



1101 Market Street, Chattanooga, Tennessee 37402

CNL-18-116

October 11, 2018

10 CFR 50.90

ATTN: Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

Watts Bar Nuclear Plant, Unit 2  
Facility Operating License No. NPF-96  
NRC Docket No. 50-391

**Subject: Response to Request for Additional Information Regarding the  
Application to Revise Watts Bar Nuclear Plant Unit 2 - License  
Condition 2.C(4) PAD4TCD (391-WBN-TS-18-03)  
(EPID L-2018-LLA-0051)**

- References:
1. TVA Letter to NRC, CNL-18-016, "Watts Bar Nuclear Plant Unit 2 - Application to Revise License Condition 2.C(4) PAD4TCD (391-WBN-TS-18-03)," dated March 5, 2018 (ML18064A192)
  2. TVA Letter to NRC, CNL-18-058, Supplement to Application to Revise Watts Bar Nuclear Plant Unit 2 - License Condition 2.C(4) PAD4TCD (391-WBN-TS-18-03) (EPID L-2018-LLA-0051)," dated April 27, 2018 (ML18137A193)
  3. NRC Electronic Mail to TVA, "RAIs for Watts Bar Regarding PAD4TCD LAR," dated August 30, 2018 (ML18241A351)

In Reference 1, Tennessee Valley Authority (TVA) submitted a request for an amendment to Facility Operating License (OL) No. NPF-96 for the Watts Bar Nuclear Plant (WBN), Unit 2. The proposed change revises WBN Unit 2 OL Condition 2.C(4) to permit the use of the PAD4TCD computer program to continue to establish core operating limits until the WBN Unit 2 steam generators (SGs) are replaced with SGs equivalent to those in WBN Unit 1. In Reference 2, TVA submitted supplemental information for the license amendment request. In Reference 3, the Nuclear Regulatory Commission (NRC) transmitted a request for additional information (RAI) and requested a response by October 15, 2018. Enclosure 1 to this letter provides the TVA response to the RAI. Enclosure 1 to this letter does not change the no significant hazards consideration or the environmental considerations contained in Reference 1. Additionally, in accordance with 10 CFR 50.91(b)(1), TVA is sending a copy of this letter and the enclosures to the Tennessee Department of Environment and Conservation.

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Enclosure 1 contains information proprietary to Westinghouse Electric Company that is indicated by bold brackets. Enclosure 2 contains a non-proprietary version of the RAI responses.

The proprietary information is supported by an affidavit signed by Westinghouse, the owner of the information (Enclosure 3). The affidavit sets forth the basis on which the information should be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR 2.390 of the Commission's regulations. Accordingly, TVA requests that the information, which is proprietary to Westinghouse, be withheld from public disclosure in accordance with 10 CFR 2.390 of the Commission's regulations. Correspondence with respect to the copyright or proprietary aspects of the technical support document or the supporting Westinghouse affidavit should reference CAW-18-4813 and should be addressed to Edmond J. Mercier, Manager Fuels Licensing and Regulatory Support, Westinghouse Electric Company, 1000 Westinghouse Drive, Building 3 Suite 256, Cranberry Township, Pennsylvania 16066

There are no new regulatory commitments made in this letter. Please address any questions regarding this request to Anthony Brown at (423) 751-32.75.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 11th day of October 2018.

Respectfully,



E. K. Henderson  
Director, Nuclear Regulatory Affairs

Enclosures

cc (see Page 3)

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~~Enclosures:~~

- ~~1. Response to NRC Request for Additional Information Regarding the  
Application to Revise Watts Bar Nuclear Plant Unit 2 License  
Condition 2.C(4) PAD4TCD (391 WBN TS 18 03)  
(EPID L 2018 LLA 0051) (Proprietary)~~
- ~~2. Response to NRC Request for Additional Information Regarding the  
Application to Revise Watts Bar Nuclear Plant Unit 2 License  
Condition 2.C(4) PAD4TCD (391 WBN TS 18 03)  
(EPID L 2018 LLA 0051) (Non-Proprietary)~~
- ~~3. Westinghouse Affidavit CAW 18 4813 Supporting Enclosure 1~~

~~cc (Enclosures):~~

~~NRC Regional Administrator Region II  
NRC Resident Inspector Watts Bar Nuclear Plant  
NRC Project Manager Watts Bar Nuclear Plant  
Director, Division of Radiological Health Tennessee State Department of  
Environment and Conservation~~



**Response to NRC Request for Additional Information Regarding the Application to Revise  
Watts Bar Nuclear Plant Unit 2 - License Condition 2.C(4) PAD4TCD  
(391-WBN-TS-18-03) (EPID L-2018-LLA-0051) (Non-Proprietary)**

**NRC Introduction**

*By letter dated March 5, 2018, Tennessee Valley Authority (TVA), the licensee for Watts Bar Nuclear Plant, Unit 2 (WBN 2) requested to modify Condition 2.C(4) to Facility Operating License No. NPF-96 (Agencywide Document Access and Management System (ADAMS) Accession No. ML18064A192). The request was supplemented by letter dated April 27, 2018 (ML18137A193). The NRC staff is reviewing the request and determined that additional information is required to complete its review.*

*The licensee's April 27, 2018 letter referred to a proprietary evaluation, which was performed by Westinghouse Electric Company (WEC), and which the licensee stated was applicable to WBN Unit 2. This evaluation, included as Appendix B to LTR-NRC-12-18, is referenced in the below request (ML12053A105).*

**Regulatory Basis**

*Because the simulation of the fuel element is an integral part of plant safety analyses, the NRC staff review of the proposed license condition revision is based on numerous General Design Criteria (GDCs) set forth in Appendix A to title 10 of the Code of Federal Regulations, part 50 (10 CFR 50). The NRC staff review is based on guidance and acceptance criteria provided in specific sections of Chapters 4, "Reactor," and 15, "Transient and Accident Analysis," of NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Reactors, Light Water Reactor Edition."*

*The regulatory requirements in aggregate generally require the reactor fuel, coolant, and protection systems to be designed and operated with sufficient margins to safety to limit the postulated consequences of anticipated operational occurrences and infrequent events. The following GDC are applicable:*

- *GDC 10 requires that specified acceptable fuel design limits are not exceeded during any condition of normal operation, including the effects of anticipated operational occurrences (AOOs).*
- *GDC 20 requires automatic initiation of the reactivity control systems (RCSs) to assure that acceptable fuel design limits are not exceeded as a result of anticipated operational occurrences and to assure automatic operation of systems and components important to safety occurs under accident conditions.*
- *GDC 25 requires that no single malfunction of the RCSs, excluding ejection or dropout, causes violation of the acceptable fuel design limits.*
- *GDC 26 requires that two independent RCSs of different design be provided, and that each system have the capability to control the rate of reactivity changes resulting from planned, normal power changes. One of the systems must be capable of reliably controlling anticipated operational occurrences. In addition, one of the systems must be capable of holding the reactor core subcritical under cold conditions.*

- *GDC 28 requires that the effects of postulated reactivity accidents neither result in damage to the reactor coolant pressure boundary greater than limited local yielding, nor cause sufficient damage to impair significantly the capability to cool the core.*

## **NRC RAI 1. Fuel Rod Cladding Stress and Strain**

### ***Background***

*Fuel rod design is addressed in Chapter 4.2 of the WBN dual-unit FSAR. The design criteria are discussed in Section 4.2.1.1.1, and a design description is provided in Section 4.2.1.2.1. Notably, the design description concludes with the safety objectives for fuel rod design. Among other things, the fuel rods are designed such that the cladding stress-strain limits are not exceeded for Condition I and II events.*

*In Appendix B to WEC Letter LTR-NRC-12-18, WEC notes that [*

*]*

*The evaluation described above indicates several ways, in which TCD effects may be accommodated with respect to cladding stress and strain limits. However, it provides no specific or quantitative information to indicate that the evaluation would apply to WNB Unit 2. It also does not indicate the means by which TCD would be accommodated with regard to the WBN Unit 2 licensing basis, including the acceptance criteria applicable to that plant.*

### ***Request***

*Demonstrate that, when accounting for the effects of TCD on fuel rod cladding stress and strain, the current acceptance criteria continue to be met, or that the application of newer, less-restrictive acceptance criteria provides sufficient margin to offset the effects of TCD.*

## **TVA Response to RAI 1**

Section 7.4.1 of Reference 1 discusses the new cladding stress criterion, which is based on the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPVC) guidelines. As shown in Table 7.4.1-2, [

]

The new cladding stress criterion is not affected by TCD.

Section 7.4.2 of Reference 1 discusses the new cladding strain criterion. The acceptance limit for cladding strain is that the total tensile strain, elastic plus plastic, due to uniform cylindrical fuel pellet deformation during any single Condition I or II transient shall be less than one percent (%) from the pre-transient value. Transient cladding strain margins were evaluated for WBN Unit 2 using PAD5, which was generically approved and explicitly accounts for the effects of TCD. [

]

were analyzed using PAD5 models and methods. The results for this analysis are presented below in Table 1. The most limiting strain is [ ] resulting in a

margin of [ ]. The results demonstrate that WBN Unit 2 meets the cladding stress and strain criteria when accounting for the effects of TCD.

**Table 2 - WBN Unit 2 Strain Results**

Cycle	Strain Limit	Strain Result	Strain Margin

### **Reference**

1. WCAP-17642-P-A and WCAP-17642-NP-A, Revision 1, "Westinghouse Performance Analysis and Design Model (PAD5)," November 27, 2017 (ML17338A396 and ML17334A826)

### **NRC RAI 2. Main Steamline Break**

#### ***Background***

*The main steamline break (MSLB) event is described in Section 15.4.2 of the Watts Bar Nuclear (WBN) Dual-Unit Updated Final Safety Analysis Report (UFSAR). The MSLB involves the rupture of a main steamline, followed by overcooling of the reactor coolant system (RCS). If the MSLB occurs at hot zero power (HZIP) conditions, the core can return to power conditions, and if the MSLB occurs at hot full power (HFP) conditions, the core can enter an overpower condition. The licensing basis analysis for WBN Unit 2 assumes the plant is initially in a HZIP condition, and departure from nucleate boiling (DNB) is evaluated at the limiting statepoint associated with that condition. The analysis confirms that DNB ratio (DNBR) remains above the applicable limit and fuel integrity is maintained throughout the event. Page 15.4-35 of the UFSAR notes that:*

*Both [analyzed MSLB cases] assume initial hot shutdown conditions at time zero since this represents the most limiting initial condition. Should the reactor be just critical or operating at power at the time of a steam line break, the reactor will be tripped by the normal overpower protections system when power level reaches a trip point. Following a trip at power the reactor coolant system contains more stored energy than at no load, the average coolant temperature is higher than at no load and there is appreciable energy stored in the fuel. Thus, the additional stored energy is removed via the cooldown caused by the steam line break before the no load conditions of RCS temperature and shutdown margin assumed in the analyses are reached.*

*As to the MSLB analyses, WEC stated in Table B.1 of LTR-NRC-12-18 that [*

*]*

*The WBN2 licensing basis indicates that the results of an HFP MSLB would be bounded by the HZIP event that is explicitly analyzed as described in UFSAR Section 15.4.2. However, the rationale reflects consideration of thermal energy sources like core stored energy that would be increased when TCD is taken into account. The information that TVA referenced in the WEC letter also indicates that [*

*]*. In

## Enclosure 2

Supplement 24 to NUREG-0847, "Safety Evaluation Report Related to the Operation of Watts Bar Nuclear Plant, Unit 2," the NRC staff noted that the basis for not analyzing an HFP MSLB included the NRC-approved topical report WCAP-8745-P-A, "Design Bases for the Thermal Overpower  $\Delta T$  and Overtemperature  $\Delta T$  Trip." This topical report includes information indicating that the OP $\Delta T$  trip provides adequate protection for an MSLB event from HFP conditions.

### **Request**

Provide information to demonstrate that the OP $\Delta T$  trip provides adequate protection from unacceptable consequences, such as fuel melt, following a postulated MSLB from HFP conditions. Consider specifically that TCD has two effects: increasing stored energy in the core as discussed in WBN FSAR Section 15.4.2, and increased [ ] as discussed in Table B.1 of WEC letter LTR-NRC-12-18. Describe the extent to which existing or additional margin offsets, such as peaking factor burndown limits, are necessary to ensure [ ] is precluded.

### **TVA Response to RAI 2**

Although a full power steamline break event is not presented in the WBN dual-unit Updated Final Safety Analysis Report (UFSAR), the event is analyzed for WBN Unit 2 to address the concerns outlined in Reference 1 related to non-safety grade equipment being subjected to an adverse environment from high-energy line breaks inside or outside containment. Specifically, Reference 1 postulated that a high-energy steamline break could cause the automatic rod control system cabling and/or related equipment to fail and subsequently cause the rods to withdraw from the core. Such a rod withdrawal, along with the reactor coolant system cooldown due to the steamline break, would lead to a rapid power excursion in which the overpower  $\Delta T$  (OP $\Delta T$ ) reactor trip setpoint would be reached. Therefore, an analysis of a steamline break at power with coincident rod withdrawal (SLB w/ RWAP) is performed for WBN Unit 2 to confirm that the OP $\Delta T$  reactor trip function provides adequate protection from unacceptable consequences during a steamline break event from hot full power conditions.

The WBN Unit 2 SLB w/ RWAP event was reanalyzed using the revised LOFTRAN code input to account for the effects of fuel TCD. Fuel TCD has the effect of [ ]

[ ] through a reduction in uranium dioxide (UO<sub>2</sub>) conductivity with burnup. This effect was accounted for in the LOFTRAN analysis through the use of revised inputs for [ ]

generated by the PAD5 fuel performance code (Reference 2). Cases were analyzed at [ ]

[ ] to ensure that the limiting case was identified. However, no credit was taken in the LOFTRAN analysis for [ ]

].

The event was analyzed to demonstrate that the peak fuel linear heat generation rate remained below a value that would cause fuel melting (i.e., power-to-melt limit expressed in terms of [ ]), and that the minimum departure from nucleate boiling ratio (DNBR) remained above the applicable safety analysis limit (SAL) value. For this analysis, the power-to-melt limit was redefined as a [ ]

Specifically, the power-to-melt limit is [ ]

[ ] The DNBR SAL of [ ]

## Enclosure 2

The limiting results from the revised analysis are presented in Table 2. Confirmations that no fuel centerline melt occurs and that the DNBR SAL is met for the SLB w/ RWAP event are typically performed on a reload basis by [

], and consistent with the current core design methodology in Reference 3. Cycle specific analyses for Cycles 1 and 2 showed that with consideration of the models and methods in Reference 2 the [

]. The fuel melt limit for SLB w/ RWAP was met with consideration of the fuel TCD, using the models and methods defined in Reference 2 [

]. The minimum DNBR values calculated for the [ ] cases remained well above the DNBR SAL.

Therefore, the effects of fuel TCD can be accommodated for the SLB w/ RWAP accident for WBN Unit 2.

**Table 2 - WBN Unit 2 SLB w/ RWAP Results**

Case	Criterion	Results
[ ]		

### **References**

1. Information Notice IE-79-22, "Qualification of Control Systems."
2. WCAP-17642-P-A and WCAP-17642-NP-A, Revision 1, "Westinghouse Performance Analysis and Design Model (PAD5)," November 27, 2017 (ML17338A396 and ML17334A826)
3. WCAP-9272-P-A (Proprietary) and WCAP-9273-NP-A (Non-Proprietary), Revision 0, "Westinghouse Reload Safety Evaluation Methodology," July 1985

### **NRC RAI 3. Control Rod Ejection**

#### ***Background***

*The control rod ejection accident is described in Section 15.4.6 of the Watts Bar UFSAR. Section 15.4.6.1.2 provides the acceptance criteria for the event, which include the following:*

- *The average fuel pellet enthalpy at the hot spot must be below 225 calories per gram for unirradiated fuel, and below 200 calories per gram for irradiated fuel.*
- *The peak reactor coolant pressure must not exceed the faulted condition stress limits,*
- *Fuel melting must be less than the innermost 10-percent of the fuel pellet at the hot spot.*

*The event is analyzed for WBN using the TWINKLE spatial kinetics code for the average core transient analysis, and the hot spot analysis is performed using FACTRAN. The hot spot analysis, in particular, has the potential to be affected by TCD. Specifically, [[*

*]] affected by TCD, according to LTR-NRC-12-18.*



***Request***

*Provide updated analyses of the hot spot rod ejection event for end-of-life conditions to show that the licensing basis acceptance criteria remain satisfied when accounting for the effects of TCD.*

**TVA Response to RAI 3**

The WBN Unit 2 end-of-cycle-life (EOL) rod ejection cases were reanalyzed using TWINKLE and FACTRAN. The FACTRAN code inputs were revised to account for the effects of fuel thermal conductivity degradation (TCD) in the hot spot analysis. The revised inputs were based on the models and methods defined in Reference 1. Specifically, the input changes included [

] for both the HFP and hot zero power (HZIP) cases. For the HFP case, [ ].

The HZIP case was based on the [ ].

[ ]

The results from the revised analysis are compared to the results of the UFSAR analysis in Table 3. The peak reactor coolant pressure criterion was generically addressed in Reference 2, as noted in UFSAR Section 15.4.6.1.2. Based on the generic work, TVA concluded that the rod ejection event is not limiting with respect to reactor coolant pressure. [

] For this reason, the reactor coolant pressure criterion is not explicitly included in Table 3. The results from the revised analysis demonstrate that all licensing basis acceptance criteria continue to be satisfied. Therefore, TVA concluded that the effects of fuel TCD can be accommodated for the rod ejection accident for WBN Unit 2.

**Table 3 - WBN Unit 2 Rod Ejection Results**

<b>Case</b>	<b>Average Fuel Pellet Enthalpy at the Hot Spot (Limit: &lt; 200 cal/g)</b>	<b>Fuel Melting at the Hot Spot (Limit: &lt; 10%)</b>
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**References**

1. WCAP-17642-P-A and WCAP-17642-NP-A, Revision 1, "Westinghouse Performance Analysis and Design Model (PAD5)," November 27, 2017 (ML17338A396 and ML17334A826)
2. WCAP-7588, Revision 1-A, "An Evaluation of the Rod Ejection Accident in Westinghouse Pressurized Water Reactors Using Spatial Kinetics Methods," January 1975

Enclosure 3

Westinghouse Affidavit CAW-18-4813 Supporting Enclosure 1



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CAW-18-4813

September 27, 2018

APPLICATION FOR WITHHOLDING PROPRIETARY  
INFORMATION FROM PUBLIC DISCLOSURE

Subject: Westinghouse Responses to NRC Request for Additional Information Regarding the Application to Revise Watts Bar Nuclear Plant Unit 2 - License Condition 2.C(4) PAD4TCD (391-WBN-TS-18-03), EPID L-2018-LLA-0051 (Proprietary)

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 CAW-18-4813 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.

Accordingly, this letter authorizes the utilization of the accompanying Affidavit by Tennessee Valley Authority.

Correspondence with respect to the proprietary aspects of the Application for Withholding or the Westinghouse Affidavit should reference CAW-18-4813, and should be addressed to Edmond J. Mercier, Manager, Fuels Licensing and Regulatory Support, Westinghouse Electric Company, 1000 Westinghouse Drive, Building 2 Suite 256, Cranberry Township, Pennsylvania 16066.

A handwritten signature in black ink, appearing to read "Edmond J. Mercier", written over a horizontal line.

Edmond J. Mercier, Manager  
Fuels Licensing and Regulatory Support

AFFIDAVIT

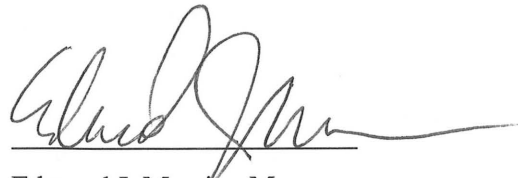
COMMONWEALTH OF PENNSYLVANIA:

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: 9/27/2018

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

Edmond J. Mercier, Manager  
Fuels Licensing and Regulatory Support

- (1) I am Manager, Fuels Licensing and 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 WAT-D-12464 P-Attachment, "Westinghouse Responses to NRC Request for Additional Information Regarding the Application to Revise Watts Bar Nuclear Plant Unit 2 - License Condition 2.C(4) PAD4TCD (391-WBN-TS-18-03), EPID L-2018-LLA-0051" (Proprietary), for submittal to the Commission, being transmitted by Tennessee Valley Authority (TVA) letter. The proprietary information as submitted by Westinghouse is that associated with NRC's review of TVA's application to revise the Watts Bar Nuclear Plant Unit 2 License Condition 2.C(4), and may be used only for that purpose.
- (a) This information is part of that which will enable Westinghouse to support the NRC's review of TVA's application to revise License Condition 2.C(4).

- (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 future NRC reviews regarding thermal conductivity degradation.
  - (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 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.