



PROPRIETARY INFORMATION – WITHHOLD UNDER 10 CFR 2.390

10 CFR 50.90
10 CFR 2.390

February 28, 2014

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Peach Bottom Atomic Power Station, Units 2 and 3
Renewed Facility Operating License Nos. DPR-44 and DPR-56
NRC Docket Nos. 50-277 and 50-278

Subject: Extended Power Uprate License Amendment Request – Supplement 21
Response to Request for Additional Information

Reference:

1. Exelon letter to the NRC, "License Amendment Request - Extended Power Uprate," dated September 28, 2012 (ADAMS Accession No. ML122860201)
2. NRC letter to Exelon, "Request for Additional Information Regarding License Amendment Request for Extended Power Uprate (TAC Nos. ME9631 and ME9632)," dated October 1, 2013 (ADAMS Accession No. ML13268A263)
3. Exelon Letter to NRC, "Extended Power Uprate License Amendment Request - Supplement 14, Response to Request for Additional Information," dated October 31, 2013 (ADAMS Accession No. ML13308A331)
4. Exelon Letter to NRC, "Extended Power Uprate License Amendment Request - Supplement 15, Response to Request for Additional Information," dated December 6, 2013 (ADAMS Accession No. ML13345A687)
5. NRC letter to Exelon, "Request for Additional Information Regarding License Amendment Request for Extended Power Uprate (TAC Nos. ME9631 and ME9632)," dated January 15, 2014 (ADAMS Accession No. ML14002A176)
6. Exelon Letter to NRC, "Extended Power Uprate License Amendment Request - Supplement 19, Response to Request for Additional Information," dated January 31, 2014 (ADAMS Accession No. ML14035A158)

In accordance with 10 CFR 50.90, Exelon Generation Company, LLC (EGC) requested amendments to the Renewed Facility Operating License Nos. DPR-44 and DPR-56 for Peach Bottom Atomic Power Station (PBAPS) Units 2 and 3, respectively (Reference 1). Specifically, the proposed changes would revise the Renewed Facility Operating Licenses to

**Attachments 1 and 4 through 7 contain Proprietary Information.
When separated from these attachments, this document is decontrolled.**

ADD
NRC

implement an increase in rated thermal power from 3514 megawatts thermal (MWt) to 3951 MWt. During their technical review of the application, the NRC Staff identified the need for additional information. Reference 2 provided the initial replacement steam dryer (RSD) Request for Additional Information (RAI). References 3 and 4 provided the EGC responses to those RAIs except EMCB-SD-RAIs-8, 13 and 15.

The NRC provided a second round of RSD RAIs in Reference 5. EGC provided a partial response in Reference 6. The responses to EMCB-SD-RAIs 8, 13, 15, 16, 17, 30 and 40 are provided in Attachment 1 to this letter. Responses to the remaining RAIs (i.e., 32 and 41) will be provided in March 2014.

In addition, revisions to the replacement steam dryer topical reports have been prepared to provide updated analysis results and to address topics which have been discussed during the review. These revised reports supersede those that were originally provided in Reference 1 in Attachments 17 (proprietary) and 15 (non-proprietary); the specific Reference 1 attachment numbers are identified below. Proprietary versions of the revised reports identified below are included in Attachments 4 through 7:

Att. 15 / 17.B.1	WCAP-17590, Rev 2,	Acoustic Load Definition
Att. 15 / 17.B.3	WCAP-17649, Rev 1,	ASME Code Stress Report
Att. 15 / 17.B.6	WCAP-17626, Rev 1,	MSL Strain Gauge Data and Computation of Predicted EPU Signature
Att. 15 / 17.B.7	WCAP-17639, Rev 3,	Instrumentation Description for the Peach Bottom Unit 2 Replacement Steam Dryer

Note that revisions to WCAP-17609, "Evaluation of High-Cycle Acoustic Loads," WCAP-17635, "Comprehensive Vibration Assessment Program" and WCAPs-17654 and 17655, the Power Ascension Program Descriptions for Units 2 and 3, respectively, will be transmitted in March 2014. These documents had been included in Reference 1 as Attachments 17.B.2, 17.A and 17.B4U2 and 17.B4U3. WCAP-17611, "Four-Line Subscale Acoustic Test Data Evaluation and Derivation of CLTP-to-EPU Scaling Spectra" (Reference 1, Attachments 15.B.5 and 17.B.5) does not require revision; the version in the original LAR remains the current version.

Westinghouse Electric Company (WEC) considers portions of the information provided in the Attachment 1 responses and in the topical reports to be proprietary and, therefore, exempt from public disclosure pursuant to 10 CFR 2.390. In accordance with 10 CFR 2.390 and in support of this request for withholding, affidavits executed by WEC are provided in Attachment 3. Non-proprietary versions of the responses and of the topical reports are provided in Attachment 2 and Attachments 8 through 11.

EGC has reviewed the information supporting a finding of no significant hazards consideration and the environmental consideration provided to the U. S. Nuclear Regulatory Commission in Reference 1. The supplemental information provided in this submittal does not affect the bases for concluding that the proposed license amendment does not involve a significant hazards consideration. Further, the additional information provided in this submittal does not affect the bases for concluding that neither an environmental impact

statement nor an environmental assessment needs to be prepared in connection with the proposed amendment.

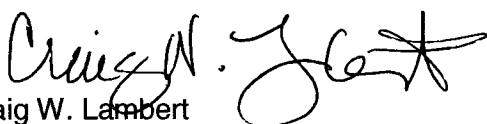
In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b), EGC is notifying the Commonwealth of Pennsylvania and the State of Maryland of this application by transmitting a copy of this letter along with the non-proprietary attachments to the designated State Officials.

There are no regulatory commitments contained in this letter.

Should you have any questions concerning this letter, please contact Mr. David Neff at (610) 765-5631.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 28th day of February 2014.

Respectfully,


Craig W. Lambert
Vice President, Power Upgrades
Exelon Generation Company, LLC

Attachments:

1. Response to Request for Additional Information – EMCBS-SD - Proprietary
2. Response to Request for Additional Information – EMCBS-SD
3. Affidavits in Support of Request to Withhold Information
4. WCAP-17590, Rev 2, Acoustic Load Definition - Proprietary
5. WCAP-17649, Rev 1, ASME Code Stress Report - Proprietary
6. WCAP-17626, Rev 1, MSL Strain Gauge Data and Computation of Predicted EPU Signature - Proprietary
7. WCAP-17639, Rev 3, Instrumentation Description for the Peach Bottom Unit 2 Replacement Steam Dryer - Proprietary
8. WCAP-17590, Rev 2, Acoustic Load Definition
9. WCAP-17649, Rev 1, ASME Code Stress Report
10. WCAP-17626, Rev 1, MSL Strain Gauge Data and Computation of Predicted EPU Signature
11. WCAP-17639, Rev 3, Instrumentation Description for the Peach Bottom Unit 2 Replacement Steam Dryer

cc:	USNRC Region I, Regional Administrator	w/attachments
	USNRC Senior Resident Inspector, PBAPS	w/attachments
	USNRC Project Manager, PBAPS	w/attachments
	R. R. Janati, Commonwealth of Pennsylvania	w/o proprietary attachment
	S. T. Gray, State of Maryland	w/o proprietary attachment

Attachment 2

Peach Bottom Atomic Power Station Units 2 and 3

NRC Docket Nos. 50-277 and 50-278

Response to Request for Additional Information – EMCB-SD

Note

This attachment includes the non-proprietary version of the response; brackets identify where proprietary information has been redacted.

Response to Request for Additional Information

Mechanical and Civil Engineering Branch (EMCB) - Steam Dryer (SD)

By letter dated September 28, 2012, Exelon Generation Company, LLC (Exelon) submitted a license amendment request for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3. The proposed amendment would authorize an increase in the maximum power level from 3514 megawatts thermal (MWt) to 3951 MWt. The requested change, referred to as an extended power uprate (EPU), represents an increase of approximately 12.4 percent above the current licensed thermal power level.

The NRC staff has reviewed the information supporting the proposed amendment and, by letter dated October 1, 2013 (NRC Accession No. ML13268A263), requested additional information. Exelon provided responses to EMCB-SD-RAIs 1, 2, 3, 4, 6, 7, 11, 12 and 14 (RAIs-5 and 9 were deleted) in a letter dated October 31, 2013 (Supplement 14, NRC Accession No. ML13308A331). The response to EMCB-SD-RAI-10 was provided in a letter dated December 6, 2013 (Supplement 15, NRC Accession No. ML13345A687). The responses to EMCB-SD-RAI-8, 13 and 15 are provided below.

In addition, the NRC provided a second round of requests for additional information by letter dated January 15, 2014 (NRC Accession No. ML14002A176). The responses to EMCB-SD-RAIs 19, 21-26, 28-29, 31 and 33-39 (EMCB-SD-RAIs 18, 20 and 27 have been deleted) were provided in a letter dated January 31, 2014 (Supplement 19, NRC Accession No. ML14035A158). The responses to EMCB-SD-RAIs 16-17, 30 and 40 are provided below.

Responses to the remaining RAIs (i.e., 32 and 41) will be provided in March 2014.

EMCB-SD-RAI-8

For PBAPS Units 2 and 3, please provide the following for the 10 lowest alternating stress ratio locations:

- a) Frequency spectra for maximum alternating stresses; and
- b) Stress accumulation plots (root mean square (RMS) stress as a function of increasing frequency).

Please explain whether any other information (e.g., magnitude of stress as a function of frequency) besides the frequency content of stress may be derived from the plots. Based on the plots, discuss the relative importance of the various forcing functions (e.g., valve resonances, broad-band acoustic pulsations) on the RSD alternating stresses.

RESPONSE

Table RAI-8-1 lists the ten lowest stress ratio locations for Peach Bottom Atomic Power Station (PBAPS) Unit 2 with the instrumentation mast from the cumulative results shown in Tables 8-5 and 8-6 of WCAP-17609-P Revision 2. Table RAI-8-2 lists the ten lowest

stress ratio locations for Unit 3 from the cumulative results shown in Tables 8-3 and 8-4 of WCAP-17609-P Revision 2 (Ref 8-1).

The plots for the []^{a,c} have been paired together at each location for easier comparison and present the []^{a,c} for that location. All shell stress components were []

[]^{a,c}. The predicted natural frequencies of the []^{a,c} are []^{a,c}, respectively.

The provided plots demonstrate that []^{a,c} and that in general, the []^{a,c}. Since these are []^{a,c} should be []^{a,c} inferred.

REFERENCES:

- 8-1: WCAP-17609-P Revision 2. "Peach Bottom Units 2 and 3 Replacement Steam Dryer Structural Evaluation for High-Cycle Acoustic Loads."

**Table RAI-8-1 Lowest 10 Alternating Stress Ratios for Peach Bottom Unit 2
(with Instrumentation Mast)**

a,c

Table RAI-8-2 Lowest 10 Alternating Stress Ratios for Peach Bottom Unit 3

a,c



**Figure RAI-8-1 Peach Bottom Unit 2 with Mast:
Lower Drain Channel Belt (non-weld)**



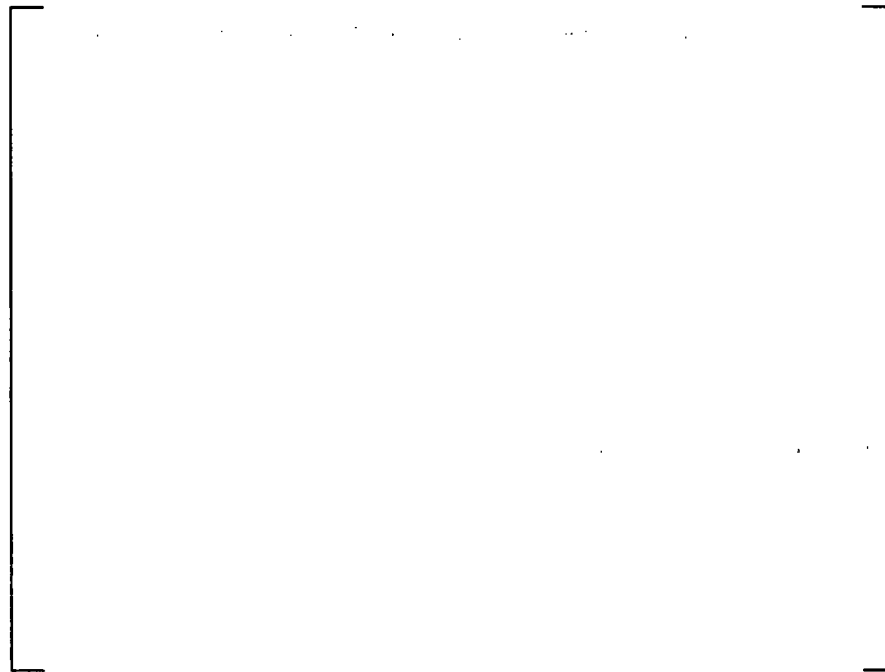
**Figure RAI-8-2 Peach Bottom Unit 2 with Mast:
Lower Drain Channel Belt (non-weld)**



**Figure RAI-8-3 Peach Bottom Unit 2 with Mast:
Middle Hood to Middle Hood Weld**



**Figure RAI-8-4 Peach Bottom Unit 2 with Mast:
Middle Hood to Middle Hood Weld**



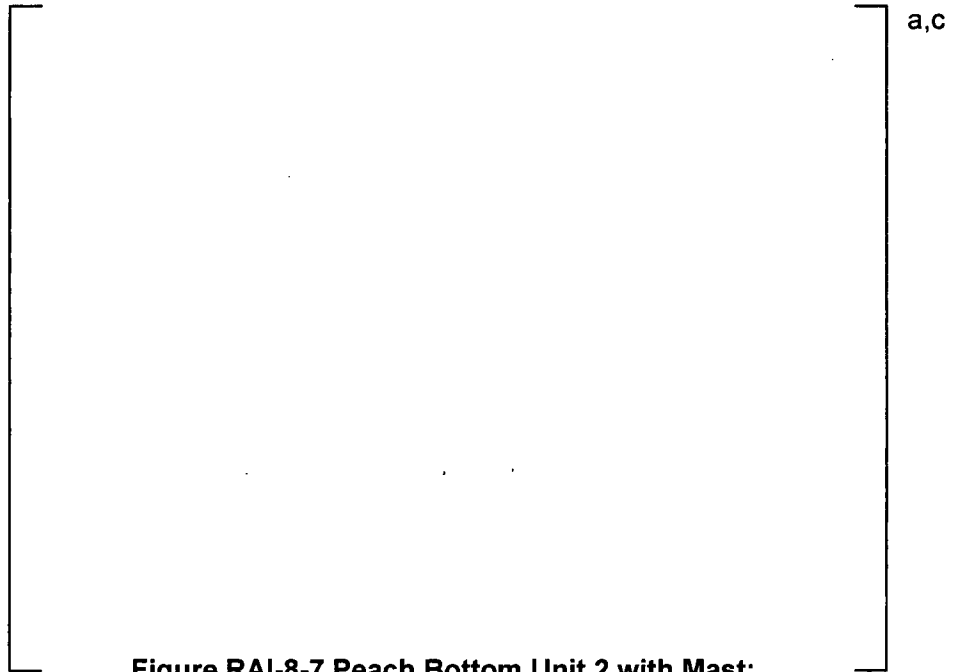
a,c

**Figure RAI-8-5 Peach Bottom Unit 2 with Mast:
Outer Perforated Plate to Outer Vane Bank Top Step Weld**



a,c

**Figure RAI-8-6 Peach Bottom Unit 2 with Mast:
Outer Perforated Plate to Outer Vane Bank Top Step Weld**



**Figure RAI-8-7 Peach Bottom Unit 2 with Mast:
Middle Vertical Bank-to-Bank Plate to Middle Vane Bank End Plate Weld**



**Figure RAI-8-8 Peach Bottom Unit 2 with Mast:
Middle Vertical Bank-to-Bank Plate to Middle Vane Bank End Plate Weld**



**Figure RAI-8-9 Peach Bottom Unit 2 with Mast:
Lower Slot Belt (non-weld)**



**Figure RAI-8-10 Peach Bottom Unit 2 with Mast:
Lower Slot Belt (non-weld)**



**Figure RAI-8-11 Peach Bottom Unit 2 with Mast:
Skirt Slot below Water to Skirt Slot Belt Weld**



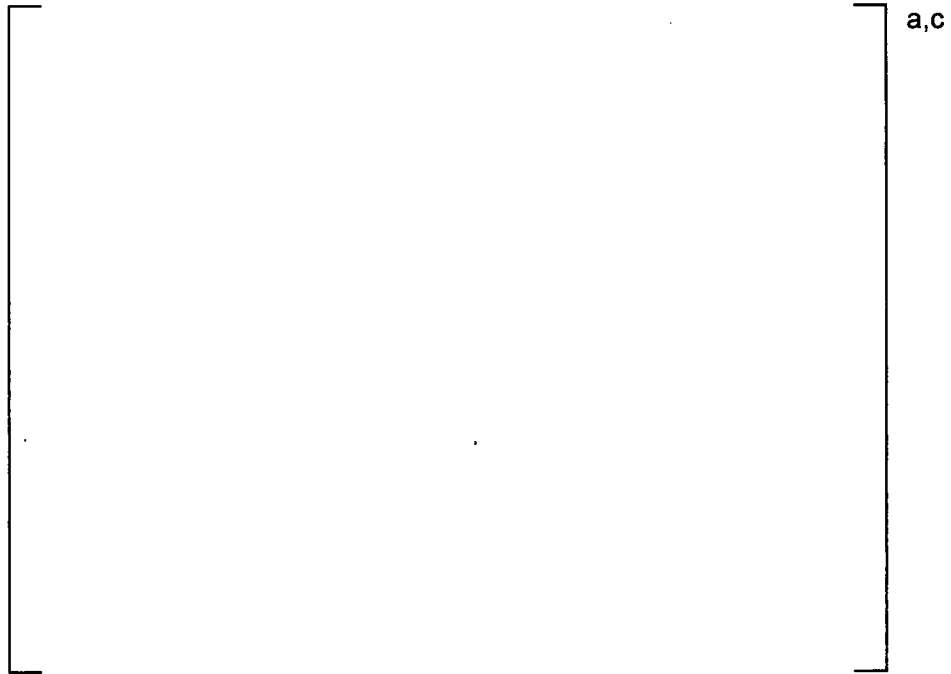
**Figure RAI-8-12 Peach Bottom Unit 2 with Mast:
Skirt Slot below Water to Skirt Slot Belt Weld**



**Figure RAI-8-13 Peach Bottom Unit 2 with Mast:
Mast Front Tube to Mast Front Tube Clamp Weld**



**Figure RAI-8-14 Peach Bottom Unit 2 with Mast:
Mast Front Tube to Mast Front Tube Clamp Weld**



**Figure RAI-8-15 Peach Bottom Unit 2 with Mast:
Outer Hood, Curved Portion (non-weld)**



**Figure RAI-8-16 Peach Bottom Unit 2 with Mast:
Outer Hood, Curved Portion (non-weld)**



**Figure RAI-8-17 Peach Bottom Unit 2 with Mast:
Middle Vertical Bank-to-Bank Plate to Middle Hood Weld**



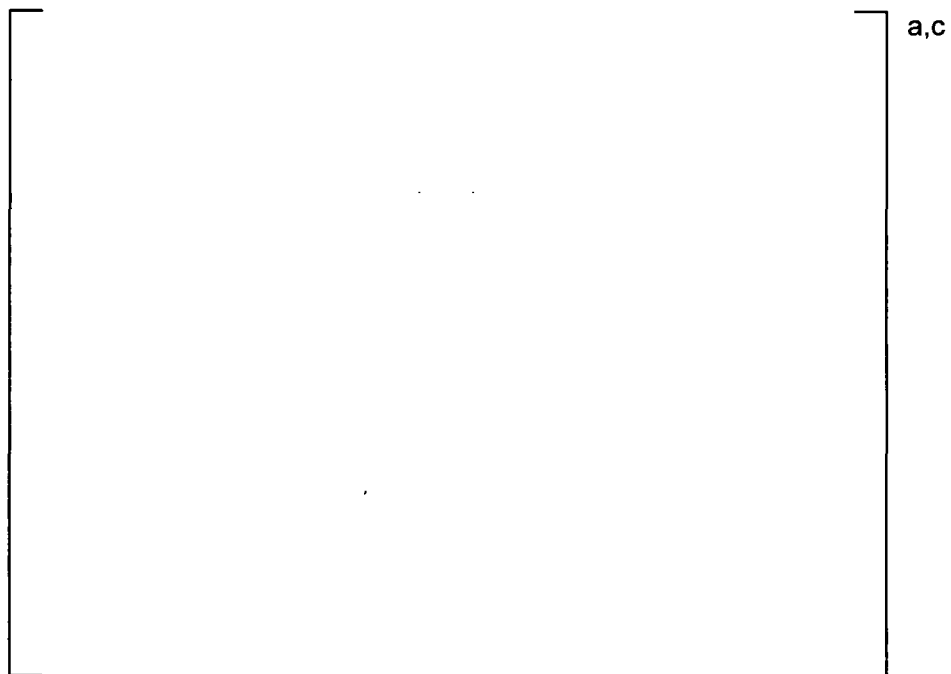
**Figure RAI-8-18 Peach Bottom Unit 2 with Mast:
Middle Vertical Bank-to-Bank Plate to Middle Hood Weld**



**Figure RAI-8-19 Peach Bottom Unit 2 with Mast:
Middle Hood to Outer Trough Weld**



**Figure RAI-8-20 Peach Bottom Unit 2 with Mast:
Middle Hood to Outer Trough Weld**



**Figure RAI-8-21 Peach Bottom Unit 3:
Skirt Slot above Water to Support Ring**



**Figure RAI-8-22 Peach Bottom Unit 3:
Skirt Slot above Water to Support Ring**



**Figure RAI-8-23 Peach Bottom Unit 3:
Lower Drain Channel Belt (non-weld)**



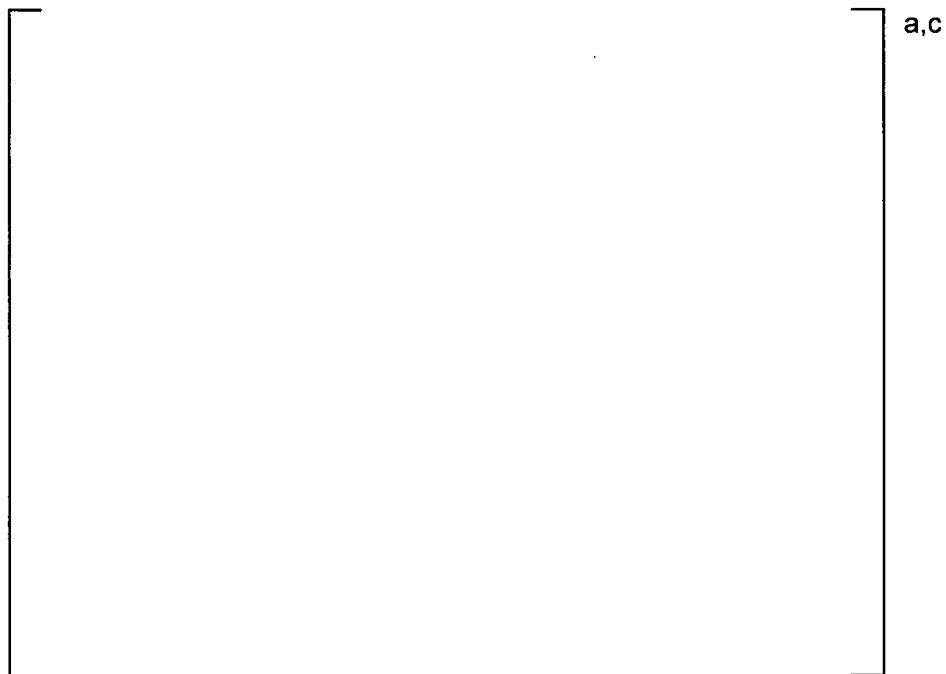
**Figure RAI-8-24 Peach Bottom Unit 3:
Lower Drain Channel Belt (non-weld)**



**Figure RAI-8-25 Peach Bottom Unit 3:
Lower Slot Belt (non-weld)**



**Figure RAI-8-26 Peach Bottom Unit 3:
Lower Slot Belt (non-weld)**



**Figure RAI-8-27 Peach Bottom Unit 3:
Skirt Slot below Water to Slot Belt Weld**



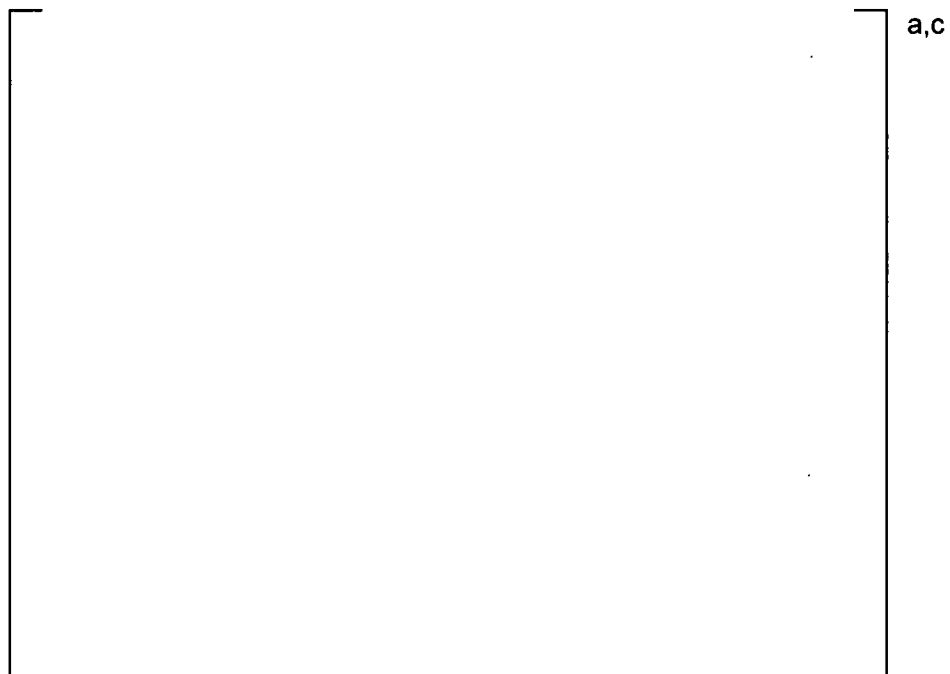
**Figure RAI-8-28 Peach Bottom Unit 3:
Skirt Slot below Water to Slot Belt Weld**



**Figure RAI-8-29 Peach Bottom Unit 3:
Skirt above Water to Support Ring Weld**



**Figure RAI-8-30 Peach Bottom Unit 3:
Skirt above Water to Support Ring Weld**



**Figure RAI-8-31 Peach Bottom Unit 3:
Skirt above Water to Skirt Belt Weld**



**Figure RAI-8-32 Peach Bottom Unit 3:
Skirt above Water to Skirt Belt Weld**



**Figure RAI-8-33 Peach Bottom Unit 3:
Outer Perforated Plate to Outer Vane Bank Top Step Weld**



**Figure RAI-8-34 Peach Bottom Unit 3:
Outer Perforated Plate to Outer Vane Bank Top Step Weld**



**Figure RAI-8-35 Peach Bottom Unit 3:
Middle Hood to Outer Trough Weld**



**Figure RAI-8-36 Peach Bottom Unit 3:
Middle Hood to Outer Trough Weld**



**Figure RAI-8-37 Peach Bottom Unit 3:
Outer Vane Bank Top Step to Outer Hood Weld**



**Figure RAI-8-38 Peach Bottom Unit 3:
Outer Vane Bank Top Step to Outer Hood Weld**



**Figure RAI-8-39 Peach Bottom Unit 3:
Skirt above Water to Skirt Slot above Water Weld**



**Figure RAI-8-40 Peach Bottom Unit 3:
Skirt above Water to Skirt Slot above Water Weld**

EMCB-SD-RAI-13

The simulated dryer loading at 102 percent of the EPU power level are presented in Table 3-5 and Figures 3-2 through 3-5 of WCAP-17590-P¹, "Peach Bottom Units 2 & 3 Replacement Steam Dryer Acoustic Load Definition." These figures and table display considerable differences between PBAPS Units 2 and 3, although these units are supposed to be identical and have similar specific bias and uncertainties, as listed in Table 3-3. Please explain the sources of these relatively large differences in the total RMS differential pressure (Table 3-5) and the broadband excitation at low and high frequencies, especially on the dryer quadrants A and C. Provide contour plots of the differential pressures on the dryers of PBAPS 2 and 3 over all four quadrants for: (a) all signals between 0 and 250 Hz; (b) signals between 0 and 60 Hz; (c) signals spanning the SRV resonance near 130 Hz; and (d) signals spanning the blind flange resonance near 220 Hz. These plots should use a common contour color scale so that the plots may be easily compared. Also, provide overlays of the PBAPS 2 and 3 raw and filtered MSL spectra for all eight locations (e.g., plot PBAPS 2 versus PBAPS 3 MSL location 1 unfiltered, PBAPS 2 versus PBAPS 3 MSL location 1 filtered, PBAPS 2 versus PBAPS 3 MSL location 2 unfiltered, etc.). Additionally, overlay the monopole and dipole terms for PBAPS 2 and 3 for each MSL inlet. Interpret this information to explain the differences in loading between PBAPS 2 and 3.

RESPONSE

Figures 3-2 through 3-5 and Table 3-5 of WCAP-17590 Revision 0 (Ref. 13-1) represent the []^{a,c} which were determined through the []^{a,c}. With the []^{a,c}, EGC has selected []^{a,c} for determining the acoustic loadings. As such, []^{a,c} to account for the new []^{a,c}. The []^{a,c} are summarized in Tables RAI-13-1 and RAI-13-2 for both units.

Table RAI-13-1 [] ^{a,c} Differential Pressure Loads Summary Table at EPU*1.02 Conditions					a,c

¹ WCAP-17590-P, is a proprietary document that was included as Enclosure 17B.1 of the Exelon EPU LAR dated September 28, 2012. A non-proprietary version is in ADAMS (ML12286A020).

Table RAI-13-2 [] ^{a,c} Differential Pressure Loads Summary Table at EPU*1.02 Conditions					a,c

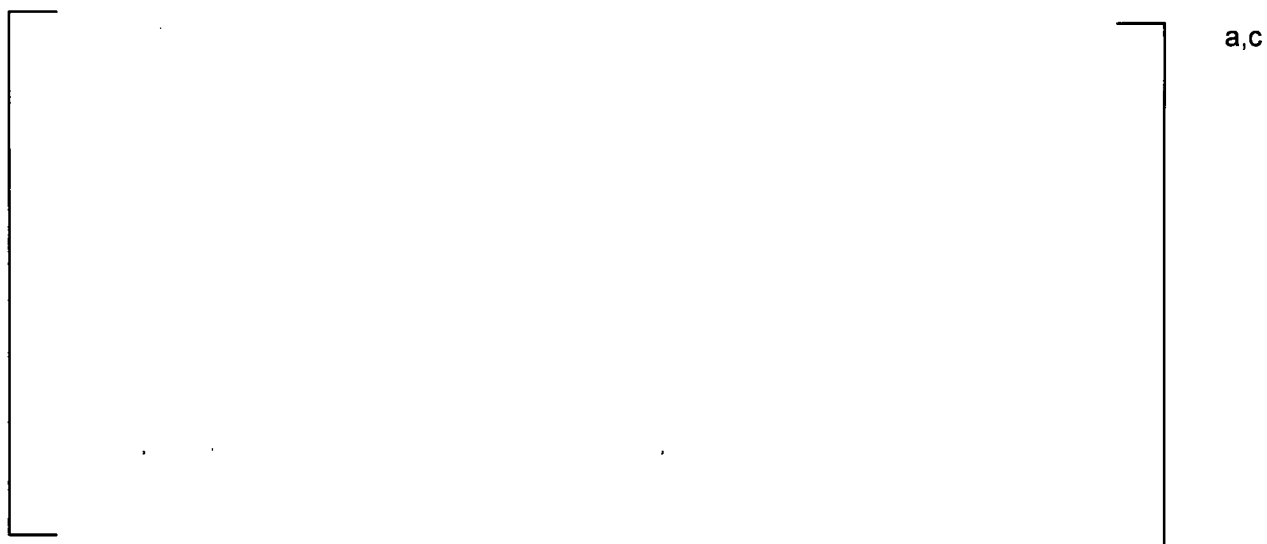
A set of []^{a,c} were obtained for the []^{a,c}. These plots have been generated for both units and they are shown in Figures RAI-13-1 through RAI-13-8 for []^{a,c}, and Figures RAI-13-9 through RAI-13-16 for []^{a,c}.



**Figure RAI-13-1 Peach Bottom Unit 2 RMS Differential Pressure 0-250 Hz
(MSL A/B – Left, MSL C/D – Right) []^{a,c}**



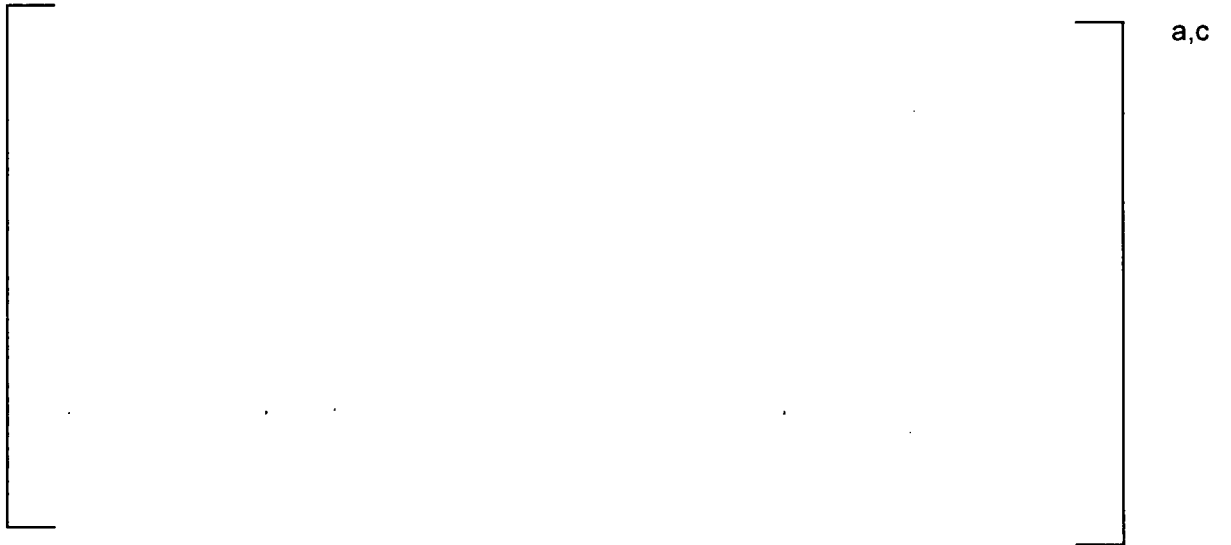
**Figure RAI-13-2 Peach Bottom Unit 3 RMS Differential Pressure 0-250 Hz
(MSL A/B – Left, MSL C/D – Right) []^{a,c}**



**Figure RAI-13-3 Peach Bottom Unit 2 RMS Differential Pressure 0-60 Hz
(MSL A/B – Left, MSL C/D – Right) []^{a,c}**



**Figure RAI-13-4 Peach Bottom Unit 3 RMS Differential Pressure 0-60 Hz
(MSL A/B – Left, MSL C/D – Right) []^{a,c}**



**Figure RAI-13-5 Peach Bottom Unit 2 RMS Differential Pressure 128-134 Hz
(MSL A/B – Left, MSL C/D – Right) []^{a,c}**



**Figure RAI-13-6 Peach Bottom Unit 3 RMS Differential Pressure 128-134 Hz
(MSL A/B – Left, MSL C/D – Right) []^{a,c}**



**Figure RAI-13-7 Peach Bottom Unit 2 RMS Differential Pressure 216-222 Hz
(MSL A/B – Left, MSL C/D – Right) []^{a,c}**



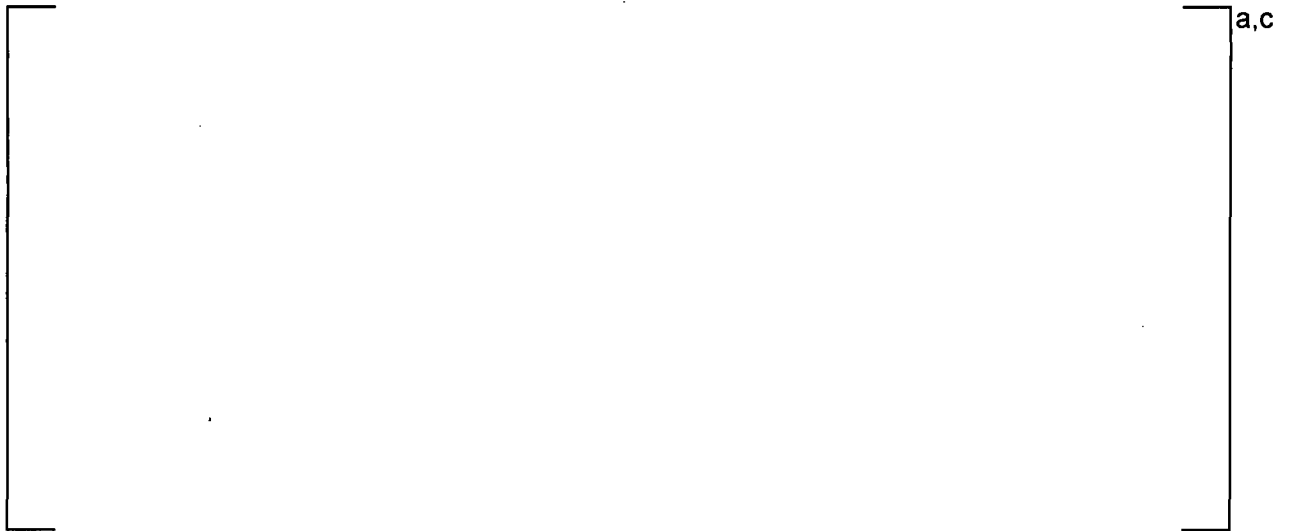
**Figure RAI-13-8 Peach Bottom Unit 3 RMS Differential Pressure 216-222 Hz
(MSL A/B – Left, MSL C/D – Right) []^{a,c}**



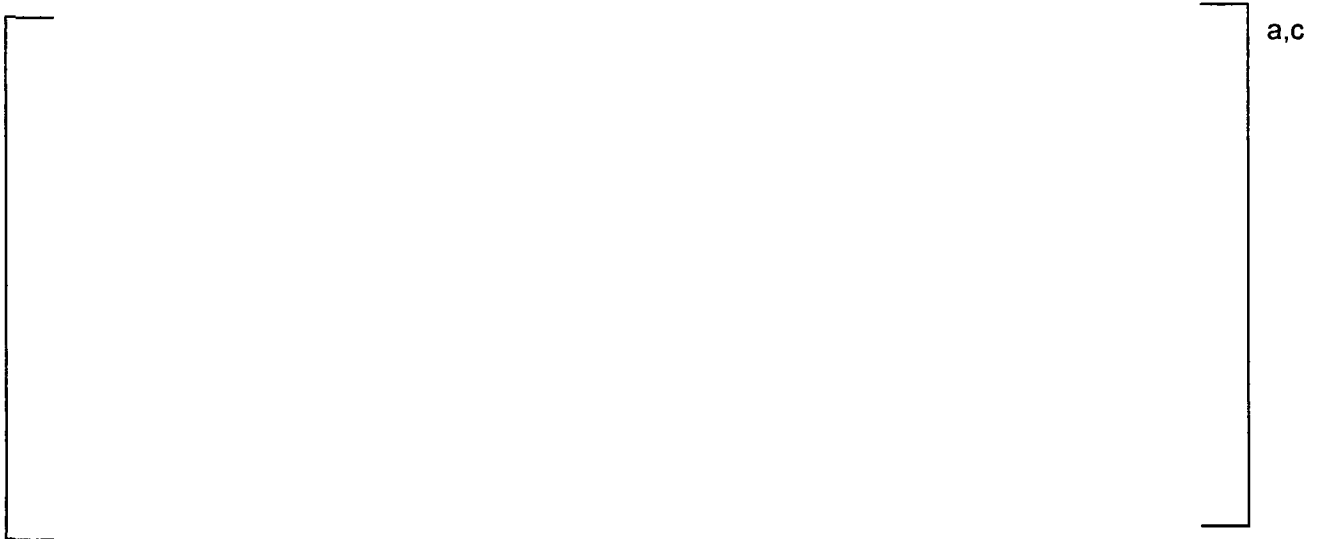
**Figure RAI-13-9 Peach Bottom Unit 2 RMS Differential Pressure 0-250 Hz
(MSL A/B – Left, MSL C/D – Right) [a,c]**



**Figure RAI-13-10 Peach Bottom Unit 3 RMS Differential Pressure 0-250 Hz
(MSL A/B – Left, MSL C/D – Right) [a,c]**



**Figure RAI-13-11 Peach Bottom Unit 2 RMS Differential Pressure 0-60 Hz
(MSL A/B – Left, MSL C/D – Right) [a,c]**



**Figure RAI-13-12 Peach Bottom Unit 3 RMS Differential Pressure 0-60 Hz
(MSL A/B – Left, MSL C/D – Right) [a,c]**



**Figure RAI-13-13 Peach Bottom Unit 2 RMS Differential Pressure 128-134 Hz
(MSL A/B – Left, MSL C/D – Right) [a,c]**



**Figure RAI-13-14 Peach Bottom Unit 3 RMS Differential Pressure 128-134 Hz
(MSL A/B – Left, MSL C/D – Right) [a,c]**



**Figure RAI-13-15 Peach Bottom Unit 2 RMS Differential Pressure 216-222 Hz
(MSL A/B – Left, MSL C/D – Right) []^{a,c}**



**Figure RAI-13-16 Peach Bottom Unit 3 RMS Differential Pressure 216-222 Hz
(MSL A/B – Left, MSL C/D – Right) []^{a,c}**

Based on the []^{a,c}, the load definitions are []^{a,c}; moreover, the []^{a,c}.

Figures RAI-13-17 through RAI-13-20 show an []^{a,c}. Figures RAI-13-21 through RAI-13-24 show an []^{a,c}. Again, these figures indicate a []^{a,c}.



Figure RAI-13-17 Peach Bottom Unit 2 and Unit 3 Unfiltered MSL A Pressures



Figure RAI-13-18 Peach Bottom Unit 2 and Unit 3 Unfiltered MSL B Pressures



Figure RAI-13-19 Peach Bottom Unit 2 and Unit 3 Unfiltered MSL C Pressures



Figure RAI-13-20 Peach Bottom Unit 2 and Unit 3 Unfiltered MSL D Pressures



Figure RAI-13-21 Peach Bottom Unit 2 and Unit 3 Filtered MSL A Pressures



Figure RAI-13-22 Peach Bottom Unit 2 and Unit 3 Filtered MSL B Pressures



Figure RAI-13-23 Peach Bottom Unit 2 and Unit 3 Filtered MSL C Pressures



Figure RAI-13-24 Peach Bottom Unit 2 and Unit 3 Filtered MSL D Pressures

The []^{a,c} in Figures RAI-13-25a and RAI-13-25b for both Unit 2, and Figures RAI-13-26a and RAI-13-26b for Unit 3.

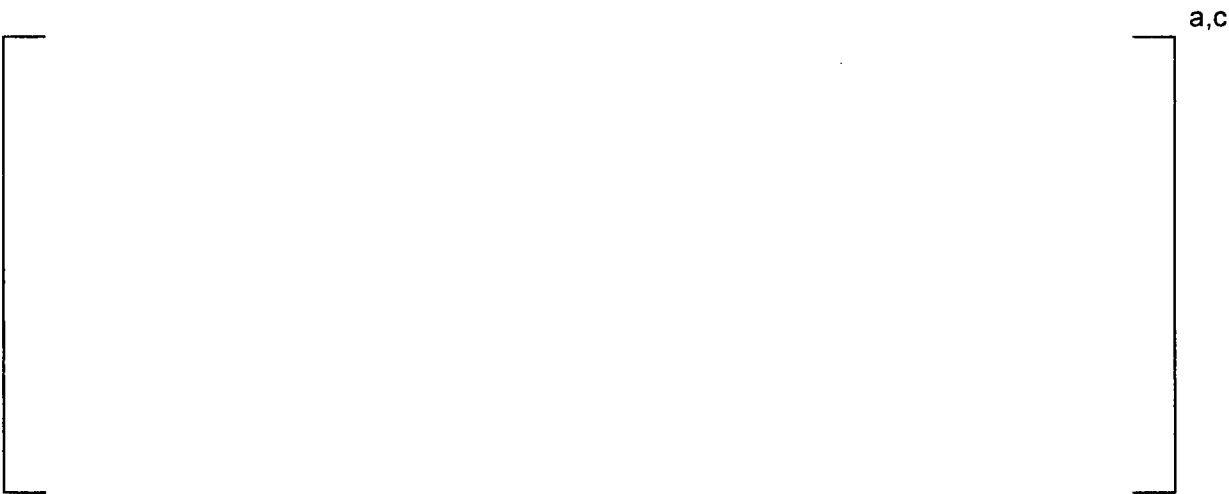


Figure RAI-13-25a Peach Bottom Unit 2 Monopole Acoustic Sources

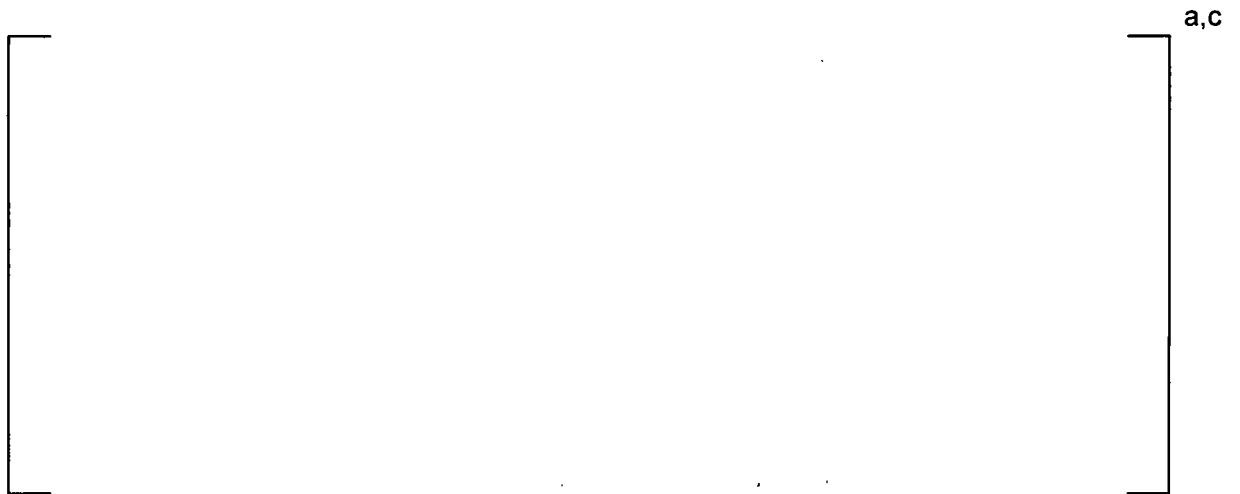


Figure RAI-13-25b Peach Bottom Unit 2 Dipole Acoustic Sources



Figure RAI-13-26a Peach Bottom Unit 3 Monopole Acoustic Sources



Figure RAI-13-26b Peach Bottom Unit 3 Dipole Acoustic Sources

Since the [

that the Unit 2 and Unit 3 replacement steam dryer major components []^{a,c}. Note

]^{a,c}. Any differences []^{a,c}.

REFERENCES:

- 13-1 WCAP-17590-P Revision 0, "Peach Bottom Units 2 & 3 Replacement Steam Dryer Acoustic Load Definition."
- 13-2 WCAP-17626-P Revision 1, "Processing of Peach Bottom Unit 2 and Unit 3 MSL Strain Gauge Data and Computation of Predicted EPU Signature."

EMCB-SD-RAI-15

In Attachment 9 to the licensee's letter dated February 15, 2013, it is noted that the bias and uncertainty associated with the structural finite element dynamic modeling of the dryers is primarily associated with modeling procedures such as the use of shell elements, the element spacing, and coupling of shell and solid modeling sections. It is indicated that you use a procedure similar to that used for the []^{a,c} steam dryer model, with the exception of using []^{a,c} instead of shells embedded within solids to connect different sections. You also cite internal studies showing the use of []^{a,c} actually reduces uncertainty slightly, but do not take credit for this in the PBAPS EPU application. You point out that on-dryer measurements are planned to confirm the "...conservatism in the predicted ACM 4.1 results prior to exceeding CLTP." Based on the above, the NRC staff requests the following information regarding this subject:

Please submit a detailed instrumentation and measurement plan to measure natural frequencies and mode shapes, pressures acting on the dryer, and the dryer strains and accelerations to confirm that the dryer stresses are within acceptable limits. This plan should include how the measurement locations are relevant to the high loading and stress regions in the dryer and a priori predictions of the expected strain and pressure spectra and peak/rms values. You should consider ensuring that both the upper dryer, including the different hood sections, and the lower dryer (skirt) are sufficiently instrumented.

RESPONSE

The NRC performed an audit of the PBAPS RSD data at the Westinghouse office in Rockville, Maryland on August 9, 2013 and September 12, 2013. During that audit, EGC presented various topics including the on-dryer instrumentation plan for Peach Bottom Unit 2. Excerpts from the information presented in those audit meetings are included

below in our response to this RAI. Our response to this RAI is divided into two parts. The first part describes the on-dryer instrumentation and includes our rationale for location and selection of the instruments. The second part discusses our plans for using that instrumentation during power ascension. Finally, we summarize how we [

] ^{a,c}

Peach Bottom Unit 2: Description of On-Dryer Instrumentation

EGC has designed the [

] ^{a,c}

A key consideration for locating the [

] ^{a,c}

ANSYS, ANSYS Workbench, AUTODYN, CFX, FLUENT and any and all ANSYS, Inc. brand, product, service and feature names, logos and slogans are registered trademarks or trademarks of ANSYS, Inc. or its subsidiaries in the United States or other countries. All other brand, product, service and feature names or trademarks are the property of their respective owners.

The [

Pressure Transducers and Accelerometers

The predicted acoustic pressure loads on the steam dryer were calculated by [

] ^{a,c}

Based on the results of the [

] ^{a,c}

A total of [

] ^{a,c}

The locations of the [

] ^{a,c}

Strain Gauges

The location of [

] ^{a,c}

A total of [

] ^{a,c}

The selected location of the [

] ^{a,c}

[

] ^{a,c}

It was demonstrated that the [

] ^{a,c}

For the selected [

] ^{a,c}

The predicted [

] ^{a,c}

Peach Bottom Unit 2: Application and Use of Instrumentation during Power Ascension
from CLTP to EPU

EGC intends to collect and analyze data from the [

] ^{a,c}

The initial plan is to have a [

] ^{a,c}

Upon completion of the [

] ^{a,c}

During power ascension above CLTP, EGC will collect [

]a,c

Upon achieving EPU power level, [

]a,c

Peach Bottom Unit 3: Use of []a,c

The final [

]a,c

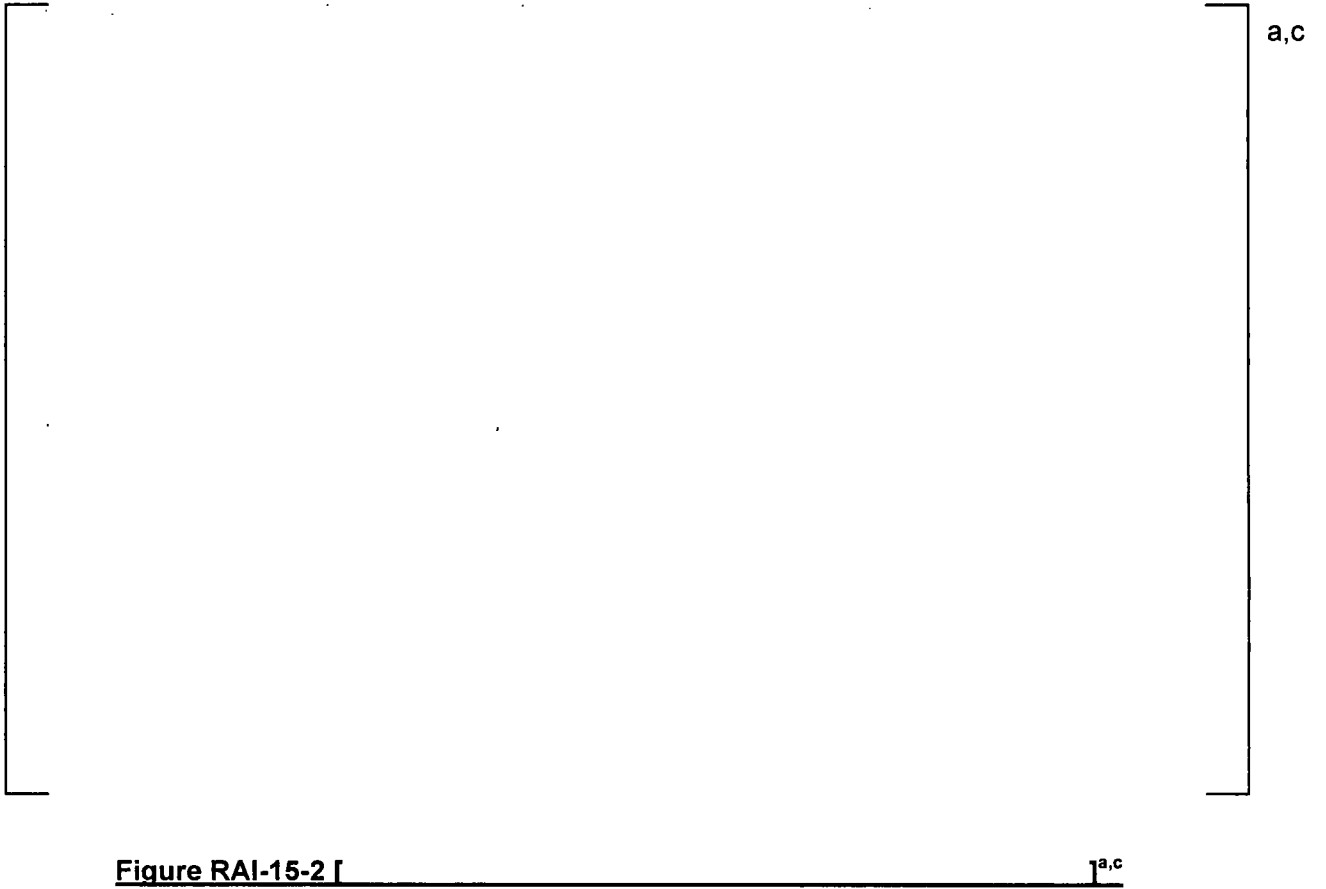
REFERENCES:

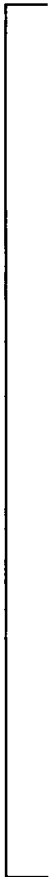
- 15-1: EGC letter from K. F. Borton to U.S. Nuclear Regulatory Commission, dated December 6, 2013; Subject: Extended Power Uprate License Amendment Request – Supplement 15 Response to Request for Additional Information



Figure RAI-15-1 [

]^{a,c}





a,c

Figure RAI-15-3 I

1^{a,c}



Figure RAI-15-4 [

a,c



a,c

Figure RAI-15-5 []^{a,c}



a,c

Figure RAI-15-6 [

] a,c

[

] a,c



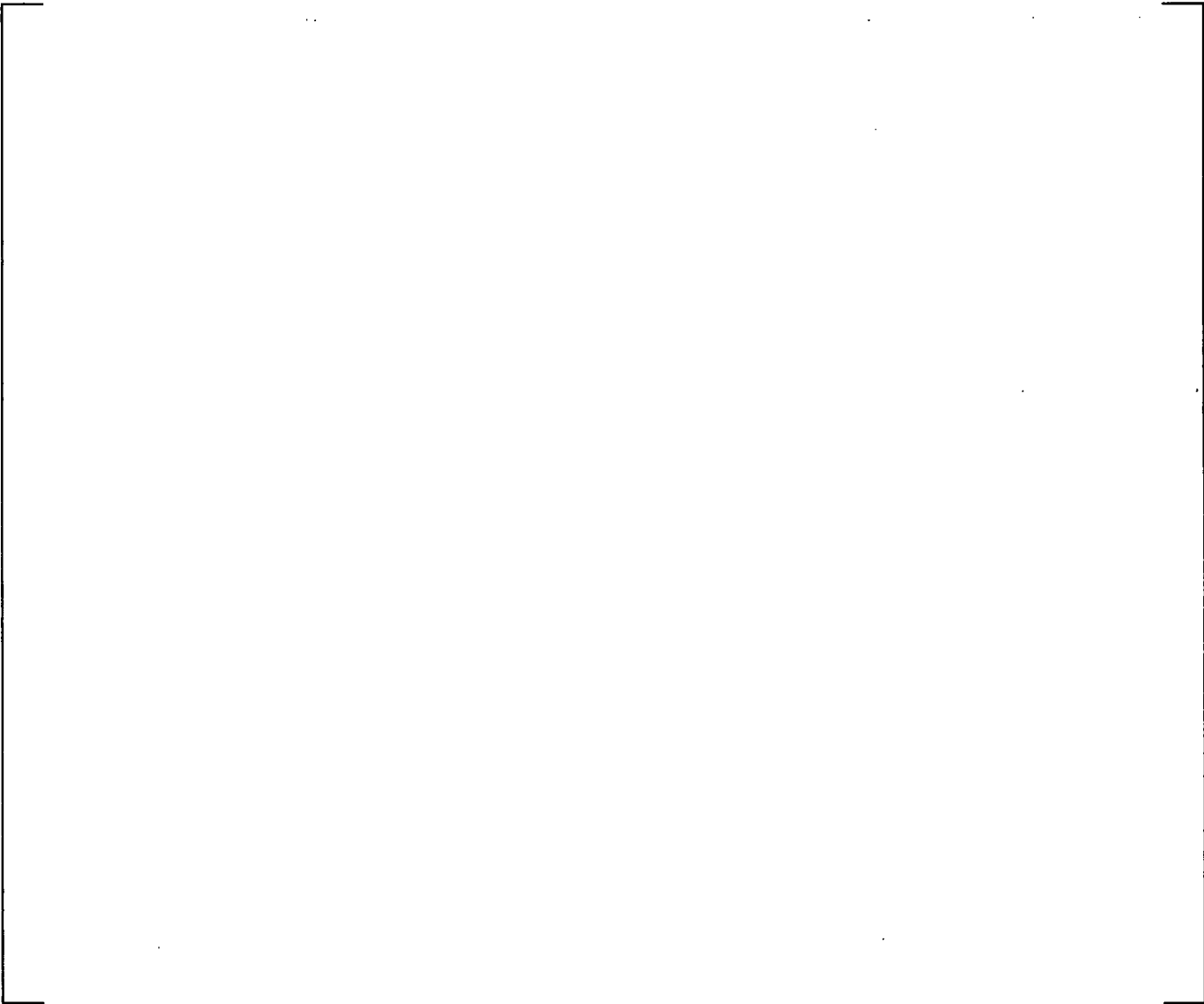
a,c

Figure RAI-15-7 [

1^{a,c}

[

]^{a,c}



a,c

Figure RAI-15-8 []
[]
]a,c

a,c

Figure RAI-15-9 [

]a,c

[

]a,c



a,c

Figure RAI-15-10 [a,c]



a,c

Figure RAI-15-11 [a,c]



Figure RAI-15-12 []^{a,c}



Figure RAI-15-13 []^{a,c}



Figure RAI-15-14 []^{a,c}



Figure RAI-15-15 []^{a,c}



Figure RAI-15-16 [_____ **]**^{a,c}

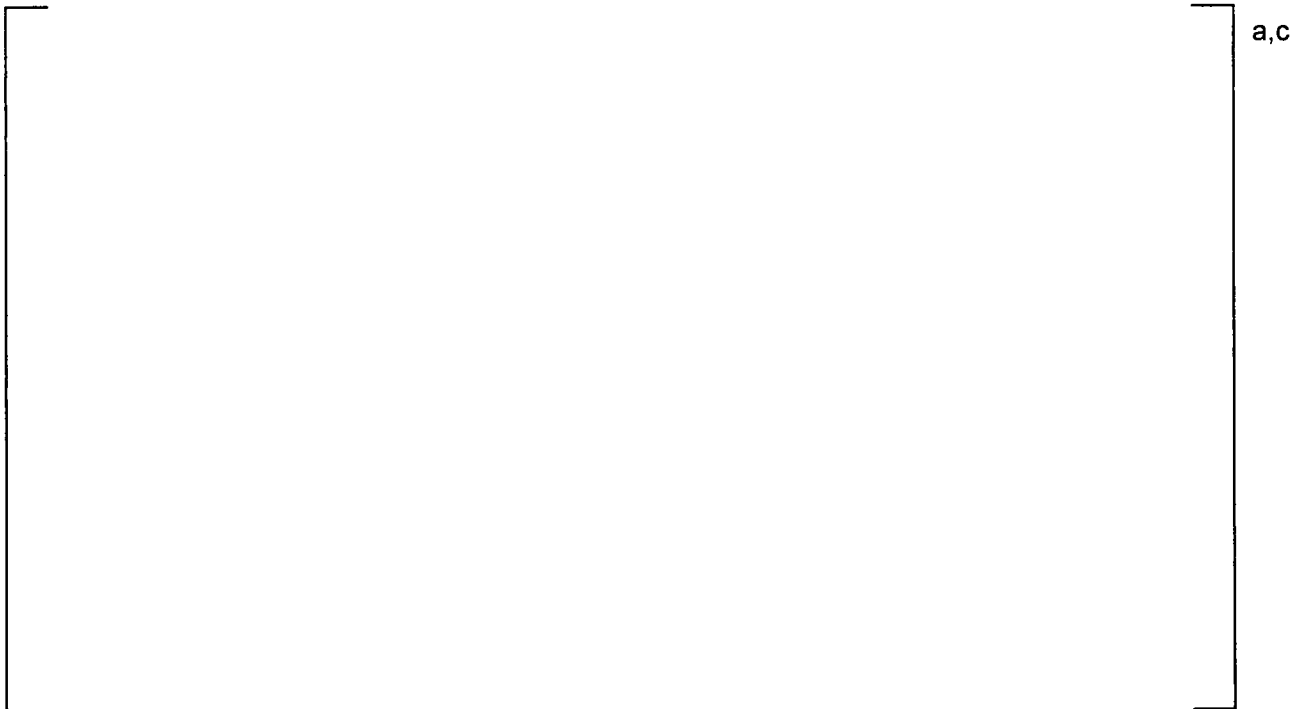


Figure RAI-15-17 [_____ **]**^{a,c}



Figure RAI-15-18 [a,c]



Figure RAI-15-19 [a,c]

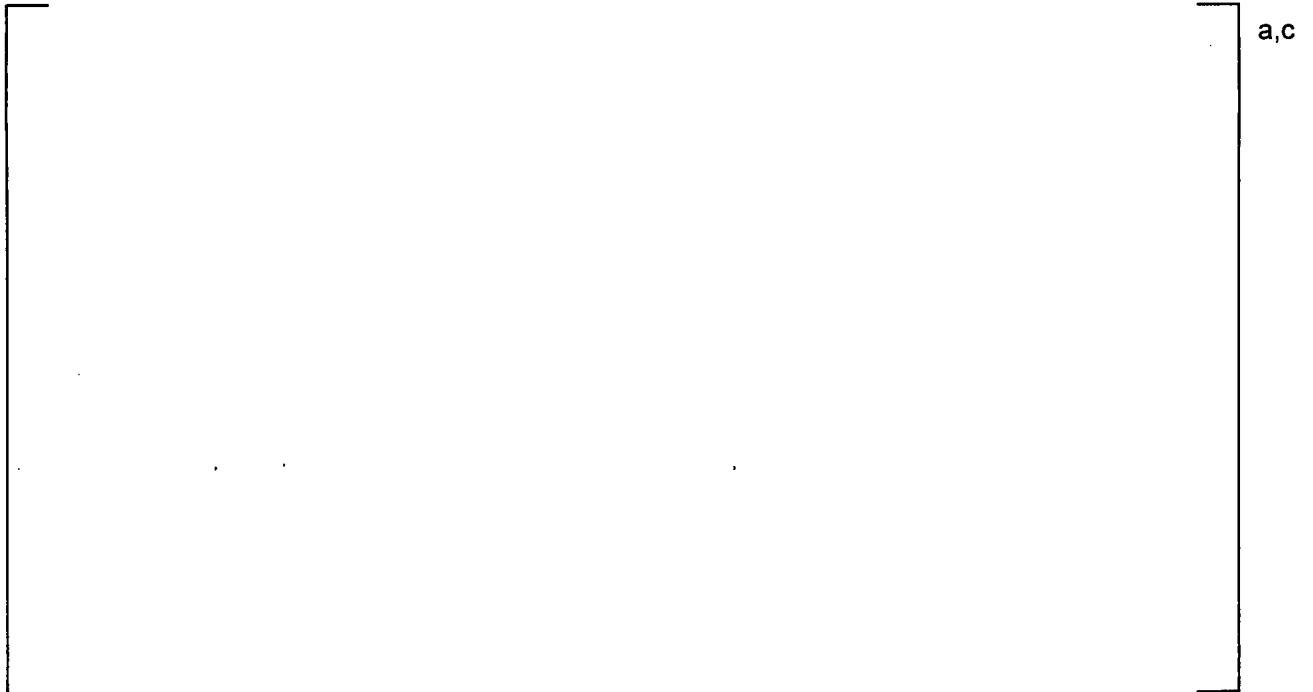


Figure RAI-15-20 [redacted] ^{a,c}



Figure RAI-15-21 [redacted] ^{a,c}



Figure RAI 15-22 [

1^{a,c}



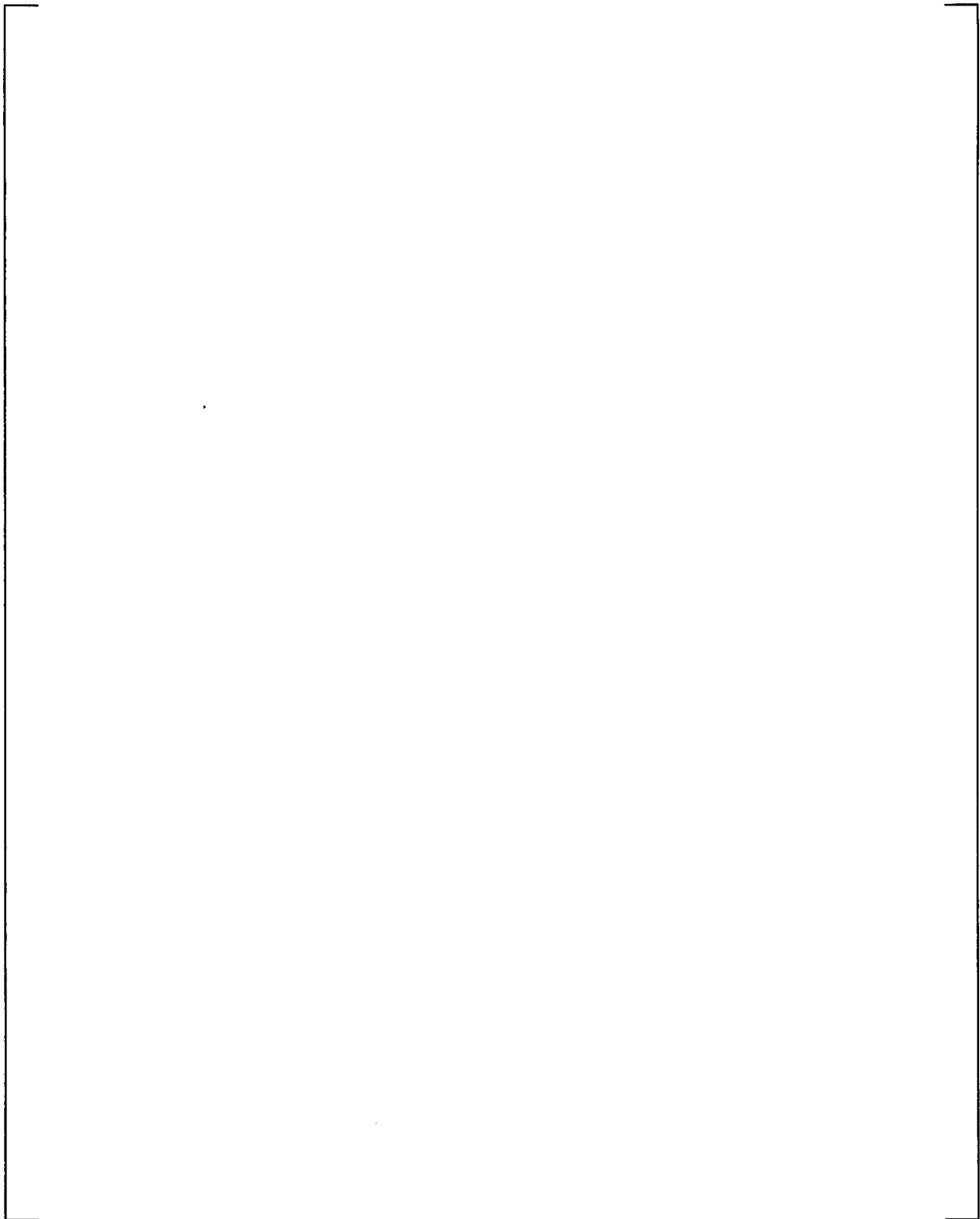
Figure RAI 15-23 [**]**^{a,c}



a,c

Figure RAI-15-24 [

] a,c



a,c

Figure RAI-15-25 [

]^{a,c}

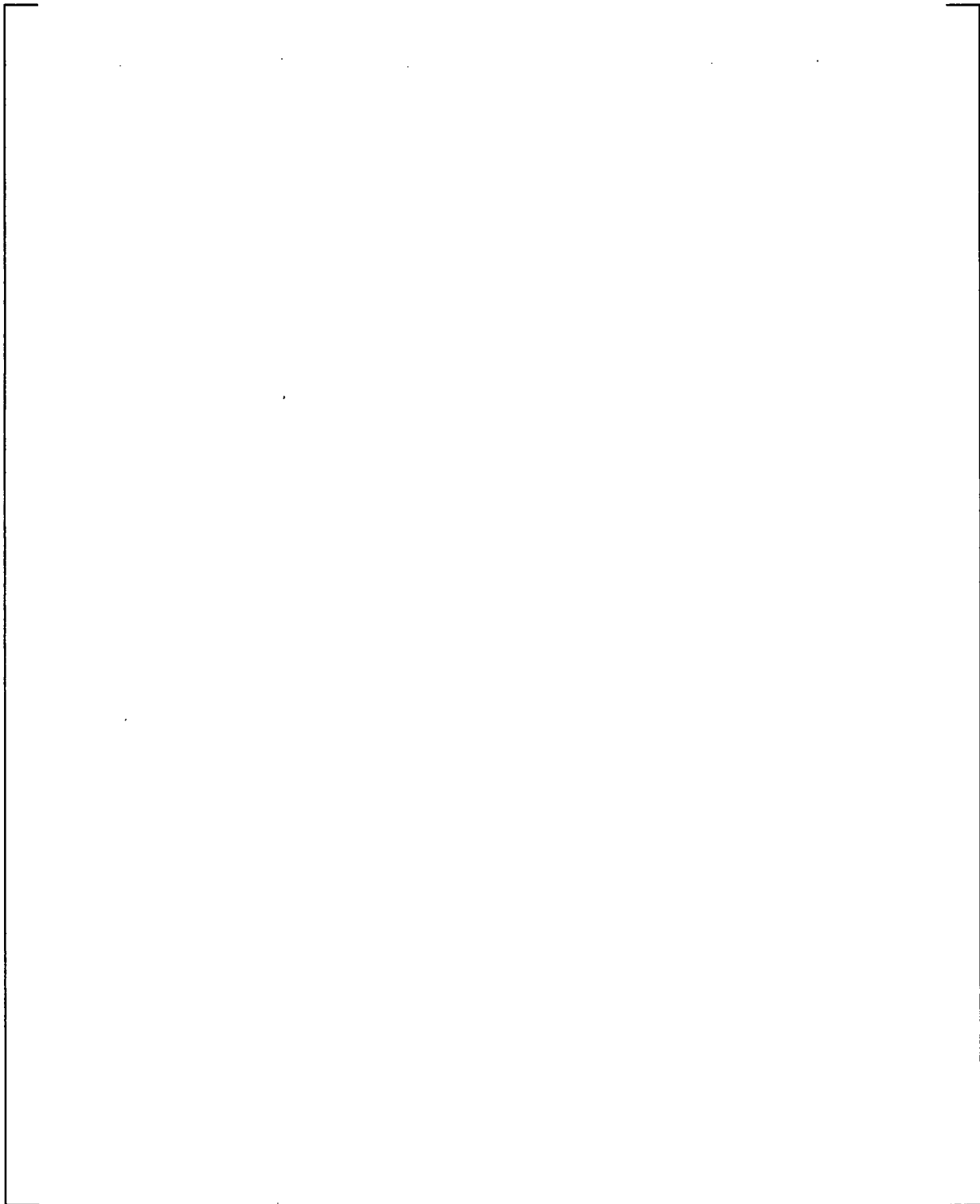
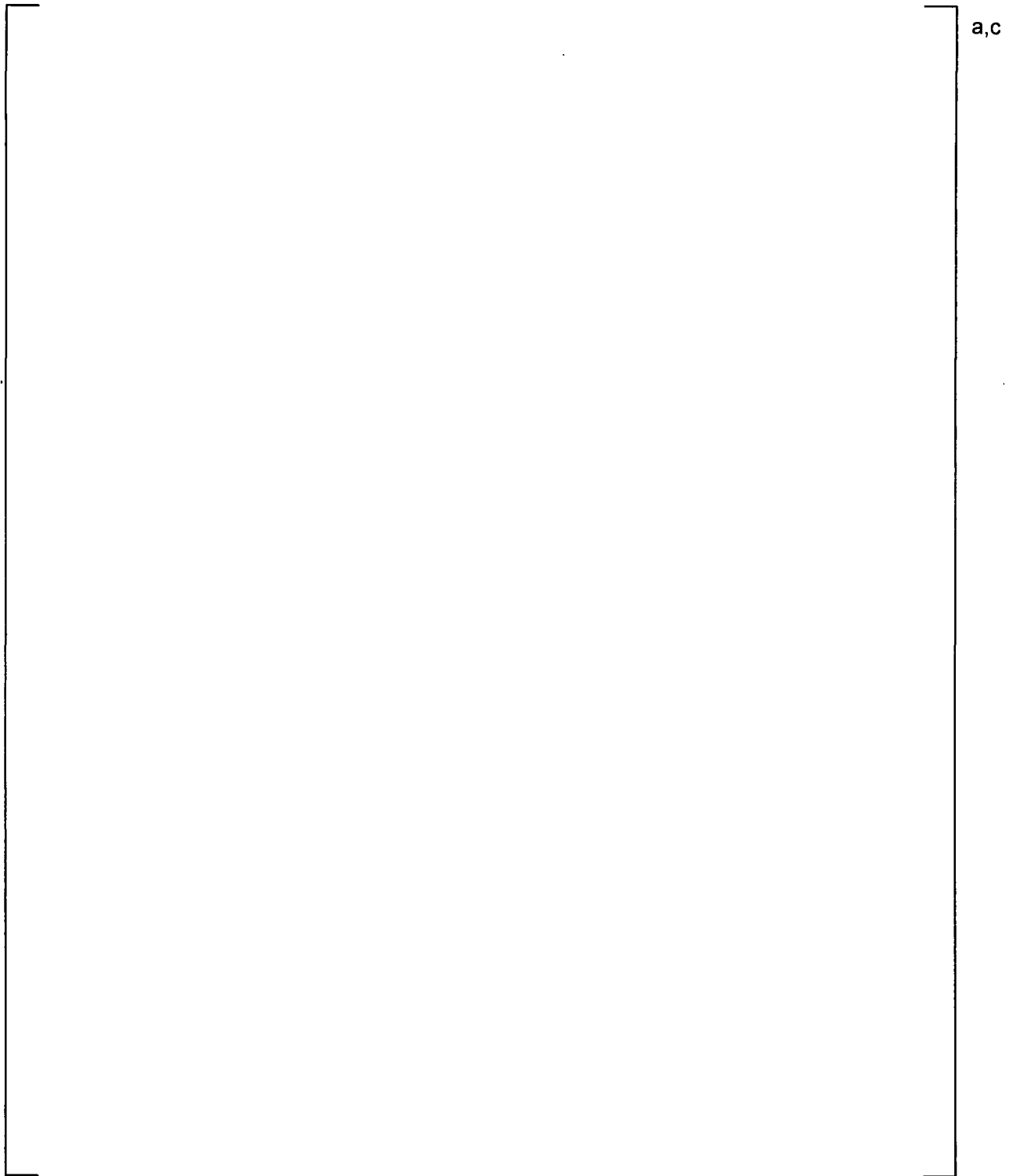


Figure RAI-15-26 [

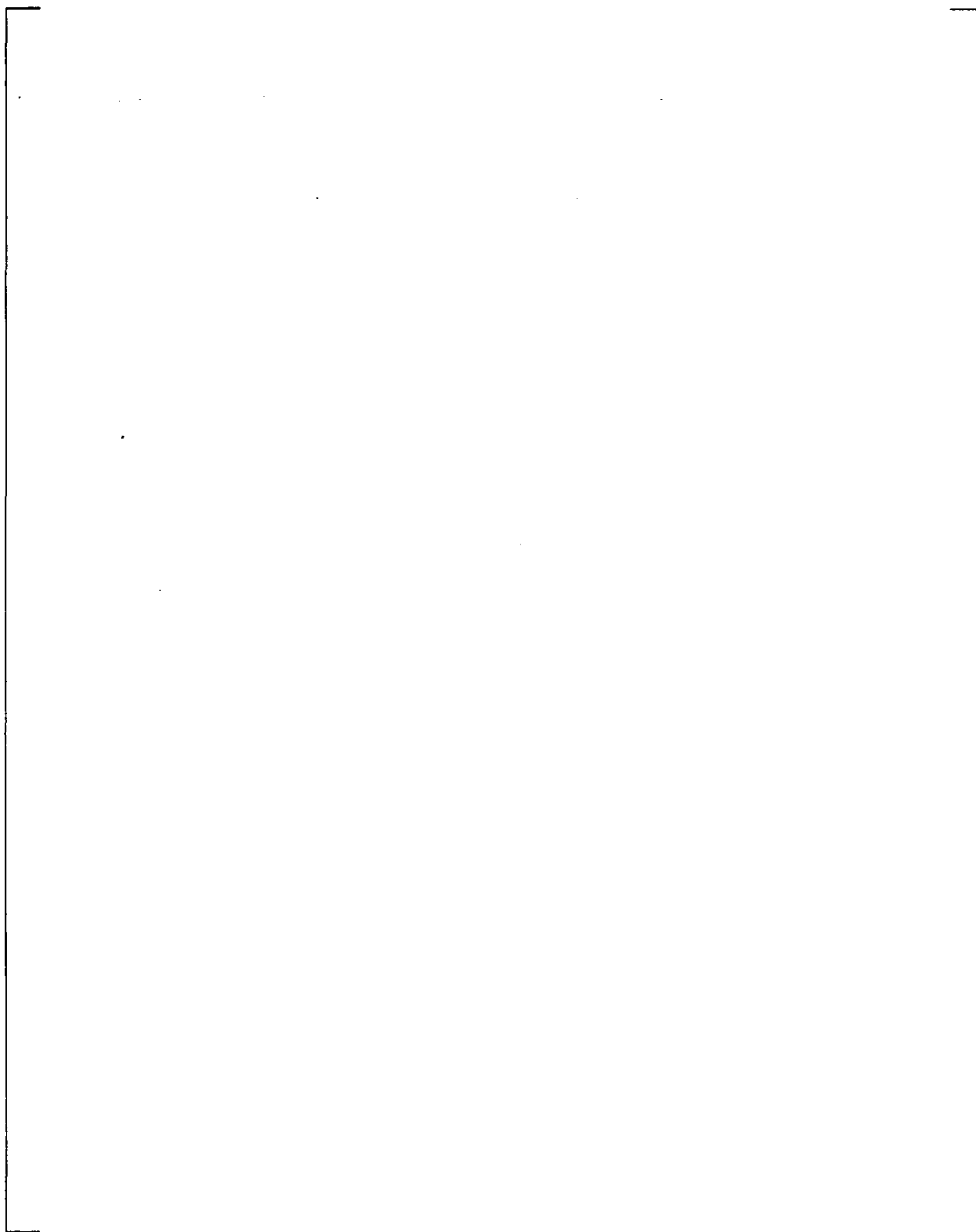
a,c



a,c

Figure RAI-15-27 I

a,c



a,c

Figure RAI-15-28 [

]a,c

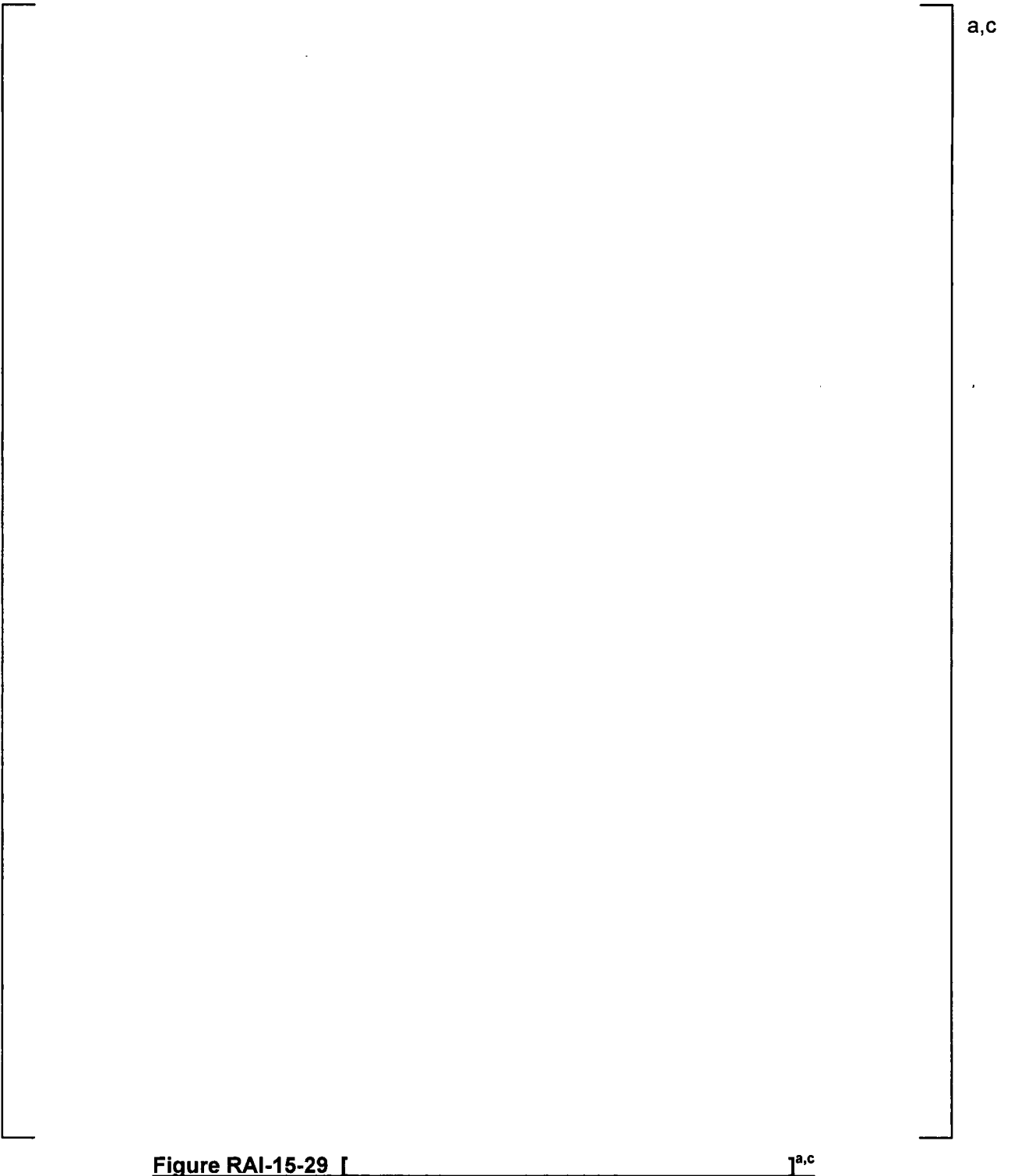
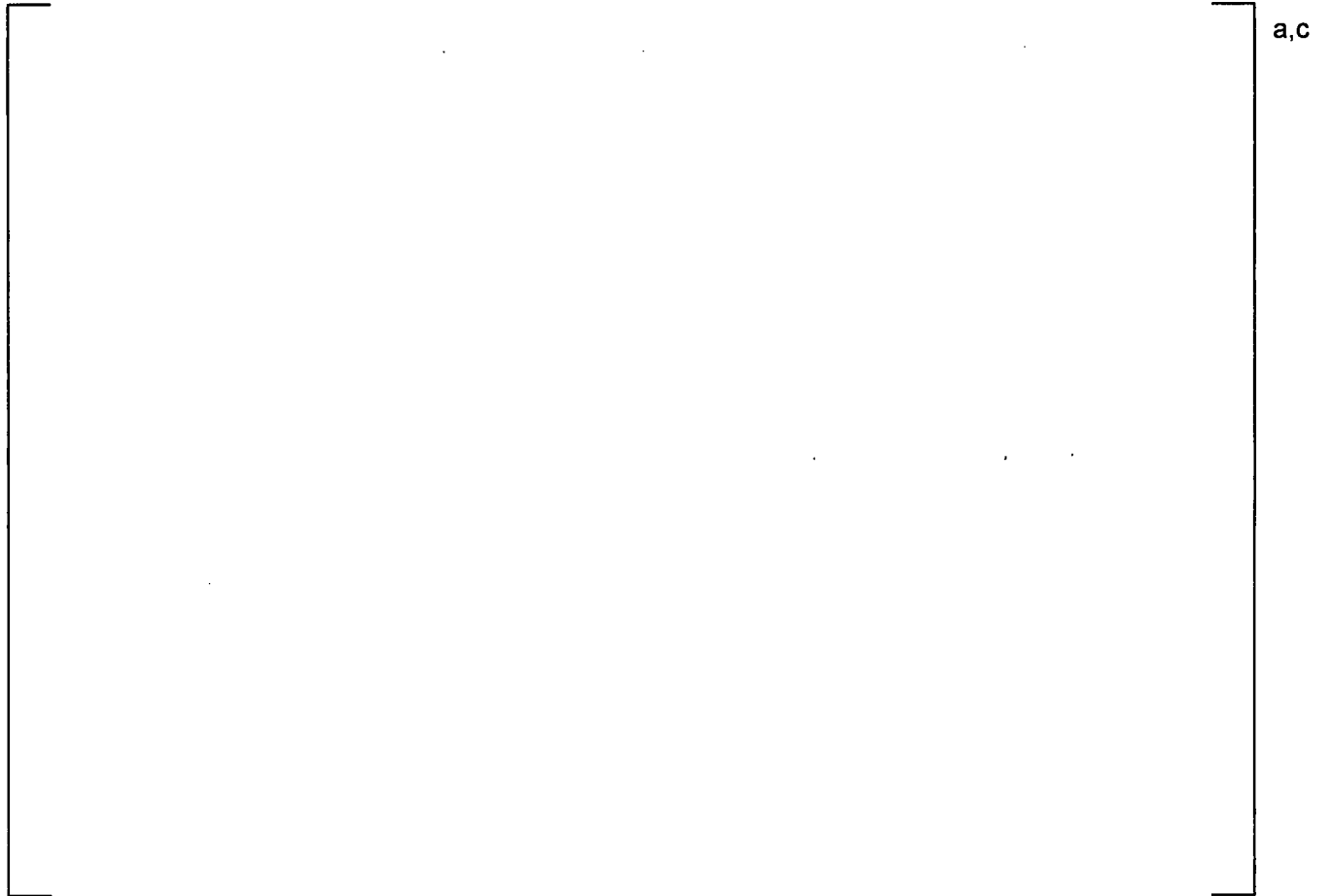


Figure RAI-15-29]^{a,c}



a,c

Figure RAI-15-30 [a,c



a,c

Figure RAI-15-31

a,c



Figure RAI-15-32 I

a,c



Figure RAI-15-33 [**]**^{a,c}



a,c

Figure RAI-15-34 [a,c]



a,c

Figure RAI-15-35 [

] ^{a,c}



a,c

Figure RAI-15-36 [

] ^{a,c}



Figure RAI-15-37 [

] a,c



Figure RAI-15-38 [

] a,c





Figure RAI-15-41 []^{a,c}

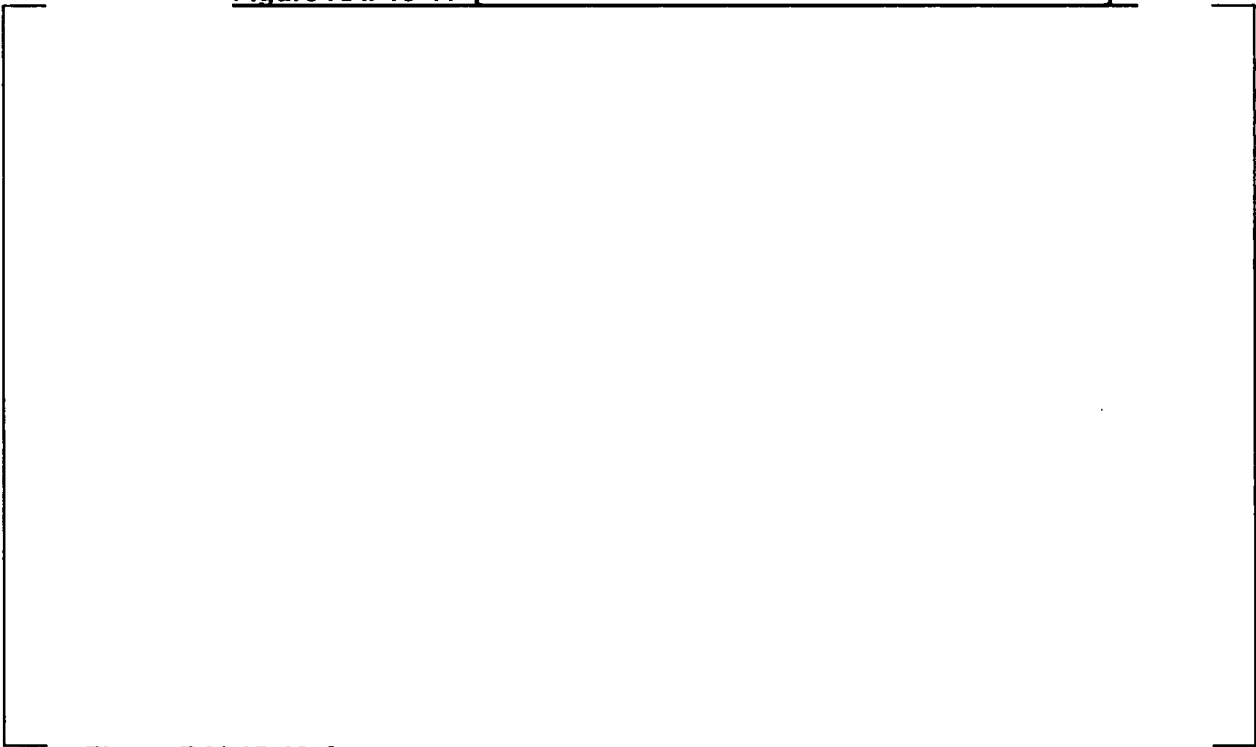


Figure RAI-15-42 []^{a,c}



Figure RAI-15-43 []^{a,c}



Figure RAI-15-44 []

[]^{a,c}



Figure RAI-15-45 [_____]^{a,c}

a,c

Figure RAI-15-46 [a,c]



a,c

Figure RAI-15-47 []^{a,c}



Figure RAI-15-48 a,c



a,c

Figure RAI-15-49 [**]**^{a,c}

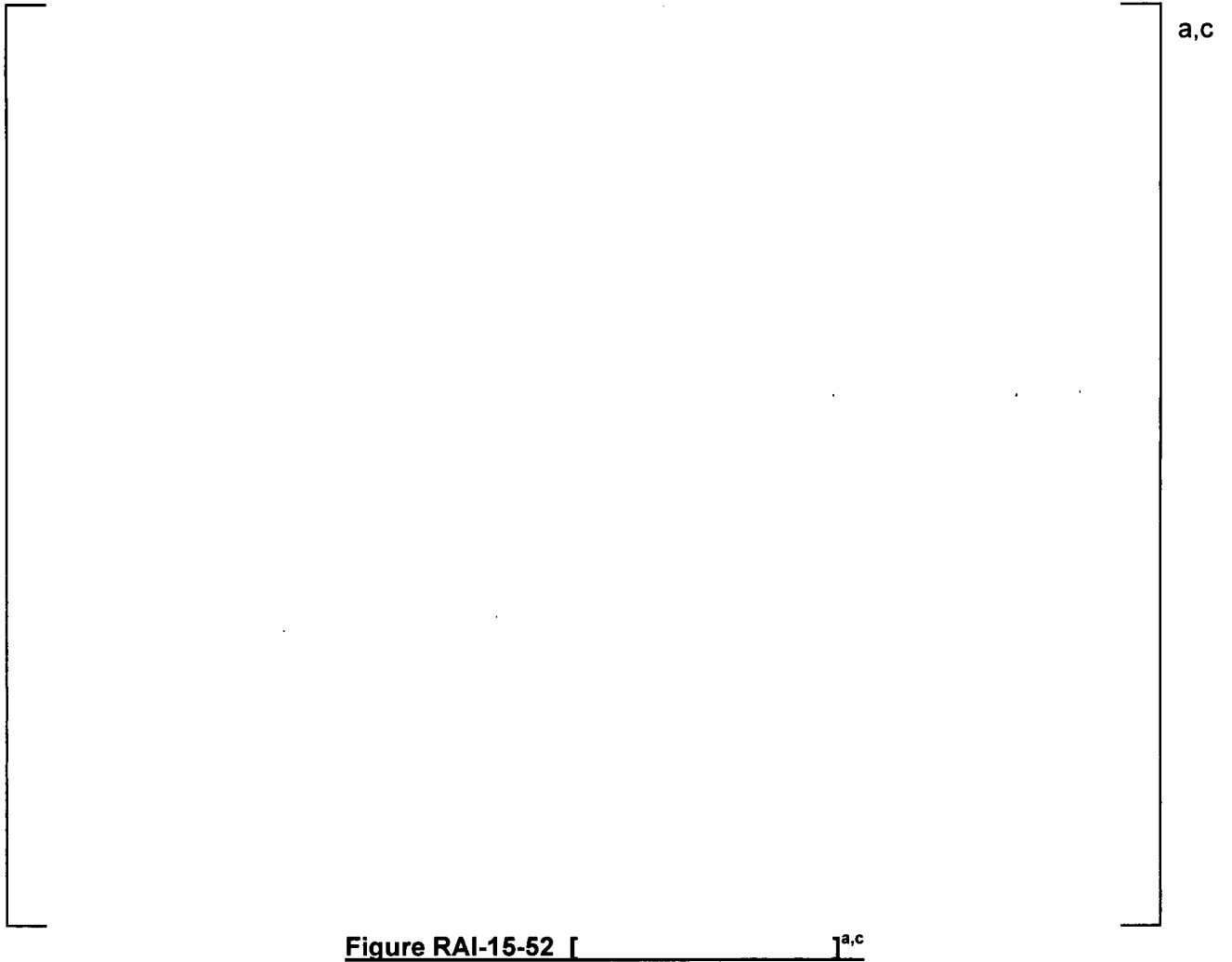


a,c

Figure RAI-15-50]^{a,c}



Figure RAI-15-51 []^{a,c}





a,c

Figure RAI-15-53 [ **]** a,c



a,c

Figure RAI-15-54  **a,c**



a,c

Figure RAI-15-55 [a,c



a,c

Figure RAI-15-56 [**]**^{a,c}



a,c

Figure RAI-15-57 [a,c



a,c

Figure RAI-15-58 [_____ **]**^{a,c}



a,c

Figure RAI-15-59 []^{a,c}



Figure RAI-15-60 [ **]**

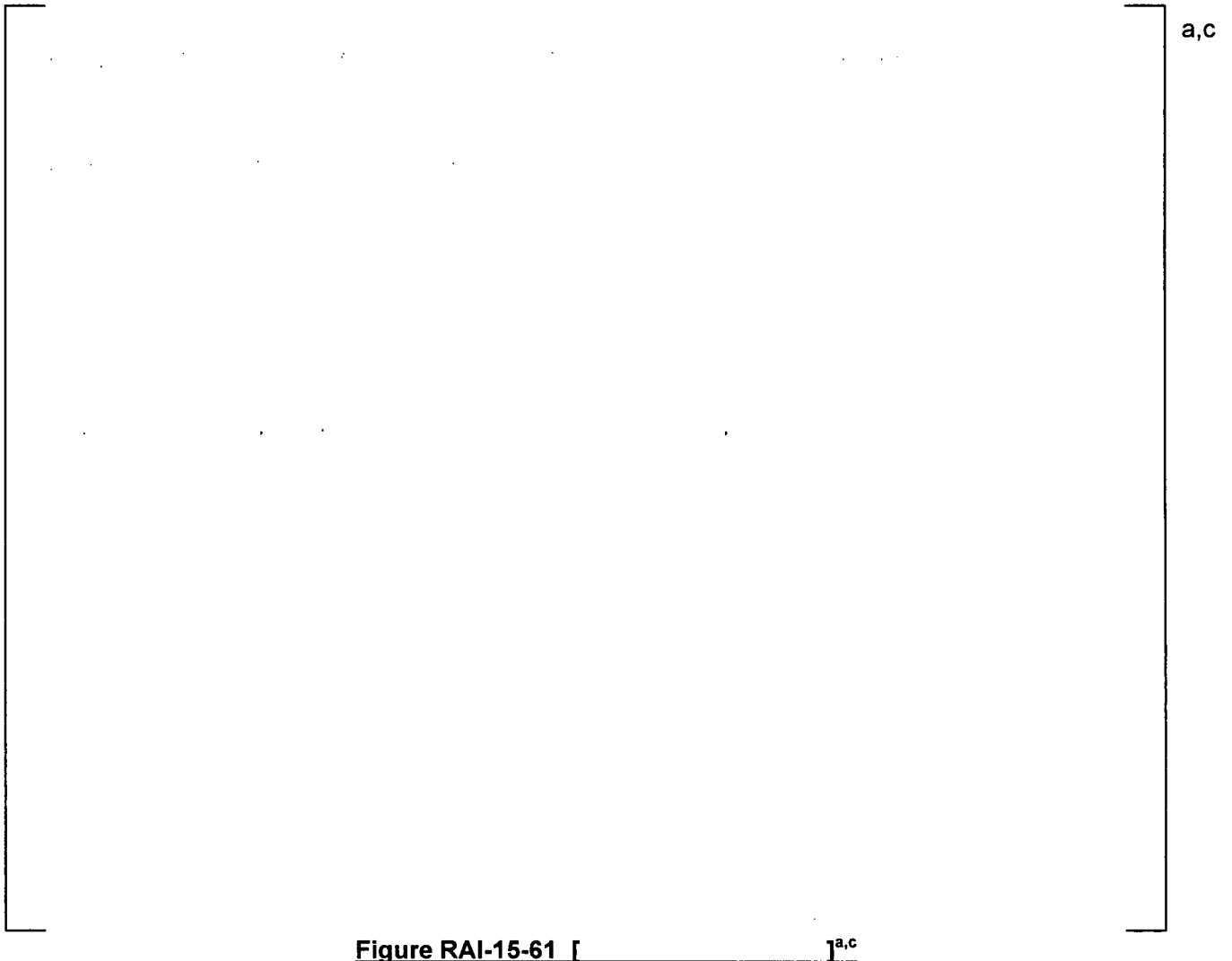




Figure RAI-15-62 [a,c



Figure RAI-15-63 [a,c]

Figure RAI-15-64 []^{a,c}



Figure RAI-15-65 []^{a,c}



a,c

Figure RAI-15-66 []^{a,c}



a,c

Figure RAI-15-67 []^{a,c}



Figure RAI-15-68 []^{a,c}



a,c

Figure RAI-15-69 []^{a,c}

1a,c

a,c

7a,c

a,c

 $\mathbb{L}^{a,c}$

a,c

L^{a,c}

[illegible]

EMCB-SD-RAI-16

A Westinghouse octagonal shaped three ring vane bank replacement steam dryer (RSD) was recently installed at the Monticello Nuclear Generating Plant (Monticello) to support an EPU. Several boiling water reactors (BWRs) in Europe have also installed this Westinghouse steam dryer. Exelon plans to install the same type RSD at the PBAPS to support the proposed EPU, and is using the Monticello data as a benchmark for their dryer analysis procedure. The NRC staff has noted that the azimuthal orientation of the PBAPS RSD (Figure 2-1 of Reference 1) is []^{a,c} relative to the orientation of the Monticello RSD. [

the following:]^{a,c} Please provide

- a) Explain why the PBAPS RSD is oriented []^{a,c} compared to the Monticello RSD.
- b) Provide any known operating experience data regarding the BWRs in Europe with Westinghouse steam dryers that are oriented similar to the PBAPS RSDs.
- c) Since the PBAPS RSD and Monticello dryer orientations are different, the associated steam flow velocities, vorticities, and turbulence within the vessels and the dipole sources at the main steam line (MSL) entrances may be different. Therefore, the dipole sources developed based on the Monticello RSD benchmark data may not be applicable for the analysis of the PBAPS RSD design. Provide any fluid dynamic information related to the MSL inlet flow, vorticity, and resulting dipole sources for the PBAPS RSD orientation as compared to the benchmark Monticello orientation. Explain what steps will be taken to ensure that the dipole strengths used for the PBAPS RSD evaluations are conservative
- d) Please provide a quantitative analysis of the impact of the pressure loads on the outer hoods of the PBAPS RSD for the following two orientations: (1) Monticello RSD orientation; and (2) proposed PBAPS RSD orientation []^{a,c}.

RESPONSE

- a) Figure 2-1 of WCAP 17590-P Revision 2 (Ref. 16-1) shows the [

] ^{a,c}.

- b) [

] ^{a,c}

c) As part of the design process, the dipole strength value [

] ^{a,c}

d) Based on discussions with the NRC following issuance of the RAI, it was agreed that a [

] ^{a,c}. The following analysis is provided to [

] ^{a,c}.

In order to demonstrate the [

] ^{a,c}. This change [

] ^{a,c}. Table RAI-16-1

summarizes the [

] ^{a,c}. This frequency range was [

] ^{a,c}.

Table RAI-16-1
Comparison of the Maximum RMS Differential Pressure as a Function of the Dipole Angle

Maximum RMS-DP (psi)] ^{a,c}

Table RAI-16-1 demonstrates that the [

] ^{a,c}, therefore, the [

] ^{a,c}.

In addition to Table RAI-16-1, Figure RAI-16-1 shows a [

] ^{a,c}.

Figure RAI-16-1 [

] ^{a,c}



**Figure RAI-16-1 Maximum Acoustic Differential Pressure Facing MSL A Between
0-60 Hz**

a,c

Figure RAI-16-2 Acoustic RMS Differential Pressure 0-250 Hz

The concept of [

] ^{a,c}

To illustrate this, a comparison of the [

] ^{a,c} These comparisons are

summarized in Table RAI-16-2.

Table RAI-16-2

] ^{a,c}

In conclusion, the [

] ^{a,c}. It should be noted

that the [

] ^{a,c}.

EMCB-SD-RAI-17

In Reference 2, the pressure spectra recorded during the scale model tests (SMTs) show [] ^{a,c} at the safety relief valve (SRV) resonance frequencies. Since the transient conditions [] ^{a,c} used in the SMTs may affect the bump-up factor results, please provide the following:

- Perform a sensitivity analysis, using the test samples [] ^{a,c} Provide the results of this analysis including any impacts on resonance amplitude and bump-up factors.
- This RAI question has been deleted.

To perform the sensitivity analysis, it [

 $\mathcal{I}^{a,c}.$
$$]^{a,c}$$

]^{a,c} The analysis of the effect of the [

$$J^{a,c}$$

^{a,c}. The amplitudes of the [

]^{a,c} for PBAPS Unit 2 and

1a,c.

a,c



Figure RAI-17-1 Peach Bottom Unit 2, Scaling Spectra Inputs, MSL D US



Figure RAI-17-2 Peach Bottom Unit 2, Scaling Spectra Inputs, MSL D DS

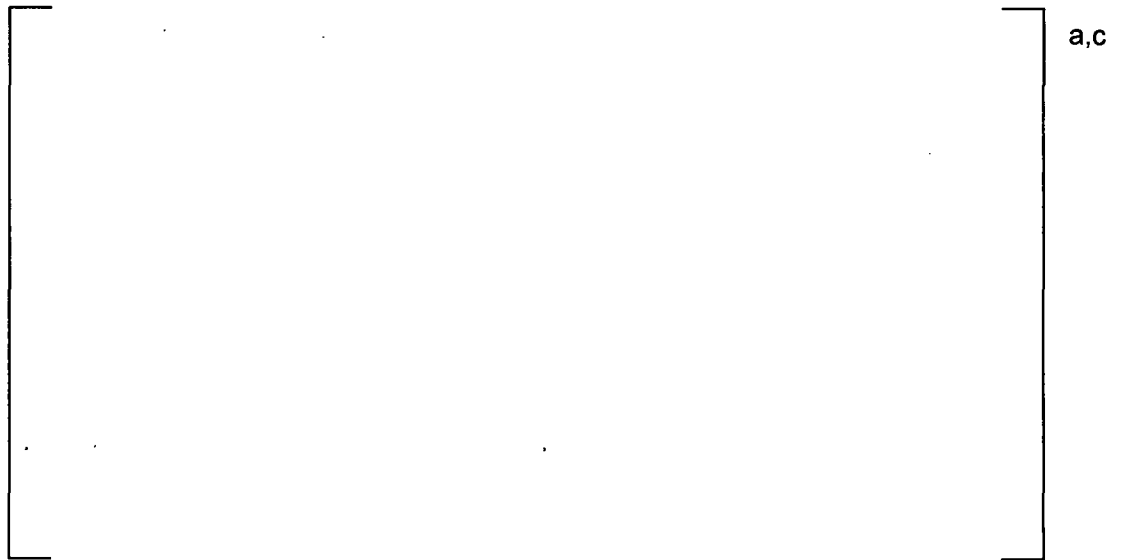


Figure RAI-17-3 Peach Bottom Unit 3, Scaling Spectra Inputs, MSL D US



Figure RAI-17-4 Peach Bottom Unit 3, Scaling Spectra Inputs, MSL D DS

REFERENCES

- 17-1: WCAP-17611-P, Revision 1, "Peach Bottom Units 2 and 3 Replacement Steam Dryer Four-Line Subscale Acoustics Test Data Evaluation and Derivation of CLTP-to-EPU Scaling Spectra," dated August 2012.

EMCB-SD-RAI-30

The NRC performed an audit of the PBAPS RSD data at the Westinghouse office in Rockville, Maryland on September 12, 2013. Please provide an update to Reference 5 which contains all information requested during this audit. Also provide detailed descriptions of the sensor locations, projected and measured spectra, and the correlation of these spectra against the stress regions on the lower and upper dryer, including cumulative strain and pressure plots. Explain what steps will be taken to ensure that the integrity of the sensor/wiring connections is maintained to prevent moisture intrusion and corrupted measurements, particularly for the pressure sensors.

RESPONSE

Please see response to EMCBS-SD-RAI-15.

EMCB-SD-RAI-40

Please describe how the end-to-end bias and uncertainty for ACE and ACE plus the skirt protection model are determined. Please explain what actions would be taken if the predicted converged peak stresses after being adjusted for the end-to-end bias and uncertainty do not bound the measured stresses at the installed strain gauges locations on the RSD.

RESPONSE

With the change from using [

] ^{a,c} However, the mathematical process to [^{a,c} For the design of the replacement steam dryers, Westinghouse used the [

] ^{a,c}.

[

] ^{a,c}

[

] a,c

[

] a,c

The bias and uncertainties of [

] a,c, the data collected from the [

[

] a,c

The bias and uncertainties of [

] a,c In that [

]a,c

Once the EPU power level is achieved, a [

]a,c

REFERENCES:

- 40-1: WCAP-17590-P Revision 0, "Peach Bottom Units 2 & 3 Replacement Steam
Dryer Acoustic Load Definition."

Attachment 3

Peach Bottom Atomic Power Station Units 2 and 3

NRC Docket Nos. 50-277 and 50-278

AFFIDAVITS

Note

Attachments 1 and 4 through 7 contain proprietary information as defined by 10 CFR 2.390. WEC, as the owner of the proprietary information, has executed the enclosed affidavits that identify that the proprietary information has been handled and classified as proprietary, is customarily held in confidence, and has been withheld from public disclosure. The proprietary information has been faithfully reproduced in the attachment such that the affidavits remain applicable.



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CAW-14-3920

February 27, 2014

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: Attachment 1 "Response to Request for Additional Information – EMCBS-SD - Proprietary,"
attached to Exelon Generation submittal to the NRC "Extended Power Uprate License
Amendment Request – Supplement 21, Response to Request for Additional Information"

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-14-3920 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. The Affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.390 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying Affidavit by Exelon Generation.

Correspondence with respect to the proprietary aspects of the application for withholding or the accompanying Affidavit should reference CAW-14-3920 and should be addressed to James A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, Suite 310, 1000 Westinghouse Drive, Cranberry Township, Pennsylvania 16066.

Very truly yours,

A handwritten signature in black ink, appearing to read 'BAMaurer'.

Bradley F. Maurer, Principal Engineer
Plant Licensing

Enclosures

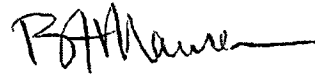
AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

SS

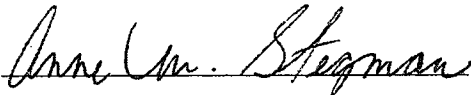
COUNTY OF BUTLER:

Before me, the undersigned authority, personally appeared Bradley F. Maurer, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:

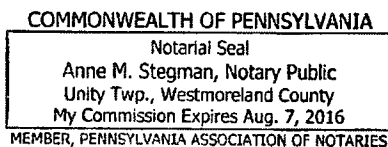


Bradley F. Maurer, Principal Engineer
Plant Licensing

Sworn to and subscribed before me
this 27th day of February 2014



Notary Public



- (1) I am Principal Engineer, Plant Licensing, in Engineering, Equipment and Major Projects, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.
- (2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse Application for Withholding Proprietary Information from Public Disclosure accompanying this Affidavit.
- (3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged or as confidential commercial or financial information.
- (4) Pursuant to the provisions of paragraph (b)(4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.
 - (i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.
 - (ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitute Westinghouse policy and provide the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

 - (a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of Westinghouse's

competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

- (b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.
 - (c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.
 - (d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.
 - (e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.
 - (f) It contains patentable ideas, for which patent protection may be desirable.
- (iii) There are sound policy reasons behind the Westinghouse system which include the following:
- (a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.
 - (b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.
 - (c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

- (d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.
 - (e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.
 - (f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.
- (iv) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390, it is to be received in confidence by the Commission.
- (v) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.
- (vi) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in Attachment I "Response to Request for Additional Information – EMCB-SD - Proprietary," attached to Exelon Generation submittal to the NRC "Extended Power Uprate License Amendment Request – Supplement 21, Response to Request for Additional Information" for submittal to the Commission, being transmitted by Exelon Generation letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse is to assist the NRC in their review of the Peach Bottom Atomic Power Station, Units 2 and 3, License Amendment Request for Extended Power Uprate and may be used only for that purpose.

- (a) This information is part of that which will enable Westinghouse to:
 - (i) Assist Exelon Generation in obtaining NRC review of the Peach Bottom Atomic Power Station Units 2 and 3 License Amendment Request.
- (b) Further this information has substantial commercial value as follows:
 - (i) Westinghouse plans to sell the use of this information to its customers for purposes of plant specific replacement steam dryer analysis for licensing basis applications.
 - (ii) Its use by a competitor would improve their competitive position in the design and licensing of a similar product for BWR steam dryer analysis methodology.
 - (iii) The information requested to be withheld reveals the distinguishing aspects of a methodology which was developed by Westinghouse.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar technical justifications and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.

The development of the technology described in part by the information is the result of applying the results of many years of experience in an intensive Westinghouse effort and the expenditure of a considerable sum of money.

In order for competitors of Westinghouse to duplicate this information, similar technical programs would have to be performed and a significant manpower effort, having the requisite talent and experience, would have to be expended.

Further the deponent sayeth not.

Proprietary Information Notice

Transmitted herewith are proprietary and/or non-proprietary versions of documents furnished to the NRC in connection with requests for generic and/or plant-specific review and approval.

In order to conform to the requirements of 10 CFR 2.390 of the Commission's regulations concerning the protection of proprietary information so submitted to the NRC, the information which is proprietary in the proprietary versions is contained within brackets, and where the proprietary information has been deleted in the non-proprietary versions, only the brackets remain (the information that was contained within the brackets in the proprietary versions having been deleted). The justification for claiming the information so designated as proprietary is indicated in both versions by means of lower case letters (a) through (f) located as a superscript immediately following the brackets enclosing each item of information being identified as proprietary or in the margin opposite such information. These lower case letters refer to the types of information Westinghouse customarily holds in confidence identified in Sections (4)(ii)(a) through (4)(ii)(f) of the Affidavit accompanying this transmittal pursuant to 10 CFR 2.390(b)(1).

Copyright Notice

The reports transmitted herewith each bear a Westinghouse copyright notice. The NRC is permitted to make the number of copies of the information contained in these reports which are necessary for its internal use in connection with generic and plant-specific reviews and approvals as well as the issuance, denial, amendment, transfer, renewal, modification, suspension, revocation, or violation of a license, permit, order, or regulation subject to the requirements of 10 CFR 2.390 regarding restrictions on public disclosure to the extent such information has been identified as proprietary by Westinghouse, copyright protection notwithstanding. With respect to the non-proprietary versions of these reports, the NRC is permitted to make the number of copies beyond those necessary for its internal use which are necessary in order to have one copy available for public viewing in the appropriate docket files in the public document room in Washington, DC and in local public document rooms as may be required by NRC regulations if the number of copies submitted is insufficient for this purpose. Copies made by the NRC must include the copyright notice in all instances and the proprietary notice if the original was identified as proprietary.



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WEC-PCH-RSD-14-032

CAW-14-3909

February 17, 2014

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: WCAP-17639-P, Revision 3, "Instrumentation Description for the Peach Bottom Unit 2
Replacement Steam Dryer" (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-14-3909 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. The Affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.390 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying Affidavit by Exelon Generation.

Correspondence with respect to the proprietary aspects of the application for withholding or the accompanying Affidavit should reference CAW-14-3909 and should be addressed to James A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, Suite 310, 1000 Westinghouse Drive, Cranberry Township, Pennsylvania 16066.

Very truly yours,

A handwritten signature in black ink, appearing to read 'BF Maurer'.

Bradley F. Maurer, Principal Engineer
Plant Licensing

Enclosures

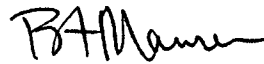
AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

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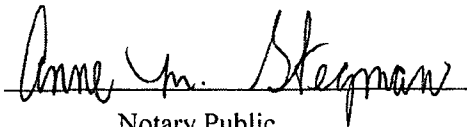
COUNTY OF BUTLER:

Before me, the undersigned authority, personally appeared Bradley F. Maurer, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:

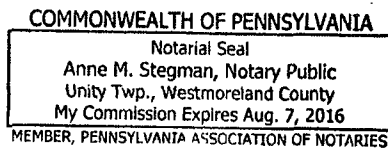


Bradley F. Maurer, Principal Engineer
Plant Licensing

Sworn to and subscribed before me
this 17th day of February 2014



Notary Public



- (1) I am Principal Engineer, Plant Licensing, in Engineering, Equipment and Major Projects, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.
- (2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse Application for Withholding Proprietary Information from Public Disclosure accompanying this Affidavit.
- (3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged or as confidential commercial or financial information.
- (4) Pursuant to the provisions of paragraph (b)(4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.
 - (i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.
 - (ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitutes Westinghouse policy and provides the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

 - (a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of Westinghouse's

competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

- (b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.
 - (c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.
 - (d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.
 - (e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.
 - (f) It contains patentable ideas, for which patent protection may be desirable.
- (iii) There are sound policy reasons behind the Westinghouse system which include the following:
- (a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.
 - (b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.
 - (c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

- (d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.
 - (e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.
 - (f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.
- (iv) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390, it is to be received in confidence by the Commission.
- (v) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.
- (vi) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in WCAP-17639-P, Revision 3, "Instrumentation Description for the Peach Bottom Unit 2 Replacement Steam Dryer" (Proprietary) for submittal to the Commission, being transmitted by Exelon Generation letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse is that associated with the review of the Replacement Steam Dryer design and analysis which is a part of the Extended Power Uprate License Amendment Request for Peach Bottom Units 2 and 3, and may be used only for that purpose.

- (a) This information is part of that which will enable Westinghouse to:
 - (i) Assist Exelon Generation in obtaining NRC review of the Peach Bottom Atomic Power Station Units 2 and 3 License Amendment Request.
- (b) Further this information has substantial commercial value as follows:
 - (i) Westinghouse plans to sell the use of this information to its customers for purposes of plant specific replacement steam dryer analysis for licensing basis applications.
 - (ii) Its use by a competitor would improve their competitive position in the design and licensing of a similar product for BWR steam dryer analysis methodology.
 - (iii) The information requested to be withheld reveals the distinguishing aspects of a methodology which was developed by Westinghouse.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar technical justifications and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.

The development of the technology described in part by the information is the result of applying the results of many years of experience in an intensive Westinghouse effort and the expenditure of a considerable sum of money.

In order for competitors of Westinghouse to duplicate this information, similar technical programs would have to be performed and a significant manpower effort, having the requisite talent and experience, would have to be expended.

Further the deponent sayeth not.

Proprietary Information Notice

Transmitted herewith are proprietary and/or non-proprietary versions of documents furnished to the NRC in connection with requests for generic and/or plant-specific review and approval.

In order to conform to the requirements of 10 CFR 2.390 of the Commission's regulations concerning the protection of proprietary information so submitted to the NRC, the information which is proprietary in the proprietary versions is contained within brackets, and where the proprietary information has been deleted in the non-proprietary versions, only the brackets remain (the information that was contained within the brackets in the proprietary versions having been deleted). The justification for claiming the information so designated as proprietary is indicated in both versions by means of lower case letters (a) through (f) located as a superscript immediately following the brackets enclosing each item of information being identified as proprietary or in the margin opposite such information. These lower case letters refer to the types of information Westinghouse customarily holds in confidence identified in Sections (4)(ii)(a) through (4)(ii)(f) of the Affidavit accompanying this transmittal pursuant to 10 CFR 2.390(b)(1).

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Direct fax: (724) 720-0754
e-mail: maurerbf@westinghouse.com
WEC-PCH-RSD-14-033

CAW-14-3910

February 14, 2014

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: WCAP-17626-P, Revision 1, "Processing of Peach Bottom Unit 2 and Unit 3 MSL Strain Gauge Data and Computation of Predicted EPU Signature" (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-14-3910 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. The Affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.390 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying Affidavit by Exelon Generation.

Correspondence with respect to the proprietary aspects of the application for withholding or the accompanying Affidavit should reference CAW-14-3910 and should be addressed to James A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, Suite 310, 1000 Westinghouse Drive, Cranberry Township, Pennsylvania 16066.

Very truly yours,

A handwritten signature in black ink, appearing to read 'BF Maurer'.

Bradley F. Maurer, Principal Engineer
Plant Licensing

Enclosures

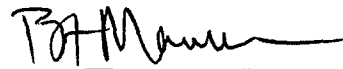
AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

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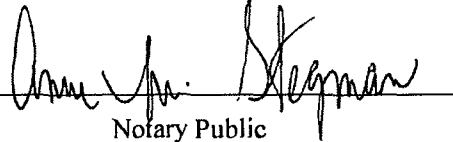
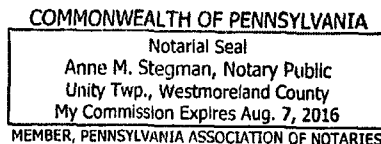
COUNTY OF BUTLER:

Before me, the undersigned authority, personally appeared Bradley F. Maurer, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:



Bradley F. Maurer, Principal Engineer
Plant Licensing

Sworn to and subscribed before me
this 14th day of February 2014


Notary Public

- (1) I am Principal Engineer, Plant Licensing, in Engineering, Equipment and Major Projects, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.
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- (vi) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in WCAP-17626-P, Revision 1, "Processing of Peach Bottom Unit 2 and Unit 3 MSL Strain Gauge Data and Computation of Predicted EPU Signature" (Proprietary) for submittal to the Commission, being transmitted by Exelon Generation letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse is that associated with the review of the Replacement Steam Dryer design and analysis which is a part of the Extended Power Uprate License Amendment Request for Peach Bottom Units 2 and 3, and may be used only for that purpose.

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Further the deponent sayeth not.

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WEC-PCH-RSD-14-039

CAW-14-3914

February 25, 2014

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: WCAP-17649-P, Revision 1, "Peach Bottom Units 2 and 3 ASME Code Stress Report"
(Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-14-3914 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. The Affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.390 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying Affidavit by Exelon Generation.

Correspondence with respect to the proprietary aspects of the application for withholding or the accompanying Affidavit should reference CAW-14-3914 and should be addressed to James A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, Suite 310, 1000 Westinghouse Drive, Cranberry Township, Pennsylvania 16066.

Very truly yours,

A handwritten signature in black ink, appearing to read 'B. F. Maurer'.

Bradley F. Maurer, Principal Engineer
Plant Licensing

Enclosures

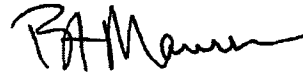
AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

SS

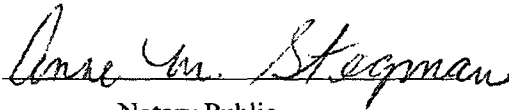
COUNTY OF BUTLER:

Before me, the undersigned authority, personally appeared Bradley F. Maurer, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:

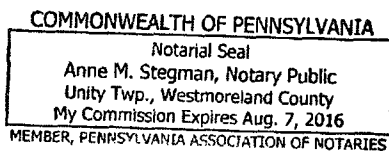


Bradley F. Maurer, Principal Engineer
Plant Licensing

Sworn to and subscribed before me
this 25th day of February 2014



Notary Public



- (1) I am Principal Engineer, Plant Licensing, in Engineering, Equipment and Major Projects, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.
- (2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse Application for Withholding Proprietary Information from Public Disclosure accompanying this Affidavit.
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 - (vi) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in WCAP-17649-P, Revision 1, "Peach Bottom Units 2 and 3 ASME Code Stress Report" (Proprietary) for submittal to the Commission, being transmitted by Exelon Generation letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse is that associated with the review of the Replacement Steam Dryer design and analysis which is a part of the Extended Power Uprate License Amendment Request for Peach Bottom Units 2 and 3, and may be used only for that purpose.
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- (a) This information is part of that which will enable Westinghouse to:
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WEC-PCH-RSD-14-034

CAW-14-3915

February 14, 2014

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: WCAP-17590-P, Revision 2, "Peach Bottom Units 2 & 3 Replacement Steam Dryer Acoustic Load Definition" (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-14-3915 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. The Affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.390 of the Commission's regulations.

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Enclosures

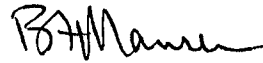
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COMMONWEALTH OF PENNSYLVANIA:

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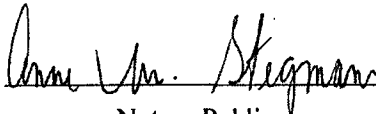
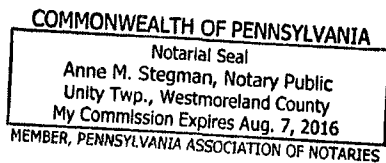
COUNTY OF BUTLER:

Before me, the undersigned authority, personally appeared Bradley F. Maurer, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:



Bradley F. Maurer, Principal Engineer
Plant Licensing

Sworn to and subscribed before me
this 14th day of February 2014


Notary Public

- (1) I am Principal Engineer, Plant Licensing, in Engineering, Equipment and Major Projects, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.
- (2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse Application for Withholding Proprietary Information from Public Disclosure accompanying this Affidavit.
- (3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged or as confidential commercial or financial information.
- (4) Pursuant to the provisions of paragraph (b)(4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.
 - (i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.
 - (ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitutes Westinghouse policy and provides the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

 - (a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of Westinghouse's

competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

- (b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.
 - (c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.
 - (d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.
 - (e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.
 - (f) It contains patentable ideas, for which patent protection may be desirable.
- (iii) There are sound policy reasons behind the Westinghouse system which include the following:
- (a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.
 - (b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.
 - (c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

- (d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.
 - (e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.
 - (f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.
- (iv) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390, it is to be received in confidence by the Commission.
- (v) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.
- (vi) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in WCAP-17590-P, Revision 2, "Peach Bottom Units 2 & 3 Replacement Steam Dryer Acoustic Load Definition" (Proprietary) for submittal to the Commission, being transmitted by Exelon Generation letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse is that associated with the review of the Replacement Steam Dryer design and analysis which is a part of the Extended Power Uprate License Amendment Request for Peach Bottom Units 2 and 3, and may be used only for that purpose.

- (a) This information is part of that which will enable Westinghouse to:
 - (i) Assist Exelon Generation in obtaining NRC review of the Peach Bottom Atomic Power Station Units 2 and 3 License Amendment Request.
- (b) Further this information has substantial commercial value as follows:
 - (i) Westinghouse plans to sell the use of this information to its customers for purposes of plant specific replacement steam dryer analysis for licensing basis applications.
 - (ii) Its use by a competitor would improve their competitive position in the design and licensing of a similar product for BWR steam dryer analysis methodology.
 - (iii) The information requested to be withheld reveals the distinguishing aspects of a methodology which was developed by Westinghouse.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar technical justifications and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.

The development of the technology described in part by the information is the result of applying the results of many years of experience in an intensive Westinghouse effort and the expenditure of a considerable sum of money.

In order for competitors of Westinghouse to duplicate this information, similar technical programs would have to be performed and a significant manpower effort, having the requisite talent and experience, would have to be expended.

Further the deponent sayeth not.

Proprietary Information Notice

Transmitted herewith are proprietary and/or non-proprietary versions of documents furnished to the NRC in connection with requests for generic and/or plant-specific review and approval.

In order to conform to the requirements of 10 CFR 2.390 of the Commission's regulations concerning the protection of proprietary information so submitted to the NRC, the information which is proprietary in the proprietary versions is contained within brackets, and where the proprietary information has been deleted in the non-proprietary versions, only the brackets remain (the information that was contained within the brackets in the proprietary versions having been deleted). The justification for claiming the information so designated as proprietary is indicated in both versions by means of lower case letters (a) through (f) located as a superscript immediately following the brackets enclosing each item of information being identified as proprietary or in the margin opposite such information. These lower case letters refer to the types of information Westinghouse customarily holds in confidence identified in Sections (4)(ii)(a) through (4)(ii)(f) of the Affidavit accompanying this transmittal pursuant to 10 CFR 2.390(b)(1).

Copyright Notice

The reports transmitted herewith each bear a Westinghouse copyright notice. The NRC is permitted to make the number of copies of the information contained in these reports which are necessary for its internal use in connection with generic and plant-specific reviews and approvals as well as the issuance, denial, amendment, transfer, renewal, modification, suspension, revocation, or violation of a license, permit, order, or regulation subject to the requirements of 10 CFR 2.390 regarding restrictions on public disclosure to the extent such information has been identified as proprietary by Westinghouse, copyright protection notwithstanding. With respect to the non-proprietary versions of these reports, the NRC is permitted to make the number of copies beyond those necessary for its internal use which are necessary in order to have one copy available for public viewing in the appropriate docket files in the public document room in Washington, DC and in local public document rooms as may be required by NRC regulations if the number of copies submitted is insufficient for this purpose. Copies made by the NRC must include the copyright notice in all instances and the proprietary notice if the original was identified as proprietary.