

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: 160-16616-1

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

For:

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

Attn: Mr. Martin Swanson



Authorized for release by:
3/29/2016 2:52:58 PM

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

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

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Case Narrative

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

TestAmerica Job ID: 160-16616-1

Job ID: 160-16616-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Westinghouse Electric Company LLC

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

Report Number: 160-16616-1

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 3/22/2016 10:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 20.0° C and 20.0° C.

TECHNETIUM-99 (ICPMS)

Samples L08-12-01-T-E-S-00 (160-16616-1), L08-12-02-T-E-S-00 (160-16616-2), L08-12-03-T-E-S-00 (160-16616-3), L08-12-04-T-R-S-00 (160-16616-4), L08-12-05-T-E-S-00 (160-16616-5), L08-12-06-T-E-S-00 (160-16616-6), L08-12-07-T-R-S-00 (160-16616-7), L08-12-08-T-E-S-00 (160-16616-8), L08-12-09-T-R-S-00 (160-16616-9), L08-12-10-T-E-S-00 (160-16616-10), L08-12-11-T-E-S-00 (160-16616-11), L08-12-12-T-R-S-00 (160-16616-12), L08-12-13-T-E-S-00 (160-16616-13), L08-12-14-T-R-S-00 (160-16616-14), L08-12-15-T-E-S-00 (160-16616-15), L08-12-15-T-E-Q-00 (160-16616-16), L08-12-16-T-R-S-00 (160-16616-17), L08-12-17-T-E-S-00 (160-16616-18) and L08-12-18-T-E-B-00 (160-16616-19) were analyzed for Technetium-99 (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 03/23/2016 and analyzed on 03/24/2016.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 160-241768 and analytical batch 160-242133 were outside control limits for technetium. Sample matrix interference and/or non-homogeneity are suspected because the associated

Case Narrative

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

TestAmerica Job ID: 160-16616-1

Job ID: 160-16616-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

laboratory control sample (LCS) recovery was within acceptance limits. (160-16618-A-1-D MS) and (160-16618-A-1-E MSD)

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 160-241768 and analytical batch 160-242134 were outside control limits for technetium. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits. (160-16618-A-1-D MS) and (160-16618-A-1-E MSD)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples L08-12-01-T-E-S-00 (160-16616-1), L08-12-02-T-E-S-00 (160-16616-2), L08-12-03-T-E-S-00 (160-16616-3), L08-12-04-T-R-S-00 (160-16616-4), L08-12-05-T-E-S-00 (160-16616-5), L08-12-06-T-E-S-00 (160-16616-6), L08-12-07-T-R-S-00 (160-16616-7), L08-12-08-T-E-S-00 (160-16616-8), L08-12-09-T-R-S-00 (160-16616-9), L08-12-10-T-E-S-00 (160-16616-10), L08-12-11-T-E-S-00 (160-16616-11), L08-12-12-T-R-S-00 (160-16616-12), L08-12-13-T-E-S-00 (160-16616-13), L08-12-14-T-R-S-00 (160-16616-14), L08-12-15-T-E-S-00 (160-16616-15), L08-12-15-T-E-Q-00 (160-16616-16), L08-12-16-T-R-S-00 (160-16616-17), L08-12-17-T-E-S-00 (160-16616-18) and L08-12-18-T-E-B-00 (160-16616-19) were analyzed for percent solids in accordance with EPA Method 160.3 MOD. The samples were analyzed on 03/23/2016.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

CESIUM-137 & OTHER GAMMA EMITTERS (GS)

Samples L08-12-01-T-E-S-00 (160-16616-1), L08-12-02-T-E-S-00 (160-16616-2), L08-12-03-T-E-S-00 (160-16616-3), L08-12-04-T-R-S-00 (160-16616-4), L08-12-05-T-E-S-00 (160-16616-5), L08-12-06-T-E-S-00 (160-16616-6), L08-12-07-T-R-S-00 (160-16616-7), L08-12-08-T-E-S-00 (160-16616-8), L08-12-09-T-R-S-00 (160-16616-9), L08-12-10-T-E-S-00 (160-16616-10), L08-12-11-T-E-S-00 (160-16616-11), L08-12-12-T-R-S-00 (160-16616-12), L08-12-13-T-E-S-00 (160-16616-13), L08-12-14-T-R-S-00 (160-16616-14), L08-12-15-T-E-S-00 (160-16616-15), L08-12-15-T-E-Q-00 (160-16616-16), L08-12-16-T-R-S-00 (160-16616-17), L08-12-17-T-E-S-00 (160-16616-18) and L08-12-18-T-E-B-00 (160-16616-19) were analyzed for Cesium-137 & Other Gamma Emitters (GS) in accordance with DOE GA-01-R. The samples were leached on 03/22/2016, prepared on 03/25/2016 and analyzed on 03/26/2016.

Preparation Batch 160-242185:

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 21-days of 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. The samples are reported with the MDC achieved. L08-12-01-T-E-S-00 (160-16616-1), L08-12-02-T-E-S-00 (160-16616-2), L08-12-03-T-E-S-00 (160-16616-3), L08-12-04-T-R-S-00 (160-16616-4), L08-12-05-T-E-S-00 (160-16616-5), L08-12-06-T-E-S-00 (160-16616-6), L08-12-07-T-R-S-00 (160-16616-7), L08-12-08-T-E-S-00 (160-16616-8), L08-12-09-T-R-S-00 (160-16616-9), L08-12-10-T-E-S-00 (160-16616-10), L08-12-11-T-E-S-00 (160-16616-11), L08-12-12-T-R-S-00 (160-16616-12), L08-12-13-T-E-S-00 (160-16616-13), L08-12-14-T-R-S-00 (160-16616-14), L08-12-15-T-E-S-00 (160-16616-15), L08-12-15-T-E-Q-00 (160-16616-16), L08-12-16-T-R-S-00 (160-16616-17), L08-12-17-T-E-S-00 (160-16616-18), L08-12-18-T-E-B-00 (160-16616-19), (LCS 160-242185/2-A), (MB 160-242185/1-A) and (160-16616-A-1-G DU)

Preparation Batch 160-242185:

The following sample, analyzed by gamma spectroscopy, did not meet the thorium-234 detection goal; L08-12-10-T-E-S-00 (160-16616-10). The samples final activity was above the MDC. The samples are reported with the MDC achieved.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Hematite Decommissioning Project

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

Revision: 4

Page 1 of 1

Westinghouse Non-Proprietary Class 3

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

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

Chain of Custody ID No. F-031816-01 Page 1 of 2				Requested Analysis										Laboratory Name:	
Project Name:				Comp (C) or Grab (G)	Gamma Spec	Isotopic Uranium	11499	Gamma Spec (21 day ingrow for Ra-226)					Total Containers	TA-MO	
Westinghouse Electric Company														Laboratory Address:	
Contact Person:														13715 Rider Trail North	
Clark Evers														Phone No.	
Phone Number:														314-298-8566	
314-810-3336														Laboratory Contact Person:	
Sampler Name														Ivan Vania	
Kyle Weldon														Phone No.	
														708-870-8453	
														Turn Around Time	
				Rush (7 days)											
				Remarks											
Sample ID	Date	Time	Matrix												
L08-12-01-T-E-S-00	3/18/2016	8:40	S	G	X	X	X						1	LSA 08-12	
L08-12-02-T-E-S-00	3/18/2016	8:42	S	G	X	X	X						1	LSA 08-12	
L08-12-03-T-E-S-00	3/18/2016	8:48	S	G	X	X	X						1	LSA 08-12	
L08-12-04-T-R-S-00	3/18/2016	9:00	S	C	X	X	X						1	LSA 08-12	
L08-12-05-T-E-S-00	3/18/2016	9:05	S	G	X	X	X						1	LSA 08-12	
L08-12-06-T-E-S-00	3/18/2016	9:14	S	G	X	X	X						1	LSA 08-12	
L08-12-07-T-R-S-00	3/18/2016	9:20	S	C	X	X	X						1	LSA 08-12	
L08-12-08-T-E-S-00	3/18/2016	9:22	S	G	X	X	X						1	LSA 08-12	
L08-12-09-T-R-S-00	3/18/2016	9:25	S	C	X	X	X						1	LSA 08-12	
L08-12-10-T-E-S-00	3/18/2016	9:27	S	G	X	X	X						1	LSA 08-12	
L08-12-11-T-E-S-00	3/18/2016	9:35	S	G	X	X	X						1	LSA 08-12	
L08-12-12-T-R-S-00	3/18/2016	9:37	S	C	X	X	X						1	LSA 08-12	
Relinquished by: <i>Gorsun</i>		Date/Time: 3/22/16		Received by: <i>R. G. 3815</i>		Date/Time: 3/22/16		Total: 19		Cooler Temperature: Ambient					
Company Name: WEC		0930		Company Name: CROSSROADS		0930		Cooler ID: 0318-01/02		Shipper and Number:					
Received by:		Date/Time:		Relinquished by:		Date/Time:		Comments: N/A							
Company Name:				Company Name:											
Relinquished by: <i>H. 3815</i>		Date/Time: 3-22-16		Received by: <i>C. Decker</i>		Date/Time: 3-22-16		Verified By: <i>Gorsun</i>							
Company Name: CROSSROADS		10:45		Company Name: TA St. Louis		1045		<i>Chup 3/22/16</i>							



160-16616 Chain of Custody

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-031816-01		Page 2 of 2		Requested Analysis												Laboratory Name:		
Project Name:						Comp (C) or Grab (G)	Gamma Spec	Isotopic Uranium	T ₀₋₉₉	Gamma Spec (21 day ingrow for Ra-226)								Total Containers	TA-MO	
Westinghouse Electric Company																			Laboratory Address:	
Contact Person:																			13715 Rider Trail North	
Clark Evers																				
Phone Number:																		Phone No.		
314-810-3336																		314-298-8566		
Sampler Name																		Laboratory Contact Person:		
Kyle Weldon																		Ivan Vania		
																		Phone No.		
																		708-870-8453		
																		Turn Around Time		
																		Rush (7 days)		
																		Remarks		
Sample ID	Date	Time	Matrix																	
L08-12-13-T-E-S-00	3/18/2016	9:40	S	G	X		X	X									1	LSA 08-12		
L08-12-14-T-R-S-00	3/18/2016	9:46	S	C	X		X	X									1	LSA 08-12		
L08-12-15-T-E-S-00	3/18/2016	9:50	S	G	X		X	X									1	LSA 08-12		
L08-12-15-T-E-Q-00	3/18/2016	9:50	S	G	X		X	X									1	LSA 08-12		
L08-12-16-T-R-S-00	3/18/2016	9:55	S	C	X		X	X									1	LSA 08-12		
L08-12-17-T-E-S-00	3/18/2016	9:57	S	G	X		X	X									1	LSA 08-12		
L08-12-18-T-E-B-00	3/18/2016	10:02	S	G	X		X	X									1	LSA 08-12 Bias		
Relinquished by: Gorsun		Date/Time		Received by:		Date/Time		Total		Cooler Temperature:										
Company Name: WEC		3/22/16		R. Gorsun 3815		3/22/16		19		Ambient										
		0930		Company Name: CROSSROADS		0930		Cooler ID: 0318-01/02		Shipper and Number:										
Received by:		Date/Time		Relinquished by:		Date/Time		Comments: N/A												
Company Name:				Company Name:																
Relinquished by: R. Gorsun 3815		Date/Time		Received by:		Date/Time		Verified By: Gorsun												
Company Name: CROSSROADS		3-22-16		C. Gorsun		3-22-16		10:45												
		10:45		TA St. Louis		10:45														

Login Sample Receipt Checklist

Client: Westinghouse Electric Company LLC

Job Number: 160-16616-1

Login Number: 16616

List Source: TestAmerica St. Louis

List Number: 1

Creator: Dedner, Connie L

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.	N/A	
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 (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (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: HDP RFP-CBA-022 (7 DAY TAT)

TestAmerica Job ID: 160-16616-1

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.
F1	MS and/or MSD Recovery is outside acceptance limits.

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.
F1	MS and/or MSD Recovery is outside acceptance limits.

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
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

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

TestAmerica Job ID: 160-16616-1

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

TestAmerica Job ID: 160-16616-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-16616-1	L08-12-01-T-E-S-00	Solid	03/18/16 08:40	03/22/16 10:45
160-16616-2	L08-12-02-T-E-S-00	Solid	03/18/16 08:42	03/22/16 10:45
160-16616-3	L08-12-03-T-E-S-00	Solid	03/18/16 08:48	03/22/16 10:45
160-16616-4	L08-12-04-T-R-S-00	Solid	03/18/16 09:00	03/22/16 10:45
160-16616-5	L08-12-05-T-E-S-00	Solid	03/18/16 09:05	03/22/16 10:45
160-16616-6	L08-12-06-T-E-S-00	Solid	03/18/16 09:14	03/22/16 10:45
160-16616-7	L08-12-07-T-R-S-00	Solid	03/18/16 09:20	03/22/16 10:45
160-16616-8	L08-12-08-T-E-S-00	Solid	03/18/16 09:22	03/22/16 10:45
160-16616-9	L08-12-09-T-R-S-00	Solid	03/18/16 09:25	03/22/16 10:45
160-16616-10	L08-12-10-T-E-S-00	Solid	03/18/16 09:27	03/22/16 10:45
160-16616-11	L08-12-11-T-E-S-00	Solid	03/18/16 09:35	03/22/16 10:45
160-16616-12	L08-12-12-T-R-S-00	Solid	03/18/16 09:37	03/22/16 10:45
160-16616-13	L08-12-13-T-E-S-00	Solid	03/18/16 09:40	03/22/16 10:45
160-16616-14	L08-12-14-T-R-S-00	Solid	03/18/16 09:46	03/22/16 10:45
160-16616-15	L08-12-15-T-E-S-00	Solid	03/18/16 09:50	03/22/16 10:45
160-16616-16	L08-12-15-T-E-Q-00	Solid	03/18/16 09:50	03/22/16 10:45
160-16616-17	L08-12-16-T-R-S-00	Solid	03/18/16 09:55	03/22/16 10:45
160-16616-18	L08-12-17-T-E-S-00	Solid	03/18/16 09:57	03/22/16 10:45
160-16616-19	L08-12-18-T-E-B-00	Solid	03/18/16 10:02	03/22/16 10:45

Client Sample Results

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

TestAmerica Job ID: 160-16616-1

Client Sample ID: L08-12-01-T-E-S-00

Date Collected: 03/18/16 08:40

Date Received: 03/22/16 10:45

Lab Sample ID: 160-16616-1

Matrix: Solid

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	1.12		0.135	0.176		0.0790	pCi/g	03/25/16 10:09	03/26/16 19:47	1
Americium 241	0.00470	U	0.0623	0.0623		0.105	pCi/g	03/25/16 10:09	03/26/16 19:47	1
Bismuth 212	0.822		0.371	0.381		0.530	pCi/g	03/25/16 10:09	03/26/16 19:47	1
Bismuth 214	0.920		0.108	0.145		0.0734	pCi/g	03/25/16 10:09	03/26/16 19:47	1
Lead 212	1.12		0.0878	0.170		0.0751	pCi/g	03/25/16 10:09	03/26/16 19:47	1
Lead 214	1.00		0.0860	0.135		0.0741	pCi/g	03/25/16 10:09	03/26/16 19:47	1
Potassium 40	19.4		1.25	2.34		0.256	pCi/g	03/25/16 10:09	03/26/16 19:47	1
Protactinium 231	0.658	U	0.318	0.326		1.09	pCi/g	03/25/16 10:09	03/26/16 19:47	1
Radium 226	0.920		0.108	0.145	1.00	0.0734	pCi/g	03/25/16 10:09	03/26/16 19:47	1
Thorium 234	1.21		0.327	0.351	1.00	0.860	pCi/g	03/25/16 10:09	03/26/16 19:47	1
Uranium 235	0.434		0.181	0.186		0.231	pCi/g	03/25/16 10:09	03/26/16 19:47	1
Protactinium 234m	2.54	U	3.34	3.35		5.52	pCi/g	03/25/16 10:09	03/26/16 19:47	1
Thorium 232	1.12		0.135	0.176		0.0790	pCi/g	03/25/16 10:09	03/26/16 19:47	1
Other Detected Radionuclides			Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Pb-210	1.82		0.613	0.649		0.769	pCi/g	03/25/16 10:09	03/26/16 19:47	1
Tl-208	0.366		0.0510	0.0636		0.0392	pCi/g	03/25/16 10:09	03/26/16 19:47	1

Client Sample ID: L08-12-01-T-E-S-00

Date Collected: 03/18/16 08:40

Date Received: 03/22/16 10:45

Lab Sample ID: 160-16616-1

Matrix: Solid

Percent Solids: 87.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.00019		0.000064	0.000019	mg/Kg	☆	03/23/16 08:23	03/24/16 09:16	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	3.34		0.228	0.383	1.28	0.220	pCi/g	03/23/16 08:23	03/24/16 09:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	88		30 - 110					03/23/16 08:23	03/24/16 09:16	1

Client Sample ID: L08-12-02-T-E-S-00

Date Collected: 03/18/16 08:42

Date Received: 03/22/16 10:45

Lab Sample ID: 160-16616-2

Matrix: Solid

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	1.28		0.147	0.195		0.0995	pCi/g	03/25/16 10:09	03/26/16 21:02	1
Americium 241	-0.0245	U	0.122	0.122		0.105	pCi/g	03/25/16 10:09	03/26/16 21:02	1
Bismuth 212	1.50		0.483	0.507		0.423	pCi/g	03/25/16 10:09	03/26/16 21:02	1
Bismuth 214	1.17		0.105	0.160		0.0692	pCi/g	03/25/16 10:09	03/26/16 21:02	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16616-1

Client Sample ID: L08-12-02-T-E-S-00

Lab Sample ID: 160-16616-2

Date Collected: 03/18/16 08:42

Matrix: Solid

Date Received: 03/22/16 10:45

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
Lead 212	1.15		0.0796	0.169		0.0683	pCi/g	03/25/16 10:09	03/26/16 21:02	1
Lead 214	1.22		0.0808	0.150		0.0670	pCi/g	03/25/16 10:09	03/26/16 21:02	1
Potassium 40	21.8		1.09	2.45		0.287	pCi/g	03/25/16 10:09	03/26/16 21:02	1
Protactinium 231	0.652	U	0.274	0.283		1.14	pCi/g	03/25/16 10:09	03/26/16 21:02	1
Radium 226	1.17		0.105	0.160	1.00	0.0692	pCi/g	03/25/16 10:09	03/26/16 21:02	1
Thorium 234	2.50		0.512	0.575	1.00	0.757	pCi/g	03/25/16 10:09	03/26/16 21:02	1
Uranium 235	0.450		0.121	0.129		0.193	pCi/g	03/25/16 10:09	03/26/16 21:02	1
Protactinium 234m	7.49		3.23	3.31		5.22	pCi/g	03/25/16 10:09	03/26/16 21:02	1
Thorium 232	1.28		0.147	0.195		0.0995	pCi/g	03/25/16 10:09	03/26/16 21:02	1
Other Detected										
Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.419		0.0517	0.0673		0.0376	pCi/g	03/25/16 10:09	03/26/16 21:02	1

Client Sample ID: L08-12-02-T-E-S-00

Lab Sample ID: 160-16616-2

Date Collected: 03/18/16 08:42

Matrix: Solid

Date Received: 03/22/16 10:45

Percent Solids: 84.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.00020		0.000066	0.000020	mg/Kg	☼	03/23/16 08:23	03/24/16 09:28	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	3.36		0.0727	0.317	1.32	0.226	pCi/g	03/23/16 08:23	03/24/16 09:28	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	89		30 - 110					03/23/16 08:23	03/24/16 09:28	1

Client Sample ID: L08-12-03-T-E-S-00

Lab Sample ID: 160-16616-3

Date Collected: 03/18/16 08:48

Matrix: Solid

Date Received: 03/22/16 10:45

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	0.993		0.133	0.168		0.0753	pCi/g	03/25/16 10:09	03/26/16 19:48	1
Americium 241	-0.00179	U	0.0544	0.0544		0.0917	pCi/g	03/25/16 10:09	03/26/16 19:48	1
Bismuth 212	1.45		0.327	0.360		0.261	pCi/g	03/25/16 10:09	03/26/16 19:48	1
Bismuth 214	0.888		0.0883	0.128		0.0574	pCi/g	03/25/16 10:09	03/26/16 19:48	1
Lead 212	1.09		0.0687	0.156		0.0501	pCi/g	03/25/16 10:09	03/26/16 19:48	1
Lead 214	0.961		0.0853	0.131		0.0610	pCi/g	03/25/16 10:09	03/26/16 19:48	1
Potassium 40	18.5		1.05	2.16		0.303	pCi/g	03/25/16 10:09	03/26/16 19:48	1
Protactinium 231	-0.600	U	0.644	0.647		1.05	pCi/g	03/25/16 10:09	03/26/16 19:48	1
Radium 226	0.888		0.0883	0.128	1.00	0.0574	pCi/g	03/25/16 10:09	03/26/16 19:48	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16616-1

Client Sample ID: L08-12-03-T-E-S-00

Lab Sample ID: 160-16616-3

Date Collected: 03/18/16 08:48

Matrix: Solid

Date Received: 03/22/16 10:45

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	1.49		0.282	0.322	1.00	0.752	pCi/g	03/25/16 10:09	03/26/16 19:48	1
Uranium 235	0.404		0.148	0.153		0.200	pCi/g	03/25/16 10:09	03/26/16 19:48	1
Protactinium 234m	0.950	U	2.72	2.72		4.67	pCi/g	03/25/16 10:09	03/26/16 19:48	1
Thorium 232	0.993		0.133	0.168		0.0753	pCi/g	03/25/16 10:09	03/26/16 19:48	1
Other Detected Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.327		0.0401	0.0525		0.0283	pCi/g	03/25/16 10:09	03/26/16 19:48	1

Client Sample ID: L08-12-03-T-E-S-00

Lab Sample ID: 160-16616-3

Date Collected: 03/18/16 08:48

Matrix: Solid

Date Received: 03/22/16 10:45

Percent Solids: 84.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.00031		0.000066	0.000020	mg/Kg	☼	03/23/16 08:23	03/24/16 09:43	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	5.28		0.378	0.616	1.32	0.225	pCi/g	03/23/16 08:23	03/24/16 09:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	89		30 - 110					03/23/16 08:23	03/24/16 09:43	1

Client Sample ID: L08-12-04-T-R-S-00

Lab Sample ID: 160-16616-4

Date Collected: 03/18/16 09:00

Matrix: Solid

Date Received: 03/22/16 10:45

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	1.18		0.166	0.205		0.144	pCi/g	03/25/16 10:09	03/26/16 20:22	1
Americium 241	-0.0300	U	0.0755	0.0756		0.126	pCi/g	03/25/16 10:09	03/26/16 20:22	1
Bismuth 212	0.0397	U	0.478	0.478		0.833	pCi/g	03/25/16 10:09	03/26/16 20:22	1
Bismuth 214	0.979		0.127	0.163		0.0860	pCi/g	03/25/16 10:09	03/26/16 20:22	1
Lead 212	1.13		0.102	0.178		0.0897	pCi/g	03/25/16 10:09	03/26/16 20:22	1
Lead 214	1.06		0.0983	0.148		0.0916	pCi/g	03/25/16 10:09	03/26/16 20:22	1
Potassium 40	19.9		1.41	2.48		0.255	pCi/g	03/25/16 10:09	03/26/16 20:22	1
Protactinium 231	0.518	U	0.446	0.450		1.22	pCi/g	03/25/16 10:09	03/26/16 20:22	1
Radium 226	0.979		0.127	0.163	1.00	0.0860	pCi/g	03/25/16 10:09	03/26/16 20:22	1
Thorium 234	1.61		0.556	0.581	1.00	0.853	pCi/g	03/25/16 10:09	03/26/16 20:22	1
Uranium 235	0.256	U	0.160	0.163		0.297	pCi/g	03/25/16 10:09	03/26/16 20:22	1
Protactinium 234m	1.98	U	4.84	4.85		8.34	pCi/g	03/25/16 10:09	03/26/16 20:22	1
Thorium 232	1.18		0.166	0.205		0.144	pCi/g	03/25/16 10:09	03/26/16 20:22	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16616-1

Client Sample ID: L08-12-04-T-R-S-00

Lab Sample ID: 160-16616-4

Date Collected: 03/18/16 09:00

Matrix: Solid

Date Received: 03/22/16 10:45

Other Detected Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.405		0.0667	0.0789		0.0483	pCi/g	03/25/16 10:09	03/26/16 20:22	1

Client Sample ID: L08-12-04-T-R-S-00

Lab Sample ID: 160-16616-4

Date Collected: 03/18/16 09:00

Matrix: Solid

Date Received: 03/22/16 10:45

Percent Solids: 78.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.000087		0.000069	0.000021	mg/Kg	☼	03/23/16 08:23	03/24/16 09:47	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	1.50		0.468	0.488	1.39	0.238	pCi/g	03/23/16 08:23	03/24/16 09:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	90		30 - 110					03/23/16 08:23	03/24/16 09:47	1

Client Sample ID: L08-12-05-T-E-S-00

Lab Sample ID: 160-16616-5

Date Collected: 03/18/16 09:05

Matrix: Solid

Date Received: 03/22/16 10:45

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	1.09		0.111	0.158		0.0848	pCi/g	03/25/16 10:09	03/26/16 20:22	1
Americium 241	-0.0311	U	0.0621	0.0621		0.103	pCi/g	03/25/16 10:09	03/26/16 20:22	1
Bismuth 212	0.632		0.303	0.310		0.451	pCi/g	03/25/16 10:09	03/26/16 20:22	1
Bismuth 214	1.01		0.0909	0.139		0.0540	pCi/g	03/25/16 10:09	03/26/16 20:22	1
Lead 212	1.12		0.0728	0.162		0.0572	pCi/g	03/25/16 10:09	03/26/16 20:22	1
Lead 214	1.02		0.0779	0.132		0.0654	pCi/g	03/25/16 10:09	03/26/16 20:22	1
Potassium 40	18.3		1.04	2.14		0.338	pCi/g	03/25/16 10:09	03/26/16 20:22	1
Protactinium 231	0.324	U	0.174	0.178		1.02	pCi/g	03/25/16 10:09	03/26/16 20:22	1
Radium 226	1.01		0.0909	0.139	1.00	0.0540	pCi/g	03/25/16 10:09	03/26/16 20:22	1
Thorium 234	1.08		0.264	0.287	1.00	0.746	pCi/g	03/25/16 10:09	03/26/16 20:22	1
Uranium 235	0.110	U	0.139	0.140		0.228	pCi/g	03/25/16 10:09	03/26/16 20:22	1
Protactinium 234m	1.56	U	2.71	2.71		4.60	pCi/g	03/25/16 10:09	03/26/16 20:22	1
Thorium 232	1.09		0.111	0.158		0.0848	pCi/g	03/25/16 10:09	03/26/16 20:22	1
Other Detected Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.363		0.0424	0.0567		0.0285	pCi/g	03/25/16 10:09	03/26/16 20:22	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16616-1

Client Sample ID: L08-12-05-T-E-S-00

Lab Sample ID: 160-16616-5

Date Collected: 03/18/16 09:05

Matrix: Solid

Date Received: 03/22/16 10:45

Percent Solids: 77.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.000082		0.000070	0.000021	mg/Kg	☼	03/23/16 08:23	03/24/16 09:51	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	1.40		0.114	0.172	1.41	0.241	pCi/g	03/23/16 08:23	03/24/16 09:51	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	92		30 - 110					03/23/16 08:23	03/24/16 09:51	1

Client Sample ID: L08-12-06-T-E-S-00

Lab Sample ID: 160-16616-6

Date Collected: 03/18/16 09:14

Matrix: Solid

Date Received: 03/22/16 10:45

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	1.11		0.165	0.200		0.122	pCi/g	03/25/16 10:09	03/26/16 20:23	1
Americium 241	-0.0155	U	0.0560	0.0560		0.0939	pCi/g	03/25/16 10:09	03/26/16 20:23	1
Bismuth 212	1.33		0.572	0.588		0.530	pCi/g	03/25/16 10:09	03/26/16 20:23	1
Bismuth 214	0.896		0.105	0.141		0.0723	pCi/g	03/25/16 10:09	03/26/16 20:23	1
Lead 212	1.04		0.0804	0.157		0.0675	pCi/g	03/25/16 10:09	03/26/16 20:23	1
Lead 214	0.940		0.0972	0.138		0.0731	pCi/g	03/25/16 10:09	03/26/16 20:23	1
Potassium 40	18.3		1.17	2.20		0.238	pCi/g	03/25/16 10:09	03/26/16 20:23	1
Protactinium 231	0.424	U	0.232	0.236		1.10	pCi/g	03/25/16 10:09	03/26/16 20:23	1
Radium 226	0.896		0.105	0.141	1.00	0.0723	pCi/g	03/25/16 10:09	03/26/16 20:23	1
Thorium 234	1.31		0.527	0.544	1.00	0.828	pCi/g	03/25/16 10:09	03/26/16 20:23	1
Uranium 235	0.140	U	0.135	0.136		0.187	pCi/g	03/25/16 10:09	03/26/16 20:23	1
Protactinium 234m	3.65	U	3.08	3.10		6.09	pCi/g	03/25/16 10:09	03/26/16 20:23	1
Thorium 232	1.11		0.165	0.200		0.122	pCi/g	03/25/16 10:09	03/26/16 20:23	1
Other Detected Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.397		0.0562	0.0697		0.0425	pCi/g	03/25/16 10:09	03/26/16 20:23	1

Client Sample ID: L08-12-06-T-E-S-00

Lab Sample ID: 160-16616-6

Date Collected: 03/18/16 09:14

Matrix: Solid

Date Received: 03/22/16 10:45

Percent Solids: 73.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.00013		0.000075	0.000023	mg/Kg	☼	03/23/16 08:23	03/24/16 09:55	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	2.26		0.216	0.300	1.51	0.258	pCi/g	03/23/16 08:23	03/24/16 09:55	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16616-1

Client Sample ID: L08-12-06-T-E-S-00

Date Collected: 03/18/16 09:14

Date Received: 03/22/16 10:45

Lab Sample ID: 160-16616-6

Matrix: Solid

Percent Solids: 73.0

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Re	90		30 - 110	03/23/16 08:23	03/24/16 09:55	1

Client Sample ID: L08-12-07-T-R-S-00

Date Collected: 03/18/16 09:20

Date Received: 03/22/16 10:45

Lab Sample ID: 160-16616-7

Matrix: Solid

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	1.09		0.160	0.195		0.127	pCi/g	03/25/16 10:09	03/26/16 21:00	1
Americium 241	0.00541	U	0.0731	0.0731		0.123	pCi/g	03/25/16 10:09	03/26/16 21:00	1
Bismuth 212	1.41		0.600	0.618		0.534	pCi/g	03/25/16 10:09	03/26/16 21:00	1
Bismuth 214	0.977		0.132	0.166		0.0945	pCi/g	03/25/16 10:09	03/26/16 21:00	1
Lead 212	1.11		0.0831	0.165		0.0728	pCi/g	03/25/16 10:09	03/26/16 21:00	1
Lead 214	1.17		0.109	0.163		0.0682	pCi/g	03/25/16 10:09	03/26/16 21:00	1
Potassium 40	17.9		1.31	2.25		0.243	pCi/g	03/25/16 10:09	03/26/16 21:00	1
Protactinium 231	-0.633	U	0.844	0.847		1.39	pCi/g	03/25/16 10:09	03/26/16 21:00	1
Radium 226	0.977		0.132	0.166	1.00	0.0945	pCi/g	03/25/16 10:09	03/26/16 21:00	1
Thorium 234	1.92		0.644	0.674	1.00	0.996	pCi/g	03/25/16 10:09	03/26/16 21:00	1
Uranium 235	0.356		0.192	0.195		0.236	pCi/g	03/25/16 10:09	03/26/16 21:00	1
Protactinium 234m	10.2		4.32	4.44		4.39	pCi/g	03/25/16 10:09	03/26/16 21:00	1
Thorium 232	1.09		0.160	0.195		0.127	pCi/g	03/25/16 10:09	03/26/16 21:00	1
Other Detected Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.404		0.0645	0.0769		0.0474	pCi/g	03/25/16 10:09	03/26/16 21:00	1

Client Sample ID: L08-12-07-T-R-S-00

Date Collected: 03/18/16 09:20

Date Received: 03/22/16 10:45

Lab Sample ID: 160-16616-7

Matrix: Solid

Percent Solids: 80.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.00011		0.000068	0.000020	mg/Kg	☼	03/23/16 08:23	03/24/16 09:59	1

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

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	1.92		0.0885	0.198	1.36	0.233	pCi/g	03/23/16 08:23	03/24/16 09:59	1
Carrier	%Yield	Qualifier					Prepared	Analyzed	Dil Fac	
Re	90		30 - 110				03/23/16 08:23	03/24/16 09:59	1	

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16616-1

Client Sample ID: L08-12-08-T-E-S-00

Lab Sample ID: 160-16616-8

Date Collected: 03/18/16 09:22

Matrix: Solid

Date Received: 03/22/16 10:45

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	1.08		0.150	0.186		0.174	pCi/g	03/25/16 10:09	03/26/16 21:02	1
Americium 241	0.0148	U	0.0650	0.0650		0.109	pCi/g	03/25/16 10:09	03/26/16 21:02	1
Bismuth 212	1.44		0.435	0.460		0.362	pCi/g	03/25/16 10:09	03/26/16 21:02	1
Bismuth 214	1.09		0.121	0.166		0.0796	pCi/g	03/25/16 10:09	03/26/16 21:02	1
Lead 212	1.13		0.0903	0.172		0.0739	pCi/g	03/25/16 10:09	03/26/16 21:02	1
Lead 214	1.25		0.101	0.165		0.0798	pCi/g	03/25/16 10:09	03/26/16 21:02	1
Potassium 40	19.0		1.33	2.35		0.376	pCi/g	03/25/16 10:09	03/26/16 21:02	1
Protactinium 231	0.639	U	0.353	0.360		1.22	pCi/g	03/25/16 10:09	03/26/16 21:02	1
Radium 226	1.09		0.121	0.166	1.00	0.0796	pCi/g	03/25/16 10:09	03/26/16 21:02	1
Thorium 234	0.835	U	0.351	0.362	1.00	0.970	pCi/g	03/25/16 10:09	03/26/16 21:02	1
Uranium 235	0.115	U	0.148	0.148		0.243	pCi/g	03/25/16 10:09	03/26/16 21:02	1
Protactinium 234m	2.80	U	3.46	3.47		5.69	pCi/g	03/25/16 10:09	03/26/16 21:02	1
Thorium 232	1.08		0.150	0.186		0.174	pCi/g	03/25/16 10:09	03/26/16 21:02	1
Other Detected			Count	Total						
Radionuclides			Uncert.	Uncert.						
TI-208	0.392		0.0626	0.0747		0.0472	pCi/g	03/25/16 10:09	03/26/16 21:02	1

Client Sample ID: L08-12-08-T-E-S-00

Lab Sample ID: 160-16616-8

Date Collected: 03/18/16 09:22

Matrix: Solid

Date Received: 03/22/16 10:45

Percent Solids: 81.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.00020		0.000068	0.000020	mg/Kg	☼	03/23/16 08:23	03/24/16 10:03	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	3.44		0.123	0.339	1.37	0.234	pCi/g	03/23/16 08:23	03/24/16 10:03	1
Carrier	%Yield	Qualifier	Limits							
Re	89		30 - 110							
								Prepared	Analyzed	Dil Fac
								03/23/16 08:23	03/24/16 10:03	1

Client Sample ID: L08-12-09-T-R-S-00

Lab Sample ID: 160-16616-9

Date Collected: 03/18/16 09:25

Matrix: Solid

Date Received: 03/22/16 10:45

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	1.08		0.121	0.164		0.0924	pCi/g	03/25/16 10:09	03/26/16 21:03	1
Americium 241	0.00594	U	0.0489	0.0489		0.0824	pCi/g	03/25/16 10:09	03/26/16 21:03	1
Bismuth 212	1.06		0.313	0.332		0.403	pCi/g	03/25/16 10:09	03/26/16 21:03	1
Bismuth 214	0.904		0.0912	0.131		0.0598	pCi/g	03/25/16 10:09	03/26/16 21:03	1
Lead 212	1.17		0.0748	0.169		0.0563	pCi/g	03/25/16 10:09	03/26/16 21:03	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16616-1

Client Sample ID: L08-12-09-T-R-S-00

Lab Sample ID: 160-16616-9

Date Collected: 03/18/16 09:25

Matrix: Solid

Date Received: 03/22/16 10:45

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
Lead 214	1.05		0.0895	0.141		0.0626	pCi/g	03/25/16 10:09	03/26/16 21:03	1
Potassium 40	19.4		1.07	2.26		0.266	pCi/g	03/25/16 10:09	03/26/16 21:03	1
Protactinium 231	-0.610	U	0.659	0.662		1.08	pCi/g	03/25/16 10:09	03/26/16 21:03	1
Radium 226	0.904		0.0912	0.131	1.00	0.0598	pCi/g	03/25/16 10:09	03/26/16 21:03	1
Thorium 234	1.34		0.484	0.504	1.00	0.758	pCi/g	03/25/16 10:09	03/26/16 21:03	1
Uranium 235	0.272		0.137	0.140		0.183	pCi/g	03/25/16 10:09	03/26/16 21:03	1
Protactinium 234m	6.75		2.90	2.98		4.45	pCi/g	03/25/16 10:09	03/26/16 21:03	1
Thorium 232	1.08		0.121	0.164		0.0924	pCi/g	03/25/16 10:09	03/26/16 21:03	1
Other Detected Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Pb-210	1.43		0.541	0.567		0.713	pCi/g	03/25/16 10:09	03/26/16 21:03	1
Tl-208	0.377		0.0432	0.0583		0.0295	pCi/g	03/25/16 10:09	03/26/16 21:03	1

Client Sample ID: L08-12-09-T-R-S-00

Lab Sample ID: 160-16616-9

Date Collected: 03/18/16 09:25

Matrix: Solid

Date Received: 03/22/16 10:45

Percent Solids: 92.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.00015		0.000060	0.000018	mg/Kg	☼	03/23/16 08:23	03/24/16 10:07	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	2.58		0.0610	0.245	1.19	0.204	pCi/g	03/23/16 08:23	03/24/16 10:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	91		30 - 110					03/23/16 08:23	03/24/16 10:07	1

Client Sample ID: L08-12-10-T-E-S-00

Lab Sample ID: 160-16616-10

Date Collected: 03/18/16 09:27

Matrix: Solid

Date Received: 03/22/16 10:45

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	1.22		0.165	0.207		0.159	pCi/g	03/25/16 10:09	03/26/16 21:37	1
Americium 241	0.0169	U	0.0729	0.0729		0.122	pCi/g	03/25/16 10:09	03/26/16 21:37	1
Bismuth 212	2.03		0.560	0.599		0.438	pCi/g	03/25/16 10:09	03/26/16 21:37	1
Bismuth 214	1.09		0.146	0.185		0.105	pCi/g	03/25/16 10:09	03/26/16 21:37	1
Lead 212	1.19		0.115	0.192		0.0999	pCi/g	03/25/16 10:09	03/26/16 21:37	1
Lead 214	1.10		0.101	0.152		0.0840	pCi/g	03/25/16 10:09	03/26/16 21:37	1
Potassium 40	20.3		1.47	2.55		0.406	pCi/g	03/25/16 10:09	03/26/16 21:37	1
Protactinium 231	0.576	U	0.301	0.307		1.28	pCi/g	03/25/16 10:09	03/26/16 21:37	1
Radium 226	1.09		0.146	0.185	1.00	0.105	pCi/g	03/25/16 10:09	03/26/16 21:37	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16616-1

Client Sample ID: L08-12-10-T-E-S-00

Lab Sample ID: 160-16616-10

Date Collected: 03/18/16 09:27

Matrix: Solid

Date Received: 03/22/16 10:45

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	1.18		0.340	0.362	1.00	1.01	pCi/g	03/25/16 10:09	03/26/16 21:37	1
Uranium 235	0.228		0.155	0.156		0.211	pCi/g	03/25/16 10:09	03/26/16 21:37	1
Protactinium 234m	2.38	U	2.26	2.27		6.48	pCi/g	03/25/16 10:09	03/26/16 21:37	1
Thorium 232	1.22		0.165	0.207		0.159	pCi/g	03/25/16 10:09	03/26/16 21:37	1
Other Detected Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.419		0.0624	0.0761		0.0465	pCi/g	03/25/16 10:09	03/26/16 21:37	1

Client Sample ID: L08-12-10-T-E-S-00

Lab Sample ID: 160-16616-10

Date Collected: 03/18/16 09:27

Matrix: Solid

Date Received: 03/22/16 10:45

Percent Solids: 82.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.00013		0.000071	0.000021	mg/Kg	☼	03/23/16 08:23	03/24/16 10:10	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	2.23		0.303	0.366	1.42	0.243	pCi/g	03/23/16 08:23	03/24/16 10:10	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	84		30 - 110					03/23/16 08:23	03/24/16 10:10	1

Client Sample ID: L08-12-11-T-E-S-00

Lab Sample ID: 160-16616-11

Date Collected: 03/18/16 09:35

Matrix: Solid

Date Received: 03/22/16 10:45

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	1.31		0.172	0.218		0.101	pCi/g	03/25/16 10:09	03/26/16 21:37	1
Americium 241	0.00198	U	0.0561	0.0561		0.0949	pCi/g	03/25/16 10:09	03/26/16 21:37	1
Bismuth 212	1.57		0.410	0.441		0.337	pCi/g	03/25/16 10:09	03/26/16 21:37	1
Bismuth 214	1.09		0.100	0.151		0.0648	pCi/g	03/25/16 10:09	03/26/16 21:37	1
Lead 212	1.13		0.0888	0.171		0.0759	pCi/g	03/25/16 10:09	03/26/16 21:37	1
Lead 214	1.27		0.0972	0.164		0.0763	pCi/g	03/25/16 10:09	03/26/16 21:37	1
Potassium 40	20.2		1.16	2.37		0.379	pCi/g	03/25/16 10:09	03/26/16 21:37	1
Protactinium 231	0.461	U	0.265	0.270		1.13	pCi/g	03/25/16 10:09	03/26/16 21:37	1
Radium 226	1.09		0.100	0.151	1.00	0.0648	pCi/g	03/25/16 10:09	03/26/16 21:37	1
Thorium 234	1.32		0.548	0.566	1.00	0.866	pCi/g	03/25/16 10:09	03/26/16 21:37	1
Uranium 235	0.161	U	0.124	0.125		0.165	pCi/g	03/25/16 10:09	03/26/16 21:37	1
Protactinium 234m	0.728	U	2.88	2.88		5.07	pCi/g	03/25/16 10:09	03/26/16 21:37	1
Thorium 232	1.31		0.172	0.218		0.101	pCi/g	03/25/16 10:09	03/26/16 21:37	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16616-1

Client Sample ID: L08-12-11-T-E-S-00

Lab Sample ID: 160-16616-11

Date Collected: 03/18/16 09:35

Matrix: Solid

Date Received: 03/22/16 10:45

Other Detected Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Pb-210	1.76		0.579	0.615		0.750	pCi/g	03/25/16 10:09	03/26/16 21:37	1
Tl-208	0.374		0.0460	0.0601		0.0329	pCi/g	03/25/16 10:09	03/26/16 21:37	1

Client Sample ID: L08-12-11-T-E-S-00

Lab Sample ID: 160-16616-11

Date Collected: 03/18/16 09:35

Matrix: Solid

Date Received: 03/22/16 10:45

Percent Solids: 82.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.000043	J	0.000069	0.000021	mg/Kg	☼	03/23/16 08:23	03/24/16 10:14	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	0.733		0.0895	0.112	1.38	0.235	pCi/g	03/23/16 08:23	03/24/16 10:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	88		30 - 110					03/23/16 08:23	03/24/16 10:14	1

Client Sample ID: L08-12-12-T-R-S-00

Lab Sample ID: 160-16616-12

Date Collected: 03/18/16 09:37

Matrix: Solid

Date Received: 03/22/16 10:45

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	1.26		0.187	0.227		0.110	pCi/g	03/25/16 10:09	03/26/16 21:38	1
Americium 241	0.0111	U	0.0679	0.0679		0.114	pCi/g	03/25/16 10:09	03/26/16 21:38	1
Bismuth 212	1.52		0.508	0.532		0.462	pCi/g	03/25/16 10:09	03/26/16 21:38	1
Bismuth 214	1.11		0.116	0.163		0.0710	pCi/g	03/25/16 10:09	03/26/16 21:38	1
Lead 212	1.20		0.0959	0.183		0.0810	pCi/g	03/25/16 10:09	03/26/16 21:38	1
Lead 214	1.21		0.101	0.161		0.0772	pCi/g	03/25/16 10:09	03/26/16 21:38	1
Potassium 40	20.0		1.35	2.46		0.290	pCi/g	03/25/16 10:09	03/26/16 21:38	1
Protactinium 231	0.966		0.493	0.504		0.829	pCi/g	03/25/16 10:09	03/26/16 21:38	1
Radium 226	1.11		0.116	0.163	1.00	0.0710	pCi/g	03/25/16 10:09	03/26/16 21:38	1
Thorium 234	0.706	U	0.342	0.350	1.00	0.956	pCi/g	03/25/16 10:09	03/26/16 21:38	1
Uranium 235	0.159	U	0.145	0.146		0.194	pCi/g	03/25/16 10:09	03/26/16 21:38	1
Protactinium 234m	5.27	U	3.86	3.90		6.14	pCi/g	03/25/16 10:09	03/26/16 21:38	1
Thorium 232	1.26		0.187	0.227		0.110	pCi/g	03/25/16 10:09	03/26/16 21:38	1
Other Detected Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.433		0.0553	0.0712		0.0375	pCi/g	03/25/16 10:09	03/26/16 21:38	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16616-1

Client Sample ID: L08-12-12-T-R-S-00

Lab Sample ID: 160-16616-12

Date Collected: 03/18/16 09:37

Matrix: Solid

Date Received: 03/22/16 10:45

Percent Solids: 82.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.000045	J	0.000067	0.000020	mg/Kg	☼	03/23/16 08:23	03/24/16 10:18	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	0.762		0.121	0.140	1.34	0.229	pCi/g	03/23/16 08:23	03/24/16 10:18	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Re	90		30 - 110	03/23/16 08:23	03/24/16 10:18	1

Client Sample ID: L08-12-13-T-E-S-00

Lab Sample ID: 160-16616-13

Date Collected: 03/18/16 09:40

Matrix: Solid

Date Received: 03/22/16 10:45

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	1.16		0.135	0.178		0.131	pCi/g	03/25/16 10:09	03/26/16 21:38	1
Americium 241	0.0170	U	0.0633	0.0633		0.107	pCi/g	03/25/16 10:09	03/26/16 21:38	1
Bismuth 212	1.40		0.482	0.503		0.438	pCi/g	03/25/16 10:09	03/26/16 21:38	1
Bismuth 214	1.02		0.104	0.148		0.0702	pCi/g	03/25/16 10:09	03/26/16 21:38	1
Lead 212	1.09		0.0840	0.164		0.0720	pCi/g	03/25/16 10:09	03/26/16 21:38	1
Lead 214	1.11		0.105	0.156		0.0816	pCi/g	03/25/16 10:09	03/26/16 21:38	1
Potassium 40	24.6		1.32	2.80		0.407	pCi/g	03/25/16 10:09	03/26/16 21:38	1
Protactinium 231	0.554	U	0.239	0.246		1.28	pCi/g	03/25/16 10:09	03/26/16 21:38	1
Radium 226	1.02		0.104	0.148	1.00	0.0702	pCi/g	03/25/16 10:09	03/26/16 21:38	1
Thorium 234	1.69		0.587	0.613	1.00	0.917	pCi/g	03/25/16 10:09	03/26/16 21:38	1
Uranium 235	0.179	U	0.170	0.171		0.257	pCi/g	03/25/16 10:09	03/26/16 21:38	1
Protactinium 234m	0.783	U	3.32	3.32		5.76	pCi/g	03/25/16 10:09	03/26/16 21:38	1
Thorium 232	1.16		0.135	0.178		0.131	pCi/g	03/25/16 10:09	03/26/16 21:38	1

Other Detected Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.377		0.0493	0.0627		0.0378	pCi/g	03/25/16 10:09	03/26/16 21:38	1

Client Sample ID: L08-12-13-T-E-S-00

Lab Sample ID: 160-16616-13

Date Collected: 03/18/16 09:40

Matrix: Solid

Date Received: 03/22/16 10:45

Percent Solids: 84.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.00044		0.000065	0.000019	mg/Kg	☼	03/23/16 08:23	03/24/16 10:34	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	7.60		0.414	0.813	1.30	0.222	pCi/g	03/23/16 08:23	03/24/16 10:34	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16616-1

Client Sample ID: L08-12-13-T-E-S-00

Date Collected: 03/18/16 09:40

Date Received: 03/22/16 10:45

Lab Sample ID: 160-16616-13

Matrix: Solid

Percent Solids: 84.6

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Re	91		30 - 110	03/23/16 08:23	03/24/16 10:34	1

Client Sample ID: L08-12-14-T-R-S-00

Date Collected: 03/18/16 09:46

Date Received: 03/22/16 10:45

Lab Sample ID: 160-16616-14

Matrix: Solid

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	1.09		0.111	0.157		0.0822	pCi/g	03/25/16 10:09	03/26/16 21:39	1
Americium 241	0.0161	U	0.0564	0.0564		0.0944	pCi/g	03/25/16 10:09	03/26/16 21:39	1
Bismuth 212	1.48		0.451	0.476		0.402	pCi/g	03/25/16 10:09	03/26/16 21:39	1
Bismuth 214	0.846		0.0818	0.120		0.0624	pCi/g	03/25/16 10:09	03/26/16 21:39	1
Lead 212	1.08		0.0783	0.160		0.0647	pCi/g	03/25/16 10:09	03/26/16 21:39	1
Lead 214	1.05		0.0795	0.135		0.0614	pCi/g	03/25/16 10:09	03/26/16 21:39	1
Potassium 40	20.9		1.14	2.43		0.320	pCi/g	03/25/16 10:09	03/26/16 21:39	1
Protactinium 231	0.651	U	0.267	0.276		1.01	pCi/g	03/25/16 10:09	03/26/16 21:39	1
Radium 226	0.846		0.0818	0.120	1.00	0.0624	pCi/g	03/25/16 10:09	03/26/16 21:39	1
Thorium 234	2.20		0.519	0.567	1.00	0.772	pCi/g	03/25/16 10:09	03/26/16 21:39	1
Uranium 235	0.333		0.156	0.160		0.187	pCi/g	03/25/16 10:09	03/26/16 21:39	1
Protactinium 234m	5.41		2.89	2.94		4.51	pCi/g	03/25/16 10:09	03/26/16 21:39	1
Thorium 232	1.09		0.111	0.157		0.0822	pCi/g	03/25/16 10:09	03/26/16 21:39	1
Other Detected Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.348		0.0476	0.0598		0.0370	pCi/g	03/25/16 10:09	03/26/16 21:39	1

Client Sample ID: L08-12-14-T-R-S-00

Date Collected: 03/18/16 09:46

Date Received: 03/22/16 10:45

Lab Sample ID: 160-16616-14

Matrix: Solid

Percent Solids: 82.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.00027		0.000070	0.000021	mg/Kg	☼	03/23/16 08:23	03/24/16 10:38	1

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

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	4.69		0.337	0.548	1.40	0.239	pCi/g	03/23/16 08:23	03/24/16 10:38	1
Carrier	%Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
Re	90		30 - 110				03/23/16 08:23	03/24/16 10:38	1	

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16616-1

Client Sample ID: L08-12-15-T-E-S-00

Lab Sample ID: 160-16616-15

Date Collected: 03/18/16 09:50

Matrix: Solid

Date Received: 03/22/16 10:45

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	1.17		0.152	0.193		0.118	pCi/g	03/25/16 10:09	03/26/16 22:09	1
Americium 241	0.00256	U	0.0698	0.0698		0.118	pCi/g	03/25/16 10:09	03/26/16 22:09	1
Bismuth 212	0.697		0.426	0.432		0.648	pCi/g	03/25/16 10:09	03/26/16 22:09	1
Bismuth 214	1.09		0.129	0.172		0.0865	pCi/g	03/25/16 10:09	03/26/16 22:09	1
Lead 212	1.15		0.0920	0.175		0.0733	pCi/g	03/25/16 10:09	03/26/16 22:09	1
Lead 214	1.13		0.102	0.155		0.0838	pCi/g	03/25/16 10:09	03/26/16 22:09	1
Potassium 40	19.1		1.37	2.39		0.390	pCi/g	03/25/16 10:09	03/26/16 22:09	1
Protactinium 231	0.345	U	0.255	0.257		1.31	pCi/g	03/25/16 10:09	03/26/16 22:09	1
Radium 226	1.09		0.129	0.172	1.00	0.0865	pCi/g	03/25/16 10:09	03/26/16 22:09	1
Thorium 234	1.58		0.583	0.606	1.00	0.906	pCi/g	03/25/16 10:09	03/26/16 22:09	1
Uranium 235	0.0705	U	0.176	0.176		0.277	pCi/g	03/25/16 10:09	03/26/16 22:09	1
Protactinium 234m	2.91	U	3.94	3.95		6.59	pCi/g	03/25/16 10:09	03/26/16 22:09	1
Thorium 232	1.17		0.152	0.193		0.118	pCi/g	03/25/16 10:09	03/26/16 22:09	1
Other Detected			Count	Total						
Radionuclides			Uncert.	Uncert.						
TI-208	0.326		0.0524	0.0624		0.0400	pCi/g	03/25/16 10:09	03/26/16 22:09	1

Client Sample ID: L08-12-15-T-E-S-00

Lab Sample ID: 160-16616-15

Date Collected: 03/18/16 09:50

Matrix: Solid

Date Received: 03/22/16 10:45

Percent Solids: 82.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.00012		0.000068	0.000020	mg/Kg	☼	03/23/16 08:23	03/24/16 10:41	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	2.11		0.149	0.244	1.36	0.234	pCi/g	03/23/16 08:23	03/24/16 10:41	1
Carrier	%Yield	Qualifier	Limits							
Re	90		30 - 110							
								Prepared	Analyzed	Dil Fac
								03/23/16 08:23	03/24/16 10:41	1

Client Sample ID: L08-12-15-T-E-Q-00

Lab Sample ID: 160-16616-16

Date Collected: 03/18/16 09:50

Matrix: Solid

Date Received: 03/22/16 10:45

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	1.03		0.108	0.151		0.0700	pCi/g	03/25/16 10:09	03/26/16 22:09	1
Americium 241	0.0436	U	0.0507	0.0509		0.0705	pCi/g	03/25/16 10:09	03/26/16 22:09	1
Bismuth 212	1.16		0.406	0.423		0.379	pCi/g	03/25/16 10:09	03/26/16 22:09	1
Bismuth 214	0.942		0.0857	0.130		0.0562	pCi/g	03/25/16 10:09	03/26/16 22:09	1
Lead 212	1.05		0.0825	0.159		0.0708	pCi/g	03/25/16 10:09	03/26/16 22:09	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16616-1

Client Sample ID: L08-12-15-T-E-Q-00

Lab Sample ID: 160-16616-16

Date Collected: 03/18/16 09:50

Matrix: Solid

Date Received: 03/22/16 10:45

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
Lead 214	1.09		0.0882	0.144		0.0622	pCi/g	03/25/16 10:09	03/26/16 22:09	1
Potassium 40	17.9		1.04	2.11		0.380	pCi/g	03/25/16 10:09	03/26/16 22:09	1
Protactinium 231	-0.495	U	0.610	0.612		1.00	pCi/g	03/25/16 10:09	03/26/16 22:09	1
Radium 226	0.942		0.0857	0.130	1.00	0.0562	pCi/g	03/25/16 10:09	03/26/16 22:09	1
Thorium 234	1.20		0.507	0.522	1.00	0.803	pCi/g	03/25/16 10:09	03/26/16 22:09	1
Uranium 235	0.104	U	0.146	0.146		0.246	pCi/g	03/25/16 10:09	03/26/16 22:09	1
Protactinium 234m	3.45	U	2.93	2.96		3.99	pCi/g	03/25/16 10:09	03/26/16 22:09	1
Thorium 232	1.03		0.108	0.151		0.0700	pCi/g	03/25/16 10:09	03/26/16 22:09	1
Other Detected										
Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.350		0.0448	0.0577		0.0324	pCi/g	03/25/16 10:09	03/26/16 22:09	1

Client Sample ID: L08-12-15-T-E-Q-00

Lab Sample ID: 160-16616-16

Date Collected: 03/18/16 09:50

Matrix: Solid

Date Received: 03/22/16 10:45

Percent Solids: 81.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.000098		0.000068	0.000020	mg/Kg	☼	03/23/16 08:23	03/24/16 10:45	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	1.68		0.0505	0.163	1.36	0.233	pCi/g	03/23/16 08:23	03/24/16 10:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	87		30 - 110					03/23/16 08:23	03/24/16 10:45	1

Client Sample ID: L08-12-16-T-R-S-00

Lab Sample ID: 160-16616-17

Date Collected: 03/18/16 09:55

Matrix: Solid

Date Received: 03/22/16 10:45

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	1.18		0.122	0.171		0.119	pCi/g	03/25/16 10:09	03/26/16 22:10	1
Americium 241	0.00515	U	0.0631	0.0631		0.106	pCi/g	03/25/16 10:09	03/26/16 22:10	1
Bismuth 212	1.55		0.458	0.485		0.391	pCi/g	03/25/16 10:09	03/26/16 22:10	1
Bismuth 214	0.877		0.0985	0.134		0.0898	pCi/g	03/25/16 10:09	03/26/16 22:10	1
Lead 212	1.14		0.0884	0.172		0.0743	pCi/g	03/25/16 10:09	03/26/16 22:10	1
Lead 214	1.02		0.0926	0.141		0.0718	pCi/g	03/25/16 10:09	03/26/16 22:10	1
Potassium 40	19.9		1.26	2.40		0.253	pCi/g	03/25/16 10:09	03/26/16 22:10	1
Protactinium 231	0.420	U	0.304	0.308		1.19	pCi/g	03/25/16 10:09	03/26/16 22:10	1
Radium 226	0.877		0.0985	0.134	1.00	0.0898	pCi/g	03/25/16 10:09	03/26/16 22:10	1
Thorium 234	1.18		0.575	0.588	1.00	0.919	pCi/g	03/25/16 10:09	03/26/16 22:10	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16616-1

Client Sample ID: L08-12-16-T-R-S-00

Lab Sample ID: 160-16616-17

Date Collected: 03/18/16 09:55

Matrix: Solid

Date Received: 03/22/16 10:45

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
Uranium 235	0.211	U	0.147	0.148		0.244	pCi/g	03/25/16 10:09	03/26/16 22:10	1
Protactinium 234m	0.000	U	2.96	2.96		6.74	pCi/g	03/25/16 10:09	03/26/16 22:10	1
Thorium 232	1.18		0.122	0.171		0.119	pCi/g	03/25/16 10:09	03/26/16 22:10	1
Other Detected Radionuclides			Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Ti-208	0.411		0.0611	0.0745		0.0469	pCi/g	03/25/16 10:09	03/26/16 22:10	1

Client Sample ID: L08-12-16-T-R-S-00

Lab Sample ID: 160-16616-17

Date Collected: 03/18/16 09:55

Matrix: Solid

Date Received: 03/22/16 10:45

Percent Solids: 81.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.00013		0.000070	0.000021	mg/Kg	☼	03/23/16 08:26	03/24/16 10:57	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	2.24		0.0536	0.213	1.41	0.241	pCi/g	03/23/16 08:26	03/24/16 10:57	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	88		30 - 110					03/23/16 08:26	03/24/16 10:57	1

Client Sample ID: L08-12-17-T-E-S-00

Lab Sample ID: 160-16616-18

Date Collected: 03/18/16 09:57

Matrix: Solid

Date Received: 03/22/16 10:45

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	1.23		0.120	0.173		0.127	pCi/g	03/25/16 10:09	03/26/16 22:11	1
Americium 241	-0.0177	U	0.185	0.185		0.105	pCi/g	03/25/16 10:09	03/26/16 22:11	1
Bismuth 212	1.55		0.345	0.380		0.300	pCi/g	03/25/16 10:09	03/26/16 22:11	1
Bismuth 214	1.22		0.105	0.164		0.0658	pCi/g	03/25/16 10:09	03/26/16 22:11	1
Lead 212	1.28		0.0991	0.194		0.0853	pCi/g	03/25/16 10:09	03/26/16 22:11	1
Lead 214	1.26		0.0939	0.161		0.0770	pCi/g	03/25/16 10:09	03/26/16 22:11	1
Potassium 40	22.4		1.16	2.54		0.312	pCi/g	03/25/16 10:09	03/26/16 22:11	1
Protactinium 231	-0.781	U	0.758	0.762		1.24	pCi/g	03/25/16 10:09	03/26/16 22:11	1
Radium 226	1.22		0.105	0.164	1.00	0.0658	pCi/g	03/25/16 10:09	03/26/16 22:11	1
Thorium 234	1.09		0.288	0.310	1.00	0.847	pCi/g	03/25/16 10:09	03/26/16 22:11	1
Uranium 235	0.0451	U	0.155	0.155		0.253	pCi/g	03/25/16 10:09	03/26/16 22:11	1
Protactinium 234m	2.09	U	3.23	3.24		5.39	pCi/g	03/25/16 10:09	03/26/16 22:11	1
Thorium 232	1.23		0.120	0.173		0.127	pCi/g	03/25/16 10:09	03/26/16 22:11	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16616-1

Client Sample ID: L08-12-17-T-E-S-00

Lab Sample ID: 160-16616-18

Date Collected: 03/18/16 09:57

Matrix: Solid

Date Received: 03/22/16 10:45

Other Detected Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Pb-210	1.81		0.655	0.688		0.790	pCi/g	03/25/16 10:09	03/26/16 22:11	1
Tl-208	0.380		0.0515	0.0646		0.0411	pCi/g	03/25/16 10:09	03/26/16 22:11	1

Client Sample ID: L08-12-17-T-E-S-00

Lab Sample ID: 160-16616-18

Date Collected: 03/18/16 09:57

Matrix: Solid

Date Received: 03/22/16 10:45

Percent Solids: 81.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.000062	J	0.000070	0.000021	mg/Kg	☼	03/23/16 08:26	03/24/16 11:01	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	1.06		0.159	0.186	1.40	0.239	pCi/g	03/23/16 08:26	03/24/16 11:01	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	87		30 - 110					03/23/16 08:26	03/24/16 11:01	1

Client Sample ID: L08-12-18-T-E-B-00

Lab Sample ID: 160-16616-19

Date Collected: 03/18/16 10:02

Matrix: Solid

Date Received: 03/22/16 10:45

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	1.35		0.164	0.214		0.145	pCi/g	03/25/16 10:09	03/26/16 22:12	1
Americium 241	-0.0221	U	0.0685	0.0685		0.115	pCi/g	03/25/16 10:09	03/26/16 22:12	1
Bismuth 212	1.51		0.422	0.450		0.376	pCi/g	03/25/16 10:09	03/26/16 22:12	1
Bismuth 214	1.05		0.116	0.159		0.0777	pCi/g	03/25/16 10:09	03/26/16 22:12	1
Lead 212	1.20		0.0892	0.179		0.0701	pCi/g	03/25/16 10:09	03/26/16 22:12	1
Lead 214	1.11		0.101	0.153		0.0803	pCi/g	03/25/16 10:09	03/26/16 22:12	1
Potassium 40	19.5		1.29	2.38		0.463	pCi/g	03/25/16 10:09	03/26/16 22:12	1
Protactinium 231	-0.628	U	0.684	0.687		1.12	pCi/g	03/25/16 10:09	03/26/16 22:12	1
Radium 226	1.05		0.116	0.159	1.00	0.0777	pCi/g	03/25/16 10:09	03/26/16 22:12	1
Thorium 234	1.06		0.314	0.333	1.00	0.837	pCi/g	03/25/16 10:09	03/26/16 22:12	1
Uranium 235	0.265		0.154	0.156		0.204	pCi/g	03/25/16 10:09	03/26/16 22:12	1
Protactinium 234m	-0.278	U	3.20	3.20		5.71	pCi/g	03/25/16 10:09	03/26/16 22:12	1
Thorium 232	1.35		0.164	0.214		0.145	pCi/g	03/25/16 10:09	03/26/16 22:12	1
Other Detected Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.388		0.0511	0.0650		0.0369	pCi/g	03/25/16 10:09	03/26/16 22:12	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16616-1

Client Sample ID: L08-12-18-T-E-B-00

Lab Sample ID: 160-16616-19

Date Collected: 03/18/16 10:02

Matrix: Solid

Date Received: 03/22/16 10:45

Percent Solids: 81.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.000078		0.000071	0.000021	mg/Kg	☼	03/23/16 08:26	03/24/16 11:05	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	1.33		0.152	0.195	1.42	0.244	pCi/g	03/23/16 08:26	03/24/16 11:05	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Re	87		30 - 110	03/23/16 08:26	03/24/16 11:05	1

QC Sample Results

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

TestAmerica Job ID: 160-16616-1

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

Lab Sample ID: MB 160-241767/1-A
Matrix: Solid
Analysis Batch: 242133

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 241767

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000050	0.000015	mg/Kg		03/23/16 08:23	03/24/16 08:53	1

Lab Sample ID: LCS 160-241767/2-A
Matrix: Solid
Analysis Batch: 242133

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 241767

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Technetium 99	0.00119	0.00120		mg/Kg		101	80 - 120

Lab Sample ID: 160-16616-1 MS
Matrix: Solid
Analysis Batch: 242133

Client Sample ID: L08-12-01-T-E-S-00
Prep Type: Total/NA
Prep Batch: 241767

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Technetium 99	0.00019		0.00137	0.00158		mg/Kg	☼	101	75 - 125

Lab Sample ID: 160-16616-1 MSD
Matrix: Solid
Analysis Batch: 242133

Client Sample ID: L08-12-01-T-E-S-00
Prep Type: Total/NA
Prep Batch: 241767

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Technetium 99	0.00019		0.00136	0.00160		mg/Kg	☼	103	75 - 125	2	30

Lab Sample ID: MB 160-241768/1-A
Matrix: Solid
Analysis Batch: 242133

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 241768

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000053	0.000016	mg/Kg		03/23/16 08:26	03/24/16 10:49	1

Lab Sample ID: LCS 160-241768/2-A
Matrix: Solid
Analysis Batch: 242133

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 241768

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Technetium 99	0.00119	0.00125		mg/Kg		105	80 - 120

Lab Sample ID: 160-16618-A-1-D MS
Matrix: Solid
Analysis Batch: 242133

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 241768

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Technetium 99	0.0015	F1	0.00139	0.00186	F1	mg/Kg	☼	23	75 - 125

Lab Sample ID: 160-16618-A-1-E MSD
Matrix: Solid
Analysis Batch: 242133

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 241768

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Technetium 99	0.0015	F1	0.00143	0.00201	F1	mg/Kg	☼	34	75 - 125	8	30

TestAmerica St. Louis

QC Sample Results

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

TestAmerica Job ID: 160-16616-1

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

Lab Sample ID: MB 160-241767/1-A

Matrix: Solid

Analysis Batch: 242134

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 241767

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	0.05584	U	0.0670	0.0671	1.01	0.172	pCi/g	03/23/16 08:23	03/24/16 08:53	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	99		30 - 110					03/23/16 08:23	03/24/16 08:53	1

Lab Sample ID: LCS 160-241767/2-A

Matrix: Solid

Analysis Batch: 242134

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 241767

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Technetium 99		20.4	20.59		1.96	1.02	0.174	pCi/g	101	80 - 120
Carrier	LCS %Yield	LCS Qualifier	Limits							
Re	98		30 - 110							

Lab Sample ID: 160-16616-1 MS

Matrix: Solid

Analysis Batch: 242134

Client Sample ID: L08-12-01-T-E-S-00

Prep Type: Total/NA

Prep Batch: 241767

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Technetium 99	3.34		23.4	26.96		2.63	1.29	0.220	pCi/g	101	75 - 125
Carrier	MS %Yield	MS Qualifier	Limits								
Re	89		30 - 110								

Lab Sample ID: 160-16616-1 MSD

Matrix: Solid

Analysis Batch: 242134

Client Sample ID: L08-12-01-T-E-S-00

Prep Type: Total/NA

Prep Batch: 241767

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	3.34		23.3	27.45		2.92	1.29	0.221	pCi/g	103	75 - 125	0.09	1
Carrier	MSD %Yield	MSD Qualifier	Limits										
Re	89		30 - 110										

Lab Sample ID: MB 160-241768/1-A

Matrix: Solid

Analysis Batch: 242134

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 241768

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	0.04217	U	0.0586	0.0587	1.07	0.183	pCi/g	03/23/16 08:26	03/24/16 10:49	1

TestAmerica St. Louis

QC Sample Results

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

TestAmerica Job ID: 160-16616-1

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

Lab Sample ID: MB 160-241768/1-A
Matrix: Solid
Analysis Batch: 242134

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 241768

Carrier	MB %Yield	MB Qualifier	Limits
Re	94		30 - 110

Prepared	Analyzed	Dil Fac
03/23/16 08:26	03/24/16 10:49	1

Lab Sample ID: LCS 160-241768/2-A
Matrix: Solid
Analysis Batch: 242134

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 241768

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Technetium 99	20.4	21.44		2.36	1.08	0.185	pCi/g	105	80 - 120
Carrier	LCS %Yield	LCS Qualifier	Limits						
Re	93		30 - 110						

Lab Sample ID: 160-16618-A-1-D MS
Matrix: Solid
Analysis Batch: 242134

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 241768

Analyte	Sample	Sample	Spike	MS	MS	Total	RL	MDC	Unit	%Rec	%Rec.		
	Result	Qual		Added	Result	Qual					Uncert. (2σ+/-)		
Technetium 99	26.2		23.8	31.83	F1	3.18	1.34	0.229	pCi/g	23	75 - 125		
Carrier	MS	MS	Limits										
	%Yield	Qualifier											
Re	88		30 - 110										

Lab Sample ID: 160-16618-A-1-E MSD
Matrix: Solid
Analysis Batch: 242134

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 241768

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	26.2		24.4	34.48	F1	3.31	1.34	0.230	pCi/g	34	75 - 125	0.41	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 160-242185/1-A
Matrix: Solid
Analysis Batch: 242406

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 242185

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	0.001431	U	0.00948	0.00948		0.0414	pCi/g	03/25/16 10:09	03/26/16 19:45	1
Americium 241	0.0008751	U	0.00726	0.00726		0.0144	pCi/g	03/25/16 10:09	03/26/16 19:45	1
Bismuth 212	0.009725	U	0.0963	0.0963		0.200	pCi/g	03/25/16 10:09	03/26/16 19:45	1
Bismuth 214	-0.003331	U	0.0241	0.0241		0.0642	pCi/g	03/25/16 10:09	03/26/16 19:45	1

TestAmerica St. Louis

QC Sample Results

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

TestAmerica Job ID: 160-16616-1

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

Lab Sample ID: MB 160-242185/1-A

Matrix: Solid

Analysis Batch: 242406

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 242185

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Lead 212	-0.009185	U	0.367	0.367		0.0342	pCi/g	03/25/16 10:09	03/26/16 19:45	1
Lead 214	0.0001966	U	0.0144	0.0144		0.0324	pCi/g	03/25/16 10:09	03/26/16 19:45	1
Potassium 40	-0.06207	U	2.48	2.48		0.274	pCi/g	03/25/16 10:09	03/26/16 19:45	1
Protactinium 231	0.0000	U	0.0606	0.0606		0.265	pCi/g	03/25/16 10:09	03/26/16 19:45	1
Radium 226	-0.003331	U	0.0241	0.0241	1.00	0.0642	pCi/g	03/25/16 10:09	03/26/16 19:45	1
Thorium 234	0.05337	U	0.136	0.136	1.00	0.275	pCi/g	03/25/16 10:09	03/26/16 19:45	1
Uranium 235	-0.004786	U	0.0719	0.0719		0.0690	pCi/g	03/25/16 10:09	03/26/16 19:45	1
Protactinium 234m	-0.3801	U	15.2	15.2		1.90	pCi/g	03/25/16 10:09	03/26/16 19:45	1
Thorium 232	0.001431	U	0.00948	0.00948		0.0414	pCi/g	03/25/16 10:09	03/26/16 19:45	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	03/25/16 10:09	03/26/16 19:45	1

Lab Sample ID: LCS 160-242185/2-A

Matrix: Solid

Analysis Batch: 242401

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 242185

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium 241	101	98.98		10.3		0.517	pCi/g	98	87 - 116
Cesium 137	34.1	33.22		3.48	0.200	0.144	pCi/g	97	87 - 120
Cobalt 60	31.8	30.25		3.05		0.132	pCi/g	95	87 - 115

Lab Sample ID: 160-16616-1 DU

Matrix: Solid

Analysis Batch: 242398

Client Sample ID: L08-12-01-T-E-S-00

Prep Type: Total/NA

Prep Batch: 242185

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Actinium 228	1.12		1.106		0.160		0.108	pCi/g	0.03	1
Americium 241	0.00470	U	0.03218	U	0.0505		0.0749	pCi/g	0.24	1
Bismuth 212	0.822		0.9261		0.360		0.485	pCi/g	0.14	1
Bismuth 214	0.920		0.8284		0.127		0.0670	pCi/g	0.34	1
Lead 212	1.12		1.169		0.171		0.0616	pCi/g	0.13	1
Lead 214	1.00		1.058		0.138		0.0538	pCi/g	0.20	1
Potassium 40	19.4		19.92		2.37		0.483	pCi/g	0.12	1
Protactinium 231	0.658	U	0.4408	U	0.225		1.08	pCi/g	0.39	1
Radium 226	0.920		0.8284		0.127	1.00	0.0670	pCi/g	0.34	1
Thorium 234	1.21		1.933		0.556	1.00	0.708	pCi/g	0.80	1
Uranium 235	0.434		0.4480		0.188		0.194	pCi/g	0.04	1
Protactinium 234m	2.54	U	1.610	U	2.84		4.78	pCi/g	0.15	1
Thorium 232	1.12		1.106		0.160		0.108	pCi/g	0.03	1

TestAmerica St. Louis

QC Sample Results

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

TestAmerica Job ID: 160-16616-1

<i>Other Detected Radionuclides</i>	<i>Sample Result</i>	<i>Sample Qual</i>	<i>DU Result</i>	<i>DU Qual</i>	<i>Total Uncert. (2σ+/-)</i>	<i>RL</i>	<i>MDC</i>	<i>Unit</i>	<i>RER</i>	<i>RER Limit</i>
Pb-210	1.82		0.9261		0.554		0.758	pCi/g	0.74	1
Tl-208	0.366		0.3813		0.0649		0.0390	pCi/g	0.12	1

QC Association Summary

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

TestAmerica Job ID: 160-16616-1

Metals

Prep Batch: 241767

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16616-1	L08-12-01-T-E-S-00	Total/NA	Solid	None	
160-16616-1 MS	L08-12-01-T-E-S-00	Total/NA	Solid	None	
160-16616-1 MSD	L08-12-01-T-E-S-00	Total/NA	Solid	None	
160-16616-2	L08-12-02-T-E-S-00	Total/NA	Solid	None	
160-16616-3	L08-12-03-T-E-S-00	Total/NA	Solid	None	
160-16616-4	L08-12-04-T-R-S-00	Total/NA	Solid	None	
160-16616-5	L08-12-05-T-E-S-00	Total/NA	Solid	None	
160-16616-6	L08-12-06-T-E-S-00	Total/NA	Solid	None	
160-16616-7	L08-12-07-T-R-S-00	Total/NA	Solid	None	
160-16616-8	L08-12-08-T-E-S-00	Total/NA	Solid	None	
160-16616-9	L08-12-09-T-R-S-00	Total/NA	Solid	None	
160-16616-10	L08-12-10-T-E-S-00	Total/NA	Solid	None	
160-16616-11	L08-12-11-T-E-S-00	Total/NA	Solid	None	
160-16616-12	L08-12-12-T-R-S-00	Total/NA	Solid	None	
160-16616-13	L08-12-13-T-E-S-00	Total/NA	Solid	None	
160-16616-14	L08-12-14-T-R-S-00	Total/NA	Solid	None	
160-16616-15	L08-12-15-T-E-S-00	Total/NA	Solid	None	
160-16616-16	L08-12-15-T-E-Q-00	Total/NA	Solid	None	
LCS 160-241767/2-A	Lab Control Sample	Total/NA	Solid	None	
MB 160-241767/1-A	Method Blank	Total/NA	Solid	None	

Prep Batch: 241768

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16616-17	L08-12-16-T-R-S-00	Total/NA	Solid	None	
160-16616-18	L08-12-17-T-E-S-00	Total/NA	Solid	None	
160-16616-19	L08-12-18-T-E-B-00	Total/NA	Solid	None	
160-16618-A-1-D MS	Matrix Spike	Total/NA	Solid	None	
160-16618-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	None	
LCS 160-241768/2-A	Lab Control Sample	Total/NA	Solid	None	
MB 160-241768/1-A	Method Blank	Total/NA	Solid	None	

Analysis Batch: 242133

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16616-1	L08-12-01-T-E-S-00	Total/NA	Solid	6020A	241767
160-16616-1 MS	L08-12-01-T-E-S-00	Total/NA	Solid	6020A	241767
160-16616-1 MSD	L08-12-01-T-E-S-00	Total/NA	Solid	6020A	241767
160-16616-2	L08-12-02-T-E-S-00	Total/NA	Solid	6020A	241767
160-16616-3	L08-12-03-T-E-S-00	Total/NA	Solid	6020A	241767
160-16616-4	L08-12-04-T-R-S-00	Total/NA	Solid	6020A	241767
160-16616-5	L08-12-05-T-E-S-00	Total/NA	Solid	6020A	241767
160-16616-6	L08-12-06-T-E-S-00	Total/NA	Solid	6020A	241767
160-16616-7	L08-12-07-T-R-S-00	Total/NA	Solid	6020A	241767
160-16616-8	L08-12-08-T-E-S-00	Total/NA	Solid	6020A	241767
160-16616-9	L08-12-09-T-R-S-00	Total/NA	Solid	6020A	241767
160-16616-10	L08-12-10-T-E-S-00	Total/NA	Solid	6020A	241767
160-16616-11	L08-12-11-T-E-S-00	Total/NA	Solid	6020A	241767
160-16616-12	L08-12-12-T-R-S-00	Total/NA	Solid	6020A	241767
160-16616-13	L08-12-13-T-E-S-00	Total/NA	Solid	6020A	241767
160-16616-14	L08-12-14-T-R-S-00	Total/NA	Solid	6020A	241767
160-16616-15	L08-12-15-T-E-S-00	Total/NA	Solid	6020A	241767
160-16616-16	L08-12-15-T-E-Q-00	Total/NA	Solid	6020A	241767

TestAmerica St. Louis

QC Association Summary

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

TestAmerica Job ID: 160-16616-1

Metals (Continued)

Analysis Batch: 242133 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16616-17	L08-12-16-T-R-S-00	Total/NA	Solid	6020A	241768
160-16616-18	L08-12-17-T-E-S-00	Total/NA	Solid	6020A	241768
160-16616-19	L08-12-18-T-E-B-00	Total/NA	Solid	6020A	241768
160-16618-A-1-D MS	Matrix Spike	Total/NA	Solid	6020A	241768
160-16618-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	6020A	241768
LCS 160-241767/2-A	Lab Control Sample	Total/NA	Solid	6020A	241767
LCS 160-241768/2-A	Lab Control Sample	Total/NA	Solid	6020A	241768
MB 160-241767/1-A	Method Blank	Total/NA	Solid	6020A	241767
MB 160-241768/1-A	Method Blank	Total/NA	Solid	6020A	241768

General Chemistry

Analysis Batch: 241632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16616-1	L08-12-01-T-E-S-00	Total/NA	Solid	Moisture	
160-16616-1 DU	L08-12-01-T-E-S-00	Total/NA	Solid	Moisture	
160-16616-2	L08-12-02-T-E-S-00	Total/NA	Solid	Moisture	
160-16616-3	L08-12-03-T-E-S-00	Total/NA	Solid	Moisture	
160-16616-4	L08-12-04-T-R-S-00	Total/NA	Solid	Moisture	
160-16616-5	L08-12-05-T-E-S-00	Total/NA	Solid	Moisture	
160-16616-6	L08-12-06-T-E-S-00	Total/NA	Solid	Moisture	
160-16616-7	L08-12-07-T-R-S-00	Total/NA	Solid	Moisture	
160-16616-8	L08-12-08-T-E-S-00	Total/NA	Solid	Moisture	
160-16616-9	L08-12-09-T-R-S-00	Total/NA	Solid	Moisture	
160-16616-10	L08-12-10-T-E-S-00	Total/NA	Solid	Moisture	
160-16616-11	L08-12-11-T-E-S-00	Total/NA	Solid	Moisture	
160-16616-12	L08-12-12-T-R-S-00	Total/NA	Solid	Moisture	
160-16616-13	L08-12-13-T-E-S-00	Total/NA	Solid	Moisture	
160-16616-14	L08-12-14-T-R-S-00	Total/NA	Solid	Moisture	
160-16616-15	L08-12-15-T-E-S-00	Total/NA	Solid	Moisture	
160-16616-16	L08-12-15-T-E-Q-00	Total/NA	Solid	Moisture	
160-16616-17	L08-12-16-T-R-S-00	Total/NA	Solid	Moisture	
160-16616-18	L08-12-17-T-E-S-00	Total/NA	Solid	Moisture	
160-16616-19	L08-12-18-T-E-B-00	Total/NA	Solid	Moisture	

Rad

Leach Batch: 241584

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16616-1	L08-12-01-T-E-S-00	Total/NA	Solid	Dry and Grind	
160-16616-1 DU	L08-12-01-T-E-S-00	Total/NA	Solid	Dry and Grind	
160-16616-2	L08-12-02-T-E-S-00	Total/NA	Solid	Dry and Grind	
160-16616-3	L08-12-03-T-E-S-00	Total/NA	Solid	Dry and Grind	
160-16616-4	L08-12-04-T-R-S-00	Total/NA	Solid	Dry and Grind	
160-16616-5	L08-12-05-T-E-S-00	Total/NA	Solid	Dry and Grind	
160-16616-6	L08-12-06-T-E-S-00	Total/NA	Solid	Dry and Grind	
160-16616-7	L08-12-07-T-R-S-00	Total/NA	Solid	Dry and Grind	
160-16616-8	L08-12-08-T-E-S-00	Total/NA	Solid	Dry and Grind	
160-16616-9	L08-12-09-T-R-S-00	Total/NA	Solid	Dry and Grind	
160-16616-10	L08-12-10-T-E-S-00	Total/NA	Solid	Dry and Grind	

TestAmerica St. Louis

QC Association Summary

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

TestAmerica Job ID: 160-16616-1

Rad (Continued)

Leach Batch: 241584 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16616-11	L08-12-11-T-E-S-00	Total/NA	Solid	Dry and Grind	
160-16616-12	L08-12-12-T-R-S-00	Total/NA	Solid	Dry and Grind	
160-16616-13	L08-12-13-T-E-S-00	Total/NA	Solid	Dry and Grind	
160-16616-14	L08-12-14-T-R-S-00	Total/NA	Solid	Dry and Grind	
160-16616-15	L08-12-15-T-E-S-00	Total/NA	Solid	Dry and Grind	
160-16616-16	L08-12-15-T-E-Q-00	Total/NA	Solid	Dry and Grind	
160-16616-17	L08-12-16-T-R-S-00	Total/NA	Solid	Dry and Grind	
160-16616-18	L08-12-17-T-E-S-00	Total/NA	Solid	Dry and Grind	
160-16616-19	L08-12-18-T-E-B-00	Total/NA	Solid	Dry and Grind	

Prep Batch: 241767

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16616-1	L08-12-01-T-E-S-00	Total/NA	Solid	None	
160-16616-1 MS	L08-12-01-T-E-S-00	Total/NA	Solid	None	
160-16616-1 MSD	L08-12-01-T-E-S-00	Total/NA	Solid	None	
160-16616-2	L08-12-02-T-E-S-00	Total/NA	Solid	None	
160-16616-3	L08-12-03-T-E-S-00	Total/NA	Solid	None	
160-16616-4	L08-12-04-T-R-S-00	Total/NA	Solid	None	
160-16616-5	L08-12-05-T-E-S-00	Total/NA	Solid	None	
160-16616-6	L08-12-06-T-E-S-00	Total/NA	Solid	None	
160-16616-7	L08-12-07-T-R-S-00	Total/NA	Solid	None	
160-16616-8	L08-12-08-T-E-S-00	Total/NA	Solid	None	
160-16616-9	L08-12-09-T-R-S-00	Total/NA	Solid	None	
160-16616-10	L08-12-10-T-E-S-00	Total/NA	Solid	None	
160-16616-11	L08-12-11-T-E-S-00	Total/NA	Solid	None	
160-16616-12	L08-12-12-T-R-S-00	Total/NA	Solid	None	
160-16616-13	L08-12-13-T-E-S-00	Total/NA	Solid	None	
160-16616-14	L08-12-14-T-R-S-00	Total/NA	Solid	None	
160-16616-15	L08-12-15-T-E-S-00	Total/NA	Solid	None	
160-16616-16	L08-12-15-T-E-Q-00	Total/NA	Solid	None	
LCS 160-241767/2-A	Lab Control Sample	Total/NA	Solid	None	
MB 160-241767/1-A	Method Blank	Total/NA	Solid	None	

Prep Batch: 241768

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16616-17	L08-12-16-T-R-S-00	Total/NA	Solid	None	
160-16616-18	L08-12-17-T-E-S-00	Total/NA	Solid	None	
160-16616-19	L08-12-18-T-E-B-00	Total/NA	Solid	None	
160-16618-A-1-D MS	Matrix Spike	Total/NA	Solid	None	
160-16618-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	None	
LCS 160-241768/2-A	Lab Control Sample	Total/NA	Solid	None	
MB 160-241768/1-A	Method Blank	Total/NA	Solid	None	

Prep Batch: 242185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16616-1	L08-12-01-T-E-S-00	Total/NA	Solid	Fill_Geo-0	241584
160-16616-1 DU	L08-12-01-T-E-S-00	Total/NA	Solid	Fill_Geo-0	241584
160-16616-2	L08-12-02-T-E-S-00	Total/NA	Solid	Fill_Geo-0	241584
160-16616-3	L08-12-03-T-E-S-00	Total/NA	Solid	Fill_Geo-0	241584
160-16616-4	L08-12-04-T-R-S-00	Total/NA	Solid	Fill_Geo-0	241584
160-16616-5	L08-12-05-T-E-S-00	Total/NA	Solid	Fill_Geo-0	241584

TestAmerica St. Louis

QC Association Summary

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

TestAmerica Job ID: 160-16616-1

Rad (Continued)

Prep Batch: 242185 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16616-6	L08-12-06-T-E-S-00	Total/NA	Solid	Fill_Geo-0	241584
160-16616-7	L08-12-07-T-R-S-00	Total/NA	Solid	Fill_Geo-0	241584
160-16616-8	L08-12-08-T-E-S-00	Total/NA	Solid	Fill_Geo-0	241584
160-16616-9	L08-12-09-T-R-S-00	Total/NA	Solid	Fill_Geo-0	241584
160-16616-10	L08-12-10-T-E-S-00	Total/NA	Solid	Fill_Geo-0	241584
160-16616-11	L08-12-11-T-E-S-00	Total/NA	Solid	Fill_Geo-0	241584
160-16616-12	L08-12-12-T-R-S-00	Total/NA	Solid	Fill_Geo-0	241584
160-16616-13	L08-12-13-T-E-S-00	Total/NA	Solid	Fill_Geo-0	241584
160-16616-14	L08-12-14-T-R-S-00	Total/NA	Solid	Fill_Geo-0	241584
160-16616-15	L08-12-15-T-E-S-00	Total/NA	Solid	Fill_Geo-0	241584
160-16616-16	L08-12-15-T-E-Q-00	Total/NA	Solid	Fill_Geo-0	241584
160-16616-17	L08-12-16-T-R-S-00	Total/NA	Solid	Fill_Geo-0	241584
160-16616-18	L08-12-17-T-E-S-00	Total/NA	Solid	Fill_Geo-0	241584
160-16616-19	L08-12-18-T-E-B-00	Total/NA	Solid	Fill_Geo-0	241584
LCS 160-242185/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-0	
MB 160-242185/1-A	Method Blank	Total/NA	Solid	Fill_Geo-0	

Tracer/Carrier Summary

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

TestAmerica Job ID: 160-16616-1

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)	
160-16616-1	L08-12-01-T-E-S-00	88	
160-16616-1 MS	L08-12-01-T-E-S-00	89	
160-16616-1 MSD	L08-12-01-T-E-S-00	89	
160-16616-2	L08-12-02-T-E-S-00	89	
160-16616-3	L08-12-03-T-E-S-00	89	
160-16616-4	L08-12-04-T-R-S-00	90	
160-16616-5	L08-12-05-T-E-S-00	92	
160-16616-6	L08-12-06-T-E-S-00	90	
160-16616-7	L08-12-07-T-R-S-00	90	
160-16616-8	L08-12-08-T-E-S-00	89	
160-16616-9	L08-12-09-T-R-S-00	91	
160-16616-10	L08-12-10-T-E-S-00	84	
160-16616-11	L08-12-11-T-E-S-00	88	
160-16616-12	L08-12-12-T-R-S-00	90	
160-16616-13	L08-12-13-T-E-S-00	91	
160-16616-14	L08-12-14-T-R-S-00	90	
160-16616-15	L08-12-15-T-E-S-00	90	
160-16616-16	L08-12-15-T-E-Q-00	87	
160-16616-17	L08-12-16-T-R-S-00	88	
160-16616-18	L08-12-17-T-E-S-00	87	
160-16616-19	L08-12-18-T-E-B-00	87	
160-16618-A-1-D MS	Matrix Spike	88	
160-16618-A-1-E MSD	Matrix Spike Duplicate	89	
LCS 160-241767/2-A	Lab Control Sample	98	
LCS 160-241768/2-A	Lab Control Sample	93	
MB 160-241767/1-A	Method Blank	99	
MB 160-241768/1-A	Method Blank	94	

Tracer/Carrier Legend

Re = Re