

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

Rhonda Ridenhower, Manager of Project Management
rhonda.ridenhower@testamericainc.com

Designee for

Ivan Vania, Project Manager II
(314)298-8566
ivan.vania@testamericainc.com

LINKS

Review your project
results through

TotalAccess

Have a Question?



Visit us at:

www.testamericainc.com

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.

Table of Contents

| | |
|----------------------------------|----|
| Cover Page | 1 |
| Table of Contents | 2 |
| Case Narrative | 3 |
| Chain of Custody | 5 |
| Receipt Checklists | 6 |
| Definitions/Glossary | 7 |
| Method Summary | 8 |
| Sample Summary | 9 |
| Client Sample Results | 10 |
| QC Sample Results | 17 |
| QC Association Summary | 20 |
| Tracer Carrier Summary | 22 |



Case Narrative

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

TestAmerica Job ID: 160-6589-1

Job ID: 160-6589-1

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

Case Narrative

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

TestAmerica Job ID: 160-6589-1

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 FDP-PR-QA-006-1

CHAIN OF CUSTODY

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

[illegible]

160-6589 Chain of Custody

A horizontal bar composed of 12 colored segments, numbered 1 to 12 from right to left. The segments are: 1 (green), 2 (light green), 3 (light blue), 4 (dark blue), 5 (purple), 6 (light purple), 7 (pink), 8 (light pink), 9 (red), 10 (orange), 11 (light orange), and 12 (tan). Segment 4 is highlighted in dark blue.

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 \leq background as measured by a survey meter. | True | |
| The cooler's custody seal, if present, is intact. | True | |
| Sample custody seals, if present, are intact. | N/A | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | False | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | 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 $<6\text{mm}$ (1/4"). | N/A | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

Definitions/Glossary

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

TestAmerica Job ID: 160-6589-1

Qualifiers

Metals

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

Rad

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

Method Summary

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

TestAmerica Job ID: 160-6589-1

| 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 Results

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

TestAmerica Job ID: 160-6589-1

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 |

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-6589-1

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

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 | None | | | | | | pCi/g | 05/13/14 09:49 | 05/13/14 21:24 | 1 |
| Radionuclide | | | | | | | | | | |

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

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 | | | | | | | | | | |
| 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 |

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-6589-1

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

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 | Total | RL | MDC | Unit | Prepared | Analyzed | Dil Fac |
|----------------|--------|-----------|----------|---------|------|-------|-------|----------------|----------------|---------|
| | | | Uncert. | Uncert. | | | | | | |
| | | | (2σ+/-) | (2σ+/-) | | | | | | |
| 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 | | | | | | | | | | |
| Re | %Yield | Qualifier | Limits | | | | | Prepared | Analyzed | Dil Fac |
| | 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 | Total | RL | MDC | Unit | Prepared | Analyzed | Dil Fac |
|-------------------|---------|-----------|---------|---------|------|--------|-------|----------------|----------------|---------|
| | | | Uncert. | Uncert. | | | | | | |
| | | | (2σ+/-) | (2σ+/-) | | | | | | |
| 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 |

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-6589-1

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

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 | Count | Total | | | | | | | |
|---------------|---------|-----------|----------|-------|-------|----------------|----------------|---------|--|
| | Uncert. | Uncert. | RL | MDC | Unit | Prepared | Analyzed | Dil Fac | |
| | (2σ+/-) | (2σ+/-) | | | | | | | |
| Technetium 99 | 0.0326 | 0.0933 | 1.31 | 0.225 | pCi/g | 05/12/14 13:53 | 05/14/14 19:04 | 1 | |
| Carrier | %Yield | Qualifier | Limits | | | | | | |
| 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 | Count | Total | | | | | | | |
|-------------------|---------|---------|------|--------|-------|----------------|----------------|---------|--|
| | Uncert. | Uncert. | RL | MDC | Unit | Prepared | Analyzed | Dil Fac | |
| | (2σ+/-) | (2σ+/-) | | | | | | | |
| Actinium 228 | 1.18 | 0.205 | | 0.133 | pCi/g | 05/13/14 09:49 | 05/13/14 21:24 | 1 | |
| Americium 241 | 0.000 | 0.0623 | | 0.126 | pCi/g | 05/13/14 09:49 | 05/13/14 21:24 | 1 | |
| Bismuth 212 | 1.60 | 0.556 | | 0.485 | pCi/g | 05/13/14 09:49 | 05/13/14 21:24 | 1 | |
| Bismuth 214 | 0.794 | 0.108 | | 0.0723 | pCi/g | 05/13/14 09:49 | 05/13/14 21:24 | 1 | |
| Lead 212 | 1.05 | 0.0830 | | 0.0732 | pCi/g | 05/13/14 09:49 | 05/13/14 21:24 | 1 | |
| Lead 214 | 0.845 | 0.0943 | | 0.0865 | pCi/g | 05/13/14 09:49 | 05/13/14 21:24 | 1 | |
| Potassium 40 | 18.8 | 1.35 | | 0.263 | pCi/g | 05/13/14 09:49 | 05/13/14 21:24 | 1 | |
| Protactinium 231 | 0.211 | 0.159 | | 1.30 | pCi/g | 05/13/14 09:49 | 05/13/14 21:24 | 1 | |
| Radium 226 | 0.794 | 0.108 | 1.00 | 0.0723 | pCi/g | 05/13/14 09:49 | 05/13/14 21:24 | 1 | |
| Thorium 234 | 0.904 | 0.299 | 1.00 | 0.895 | pCi/g | 05/13/14 09:49 | 05/13/14 21:24 | 1 | |
| Uranium 235 | 0.0481 | 0.155 | | 0.261 | pCi/g | 05/13/14 09:49 | 05/13/14 21:24 | 1 | |
| Protactinium 234m | 2.47 | 2.78 | | 6.30 | pCi/g | 05/13/14 09:49 | 05/13/14 21:24 | 1 | |
| Thorium 232 | 1.18 | 0.205 | | 0.133 | pCi/g | 05/13/14 09:49 | 05/13/14 21:24 | 1 | |
| Other Detected | Count | Total | | | | | | | |
| Radionuclides | Uncert. | Uncert. | RL | MDC | Unit | Prepared | Analyzed | Dil Fac | |
| | (2σ+/-) | (2σ+/-) | | | | | | | |
| Other Detected | | | | | pCi/g | 05/13/14 09:49 | 05/13/14 21:24 | 1 | |
| Radionuclide | None | | | | | | | | |

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 |

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-6589-1

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 |

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-6589-1

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 | None | | | | | | pCi/g | 05/13/14 09:49 | 05/13/14 22:12 | 1 |
| Radionuclide | | | | | | | | | | |

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 | | | | | | | | | | |
| Re | %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 |

TestAmerica St. Louis

Client Sample Results

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

TestAmerica Job ID: 160-6589-1

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

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

TestAmerica St. Louis

QC Sample Results

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

Lab Sample ID: MB 160-121549/1-A

Matrix: Solid

Analysis Batch: 122192

Client Sample ID: Method Blank

Prep Type: Total/NA

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

Matrix: Solid

Analysis Batch: 122192

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

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

Matrix: Solid

Analysis Batch: 122192

Client Sample ID: Matrix Spike

Prep Type: Total/NA

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

Matrix: Solid

Analysis Batch: 122192

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

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

Matrix: Solid

Analysis Batch: 122193

Client Sample ID: Method Blank

Prep Type: Total/NA

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

Matrix: Solid

Analysis Batch: 122193

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

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 |

TestAmerica St. Louis

QC Sample Results

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 (Continued)

Lab Sample ID: 160-6590-A-21-D MS

Matrix: Solid

Analysis Batch: 122193

Client Sample ID: Matrix Spike

Prep Type: Total/NA

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

Matrix: Solid

Analysis Batch: 122193

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

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

Matrix: Solid

Analysis Batch: 121759

Client Sample ID: Method Blank

Prep Type: Total/NA

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 |

TestAmerica St. Louis

QC Sample Results

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

TestAmerica Job ID: 160-6589-1

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 |

TestAmerica St. Louis

QC Association Summary

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

TestAmerica Job ID: 160-6589-1

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 | |

TestAmerica St. Louis

QC Association Summary

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

TestAmerica Job ID: 160-6589-1

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) | |
|---------------------|------------------------|-----------------------------------|--|
| Lab Sample ID | Client Sample ID | Re (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