ00	90	
160-3234-8	L100807BRS00	90	
160-3234-9	L100808BES00	92	
160-3234-10	L100809BES00	89	
160-3234-11	L100810BES00	92	
160-3234-12	L100811BRS00	92	
160-3234-13	L100812BES00	90	
160-3234-14	L100813BES00	90	
160-3234-15	L100814BRS00	87	
LCS 160-65318/2-A	Lab Control Sample	93	
MB 160-65318/1-A	Method Blank	91	

Tracer/Carrier Legend

Re = Re