

**Enclosure 4**

**Westinghouse Electric Company LLC, LTR-SGMP-10-50 NP-Attachment  
"Assessment of the Effect of the Location of the Bottom of the Expansion  
Transition on H\*," dated April 22, 2010**

**NON-PROPRIETARY**

**DOMINION NUCLEAR CONNECTICUT, INC.  
MILLSTONE POWER STATION UNIT 3**

Westinghouse Electric Company

**Assessment of the Effect of the Location  
of the Bottom of the Expansion Transition on H\***

April 22, 2010

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## Assessment of the Effect of the Location of the Bottom of the Expansion Transition on H\*

### Introduction

The alternate repair criterion, H\*, replaces the tube end weld as the pressure boundary between the primary and secondary sides of the steam generator with the hydraulic expansion joint between the tube and the tubesheet. The technical justification of H\* demonstrates that the hydraulic expansion joint between the tube and the tubesheet provides adequate capability to satisfy the applicable structural and leakage performance criteria. The technical justification determines the required length of non-degraded tubing within the tubesheet expansion region to assure that the tube cannot be pulled from the tubesheet by the limiting axial (end-cap) loads for normal operating conditions and for the limiting design basis accident with appropriate safety factors as specified in Reference 1. The H\* technical justification also shows that any leakage through the joint is less than the leakage assumed in the Final Safety Analysis Report for the limiting accident conditions. The proposed inspection depth of 13.1 inches includes a large margin compared to the minimum depth required to meet the performance criteria.

Regular in-service inspections in accordance with the requirements of Reference 2 verify that the tubing within the tubesheet expansion region is not degraded by stress corrosion cracking over the required length that is defined as H\*. To accomplish this, it is necessary to establish a unique, repeatable frame of reference. The top of tubesheet (TTS) is a point of reference that is established by current eddy current techniques and instruments (such as the bobbin probe). Consequently, the TTS is the point of reference chosen for H\*. The conservatively recommended H\* distances are specified as being measured from the TTS.

The H\* technical justification depends on contact between the tube and the tubesheet due to pressure loads, thermal loads and residual loads from initial installation (hydraulic expansion). As a minimum, this technical justification assumes that line-on-line contact exists between the tube and the tubesheet over the length of the hydraulic expansion. The manufacturing process requires a tolerance of approximately [ ]<sup>a,c,e</sup> inch from the TTS to assure that overexpansion above the TTS does not occur. Thus, by design, there is a short span from the TTS to the bottom of the expansion transition (BET) region where the assumption of line-on-line contact is not valid. The hydraulic expansion process is designed to minimize the distance from the TTS to the BET; however, the exact position of the location of the BET relative to the TTS can vary due to manufacturing tolerances.

To address the potential variation of the location of the BET, the technical justification for H\* includes a constant value of 0.3 inch for the location of the BET. Multiple studies on different steam generators have shown that the 0.95 probability with 95% confidence (95/95) location of the BET is approximately 0.3 inch from the TTS (Reference 3). This factor is added as a constant to the calculated H\* distance required to meet the

performance criteria because the underlying assumption of the H\* calculation is that the initial condition is line-on-line tube to tubesheet contact.

The recommended values of H\* at 0.95 probability and 50% confidence (95/50) for the Millstone Power Station Unit 3 (MPS3) steam generators are provided in Reference 3. Reference 3 recommends a 95/50 H\* value of 11.2 inches; however, MPS3 has chosen to use a H\* inspection depth value of 13.1 inches for additional conservatism. In response to an NRC request for additional information (RAI), additional information on the probabilistic values of H\* was provided in Reference 5.

As requested in Dominion Nuclear Connecticut, Inc. (DNC) Letter 09-525, a request for licensing of a one-time alternate repair criterion, H\*, DNC committed to “perform a one-time verification of the tube expansion to locate any significant deviations in the distance from the top of the tubesheet to the bottom of the expansion transition (BET). If any significant deviations are found, the condition will be entered in the plant’s corrective action program and dispositioned. Additionally, DNC commits to notify the NRC of significant deviations.”

This document provides an assessment of the effect of variations in the depth of the BET on the calculated values of H\* length to determine the value of the BET position beyond which will be considered “significant.” This value has been determined to be 1.0 inch for the MPS3 steam generators due to available margins as discussed below. As shown in Table 1 of this correspondence, seven tubes have been determined to have BET located below 1.0 inch from the TTS in the MPS3 steam generators.

**Table 1**  
**MPS3 Tubes with BET Greater Than 1 Inch That May Reduce Inherent Margins for a 13.1 inch Inspection Depth**

SG	Row	Column	BET	Radius
3AH	15	61	-1.16	15.928
3AH	12	59	-1.25	13.209
3AH	11	50	-1.07	16.462
3AH	11	60	-1.22	12.090
3AH	9	52	-1.03	13.692
3AH	6	59	-1.65	7.511
3AH	13	60	-1.74	14.037

### Analysis Summary

Table RAI20-5 of Reference 5 provides a value for H\* of [ ]<sup>a,c,e</sup> inches for the Model F steam generators at 95/50. This value for H\* includes the effects of surface sampling from Figure 8-5 of Reference 3 with a limited number of tubesheets, a sector based approach, and a thermal offset correction factor. Conservatively, a similar value has been determined for the case when the whole plant complement of tubes is considered

(22504 tubes). This value was not previously provided in Table RAI20-5 and is based on computations performed with the full Monte-Carlo simulation model (See columns (b) and (c) of Table 2 of this correspondence). The issue consisted of obtaining a suitable correction factor to obtain a 95/95 extreme value for H\* applicable to the full plant from a 95/50 whole bundle estimate which does not include the effect of residual contact pressure. Explicit computations were performed which resulted in the choice of a multiplicative correction factor of [ ]<sup>a,c,e</sup> (column (e) of Table 2) to be applied to the 95/50 whole bundle estimate. The evaluation at the higher confidence of 95/95 increases the required H\* from [ ]<sup>a,c,e</sup> inches to [ ]<sup>a,c,e</sup> inches ([ ]<sup>a,c,e</sup> inches times the correction factor of [ ]<sup>a,c,e</sup> = [ ]<sup>a,c,e</sup> inches).

**Table 2**

<b>H* Correction Factor</b>				
Simulation Method (a)	H* Result-95/50 Whole Bundle (in) (b)	H* Result-95/95 Whole Plant (in) (c)	Additive Correction (in) (d)	Multiplicative Correction Factor (e)
Monte Carlo	[ ] <sup>a,c,e</sup>	[ ] <sup>a,c,e</sup>	[ ] <sup>a,c,e</sup>	[ ] <sup>a,c,e</sup>

Therefore, the proposed inspection depth of 13.1 inches provides at least a [ ]<sup>a,c,e</sup> inch margin to the most conservative prediction of H\* of [ ]<sup>a,c,e</sup> inches. This value compares favorably to the maximum value for BET determined in the MPS3 steam generators of 1.74 inches.

The choice of a multiplicative adjustment assures a conservative estimate when compared to the somewhat lower additive 95/95 estimate of [ ]<sup>a,c,e</sup> inches ([ ]<sup>a,c,e</sup> inches + [ ]<sup>a,c,e</sup> inches (column (d) of Table 2 above) obtained using the Monte-Carlo analysis results. The proposed multiplicative correction factor is essentially equivalent to the same correction factor that would be defined using the Square Root Sum of Squares (SRSS) results included in Table 3 of Reference 4 ([ ]<sup>a,c,e</sup> = [ ]<sup>a,c,e</sup> inches/11.2 inches).

It is not considered credible that a 0.7 inch change in the location of the BET (1 inch compared to the 0.3 inch value of location included in the H\* analysis) will cause a change in the predicted value of H\* of greater than [ ]<sup>a,c,e</sup> inches. Therefore, a 1 inch location of the BET is not considered to be significant to the application of H\*.

**Effect of Radial Location of Tube on H\* Length**

The row and column location of a tube that exhibits a BET measurement value greater than 0.3 inch is also an important factor in assessing the impact of the BET measurement on H\*. In determining the H\* value, it assumed that every tube is located at the worst-case position in the bundle. However, H\* is a radius-dependent value as shown in Figure RAI20-1, Model F: Normalized H\* for Various Tubesheet Sections of SGMP-09-100-P (Reference 5; note this information was provided in the original MPS3

license amendment request (LAR) submittal dated November 23, 2009). Figure RAI20-1 shows the radius-dependent calculated values of  $H^*$  normalized to the maximum value of  $H^*$  at the limiting location in the bundle. At the limiting location, the normalized value of  $H^*$  is 1. The normalized values of  $H^*$  decrease at all other radii in the bundle; thus the margin between the inspection depth and the radius dependent  $H^*$  value is greater for all tubes at locations other than the limiting location.

The LAR value of  $H^*$  is based on the radial worst case position in the tube bundle at [ ]<sup>a,c,e</sup> inches radius shown in Reference 3. The value of  $H^*$  at all other radial positions is less than the limiting value at the critical radius. Additional margin beyond the inherent margin in the requested inspection depth is available at all of the non-critical radii. This additional margin can be used to accommodate locations of the BET relative to the TTS.

At MPS3, there were tubes identified with larger than a 0.3 inch BET position relative to the TTS. The radial position of these tubes on the tubesheet is readily calculated from their row and column positions, the tube pitch ([ ]<sup>a,c,e</sup> inch) and the bend radius of the row 1 tubes ([ ]<sup>a,c,e</sup> inches). Knowing the radial position of each tube, the position-specific value of  $H^*$  can be determined from Figure RAI20-1 of Reference 5. Figure RAI20-1 provides the normalized position-dependent values of  $H^*$  for the Model F steam generator. For example, at [ ]<sup>a,c,e</sup> inches radius, the limiting radius, the normalized value of  $H^*$  is 1. This is the position that determines the licensed value of  $H^*$ , 13.1 inches. At radius 11.8 inches, the normalized value of  $H^*$  is approximately [ ]<sup>a,c,e</sup>, indicating the necessary  $H^*$  depth at that location is [ ]<sup>a,c,e</sup> inches, including all of the margins represented by the LAR inspection depth value of 13.1 inches. Therefore, at a radial position of 11.8 inches, an additional margin of [ ]<sup>a,c,e</sup> inches exists if the LAR inspection depth is 13.1 inches.

The actual inspection depth for refueling outage M3R13 is 15 inches. The difference between the LAR requested inspection depth of 13.1 inches and actual inspection depth of 15 inches provides an additional margin of 1.9 inches.

Table 1 of this correspondence identifies the MPS3 tubes that have BETs located greater than 1.0 inch below the TTS and, therefore, may have reduced margins relative to the requested inspection depth of 13.1 inches. When adjusting for tube position in the tubesheet using the most conservative assumption, i.e., with 1.0 inch considered the limiting value of BET position, no tubes have a negative impact on the margin inherent in the 13.1 inches inspection depth based solely on location of the tube in the tube bundle.

### **Effect of BET Depth on $H^*$ Length**

The structural calculation of the  $H^*$  value depends on the deformation of the tubesheet due to thermal and differential pressure loading. These loads result in a contact pressure profile through the thickness of the tubesheet. Assuming that the tube and the

tubesheet are not initially in contact for some distance, i.e. 1.0 inch, from the TTS, it is reasonable to consider if the predicted necessary length of tube in contact with the tubesheet would be affected. The answer to the question is important to consider because the actual length of tube in contact with the tubesheet at any given position in the tubesheet must provide essentially the same margin against tube pull-out as that assuming tube to tubesheet contact exists over the full inspection length of the tubesheet regardless of the BET offset. A specific numerical solution would require complete re-analysis of  $H^*$  based on the postulated assumption of where tube to tubesheet contact begins (i.e., a postulated location of the BET). However, based on the experience of the  $H^*$  analysis model developments and multiple sensitivity studies, a sound engineering judgment is possible to address the postulated case.

$H^*$  is essentially an integration of the contact pressure profile from the TTS downward to determine the axial position at which the integrated resisting forces are equal to the applied pullout forces. Therefore, the rate of change (slope) of the contact pressure profile from the TTS is a reasonable indicator of the effect on  $H^*$  of a postulated TTS non-contact initial condition. At the limiting tubesheet radius for  $H^*$ , the slope of the contact pressure curve is positive with increasing depth into the tubesheet. Also, the tubesheet displacements below the TTS elevation decrease around the circumference of the tube outside diameter (OD), resulting in a tighter tubesheet bore. Thus, the predicted  $H^*$  distance under postulated TTS non-contact conditions would be expected to decrease because the rate of increase in contact pressure from the top portion of the tube in contact with the tubesheet to the  $H^*$  depth would be greater.

At the smallest tubesheet radius, the contact pressure curve is initially negative for a short distance (<2 inches) and then becomes positive with increasing depth into the tubesheet. In aggregate, a shorter length of tube in contact with the tubesheet would be predicted to result in the same pullout margin. For the largest tubesheet radius, where the  $H^*$  margin is the greatest, the slope of the contact pressure curve is negative for the entire thickness of the tubesheet from the TTS to the bottom. For this location, a small increase in the necessary tube to tubesheet contact length could be expected if it were assumed that the BET is located at 1.0 inch below the TTS; however, this increase would be expected to more than adequately be offset by the maximum  $H^*$  margin at this location.

In summary, while no specific analysis has been performed, based on the prior preliminary scoping analysis of model development and scoping studies performed during the  $H^*$  analysis, it is judged that no negative impact on the predicted value of  $H^*$  would occur if it were assumed that the location of the BET is 1.0 inch below the TTS.

### **Assessment on the Steam Generator Plugging Criteria**

The current suggested steam generator plugging criteria is appropriate. The analysis above demonstrates that (1) the margin inherent to  $H^*$  is sufficient to accommodate observed variations in the location of the BETs in the MPS3 steam generators (2) with -

1.0 inch considered the limiting value of BET position, no tubes have a negative impact on the margin inherent in the 13.1 inches inspection depth based solely on location of the tube in the tube bundle, and (3) a preliminary scoping analysis supports no change in H\* length is necessary for BET values less than 1.0 inch from the TTS.

Additionally the underlying basis of H\* is that a complete severance of the tubes is assumed at, or below, the H\* inspection distance. The MPS3 LAR includes a commitment to sample for tube slippage on a periodic basis. Slippage monitoring is accomplished by monitoring for a large bobbin signal in the tubesheet expansion region. MPS3 has performed 100% bobbin inspections of the steam generators during the recent steam generator outage as reviewed by NRC letter dated December 22, 2009 (Reference 6). No large bobbin signals have been observed; thus, it is concluded that no tube severance or slippage has occurred. The Normal Operating Pressure condition is shown in Reference 3 to be the limiting condition for H\*; thus, the absence of severance and slippage of tubes is proof that the tubes remain in a safe condition, regardless of the known position of the BET at MPS3. Until such time that a severance is shown to occur in any tube with a significant variation of BET position, there is no need to plug that tube.

### Summary and Conclusions

Based on the above, it is concluded that:

1. The current requested LAR inspection depth of 13.1 inches provides significant margin over a 95/95 whole plant value calculated for H\* which does not consider the effect of residual contact pressure.
2. The available margin between the requested H\* inspection depth of 13.1 inches is [ ]<sup>a,c,e</sup> inches at the limiting position in the bundle.
3. The margin between the requested inspection depth and the calculated H\* values increases as the position of the tube in the bundle varies from the limiting position.
4. A variation of the BET position to a value of 1.0 inch below the TTS, compared to the 0.3 inch uncertainty already included in the calculated values of H\* is readily accommodated by the available margins between the planned inspection depth and the calculated H\* values.

### References:

1. NEI 97-06, Rev. 2, "Steam Generator Program Guidelines," May 2005.
2. EPRI 1013706, "Steam Generator Management Program: Pressurized Water Reactor Steam Generator Examination Guidelines: Revision 7," October 2007.
3. Westinghouse Electric Company LLC, WCAP-17071-P, Rev. 0, "H\*: Alternate Repair Criteria for the Tubesheet Expansion Region in Steam Generators with Hydraulically Expanded Tubes (Model F)," April 2009 (Proprietary).

4. Southern Nuclear Operating Company, Inc. letter NL-09-1317, "Supplemental Information for License Amendment Request to Revise Technical Specification (TS) Sections 5.5.9, "Steam Generator (SG) Program" and TS 5.6.10, "Steam Generator Tube Inspection Report" for Permanent Alternate Repair Criteria," August 28, 2009. (*Transmittal of Westinghouse Electric Company LLC letter LTR-SGMP-09-104-P Attachment, Rev. 1 "White Paper on Probabilistic Assessment of H\*," dated August 13, 2009, NRC ADAMS Accession Nos. ML092450030 (Proprietary) and ML092450029 (Non-Proprietary).*)
5. Westinghouse Electric Company LLC, LTR-SGMP-09-100 P-Attachment, "Response to NRC Request for Additional Information on H\*; Model F and Model D5 Steam Generators," August 12, 2009 (Proprietary).
6. Letter dated December 22, 2009, C, J, Sanders, USNRC, to D. A. Heacock, Dominion Nuclear Connecticut, Inc., "Millstone Power Station, Unit No. 3 – Review of the 2008 Steam Generator Tube Inservice Inspection Report (TAC No. ME0942)."

**Enclosure 5**

**Westinghouse Electric Company LLC, CAW-10-2803, "Application for Withholding  
Proprietary Information from Public Disclosure," dated April 22, 2010**

**DOMINION NUCLEAR CONNECTICUT, INC.  
MILLSTONE POWER STATION UNIT 3**



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CAW-10-2803

April 22, 2010

APPLICATION FOR WITHHOLDING PROPRIETARY  
INFORMATION FROM PUBLIC DISCLOSURE

Subject: LTR-SGMP-10-50-P-Attachment, "Assessment of the Effect of the Location of the Bottom of the Expansion Transition on H\*," dated April 2010 (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-10-2803 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 Dominion Nuclear Connecticut, Inc.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-10-2803, and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

Very truly yours,

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

J.A. Gresham, Manager  
Regulatory Compliance and Plant Licensing

Enclosures

bcc: J. A. Gresham  
C. B. Brinkman  
C. L. Olesky  
G. W. Whiteman  
H.O. Lagally  
D.A. Testa  
D.L. Rogosky  
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AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

SS

COUNTY OF ALLEGHENY:

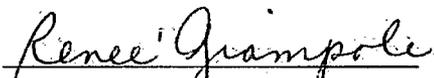
Before me, the undersigned authority, personally appeared J. A. Gresham, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:



J. A. Gresham, Manager

Regulatory Compliance and Plant Licensing

Sworn to and subscribed before me  
this 22nd day of April 2010

  
Notary Public

COMMONWEALTH OF PENNSYLVANIA  
NOTARIAL SEAL  
Renee Giampole, Notary Public  
Penn Township, Westmoreland County  
My Commission Expires September 25, 2013

- (1) I am Manager, Regulatory Compliance and Plant Licensing, 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 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.

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 LTR-SGMP-10-50 P-Attachment, "Assessment of the Effect of the Location of the Bottom of the Expansion Transition on H\*," dated April 2010. (Proprietary), for submittal to the Commission, being transmitted by Dominion Nuclear Connecticut, Inc. letter and Application for Withholding Proprietary Information from Public Disclosure to the Document Control Desk. The proprietary information as submitted for use by Westinghouse for Millstone Unit 3 is expected to be applicable to other licensee submittals in support of implementing an alternate repair criterion, called H\*, that does not require an eddy current inspection and plugging of the tubes below a distance of 13.1 inches from the top of the tubesheet.

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

- (a) Provide supplemental information related to the location of the bottom of the hydraulic expansion transition from the top of the tubesheet and its impact on the alternate repair criterion, designated as H\*, for a portion of the tubes within the tubesheet of the Millstone Unit 3 steam generators.
- (b) Assist the customer in obtaining NRC approval of the Technical Specification changes associated with the alternate repair criterion.

Further this information has substantial commercial value as follows:

- (a) Westinghouse plans to sell the use of similar information to its customers for the purposes of meeting NRC requirements for licensing documentation.
- (b) Westinghouse can sell support and defense of the technology to its customers in the licensing process.

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 calculation, evaluation 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.

Dominion Nuclear Connecticut, Inc.  
Letter for Transmittal to the NRC

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

Enclosed are:

1. 1 copy of LTR-SGMP-10-50 P-Attachment, "Assessment of the Effect of the Location of the Bottom of the Expansion Transition on H\*," dated April 2010 (Proprietary)
2. 1 copy of LTR-SGMP-10-50 NP-Attachment, "Assessment of the Effect of the Location of the Bottom of the Expansion Transition on H\*," dated April 2010 (Non-Proprietary).

Also enclosed is Westinghouse authorization letter CAW-10-2803 with 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-10-2803 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.