

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: 160-3585-1

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:
9/9/2013 4:47:39 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: 160-3585-1

Job ID: 160-3585-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Westinghouse Electric Company LLC

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

Report Number: 160-3585-1

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 08/30/2013; 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 L0501100TUB0 (160-3585-1), L0501101TUB0 (160-3585-2), L0501102TUB0 (160-3585-3), L0501103TUB0 (160-3585-4), L0501104TUB0 (160-3585-5), L0501105TUB0 (160-3585-6), L0501106TUB0 (160-3585-7), L0501107TUB0 (160-3585-8), L0501108TUB0 (160-3585-9), L050198TUB00 (160-3585-10), L050199TUB00 (160-3585-11), L050146TSS00 (160-3585-12) and L050147TRS00 (160-3585-13) were analyzed for Technetium-99 (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 09/03/2013 and analyzed on 09/04/2013.

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

PERCENT SOLIDS

Samples L0501100TUB0 (160-3585-1), L0501101TUB0 (160-3585-2), L0501102TUB0 (160-3585-3), L0501103TUB0 (160-3585-4),

Case Narrative

Client: Westinghouse Electric Company LLC
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Laboratory: TestAmerica St. Louis (Continued)

L0501104TUB0 (160-3585-5), L0501105TUB0 (160-3585-6), L0501106TUB0 (160-3585-7), L0501107TUB0 (160-3585-8), L0501108TUB0 (160-3585-9), L050198TUB00 (160-3585-10), L050199TUB00 (160-3585-11), L050146TSS00 (160-3585-12) and L050147TRS00 (160-3585-13) were analyzed for percent solids in accordance with EPA Method 160.3 MOD. The samples were analyzed on 09/03/2013.

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

CESIUM-137 & OTHER GAMMA EMITTERS (GS)

Samples L0501100TUB0 (160-3585-1), L0501101TUB0 (160-3585-2), L0501102TUB0 (160-3585-3), L0501103TUB0 (160-3585-4), L0501104TUB0 (160-3585-5), L0501105TUB0 (160-3585-6), L0501106TUB0 (160-3585-7), L0501107TUB0 (160-3585-8), L0501108TUB0 (160-3585-9), L050198TUB00 (160-3585-10), L050199TUB00 (160-3585-11), L050146TSS00 (160-3585-12) and L050147TRS00 (160-3585-13) were analyzed for Cesium-137 & Other Gamma Emitters (GS) in accordance with DOE GA-01-R. The samples were leached on 09/03/2013, and prepared and analyzed on 09/05/2013.

Preparation Batch 70772:

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. (160-3585-13 DU), (LCS 160-70772/2-A), (MB 160-70772/1-A), L0501100TUB0 (160-3585-1), L0501101TUB0 (160-3585-2), L0501102TUB0 (160-3585-3), L0501103TUB0 (160-3585-4), L0501104TUB0 (160-3585-5), L0501105TUB0 (160-3585-6), L0501106TUB0 (160-3585-7), L0501107TUB0 (160-3585-8), L0501108TUB0 (160-3585-9), L050146TSS00 (160-3585-12), L050147TRS00 (160-3585-13), L050198TUB00 (160-3585-10), L050199TUB00 (160-3585-11)

The reporting limit for thorium-234 was not met due to insufficient sample weight available for analysis. Analytical results are reported with the MDC achieved. L0501101TUB0 (160-3585-2), L0501103TUB0 (160-3585-4), L0501108TUB0 (160-3585-9), L050199TUB00 (160-3585-11)

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

Revision: 3

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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-083013-01 Page 1/1				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	TA-MO	
Contact Person:															Laboratory Address:	
Phone Number:															Phone No.	
Sampler Name															Laboratory Contact Person:	
															Phone No.	
Westinghouse Electric Company															13715 Rider Trail North	
Gerald Rood															314-298-8566	
314-810-3382															Joe Walker	
Jeff Hoffman; Scott Jenkins															708-870-8453	
															Turn Around Time	
															Rush (7 days)	
															Remarks	
Sample ID	Date	Time	Matrix													
L0501100TUB0	8/29/2013	13:15	S	C	X		X	X						1	LSA 05-01 Bias	
L0501101TUB0	8/29/2013	13:30	S	C	X		X	X						1		
L0501102TUB0	8/29/2013	13:45	S	C	X		X	X						1		
L0501103TUB0	8/29/2013	14:00	S	C	X		X	X						1		
L0501104TUB0	8/29/2013	13:00	S	C	X		X	X						1		
L0501105TUB0	8/29/2013	13:15	S	C	X		X	X						1		
L0501106TUB0	8/29/2013	13:25	S	C	X		X	X						1		
L0501107TUB0	8/29/2013	13:40	S	C	X		X	X						1		
L0501108TUB0	8/29/2013	18:00	S	C	X		X	X						1		
L050198TUB00	8/28/2013	11:20	S	C	X		X	X						1		
L050199TUB00	8/29/2013	13:00	S	C	X		X	X						1	LSA 05-01 Bias	
Relinquished by: <i>[Signature]</i>				Date/Time	Received by: <i>[Signature]</i>				Date/Time	Total	Cooler Temperature:					
Company Name: <i>WEL</i>				8/30/13	Company Name: <i>Crossroads</i>				8-30 12:00	11	Ambient					
Received by: <i>[Signature]</i>				Date/Time	Relinquished by: <i>[Signature]</i>				Date/Time	Cooler ID:	Shipper and Number:					
Company Name: <i>JA</i>				8/30/13 17:10	Company Name: <i>Crossroads</i>				8-30 17:10	0830-01						
Relinquished by:				Date/Time	Received by:				Date/Time	Comments: Please re-analyze samples after 21-day ingrowth period.						
Company Name:					Company Name:											
										Verified By: <i>[Signature]</i>						

3585

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: 160-3585-1

Login Number: 3585

List Source: TestAmerica St. Louis

List Number: 1

Creator: Clarke, Jill C

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.	False	
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: 160-3585-1

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)
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: 160-3585-1

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: 160-3585-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-3585-1	L0501100TUB0	Solid	08/29/13 13:15	08/30/13 18:00
160-3585-2	L0501101TUB0	Solid	08/29/13 13:30	08/30/13 18:00
160-3585-3	L0501102TUB0	Solid	08/29/13 13:45	08/30/13 18:00
160-3585-4	L0501103TUB0	Solid	08/29/13 14:00	08/30/13 18:00
160-3585-5	L0501104TUB0	Solid	08/29/13 13:00	08/30/13 18:00
160-3585-6	L0501105TUB0	Solid	08/29/13 13:15	08/30/13 18:00
160-3585-7	L0501106TUB0	Solid	08/29/13 13:25	08/30/13 18:00
160-3585-8	L0501107TUB0	Solid	08/29/13 13:40	08/30/13 18:00
160-3585-9	L0501108TUB0	Solid	08/29/13 18:00	08/30/13 18:00
160-3585-10	L050198TUB00	Solid	08/29/13 11:20	08/30/13 18:00
160-3585-11	L050199TUB00	Solid	08/29/13 13:00	08/30/13 18:00
160-3585-12	L050146TSS00	Solid	08/30/13 08:10	08/30/13 18:00
160-3585-13	L050147TRS00	Solid	08/30/13 08:30	08/30/13 18:00

Client Sample Results

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

TestAmerica Job ID: 160-3585-1

Client Sample ID: L0501100TUB0

Lab Sample ID: 160-3585-1

Date Collected: 08/29/13 13:15

Matrix: Solid

Date Received: 08/30/13 18:00

Percent Solids: 96.8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000058	0.000017	mg/Kg	☆	09/03/13 10:58	09/04/13 17:48	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	0.217		0.0509	0.0621	1.16	0.199	pCi/g	09/03/13 10:58	09/04/13 17:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	88		30 - 110					09/03/13 10:58	09/04/13 17:48	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	0.301		0.0696	0.0760		0.0577	pCi/g	09/05/13 11:17	09/05/13 22:28	1
Americium 241	0.00962	U	0.0371	0.0371		0.0641	pCi/g	09/05/13 11:17	09/05/13 22:28	1
Bismuth 212	0.426		0.272	0.276		0.395	pCi/g	09/05/13 11:17	09/05/13 22:28	1
Bismuth 214	0.367		0.0611	0.0720		0.0354	pCi/g	09/05/13 11:17	09/05/13 22:28	1
Lead 212	0.331		0.0468	0.0634		0.0459	pCi/g	09/05/13 11:17	09/05/13 22:28	1
Lead 214	0.347		0.0705	0.0792		0.0625	pCi/g	09/05/13 11:17	09/05/13 22:28	1
Potassium 40	7.08		0.809	1.09		0.288	pCi/g	09/05/13 11:17	09/05/13 22:28	1
Protactinium 231	0.354	U	0.330	0.333		0.689	pCi/g	09/05/13 11:17	09/05/13 22:28	1
Radium 226	0.367		0.0611	0.0720	1.00	0.0354	pCi/g	09/05/13 11:17	09/05/13 22:28	1
Thorium 234	0.877		0.355	0.367	1.00	0.496	pCi/g	09/05/13 11:17	09/05/13 22:28	1
Uranium 235	0.101	U	0.0940	0.0946		0.152	pCi/g	09/05/13 11:17	09/05/13 22:28	1
Protactinium 234m	0.165	U	2.86	2.86		5.23	pCi/g	09/05/13 11:17	09/05/13 22:28	1
Thorium 232	0.301		0.0696	0.0760		0.0577	pCi/g	09/05/13 11:17	09/05/13 22:28	1
Other Detected Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.0929		0.0280	0.0296		0.0266	pCi/g	09/05/13 11:17	09/05/13 22:28	1

Client Sample ID: L0501101TUB0

Lab Sample ID: 160-3585-2

Date Collected: 08/29/13 13:30

Matrix: Solid

Date Received: 08/30/13 18:00

Percent Solids: 92.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.000081		0.000062	0.000019	mg/Kg	☆	09/03/13 10:58	09/04/13 17:59	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	1.39		0.155	0.231	1.25	0.214	pCi/g	09/03/13 10:58	09/04/13 17:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	87		30 - 110					09/03/13 10:58	09/04/13 17:59	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-3585-1

Client Sample ID: L0501101TUB0

Lab Sample ID: 160-3585-2

Date Collected: 08/29/13 13:30

Matrix: Solid

Date Received: 08/30/13 18:00

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	0.740		0.220	0.233		0.335	pCi/g	09/05/13 11:17	09/05/13 21:08	1
Americium 241	0.0522	U	0.152	0.152		0.245	pCi/g	09/05/13 11:17	09/05/13 21:08	1
Bismuth 212	0.734	U	0.809	0.812		1.31	pCi/g	09/05/13 11:17	09/05/13 21:08	1
Bismuth 214	0.923		0.202	0.224		0.171	pCi/g	09/05/13 11:17	09/05/13 21:08	1
Lead 212	0.966		0.154	0.259		0.175	pCi/g	09/05/13 11:17	09/05/13 21:08	1
Lead 214	0.895		0.171	0.208		0.190	pCi/g	09/05/13 11:17	09/05/13 21:08	1
Potassium 40	19.4		2.18	2.95		1.03	pCi/g	09/05/13 11:17	09/05/13 21:08	1
Protactinium 231	-0.499	U	1.49	1.49		2.57	pCi/g	09/05/13 11:17	09/05/13 21:08	1
Radium 226	0.923		0.202	0.224	1.00	0.171	pCi/g	09/05/13 11:17	09/05/13 21:08	1
Thorium 234	2.43	U	1.14	1.17	1.00	2.59	pCi/g	09/05/13 11:17	09/05/13 21:08	1
Uranium 235	0.221	U	0.377	0.377		0.637	pCi/g	09/05/13 11:17	09/05/13 21:08	1
Protactinium 234m	3.13	U	7.26	7.26		11.5	pCi/g	09/05/13 11:17	09/05/13 21:08	1
Thorium 232	0.740		0.220	0.233		0.335	pCi/g	09/05/13 11:17	09/05/13 21:08	1
Other Detected										
Radionuclides	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Tl-208	0.393		0.105	0.113		0.0893	pCi/g	09/05/13 11:17	09/05/13 21:08	1

Client Sample ID: L0501102TUB0

Lab Sample ID: 160-3585-3

Date Collected: 08/29/13 13:45

Matrix: Solid

Date Received: 08/30/13 18:00

Percent Solids: 91.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000058	0.000017	mg/Kg	☆	09/03/13 10:58	09/04/13 18:03	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	0.0498	U	0.0301	0.0319	1.15	0.197	pCi/g	09/03/13 10:58	09/04/13 18:03	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	95		30 - 110					09/03/13 10:58	09/04/13 18:03	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	0.404		0.0846	0.0941		0.0487	pCi/g	09/05/13 11:17	09/05/13 22:27	1
Americium 241	0.00588	U	0.0452	0.0452		0.0774	pCi/g	09/05/13 11:17	09/05/13 22:27	1
Bismuth 212	0.00251	U	0.282	0.282		0.521	pCi/g	09/05/13 11:17	09/05/13 22:27	1
Bismuth 214	0.351		0.0660	0.0754		0.0450	pCi/g	09/05/13 11:17	09/05/13 22:27	1
Lead 212	0.240		0.0583	0.0661		0.0574	pCi/g	09/05/13 11:17	09/05/13 22:27	1
Lead 214	0.288		0.0468	0.0556		0.0459	pCi/g	09/05/13 11:17	09/05/13 22:27	1
Potassium 40	7.30		0.906	1.17		0.335	pCi/g	09/05/13 11:17	09/05/13 22:27	1
Protactinium 231	0.104	U	0.197	0.197		0.783	pCi/g	09/05/13 11:17	09/05/13 22:27	1
Radium 226	0.351		0.0660	0.0754	1.00	0.0450	pCi/g	09/05/13 11:17	09/05/13 22:27	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-3585-1

Client Sample ID: L0501102TUB0

Lab Sample ID: 160-3585-3

Date Collected: 08/29/13 13:45

Matrix: Solid

Date Received: 08/30/13 18:00

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	0.874		0.569	0.576	1.00	0.684	pCi/g	09/05/13 11:17	09/05/13 22:27	1
Uranium 235	0.102	U	0.0938	0.0943		0.163	pCi/g	09/05/13 11:17	09/05/13 22:27	1
Protactinium 234m	0.482	U	2.53	2.53		4.69	pCi/g	09/05/13 11:17	09/05/13 22:27	1
Thorium 232	0.404		0.0846	0.0941		0.0487	pCi/g	09/05/13 11:17	09/05/13 22:27	1
Other Detected										
Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.105		0.0289	0.0309		0.0248	pCi/g	09/05/13 11:17	09/05/13 22:27	1

Client Sample ID: L0501103TUB0

Lab Sample ID: 160-3585-4

Date Collected: 08/29/13 14:00

Matrix: Solid

Date Received: 08/30/13 18:00

Percent Solids: 96.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.0027		0.000058	0.000017	mg/Kg	☼	09/03/13 10:58	09/04/13 18:07	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	46.8		0.555	4.77	1.15	0.197	pCi/g	09/03/13 10:58	09/04/13 18:07	1
Carrier										
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	91		30 - 110					09/03/13 10:58	09/04/13 18:07	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	0.273	U	0.273	0.274		0.561	pCi/g	09/05/13 11:17	09/05/13 21:34	1
Americium 241	0.0544	U	0.191	0.191		0.329	pCi/g	09/05/13 11:17	09/05/13 21:34	1
Bismuth 212	0.246	U	1.08	1.08		1.99	pCi/g	09/05/13 11:17	09/05/13 21:34	1
Bismuth 214	0.495		0.263	0.268		0.319	pCi/g	09/05/13 11:17	09/05/13 21:34	1
Lead 212	0.392		0.146	0.155		0.198	pCi/g	09/05/13 11:17	09/05/13 21:34	1
Lead 214	0.696		0.223	0.234		0.191	pCi/g	09/05/13 11:17	09/05/13 21:34	1
Potassium 40	2.81		1.50	1.53		2.05	pCi/g	09/05/13 11:17	09/05/13 21:34	1
Protactinium 231	0.116	U	0.714	0.714		2.97	pCi/g	09/05/13 11:17	09/05/13 21:34	1
Radium 226	0.495		0.263	0.268	1.00	0.319	pCi/g	09/05/13 11:17	09/05/13 21:34	1
Thorium 234	2.75		1.09	1.13	1.00	2.74	pCi/g	09/05/13 11:17	09/05/13 21:34	1
Uranium 235	0.929		0.381	0.393		0.497	pCi/g	09/05/13 11:17	09/05/13 21:34	1
Protactinium 234m	-2.23	U	11.6	11.6		21.7	pCi/g	09/05/13 11:17	09/05/13 21:34	1
Thorium 232	0.273	U	0.273	0.274		0.561	pCi/g	09/05/13 11:17	09/05/13 21:34	1
Other Detected										
Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Other Detected Radionuclide	None						pCi/g	09/05/13 11:17	09/05/13 21:34	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-3585-1

Client Sample ID: L0501104TUB0

Lab Sample ID: 160-3585-5

Date Collected: 08/29/13 13:00

Matrix: Solid

Date Received: 08/30/13 18:00

Percent Solids: 93.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.00099		0.000058	0.000017	mg/Kg	☼	09/03/13 10:58	09/04/13 18:11	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	16.9		0.341	1.73	1.16	0.199	pCi/g	09/03/13 10:58	09/04/13 18:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	92		30 - 110					09/03/13 10:58	09/04/13 18:11	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	0.315		0.0546	0.0633		0.0355	pCi/g	09/05/13 11:17	09/05/13 22:28	1
Americium 241	0.0132	U	0.0304	0.0304		0.0509	pCi/g	09/05/13 11:17	09/05/13 22:28	1
Bismuth 212	0.146	U	0.155	0.156		0.250	pCi/g	09/05/13 11:17	09/05/13 22:28	1
Bismuth 214	0.411		0.0501	0.0658		0.0304	pCi/g	09/05/13 11:17	09/05/13 22:28	1
Lead 212	0.270		0.0330	0.0480		0.0342	pCi/g	09/05/13 11:17	09/05/13 22:28	1
Lead 214	0.432		0.0538	0.0701		0.0405	pCi/g	09/05/13 11:17	09/05/13 22:28	1
Potassium 40	5.49		0.526	0.770		0.205	pCi/g	09/05/13 11:17	09/05/13 22:28	1
Protactinium 231	0.0795	U	0.177	0.178		0.466	pCi/g	09/05/13 11:17	09/05/13 22:28	1
Radium 226	0.411		0.0501	0.0658	1.00	0.0304	pCi/g	09/05/13 11:17	09/05/13 22:28	1
Thorium 234	0.912		0.416	0.427	1.00	0.504	pCi/g	09/05/13 11:17	09/05/13 22:28	1
Uranium 235	0.190		0.0789	0.0813		0.103	pCi/g	09/05/13 11:17	09/05/13 22:28	1
Protactinium 234m	1.61	U	1.60	1.61		2.75	pCi/g	09/05/13 11:17	09/05/13 22:28	1
Thorium 232	0.315		0.0546	0.0633		0.0355	pCi/g	09/05/13 11:17	09/05/13 22:28	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	0.115		0.0186	0.0221		0.0114	pCi/g	09/05/13 11:17	09/05/13 22:28	1

Client Sample ID: L0501105TUB0

Lab Sample ID: 160-3585-6

Date Collected: 08/29/13 13:15

Matrix: Solid

Date Received: 08/30/13 18:00

Percent Solids: 64.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.0034		0.000091	0.000027	mg/Kg	☼	09/03/13 10:58	09/04/13 18:23	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	58.4		1.22	6.49	1.82	0.311	pCi/g	09/03/13 10:58	09/04/13 18:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	85		30 - 110					09/03/13 10:58	09/04/13 18:23	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-3585-1

Client Sample ID: L0501105TUB0

Lab Sample ID: 160-3585-6

Date Collected: 08/29/13 13:15

Matrix: Solid

Date Received: 08/30/13 18:00

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	0.671		0.113	0.132		0.101	pCi/g	09/05/13 11:17	09/05/13 22:25	1
Americium 241	0.000192	U	0.0616	0.0616		0.104	pCi/g	09/05/13 11:17	09/05/13 22:25	1
Bismuth 212	0.979		0.317	0.333		0.243	pCi/g	09/05/13 11:17	09/05/13 22:25	1
Bismuth 214	0.629		0.0856	0.108		0.0626	pCi/g	09/05/13 11:17	09/05/13 22:25	1
Lead 212	0.611		0.0597	0.0990		0.0561	pCi/g	09/05/13 11:17	09/05/13 22:25	1
Lead 214	0.798		0.0767	0.113		0.0647	pCi/g	09/05/13 11:17	09/05/13 22:25	1
Potassium 40	17.4		1.13	2.11		0.325	pCi/g	09/05/13 11:17	09/05/13 22:25	1
Protactinium 231	0.170	U	0.137	0.139		1.03	pCi/g	09/05/13 11:17	09/05/13 22:25	1
Radium 226	0.629		0.0856	0.108	1.00	0.0626	pCi/g	09/05/13 11:17	09/05/13 22:25	1
Thorium 234	1.29		0.326	0.353	1.00	0.791	pCi/g	09/05/13 11:17	09/05/13 22:25	1
Uranium 235	0.365		0.161	0.165		0.198	pCi/g	09/05/13 11:17	09/05/13 22:25	1
Protactinium 234m	0.715	U	2.75	2.75		4.96	pCi/g	09/05/13 11:17	09/05/13 22:25	1
Thorium 232	0.671		0.113	0.132		0.101	pCi/g	09/05/13 11:17	09/05/13 22:25	1
Other Detected										
Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.204		0.0353	0.0412		0.0277	pCi/g	09/05/13 11:17	09/05/13 22:25	1

Client Sample ID: L0501106TUB0

Lab Sample ID: 160-3585-7

Date Collected: 08/29/13 13:25

Matrix: Solid

Date Received: 08/30/13 18:00

Percent Solids: 95.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.000087		0.000059	0.000018	mg/Kg	☆	09/03/13 10:58	09/04/13 18:26	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	1.49		0.124	0.208	1.18	0.202	pCi/g	09/03/13 10:58	09/04/13 18:26	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	89		30 - 110					09/03/13 10:58	09/04/13 18:26	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	0.577		0.155	0.166		0.189	pCi/g	09/05/13 11:17	09/05/13 23:02	1
Americium 241	0.0193	U	0.0685	0.0685		0.115	pCi/g	09/05/13 11:17	09/05/13 23:02	1
Bismuth 212	1.66		0.499	0.528		0.375	pCi/g	09/05/13 11:17	09/05/13 23:02	1
Bismuth 214	0.761		0.130	0.152		0.0922	pCi/g	09/05/13 11:17	09/05/13 23:02	1
Lead 212	0.846		0.0800	0.136		0.0663	pCi/g	09/05/13 11:17	09/05/13 23:02	1
Lead 214	0.788		0.105	0.133		0.0817	pCi/g	09/05/13 11:17	09/05/13 23:02	1
Potassium 40	16.4		1.47	2.23		0.436	pCi/g	09/05/13 11:17	09/05/13 23:02	1
Protactinium 231	0.462	U	0.288	0.292		1.55	pCi/g	09/05/13 11:17	09/05/13 23:02	1
Radium 226	0.761		0.130	0.152	1.00	0.0922	pCi/g	09/05/13 11:17	09/05/13 23:02	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-3585-1

Client Sample ID: L0501106TUB0

Lab Sample ID: 160-3585-7

Date Collected: 08/29/13 13:25

Matrix: Solid

Date Received: 08/30/13 18:00

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	1.24		0.384	0.405	1.00	0.998	pCi/g	09/05/13 11:17	09/05/13 23:02	1
Uranium 235	0.227		0.155	0.157		0.222	pCi/g	09/05/13 11:17	09/05/13 23:02	1
Protactinium 234m	0.353	U	3.96	3.96		7.18	pCi/g	09/05/13 11:17	09/05/13 23:02	1
Thorium 232	0.577		0.155	0.166		0.189	pCi/g	09/05/13 11:17	09/05/13 23:02	1
Other Detected										
Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.331		0.0540	0.0640		0.0353	pCi/g	09/05/13 11:17	09/05/13 23:02	1

Client Sample ID: L0501107TUB0

Lab Sample ID: 160-3585-8

Date Collected: 08/29/13 13:40

Matrix: Solid

Date Received: 08/30/13 18:00

Percent Solids: 98.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.000040	J	0.000055	0.000017	mg/Kg	☆	09/03/13 10:58	09/04/13 18:30	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	0.682		0.100	0.129	1.11	0.190	pCi/g	09/03/13 10:58	09/04/13 18:30	1
Carrier										
Re	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	92		30 - 110					09/03/13 10:58	09/04/13 18:30	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	0.152		0.0447	0.0473		0.0558	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Americium 241	0.00153	U	0.0291	0.0291		0.0495	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Bismuth 212	0.159	U	0.149	0.150		0.237	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Bismuth 214	0.464		0.0504	0.0698		0.0308	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Lead 212	0.133		0.0240	0.0295		0.0292	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Lead 214	0.504		0.0500	0.0724		0.0330	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Potassium 40	5.90		0.499	0.783		0.185	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Protactinium 231	0.177	U	0.207	0.208		0.393	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Radium 226	0.464		0.0504	0.0698	1.00	0.0308	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Thorium 234	0.731		0.290	0.300	1.00	0.381	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Uranium 235	0.0672	U	0.0669	0.0672		0.117	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Protactinium 234m	-0.351	U	14.1	14.1		2.29	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Thorium 232	0.152		0.0447	0.0473		0.0558	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Other Detected										
Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.0572		0.0159	0.0170		0.0147	pCi/g	09/05/13 11:17	09/05/13 23:04	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-3585-1

Client Sample ID: L0501108TUB0

Lab Sample ID: 160-3585-9

Date Collected: 08/29/13 18:00

Matrix: Solid

Date Received: 08/30/13 18:00

Percent Solids: 95.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.0019		0.000058	0.000017	mg/Kg	☆	09/03/13 10:58	09/04/13 18:34	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	32.5		0.513	3.32	1.16	0.198	pCi/g	09/03/13 10:58	09/04/13 18:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	91		30 - 110					09/03/13 10:58	09/04/13 18:34	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	0.176	U	0.169	0.170		0.280	pCi/g	09/05/13 11:17	09/05/13 23:41	1
Americium 241	0.0239	U	0.0817	0.0817		0.139	pCi/g	09/05/13 11:17	09/05/13 23:41	1
Bismuth 212	0.235	U	0.522	0.523		0.907	pCi/g	09/05/13 11:17	09/05/13 23:41	1
Bismuth 214	0.411		0.181	0.186		0.207	pCi/g	09/05/13 11:17	09/05/13 23:41	1
Lead 212	0.235		0.103	0.107		0.137	pCi/g	09/05/13 11:17	09/05/13 23:41	1
Lead 214	0.599		0.153	0.166		0.167	pCi/g	09/05/13 11:17	09/05/13 23:41	1
Potassium 40	0.0987	U	0.603	0.603		1.28	pCi/g	09/05/13 11:17	09/05/13 23:41	1
Protactinium 231	0.168	U	0.533	0.534		1.84	pCi/g	09/05/13 11:17	09/05/13 23:41	1
Radium 226	0.411		0.181	0.186	1.00	0.207	pCi/g	09/05/13 11:17	09/05/13 23:41	1
Thorium 234	1.56		0.985	0.999	1.00	1.38	pCi/g	09/05/13 11:17	09/05/13 23:41	1
Uranium 235	0.293	U	0.237	0.238		0.343	pCi/g	09/05/13 11:17	09/05/13 23:41	1
Protactinium 234m	2.86	U	5.25	5.26		9.03	pCi/g	09/05/13 11:17	09/05/13 23:41	1
Thorium 232	0.176	U	0.169	0.170		0.280	pCi/g	09/05/13 11:17	09/05/13 23:41	1
Other Detected Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Other Detected Radionuclide	None						pCi/g	09/05/13 11:17	09/05/13 23:41	1

Client Sample ID: L050198TUB00

Lab Sample ID: 160-3585-10

Date Collected: 08/29/13 11:20

Matrix: Solid

Date Received: 08/30/13 18:00

Percent Solids: 85.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.00022		0.000068	0.000020	mg/Kg	☆	09/03/13 10:58	09/04/13 18:38	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	3.71		0.217	0.465	1.36	0.232	pCi/g	09/03/13 10:58	09/04/13 18:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	87		30 - 110					09/03/13 10:58	09/04/13 18:38	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-3585-1

Client Sample ID: L050198TUB00

Lab Sample ID: 160-3585-10

Date Collected: 08/29/13 11:20

Matrix: Solid

Date Received: 08/30/13 18:00

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	0.916		0.120	0.152		0.105	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Americium 241	-0.00622	U	0.249	0.249		0.0878	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Bismuth 212	0.918		0.325	0.339		0.321	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Bismuth 214	0.678		0.0801	0.107		0.0471	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Lead 212	0.774		0.0628	0.118		0.0533	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Lead 214	0.709		0.0767	0.106		0.0722	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Potassium 40	17.8		1.15	2.16		0.235	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Protactinium 231	-0.518	U	0.651	0.653		1.07	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Radium 226	0.678		0.0801	0.107	1.00	0.0471	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Thorium 234	0.692		0.252	0.262	1.00	0.656	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Uranium 235	0.104	U	0.116	0.116		0.180	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Protactinium 234m	1.82	U	1.80	1.81		5.75	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Thorium 232	0.916		0.120	0.152		0.105	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Other Detected										
Radionuclides	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Tl-208	0.295		0.0410	0.0512		0.0289	pCi/g	09/05/13 11:17	09/05/13 23:04	1

Client Sample ID: L050199TUB00

Lab Sample ID: 160-3585-11

Date Collected: 08/29/13 13:00

Matrix: Solid

Date Received: 08/30/13 18:00

Percent Solids: 92.9

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.00010		0.000061	0.000018	mg/Kg	☆	09/03/13 10:58	09/04/13 18:42	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	1.78		0.210	0.301	1.22	0.209	pCi/g	09/03/13 10:58	09/04/13 18:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	88		30 - 110					09/03/13 10:58	09/04/13 18:42	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	0.944		0.208	0.230		0.126	pCi/g	09/05/13 11:17	09/05/13 21:37	1
Americium 241	0.00979	U	0.104	0.104		0.178	pCi/g	09/05/13 11:17	09/05/13 21:37	1
Bismuth 212	0.760	U	0.697	0.702		1.11	pCi/g	09/05/13 11:17	09/05/13 21:37	1
Bismuth 214	0.692		0.164	0.179		0.180	pCi/g	09/05/13 11:17	09/05/13 21:37	1
Lead 212	0.851		0.136	0.175		0.142	pCi/g	09/05/13 11:17	09/05/13 21:37	1
Lead 214	0.743		0.139	0.159		0.190	pCi/g	09/05/13 11:17	09/05/13 21:37	1
Potassium 40	18.2		1.87	2.65		0.944	pCi/g	09/05/13 11:17	09/05/13 21:37	1
Protactinium 231	0.424	U	0.723	0.725		2.19	pCi/g	09/05/13 11:17	09/05/13 21:37	1
Radium 226	0.692		0.164	0.179	1.00	0.180	pCi/g	09/05/13 11:17	09/05/13 21:37	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-3585-1

Client Sample ID: L050199TUB00

Lab Sample ID: 160-3585-11

Date Collected: 08/29/13 13:00

Matrix: Solid

Date Received: 08/30/13 18:00

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	0.678	U	0.558	0.562	1.00	1.45	pCi/g	09/05/13 11:17	09/05/13 21:37	1
Uranium 235	0.587		0.284	0.290		0.355	pCi/g	09/05/13 11:17	09/05/13 21:37	1
Protactinium 234m	0.551	U	5.69	5.69		10.4	pCi/g	09/05/13 11:17	09/05/13 21:37	1
Thorium 232	0.944		0.208	0.230		0.126	pCi/g	09/05/13 11:17	09/05/13 21:37	1
Other Detected										
Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.318		0.0959	0.101		0.0963	pCi/g	09/05/13 11:17	09/05/13 21:37	1

Client Sample ID: L050146TSS00

Lab Sample ID: 160-3585-12

Date Collected: 08/30/13 08:10

Matrix: Solid

Date Received: 08/30/13 18:00

Percent Solids: 94.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000055	0.000016	mg/Kg	☼	09/03/13 10:58	09/04/13 18:46	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	0.114	U	0.0694	0.0736	1.10	0.188	pCi/g	09/03/13 10:58	09/04/13 18:46	1
Carrier										
Re	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
	95		30 - 110					09/03/13 10:58	09/04/13 18:46	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	0.150		0.0508	0.0530		0.105	pCi/g	09/05/13 11:17	09/05/13 23:05	1
Americium 241	0.000	U	0.0199	0.0199		0.0621	pCi/g	09/05/13 11:17	09/05/13 23:05	1
Bismuth 212	0.0703	U	0.162	0.162		0.282	pCi/g	09/05/13 11:17	09/05/13 23:05	1
Bismuth 214	0.418		0.0596	0.0738		0.0372	pCi/g	09/05/13 11:17	09/05/13 23:05	1
Lead 212	0.149		0.0303	0.0359		0.0368	pCi/g	09/05/13 11:17	09/05/13 23:05	1
Lead 214	0.441		0.0547	0.0714		0.0423	pCi/g	09/05/13 11:17	09/05/13 23:05	1
Potassium 40	7.63		0.713	1.06		0.200	pCi/g	09/05/13 11:17	09/05/13 23:05	1
Protactinium 231	0.190	U	0.167	0.169		0.550	pCi/g	09/05/13 11:17	09/05/13 23:05	1
Radium 226	0.418		0.0596	0.0738	1.00	0.0372	pCi/g	09/05/13 11:17	09/05/13 23:05	1
Thorium 234	0.615		0.239	0.247	1.00	0.531	pCi/g	09/05/13 11:17	09/05/13 23:05	1
Uranium 235	0.0933	U	0.0922	0.0927		0.145	pCi/g	09/05/13 11:17	09/05/13 23:05	1
Protactinium 234m	1.57	U	1.81	1.82		2.92	pCi/g	09/05/13 11:17	09/05/13 23:05	1
Thorium 232	0.150		0.0508	0.0530		0.105	pCi/g	09/05/13 11:17	09/05/13 23:05	1
Other Detected										
Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.0770		0.0205	0.0220		0.0175	pCi/g	09/05/13 11:17	09/05/13 23:05	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-3585-1

Client Sample ID: L050147TRS00

Lab Sample ID: 160-3585-13

Date Collected: 08/30/13 08:30

Matrix: Solid

Date Received: 08/30/13 18:00

Percent Solids: 93.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000058	0.000017	mg/Kg	☼	09/03/13 10:58	09/04/13 18:50	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	0.0918	U	0.0519	0.0568	1.16	0.199	pCi/g	09/03/13 10:58	09/04/13 18:50	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Re	93		30 - 110	09/03/13 10:58	09/04/13 18:50	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	0.173		0.0391	0.0430		0.0355	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Americium 241	0.00113	U	0.0262	0.0262		0.0447	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Bismuth 212	0.310		0.140	0.144		0.136	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Bismuth 214	0.352		0.0492	0.0613		0.0333	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Lead 212	0.158		0.0246	0.0320		0.0271	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Lead 214	0.391		0.0448	0.0605		0.0299	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Potassium 40	6.90		0.542	0.890		0.136	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Protactinium 231	0.0938	U	0.0867	0.0873		0.495	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Radium 226	0.352		0.0492	0.0613	1.00	0.0333	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Thorium 234	0.679		0.339	0.346	1.00	0.423	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Uranium 235	0.0383	U	0.0634	0.0635		0.100	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Protactinium 234m	0.690	U	1.42	1.42		2.50	pCi/g	09/05/13 11:17	09/05/13 23:04	1
Thorium 232	0.173		0.0391	0.0430		0.0355	pCi/g	09/05/13 11:17	09/05/13 23:04	1

Other Detected Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.0446		0.0141	0.0148		0.0143	pCi/g	09/05/13 11:17	09/05/13 23:04	1

TestAmerica St. Louis

QC Sample Results

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

TestAmerica Job ID: 160-3585-1

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

Lab Sample ID: MB 160-70119/1-A

Matrix: Solid

Analysis Batch: 70773

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 70119

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000051	0.000015	mg/Kg		09/03/13 10:58	09/04/13 17:40	1

Lab Sample ID: LCS 160-70119/2-A

Matrix: Solid

Analysis Batch: 70773

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 70119

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Technetium 99	0.00240	0.00251		mg/Kg		105	80 - 120

Lab Sample ID: 160-3585-1 MS

Matrix: Solid

Analysis Batch: 70773

Client Sample ID: L0501100TUB0

Prep Type: Total/NA

Prep Batch: 70119

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Technetium 99	ND		0.00274	0.00243		mg/Kg	☼	88	75 - 125

Lab Sample ID: 160-3585-1 MSD

Matrix: Solid

Analysis Batch: 70773

Client Sample ID: L0501100TUB0

Prep Type: Total/NA

Prep Batch: 70119

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Technetium 99	ND		0.00272	0.00231		mg/Kg	☼	85	75 - 125	5	30

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

Lab Sample ID: MB 160-70119/1-A

Matrix: Solid

Analysis Batch: 70774

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 70119

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	0.04020	U	0.0476	0.0488	1.03	0.176	pCi/g	09/03/13 10:58	09/04/13 17:40	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Re	98		30 - 110	09/03/13 10:58	09/04/13 17:40	1

Lab Sample ID: LCS 160-70119/2-A

Matrix: Solid

Analysis Batch: 70774

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 70119

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Technetium 99	41.1	43.03		4.54	1.03	0.176	pCi/g	105	80 - 120

Carrier	LCS %Yield	LCS Qualifier	Limits
Re	97		30 - 110

TestAmerica St. Louis

QC Sample Results

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

TestAmerica Job ID: 160-3585-1

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

Lab Sample ID: 160-3585-1 MS

Matrix: Solid

Analysis Batch: 70774

Client Sample ID: L0501100TUB0

Prep Type: Total/NA

Prep Batch: 70119

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Technetium 99	0.217		47.0	41.57		4.46	1.17	0.201	pCi/g	88	75 - 125
Carrier	MS %Yield	MS Qualifier	Limits								
Re	89		30 - 110								

Lab Sample ID: 160-3585-1 MSD

Matrix: Solid

Analysis Batch: 70774

Client Sample ID: L0501100TUB0

Prep Type: Total/NA

Prep Batch: 70119

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	0.217		46.6	39.61		4.11	1.16	0.199	pCi/g	85	75 - 125	0.23	1
Carrier	MSD %Yield	MSD Qualifier	Limits										
Re	89		30 - 110										

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

Lab Sample ID: MB 160-70772/1-A

Matrix: Solid

Analysis Batch: 71113

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 70772

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	0.003480	U	0.0290	0.0290		0.0552	pCi/g	09/05/13 11:17	09/06/13 14:30	1
Americium 241	0.006637	U	0.0114	0.0114		0.0194	pCi/g	09/05/13 11:17	09/06/13 14:30	1
Bismuth 212	0.03470	U	0.0848	0.0849		0.153	pCi/g	09/05/13 11:17	09/06/13 14:30	1
Bismuth 214	-0.01595	U	0.638	0.638		0.0393	pCi/g	09/05/13 11:17	09/06/13 14:30	1
Lead 212	0.001568	U	0.0124	0.0124		0.0246	pCi/g	09/05/13 11:17	09/06/13 14:30	1
Lead 214	-0.006096	U	0.0370	0.0370		0.0338	pCi/g	09/05/13 11:17	09/06/13 14:30	1
Potassium 40	-0.001517	U	0.0978	0.0978		0.236	pCi/g	09/05/13 11:17	09/06/13 14:30	1
Protactinium 231	-0.007554	U	0.0168	0.0168		0.292	pCi/g	09/05/13 11:17	09/06/13 14:30	1
Radium 226	-0.01595	U	0.638	0.638	1.00	0.0393	pCi/g	09/05/13 11:17	09/06/13 14:30	1
Thorium 234	-0.07750	U	0.371	0.371	1.00	0.264	pCi/g	09/05/13 11:17	09/06/13 14:30	1
Uranium 235	0.004401	U	0.0175	0.0175		0.0589	pCi/g	09/05/13 11:17	09/06/13 14:30	1
Protactinium 234m	0.2023	U	0.616	0.616		2.12	pCi/g	09/05/13 11:17	09/06/13 14:30	1
Thorium 232	0.003480	U	0.0290	0.0290		0.0552	pCi/g	09/05/13 11:17	09/06/13 14:30	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	09/05/13 11:17	09/06/13 14:30	1

TestAmerica St. Louis

QC Sample Results

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

TestAmerica Job ID: 160-3585-1

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

Lab Sample ID: LCS 160-70772/2-A
Matrix: Solid
Analysis Batch: 70831

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 70772

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium 241	97.7	95.30		9.92		0.566	pCi/g	98	87 - 116
Cesium 137	31.6	31.37		3.29	0.200	0.173	pCi/g	99	87 - 120
Cobalt 60	24.7	24.21		2.45		0.109	pCi/g	98	87 - 115

Lab Sample ID: 160-3585-13 DU
Matrix: Solid
Analysis Batch: 70831

Client Sample ID: L050147TRS00
Prep Type: Total/NA
Prep Batch: 70772

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Actinium 228	0.173		0.1118		0.0550		0.0883	pCi/g	0.63	1
Americium 241	0.00113	U	0.000243	U	0.0322		0.0553	pCi/g	0.02	1
Bismuth 212	0.310		0.2572		0.166		0.176	pCi/g	0.17	1
Bismuth 214	0.352		0.3548		0.0670		0.0291	pCi/g	0.02	1
Lead 212	0.158		0.1699		0.0379		0.0348	pCi/g	0.17	1
Lead 214	0.391		0.3820		0.0651		0.0438	pCi/g	0.07	1
Potassium 40	6.90		6.839		1.02		0.307	pCi/g	0.03	1
Protactinium 231	0.0938	U	0.2685	U	0.184		0.666	pCi/g	0.64	1
Radium 226	0.352		0.3548		0.0670	1.00	0.0291	pCi/g	0.02	1
Thorium 234	0.679		0.5246	U	0.238	1.00	0.562	pCi/g	0.26	1
Uranium 235	0.0383	U	0.08916	U	0.0858		0.128	pCi/g	0.34	1
Protactinium 234m	0.690	U	1.117	U	1.50		4.00	pCi/g	0.15	1
Thorium 232	0.173		0.1118		0.0550		0.0883	pCi/g	0.63	1

QC Association Summary

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

TestAmerica Job ID: 160-3585-1

Metals

Prep Batch: 70119

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3585-1	L0501100TUB0	Total/NA	Solid	None	
160-3585-1 MS	L0501100TUB0	Total/NA	Solid	None	
160-3585-1 MSD	L0501100TUB0	Total/NA	Solid	None	
160-3585-2	L0501101TUB0	Total/NA	Solid	None	
160-3585-3	L0501102TUB0	Total/NA	Solid	None	
160-3585-4	L0501103TUB0	Total/NA	Solid	None	
160-3585-5	L0501104TUB0	Total/NA	Solid	None	
160-3585-6	L0501105TUB0	Total/NA	Solid	None	
160-3585-7	L0501106TUB0	Total/NA	Solid	None	
160-3585-8	L0501107TUB0	Total/NA	Solid	None	
160-3585-9	L0501108TUB0	Total/NA	Solid	None	
160-3585-10	L050198TUB00	Total/NA	Solid	None	
160-3585-11	L050199TUB00	Total/NA	Solid	None	
160-3585-12	L050146TSS00	Total/NA	Solid	None	
160-3585-13	L050147TRS00	Total/NA	Solid	None	
LCS 160-70119/2-A	Lab Control Sample	Total/NA	Solid	None	
MB 160-70119/1-A	Method Blank	Total/NA	Solid	None	

Analysis Batch: 70773

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3585-1	L0501100TUB0	Total/NA	Solid	6020A	70119
160-3585-1 MS	L0501100TUB0	Total/NA	Solid	6020A	70119
160-3585-1 MSD	L0501100TUB0	Total/NA	Solid	6020A	70119
160-3585-2	L0501101TUB0	Total/NA	Solid	6020A	70119
160-3585-3	L0501102TUB0	Total/NA	Solid	6020A	70119
160-3585-4	L0501103TUB0	Total/NA	Solid	6020A	70119
160-3585-5	L0501104TUB0	Total/NA	Solid	6020A	70119
160-3585-6	L0501105TUB0	Total/NA	Solid	6020A	70119
160-3585-7	L0501106TUB0	Total/NA	Solid	6020A	70119
160-3585-8	L0501107TUB0	Total/NA	Solid	6020A	70119
160-3585-9	L0501108TUB0	Total/NA	Solid	6020A	70119
160-3585-10	L050198TUB00	Total/NA	Solid	6020A	70119
160-3585-11	L050199TUB00	Total/NA	Solid	6020A	70119
160-3585-12	L050146TSS00	Total/NA	Solid	6020A	70119
160-3585-13	L050147TRS00	Total/NA	Solid	6020A	70119
LCS 160-70119/2-A	Lab Control Sample	Total/NA	Solid	6020A	70119
MB 160-70119/1-A	Method Blank	Total/NA	Solid	6020A	70119

General Chemistry

Analysis Batch: 70085

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3585-1	L0501100TUB0	Total/NA	Solid	Moisture	
160-3585-2	L0501101TUB0	Total/NA	Solid	Moisture	
160-3585-3	L0501102TUB0	Total/NA	Solid	Moisture	
160-3585-4	L0501103TUB0	Total/NA	Solid	Moisture	
160-3585-5	L0501104TUB0	Total/NA	Solid	Moisture	
160-3585-6	L0501105TUB0	Total/NA	Solid	Moisture	
160-3585-7	L0501106TUB0	Total/NA	Solid	Moisture	
160-3585-8	L0501107TUB0	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: 160-3585-1

General Chemistry (Continued)

Analysis Batch: 70085 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3585-9	L0501108TUB0	Total/NA	Solid	Moisture	
160-3585-10	L050198TUB00	Total/NA	Solid	Moisture	
160-3585-11	L050199TUB00	Total/NA	Solid	Moisture	
160-3585-12	L050146TSS00	Total/NA	Solid	Moisture	
160-3585-13	L050147TRS00	Total/NA	Solid	Moisture	
160-3585-13 DU	L050147TRS00	Total/NA	Solid	Moisture	

Rad

Leach Batch: 70118

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3585-1	L0501100TUB0	Total/NA	Solid	Dry and Grind	
160-3585-2	L0501101TUB0	Total/NA	Solid	Dry and Grind	
160-3585-3	L0501102TUB0	Total/NA	Solid	Dry and Grind	
160-3585-4	L0501103TUB0	Total/NA	Solid	Dry and Grind	
160-3585-5	L0501104TUB0	Total/NA	Solid	Dry and Grind	
160-3585-6	L0501105TUB0	Total/NA	Solid	Dry and Grind	
160-3585-7	L0501106TUB0	Total/NA	Solid	Dry and Grind	
160-3585-8	L0501107TUB0	Total/NA	Solid	Dry and Grind	
160-3585-9	L0501108TUB0	Total/NA	Solid	Dry and Grind	
160-3585-10	L050198TUB00	Total/NA	Solid	Dry and Grind	
160-3585-11	L050199TUB00	Total/NA	Solid	Dry and Grind	
160-3585-12	L050146TSS00	Total/NA	Solid	Dry and Grind	
160-3585-13	L050147TRS00	Total/NA	Solid	Dry and Grind	
160-3585-13 DU	L050147TRS00	Total/NA	Solid	Dry and Grind	

Prep Batch: 70119

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3585-1	L0501100TUB0	Total/NA	Solid	None	
160-3585-1 MS	L0501100TUB0	Total/NA	Solid	None	
160-3585-1 MSD	L0501100TUB0	Total/NA	Solid	None	
160-3585-2	L0501101TUB0	Total/NA	Solid	None	
160-3585-3	L0501102TUB0	Total/NA	Solid	None	
160-3585-4	L0501103TUB0	Total/NA	Solid	None	
160-3585-5	L0501104TUB0	Total/NA	Solid	None	
160-3585-6	L0501105TUB0	Total/NA	Solid	None	
160-3585-7	L0501106TUB0	Total/NA	Solid	None	
160-3585-8	L0501107TUB0	Total/NA	Solid	None	
160-3585-9	L0501108TUB0	Total/NA	Solid	None	
160-3585-10	L050198TUB00	Total/NA	Solid	None	
160-3585-11	L050199TUB00	Total/NA	Solid	None	
160-3585-12	L050146TSS00	Total/NA	Solid	None	
160-3585-13	L050147TRS00	Total/NA	Solid	None	
LCS 160-70119/2-A	Lab Control Sample	Total/NA	Solid	None	
MB 160-70119/1-A	Method Blank	Total/NA	Solid	None	

Prep Batch: 70772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3585-1	L0501100TUB0	Total/NA	Solid	Fill_Geo-0	70118
160-3585-2	L0501101TUB0	Total/NA	Solid	Fill_Geo-0	70118

TestAmerica St. Louis

QC Association Summary

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

TestAmerica Job ID: 160-3585-1

Rad (Continued)

Prep Batch: 70772 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3585-3	L0501102TUB0	Total/NA	Solid	Fill_Geo-0	70118
160-3585-4	L0501103TUB0	Total/NA	Solid	Fill_Geo-0	70118
160-3585-5	L0501104TUB0	Total/NA	Solid	Fill_Geo-0	70118
160-3585-6	L0501105TUB0	Total/NA	Solid	Fill_Geo-0	70118
160-3585-7	L0501106TUB0	Total/NA	Solid	Fill_Geo-0	70118
160-3585-8	L0501107TUB0	Total/NA	Solid	Fill_Geo-0	70118
160-3585-9	L0501108TUB0	Total/NA	Solid	Fill_Geo-0	70118
160-3585-10	L050198TUB00	Total/NA	Solid	Fill_Geo-0	70118
160-3585-11	L050199TUB00	Total/NA	Solid	Fill_Geo-0	70118
160-3585-12	L050146TSS00	Total/NA	Solid	Fill_Geo-0	70118
160-3585-13	L050147TRS00	Total/NA	Solid	Fill_Geo-0	70118
160-3585-13 DU	L050147TRS00	Total/NA	Solid	Fill_Geo-0	70118
LCS 160-70772/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-0	
MB 160-70772/1-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: 160-3585-1

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)	
160-3585-1	L0501100TUB0	88	
160-3585-1 MS	L0501100TUB0	89	
160-3585-1 MSD	L0501100TUB0	89	
160-3585-2	L0501101TUB0	87	
160-3585-3	L0501102TUB0	95	
160-3585-4	L0501103TUB0	91	
160-3585-5	L0501104TUB0	92	
160-3585-6	L0501105TUB0	85	
160-3585-7	L0501106TUB0	89	
160-3585-8	L0501107TUB0	92	
160-3585-9	L0501108TUB0	91	
160-3585-10	L050198TUB00	87	
160-3585-11	L050199TUB00	88	
160-3585-12	L050146TSS00	95	
160-3585-13	L050147TRS00	93	
LCS 160-70119/2-A	Lab Control Sample	97	
MB 160-70119/1-A	Method Blank	98	

Tracer/Carrier Legend

Re = Re