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: 160-6589-1
Client Project/Site: RFP-CBA-022 (7 DAY TAT)

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

Attn: Martin Swanson

Rhonda Ridenhower

Authorized for release by:
5/16/2014 12:01:44 PM
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Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Westinghouse Electric Company LLC

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

Report Number: 160-6589-1

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 05/08/2014; the samples arrived in good condition and properly preserved. The temperature of the coolers at receipt was 20.3 C.

TECHNETIUM-99 (ICPMS)

Samples L100529BSB00 (160-6589-1), L100530BSB00 (160-6589-2), L100531BSB00 (160-6589-3), L100532BSB00 (160-6589-4), L100533BSB00 (160-6589-5), L100534BSB00 (160-6589-6), L100535BSB00 (160-6589-7) and L100536BSB00 (160-6589-8) were analyzed for Technetium-99 (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 05/12/2014 and analyzed on 05/14/2014.

No difficulties were encountered during the Tc-99 analysis.

All quality control parameters were within the acceptance limits.

PERCENT SOLIDS

Samples L100529BSB00 (160-6589-1), L100530BSB00 (160-6589-2), L100531BSB00 (160-6589-3), L100532BSB00 (160-6589-4), L100533BSB00 (160-6589-5), L100534BSB00 (160-6589-6), L100535BSB00 (160-6589-7) and L100536BSB00 (160-6589-8) were

Job ID: 160-6589-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

analyzed for percent solids in accordance with EPA Method 160.3 MOD. The samples were analyzed on 05/09/2014.

No difficulties were encountered during the % solids analysis.

All quality control parameters were within the acceptance limits.

CESIUM-137 & OTHER GAMMA EMITTERS (GS)

Samples L100529BSB00 (160-6589-1), L100530BSB00 (160-6589-2), L100531BSB00 (160-6589-3), L100532BSB00 (160-6589-4), L100533BSB00 (160-6589-5), L100534BSB00 (160-6589-6), L100535BSB00 (160-6589-7) and L100536BSB00 (160-6589-8) were analyzed for Cesium-137 & Other Gamma Emitters (GS) in accordance with DOE GA-01-R. The samples were dried on 05/09/2014, prepared on 05/13/2014 and analyzed on 05/13/2014 and 05/14/2014.

Radium-226 is reported in these samples at the client's request. Radium-226 is reported from the 609.31 keV line of Bismuth-214. Because the samples have not had a 21-day ingrowth, the activity for Radium-226 is an estimated value and may be biased low. This bias is caused by the disruption of secular equilibrium between Radium-226 and Bismuth-214 by the loss of Radon-222 during sample preparation (160-6589-1 DU), (LCS 160-121740/2-A), (MB 160-121740/1-A), L100529BSB00 (160-6589-1), L100530BSB00 (160-6589-2), L100531BSB00 (160-6589-3), L100532BSB00 (160-6589-4), L100533BSB00 (160-6589-5), L100534BSB00 (160-6589-6), L100535BSB00 (160-6589-7), L100536BSB00 (160-6589-8)

No other difficulties were encountered during the Gamma spec analysis.

All other quality control parameters were within the acceptance limits.

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 Cutody ID No. F-050614-01 **Page** 1/1

Project Name:
Westinghouse Electric Company

Contact Person:
Clark Evers

Phone Number:
314-810-3336

Sampler Name
Scott Jenkins

Laboratory Name:
TA-MO

Laboratory Address:
13715 Rider Trail North

Phone No.
314-298-8566

Laboratory Contact Person:
Joe Walker

Phone No.
708-870-8453

Turn Around Time
Rush (7 days)

Sample ID	Date	Time	Matrix	Comp (C) or Grab (G)	Gamma Spec	Isotopic Uranium	Tc-99	Gamma Spec (21 day ingrow for Ra-226)	Total Containers	Remarks
L100529BSB00	5/6/2014	10:30	S	G	X		X		1	TSA10-05 INV. samples after flood
L100530BSB00	5/6/2014	10:35	S	G	X		X		1	"
L100531BSB00	5/6/2014	10:40	S	G	X		X		1	"
L100532BSB00	5/6/2014	10:45	S	G	X		X		1	"
L100533BSB00	5/6/2014	10:50	S	G	X		X		1	"
L100534BSB00	5/6/2014	10:55	S	G	X		X		1	"
L100535BSB00	5/6/2014	11:00	S	G	X		X		1	"
L100536BSB00	5/6/2014	11:05	S	G	X		X		1	TSA10-05 INV. samples after flood

Relinquished by: [signature]	Date/Time 5-8-14 0755	Received by: [signature]	Date/Time 5-8-14 755	Total 8	Cooler Temperature: Ambient
Company Name: WEC		Company Name:		Cooler ID: 0506-03	Shipper and Number:
Received by:	Date/Time	Relinquished by: [signature]	Date/Time 5-8-14 1130	Comments: Report Radium Ingrowth at 30 days	
Company Name:		Company Name:			
Relinquished by:	Date/Time	Received by: [signature]	Date/Time 5-8-14 1130	Verified By: Curtis Wilder	
Company Name:		Company Name: [signature]			

160-6589 Chain of Custody

Login Sample Receipt Checklist

Client: Westinghouse Electric Company LLC

Job Number: 160-6589-1

Login Number: 6589

List Source: TestAmerica St. Louis

List Number: 1

Creator: Clarke, Jill C

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.	False	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	Thermal preservation not required.
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.
F	Duplicate RPD exceeds the control limit

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

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

TestAmerica Job ID: 160-6589-1

Method	Method Description	Protocol	Laboratory
6020A	Metals (ICP/MS), Tc-99	SW846	TAL SL
Moisture	Percent Moisture	EPA	TAL SL
6020A	Metals (ICP/MS), Tc-99 in Activity	SW846	TAL SL
GA-01-R	Cesium-137 & Other Gamma Emitters (GS)	DOE	TAL SL

Protocol References:

DOE = U.S. Department of Energy

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

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

TestAmerica Job ID: 160-6589-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-6589-1	L100529BSB00	Solid	05/06/14 10:30	05/08/14 11:30
160-6589-2	L100530BSB00	Solid	05/06/14 10:35	05/08/14 11:30
160-6589-3	L100531BSB00	Solid	05/06/14 10:40	05/08/14 11:30
160-6589-4	L100532BSB00	Solid	05/06/14 10:45	05/08/14 11:30
160-6589-5	L100533BSB00	Solid	05/06/14 10:50	05/08/14 11:30
160-6589-6	L100534BSB00	Solid	05/06/14 10:55	05/08/14 11:30
160-6589-7	L100535BSB00	Solid	05/06/14 11:00	05/08/14 11:30
160-6589-8	L100536BSB00	Solid	05/06/14 11:05	05/08/14 11:30

Client Sample ID: L100529BSB00

Lab Sample ID: 160-6589-1

Date Collected: 05/06/14 10:30
Matrix: Solid
Date Received: 05/08/14 11:30
Percent Solids: 79.8

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	☼	05/12/14 13:53	05/14/14 18:48	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	0.0799	U	0.0639	0.0706	1.38	0.236	pCi/g	05/12/14 13:53	05/14/14 18:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Re	*91*		*30 - 110*	*05/12/14 13:53*	*05/14/14 18:48*	*1*

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	**1.25**		0.171	0.213		0.118	pCi/g	05/13/14 09:49	05/14/14 12:15	1
Americium 241	-0.00763	U	0.0603	0.0603		0.102	pCi/g	05/13/14 09:49	05/14/14 12:15	1
Bismuth 212	**1.56**		0.460	0.487		0.432	pCi/g	05/13/14 09:49	05/14/14 12:15	1
Bismuth 214	**0.859**		0.107	0.139		0.0825	pCi/g	05/13/14 09:49	05/14/14 12:15	1
Lead 212	**1.15**		0.0857	0.171		0.0801	pCi/g	05/13/14 09:49	05/14/14 12:15	1
Lead 214	**1.01**		0.0993	0.144		0.0853	pCi/g	05/13/14 09:49	05/14/14 12:15	1
Potassium 40	**22.2**		1.34	2.64		0.363	pCi/g	05/13/14 09:49	05/14/14 12:15	1
Protactinium 231	-0.702	U	0.835	0.839		1.37	pCi/g	05/13/14 09:49	05/14/14 12:15	1
Radium 226	**0.859**		0.107	0.139	1.00	0.0825	pCi/g	05/13/14 09:49	05/14/14 12:15	1
Thorium 234	**1.08**		0.331	0.350	1.00	0.850	pCi/g	05/13/14 09:49	05/14/14 12:15	1
Uranium 235	0.113	U	0.160	0.161		0.265	pCi/g	05/13/14 09:49	05/14/14 12:15	1
Protactinium 234m	1.63	U	3.44	3.44		5.94	pCi/g	05/13/14 09:49	05/14/14 12:15	1
Thorium 232	**1.25**		0.171	0.213		0.118	pCi/g	05/13/14 09:49	05/14/14 12:15	1

Other Detected Radionuclides	*Result*	*Qualifier*	*Count Uncert. (2σ+/-)*	*Total Uncert. (2σ+/-)*	*RL*	*MDC*	*Unit*	*Prepared*	*Analyzed*	*Dil Fac*
Other Detected Radionuclide	*None*						*pCi/g*	*05/13/14 09:49*	*05/14/14 12:15*	*1*

Client Sample ID: L100530BSB00

Lab Sample ID: 160-6589-2

Date Collected: 05/06/14 10:35
Matrix: Solid
Date Received: 05/08/14 11:30
Percent Solids: 82.8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000065	0.000020	mg/Kg	☼	05/12/14 13:53	05/14/14 18:52	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	0.0741	U	0.0811	0.0873	1.30	0.223	pCi/g	05/12/14 13:53	05/14/14 18:52	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Re	*93*		*30 - 110*	*05/12/14 13:53*	*05/14/14 18:52*	*1*

Client Sample ID: L100530BSB00

Date Collected: 05/06/14 10:35
Date Received: 05/08/14 11:30

Lab Sample ID: 160-6589-2

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	**1.21**		0.119	0.172		0.0940	pCi/g	05/13/14 09:49	05/13/14 21:24	1
Americium 241	-0.0192	U	0.0612	0.0612		0.102	pCi/g	05/13/14 09:49	05/13/14 21:24	1
Bismuth 212	**1.49**		0.325	0.359		0.256	pCi/g	05/13/14 09:49	05/13/14 21:24	1
Bismuth 214	**0.753**		0.0915	0.120		0.0660	pCi/g	05/13/14 09:49	05/13/14 21:24	1
Lead 212	**1.24**		0.0694	0.175		0.0465	pCi/g	05/13/14 09:49	05/13/14 21:24	1
Lead 214	**0.787**		0.0766	0.112		0.0621	pCi/g	05/13/14 09:49	05/13/14 21:24	1
Potassium 40	**17.1**		0.993	2.01		0.260	pCi/g	05/13/14 09:49	05/13/14 21:24	1
Protactinium 231	0.396	U	0.240	0.244		0.928	pCi/g	05/13/14 09:49	05/13/14 21:24	1
Radium 226	**0.753**		0.0915	0.120	1.00	0.0660	pCi/g	05/13/14 09:49	05/13/14 21:24	1
Thorium 234	**1.25**		0.510	0.526	1.00	0.805	pCi/g	05/13/14 09:49	05/13/14 21:24	1
Uranium 235	0.0880	U	0.132	0.133		0.222	pCi/g	05/13/14 09:49	05/13/14 21:24	1
Protactinium 234m	0.415	U	2.79	2.79		4.88	pCi/g	05/13/14 09:49	05/13/14 21:24	1
Thorium 232	**1.21**		0.119	0.172		0.0940	pCi/g	05/13/14 09:49	05/13/14 21:24	1

Other Detected Radionuclides	*Result*	*Qualifier*	*Count Uncert. (2σ+/-)*	*Total Uncert. (2σ+/-)*	*RL*	*MDC*	*Unit*	*Prepared*	*Analyzed*	*Dil Fac*
Other Detected Radionuclide	*None*						*pCi/g*	*05/13/14 09:49*	*05/13/14 21:24*	*1*

Client Sample ID: L100531BSB00

Date Collected: 05/06/14 10:40
Date Received: 05/08/14 11:30

Lab Sample ID: 160-6589-3

Matrix: Solid
Percent Solids: 82.7

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	☼	05/12/14 13:53	05/14/14 18:56	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	0.114	U	0.00882	0.0144	1.26	0.216	pCi/g	05/12/14 13:53	05/14/14 18:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Re	*96*		*30 - 110*	*05/12/14 13:53*	*05/14/14 18:56*	*1*

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	**1.14**		0.137	0.180		0.134	pCi/g	05/13/14 09:49	05/13/14 21:25	1
Americium 241	-0.0199	U	0.0669	0.0669		0.112	pCi/g	05/13/14 09:49	05/13/14 21:25	1
Bismuth 212	**1.46**		0.567	0.587		0.479	pCi/g	05/13/14 09:49	05/13/14 21:25	1
Bismuth 214	**0.776**		0.100	0.129		0.0743	pCi/g	05/13/14 09:49	05/13/14 21:25	1
Lead 212	**1.04**		0.0820	0.157		0.0828	pCi/g	05/13/14 09:49	05/13/14 21:25	1
Lead 214	**0.813**		0.0889	0.123		0.0699	pCi/g	05/13/14 09:49	05/13/14 21:25	1
Potassium 40	**21.7**		1.31	2.58		0.403	pCi/g	05/13/14 09:49	05/13/14 21:25	1
Protactinium 231	0.570	U	0.260	0.267		1.30	pCi/g	05/13/14 09:49	05/13/14 21:25	1

Client Sample ID: L100531BSB00

Lab Sample ID: 160-6589-3

Date Collected: 05/06/14 10:40

Matrix: Solid

Date Received: 05/08/14 11:30

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
Radium 226	**0.776**		0.100	0.129	1.00	0.0743	pCi/g	05/13/14 09:49	05/13/14 21:25	1
Thorium 234	**1.04**		0.317	0.335	1.00	0.905	pCi/g	05/13/14 09:49	05/13/14 21:25	1
Uranium 235	0.211	U	0.165	0.166		0.257	pCi/g	05/13/14 09:49	05/13/14 21:25	1
Protactinium 234m	-1.99	U	5.36	5.36		5.98	pCi/g	05/13/14 09:49	05/13/14 21:25	1
Thorium 232	**1.14**		0.137	0.180		0.134	pCi/g	05/13/14 09:49	05/13/14 21:25	1

Other Detected Radionuclides	*Result*	*Qualifier*	*Count Uncert. (2σ+/-)*	*Total Uncert. (2σ+/-)*	*RL*	*MDC*	*Unit*	*Prepared*	*Analyzed*	*Dil Fac*
Other Detected Radionuclide	*None*						*pCi/g*	*05/13/14 09:49*	*05/13/14 21:25*	*1*

Client Sample ID: L100532BSB00

Lab Sample ID: 160-6589-4

Date Collected: 05/06/14 10:45

Matrix: Solid

Date Received: 05/08/14 11:30

Percent Solids: 80.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000066	0.000020	mg/Kg	☼	05/12/14 13:53	05/14/14 19:00	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	0.133	U	0.0702	0.0753	1.32	0.225	pCi/g	05/12/14 13:53	05/14/14 19:00	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Re	*95*		*30 - 110*	*05/12/14 13:53*	*05/14/14 19:00*	*1*

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	**1.09**		0.148	0.185		0.123	pCi/g	05/13/14 09:49	05/13/14 21:23	1
Americium 241	-0.0216	U	0.0624	0.0624		0.104	pCi/g	05/13/14 09:49	05/13/14 21:23	1
Bismuth 212	**1.56**		0.415	0.445		0.342	pCi/g	05/13/14 09:49	05/13/14 21:23	1
Bismuth 214	**0.740**		0.0947	0.122		0.0669	pCi/g	05/13/14 09:49	05/13/14 21:23	1
Lead 212	**1.13**		0.0773	0.166		0.0607	pCi/g	05/13/14 09:49	05/13/14 21:23	1
Lead 214	**0.874**		0.0940	0.131		0.0705	pCi/g	05/13/14 09:49	05/13/14 21:23	1
Potassium 40	**19.9**		1.28	2.40		0.352	pCi/g	05/13/14 09:49	05/13/14 21:23	1
Protactinium 231	0.479	U	0.267	0.272		1.21	pCi/g	05/13/14 09:49	05/13/14 21:23	1
Radium 226	**0.740**		0.0947	0.122	1.00	0.0669	pCi/g	05/13/14 09:49	05/13/14 21:23	1
Thorium 234	**1.32**		0.501	0.519	1.00	0.774	pCi/g	05/13/14 09:49	05/13/14 21:23	1
Uranium 235	0.202	U	0.143	0.145		0.244	pCi/g	05/13/14 09:49	05/13/14 21:23	1
Protactinium 234m	2.08	U	3.35	3.36		5.63	pCi/g	05/13/14 09:49	05/13/14 21:23	1
Thorium 232	**1.09**		0.148	0.185		0.123	pCi/g	05/13/14 09:49	05/13/14 21:23	1

Client Sample ID: L100532BSB00

Lab Sample ID: 160-6589-4

Date Collected: 05/06/14 10:45

Matrix: Solid

Date Received: 05/08/14 11:30

Other Detected Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Other Detected Radionuclide	*None*						*pCi/g*	*05/13/14 09:49*	*05/13/14 21:23*	*1*

Client Sample ID: L100533BSB00

Lab Sample ID: 160-6589-5

Date Collected: 05/06/14 10:50

Matrix: Solid

Date Received: 05/08/14 11:30

Percent Solids: 80.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000066	0.000020	mg/Kg	☼	05/12/14 13:53	05/14/14 19:04	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	0.0326	U	0.0933	0.0991	1.31	0.225	pCi/g	05/12/14 13:53	05/14/14 19:04	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Re	*94*		*30 - 110*	*05/12/14 13:53*	*05/14/14 19:04*	*1*

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	**1.18**		0.205	0.237		0.133	pCi/g	05/13/14 09:49	05/13/14 21:24	1
Americium 241	0.000	U	0.0623	0.0623		0.126	pCi/g	05/13/14 09:49	05/13/14 21:24	1
Bismuth 212	**1.60**		0.556	0.580		0.485	pCi/g	05/13/14 09:49	05/13/14 21:24	1
Bismuth 214	**0.794**		0.108	0.136		0.0723	pCi/g	05/13/14 09:49	05/13/14 21:24	1
Lead 212	**1.05**		0.0830	0.159		0.0732	pCi/g	05/13/14 09:49	05/13/14 21:24	1
Lead 214	**0.845**		0.0943	0.129		0.0865	pCi/g	05/13/14 09:49	05/13/14 21:24	1
Potassium 40	**18.8**		1.35	2.35		0.263	pCi/g	05/13/14 09:49	05/13/14 21:24	1
Protactinium 231	0.211	U	0.159	0.160		1.30	pCi/g	05/13/14 09:49	05/13/14 21:24	1
Radium 226	**0.794**		0.108	0.136	1.00	0.0723	pCi/g	05/13/14 09:49	05/13/14 21:24	1
Thorium 234	**0.904**		0.299	0.314	1.00	0.895	pCi/g	05/13/14 09:49	05/13/14 21:24	1
Uranium 235	0.0481	U	0.155	0.155		0.261	pCi/g	05/13/14 09:49	05/13/14 21:24	1
Protactinium 234m	2.47	U	2.78	2.79		6.30	pCi/g	05/13/14 09:49	05/13/14 21:24	1
Thorium 232	**1.18**		0.205	0.237		0.133	pCi/g	05/13/14 09:49	05/13/14 21:24	1

Other Detected Radionuclides	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Other Detected Radionuclide	*None*						*pCi/g*	*05/13/14 09:49*	*05/13/14 21:24*	*1*

Client Sample ID: L100534BSB00

Lab Sample ID: 160-6589-6

Date Collected: 05/06/14 10:55

Matrix: Solid

Date Received: 05/08/14 11:30

Percent Solids: 87.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	**0.000033**	**J**	0.000061	0.000018	mg/Kg	☼	05/12/14 13:53	05/14/14 19:08	1

Client Sample ID: L100534BSB00

Lab Sample ID: 160-6589-6
Date Collected: 05/06/14 10:55
Matrix: Solid
Date Received: 05/08/14 11:30
Percent Solids: 87.5

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	**0.566**		0.159	0.178	1.21	0.208	pCi/g	05/12/14 13:53	05/14/14 19:08	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Re	*94*		*30 - 110*	*05/12/14 13:53*	*05/14/14 19:08*	*1*

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	**1.15**		0.125	0.172		0.129	pCi/g	05/13/14 09:49	05/13/14 21:25	1
Americium 241	-0.00840	U	0.0570	0.0570		0.0959	pCi/g	05/13/14 09:49	05/13/14 21:25	1
Bismuth 212	**1.21**		0.447	0.464		0.401	pCi/g	05/13/14 09:49	05/13/14 21:25	1
Bismuth 214	**0.875**		0.0963	0.132		0.0656	pCi/g	05/13/14 09:49	05/13/14 21:25	1
Lead 212	**1.11**		0.0691	0.159		0.0487	pCi/g	05/13/14 09:49	05/13/14 21:25	1
Lead 214	**0.844**		0.0858	0.123		0.0708	pCi/g	05/13/14 09:49	05/13/14 21:25	1
Potassium 40	**19.8**		1.14	2.32		0.305	pCi/g	05/13/14 09:49	05/13/14 21:25	1
Protactinium 231	-0.585	U	0.657	0.660		1.08	pCi/g	05/13/14 09:49	05/13/14 21:25	1
Radium 226	**0.875**		0.0963	0.132	1.00	0.0656	pCi/g	05/13/14 09:49	05/13/14 21:25	1
Thorium 234	**1.07**		0.280	0.302	1.00	0.803	pCi/g	05/13/14 09:49	05/13/14 21:25	1
Uranium 235	**0.336**		0.139	0.143		0.199	pCi/g	05/13/14 09:49	05/13/14 21:25	1
Protactinium 234m	0.000	U	2.57	2.57		6.25	pCi/g	05/13/14 09:49	05/13/14 21:25	1
Thorium 232	**1.15**		0.125	0.172		0.129	pCi/g	05/13/14 09:49	05/13/14 21:25	1

Other Detected Radionuclides	*Result*	*Qualifier*	*Count Uncert. (2σ+/-)*	*Total Uncert. (2σ+/-)*	*RL*	*MDC*	*Unit*	*Prepared*	*Analyzed*	*Dil Fac*
Other Detected Radionuclide	*None*						*pCi/g*	*05/13/14 09:49*	*05/13/14 21:25*	*1*

Client Sample ID: L100535BSB00

Lab Sample ID: 160-6589-7
Date Collected: 05/06/14 11:00
Matrix: Solid
Date Received: 05/08/14 11:30
Percent Solids: 84.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000064	0.000019	mg/Kg	☼	05/12/14 13:53	05/14/14 19:12	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	**0.240**		0.0442	0.0534	1.28	0.219	pCi/g	05/12/14 13:53	05/14/14 19:12	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Re	*92*		*30 - 110*	*05/12/14 13:53*	*05/14/14 19:12*	*1*

Client Sample ID: L100535BSB00

Lab Sample ID: 160-6589-7

Date Collected: 05/06/14 11:00

Matrix: Solid

Date Received: 05/08/14 11:30

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	**1.20**		0.117	0.169		0.105	pCi/g	05/13/14 09:49	05/13/14 22:12	1
Americium 241	-0.0216	U	0.0639	0.0639		0.107	pCi/g	05/13/14 09:49	05/13/14 22:12	1
Bismuth 212	**1.44**		0.417	0.443		0.373	pCi/g	05/13/14 09:49	05/13/14 22:12	1
Bismuth 214	**0.795**		0.0964	0.127		0.0693	pCi/g	05/13/14 09:49	05/13/14 22:12	1
Lead 212	**1.11**		0.0761	0.162		0.0744	pCi/g	05/13/14 09:49	05/13/14 22:12	1
Lead 214	**0.896**		0.0861	0.127		0.0666	pCi/g	05/13/14 09:49	05/13/14 22:12	1
Potassium 40	**18.9**		1.14	2.24		0.439	pCi/g	05/13/14 09:49	05/13/14 22:12	1
Protactinium 231	0.440	U	0.209	0.214		1.10	pCi/g	05/13/14 09:49	05/13/14 22:12	1
Radium 226	**0.795**		0.0964	0.127	1.00	0.0693	pCi/g	05/13/14 09:49	05/13/14 22:12	1
Thorium 234	**1.32**		0.531	0.549	1.00	0.836	pCi/g	05/13/14 09:49	05/13/14 22:12	1
Uranium 235	0.157	U	0.159	0.160		0.244	pCi/g	05/13/14 09:49	05/13/14 22:12	1
Protactinium 234m	1.71	U	2.59	2.60		4.40	pCi/g	05/13/14 09:49	05/13/14 22:12	1
Thorium 232	**1.20**		0.117	0.169		0.105	pCi/g	05/13/14 09:49	05/13/14 22:12	1

Other Detected Radionuclides	*Result*	*Qualifier*	*Count Uncert. (2σ+/-)*	*Total Uncert. (2σ+/-)*	*RL*	*MDC*	*Unit*	*Prepared*	*Analyzed*	*Dil Fac*
Other Detected Radionuclide	*None*						*pCi/g*	*05/13/14 09:49*	*05/13/14 22:12*	*1*

Client Sample ID: L100536BSB00

Lab Sample ID: 160-6589-8

Date Collected: 05/06/14 11:05

Matrix: Solid

Date Received: 05/08/14 11:30

Percent Solids: 71.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000077	0.000023	mg/Kg	☼	05/12/14 13:53	05/14/14 19:15	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	0.0760	U	0.127	0.140	1.54	0.264	pCi/g	05/12/14 13:53	05/14/14 19:15	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Re	*91*		*30 - 110*	*05/12/14 13:53*	*05/14/14 19:15*	*1*

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	**1.39**		0.167	0.220		0.0721	pCi/g	05/13/14 09:49	05/13/14 22:12	1
Americium 241	0.00524	U	0.0665	0.0665		0.113	pCi/g	05/13/14 09:49	05/13/14 22:12	1
Bismuth 212	**1.49**		0.560	0.581		0.524	pCi/g	05/13/14 09:49	05/13/14 22:12	1
Bismuth 214	**0.728**		0.105	0.129		0.0703	pCi/g	05/13/14 09:49	05/13/14 22:12	1
Lead 212	**1.41**		0.0960	0.206		0.0696	pCi/g	05/13/14 09:49	05/13/14 22:12	1
Lead 214	**0.770**		0.0991	0.127		0.0850	pCi/g	05/13/14 09:49	05/13/14 22:12	1
Potassium 40	**16.1**		1.30	2.10		0.333	pCi/g	05/13/14 09:49	05/13/14 22:12	1
Protactinium 231	0.632	U	0.340	0.347		1.25	pCi/g	05/13/14 09:49	05/13/14 22:12	1

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

TestAmerica Job ID: 160-6589-1

Client Sample ID: L100536BSB00
Date Collected: 05/06/14 11:05
Date Received: 05/08/14 11:30

Lab Sample ID: 160-6589-8
Matrix: Solid

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
Radium 226	**0.728**		0.105	0.129	1.00	0.0703	pCi/g	05/13/14 09:49	05/13/14 22:12	1
Thorium 234	**1.21**		0.526	0.541	1.00	0.817	pCi/g	05/13/14 09:49	05/13/14 22:12	1
Uranium 235	0.0575	U	0.0715	0.0717		0.234	pCi/g	05/13/14 09:49	05/13/14 22:12	1
Protactinium 234m	1.50	U	3.99	3.99		6.52	pCi/g	05/13/14 09:49	05/13/14 22:12	1
Thorium 232	**1.39**		0.167	0.220		0.0721	pCi/g	05/13/14 09:49	05/13/14 22:12	1

Other Detected Radionuclides	*Result*	*Qualifier*	*Count Uncert. (2σ+/-)*	*Total Uncert. (2σ+/-)*	*RL*	*MDC*	*Unit*	*Prepared*	*Analyzed*	*Dil Fac*
Other Detected Radionuclide	*None*						*pCi/g*	*05/13/14 09:49*	*05/13/14 22:12*	*1*

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

Lab Sample ID: MB 160-121549/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 122192 — **Prep Batch: 121549**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technetium 99	ND		0.000050	0.000015	mg/Kg		05/12/14 13:53	05/14/14 18:13	1

Lab Sample ID: LCS 160-121549/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 122192 — **Prep Batch: 121549**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Technetium 99	0.00240	0.00243		mg/Kg		101	80 - 120

Lab Sample ID: 160-6590-A-21-D MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 122192 — **Prep Batch: 121549**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Technetium 99	0.000049	J	0.00309	0.00325		mg/Kg	☼	103	75 - 125

Lab Sample ID: 160-6590-A-21-E MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 122192 — **Prep Batch: 121549**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Technetium 99	0.000049	J	0.00308	0.00319		mg/Kg	☼	102	75 - 125	2	30

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

Lab Sample ID: MB 160-121549/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 122193 — **Prep Batch: 121549**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium 99	0.01035	U	0.0211	0.0208	0.991	0.170	pCi/g	05/12/14 13:53	05/14/14 18:13	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Re	*101*		*30 - 110*	*05/12/14 13:53*	*05/14/14 18:13*	*1*

Lab Sample ID: LCS 160-121549/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 122193 — **Prep Batch: 121549**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Technetium 99	41.2	41.59		4.24	1.02	0.175	pCi/g	101	80 - 120

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

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

Lab Sample ID: 160-6590-A-21-D MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 122193 — **Prep Batch: 121549**

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Technetium 99	0.831		53.0	55.60		5.92	1.39	0.238	pCi/g	103	75 - 125

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Re	*93*		*30 - 110*

Lab Sample ID: 160-6590-A-21-E MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 122193 — **Prep Batch: 121549**

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Technetium 99	0.831		52.8	54.69		5.38	1.35	0.232	pCi/g	102	75 - 125	0.08	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Re	*95*		*30 - 110*

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

Lab Sample ID: MB 160-121740/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 121759 — **Prep Batch: 121740**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	0.0000	U	0.0103	0.0103		0.0379	pCi/g	05/13/14 09:49	05/13/14 20:35	1
Americium 241	-0.002635	U	0.0157	0.0157		0.0281	pCi/g	05/13/14 09:49	05/13/14 20:35	1
Bismuth 212	0.001064	U	0.131	0.131		0.259	pCi/g	05/13/14 09:49	05/13/14 20:35	1
Bismuth 214	0.004223	U	0.0218	0.0218		0.0546	pCi/g	05/13/14 09:49	05/13/14 20:35	1
Lead 212	0.003291	U	0.0137	0.0137		0.0275	pCi/g	05/13/14 09:49	05/13/14 20:35	1
Lead 214	0.001644	U	0.00460	0.00460		0.0313	pCi/g	05/13/14 09:49	05/13/14 20:35	1
Potassium 40	-0.06725	U	2.69	2.69		0.236	pCi/g	05/13/14 09:49	05/13/14 20:35	1
Protactinium 231	0.0000	U	0.170	0.170		0.503	pCi/g	05/13/14 09:49	05/13/14 20:35	1
Radium 226	0.004223	U	0.0218	0.0218	1.00	0.0546	pCi/g	05/13/14 09:49	05/13/14 20:35	1
Thorium 234	0.1547	U	0.103	0.105	1.00	0.283	pCi/g	05/13/14 09:49	05/13/14 20:35	1
Uranium 235	0.01928	U	0.0289	0.0290		0.0834	pCi/g	05/13/14 09:49	05/13/14 20:35	1
Protactinium 234m	0.0000	U	0.549	0.549		1.43	pCi/g	05/13/14 09:49	05/13/14 20:35	1
Thorium 232	0.0000	U	0.0103	0.0103		0.0379	pCi/g	05/13/14 09:49	05/13/14 20:35	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*	*05/13/14 09:49*	*05/13/14 20:35*	*1*

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

Lab Sample ID: LCS 160-121740/2-A
Matrix: Solid
Analysis Batch: 121760

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 121740

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Americium 241			101	100.9		10.5		0.487	pCi/g	100	87 - 116		
Cesium 137			35.6	34.40		3.60	0.200	0.158	pCi/g	97	87 - 120		
Cobalt 60			40.6	38.55		3.89		0.129	pCi/g	95	87 - 115		

Lab Sample ID: 160-6589-1 DU
Matrix: Solid
Analysis Batch: 121826

Client Sample ID: L100529BSB00
Prep Type: Total/NA
Prep Batch: 121740

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Actinium 228	1.25			1.260		0.201		0.135	pCi/g			0.02	1
Americium 241	-0.00763	U		-0.02103	U	0.0773		0.129	pCi/g			0.1	1
Bismuth 212	1.56			1.494		0.494		0.410	pCi/g			0.07	1
Bismuth 214	0.859			0.8404		0.138		0.0791	pCi/g			0.07	1
Lead 212	1.15			1.239		0.181		0.0620	pCi/g			0.26	1
Lead 214	1.01			0.9047		0.136		0.0757	pCi/g			0.36	1
Potassium 40	22.2			19.68		2.39		0.376	pCi/g			0.50	1
Protactinium 231	-0.702	U		0.4810	U F	0.270		1.33	pCi/g			1.07	1
Radium 226	0.859			0.8404		0.138	1.00	0.0791	pCi/g			0.07	1
Thorium 234	1.08			1.500		0.757	1.00	0.960	pCi/g			0.38	1
Uranium 235	0.113	U		0.2768		0.169		0.220	pCi/g			0.50	1
Protactinium 234m	1.63	U		1.920	U	3.41		5.76	pCi/g			0.04	1
Thorium 232	1.25			1.260		0.201		0.135	pCi/g			0.02	1

Metals

Prep Batch: 121549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-6589-1	L100529BSB00	Total/NA	Solid	None	
160-6589-2	L100530BSB00	Total/NA	Solid	None	
160-6589-3	L100531BSB00	Total/NA	Solid	None	
160-6589-4	L100532BSB00	Total/NA	Solid	None	
160-6589-5	L100533BSB00	Total/NA	Solid	None	
160-6589-6	L100534BSB00	Total/NA	Solid	None	
160-6589-7	L100535BSB00	Total/NA	Solid	None	
160-6589-8	L100536BSB00	Total/NA	Solid	None	
160-6590-A-21-D MS	Matrix Spike	Total/NA	Solid	None	
160-6590-A-21-E MSD	Matrix Spike Duplicate	Total/NA	Solid	None	
LCS 160-121549/2-A	Lab Control Sample	Total/NA	Solid	None	
MB 160-121549/1-A	Method Blank	Total/NA	Solid	None	

Analysis Batch: 122192

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-6589-1	L100529BSB00	Total/NA	Solid	6020A	121549
160-6589-2	L100530BSB00	Total/NA	Solid	6020A	121549
160-6589-3	L100531BSB00	Total/NA	Solid	6020A	121549
160-6589-4	L100532BSB00	Total/NA	Solid	6020A	121549
160-6589-5	L100533BSB00	Total/NA	Solid	6020A	121549
160-6589-6	L100534BSB00	Total/NA	Solid	6020A	121549
160-6589-7	L100535BSB00	Total/NA	Solid	6020A	121549
160-6589-8	L100536BSB00	Total/NA	Solid	6020A	121549
160-6590-A-21-D MS	Matrix Spike	Total/NA	Solid	6020A	121549
160-6590-A-21-E MSD	Matrix Spike Duplicate	Total/NA	Solid	6020A	121549
LCS 160-121549/2-A	Lab Control Sample	Total/NA	Solid	6020A	121549
MB 160-121549/1-A	Method Blank	Total/NA	Solid	6020A	121549

General Chemistry

Analysis Batch: 121151

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-6589-1	L100529BSB00	Total/NA	Solid	Moisture	
160-6589-1 DU	L100529BSB00	Total/NA	Solid	Moisture	
160-6589-2	L100530BSB00	Total/NA	Solid	Moisture	
160-6589-3	L100531BSB00	Total/NA	Solid	Moisture	
160-6589-4	L100532BSB00	Total/NA	Solid	Moisture	
160-6589-5	L100533BSB00	Total/NA	Solid	Moisture	
160-6589-6	L100534BSB00	Total/NA	Solid	Moisture	
160-6589-7	L100535BSB00	Total/NA	Solid	Moisture	
160-6589-8	L100536BSB00	Total/NA	Solid	Moisture	

Rad

Leach Batch: 121301

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-6589-1	L100529BSB00	Total/NA	Solid	Dry and Grind	
160-6589-1 DU	L100529BSB00	Total/NA	Solid	Dry and Grind	
160-6589-2	L100530BSB00	Total/NA	Solid	Dry and Grind	
160-6589-3	L100531BSB00	Total/NA	Solid	Dry and Grind	

Rad (Continued)

Leach Batch: 121301 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-6589-4	L100532BSB00	Total/NA	Solid	Dry and Grind	
160-6589-5	L100533BSB00	Total/NA	Solid	Dry and Grind	
160-6589-6	L100534BSB00	Total/NA	Solid	Dry and Grind	
160-6589-7	L100535BSB00	Total/NA	Solid	Dry and Grind	
160-6589-8	L100536BSB00	Total/NA	Solid	Dry and Grind	

Prep Batch: 121549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-6589-1	L100529BSB00	Total/NA	Solid	None	
160-6589-2	L100530BSB00	Total/NA	Solid	None	
160-6589-3	L100531BSB00	Total/NA	Solid	None	
160-6589-4	L100532BSB00	Total/NA	Solid	None	
160-6589-5	L100533BSB00	Total/NA	Solid	None	
160-6589-6	L100534BSB00	Total/NA	Solid	None	
160-6589-7	L100535BSB00	Total/NA	Solid	None	
160-6589-8	L100536BSB00	Total/NA	Solid	None	
160-6590-A-21-D MS	Matrix Spike	Total/NA	Solid	None	
160-6590-A-21-E MSD	Matrix Spike Duplicate	Total/NA	Solid	None	
LCS 160-121549/2-A	Lab Control Sample	Total/NA	Solid	None	
MB 160-121549/1-A	Method Blank	Total/NA	Solid	None	

Prep Batch: 121740

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-6589-1	L100529BSB00	Total/NA	Solid	Fill_Geo-0	121301
160-6589-1 DU	L100529BSB00	Total/NA	Solid	Fill_Geo-0	121301
160-6589-2	L100530BSB00	Total/NA	Solid	Fill_Geo-0	121301
160-6589-3	L100531BSB00	Total/NA	Solid	Fill_Geo-0	121301
160-6589-4	L100532BSB00	Total/NA	Solid	Fill_Geo-0	121301
160-6589-5	L100533BSB00	Total/NA	Solid	Fill_Geo-0	121301
160-6589-6	L100534BSB00	Total/NA	Solid	Fill_Geo-0	121301
160-6589-7	L100535BSB00	Total/NA	Solid	Fill_Geo-0	121301
160-6589-8	L100536BSB00	Total/NA	Solid	Fill_Geo-0	121301
LCS 160-121740/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-0	
MB 160-121740/1-A	Method Blank	Total/NA	Solid	Fill_Geo-0	

Tracer/Carrier Summary

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

TestAmerica Job ID: 160-6589-1

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

Matrix: Solid **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
		Re							
Lab Sample ID	Client Sample ID	(30-110)							
160-6589-1	L100529BSB00	91							
160-6589-2	L100530BSB00	93							
160-6589-3	L100531BSB00	96							
160-6589-4	L100532BSB00	95							
160-6589-5	L100533BSB00	94							
160-6589-6	L100534BSB00	94							
160-6589-7	L100535BSB00	92							
160-6589-8	L100536BSB00	91							
160-6590-A-21-D MS	Matrix Spike	93							
160-6590-A-21-E MSD	Matrix Spike Duplicate	95							
LCS 160-121549/2-A	Lab Control Sample	98							
MB 160-121549/1-A	Method Blank	101							

Tracer/Carrier Legend

Re = Re