



Program Management Office
1000 Westinghouse Drive
Cranberry Township, Pennsylvania 16066

WCAP-17360-P/NP

Project ~~264~~ 694

June 6, 2012

OG-12-145

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

Subject: PWR Owners Group
For Information Only – WCAP-17360, “Small Scale Unbuffered and Buffered Boric Acid Nucleate Boiling Heat Transfer Tests with Sump Debris in a Vertical 3x3 Rod Bundle” (PA-ASC-0264, Revision 3)

References:

1. NRC letter dated May 18, 2011 “MAY 11, 2011 NRC MEETING WITH THE PRESSURIZED WATER REACTOR OWNERS GROUP TO DISCUSS THE PWROG BORIC ACID PRECIPITATION PROGRAM”. 05/11/11 (ML11137A177)

This letter transmits for information only the Westinghouse proprietary report WCAP-17360-P, “Small Scale Unbuffered and Buffered Boric Acid Nucleate Boiling Heat Transfer Tests with Sump Debris in a Vertical 3x3 Rod Bundle” (Enclosure 1). This report is one of a number of reports that are being submitted for information only to support the NRC’s monitoring of the progress of the PWROG program to develop a methodology for analyzing post-LOCA boric acid precipitation control. This report, along with others, will be referenced in a future Topical Report Submittal, WCAP-16910-NP, “Post-LOCA Long Term Cooling Boric Acid Control Analyses - Evaluation Model Requirements and Assessment Base”. Draft recommendations from report WCAP-17360-P, “Small Scale Unbuffered and Buffered Boric Acid Nucleate Boiling Heat Transfer Tests with Sump Debris in a Vertical 3x3 Rod Bundle” were summarized in a presentation to the NRC at a meeting reported in Reference 1. The purpose of this report can be summarized as follows:

1. Improve the understanding of nucleate boiling heat transfer and two-phase flow structures in rod bundle geometries under post-LOCA conditions with and without sump debris.
2. Increase the state-of-knowledge of precipitation modes in rod bundle geometries with unbuffered and buffered boric acid solutions with and without sump debris.

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3. Provide information to help develop the boric acid precipitation with debris PIRT.
4. To present conclusions and make recommendations for the development of LOCA long-term cooling in-vessel precipitation evaluation models.

Also enclosed for information only is the non-proprietary version of the report, WCAP-17360-NP, "Small Scale Unbuffered and Buffered Boric Acid Nucleate Boiling Heat Transfer Tests with Sump Debris in a Vertical 3x3 Rod Bundle" (Enclosure 2).

Also enclosed is Westinghouse authorization letter CAW-12-3482, (Enclosure 3) accompanying affidavit, Proprietary Information Notice, and Copyright Notice. WCAP-17360-P contains information proprietary to Westinghouse Electric Company LLC; it is supported by an affidavit signed by Westinghouse, owner of the information. The affidavit 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 Section 2.390 of the Commission's regulations.

Accordingly, it is respectfully requested that this 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 information listed above or supporting Westinghouse affidavit should reference CAW-12-3482 and should be addressed to:

J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing
Westinghouse Electric Company LLC
Suite 428, 1000 Westinghouse Drive
Cranberry Township, Pennsylvania 16066

Enclosures include:

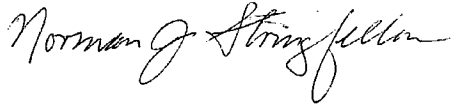
1. Five copies of WCAP-17360, "Small Scale Unbuffered and Buffered Boric Acid Nucleate Boiling Heat Transfer Tests with Sump Debris in a Vertical 3x3 Rod Bundle" (Proprietary)
2. One copy of WCAP-17360, "Small Scale Unbuffered and Buffered Boric Acid Nucleate Boiling Heat Transfer Tests with Sump Debris in a Vertical 3x3 Rod Bundle" (Non-proprietary)
3. One copy of the Application for Withholding, CAW-12-3482 (Non-proprietary) with accompanying Affidavit, Proprietary Information Notice and Copyright Notice.

Correspondence related to this transmittal, including requests for additional information, should be addressed to:

Mr. W. Anthony Nowinowski, Program Manager
PWR Owners Group, Program Management Office
Westinghouse Electric Company LLC
Suite 380, 1000 Westinghouse Drive
Cranberry Township, Pennsylvania 16066

If you have any questions, please do not hesitate to contact me at (205) 992-7037 or Mr. W. Anthony Nowinowski at (412) 374-6855.

Sincerely,

A handwritten signature in cursive script, reading "Norman G. Stringfellow". The signature is written in black ink and is positioned above the printed name.

Jack Stringfellow, Chairman
PWR Owners Group

NJS:TZ:rfn

cc: PWROG Management Committee
PWROG Steering Committee
PWROG PMO
PWROG SEE Subcommittee
PWROG ASC Subcommittee

J. A. Gresham – Westinghouse
J. Rowley - NRC
W. M. Turkowski – Westinghouse
S. R. Swantner – Westinghouse
M. M. Swartz – Westinghouse
M. Scarpello, AEP



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USA

U.S. Nuclear Regulatory Commission
Document Control Desk
11555 Rockville Pike
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Proj letter: OG-12-145

CAW-12-3482

May 18, 2012

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: WCAP-17360-P, Revision 0, "Small Scale Unbuffered and Buffered Boric Acid Nucleate Boiling Heat Transfer Tests with Sump Debris in a Vertical 3x3 Rod Bundle" (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-12-3482 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 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-12-3482 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, Suite 428, 1000 Westinghouse Drive, Cranberry Township, Pennsylvania 16066.

Very truly yours,

A handwritten signature in black ink, appearing to read 'J. A. Gresham', written over the typed name and title.
J. A. Gresham, Manager
Regulatory Compliance

Enclosures

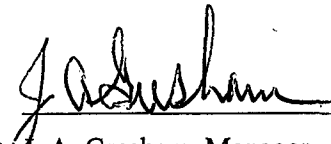
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COMMONWEALTH OF PENNSYLVANIA:

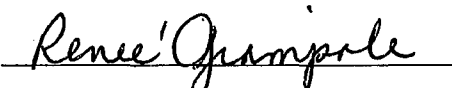
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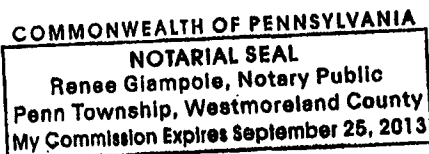
COUNTY OF BUTLER:

Before me, the undersigned authority, personally appeared J. A. Gresham, 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:


J. A. Gresham, Manager
Regulatory Compliance

Sworn to and subscribed before me
this 18th day of May 2012


Notary Public



- (1) I am Manager, Regulatory Compliance, in Nuclear Services, 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.

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.
- (iii) 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.
- (iv) 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.
- (v) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in WCAP-17360-P, Revision 0, "Small Scale Unbuffered and Buffered Boric Acid Nucleate Boiling Heat Transfer Tests with Sump Debris in a Vertical 3x3 Rod Bundle" (Proprietary), dated May 2012, for submittal to the Commission, being transmitted by PWROG 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 testing results associated with unbuffered and buffered boric acid with debris and may be used only for that purpose.

This information is part of that which will enable Westinghouse to:

- (a) Justify modeling assumptions regarding the boiling and heat transfer behavior of unbuffered and buffered boric acid solutions with debris.
- (b) Develop defensible advanced thermal/hydraulic methods that would be part of an NRC approved boric acid precipitation analysis methodology.

Further this information has substantial commercial value as follows:

- (a) Westinghouse plans to sell the use of similar information to its customers for the purpose of performing NRC-approved post-LOCA long term cooling analyses.
- (b) Westinghouse can sell support and defense of this information for related post-LOCA long term cooling analyses.
- (c) Information can be used in salable proposals to US utilities to provide support for new regulatory issues related to the boiling and heat transfer behavior of unbuffered and buffered boric acid with debris.

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 saleable analyses, technical evaluation justifications, products, calculation models 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.

PWROG

Letter for Transmittal to the NRC

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

Enclosed are:

1. 1 copy of WCAP-17360-P, "Small Scale Unbuffered and Buffered Boric Acid Nucleate Boiling Heat Transfer Tests with Sump Debris in a Vertical 3x3 Rod Bundle" (Proprietary)
2. 1 copy of WCAP-17360-NP, "Small Scale Unbuffered and Buffered Boric Acid Nucleate Boiling Heat Transfer Tests with Sump Debris in a Vertical 3x3 Rod Bundle" (Non-Proprietary)

Also enclosed is the Westinghouse Application for Withholding Proprietary Information from Public Disclosure CAW-12-3482, accompanying Affidavit, Proprietary Information Notice, and Copyright Notice.

As Item 1 contains information proprietary to Westinghouse Electric Company LLC, 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 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 items listed above or the supporting Westinghouse affidavit should reference CAW-12-3482 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, Suite 428, 1000 Westinghouse Drive, Cranberry Township, Pennsylvania 16066.