



Program Management Office  
1000 Westinghouse Drive  
Cranberry Township, Pennsylvania 16066

WCAP-17788- NP, Revision 0  
Project Number 99902037

September 28, 2018

OG-18-236

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

Subject: PWR Owners Group  
**Clarifications for WCAP-17788 Volume 1, 3, and 4 NRC RAI Responses Related to PWROG Comprehensive Analysis and Test Program for GSI-191 Closure**

References:

1. OG-15-296, "Submittal of WCAP-17788: "Comprehensive Analysis and Test Program for GSI-191 Closure (PA-SEE-1090)", July 17, 2015
2. NRC letter, "Acceptance for Review of the Pressurized Water Reactor Owners Group Topical Report WCAP-17788, "Comprehensive Analysis and Test Program for GSI-191 Closure (TAC No. MF6536)," (ML15351A425), January 8, 2016
3. OG-17-170, "Submittal of Responses to NRC Requests for Additional Information (RAIs) and Revisions to Topical Report WCAP-17788-P/WCAP-17788-NP, Revision 0, "Comprehensive Analysis and Test Program for GSI-191 Closure" related to Volume 1 and Volume 6 in Support of the Closure of GSI-191 (PA-SEE-1090)", March 8, 2017
4. OG-17-264, "Submittal of Response to NRC Request for Additional Information (RAI) and Revisions to Topical Report WCAP-17788, Revision 0, "Comprehensive Analysis and Test Program for GSI-191 Closure" related to Volume 3 in Support of the Closure of GSI-191 (PA-SEE-1090)", September 13, 2017
5. OG-17-335, "Submittal of Responses to NRC Requests for Additional Information (RAIs) and Revisions to Topical Report WCAP-17788-P/WCAP-17788-NP, Revision 0, "Comprehensive Analysis and Test Program for GSI-191 Closure" related to Volumes 1 and 4 in Support of the Closure of GSI-191 (PA-SEE-1090), December 19, 2017

On July 17, 2015, the Pressurized Water Reactor Owners Group (PWROG) requested formal NRC review and approval of WCAP-17788-NP, Revision 0, in accordance with the Nuclear Regulatory Commission (NRC) Topical Report (TR) program for review and acceptance for referencing in regulatory actions (Reference 1). The NRC staff issued an acceptance for review letter to the PWROG on January 8, 2016 (Reference 2). References 3, 4, and 5 provided PWROG responses to the RAIs for Volumes 1, 3, and 4 of WCAP-17788.

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The purpose of this letter is to provide revisions to responses found in References 3, 4, and 5. Table 1 identifies the RAI responses that are being revised, which are provided in Enclosure 1 (proprietary) and Enclosure 2 (non-proprietary). The revised responses identified in Table 1 supersede the original RAI responses contained in References 3, 4, and 5. The RAI response revisions were completed as a result of NRC clarification questions on the original RAI responses as well as the outcome of an NRC Audit performed on the RAI response related to Volume 4 of WCAP-17788.

| Table 1 Revised RAI Responses included in Enclosure 1 and 2 |  |          |  |           |
|---|--|----------|--|-----------|
| Volume 1  |  | Volume 3 |  | Volume 4  |
| RAI-1.3a  |  | RAI-3.3  |  | RAI-4.17c |
| RAI-1.3b  |  | RAI-3.26 |  | RAI-4.17d |
| RAI-1.3c  |  | RAI-3.32 |  | RAI-4.23e |
| RAI-1.6   |  |          |  |           |
| RAI-1.10  |  |          |  |           |

Additionally, Enclosures 3, 4, 5, and 6 of this letter are provided to replace in entirety the reports previously provided via Reference 5 Enclosures 3, 4, 5, and 6. The revised areas of the reports are marked with change bars in the enclosures. The key revision areas revised in Enclosure 3-6 are highlighted below:

1. Revision 2 to ANP-3583 (Enclosures 3-4) updates include:
  - a. Update to Table RAI-4.9-1 to correct the cross-flow vapor velocity
  - b. Replace Figure RAI-4.9-9 to provide the void fraction in the PCT node
2. Revision 2 to ANP-3584 (Enclosures 5-6) updates include:
  - a. Added BAW-10166P to the references in the response to Q 4.6, 4.7, 4.8
  - b. Replace Figure RAI-4.8-1 with the correct figure for B&W plants
  - c. Update the response to RAI 4.23, Part a, first two sentences in the third paragraph to better describe the role of the core exit peak in calculating the Peak Cladding Temperature.

As Enclosure 1 contains information proprietary to Westinghouse Electric Company LLC (“Westinghouse”) and Enclosures 3 and 5 contain information proprietary to Framatome Inc., the information contained herein is supported by two Affidavits: one each signed by Westinghouse and Framatome Inc., the owners of the information. The Affidavits set forth the basis on which the information may be withheld from public disclosure by the Nuclear Regulatory Commission (“Commission”) and addresses with specificity the considerations listed in paragraph (b)(4) of Section 2.390 of the Commission’s regulations.

Accordingly, it is respectfully requested that the information which is proprietary to Westinghouse and/or Framatome Inc. be withheld from public disclosure in accordance with 10 CFR Section 2.390 of the Commission’s regulations. Each affidavit should be consulted to identify the appropriate justifications for withholding of the respective information.

Correspondence with respect to the copyright or proprietary aspects of the item listed above or the supporting Westinghouse Affidavit should reference CAW-18-4814 and should be addressed to Edmond J. Mercier, Fuels Licensing and Regulatory Support, Westinghouse Electric Company, 1000 Westinghouse Drive, Building 2 Suite 256, Cranberry Township, Pennsylvania 16066.

Correspondence with respect to the copyright or proprietary aspects of the item listed above or the supporting Framatome Inc. Affidavit should reference the Affidavit dated July 23, 2018 and should be addressed to Philip Opsal, OF-34, Framatome Inc., 3315 Old Forest Road, Lynchburg, VA 24501.

Correspondence related to this transmittal should be addressed to:

Mr. W. Anthony Nowinowski, Program Manager  
PWR Owners Group, Program Management Office  
Westinghouse Electric Company  
1000 Westinghouse Drive  
Cranberry Township, Pennsylvania 16066

If you have any questions, please do not hesitate to contact me at (805) 545-4328 or Mr. W. Anthony Nowinowski of the Owners Group Program Management Office at 412-374-6855.

Sincerely yours,



Ken Schrader, Chairman  
PWR Owners Group

KJS:jdb:am

cc: PWROG SEE Committee  
PWROG Licensing Committee  
PWROG Steering Committee  
PWROG PMO  
PWROG Tiger Team  
J. Spring - W  
P. Stevenson - W  
G. Wissinger - Framatome  
D. Page-Blair - Framatome  
V. Cusumano - NRC  
A. Smith - NRC  
L. Perkins - NRC

Enclosures:

1. LTR-SEE-18-153 Attachment 1, "Revised Responses to NRC RAIs Related to WCAP-17788 Supporting the Closure of GSI-191 (PA-SEE-1090) PROPRIETARY Attachment", Proprietary
2. LTR-SEE-18-153 Attachment 2, "Revised Responses to NRC RAIs Related to WCAP-17788 Supporting the Closure of GSI-191 (PA-SEE-1090) NON-PROPRIETARY Attachment", Non-proprietary
3. Licensing Report ANP-3583P, Revision 2, "Response to RAIs on WCAP-17788 Volume 4 – CE Plants", Proprietary
4. Licensing Report ANP-3583NP, Revision 2, "Response to RAIs on WCAP-17788 Volume 4 – CE Plants", Non-proprietary
5. Licensing Report ANP-3584P, Revision 2, "Response to RAIs on WCAP-17788 Volume 4 – B&W Plants", Proprietary
6. Licensing Report ANP-3584NP, Revision 2, "Response to RAIs on WCAP-17788 Volume 4 – B&W Plants", Non-proprietary
7. CAW-18-4814, "Application for Withholding Proprietary Information from Public Disclosure" (Non-Proprietary)
8. Framatome Inc. Affidavit dated July 23, 2018 Referencing Enclosures 3 and 5 to PWR Owners Group Letter OG-18-236 dated September 28, 2018, "Clarifications for WCAP-17788 Volume 1, 3, and 4 NRC RAI Responses Related to PWROG Comprehensive Analysis and Test Program for GSI-191 Closure", (Non-Proprietary)



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1000 Westinghouse Drive  
Cranberry Township, Pennsylvania 16066  
USA

U.S. Nuclear Regulatory Commission  
Document Control Desk  
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Rockville, MD 20852

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CAW-18-4814

September 28, 2018

**APPLICATION FOR WITHHOLDING PROPRIETARY  
INFORMATION FROM PUBLIC DISCLOSURE**

Subject: LTR-SEE-18-153 Attachment 1, "Revised Responses to NRC RAIs Related to WCAP-17788 Supporting the Closure of GSI-191 (PA-SEE-1090) PROPRIETARY Attachment," Proprietary

The Application for Withholding Proprietary Information from Public Disclosure is submitted by Westinghouse Electric Company LLC ("Westinghouse"), pursuant to the provisions of paragraph (b)(1) of Section 2.390 of the Nuclear Regulatory Commission's ("Commission's") regulations. It contains commercial strategic information proprietary to Westinghouse and customarily held in confidence.

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-18-4814 signed by the owner of the proprietary information, Westinghouse. 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 Pressurized Water Reactor Owners Group (PWROG).

Correspondence with respect to the proprietary aspects of the Application for Withholding or the Westinghouse Affidavit should reference CAW-18-4814 and should be addressed to Edmond J. Mercier, Fuels Licensing and Regulatory Support, Westinghouse Electric Company, 1000 Westinghouse Drive, Building 2, Suite 256, Cranberry Township, Pennsylvania 16066.

A handwritten signature in black ink, appearing to read 'Edmond J. Mercier', written over a horizontal line.

Edmond J. Mercier, Manager  
Fuels Licensing and Regulatory Support

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

SS

COUNTY OF BUTLER:

I, Edmond J. Mercier, am authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC ("Westinghouse") and declare that the averments of fact set forth in this Affidavit are true and correct to the best of my knowledge, information, and belief.

Executed on:

9/28/2018

A handwritten signature in black ink, appearing to read 'Edmond J. Mercier', written over a horizontal line.

Edmond J. Mercier, Manager  
Fuels Licensing and Regulatory Support

- (1) I am Manager, Fuels Licensing and Regulatory Support, 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 Nuclear Regulatory Commission’s (“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, 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 "LTR-SEE-18-153 Attachment 1, "Revised Responses to NRC RAIs Related to WCAP-17788 Supporting the Closure of GSI-191 (PA-SEE-1090) PROPRIETARY Attachment," (Proprietary), for submittal to the Commission, being transmitted by PWROG letter OG-18-236. The proprietary information as submitted by Westinghouse is that associated with submittal strategy for a PWR Owners Group Topical Report, and may be used only for that purpose.
- (a) This information is part of that which will enable Westinghouse to obtain approval of WCAP-17788.
  - (b) Further this information has substantial commercial value as follows:

- (i) Westinghouse plans to sell the use of similar information to its customers for the purpose of providing information that can be used to gain margin in terms of allowable fiber loads at core inlet in a post-LOCA scenario.
- (ii) Westinghouse can sell support and defense of industry guidelines and acceptance criteria for plant-specific applications.
- (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 evaluation 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 non-proprietary versions of a document, furnished to the NRC in connection with requests for PWR Owners Group generic topical report 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.

Letter for Transmittal to the NRC

The following paragraphs should be included in your letter to the NRC Document Control Desk:

Enclosed are:

1. LTR-SEE-18-153 Attachment 1, "Revised Responses to NRC RAIs Related to WCAP-17788 Supporting the Closure of GSI-191 (PA-SEE-1090) PROPRIETARY Attachment," (Proprietary)
2. LTR-SEE-18-153 Attachment 1, "Revised Responses to NRC RAIs Related to WCAP-17788 Supporting the Closure of GSI-191 (PA-SEE-1090) NON-PROPRIETARY Attachment," (Non-Proprietary)

Also enclosed are the Westinghouse Application for Withholding Proprietary Information from Public Disclosure, CAW-18-4814, accompanying Affidavit, Proprietary Information Notice, and Copyright Notice.

As Item 1 contains information proprietary to Westinghouse Electric Company LLC ("Westinghouse"), it is supported by an Affidavit signed by Westinghouse, the owner of the information. The Affidavit sets forth the basis on which the information may be withheld from public disclosure by the Nuclear Regulatory Commission ("Commission") and addresses with specificity the considerations listed in paragraph (b)(4) of Section 2.390 of the Commission's regulations.

Accordingly, it is respectfully requested that the information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR Section 2.390 of the Commission's regulations.

Correspondence with respect to the copyright or proprietary aspects of the item listed above or the supporting Westinghouse Affidavit should reference CAW-18-4814 and should be addressed to Edmond J. Mercier, Fuels Licensing and Regulatory Support, Westinghouse Electric Company, 1000 Westinghouse Drive, Building 2 Suite 256, Cranberry Township, Pennsylvania 16066.

AFFIDAVIT

COMMONWEALTH OF VIRGINIA )  
   ) ss.  
CITY OF LYNCHBURG      )

1. My name is Philip A. Opsal. I am Manager, Product Licensing, for Framatome Inc., (formally known as AREVA Inc.), and as such I am authorized to execute this Affidavit.

2. I am familiar with the criteria applied by Framatome Inc., to determine whether certain Framatome Inc. information is proprietary. I am familiar with the policies established by Framatome Inc. to ensure the proper application of these criteria.

3. I am familiar with the Framatome Inc. information contained in the following Framatome (formally AREVA Inc.) documents:

i) Response to RAIs on WCAP-17788 Volume 4 – CE Plants Licensing Report, ANP-3583P Rev 2, and

ii) Response to RAIs on WCAP-17788 Volume 4 – B&W Plants Licensing Report, ANP-3584P Rev. 2.

Information contained in these Documents has been classified by Framatome Inc. as proprietary in accordance with the policies established by Framatome Inc. for the control and protection of proprietary and confidential information.

4. These Documents contain information of a proprietary and confidential nature and is of the type customarily held in confidence by Framatome Inc. and not made available to the public. Based on my experience, I am aware that other companies regard information of the kind contained in these Documents as proprietary and confidential.

5. These Documents has been made available to the U.S. Nuclear Regulatory Commission in confidence with the request that the information contained in these Documents be withheld from public disclosure. The request for withholding of proprietary information is made in accordance with 10 CFR 2.390. The information for which withholding from disclosure is requested qualifies under 10 CFR 2.390(a)(4) "Trade secrets and commercial or financial information."

6. The following criteria are customarily applied by Framatome Inc. to determine whether information should be classified as proprietary:

- (a) The information reveals details of Framatome Inc.'s research and development plans and programs or their results.
- (b) Use of the information by a competitor would permit the competitor to significantly reduce its expenditures, in time or resources, to design, produce, or market a similar product or service.
- (c) The information includes test data or analytical techniques concerning a process, methodology, or component, the application of which results in a competitive advantage for Framatome Inc.
- (d) The information reveals certain distinguishing aspects of a process, methodology, or component, the exclusive use of which provides a competitive advantage for Framatome Inc. in product optimization or marketability.
- (e) The information is vital to a competitive advantage held by Framatome Inc., would be helpful to competitors to Framatome Inc., and would likely cause substantial harm to the competitive position of Framatome Inc.

The information in these Documents is considered proprietary for the reasons set forth in paragraphs 6(b), 6(c), 6(d) and 6(e) above.

7. In accordance with Framatome Inc.'s policies governing the protection and control of information, proprietary information contained in these Documents has been made available, on a limited basis, to others outside Framatome Inc. only as required and under suitable agreement providing for nondisclosure and limited use of the information.

8. Framatome Inc.'s policy requires that proprietary information be kept in a secured file or area and distributed on a need-to-know basis.

9. The foregoing statements are true and correct to the best of my knowledge, information, and belief.

Paul A. O'Neil

SUBSCRIBED before me this 23rd  
day of July, 2018.

Sherry L. McFaden

Sherry L. McFaden  
NOTARY PUBLIC, COMMONWEALTH OF VIRGINIA  
MY COMMISSION EXPIRES: 10/31/18  
Reg. # 7079129

