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LTR-NRC-17-69

October 30, 2017

Subject: Submittal of Executive Summary for Topical Report WCAP-16260, Revision 2, "The Spatially Corrected Inverse Count Rate (SCICR) Method for Subcritical Reactivity Measurement" (Proprietary/Non-Proprietary)

Enclosed are the proprietary and non-proprietary versions of "Executive Summary for Topical Report WCAP-16260, Revision 2, 'The Spatially Corrected Inverse Count Rate (SCICR) Method for Subcritical Reactivity Measurement.'" This information is being provided in advance of an anticipated pre-submittal meeting in November to support a December 2017 submittal. The requested pre-submittal meeting is a follow-up to technical meeting held in April of this year in which various NRC personnel participated.

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-17-4664, and should be addressed to James A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, 1000 Westinghouse Drive, Building 3 Suite 310, Cranberry Township, Pennsylvania 16066.

A handwritten signature in black ink, appearing to read "James A. Gresham / FOR".

James A. Gresham, Manager
Regulatory Compliance

Enclosures

cc: Ekaterina Lenning



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AW-17-4664

October 30, 2017

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: LTR-NRC-17-69 P-Attachment, Executive Summary for Topical Report WCAP-16260, Revision 2, "The Spatially Corrected Inverse Count Rate (SCICR) Method for Subcritical Reactivity Measurement"

Reference: Letter from James A. Gresham to the Document Control Desk, LTR-NRC-17-69, dated October 30, 2017.

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-17-4664 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 the Application for Withholding or the Westinghouse Affidavit should reference AW-17-4664, and should be addressed to James A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, 1000 Westinghouse Drive, Building 3 Suite 310, Cranberry Township, Pennsylvania 16066.

William J. Gresham / FOR
James A. Gresham, Manager
Regulatory Compliance

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: 10/30/2017



Edmond J. Mercier, Manager
Product Licensing

- (1) I am Manager, Product Licensing, 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-17-69 P-Attachment, "Executive Summary for Topical Report WCAP-16260, Revision 2, 'The Spatially Corrected Inverse Count Rate (SCICR) Method for Subcritical Reactivity Measurement' " (Proprietary), for submittal to the Commission. The proprietary information as submitted by Westinghouse is that associated with Revision 2 of WCAP-16260 and may be used only for that purpose.
- (a) This information is part of that which will enable Westinghouse to maintain an advantage over its competitors.
 - (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 startup physics testing.
- (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 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).

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**Executive Summary for Topical Report WCAP-16260, Revision 2, “The Spatially Corrected Inverse Count Rate (SCICR) Method for Subcritical Reactivity Measurement”
(Non-Proprietary)**

Executive Summary**Draft WCAP- 16260, Revision 2**

This topical report describes the Spatially Corrected Inverse Count Rate (SCICR) method for subcritical reactivity measurement and the process for its application. While the original SCICR method was retained from Revision 1 to WCAP-16260, "The Spatially Corrected Inverse Count Rate (SCICR) Method for Subcritical Reactivity Measurement," the method application was revised to correct deficiencies identified by Westinghouse based on a review of results in the original implementation. Revision 2 is being submitted for review and approval by the United States Nuclear Regulatory Commission (NRC) to allow for future generic commercial application.

Application of the SCICR method requires neutron detector measurements and corresponding core condition predictions that account for the subcritical neutron flux distribution. The basic uses of the SCICR method are to monitor and project the subcritical state of the core. Associated applications include monitoring of negative reactivity conditions or shutdown margin, and forecasting of estimated critical conditions prior to plant startup. The advanced SCICR application is Subcritical Physics Testing (SPT), which integrates the monitoring and forecasting functions to ultimately execute a series of measured-to-predicted (M-P) comparisons to confirm the as-built core is operating consistent with design following refueling.

[

]^{a, c} Therefore, Westinghouse committed to no longer use the application to perform reload startup physics testing until the issues could be resolved. This commitment was made to NRC via LTR-NRC-12-41, "Subcritical Rod Worth Measurement (SRWM[™]) Methodology Service Withdrawal" in April 2012.

In order to correct deficiencies in the original implementation, data from four additional demonstrations were obtained to support two key application improvements; [

]^{a, c} Detectability analyses using 3D core simulations were performed for the four new demonstrations, []^{a, c}

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] ^{a, c}

The topical report is structured as follows. Section 1 contains the Introduction. Section 2 contains the subcritical core condition simulation (based on the method described in Revision 1 and retained for this revision), along with additional theory that is needed for the revised application. The revised application process overview is presented in Section 3, which includes an introduction to the associated measurement parameters and discussions on how the application will be incorporated into plant operations. Section 4 presents demonstration data using the revised approach.

Section 5 discusses process controls, both for measurement and design. Measurement process controls are defined to ensure high quality measurements are obtained. Design controls are established differently as compared to Revision 1 of WCAP-16260. [

] ^{a, c} Based on the results of the demonstration and detectability studies, the proposed test criteria for the revised application have been established.

Section 6 of the topical includes various regulatory considerations, including the proposed limitations and conditions.