

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: 160-16598-1

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

Rhonda Ridenhower

Authorized for release by:

3/25/2016 12:04:16 PM

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Designee for

Ivan Vania, Project Manager II
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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: 160-16598-1

Job ID: 160-16598-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Westinghouse Electric Company LLC

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

Report Number: 160-16598-1

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 03/18/2016; the samples arrived in good condition, properly preserved. The temperatures of the 2 coolers at receipt time were 20.0° C and 20.0° C.

TECHNETIUM-99 (ICPMS)

Samples L04-03-01-P-S-S-00 (160-16598-1), L04-03-02-P-R-S-00 (160-16598-2), L04-03-04-P-S-S-00 (160-16598-3), L04-03-05-P-R-S-00 (160-16598-4), L04-03-07-P-S-S-00 (160-16598-5), L04-03-08-P-R-S-00 (160-16598-6), L04-03-10-P-S-S-00 (160-16598-7), L04-03-11-P-R-S-00 (160-16598-8), L04-03-13-P-S-S-00 (160-16598-9), L04-03-14-P-R-S-00 (160-16598-10), L04-03-14-P-R-Q-00 (160-16598-11), L04-03-16-P-S-S-00 (160-16598-12), L04-03-17-P-R-S-00 (160-16598-13), L04-03-19-P-S-S-00 (160-16598-14), L04-03-20-P-R-S-00 (160-16598-15), L04-03-22-P-S-S-00 (160-16598-16), L04-03-23-P-R-S-00 (160-16598-17) and L04-03-23-P-R-Q-00 (160-16598-18) were analyzed for Technetium-99 (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 03/21/2016 and 03/23/2016 and analyzed on 03/22/2016 and 03/24/2016.

The matrix spike (MS) recovery for preparation batch 160-241319 and analytical batch 160-241769 was outside control limits for technetium. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS)

Case Narrative

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

TestAmerica Job ID: 160-16598-1

Job ID: 160-16598-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

recovery was within acceptance limits. (160-16595-A-1-C MS) and (160-16595-A-1-D MSD)

The Relative Error Ratio (RER) were outside control limits for technetium, but within RPD limits. (160-16595-A-1-C MS) and (160-16595-A-1-D MSD)

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

PERCENT SOLIDS

Samples L04-03-01-P-S-S-00 (160-16598-1), L04-03-02-P-R-S-00 (160-16598-2), L04-03-04-P-S-S-00 (160-16598-3), L04-03-05-P-R-S-00 (160-16598-4), L04-03-07-P-S-S-00 (160-16598-5), L04-03-08-P-R-S-00 (160-16598-6), L04-03-10-P-S-S-00 (160-16598-7), L04-03-11-P-R-S-00 (160-16598-8), L04-03-13-P-S-S-00 (160-16598-9), L04-03-14-P-R-S-00 (160-16598-10), L04-03-14-P-R-Q-00 (160-16598-11), L04-03-16-P-S-S-00 (160-16598-12), L04-03-17-P-R-S-00 (160-16598-13), L04-03-19-P-S-S-00 (160-16598-14), L04-03-20-P-R-S-00 (160-16598-15), L04-03-22-P-S-S-00 (160-16598-16), L04-03-23-P-R-S-00 (160-16598-17) and L04-03-23-P-R-Q-00 (160-16598-18) were analyzed for percent solids in accordance with EPA Method 160.3 MOD. The samples were analyzed on 03/21/2016.

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 L04-03-01-P-S-S-00 (160-16598-1), L04-03-02-P-R-S-00 (160-16598-2), L04-03-04-P-S-S-00 (160-16598-3), L04-03-05-P-R-S-00 (160-16598-4), L04-03-07-P-S-S-00 (160-16598-5), L04-03-08-P-R-S-00 (160-16598-6), L04-03-10-P-S-S-00 (160-16598-7), L04-03-11-P-R-S-00 (160-16598-8), L04-03-13-P-S-S-00 (160-16598-9), L04-03-14-P-R-S-00 (160-16598-10), L04-03-14-P-R-Q-00 (160-16598-11), L04-03-16-P-S-S-00 (160-16598-12), L04-03-17-P-R-S-00 (160-16598-13), L04-03-19-P-S-S-00 (160-16598-14), L04-03-20-P-R-S-00 (160-16598-15), L04-03-22-P-S-S-00 (160-16598-16), L04-03-23-P-R-S-00 (160-16598-17) and L04-03-23-P-R-Q-00 (160-16598-18) were analyzed for Cesium-137 & Other Gamma Emitters (GS) in accordance with DOE GA-01-R. The samples were dried on 03/18/2016, and prepared and analyzed on 03/22/2016.

Prep Batch 241445

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. L04-03-20-P-R-S-00 (160-16598-15), L04-03-22-P-S-S-00 (160-16598-16), L04-03-23-P-R-S-00 (160-16598-17), L04-03-23-P-R-Q-00 (160-16598-18), (LCS 160-241445/2-A), (MB 160-241445/1-A) and (160-16598-A-15-D DU)

The following samples, analyzed by gamma spectroscopy, did not meet the thorium-234 detection goal (1.00 pCi/g): L04-03-19-P-S-S-00 (160-16598-14). The samples final activity was above the MDC. The data is reported with the MDC achieved.

Prep Batch 241440

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. L04-03-01-P-S-S-00 (160-16598-1), L04-03-02-P-R-S-00 (160-16598-2), L04-03-04-P-S-S-00 (160-16598-3), L04-03-05-P-R-S-00 (160-16598-4), L04-03-07-P-S-S-00 (160-16598-5), L04-03-08-P-R-S-00 (160-16598-6), L04-03-10-P-S-S-00 (160-16598-7), L04-03-11-P-R-S-00 (160-16598-8), L04-03-13-P-S-S-00 (160-16598-9), L04-03-14-P-R-S-00 (160-16598-10), L04-03-14-P-R-Q-00 (160-16598-11), L04-03-16-P-S-S-00 (160-16598-12), L04-03-17-P-R-S-00 (160-16598-13), L04-03-19-P-S-S-00 (160-16598-14), (LCS 160-241440/2-A), (MB 160-241440/1-A), (160-16595-A-1-F) and (160-16595-A-1-G DU)

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-031716-04 Page 1/2				Requested Analysis								Laboratory Name:			
Project Name: Westinghouse Electric Company				Comp (C) or Grab (G)	Gamma Spec	Isotopic Uranium	Tc-99	Gamma Spec (21 day ingrow for Ra-226)					Total Containers	Laboratory Name: TA-MO	
Contact Person: Clark Evers														Laboratory Address: 13715 Rider Trail North	
Phone Number: 314-810-3336														Phone No. 314-298-8566	
Sampler Name: John Michel														Laboratory Contact Person: Ivan Vania	
				Phone No. 708-870-8453											
				Turn Around Time											
				Rush (7 days)											
				Remarks											
Sample ID	Date	Time	Matrix	Comp (C) or Grab (G)	Gamma Spec	Isotopic Uranium	Tc-99	Gamma Spec (21 day ingrow for Ra-226)							
L04-03-01-P-S-S-00	3/17/2016	9:00	S	G	X	X	X	X				1	LSA 04-03		
L04-03-02-P-R-S-00	3/17/2016	9:20	S	C	X	X	X	X				1	LSA 04-03		
L04-03-04-P-S-S-00	3/17/2016	9:28	S	G	X	X	X	X				1	LSA 04-03		
L04-03-05-P-R-S-00	3/17/2016	14:50	S	C	X	X	X	X				1	LSA 04-03		
L04-03-07-P-S-S-00	3/17/2016	9:35	S	G	X	X	X	X				1	LSA 04-03		
L04-03-08-P-R-S-00	3/17/2016	9:50	S	C	X	X	X	X				1	LSA 04-03		
L04-03-10-P-S-S-00	3/17/2016	10:20	S	G	X	X	X	X				1	LSA 04-03		
L04-03-11-P-R-S-00	3/17/2016	10:45	S	C	X	X	X	X				1	LSA 04-03		
L04-03-13-P-S-S-00	3/17/2016	13:30	S	G	X	X	X	X				1	LSA 04-03		
L04-03-14-P-R-S-00	3/17/2016	13:45	S	C	X	X	X	X				1	LSA 04-03		
L04-03-14-P-R-Q-00	3/17/2016	13:45	S	C	X	X	X	X				1	LSA 04-03		
L04-03-16-P-S-S-00	3/17/2016	13:05	S	G	X	X	X	X				1	LSA 04-03		
Relinquished by: <i>Thomas Yarb</i>				Date/Time		Received by: <i>R. G. 3815</i>				Date/Time		Total		Cooler Temperature:	
<i>Clark Evers</i>				3-18-16		<i>CROSS ROAD</i>				3-18-16		18		Ambient	
Company Name: WEC				09:25		Company Name: CROSS ROAD				09:25		Cooler ID: 031702103		Shipper and Number:	
Received by:				Date/Time		Relinquished by:				Date/Time		Comments: N/A			
Company Name:						Company Name:									
Relinquished by: <i>R. G. 3815</i>				Date/Time		Received by: <i>Thomas Yarb</i>				Date/Time		Verified By: <i>Thomas Yarb</i>			
Company Name: CROSS ROAD				3-18-16		Company Name: THS				3-18-16		3-18-16			
				11:10						11:10					



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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

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Sample ID	Date	Time	Matrix																																														
L04-03-17-P-R-S-00	3/17/2016	13:25	S	C	X	X	X					1	LSA 04-03																																				
L04-03-19-P-S-S-00	3/17/2016	13:52	S	G	X	X	X					1	LSA 04-03																																				
L04-03-20-P-R-S-00	3/17/2016	14:05	S	C	X	X	X					1	LSA 04-03																																				
L04-03-22-P-S-S-00	3/17/2016	14:12	S	G	X	X	X					1	LSA 04-03																																				
L04-03-23-P-R-S-00	3/17/2016	14:23	S	C	X	X	X					1	LSA 04-03																																				
L04-03-23-P-R-Q-00	3/17/2016	14:23	S	C	X	X	X					1	LSA 04-03																																				
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:25%;">Relinquished by: <i>Thomas York</i></td> <td style="width:15%;">Date/Time: 3-18-16</td> <td style="width:25%;">Received by: <i>[Signature]</i> 3815</td> <td style="width:15%;">Date/Time: 3-18-16</td> <td style="width:10%;">Total: 18</td> <td style="width:20%;">Cooler Temperature: Ambient</td> </tr> <tr> <td>Company Name: <i>WEC</i></td> <td>Date/Time: 09:25</td> <td>Company Name: <i>CROSS ROADS</i></td> <td>Date/Time: 09:25</td> <td>Cooler ID: 0317-02/03</td> <td>Shipper and Number:</td> </tr> <tr> <td>Received by:</td> <td>Date/Time:</td> <td>Relinquished by:</td> <td>Date/Time:</td> <td colspan="2">Comments: N/A</td> </tr> <tr> <td>Company Name:</td> <td></td> <td>Company Name:</td> <td></td> <td colspan="2"></td> </tr> <tr> <td>Relinquished by: <i>[Signature]</i> 3815</td> <td>Date/Time: 3-18-16</td> <td>Received by: <i>[Signature]</i> 1110</td> <td>Date/Time: 3-18-16</td> <td colspan="2">Verified By: <i>Thomas York / [Signature]</i></td> </tr> <tr> <td>Company Name: <i>CROSS ROADS</i></td> <td>Date/Time: 11:10</td> <td>Company Name: <i>[Signature]</i></td> <td>Date/Time: 11:10</td> <td colspan="2">3-18-16</td> </tr> </table>														Relinquished by: <i>Thomas York</i>	Date/Time: 3-18-16	Received by: <i>[Signature]</i> 3815	Date/Time: 3-18-16	Total: 18	Cooler Temperature: Ambient	Company Name: <i>WEC</i>	Date/Time: 09:25	Company Name: <i>CROSS ROADS</i>	Date/Time: 09:25	Cooler ID: 0317-02/03	Shipper and Number:	Received by:	Date/Time:	Relinquished by:	Date/Time:	Comments: N/A		Company Name:		Company Name:				Relinquished by: <i>[Signature]</i> 3815	Date/Time: 3-18-16	Received by: <i>[Signature]</i> 1110	Date/Time: 3-18-16	Verified By: <i>Thomas York / [Signature]</i>		Company Name: <i>CROSS ROADS</i>	Date/Time: 11:10	Company Name: <i>[Signature]</i>	Date/Time: 11:10	3-18-16	
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Company Name: <i>CROSS ROADS</i>	Date/Time: 11:10	Company Name: <i>[Signature]</i>	Date/Time: 11:10	3-18-16																																													



Login Sample Receipt Checklist

Client: Westinghouse Electric Company LLC

Job Number: 160-16598-1

Login Number: 16598

List Source: TestAmerica St. Louis

List Number: 1

Creator: Dedner, Connie L

Question	Answer	Comment
Radioactivity wasn't checked or is </= 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 <6mm (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: 160-16598-1

Qualifiers

Metals

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

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: 160-16598-1

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: 160-16598-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-16598-1	L04-03-01-P-S-S-00	Solid	03/17/16 09:00	03/18/16 11:10
160-16598-2	L04-03-02-P-R-S-00	Solid	03/17/16 09:20	03/18/16 11:10
160-16598-3	L04-03-04-P-S-S-00	Solid	03/17/16 09:28	03/18/16 11:10
160-16598-4	L04-03-05-P-R-S-00	Solid	03/17/16 14:50	03/18/16 11:10
160-16598-5	L04-03-07-P-S-S-00	Solid	03/17/16 09:35	03/18/16 11:10
160-16598-6	L04-03-08-P-R-S-00	Solid	03/17/16 09:50	03/18/16 11:10
160-16598-7	L04-03-10-P-S-S-00	Solid	03/17/16 10:20	03/18/16 11:10
160-16598-8	L04-03-11-P-R-S-00	Solid	03/17/16 10:45	03/18/16 11:10
160-16598-9	L04-03-13-P-S-S-00	Solid	03/17/16 13:30	03/18/16 11:10
160-16598-10	L04-03-14-P-R-S-00	Solid	03/17/16 13:45	03/18/16 11:10
160-16598-11	L04-03-14-P-R-Q-00	Solid	03/17/16 13:45	03/18/16 11:10
160-16598-12	L04-03-16-P-S-S-00	Solid	03/17/16 13:05	03/18/16 11:10
160-16598-13	L04-03-17-P-R-S-00	Solid	03/17/16 13:25	03/18/16 11:10
160-16598-14	L04-03-19-P-S-S-00	Solid	03/17/16 13:52	03/18/16 11:10
160-16598-15	L04-03-20-P-R-S-00	Solid	03/17/16 14:05	03/18/16 11:10
160-16598-16	L04-03-22-P-S-S-00	Solid	03/17/16 14:12	03/18/16 11:10
160-16598-17	L04-03-23-P-R-S-00	Solid	03/17/16 14:23	03/18/16 11:10
160-16598-18	L04-03-23-P-R-Q-00	Solid	03/17/16 14:23	03/18/16 11:10

Client Sample Results

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

TestAmerica Job ID: 160-16598-1

Client Sample ID: L04-03-01-P-S-S-00

Lab Sample ID: 160-16598-1

Date Collected: 03/17/16 09:00

Matrix: Solid

Date Received: 03/18/16 11:10

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	0.869		0.110	0.141		0.0984	pCi/g	03/22/16 09:58	03/22/16 21:30	1
Americium 241	-0.00725	U	0.0509	0.0509		0.0857	pCi/g	03/22/16 09:58	03/22/16 21:30	1
Bismuth 212	1.32		0.369	0.393		0.302	pCi/g	03/22/16 09:58	03/22/16 21:30	1
Bismuth 214	0.711		0.0845	0.112		0.0597	pCi/g	03/22/16 09:58	03/22/16 21:30	1
Lead 212	0.957		0.0729	0.144		0.0603	pCi/g	03/22/16 09:58	03/22/16 21:30	1
Lead 214	0.833		0.0788	0.117		0.0552	pCi/g	03/22/16 09:58	03/22/16 21:30	1
Potassium 40	15.3		1.02	1.87		0.283	pCi/g	03/22/16 09:58	03/22/16 21:30	1
Protactinium 231	0.141	U	0.156	0.156		0.981	pCi/g	03/22/16 09:58	03/22/16 21:30	1
Radium 226	0.711		0.0845	0.112	1.00	0.0597	pCi/g	03/22/16 09:58	03/22/16 21:30	1
Thorium 234	1.26		0.453	0.472	1.00	0.703	pCi/g	03/22/16 09:58	03/22/16 21:30	1
Uranium 235	0.226		0.112	0.114		0.203	pCi/g	03/22/16 09:58	03/22/16 21:30	1
Protactinium 234m	1.59	U	2.85	2.85		4.81	pCi/g	03/22/16 09:58	03/22/16 21:30	1
Thorium 232	0.869		0.110	0.141		0.0984	pCi/g	03/22/16 09:58	03/22/16 21:30	1
Other Detected Radionuclides			Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.303		0.0437	0.0538		0.0320	pCi/g	03/22/16 09:58	03/22/16 21:30	1

Client Sample ID: L04-03-01-P-S-S-00

Lab Sample ID: 160-16598-1

Date Collected: 03/17/16 09:00

Matrix: Solid

Date Received: 03/18/16 11:10

Percent Solids: 84.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.000060	J	0.000069	0.000021	mg/Kg	☼	03/21/16 08:09	03/22/16 18:22	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	1.03	F	0.113	0.148	1.39	0.238	pCi/g	03/21/16 08:09	03/22/16 18:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	90		30 - 110					03/21/16 08:09	03/22/16 18:22	1

Client Sample ID: L04-03-02-P-R-S-00

Lab Sample ID: 160-16598-2

Date Collected: 03/17/16 09:20

Matrix: Solid

Date Received: 03/18/16 11:10

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	1.19		0.114	0.165		0.111	pCi/g	03/22/16 09:58	03/22/16 21:32	1
Americium 241	-0.00797	U	22.9	22.9		0.0943	pCi/g	03/22/16 09:58	03/22/16 21:32	1
Bismuth 212	1.21		0.405	0.424		0.370	pCi/g	03/22/16 09:58	03/22/16 21:32	1
Bismuth 214	0.699		0.0721	0.102		0.0625	pCi/g	03/22/16 09:58	03/22/16 21:32	1
Lead 212	1.03		0.0747	0.153		0.0652	pCi/g	03/22/16 09:58	03/22/16 21:32	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16598-1

Client Sample ID: L04-03-02-P-R-S-00

Lab Sample ID: 160-16598-2

Date Collected: 03/17/16 09:20

Matrix: Solid

Date Received: 03/18/16 11:10

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

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Lead 214	0.969		0.0849	0.132		0.0690	pCi/g	03/22/16 09:58	03/22/16 21:32	1
Potassium 40	20.6		1.06	2.33		0.285	pCi/g	03/22/16 09:58	03/22/16 21:32	1
Protactinium 231	0.0872	U	0.436	0.436		0.745	pCi/g	03/22/16 09:58	03/22/16 21:32	1
Radium 226	0.699		0.0721	0.102	1.00	0.0625	pCi/g	03/22/16 09:58	03/22/16 21:32	1
Thorium 234	1.18		0.465	0.481	1.00	0.735	pCi/g	03/22/16 09:58	03/22/16 21:32	1
Uranium 235	0.340		0.151	0.155		0.174	pCi/g	03/22/16 09:58	03/22/16 21:32	1
Protactinium 234m	1.64	U	2.25	2.25		4.30	pCi/g	03/22/16 09:58	03/22/16 21:32	1
Thorium 232	1.19		0.114	0.165		0.111	pCi/g	03/22/16 09:58	03/22/16 21:32	1
Other Detected			Count	Total						
Radionuclides			Uncert.	Uncert.	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			(2σ+/-)	(2σ+/-)						
Tl-208	0.336		0.0405	0.0532		0.0299	pCi/g	03/22/16 09:58	03/22/16 21:32	1

Client Sample ID: L04-03-02-P-R-S-00

Lab Sample ID: 160-16598-2

Date Collected: 03/17/16 09:20

Matrix: Solid

Date Received: 03/18/16 11:10

Percent Solids: 83.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.000023	J	0.000065	0.000019	mg/Kg	☼	03/21/16 08:09	03/22/16 18:26	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	0.388	F	0.0797	0.0873	1.29	0.221	pCi/g	03/21/16 08:09	03/22/16 18:26	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	91		30 - 110					03/21/16 08:09	03/22/16 18:26	1

Client Sample ID: L04-03-04-P-S-S-00

Lab Sample ID: 160-16598-3

Date Collected: 03/17/16 09:28

Matrix: Solid

Date Received: 03/18/16 11:10

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	0.907		0.0958	0.133		0.0825	pCi/g	03/22/16 09:58	03/22/16 21:33	1
Americium 241	-0.0104	U	0.0475	0.0475		0.0797	pCi/g	03/22/16 09:58	03/22/16 21:33	1
Bismuth 212	1.18		0.334	0.355		0.294	pCi/g	03/22/16 09:58	03/22/16 21:33	1
Bismuth 214	0.713		0.0682	0.101		0.0406	pCi/g	03/22/16 09:58	03/22/16 21:33	1
Lead 212	0.859		0.0612	0.127		0.0499	pCi/g	03/22/16 09:58	03/22/16 21:33	1
Lead 214	0.811		0.0756	0.113		0.0534	pCi/g	03/22/16 09:58	03/22/16 21:33	1
Potassium 40	14.4		0.846	1.70		0.173	pCi/g	03/22/16 09:58	03/22/16 21:33	1
Protactinium 231	-0.430	U	0.519	0.521		0.854	pCi/g	03/22/16 09:58	03/22/16 21:33	1
Radium 226	0.713		0.0682	0.101	1.00	0.0406	pCi/g	03/22/16 09:58	03/22/16 21:33	1
Thorium 234	0.870		0.235	0.252	1.00	0.648	pCi/g	03/22/16 09:58	03/22/16 21:33	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16598-1

Client Sample ID: L04-03-04-P-S-S-00

Lab Sample ID: 160-16598-3

Date Collected: 03/17/16 09:28

Matrix: Solid

Date Received: 03/18/16 11:10

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

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Uranium 235	0.251		0.118	0.121		0.160	pCi/g	03/22/16 09:58	03/22/16 21:33	1
Protactinium 234m	0.983	U	2.28	2.28		3.90	pCi/g	03/22/16 09:58	03/22/16 21:33	1
Thorium 232	0.907		0.0958	0.133		0.0825	pCi/g	03/22/16 09:58	03/22/16 21:33	1
Other Detected			Count	Total						
Radionuclides			Uncert.	Uncert.						
	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.308		0.0409	0.0520		0.0301	pCi/g	03/22/16 09:58	03/22/16 21:33	1

Client Sample ID: L04-03-04-P-S-S-00

Lab Sample ID: 160-16598-3

Date Collected: 03/17/16 09:28

Matrix: Solid

Date Received: 03/18/16 11:10

Percent Solids: 84.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.000032	J	0.000062	0.000019	mg/Kg	☼	03/21/16 08:09	03/22/16 18:30	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	0.556	F	0.0946	0.108	1.24	0.212	pCi/g	03/21/16 08:09	03/22/16 18:30	1
Carrier			Yield	Limits				Prepared	Analyzed	Dil Fac
Re	91		30 - 110					03/21/16 08:09	03/22/16 18:30	1

Client Sample ID: L04-03-05-P-R-S-00

Lab Sample ID: 160-16598-4

Date Collected: 03/17/16 14:50

Matrix: Solid

Date Received: 03/18/16 11:10

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

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Actinium 228	1.05		0.139	0.176		0.117	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Americium 241	-0.00463	U	0.0644	0.0644		0.109	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Bismuth 212	0.689		0.412	0.418		0.618	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Bismuth 214	0.781		0.107	0.134		0.0694	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Lead 212	0.961		0.0913	0.154		0.0761	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Lead 214	0.862		0.0923	0.129		0.0867	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Potassium 40	16.0		1.27	2.07		0.256	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Protactinium 231	0.540	U	0.334	0.339		1.26	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Radium 226	0.781		0.107	0.134	1.00	0.0694	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Thorium 234	0.858	U	0.363	0.374	1.00	0.976	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Uranium 235	0.139	U	0.121	0.122		0.190	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Protactinium 234m	3.63	U	2.40	2.42		4.83	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Thorium 232	1.05		0.139	0.176		0.117	pCi/g	03/22/16 09:58	03/22/16 22:01	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16598-1

Client Sample ID: L04-03-05-P-R-S-00

Lab Sample ID: 160-16598-4

Date Collected: 03/17/16 14:50

Matrix: Solid

Date Received: 03/18/16 11:10

Other Detected Radionuclides	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Pb-210	1.72		0.709	0.737		0.844	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Tl-208	0.302		0.0487	0.0579		0.0365	pCi/g	03/22/16 09:58	03/22/16 22:01	1

Client Sample ID: L04-03-05-P-R-S-00

Lab Sample ID: 160-16598-4

Date Collected: 03/17/16 14:50

Matrix: Solid

Date Received: 03/18/16 11:10

Percent Solids: 79.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.000052	J	0.000066	0.000020	mg/Kg	☼	03/21/16 08:09	03/22/16 18:34	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	0.898	F	0.170	0.189	1.31	0.224	pCi/g	03/21/16 08:09	03/22/16 18:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	96		30 - 110					03/21/16 08:09	03/22/16 18:34	1

Client Sample ID: L04-03-07-P-S-S-00

Lab Sample ID: 160-16598-5

Date Collected: 03/17/16 09:35

Matrix: Solid

Date Received: 03/18/16 11:10

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	0.846		0.103	0.134		0.0846	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Americium 241	0.0356	U	0.0542	0.0543		0.0897	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Bismuth 212	1.33		0.339	0.366		0.285	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Bismuth 214	0.693		0.0759	0.105		0.0543	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Lead 212	0.991		0.0598	0.141		0.0452	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Lead 214	0.822		0.0694	0.110		0.0559	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Potassium 40	16.3		0.919	1.91		0.227	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Protactinium 231	0.182	U	0.355	0.355		0.597	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Radium 226	0.693		0.0759	0.105	1.00	0.0543	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Thorium 234	1.03		0.421	0.434	1.00	0.662	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Uranium 235	0.282		0.152	0.155		0.180	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Protactinium 234m	2.96	U	2.30	2.32		3.93	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Thorium 232	0.846		0.103	0.134		0.0846	pCi/g	03/22/16 09:58	03/22/16 22:01	1
Other Detected Radionuclides	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Tl-208	0.282		0.0412	0.0506		0.0318	pCi/g	03/22/16 09:58	03/22/16 22:01	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16598-1

Client Sample ID: L04-03-07-P-S-S-00

Lab Sample ID: 160-16598-5

Date Collected: 03/17/16 09:35

Matrix: Solid

Date Received: 03/18/16 11:10

Percent Solids: 87.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000060	0.000018	mg/Kg	☼	03/21/16 08:09	03/22/16 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	0.273	F	0.0400	0.0472	1.20	0.206	pCi/g	03/21/16 08:09	03/22/16 18:38	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Re	93		30 - 110	03/21/16 08:09	03/22/16 18:38	1

Client Sample ID: L04-03-08-P-R-S-00

Lab Sample ID: 160-16598-6

Date Collected: 03/17/16 09:50

Matrix: Solid

Date Received: 03/18/16 11:10

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	0.939		0.101	0.139		0.0972	pCi/g	03/22/16 09:58	03/22/16 22:03	1
Americium 241	-0.0208	U	0.0522	0.0522		0.0871	pCi/g	03/22/16 09:58	03/22/16 22:03	1
Bismuth 212	1.14		0.429	0.445		0.398	pCi/g	03/22/16 09:58	03/22/16 22:03	1
Bismuth 214	0.735		0.0882	0.117		0.0625	pCi/g	03/22/16 09:58	03/22/16 22:03	1
Lead 212	0.820		0.0687	0.126		0.0589	pCi/g	03/22/16 09:58	03/22/16 22:03	1
Lead 214	0.790		0.0728	0.110		0.0555	pCi/g	03/22/16 09:58	03/22/16 22:03	1
Potassium 40	16.5		1.07	2.00		0.289	pCi/g	03/22/16 09:58	03/22/16 22:03	1
Protactinium 231	0.336	U	0.217	0.220		1.07	pCi/g	03/22/16 09:58	03/22/16 22:03	1
Radium 226	0.735		0.0882	0.117	1.00	0.0625	pCi/g	03/22/16 09:58	03/22/16 22:03	1
Thorium 234	0.719		0.239	0.250	1.00	0.656	pCi/g	03/22/16 09:58	03/22/16 22:03	1
Uranium 235	0.165	U	0.143	0.144		0.178	pCi/g	03/22/16 09:58	03/22/16 22:03	1
Protactinium 234m	0.000	U	2.02	2.02		5.07	pCi/g	03/22/16 09:58	03/22/16 22:03	1
Thorium 232	0.939		0.101	0.139		0.0972	pCi/g	03/22/16 09:58	03/22/16 22:03	1

Other Detected Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.257		0.0391	0.0473		0.0296	pCi/g	03/22/16 09:58	03/22/16 22:03	1

Client Sample ID: L04-03-08-P-R-S-00

Lab Sample ID: 160-16598-6

Date Collected: 03/17/16 09:50

Matrix: Solid

Date Received: 03/18/16 11:10

Percent Solids: 85.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000061	0.000018	mg/Kg	☼	03/21/16 08:09	03/22/16 18:42	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	0.0788	U F	0.0529	0.0534	1.22	0.208	pCi/g	03/21/16 08:09	03/22/16 18:42	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16598-1

Client Sample ID: L04-03-08-P-R-S-00

Date Collected: 03/17/16 09:50

Date Received: 03/18/16 11:10

Lab Sample ID: 160-16598-6

Matrix: Solid

Percent Solids: 85.1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Re	95		30 - 110	03/21/16 08:09	03/22/16 18:42	1

Client Sample ID: L04-03-10-P-S-S-00

Date Collected: 03/17/16 10:20

Date Received: 03/18/16 11:10

Lab Sample ID: 160-16598-7

Matrix: Solid

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

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Actinium 228	1.05		0.109	0.152		0.103	pCi/g	03/22/16 09:58	03/22/16 22:06	1
Americium 241	0.0228	U	0.0534	0.0535		0.0894	pCi/g	03/22/16 09:58	03/22/16 22:06	1
Bismuth 212	1.49		0.473	0.497		0.406	pCi/g	03/22/16 09:58	03/22/16 22:06	1
Bismuth 214	0.800		0.0830	0.117		0.0568	pCi/g	03/22/16 09:58	03/22/16 22:06	1
Lead 212	0.912		0.0798	0.143		0.0701	pCi/g	03/22/16 09:58	03/22/16 22:06	1
Lead 214	0.893		0.0758	0.120		0.0634	pCi/g	03/22/16 09:58	03/22/16 22:06	1
Potassium 40	19.9		1.05	2.27		0.292	pCi/g	03/22/16 09:58	03/22/16 22:06	1
Protactinium 231	0.561	U	0.234	0.242		1.07	pCi/g	03/22/16 09:58	03/22/16 22:06	1
Radium 226	0.800		0.0830	0.117	1.00	0.0568	pCi/g	03/22/16 09:58	03/22/16 22:06	1
Thorium 234	1.25		0.467	0.485	1.00	0.735	pCi/g	03/22/16 09:58	03/22/16 22:06	1
Uranium 235	0.229		0.122	0.125		0.168	pCi/g	03/22/16 09:58	03/22/16 22:06	1
Protactinium 234m	4.86		2.23	2.28		4.71	pCi/g	03/22/16 09:58	03/22/16 22:06	1
Thorium 232	1.05		0.109	0.152		0.103	pCi/g	03/22/16 09:58	03/22/16 22:06	1
Other Detected			Count	Total						
Radionuclides	Result	Qualifier	Uncert.	Uncert.	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Pb-210	1.21		0.434	0.457		0.589	pCi/g	03/22/16 09:58	03/22/16 22:06	1
Tl-208	0.320		0.0373	0.0497		0.0267	pCi/g	03/22/16 09:58	03/22/16 22:06	1

Client Sample ID: L04-03-10-P-S-S-00

Date Collected: 03/17/16 10:20

Date Received: 03/18/16 11:10

Lab Sample ID: 160-16598-7

Matrix: Solid

Percent Solids: 83.9

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.000056	J	0.000064	0.000019	mg/Kg	☼	03/21/16 08:09	03/22/16 18:57	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	0.962	F	0.121	0.150	1.28	0.219	pCi/g	03/21/16 08:09	03/22/16 18:57	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	91		30 - 110					03/21/16 08:09	03/22/16 18:57	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16598-1

Client Sample ID: L04-03-11-P-R-S-00

Lab Sample ID: 160-16598-8

Date Collected: 03/17/16 10:45

Matrix: Solid

Date Received: 03/18/16 11:10

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	0.812		0.104	0.133		0.0759	pCi/g	03/22/16 09:58	03/22/16 22:05	1
Americium 241	-0.00348	U	0.0505	0.0505		0.0851	pCi/g	03/22/16 09:58	03/22/16 22:05	1
Bismuth 212	1.18		0.359	0.379		0.321	pCi/g	03/22/16 09:58	03/22/16 22:05	1
Bismuth 214	0.704		0.0788	0.107		0.0546	pCi/g	03/22/16 09:58	03/22/16 22:05	1
Lead 212	0.958		0.0659	0.140		0.0511	pCi/g	03/22/16 09:58	03/22/16 22:05	1
Lead 214	0.819		0.0721	0.112		0.0545	pCi/g	03/22/16 09:58	03/22/16 22:05	1
Potassium 40	18.0		0.991	2.09		0.189	pCi/g	03/22/16 09:58	03/22/16 22:05	1
Protactinium 231	0.367	U	0.200	0.204		0.922	pCi/g	03/22/16 09:58	03/22/16 22:05	1
Radium 226	0.704		0.0788	0.107	1.00	0.0546	pCi/g	03/22/16 09:58	03/22/16 22:05	1
Thorium 234	0.880		0.235	0.253	1.00	0.673	pCi/g	03/22/16 09:58	03/22/16 22:05	1
Uranium 235	0.0129	U	0.0738	0.0738		0.148	pCi/g	03/22/16 09:58	03/22/16 22:05	1
Protactinium 234m	4.02		2.16	2.20		3.95	pCi/g	03/22/16 09:58	03/22/16 22:05	1
Thorium 232	0.812		0.104	0.133		0.0759	pCi/g	03/22/16 09:58	03/22/16 22:05	1
Other Detected			Count	Total						
Radionuclides			Uncert.	Uncert.	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	(2σ+/-)	(2σ+/-)						
Pb-210	1.35		0.537	0.560		0.677	pCi/g	03/22/16 09:58	03/22/16 22:05	1
Tl-208	0.335		0.0472	0.0587		0.0359	pCi/g	03/22/16 09:58	03/22/16 22:05	1

Client Sample ID: L04-03-11-P-R-S-00

Lab Sample ID: 160-16598-8

Date Collected: 03/17/16 10:45

Matrix: Solid

Date Received: 03/18/16 11:10

Percent Solids: 83.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000063	0.000019	mg/Kg	☼	03/21/16 08:09	03/22/16 19:01	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	0.156	U F	0.0555	0.0573	1.26	0.216	pCi/g	03/21/16 08:09	03/22/16 19:01	1
Carrier			Limits					Prepared	Analyzed	Dil Fac
Re	93		30 - 110					03/21/16 08:09	03/22/16 19:01	1

Client Sample ID: L04-03-13-P-S-S-00

Lab Sample ID: 160-16598-9

Date Collected: 03/17/16 13:30

Matrix: Solid

Date Received: 03/18/16 11:10

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

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Actinium 228	1.04		0.136	0.172		0.0931	pCi/g	03/22/16 09:58	03/22/16 22:33	1
Americium 241	0.0200	U	0.0636	0.0637		0.107	pCi/g	03/22/16 09:58	03/22/16 22:33	1
Bismuth 212	1.20		0.435	0.452		0.416	pCi/g	03/22/16 09:58	03/22/16 22:33	1
Bismuth 214	0.706		0.101	0.125		0.0773	pCi/g	03/22/16 09:58	03/22/16 22:33	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16598-1

Client Sample ID: L04-03-13-P-S-S-00

Lab Sample ID: 160-16598-9

Date Collected: 03/17/16 13:30

Matrix: Solid

Date Received: 03/18/16 11:10

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

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Lead 212	0.997		0.0872	0.156		0.0750	pCi/g	03/22/16 09:58	03/22/16 22:33	1
Lead 214	0.874		0.0976	0.133		0.0921	pCi/g	03/22/16 09:58	03/22/16 22:33	1
Potassium 40	18.7		1.31	2.32		0.348	pCi/g	03/22/16 09:58	03/22/16 22:33	1
Protactinium 231	-0.564	U	0.770	0.773		1.27	pCi/g	03/22/16 09:58	03/22/16 22:33	1
Radium 226	0.706		0.101	0.125	1.00	0.0773	pCi/g	03/22/16 09:58	03/22/16 22:33	1
Thorium 234	1.29		0.531	0.547	1.00	0.832	pCi/g	03/22/16 09:58	03/22/16 22:33	1
Uranium 235	0.0770	U	0.125	0.125		0.247	pCi/g	03/22/16 09:58	03/22/16 22:33	1
Protactinium 234m	4.71	U	2.70	2.74		5.87	pCi/g	03/22/16 09:58	03/22/16 22:33	1
Thorium 232	1.04		0.136	0.172		0.0931	pCi/g	03/22/16 09:58	03/22/16 22:33	1
Other Detected			Count	Total						
Radionuclides			Uncert.	Uncert.	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			(2σ+/-)	(2σ+/-)						
Tl-208	0.360		0.0560	0.0673		0.0398	pCi/g	03/22/16 09:58	03/22/16 22:33	1

Client Sample ID: L04-03-13-P-S-S-00

Lab Sample ID: 160-16598-9

Date Collected: 03/17/16 13:30

Matrix: Solid

Date Received: 03/18/16 11:10

Percent Solids: 85.9

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000061	0.000018	mg/Kg	☼	03/21/16 08:09	03/22/16 19:05	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	0.274	F	0.0845	0.0882	1.23	0.211	pCi/g	03/21/16 08:09	03/22/16 19:05	1
Carrier			Limits					Prepared	Analyzed	Dil Fac
Re			95	30 - 110				03/21/16 08:09	03/22/16 19:05	1

Client Sample ID: L04-03-14-P-R-S-00

Lab Sample ID: 160-16598-10

Date Collected: 03/17/16 13:45

Matrix: Solid

Date Received: 03/18/16 11:10

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	0.994		0.119	0.156		0.0987	pCi/g	03/22/16 09:58	03/22/16 22:33	1
Americium 241	-0.00254	U	0.0626	0.0626		0.105	pCi/g	03/22/16 09:58	03/22/16 22:33	1
Bismuth 212	1.47		0.428	0.454		0.364	pCi/g	03/22/16 09:58	03/22/16 22:33	1
Bismuth 214	0.850		0.0898	0.126		0.0570	pCi/g	03/22/16 09:58	03/22/16 22:33	1
Lead 212	1.10		0.0761	0.162		0.0603	pCi/g	03/22/16 09:58	03/22/16 22:33	1
Lead 214	0.978		0.0824	0.131		0.0785	pCi/g	03/22/16 09:58	03/22/16 22:33	1
Potassium 40	18.5		1.11	2.20		0.388	pCi/g	03/22/16 09:58	03/22/16 22:33	1
Protactinium 231	0.307	U	0.188	0.191		1.04	pCi/g	03/22/16 09:58	03/22/16 22:33	1
Radium 226	0.850		0.0898	0.126	1.00	0.0570	pCi/g	03/22/16 09:58	03/22/16 22:33	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16598-1

Client Sample ID: L04-03-14-P-R-S-00

Lab Sample ID: 160-16598-10

Date Collected: 03/17/16 13:45

Matrix: Solid

Date Received: 03/18/16 11:10

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

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Thorium 234	1.16		0.500	0.515	1.00	0.790	pCi/g	03/22/16 09:58	03/22/16 22:33	1
Uranium 235	0.0890	U	0.139	0.140		0.225	pCi/g	03/22/16 09:58	03/22/16 22:33	1
Protactinium 234m	3.46	U	1.78	1.81		5.84	pCi/g	03/22/16 09:58	03/22/16 22:33	1
Thorium 232	0.994		0.119	0.156		0.0987	pCi/g	03/22/16 09:58	03/22/16 22:33	1
Other Detected Radionuclides			Count	Total						
	Result	Qualifier	Uncert.	Uncert.	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			(2σ+/-)	(2σ+/-)						
Pb-210	1.63		0.683	0.709		0.826	pCi/g	03/22/16 09:58	03/22/16 22:33	1
Tl-208	0.311		0.0428	0.0536		0.0318	pCi/g	03/22/16 09:58	03/22/16 22:33	1

Client Sample ID: L04-03-14-P-R-S-00

Lab Sample ID: 160-16598-10

Date Collected: 03/17/16 13:45

Matrix: Solid

Date Received: 03/18/16 11:10

Percent Solids: 80.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000063	0.000019	mg/Kg	☼	03/21/16 08:09	03/22/16 19:09	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	0.0120	U F	0.0436	0.0436	1.25	0.214	pCi/g	03/21/16 08:09	03/22/16 19:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	95		30 - 110					03/21/16 08:09	03/22/16 19:09	1

Client Sample ID: L04-03-14-P-R-Q-00

Lab Sample ID: 160-16598-11

Date Collected: 03/17/16 13:45

Matrix: Solid

Date Received: 03/18/16 11:10

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

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Actinium 228	1.17		0.131	0.178		0.127	pCi/g	03/22/16 09:58	03/22/16 22:36	1
Americium 241	0.000191	U	0.0541	0.0541		0.0919	pCi/g	03/22/16 09:58	03/22/16 22:36	1
Bismuth 212	1.22		0.415	0.434		0.556	pCi/g	03/22/16 09:58	03/22/16 22:36	1
Bismuth 214	0.867		0.109	0.141		0.0797	pCi/g	03/22/16 09:58	03/22/16 22:36	1
Lead 212	1.03		0.0829	0.157		0.0694	pCi/g	03/22/16 09:58	03/22/16 22:36	1
Lead 214	0.945		0.0866	0.131		0.0650	pCi/g	03/22/16 09:58	03/22/16 22:36	1
Potassium 40	19.7		1.26	2.38		0.255	pCi/g	03/22/16 09:58	03/22/16 22:36	1
Protactinium 231	0.235	U	0.210	0.212		1.22	pCi/g	03/22/16 09:58	03/22/16 22:36	1
Radium 226	0.867		0.109	0.141	1.00	0.0797	pCi/g	03/22/16 09:58	03/22/16 22:36	1
Thorium 234	0.833	U	0.298	0.311	1.00	0.861	pCi/g	03/22/16 09:58	03/22/16 22:36	1
Uranium 235	0.121	U	0.130	0.131		0.228	pCi/g	03/22/16 09:58	03/22/16 22:36	1
Protactinium 234m	2.18	U	3.12	3.13		5.19	pCi/g	03/22/16 09:58	03/22/16 22:36	1
Thorium 232	1.17		0.131	0.178		0.127	pCi/g	03/22/16 09:58	03/22/16 22:36	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16598-1

Client Sample ID: L04-03-14-P-R-Q-00

Lab Sample ID: 160-16598-11

Date Collected: 03/17/16 13:45

Matrix: Solid

Date Received: 03/18/16 11:10

Other Detected Radionuclides	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Pb-210	1.71		0.550	0.586		0.718	pCi/g	03/22/16 09:58	03/22/16 22:36	1
Tl-208	0.339		0.0454	0.0575		0.0302	pCi/g	03/22/16 09:58	03/22/16 22:36	1

Client Sample ID: L04-03-14-P-R-Q-00

Lab Sample ID: 160-16598-11

Date Collected: 03/17/16 13:45

Matrix: Solid

Date Received: 03/18/16 11:10

Percent Solids: 82.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000064	0.000019	mg/Kg	☼	03/21/16 08:09	03/22/16 19:13	1

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

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Technetium 99	0.0159	U F	0.0748	0.0748	1.29	0.221	pCi/g	03/21/16 08:09	03/22/16 19:13	1
Carrier	%Yield	Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Re	94		30 - 110		03/21/16 08:09	03/22/16 19:13	1			

Client Sample ID: L04-03-16-P-S-S-00

Lab Sample ID: 160-16598-12

Date Collected: 03/17/16 13:05

Matrix: Solid

Date Received: 03/18/16 11:10

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

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Actinium 228	0.931		0.102	0.138		0.0888	pCi/g	03/22/16 09:58	03/22/16 22:38	1
Americium 241	0.0199	U	0.0482	0.0483		0.0808	pCi/g	03/22/16 09:58	03/22/16 22:38	1
Bismuth 212	1.16		0.385	0.403		0.334	pCi/g	03/22/16 09:58	03/22/16 22:38	1
Bismuth 214	0.718		0.0779	0.107		0.0552	pCi/g	03/22/16 09:58	03/22/16 22:38	1
Lead 212	0.768		0.0631	0.118		0.0559	pCi/g	03/22/16 09:58	03/22/16 22:38	1
Lead 214	0.840		0.0773	0.117		0.0647	pCi/g	03/22/16 09:58	03/22/16 22:38	1
Potassium 40	15.1		0.913	1.77		0.314	pCi/g	03/22/16 09:58	03/22/16 22:38	1
Protactinium 231	0.452	U	0.209	0.215		0.980	pCi/g	03/22/16 09:58	03/22/16 22:38	1
Radium 226	0.718		0.0779	0.107	1.00	0.0552	pCi/g	03/22/16 09:58	03/22/16 22:38	1
Thorium 234	0.746		0.223	0.237	1.00	0.644	pCi/g	03/22/16 09:58	03/22/16 22:38	1
Uranium 235	0.0555	U	0.0887	0.0888		0.156	pCi/g	03/22/16 09:58	03/22/16 22:38	1
Protactinium 234m	0.886	U	2.16	2.16		3.72	pCi/g	03/22/16 09:58	03/22/16 22:38	1
Thorium 232	0.931		0.102	0.138		0.0888	pCi/g	03/22/16 09:58	03/22/16 22:38	1
Other Detected Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.258		0.0431	0.0506		0.0346	pCi/g	03/22/16 09:58	03/22/16 22:38	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16598-1

Client Sample ID: L04-03-16-P-S-S-00

Lab Sample ID: 160-16598-12

Date Collected: 03/17/16 13:05

Matrix: Solid

Date Received: 03/18/16 11:10

Percent Solids: 87.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000057	0.000017	mg/Kg	☼	03/21/16 08:09	03/22/16 19:17	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	0.229	F	0.141	0.143	1.15	0.196	pCi/g	03/21/16 08:09	03/22/16 19:17	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Re	93		30 - 110	03/21/16 08:09	03/22/16 19:17	1

Client Sample ID: L04-03-17-P-R-S-00

Lab Sample ID: 160-16598-13

Date Collected: 03/17/16 13:25

Matrix: Solid

Date Received: 03/18/16 11:10

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		0.116	0.162		0.107	pCi/g	03/22/16 09:58	03/22/16 22:37	1
Americium 241	0.000729	U	0.0518	0.0518		0.0876	pCi/g	03/22/16 09:58	03/22/16 22:37	1
Bismuth 212	0.931		0.257	0.274		0.289	pCi/g	03/22/16 09:58	03/22/16 22:37	1
Bismuth 214	0.748		0.0862	0.116		0.0634	pCi/g	03/22/16 09:58	03/22/16 22:37	1
Lead 212	1.10		0.0723	0.159		0.0559	pCi/g	03/22/16 09:58	03/22/16 22:37	1
Lead 214	0.927		0.0858	0.129		0.0617	pCi/g	03/22/16 09:58	03/22/16 22:37	1
Potassium 40	18.9		1.08	2.21		0.332	pCi/g	03/22/16 09:58	03/22/16 22:37	1
Protactinium 231	0.498	U	0.259	0.264		0.973	pCi/g	03/22/16 09:58	03/22/16 22:37	1
Radium 226	0.748		0.0862	0.116	1.00	0.0634	pCi/g	03/22/16 09:58	03/22/16 22:37	1
Thorium 234	1.31		0.493	0.512	1.00	0.776	pCi/g	03/22/16 09:58	03/22/16 22:37	1
Uranium 235	0.524		0.142	0.152		0.215	pCi/g	03/22/16 09:58	03/22/16 22:37	1
Protactinium 234m	0.970	U	2.76	2.76		4.75	pCi/g	03/22/16 09:58	03/22/16 22:37	1
Thorium 232	1.11		0.116	0.162		0.107	pCi/g	03/22/16 09:58	03/22/16 22:37	1

Other Detected Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.343		0.0474	0.0593		0.0374	pCi/g	03/22/16 09:58	03/22/16 22:37	1

Client Sample ID: L04-03-17-P-R-S-00

Lab Sample ID: 160-16598-13

Date Collected: 03/17/16 13:25

Matrix: Solid

Date Received: 03/18/16 11:10

Percent Solids: 82.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.000032	J	0.000064	0.000019	mg/Kg	☼	03/21/16 08:09	03/22/16 19:21	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	0.545	F	0.189	0.195	1.28	0.220	pCi/g	03/21/16 08:09	03/22/16 19:21	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16598-1

Client Sample ID: L04-03-17-P-R-S-00

Date Collected: 03/17/16 13:25

Date Received: 03/18/16 11:10

Lab Sample ID: 160-16598-13

Matrix: Solid

Percent Solids: 82.1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Re	92		30 - 110	03/21/16 08:09	03/22/16 19:21	1

Client Sample ID: L04-03-19-P-S-S-00

Date Collected: 03/17/16 13:52

Date Received: 03/18/16 11:10

Lab Sample ID: 160-16598-14

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	0.820		0.188	0.206		0.141	pCi/g	03/22/16 09:58	03/22/16 23:04	1
Americium 241	-0.0331	U	0.0794	0.0795		0.133	pCi/g	03/22/16 09:58	03/22/16 23:04	1
Bismuth 212	1.79		0.496	0.529		0.361	pCi/g	03/22/16 09:58	03/22/16 23:04	1
Bismuth 214	0.956		0.129	0.163		0.0787	pCi/g	03/22/16 09:58	03/22/16 23:04	1
Lead 212	1.08		0.102	0.173		0.0857	pCi/g	03/22/16 09:58	03/22/16 23:04	1
Lead 214	0.867		0.105	0.139		0.102	pCi/g	03/22/16 09:58	03/22/16 23:04	1
Potassium 40	19.3		1.51	2.48		0.303	pCi/g	03/22/16 09:58	03/22/16 23:04	1
Protactinium 231	0.661	U	0.395	0.401		1.43	pCi/g	03/22/16 09:58	03/22/16 23:04	1
Radium 226	0.956		0.129	0.163	1.00	0.0787	pCi/g	03/22/16 09:58	03/22/16 23:04	1
Thorium 234	1.94		0.671	0.701	1.00	1.03	pCi/g	03/22/16 09:58	03/22/16 23:04	1
Uranium 235	0.470		0.177	0.183		0.209	pCi/g	03/22/16 09:58	03/22/16 23:04	1
Protactinium 234m	1.08	U	4.58	4.58		8.15	pCi/g	03/22/16 09:58	03/22/16 23:04	1
Thorium 232	0.820		0.188	0.206		0.141	pCi/g	03/22/16 09:58	03/22/16 23:04	1
Other Detected Radionuclides			Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tl-208	0.337		0.0693	0.0776		0.0539	pCi/g	03/22/16 09:58	03/22/16 23:04	1

Client Sample ID: L04-03-19-P-S-S-00

Date Collected: 03/17/16 13:52

Date Received: 03/18/16 11:10

Lab Sample ID: 160-16598-14

Matrix: Solid

Percent Solids: 79.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.000088		0.000067	0.000020	mg/Kg	☼	03/21/16 08:09	03/22/16 19:24	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	1.51	F	0.228	0.266	1.35	0.230	pCi/g	03/21/16 08:09	03/22/16 19:24	1
Carrier			%Yield	Qualifier	Limits					
Re	94		30 - 110							

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16598-1

Client Sample ID: L04-03-20-P-R-S-00

Lab Sample ID: 160-16598-15

Date Collected: 03/17/16 14:05

Matrix: Solid

Date Received: 03/18/16 11:10

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

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Actinium 228	1.06		0.111	0.154		0.0943	pCi/g	03/22/16 10:28	03/22/16 23:15	1
Americium 241	-0.0165	U	0.139	0.139		0.0835	pCi/g	03/22/16 10:28	03/22/16 23:15	1
Bismuth 212	1.11		0.303	0.324		0.385	pCi/g	03/22/16 10:28	03/22/16 23:15	1
Bismuth 214	0.795		0.0835	0.117		0.0597	pCi/g	03/22/16 10:28	03/22/16 23:15	1
Lead 212	1.00		0.0752	0.151		0.0635	pCi/g	03/22/16 10:28	03/22/16 23:15	1
Lead 214	0.923		0.0773	0.123		0.0678	pCi/g	03/22/16 10:28	03/22/16 23:15	1
Potassium 40	20.6		1.03	2.31		0.231	pCi/g	03/22/16 10:28	03/22/16 23:15	1
Protactinium 231	0.426	U	0.242	0.246		1.01	pCi/g	03/22/16 10:28	03/22/16 23:15	1
Radium 226	0.795		0.0835	0.117	1.00	0.0597	pCi/g	03/22/16 10:28	03/22/16 23:15	1
Thorium 234	1.03		0.457	0.470	1.00	0.729	pCi/g	03/22/16 10:28	03/22/16 23:15	1
Uranium 235	0.0197	U	0.129	0.129		0.219	pCi/g	03/22/16 10:28	03/22/16 23:15	1
Protactinium 234m	5.27		2.10	2.17		4.88	pCi/g	03/22/16 10:28	03/22/16 23:15	1
Thorium 232	1.06		0.111	0.154		0.0943	pCi/g	03/22/16 10:28	03/22/16 23:15	1
Other Detected			Count	Total						
Radionuclides			Uncert.	Uncert.	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
<i>Tl-208</i>			<i>0.0437</i>	<i>0.0548</i>		<i>0.0351</i>	<i>pCi/g</i>	<i>03/22/16 10:28</i>	<i>03/22/16 23:15</i>	<i>1</i>

Client Sample ID: L04-03-20-P-R-S-00

Lab Sample ID: 160-16598-15

Date Collected: 03/17/16 14:05

Matrix: Solid

Date Received: 03/18/16 11:10

Percent Solids: 81.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000067	0.000020	mg/Kg	☼	03/23/16 08:23	03/24/16 09:01	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	0.138	U	0.0527	0.0542	1.35	0.231	pCi/g	03/23/16 08:23	03/24/16 09:01	1
Carrier			Limits					Prepared	Analyzed	Dil Fac
<i>Re</i>			<i>30 - 110</i>					<i>03/23/16 08:23</i>	<i>03/24/16 09:01</i>	<i>1</i>

Client Sample ID: L04-03-22-P-S-S-00

Lab Sample ID: 160-16598-16

Date Collected: 03/17/16 14:12

Matrix: Solid

Date Received: 03/18/16 11:10

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	0.860		0.101	0.134		0.103	pCi/g	03/22/16 10:28	03/22/16 23:11	1
Americium 241	-0.000915	U	0.0515	0.0515		0.0872	pCi/g	03/22/16 10:28	03/22/16 23:11	1
Bismuth 212	1.19		0.355	0.376		0.316	pCi/g	03/22/16 10:28	03/22/16 23:11	1
Bismuth 214	0.700		0.0826	0.110		0.0598	pCi/g	03/22/16 10:28	03/22/16 23:11	1
Lead 212	0.835		0.0676	0.127		0.0571	pCi/g	03/22/16 10:28	03/22/16 23:11	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16598-1

Client Sample ID: L04-03-22-P-S-S-00

Lab Sample ID: 160-16598-16

Date Collected: 03/17/16 14:12

Matrix: Solid

Date Received: 03/18/16 11:10

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

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Lead 214	0.827		0.0816	0.119		0.0567	pCi/g	03/22/16 10:28	03/22/16 23:11	1
Potassium 40	14.0		0.950	1.72		0.274	pCi/g	03/22/16 10:28	03/22/16 23:11	1
Protactinium 231	0.351	U	0.200	0.204		0.912	pCi/g	03/22/16 10:28	03/22/16 23:11	1
Radium 226	0.700		0.0826	0.110	1.00	0.0598	pCi/g	03/22/16 10:28	03/22/16 23:11	1
Thorium 234	1.92		0.615	0.647	1.00	0.776	pCi/g	03/22/16 10:28	03/22/16 23:11	1
Uranium 235	0.468		0.138	0.146		0.161	pCi/g	03/22/16 10:28	03/22/16 23:11	1
Protactinium 234m	1.33	U	2.36	2.36		4.00	pCi/g	03/22/16 10:28	03/22/16 23:11	1
Thorium 232	0.860		0.101	0.134		0.103	pCi/g	03/22/16 10:28	03/22/16 23:11	1
Other Detected			Count	Total						
Radionuclides			Uncert.	Uncert.	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			(2σ+/-)	(2σ+/-)						
Tl-208	0.261		0.0391	0.0476		0.0288	pCi/g	03/22/16 10:28	03/22/16 23:11	1

Client Sample ID: L04-03-22-P-S-S-00

Lab Sample ID: 160-16598-16

Date Collected: 03/17/16 14:12

Matrix: Solid

Date Received: 03/18/16 11:10

Percent Solids: 88.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	0.000076		0.000063	0.000019	mg/Kg	☼	03/23/16 08:23	03/24/16 09:05	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	1.31		0.124	0.173	1.26	0.215	pCi/g	03/23/16 08:23	03/24/16 09:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	90		30 - 110					03/23/16 08:23	03/24/16 09:05	1

Client Sample ID: L04-03-23-P-R-S-00

Lab Sample ID: 160-16598-17

Date Collected: 03/17/16 14:23

Matrix: Solid

Date Received: 03/18/16 11:10

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

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Actinium 228	1.01		0.139	0.173		0.107	pCi/g	03/22/16 10:28	03/22/16 23:43	1
Americium 241	0.00104	U	0.0540	0.0540		0.0912	pCi/g	03/22/16 10:28	03/22/16 23:43	1
Bismuth 212	1.20		0.433	0.450		0.410	pCi/g	03/22/16 10:28	03/22/16 23:43	1
Bismuth 214	0.847		0.0891	0.125		0.0548	pCi/g	03/22/16 10:28	03/22/16 23:43	1
Lead 212	0.962		0.0823	0.149		0.0702	pCi/g	03/22/16 10:28	03/22/16 23:43	1
Lead 214	0.915		0.0930	0.133		0.0672	pCi/g	03/22/16 10:28	03/22/16 23:43	1
Potassium 40	17.1		1.13	2.08		0.373	pCi/g	03/22/16 10:28	03/22/16 23:43	1
Protactinium 231	0.420	U	0.281	0.285		0.982	pCi/g	03/22/16 10:28	03/22/16 23:43	1
Radium 226	0.847		0.0891	0.125	1.00	0.0548	pCi/g	03/22/16 10:28	03/22/16 23:43	1
Thorium 234	0.930		0.513	0.522	1.00	0.722	pCi/g	03/22/16 10:28	03/22/16 23:43	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16598-1

Client Sample ID: L04-03-23-P-R-S-00

Lab Sample ID: 160-16598-17

Date Collected: 03/17/16 14:23

Matrix: Solid

Date Received: 03/18/16 11:10

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

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Uranium 235	0.119	U	0.136	0.136		0.223	pCi/g	03/22/16 10:28	03/22/16 23:43	1
Protactinium 234m	1.82	U	2.63	2.64		4.39	pCi/g	03/22/16 10:28	03/22/16 23:43	1
Thorium 232	1.01		0.139	0.173		0.107	pCi/g	03/22/16 10:28	03/22/16 23:43	1
<i>Other Detected Radionuclides</i>			Count	Total						
	Result	Qualifier	Uncert.	Uncert.	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			(2σ+/-)	(2σ+/-)						
Tl-208	0.342		0.0508	0.0619		0.0391	pCi/g	03/22/16 10:28	03/22/16 23:43	1

Client Sample ID: L04-03-23-P-R-S-00

Lab Sample ID: 160-16598-17

Date Collected: 03/17/16 14:23

Matrix: Solid

Date Received: 03/18/16 11:10

Percent Solids: 81.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000069	0.000021	mg/Kg	☼	03/23/16 08:23	03/24/16 09:08	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	0.136	U	0.0523	0.0538	1.37	0.235	pCi/g	03/23/16 08:23	03/24/16 09:08	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Re	90		30 - 110					03/23/16 08:23	03/24/16 09:08	1

Client Sample ID: L04-03-23-P-R-Q-00

Lab Sample ID: 160-16598-18

Date Collected: 03/17/16 14:23

Matrix: Solid

Date Received: 03/18/16 11:10

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

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Actinium 228	1.17		0.135	0.178		0.106	pCi/g	03/22/16 10:28	03/22/16 23:50	1
Americium 241	-0.00687	U	0.630	0.630		0.0934	pCi/g	03/22/16 10:28	03/22/16 23:50	1
Bismuth 212	1.39		0.374	0.400		0.343	pCi/g	03/22/16 10:28	03/22/16 23:50	1
Bismuth 214	0.883		0.0859	0.125		0.0613	pCi/g	03/22/16 10:28	03/22/16 23:50	1
Lead 212	1.09		0.0837	0.164		0.0708	pCi/g	03/22/16 10:28	03/22/16 23:50	1
Lead 214	1.02		0.0753	0.130		0.0613	pCi/g	03/22/16 10:28	03/22/16 23:50	1
Potassium 40	21.8		1.11	2.46		0.322	pCi/g	03/22/16 10:28	03/22/16 23:50	1
Protactinium 231	0.426	U	0.207	0.212		1.06	pCi/g	03/22/16 10:28	03/22/16 23:50	1
Radium 226	0.883		0.0859	0.125	1.00	0.0613	pCi/g	03/22/16 10:28	03/22/16 23:50	1
Thorium 234	0.981		0.247	0.267	1.00	0.683	pCi/g	03/22/16 10:28	03/22/16 23:50	1
Uranium 235	0.187		0.129	0.130		0.170	pCi/g	03/22/16 10:28	03/22/16 23:50	1
Protactinium 234m	4.12		2.68	2.71		3.13	pCi/g	03/22/16 10:28	03/22/16 23:50	1
Thorium 232	1.17		0.135	0.178		0.106	pCi/g	03/22/16 10:28	03/22/16 23:50	1

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-16598-1

Client Sample ID: L04-03-23-P-R-Q-00

Lab Sample ID: 160-16598-18

Date Collected: 03/17/16 14:23

Matrix: Solid

Date Received: 03/18/16 11:10

<i>Other Detected</i>			<i>Count</i>	<i>Total</i>						
<i>Radionuclides</i>	<i>Result</i>	<i>Qualifier</i>	<i>Uncert.</i>	<i>Uncert.</i>	<i>RL</i>	<i>MDC</i>	<i>Unit</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
			<i>(2σ+/-)</i>	<i>(2σ+/-)</i>						
<i>Tl-208</i>	0.326		0.0483	0.0588		0.0383	pCi/g	03/22/16 10:28	03/22/16 23:50	1

Client Sample ID: L04-03-23-P-R-Q-00

Lab Sample ID: 160-16598-18

Date Collected: 03/17/16 14:23

Matrix: Solid

Date Received: 03/18/16 11:10

Percent Solids: 82.1

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

<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Technetium 99	ND		0.000068	0.000021	mg/Kg	☼	03/23/16 08:23	03/24/16 09:12	1

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

<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>Count</i>	<i>Total</i>	<i>RL</i>	<i>MDC</i>	<i>Unit</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
			<i>Uncert.</i>	<i>Uncert.</i>						
			<i>(2σ+/-)</i>	<i>(2σ+/-)</i>						
Technetium 99	0.303		0.00840	0.0291	1.37	0.234	pCi/g	03/23/16 08:23	03/24/16 09:12	1
<i>Carrier</i>	<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>					<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>Re</i>	89		30 - 110					03/23/16 08:23	03/24/16 09:12	1

QC Sample Results

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

TestAmerica Job ID: 160-16598-1

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

Lab Sample ID: MB 160-241319/1-A
Matrix: Solid
Analysis Batch: 241769

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 241319

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000052	0.000015	mg/Kg		03/21/16 08:09	03/22/16 17:32	1

Lab Sample ID: LCS 160-241319/2-A
Matrix: Solid
Analysis Batch: 241769

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 241319

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Technetium 99	0.00119	0.00119		mg/Kg		100	80 - 120

Lab Sample ID: 160-16595-A-1-C MS
Matrix: Solid
Analysis Batch: 241769

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 241319

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Technetium 99	0.000073	F1	0.00144	0.00213	F1	mg/Kg	☼	143	75 - 125

Lab Sample ID: 160-16595-A-1-D MSD
Matrix: Solid
Analysis Batch: 241769

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 241319

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Technetium 99	0.000073	F1	0.00147	0.00164		mg/Kg	☼	107	75 - 125	26	30

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	Limits
Technetium 99	0.00119	0.00120		mg/Kg		101	80 - 120

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

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 241767

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

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

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 241767

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

TestAmerica St. Louis

QC Sample Results

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

TestAmerica Job ID: 160-16598-1

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

Lab Sample ID: MB 160-241319/1-A

Matrix: Solid

Analysis Batch: 241770

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 241319

Analyte	MB MB		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Technetium 99	-0.002652	U	0.00215	0.00216	1.03	0.177	pCi/g	03/21/16 08:09	03/22/16 17:32	1
Carrier	MB MB		Limits			Prepared	Analyzed	Dil Fac		
Re	%Yield	Qualifier		Prepared	Analyzed					
Re	97		30 - 110			03/21/16 08:09	03/22/16 17:32	1		

Lab Sample ID: LCS 160-241319/2-A

Matrix: Solid

Analysis Batch: 241770

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 241319

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Carrier	LCS LCS		Limits			Prepared	Analyzed	Dil Fac	
Re	%Yield	Qualifier		Prepared	Analyzed				
Re	96		30 - 110			03/21/16 08:09	03/22/16 17:32	1	

Lab Sample ID: 160-16595-A-1-C MS

Matrix: Solid

Analysis Batch: 241770

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 241319

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Carrier	MS MS		Limits			Prepared	Analyzed	Dil Fac			
Re	%Yield	Qualifier		Prepared	Analyzed						
Re	67		30 - 110			03/21/16 08:09	03/22/16 17:32	1			

Lab Sample ID: 160-16595-A-1-D MSD

Matrix: Solid

Analysis Batch: 241770

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 241319

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Carrier	MSD MSD		Limits			Prepared	Analyzed	Dil Fac					
Re	%Yield	Qualifier		Prepared	Analyzed								
Re	90		30 - 110			03/21/16 08:09	03/22/16 17:32	1					

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 MB		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
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

TestAmerica St. Louis

QC Sample Results

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

TestAmerica Job ID: 160-16598-1

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

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

Carrier	<i>MB</i> %Yield	<i>MB</i> Qualifier	Limits
Re	99		30 - 110

Prepared	Analyzed	Dil Fac
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	<i>LCS</i> %Yield	<i>LCS</i> Qualifier	Limits
Re	98		30 - 110

Lab Sample ID: 160-16616-A-1-D MS
Matrix: Solid
Analysis Batch: 242134

Client Sample ID: Matrix Spike
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	<i>MS</i> %Yield	<i>MS</i> Qualifier	Limits
Re	89		30 - 110

Lab Sample ID: 160-16616-A-1-E MSD
Matrix: Solid
Analysis Batch: 242134

Client Sample ID: Matrix Spike Duplicate
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	<i>MSD</i> %Yield	<i>MSD</i> Qualifier	Limits
Re	89		30 - 110

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

Lab Sample ID: MB 160-241440/1-A
Matrix: Solid
Analysis Batch: 241568

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 241440

Analyte	<i>MB</i> Result	<i>MB</i> Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	0.001907	U	0.0171	0.0171		0.0785	pCi/g	03/22/16 09:58	03/22/16 19:47	1
Americium 241	-0.001469	U	0.0180	0.0180		0.0249	pCi/g	03/22/16 09:58	03/22/16 19:47	1
Bismuth 212	0.001186	U	0.0877	0.0877		0.173	pCi/g	03/22/16 09:58	03/22/16 19:47	1
Bismuth 214	-0.02015	U	0.612	0.612		0.0409	pCi/g	03/22/16 09:58	03/22/16 19:47	1

TestAmerica St. Louis

QC Sample Results

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

TestAmerica Job ID: 160-16598-1

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

Lab Sample ID: MB 160-241440/1-A
Matrix: Solid
Analysis Batch: 241568

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 241440

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Lead 212	0.005502	U	0.0132	0.0132		0.0250	pCi/g	03/22/16 09:58	03/22/16 19:47	1
Lead 214	0.002092	U	0.0155	0.0155		0.0314	pCi/g	03/22/16 09:58	03/22/16 19:47	1
Potassium 40	0.03160	U	0.108	0.109		0.261	pCi/g	03/22/16 09:58	03/22/16 19:47	1
Protactinium 231	-0.06699	U	0.206	0.206		0.362	pCi/g	03/22/16 09:58	03/22/16 19:47	1
Radium 226	-0.02015	U	0.612	0.612	1.00	0.0409	pCi/g	03/22/16 09:58	03/22/16 19:47	1
Thorium 234	0.09146	U	0.151	0.151	1.00	0.243	pCi/g	03/22/16 09:58	03/22/16 19:47	1
Uranium 235	-0.005226	U	0.0125	0.0125		0.0733	pCi/g	03/22/16 09:58	03/22/16 19:47	1
Protactinium 234m	0.1265	U	0.802	0.802		1.60	pCi/g	03/22/16 09:58	03/22/16 19:47	1
Thorium 232	0.001907	U	0.0171	0.0171		0.0785	pCi/g	03/22/16 09:58	03/22/16 19:47	1
Other Detected Radionuclides	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Other Detected Radionuclide	None						pCi/g	03/22/16 09:58	03/22/16 19:47	1

Lab Sample ID: LCS 160-241440/2-A
Matrix: Solid
Analysis Batch: 241576

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 241440

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec.
				Uncert. (2σ+/-)					Limits
Americium 241	101	102.8		10.7		0.583	pCi/g	102	87 - 116
Cesium 137	34.1	34.01		3.57	0.200	0.203	pCi/g	100	87 - 120
Cobalt 60	31.8	31.56		3.19		0.101	pCi/g	99	87 - 115

Lab Sample ID: 160-16595-A-1-G DU
Matrix: Solid
Analysis Batch: 241565

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 241440

Analyte	Sample Sample		DU DU		Total	RL	MDC	Unit	RER	RER
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					Limit
Actinium 228	1.06		0.9931		0.173		0.0891	pCi/g	0.20	1
Americium 241	0.0135	U	0.007871	U	0.0594		0.0997	pCi/g	0.05	1
Bismuth 212	1.24		1.091		0.391		0.353	pCi/g	0.19	1
Bismuth 214	0.816		0.7104		0.110		0.0615	pCi/g	0.46	1
Lead 212	1.03		1.020		0.151		0.0604	pCi/g	0.04	1
Lead 214	0.885		0.8418		0.112		0.0660	pCi/g	0.18	1
Potassium 40	18.1		17.12		2.05		0.452	pCi/g	0.23	1
Protactinium 231	-0.472	U	-0.4653	U	0.627		1.03	pCi/g	0.01	1
Radium 226	0.816		0.7104		0.110	1.00	0.0615	pCi/g	0.46	1
Thorium 234	1.33		1.277		0.485	1.00	0.727	pCi/g	0.05	1
Uranium 235	0.305		0.2134		0.126		0.170	pCi/g	0.34	1
Protactinium 234m	0.881	U	-1.671	U	4.52		5.14	pCi/g	0.36	1
Thorium 232	1.06		0.9931		0.173		0.0891	pCi/g	0.20	1

TestAmerica St. Louis

QC Sample Results

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

TestAmerica Job ID: 160-16598-1

Other Detected Radionuclides	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Tl-208	0.345		0.3055		0.0516		0.0306	pCi/g	0.38	1

Lab Sample ID: MB 160-241445/1-A
Matrix: Solid
Analysis Batch: 241565

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 241445

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	0.01417	U	0.0322	0.0323		0.0569	pCi/g	03/22/16 10:28	03/22/16 23:05	1
Americium 241	-0.003361	U	0.0122	0.0122		0.0215	pCi/g	03/22/16 10:28	03/22/16 23:05	1
Bismuth 212	0.003963	U	0.0950	0.0950		0.183	pCi/g	03/22/16 10:28	03/22/16 23:05	1
Bismuth 214	-0.005654	U	0.0415	0.0415		0.0353	pCi/g	03/22/16 10:28	03/22/16 23:05	1
Lead 212	-0.01176	U	0.0984	0.0984		0.0207	pCi/g	03/22/16 10:28	03/22/16 23:05	1
Lead 214	-0.002402	U	0.00855	0.00855		0.0328	pCi/g	03/22/16 10:28	03/22/16 23:05	1
Potassium 40	-0.06570	U	2.63	2.63		0.173	pCi/g	03/22/16 10:28	03/22/16 23:05	1
Protactinium 231	0.01564	U	0.176	0.176		0.323	pCi/g	03/22/16 10:28	03/22/16 23:05	1
Radium 226	-0.005654	U	0.0415	0.0415	1.00	0.0353	pCi/g	03/22/16 10:28	03/22/16 23:05	1
Thorium 234	0.004613	U	0.120	0.120	1.00	0.243	pCi/g	03/22/16 10:28	03/22/16 23:05	1
Uranium 235	0.01425	U	0.0253	0.0253		0.0479	pCi/g	03/22/16 10:28	03/22/16 23:05	1
Protactinium 234m	0.04166	U	0.742	0.742		1.70	pCi/g	03/22/16 10:28	03/22/16 23:05	1
Thorium 232	0.01417	U	0.0322	0.0323		0.0569	pCi/g	03/22/16 10:28	03/22/16 23:05	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	03/22/16 10:28	03/22/16 23:05	1

Lab Sample ID: LCS 160-241445/2-A
Matrix: Solid
Analysis Batch: 241569

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 241445

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Americium 241	101	101.7		10.6		0.500	pCi/g	101	87 - 116
Cesium 137	34.1	33.46		3.50	0.200	0.157	pCi/g	98	87 - 120
Cobalt 60	31.8	31.28		3.16		0.111	pCi/g	98	87 - 115

Lab Sample ID: 160-16598-15 DU
Matrix: Solid
Analysis Batch: 241567

Client Sample ID: L04-03-20-P-R-S-00
Prep Type: Total/NA
Prep Batch: 241445

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Actinium 228	1.06		0.8790		0.133		0.0943	pCi/g	0.63	1
Americium 241	-0.0165	U	-0.01855	U	0.0531		0.0886	pCi/g	0.01	1
Bismuth 212	1.11		1.095		0.320		0.280	pCi/g	0.03	1
Bismuth 214	0.795		0.7360		0.112		0.0557	pCi/g	0.26	1
Lead 212	1.00		0.9637		0.141		0.0485	pCi/g	0.14	1
Lead 214	0.923		0.7193		0.103		0.0519	pCi/g	0.90	1
Potassium 40	20.6		16.46		1.93		0.232	pCi/g	0.97	1
Protactinium 231	0.426	U	-0.4900	U	0.608		0.998	pCi/g	1.07	1
Radium 226	0.795		0.7360		0.112	1.00	0.0557	pCi/g	0.26	1
Thorium 234	1.03		1.115		0.431	1.00	0.650	pCi/g	0.09	1
Uranium 235	0.0197	U	0.1268	U	0.0912		0.144	pCi/g	0.49	1

TestAmerica St. Louis

QC Sample Results

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

TestAmerica Job ID: 160-16598-1

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

Lab Sample ID: 160-16598-15 DU
Matrix: Solid
Analysis Batch: 241567

Client Sample ID: L04-03-20-P-R-S-00
Prep Type: Total/NA
Prep Batch: 241445

Analyte	Sample Result	Sample Qual	DU		Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
			Result	Qual						
Protactinium 234m	5.27		0.9282	U	2.58		4.42	pCi/g	0.92	1
Thorium 232	1.06		0.8790		0.133		0.0943	pCi/g	0.63	1
Total										
Other Detected Radionuclides	Sample Result	Sample Qual	DU		Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
			Result	Qual						
Tl-208	0.321		0.3251		0.0510		0.0272	pCi/g	0.04	1



QC Association Summary

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

TestAmerica Job ID: 160-16598-1

Metals

Prep Batch: 241319

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16595-A-1-C MS	Matrix Spike	Total/NA	Solid	None	
160-16595-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	None	
160-16598-1	L04-03-01-P-S-S-00	Total/NA	Solid	None	
160-16598-2	L04-03-02-P-R-S-00	Total/NA	Solid	None	
160-16598-3	L04-03-04-P-S-S-00	Total/NA	Solid	None	
160-16598-4	L04-03-05-P-R-S-00	Total/NA	Solid	None	
160-16598-5	L04-03-07-P-S-S-00	Total/NA	Solid	None	
160-16598-6	L04-03-08-P-R-S-00	Total/NA	Solid	None	
160-16598-7	L04-03-10-P-S-S-00	Total/NA	Solid	None	
160-16598-8	L04-03-11-P-R-S-00	Total/NA	Solid	None	
160-16598-9	L04-03-13-P-S-S-00	Total/NA	Solid	None	
160-16598-10	L04-03-14-P-R-S-00	Total/NA	Solid	None	
160-16598-11	L04-03-14-P-R-Q-00	Total/NA	Solid	None	
160-16598-12	L04-03-16-P-S-S-00	Total/NA	Solid	None	
160-16598-13	L04-03-17-P-R-S-00	Total/NA	Solid	None	
160-16598-14	L04-03-19-P-S-S-00	Total/NA	Solid	None	
LCS 160-241319/2-A	Lab Control Sample	Total/NA	Solid	None	
MB 160-241319/1-A	Method Blank	Total/NA	Solid	None	

Prep Batch: 241767

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16598-15	L04-03-20-P-R-S-00	Total/NA	Solid	None	
160-16598-16	L04-03-22-P-S-S-00	Total/NA	Solid	None	
160-16598-17	L04-03-23-P-R-S-00	Total/NA	Solid	None	
160-16598-18	L04-03-23-P-R-Q-00	Total/NA	Solid	None	
160-16616-A-1-D MS	Matrix Spike	Total/NA	Solid	None	
160-16616-A-1-E MSD	Matrix Spike Duplicate	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	

Analysis Batch: 241769

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16595-A-1-C MS	Matrix Spike	Total/NA	Solid	6020A	241319
160-16595-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	6020A	241319
160-16598-1	L04-03-01-P-S-S-00	Total/NA	Solid	6020A	241319
160-16598-2	L04-03-02-P-R-S-00	Total/NA	Solid	6020A	241319
160-16598-3	L04-03-04-P-S-S-00	Total/NA	Solid	6020A	241319
160-16598-4	L04-03-05-P-R-S-00	Total/NA	Solid	6020A	241319
160-16598-5	L04-03-07-P-S-S-00	Total/NA	Solid	6020A	241319
160-16598-6	L04-03-08-P-R-S-00	Total/NA	Solid	6020A	241319
160-16598-7	L04-03-10-P-S-S-00	Total/NA	Solid	6020A	241319
160-16598-8	L04-03-11-P-R-S-00	Total/NA	Solid	6020A	241319
160-16598-9	L04-03-13-P-S-S-00	Total/NA	Solid	6020A	241319
160-16598-10	L04-03-14-P-R-S-00	Total/NA	Solid	6020A	241319
160-16598-11	L04-03-14-P-R-Q-00	Total/NA	Solid	6020A	241319
160-16598-12	L04-03-16-P-S-S-00	Total/NA	Solid	6020A	241319
160-16598-13	L04-03-17-P-R-S-00	Total/NA	Solid	6020A	241319
160-16598-14	L04-03-19-P-S-S-00	Total/NA	Solid	6020A	241319
LCS 160-241319/2-A	Lab Control Sample	Total/NA	Solid	6020A	241319
MB 160-241319/1-A	Method Blank	Total/NA	Solid	6020A	241319

TestAmerica St. Louis

QC Association Summary

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

TestAmerica Job ID: 160-16598-1

Metals (Continued)

Analysis Batch: 242133

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16598-15	L04-03-20-P-R-S-00	Total/NA	Solid	6020A	241767
160-16598-16	L04-03-22-P-S-S-00	Total/NA	Solid	6020A	241767
160-16598-17	L04-03-23-P-R-S-00	Total/NA	Solid	6020A	241767
160-16598-18	L04-03-23-P-R-Q-00	Total/NA	Solid	6020A	241767
160-16616-A-1-D MS	Matrix Spike	Total/NA	Solid	6020A	241767
160-16616-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	6020A	241767
LCS 160-241767/2-A	Lab Control Sample	Total/NA	Solid	6020A	241767
MB 160-241767/1-A	Method Blank	Total/NA	Solid	6020A	241767

General Chemistry

Analysis Batch: 241357

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16598-1	L04-03-01-P-S-S-00	Total/NA	Solid	Moisture	
160-16598-2	L04-03-02-P-R-S-00	Total/NA	Solid	Moisture	
160-16598-3	L04-03-04-P-S-S-00	Total/NA	Solid	Moisture	
160-16598-4	L04-03-05-P-R-S-00	Total/NA	Solid	Moisture	
160-16598-5	L04-03-07-P-S-S-00	Total/NA	Solid	Moisture	
160-16598-6	L04-03-08-P-R-S-00	Total/NA	Solid	Moisture	
160-16598-7	L04-03-10-P-S-S-00	Total/NA	Solid	Moisture	
160-16598-8	L04-03-11-P-R-S-00	Total/NA	Solid	Moisture	
160-16598-9	L04-03-13-P-S-S-00	Total/NA	Solid	Moisture	
160-16598-10	L04-03-14-P-R-S-00	Total/NA	Solid	Moisture	
160-16598-11	L04-03-14-P-R-Q-00	Total/NA	Solid	Moisture	
160-16598-12	L04-03-16-P-S-S-00	Total/NA	Solid	Moisture	
160-16598-13	L04-03-17-P-R-S-00	Total/NA	Solid	Moisture	
160-16598-14	L04-03-19-P-S-S-00	Total/NA	Solid	Moisture	
160-16598-15	L04-03-20-P-R-S-00	Total/NA	Solid	Moisture	
160-16598-16	L04-03-22-P-S-S-00	Total/NA	Solid	Moisture	
160-16598-17	L04-03-23-P-R-S-00	Total/NA	Solid	Moisture	
160-16598-18	L04-03-23-P-R-Q-00	Total/NA	Solid	Moisture	
160-16598-18 DU	L04-03-23-P-R-Q-00	Total/NA	Solid	Moisture	

Rad

Leach Batch: 241252

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16595-A-1-G DU	Duplicate	Total/NA	Solid	Dry and Grind	
160-16598-1	L04-03-01-P-S-S-00	Total/NA	Solid	Dry and Grind	
160-16598-2	L04-03-02-P-R-S-00	Total/NA	Solid	Dry and Grind	
160-16598-3	L04-03-04-P-S-S-00	Total/NA	Solid	Dry and Grind	
160-16598-4	L04-03-05-P-R-S-00	Total/NA	Solid	Dry and Grind	
160-16598-5	L04-03-07-P-S-S-00	Total/NA	Solid	Dry and Grind	
160-16598-6	L04-03-08-P-R-S-00	Total/NA	Solid	Dry and Grind	
160-16598-7	L04-03-10-P-S-S-00	Total/NA	Solid	Dry and Grind	
160-16598-8	L04-03-11-P-R-S-00	Total/NA	Solid	Dry and Grind	
160-16598-9	L04-03-13-P-S-S-00	Total/NA	Solid	Dry and Grind	
160-16598-10	L04-03-14-P-R-S-00	Total/NA	Solid	Dry and Grind	
160-16598-11	L04-03-14-P-R-Q-00	Total/NA	Solid	Dry and Grind	
160-16598-12	L04-03-16-P-S-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: 160-16598-1

Rad (Continued)

Leach Batch: 241252 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16598-13	L04-03-17-P-R-S-00	Total/NA	Solid	Dry and Grind	
160-16598-14	L04-03-19-P-S-S-00	Total/NA	Solid	Dry and Grind	
160-16598-15	L04-03-20-P-R-S-00	Total/NA	Solid	Dry and Grind	
160-16598-15 DU	L04-03-20-P-R-S-00	Total/NA	Solid	Dry and Grind	
160-16598-16	L04-03-22-P-S-S-00	Total/NA	Solid	Dry and Grind	
160-16598-17	L04-03-23-P-R-S-00	Total/NA	Solid	Dry and Grind	
160-16598-18	L04-03-23-P-R-Q-00	Total/NA	Solid	Dry and Grind	

Prep Batch: 241319

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16595-A-1-C MS	Matrix Spike	Total/NA	Solid	None	
160-16595-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	None	
160-16598-1	L04-03-01-P-S-S-00	Total/NA	Solid	None	
160-16598-2	L04-03-02-P-R-S-00	Total/NA	Solid	None	
160-16598-3	L04-03-04-P-S-S-00	Total/NA	Solid	None	
160-16598-4	L04-03-05-P-R-S-00	Total/NA	Solid	None	
160-16598-5	L04-03-07-P-S-S-00	Total/NA	Solid	None	
160-16598-6	L04-03-08-P-R-S-00	Total/NA	Solid	None	
160-16598-7	L04-03-10-P-S-S-00	Total/NA	Solid	None	
160-16598-8	L04-03-11-P-R-S-00	Total/NA	Solid	None	
160-16598-9	L04-03-13-P-S-S-00	Total/NA	Solid	None	
160-16598-10	L04-03-14-P-R-S-00	Total/NA	Solid	None	
160-16598-11	L04-03-14-P-R-Q-00	Total/NA	Solid	None	
160-16598-12	L04-03-16-P-S-S-00	Total/NA	Solid	None	
160-16598-13	L04-03-17-P-R-S-00	Total/NA	Solid	None	
160-16598-14	L04-03-19-P-S-S-00	Total/NA	Solid	None	
LCS 160-241319/2-A	Lab Control Sample	Total/NA	Solid	None	
MB 160-241319/1-A	Method Blank	Total/NA	Solid	None	

Prep Batch: 241440

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16595-A-1-G DU	Duplicate	Total/NA	Solid	Fill_Geo-0	241252
160-16598-1	L04-03-01-P-S-S-00	Total/NA	Solid	Fill_Geo-0	241252
160-16598-2	L04-03-02-P-R-S-00	Total/NA	Solid	Fill_Geo-0	241252
160-16598-3	L04-03-04-P-S-S-00	Total/NA	Solid	Fill_Geo-0	241252
160-16598-4	L04-03-05-P-R-S-00	Total/NA	Solid	Fill_Geo-0	241252
160-16598-5	L04-03-07-P-S-S-00	Total/NA	Solid	Fill_Geo-0	241252
160-16598-6	L04-03-08-P-R-S-00	Total/NA	Solid	Fill_Geo-0	241252
160-16598-7	L04-03-10-P-S-S-00	Total/NA	Solid	Fill_Geo-0	241252
160-16598-8	L04-03-11-P-R-S-00	Total/NA	Solid	Fill_Geo-0	241252
160-16598-9	L04-03-13-P-S-S-00	Total/NA	Solid	Fill_Geo-0	241252
160-16598-10	L04-03-14-P-R-S-00	Total/NA	Solid	Fill_Geo-0	241252
160-16598-11	L04-03-14-P-R-Q-00	Total/NA	Solid	Fill_Geo-0	241252
160-16598-12	L04-03-16-P-S-S-00	Total/NA	Solid	Fill_Geo-0	241252
160-16598-13	L04-03-17-P-R-S-00	Total/NA	Solid	Fill_Geo-0	241252
160-16598-14	L04-03-19-P-S-S-00	Total/NA	Solid	Fill_Geo-0	241252
LCS 160-241440/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-0	
MB 160-241440/1-A	Method Blank	Total/NA	Solid	Fill_Geo-0	

TestAmerica St. Louis

QC Association Summary

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

TestAmerica Job ID: 160-16598-1

Rad (Continued)

Prep Batch: 241445

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16598-15	L04-03-20-P-R-S-00	Total/NA	Solid	Fill_Geo-0	241252
160-16598-15 DU	L04-03-20-P-R-S-00	Total/NA	Solid	Fill_Geo-0	241252
160-16598-16	L04-03-22-P-S-S-00	Total/NA	Solid	Fill_Geo-0	241252
160-16598-17	L04-03-23-P-R-S-00	Total/NA	Solid	Fill_Geo-0	241252
160-16598-18	L04-03-23-P-R-Q-00	Total/NA	Solid	Fill_Geo-0	241252
LCS 160-241445/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-0	
MB 160-241445/1-A	Method Blank	Total/NA	Solid	Fill_Geo-0	

Prep Batch: 241767

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16598-15	L04-03-20-P-R-S-00	Total/NA	Solid	None	
160-16598-16	L04-03-22-P-S-S-00	Total/NA	Solid	None	
160-16598-17	L04-03-23-P-R-S-00	Total/NA	Solid	None	
160-16598-18	L04-03-23-P-R-Q-00	Total/NA	Solid	None	
160-16616-A-1-D MS	Matrix Spike	Total/NA	Solid	None	
160-16616-A-1-E MSD	Matrix Spike Duplicate	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	

Tracer/Carrier Summary

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

TestAmerica Job ID: 160-16598-1

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)
160-16595-A-1-C MS	Matrix Spike	67
160-16595-A-1-D MSD	Matrix Spike Duplicate	90
160-16598-1	L04-03-01-P-S-S-00	90
160-16598-2	L04-03-02-P-R-S-00	91
160-16598-3	L04-03-04-P-S-S-00	91
160-16598-4	L04-03-05-P-R-S-00	96
160-16598-5	L04-03-07-P-S-S-00	93
160-16598-6	L04-03-08-P-R-S-00	95
160-16598-7	L04-03-10-P-S-S-00	91
160-16598-8	L04-03-11-P-R-S-00	93
160-16598-9	L04-03-13-P-S-S-00	95
160-16598-10	L04-03-14-P-R-S-00	95
160-16598-11	L04-03-14-P-R-Q-00	94
160-16598-12	L04-03-16-P-S-S-00	93
160-16598-13	L04-03-17-P-R-S-00	92
160-16598-14	L04-03-19-P-S-S-00	94
160-16598-15	L04-03-20-P-R-S-00	90
160-16598-16	L04-03-22-P-S-S-00	90
160-16598-17	L04-03-23-P-R-S-00	90
160-16598-18	L04-03-23-P-R-Q-00	89
160-16616-A-1-D MS	Matrix Spike	89
160-16616-A-1-E MSD	Matrix Spike Duplicate	89
LCS 160-241319/2-A	Lab Control Sample	96
LCS 160-241767/2-A	Lab Control Sample	98
MB 160-241319/1-A	Method Blank	97
MB 160-241767/1-A	Method Blank	99

Tracer/Carrier Legend

Re = Re

