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Project No.: 700
Our ref: LTR-NRC-06-36
June 1, 2006

**Subject: Applied Research Laboratory/Pennsylvania State University Investigations
Concerning the CROSSFLOW Technology (Proprietary)**

- References: 1) D. M. Jenkins, P. D. Lysak, D. E. Capone, W. L. Brown, V. Askari, "Ultrasonic Cross-correlation Flow Measurement: Theory, Noise Contamination Mechanisms, and a Noise Mitigation Technique," Proceedings of ICONE14, 2006 14th International Conference on Nuclear Engineering. Miami, FL July 17-30, 2006
- 2) Peter D. Lysak, "Analytical Model for an Ultrasonic Cross-Correlation Flow Meter," Applied Research Laboratory, Pennsylvania State University, May 2006

Westinghouse Electric Company LLC (Westinghouse) has been working with the Pennsylvania State University, Applied Research Laboratory (PSU/ARL) since 2004 in order to advance our understanding of the CROSSFLOW Ultrasonic Flow Measurement System cross-correlation technology and to assist us in responding to Nuclear Regulatory Commission (NRC) questions on the CROSSFLOW instrument. PSU/ARL was selected because of their expertise in hydro-acoustics, hydraulics, and analytical modeling of these phenomena. PSU/ARL also has laboratory facilities which are ideally suited for investigating ultrasonic flow measurement technology. PSU/ARL was contracted to provide an independent technical evaluation of the technology as well as assist us in evaluating signal contamination (noise) mitigation, develop an analytical model of the CROSSFLOW instrument and to conduct laboratory testing of the system performance.

Conclusions from the signal contamination research were presented to the NRC staff during the technical meetings held at the Westinghouse Rockville office in October 2005. In addition, a technical paper to be published in July 2006 concerning this work is provided as an attachment to this letter (Reference 1).

On April 28, 2006, Westinghouse and Advanced Measurement Analysis Group, Inc. (AMAG) met with the NRC staff to discuss CROSSFLOW related activities being performed at PSU/ARL. During the meeting members of the PSU/ARL staff discussed the CROSSFLOW analytical model developed for Westinghouse. PSU/ARL has documented this work in a report that is also being provided as an attachment to this letter (LTR-NRC-06-36 P-Attachment) (Reference 2).

The CROSSFLOW performance and accuracy testing is still in progress at PSU/ARL and is scheduled to be completed this summer. These tests will provide measurements taken with laser-doppler velocimetry (LDV) that provide a look inside the pipe with and without a flow disturbance. This data will be useful for evaluating any flow measurement technology. Additionally, comparisons of the CROSSFLOW instrument to other high precision instruments will be obtained. Preliminary results from these tests demonstrate an overall flow measurement accuracy better than 0.5% for the CROSSFLOW instrument in ideal conditions, which is consistent with the value quoted in the Topical Report. Results from this test program will be provided to the NRC staff when they are available.

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Note that the PSU/ARL report (LTR-NRC-06-36 P-Attachment) (Reference 2) is considered by Westinghouse to be preliminary until all testing is completed this summer. Consequently, it is being transmitted as proprietary in its entirety; a non-proprietary version of this document does not exist. The final version of the report is expected to be used extensively in the revised CROSSFLOW topical report at which time appropriated proprietary markings and non-proprietary versions will be available.

Also enclosed is:

1. One (1) copy of the Application for Withholding, AW-06-2158 with Proprietary Information Notice.
2. One (1) copy of Affidavit, AW-06-2158.

This submittal contains Westinghouse proprietary information consisting of trade secrets, commercial or financial information which we consider privileged or confidential pursuant to 10 CFR Section 2.390. Therefore, it is requested that the Westinghouse proprietary information attached hereto be handled on a confidential basis and be withheld from public disclosure.

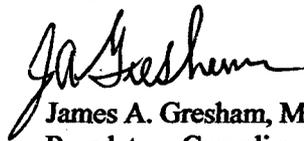
This material is for your internal use only and may be used solely for the purpose for which it is submitted. It should not be otherwise used, disclosed, duplicated, or disseminated, in whole or in part, to any other person or organization outside the Office of Nuclear Reactor Regulation without the expressed prior written approval of Westinghouse.

Correspondence with respect to any Application for Withholding should reference AW-06-2158 and should be addressed to:

Westinghouse Electric Company LLC
Attn: James A. Gresham, Manager
Regulatory Compliance and Plant Licensing
P. O. Box 355
Pittsburgh, Pennsylvania 15230-0355

If you have any further questions regarding this matter, please do not hesitate to contact me at (412) 374-4643.

Very truly yours,



James A. Gresham, Manager
Regulatory Compliance and Plant Licensing

Attachment: As stated

cc: A. G. Howe (NRC, w/o Attachments)
J. A. Nakoski (NRC, w/o Attachments)
G. S. Shukla (NRC, w/ Attachments)



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Our ref: AW-06-2158

June 1, 2006

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

Subject: LTR-NRC-06-36 P-Attachment, "Applied Research Laboratory/Pennsylvania State University Investigations Concerning the CROSSFLOW Technology" (Proprietary)

Reference: Westinghouse Letter LTR-NRC-06-36 dated June 1, 2006, J. A. Gresham to USNRC Document Control Desk, "Applied Research Laboratory/Pennsylvania State University Investigations Concerning the CROSSFLOW Technology" (Proprietary)

The Application for Withholding is submitted by Westinghouse Electric Company LLC, a Delaware limited liability company ("Westinghouse"), pursuant to the provisions of paragraph (b)(1) of Section 2.390 of the Commission's regulations. It contains commercial strategic information proprietary to Westinghouse and customarily held in confidence.

The proprietary material for which withholding is being requested is identified in the proprietary version of the subject report. In conformance with 10 CFR Section 2.390, Affidavit AW-06-2158 accompanies this Application for Withholding, setting forth the basis on which the identified proprietary information may be withheld from public disclosure.

Accordingly, it is respectfully requested that the subject 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 this application for withholding or the accompanying affidavit should reference AW-06-2158 and should be addressed to the undersigned.

Very truly yours,

A handwritten signature in cursive script, appearing to read "James A. Gresham".

James A. Gresham, Manager
Regulatory Compliance and Plant Licensing

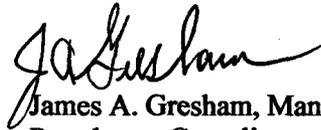
AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

SS

COUNTY OF ALLEGHENY:

Before me, the undersigned authority, personally appeared James 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:



James A. Gresham, Manager
Regulatory Compliance and Plant Licensing

Sworn to and subscribed before
me this 1ST day of June, 2006.


Notary Public

Notarial Seal
Sharon L. Fiori, Notary Public
Monroeville Boro, Allegheny County
My Commission Expires January 29, 2007
Member, Pennsylvania Association Of Notaries

- (1) I, J. A. Gresham, am the Manager, Regulatory Compliance and Plant Licensing, in Nuclear Services, of the Westinghouse Electric Company LLC, a Delaware limited liability company ("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 rulemaking proceedings, and am authorized to apply for its withholding on behalf of the Westinghouse Electric Company.
- (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 accompanying this Affidavit.
- (3) I have personal knowledge of the criteria and procedures utilized by the Westinghouse Electric Company 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 which 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 LTR-NRC-06-36 P-Attachment, "Applied Research Laboratory/Pennsylvania State University Investigations Concerning the CROSSFLOW Technology" (Proprietary), dated May, 2006, for submittal to the Commission, being transmitted by Westinghouse Electric Company letter (LTR-NRC-06-36) and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse Electric Company LLC is expected to be applicable in other licensee submittals in response to certain NRC requirements for justification for implementing the CROSSFLOW Ultrasonic Flow Measurement System in support of Appendix K type power uprates.

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

- (a) Implement the CROSSFLOW Ultrasonic Flow Measurement System in support of Appendix K type power uprates.
- (b) Support licensee in implementing the CROSSFLOW Ultrasonic Flow Measurement System in support of Appendix K type power uprates.

Further this information has substantial commercial value as follows:

- (a) Westinghouse plans to sell the use of similar information to its customers for purposes of meeting NRC requirements for licensing documentation.
- (b) Westinghouse can sell support and defense of the CROSSFLOW Ultrasonic Flow Measurement System in support of Appendix K type power uprates.
- (c) 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 for developing the enclosed improved core thermal performance methodology.

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.