



Westinghouse Electric Company
1000 Westinghouse Drive
Cranberry Township, Pennsylvania 16066
USA

U.S. Nuclear Regulatory Commission
Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

Direct tel: (412) 374-5130
Direct fax: (724) 940-8542
e-mail: hosackkl@westinghouse.com

LTR-NRC-18-85

December 12, 2018

Subject: Proprietary Markings for the U.S. Nuclear Regulatory Commission Audit Plan for Topical Report WCAP-17794-P, Rev. 0, and WCAP-17794-NP, Rev. 0, "10x10 SVEA Fuel Critical Power Experiments and New CPR Correlations: D5 for SVEA-96 Optima3" (Proprietary/Non-Proprietary)

Enclosed are the proprietary and non-proprietary versions of "Proprietary Markings for the U.S. Nuclear Regulatory Commission Audit Plan for Topical Report WCAP-17794-P, Rev. 0, and WCAP-17794-NP, Rev. 0, '10x10 SVEA Fuel Critical Power Experiments and New CPR Correlations: D5 for SVEA-96 Optima3.'"

This submittal contains proprietary information of Westinghouse Electric Company LLC ("Westinghouse"). In conformance with the requirements of 10 CFR Section 2.390, as amended, of the Nuclear Regulatory Commission's ("Commission's") regulations, we are enclosing with this submittal an Application for Withholding Proprietary Information from Public Disclosure and an Affidavit. The Affidavit sets forth the basis on which the information identified as proprietary may be withheld from public disclosure by the Commission.

Correspondence with respect to the proprietary aspects of the Application for Withholding or the Westinghouse Affidavit should reference AW-18-4842 and should be addressed to Camille T. Zozula, Manager, Infrastructure & Facilities Licensing, Westinghouse Electric Company, 1000 Westinghouse Drive, Building 2 Suite 259, Cranberry Township, Pennsylvania 16066.

Korey L. Hosack, Manager
Product Line Regulatory Support

A handwritten signature in black ink, appearing to read "Korey L. Hosack".

cc: Ekaterina Lenning
Dennis Morey

Enclosures:

1. Westinghouse Affidavit AW-18-4842
2. Proprietary Information Notice and Copyright Notice
3. LTR-NRC-18-85 P-Attachment, "Proprietary Markings for the U.S. Nuclear Regulatory Commission Audit Plan for Topical Report WCAP-17794-P, Rev. 0, and WCAP-17794-NP, Rev. 0, '10x10 SVEA Fuel Critical Power Experiments and New CPR Correlations: D5 for SVEA-96 Optima3'" (Proprietary)
4. LTR-NRC-18-85 NP-Attachment, "Proprietary Markings for the U.S. Nuclear Regulatory Commission Audit Plan for Topical Report WCAP-17794-P, Rev. 0, and WCAP-17794-NP, Rev. 0, '10x10 SVEA Fuel Critical Power Experiments and New CPR Correlations: D5 for SVEA-96 Optima3'" (Non-Proprietary)



Westinghouse Electric Company
1000 Westinghouse Drive
Cranberry Township, Pennsylvania 16066
USA

U.S. Nuclear Regulatory Commission
Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

Direct tel: (412) 374-5130
Direct fax: (724) 940-8542
e-mail: hosackkl@westinghouse.com

AW-18-4842

December 12, 2018

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: LTR-NRC-18-85 P-Attachment, "Proprietary Markings for the U.S. Nuclear Regulatory Commission Audit Plan for Topical Report WCAP-17794-P, Rev. 0, and WCAP-17794-NP, Rev. 0, '10x10 SVEA Fuel Critical Power Experiments and New CPR Correlations: D5 for SVEA-96 Optima3.'"

Reference: Letter from Korey L. Hosack to the Document Control Desk, LTR-NRC-18-85, dated December 12, 2018

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 AW-18-4842 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.

Correspondence with respect to the proprietary aspects of this Application for Withholding or the accompanying Affidavit should reference AW-18-4842 and should be addressed to Camille T. Zozula, Manager, Infrastructure & Facilities Licensing, Westinghouse Electric Company, 1000 Westinghouse Drive, Building 2 Suite 259, Cranberry Township, Pennsylvania 16066.

A handwritten signature in black ink, appearing to read "Korey L. Hosack".

Korey L. Hosack, Manager
Product Line Regulatory Support

AFFIDAVIT

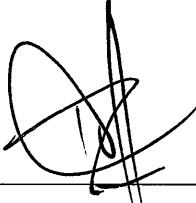
COMMONWEALTH OF PENNSYLVANIA:

ss

COUNTY OF BUTLER:

I, Korey L. Hosack, 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: 2018/12/12



Korey L. Hosack, Manager
Product Line Regulatory Support

- (1) I am Manager, Product Line 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-NRC-18-85 P-Attachment, "Proprietary Markings for the U.S. Nuclear Regulatory Commission Audit Plan for Topical Report WCAP-17794-P, Rev. 0, and WCAP-17794-NP, Rev. 0, '10x10 SVEA Fuel Critical Power Experiments and New CPR Correlations: D5 for SVEA-96 Optima3.'" (Proprietary), for submittal to the Commission, being transmitted by Westinghouse Letter LTR-NRC-18-85. The proprietary information as submitted by Westinghouse is that associated with Westinghouse's request for NRC approval of WCAP-17794-P and may be used only for that purpose.
- (a) This information is part of that which will enable Westinghouse to obtain NRC approval for the application of the D5 critical power ratio (CPR) correlation for Westinghouse SVEA-96 Optima3 BWR fuel assemblies as documented in

WCAP-17794-P/NP, Revision 0, "10x10 SVEA Fuel Critical Power Experiments and New CPR Correlation: D5 for SVEA-96 Optima3."

- (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 assisting customers in obtaining license changes with respect to the D5 CPR Correlation and the SVEA 96 Optima3 fuel design.
 - (ii) Westinghouse can sell support and defense of the transient analysis methodology 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 generic 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.

**Proprietary Markings for the U.S. Nuclear Regulatory Commission
Audit Plan for Topical Report WCAP-17794-P, Rev. 0, and
WCAP-17794-NP, Rev. 0, “10x10 SVEA Fuel Critical Power Experiments and
New CPR Correlations: D5 for SVEA-96 Optima3”**

(Non-Proprietary)

December 2018

Westinghouse Electric Company
1000 Westinghouse Drive
Cranberry Township, PA 16066

© 2018 Westinghouse Electric Company LLC
All Rights Reserved

~~OFFICIAL USE ONLY - PROPRIETARY INFORMATION~~

1

U.S. NUCLEAR REGULATORY COMMISSION CLOSED AUDIT FOR
TOPICAL REPORT WCAP-17794-P, REVISION 0, AND
WCAP-17794-NP, REVISION 0, "10X10 SVEA FUEL CRITICAL POWER
EXPERIMENTS AND NEW CPR CORRELATIONS: D5 FOR
SVEA-96 OPTIMA3" (TAC NO. MF3368)

WESTINGHOUSE ELECTRIC COMPANY

BACKGROUND

By letter dated November 22, 2013 (Reference 1), Westinghouse Electric Company (Westinghouse) submitted to the U. S. Nuclear Regulatory commission (NRC) a request for review and approval of WCAP-17794-P, Revision 0, "10x10 SVEA Fuel Critical Power Experiments and New CPR Correlation: D5 for SVEA-96 Optima3" (Reference 2) a topical report (TR) which describes the critical power correlation for SVEA-96 Optima3 fuel. The proposed TR would allow Westinghouse to use the D5 critical power ratio (CPR) correlation on SVEA-96 Optima3 fuel. The NRC staff has proposed to conduct an audit to discuss Westinghouse's response to the NRC request for additional information (RAI) which addresses []^{a,c}

10 CFR Part 50, Appendix A provides general design criteria (GDC) for nuclear power reactors. GDC 10 requires:

- .The reactor core and associated coolant, control, and protection systems shall be designed with appropriate margin to assure that specified acceptable fuel design limits [SAFDLs] are not exceeded during any condition of normal operation, including the effects of anticipated operational occurrences.

SRP 4.4 provides one method commonly used by BWRs to meet GDC 10. SRP 4.4 defines the critical power ratio (CPR) as the SAFDL and states that

The limiting (minimum) value of DNBR, CHFR, or CPR correlations is to be established such that at least 99.9 percent of the fuel rods in the core will not experience a DNB or boiling transition during normal operation or AOOs.

~~OFFICIAL USE ONLY - PROPRIETARY INFORMATION~~

~~OFFICIAL USE ONLY - PROPRIETARY INFORMATION~~

2

In summary, 10 CFR Part 50, Appendix A, GDC requires that SAFDLs are used to protect the fuel, and one SAFDL commonly used in BWRs is CPR which demonstrates that 99.9 % of the fuel rods in the core will not experience a dryout during normal operation or AOOs.

The ability to confirm the SAFDL of 99.9% was questioned in the review of the D5 model.

[

]^{a,c}

The Nuclear Performance and Code Review Branch staff has performed a review of WCAP-17794-P, Revision 0, and all RAI responses, has drafted the safety evaluation, and is in the process of finalizing that safety evaluation. The regulatory audit will be held in accordance with the NRR procedure as described in LIC-111.

REGULATORY AUDIT SCOPE

The scope of this audit is to discuss the RAI response []^{a,c} and the draft conditions and limitations which have been previously shared with Westinghouse. Additionally, the NRC staff may discuss questions on the review of WCAP-18032-P, "Calculation of Mixed Core Safety Limit Minimum Critical Power Ratio" if time permits.

The NRC staff would like Westinghouse to make available the appropriate engineer(s) with intimate knowledge of WCAP-17794-P, Revision 0, []^{a,c} the work Westinghouse has performed to determine the root cause []^{a,c} and can address any comprehension questions by the NRC staff as well as any appropriate references.

TEAM AND REVIEW ASSIGNMENTS

The regulatory audit will be held at the Westinghouse facilities in Rockville, MD.

Joshua Kaizer, DSS/SNPB
Reed Anzalone, DSS/SNPB
Josh Whitman, DSS/SNPB
John Lehning, DSS/SNPB
Kate Lenning, DLP/PLPB

~~OFFICIAL USE ONLY - PROPRIETARY INFORMATION~~

~~OFFICIAL USE ONLY - PROPRIETARY INFORMATION~~

LOGISTICS

Audit Dates: Tuesday December 4, 2018-Wednesday December 5, 2018 and additional follow-up phone calls as needed.

Westinghouse should provide a conference room for discussions.

DELIVERABLES

A regulatory audit summary will be provided within 90 days of the completion of the audit.

REFERENCES

1. Letter from James A. Gresham (W) to U.S. NRC, "Submittal of WCAP-17794-P, Revision 0 and WCAP-17794-NP, Revision 0, "10x10 SVEA Fuel Critical Power Experiments and New CPR Correlation: D5 for SVEA-96 Optima3," November 22, 2013 (ADAMS Accession No. ML13333A274).
2. Bergmann, U., Hemlin, M., Bergman, K., and LeCorre, J-M., "10x10 SVEA Fuel Critical Power Experiments and New CPR Correlation: D5 for SVEA-96 Optima3," WCAP-17794-P/NP, November 22, 2013, (ADAMS Accession No. ML13333A276 / ML13333A275 (Non-Publicly Available / Publicly Available)).

~~OFFICIAL USE ONLY - PROPRIETARY INFORMATION~~

~~OFFICIAL USE ONLY – PROPRIETARY INFORMATION~~

Appendix A – Technical Issues

The audit will focus on the following 4 main topics:

(1) **Definition of [**

]^{a,c}

(2) **Occurrence of [**

]^{a,c}

(3) **Restricted domain of D5.** From both technical and regulatory perspective, restrictions on [

]^{a,c}

(4) **Other applicable data.** What is the applicability of inspection data [

]^{a,c}

~~OFFICIAL USE ONLY – PROPRIETARY INFORMATION~~

~~OFFICIAL USE ONLY—PROPRIETARY INFORMATION~~

5

[

]^{a,c} It does not seem like there would be any additional experimental data in that domain or operation data in that domain. Is Westinghouse aware of any additional data for that domain?

Additional topics/questions which may inform the main topics are given below:

- Discussion of proprietary information withholding for SE. What can NRC staff discuss with other vendors?
- Provide an indication of where the recirculation headers are located relative to Figure 4-14 from the July 2018 RAI response.
- Discussion of whether tests that show flow equalization between SVEA sub-bundles apply to a condition where []^{a,c} are applied to the sub-bundles.
- How thick are the “thin” and “thick” films discussed in RAI response?
- How thick are the films expected to be in the upper portion of the bundle prior to reaching the spacer grid elevation?
- Discussion of phenomenon occurring at the fuel rod surface on []^{a,c} and how it is similar to and different from dryout as modeled in D5.
- Discussion of details regarding the []^{a,c}

]^{a,c}

- To what extent does the evidence from []^{a,c}

~~OFFICIAL USE ONLY—PROPRIETARY INFORMATION~~