

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

May 16, 2012

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Serial No. 12-330
NL&OS/ETS R0
Docket Nos. 50-338/339
License Nos. NPF-4/7

VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)
NORTH ANNA POWER STATION UNITS 1 AND 2
30-DAY REPORT OF EMERGENCY CORE COOLING SYSTEM (ECCS)
MODEL CHANGES PURSUANT TO THE REQUIREMENTS OF 10 CFR 50.46

In accordance with 10 CFR 50.46(a)(3)(ii), Dominion hereby submits information regarding an evaluation of fuel pellet thermal conductivity with fuel burnup in the Westinghouse Best Estimate Large Break Loss of Coolant Accident (LBLOCA) analysis methodology for North Anna Power Station (NAPS) Units 1 and 2 and its effect on peak cladding temperature (PCT). Attachment 1 describes the evaluation to determine the estimated PCT effects of fuel pellet thermal conductivity degradation (TCD) and peaking factor burndown. Revised LBLOCA PCT margin utilization sheets are included in Attachment 1. The peaking factor burndown used in the TCD evaluation described in Attachment 1 is conservative for current cycles and has been added to the Reload Safety Analysis Checklist for validation as part of the reload design process.

In a letter dated February 29, 2012 (Reference 1), the NRC approved the use of a plant-specific adaptation of the Westinghouse Automated Statistical Treatment of Uncertainty Method (ASTRUM) LBLOCA evaluation methodology (EM) documented in WCAP-16009-P-A (Reference 2) for North Anna Units 1 and 2. In the NRC Safety Evaluation attached to that letter, the evaluation of the effects of TCD on the LBLOCA analysis was described. The NRC staff reviewed the North Anna Units 1 and 2 LBLOCA analysis calculations to estimate the impact of TCD during an audit at the Westinghouse offices in Rockville, MD, January 9-11, 2012. The contents of this letter summarize the results of the calculations reviewed by the NRC staff.

Information regarding the effect of the PCT changes on the reported LBLOCA licensing basis is provided for NAPS Units 1 and 2 in Attachment 1. To summarize the information in Attachment 1, the calculated PCT for the LBLOCA analyses is changed by +135°F to a new value of 1987°F for NAPS Unit 1 and by +101°F to a new value of 1972°F for NAPS Unit 2. When considering the effects of fuel pellet TCD, NAPS Units 1 and 2 continue to demonstrate compliance with 10 CFR 50.46(b)(1).

The Enclosure to this letter contains Proprietary Information which is to be withheld from public disclosure under 10 CFR 2.390.
Upon removal of the Enclosure, this letter is decontrolled.

ADDZ
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Evaluation of 10 CFR 50.46 Reporting

The estimated impact from fuel pellet TCD on the NAPS ASTRUM LBLOCA EM is +135°F for Unit 1 and +101°F for Unit 2. Since the magnitude of the change in PCT is greater than 50°F for Units 1 and 2, the evaluation of fuel pellet TCD represents a significant change in PCT as defined in 10 CFR 50.46(a)(3)(i).

10 CFR 50.46(a)(3)(ii) requires the licensee to provide a report within 30 days, including a proposed schedule for providing a reanalysis or taking other action as may be needed to show compliance with 10 CFR 50.46. Dominion has reviewed the information provided by Westinghouse and determined that the adjusted LBLOCA PCT values and the manner in which they were derived continue to comply with the requirements of 10 CFR 50.46. Dominion has evaluated the requirement for reanalysis specified in 10 CFR 50.46(a)(3)(ii) and hereby proposes the following schedule for reanalysis.

Before December 15, 2016, Dominion will submit to the NRC for review and approval a LBLOCA analysis that applies NRC-approved methods that include the effects of fuel TCD. The date for the analysis submittal is based on the following milestones, which must be completed in order to perform a revised licensing basis LBLOCA analysis with an NRC-approved ECCS EM that explicitly accounts for TCD:

- 1) NRC approval of a fuel performance analysis methodology that includes the effects of TCD. The new methodology for developing inputs to the LBLOCA EM would replace the current NAPS licensing basis methodology in WCAP-15063-P-A, Revision 1 (Reference 3), which is referenced in Sections 4.2.1.3.1 and 4.4.3.4.2 of the NAPS Updated Final Safety Analysis Report (UFSAR).
- 2) NRC approval of a LBLOCA EM that includes the effects of TCD and accommodates the ongoing 10 CFR 50.46(c) rulemaking process. The new methodology would replace the current licensing basis analysis methodology, which is a plant-specific adaptation of WCAP-16009-P-A (Reference 2) as approved by the NRC in Reference 1.

This information satisfies the 30-day reporting requirements of 10 CFR 50.46(a)(3)(ii) for NAPS Units 1 and 2.

Proprietary Information

Attachment 1 contains information proprietary to Westinghouse Electric Company LLC. This Classification is supported by a Westinghouse Application for Withholding Proprietary Information from Public Disclosure and the accompanying Affidavit signed by Westinghouse, the owner of the information, which is provided in Attachment 3. 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 10 CFR 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 2.390. Correspondence with respect to the copyright or proprietary aspects of Attachment 1 or the supporting Westinghouse affidavit should reference letter CAW-12-3413 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. A redacted (non-proprietary) version of Attachment 1 has been included as Attachment 2 for public disclosure.

If you have any further questions regarding this submittal, please contact Mr. Thomas Shaub at (804) 273-2763.

Very truly yours,



J. Alan Price
Vice President – Nuclear Engineering

Commitments made in this letter:

Before December 15, 2016, Dominion will submit to the NRC for review and approval a LBLOCA analysis that applies an NRC-approved ECCS Evaluation Model that includes the effects of fuel thermal conductivity degradation.

Attachments:

1. Information Regarding the Evaluation of Fuel Pellet Thermal Conductivity Degradation for the Westinghouse Large Break LOCA ECCS Evaluation Model – North Anna Power Station Units 1 and 2. (proprietary)
2. Information Regarding the Evaluation of Fuel Pellet Thermal Conductivity Degradation for the Westinghouse Large Break LOCA ECCS Evaluation Model – North Anna Power Station Units 1 and 2. (redacted)
3. Westinghouse Electric Company LLC, Application for Withholding Proprietary Information from Public Disclosure and the Accompanying Affidavit.

References:

1. Letter from Dr. V. Sreenivas (USNRC) to Mr. David A. Heacock (Dominion), "North Anna Power Station, Units 1 and 2, Issuance of Amendments Regarding Addition of Analytical Methodology to Core Operating Limits Report for Best Estimate Large Break Loss-of-Coolant Accident (TAC NOS. ME4933 and ME4934)," February 29, 2012.
2. WCAP-16009-P-A, "Realistic Large-Break LOCA Evaluation Methodology Using the Automated Statistical Treatment Of Uncertainty Method (ASTRUM)," January 2005.
3. WCAP-15063-P-A, Revision 1 with Errata, "Westinghouse Improved Performance Analysis and Design Model (PAD 4.0)," July 2000.

cc: U.S. Nuclear Regulatory Commission - Region II
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PROPRIETARY INFORMATION – WITHHOLD UNDER 10 CFR 2.390

Serial Number 12-330
Docket Nos. 50-338/339

ATTACHMENT 1

WESTINGHOUSE LETTER LTR-LIS-12-223 P, REVISION 1

**INFORMATION REGARDING THE EVALUATION OF FUEL PELLET
THERMAL CONDUCTIVITY DEGRADATION FOR THE
WESTINGHOUSE LARGE-BREAK LOCA ECCS EVALUATION MODEL -
NORTH ANNA POWER STATION UNITS 1 AND 2**

**VIRGINIA ELECTRIC AND POWER COMPANY
(DOMINION)
NORTH ANNA POWER STATION UNITS 1 AND 2**

The Enclosure to this letter contains Proprietary Information which is to be withheld from public disclosure under 10 CFR 2.390. Upon removal of the Enclosure, this page is decontrolled.

ATTACHMENT 2

WESTINGHOUSE LETTER LTR-LIS-12-223 NP, REVISION 1

**INFORMATION REGARDING THE EVALUATION OF FUEL PELLET
THERMAL CONDUCTIVITY DEGRADATION FOR THE
WESTINGHOUSE LARGE-BREAK LOCA ECCS EVALUATION MODEL -
NORTH ANNA POWER STATION UNITS 1 AND 2**

(Redacted Version)

**VIRGINIA ELECTRIC AND POWER COMPANY
(DOMINION)
NORTH ANNA POWER STATION UNITS 1 AND 2**

Information on the Thermal Conductivity Degradation Evaluation on the Large-Break LOCA BELOCA ASTRUM Analyses for North Anna Units 1 and 2

1.0 Background:

The Nuclear Regulatory Commission (NRC) approved Westinghouse Best-Estimate Loss-of-Coolant Accident (BELOCA) Automated Statistical Treatment of Uncertainty Method (ASTRUM) methodology [1] is based on the PAD 4.0 fuel performance code [2]. PAD 4.0 was licensed without explicitly considering fuel thermal conductivity degradation (TCD) with burnup. Explicit modeling of TCD in the fuel performance code leads directly to increased fuel temperatures (pellet radial average temperature) as well as other fuel performance related effects (such as potential increases in rod internal pressure (RIP)) beyond beginning-of-life. Since PAD provides input to the large-break LOCA analyses, this will tend to increase the stored energy at the beginning of the simulated LOCA events. For LBLOCA, this in turn can lead to an increase in peak cladding temperature (PCT) if there is no provision to credit off-setting effects. The effects of explicitly modeling fuel TCD on the North Anna Units 1 and 2 (VRA/VGB) BELOCA ASTRUM analyses have been considered due to a request from the NRC staff. Westinghouse considers the modeling of fuel TCD a non-discretionary change to the performed LOCA analyses.

Fuel performance data that accounts for fuel TCD (using an unlicensed model) was used as input to the VRA/VGB evaluations. The new PAD fuel performance data was generated with an updated VRA/VGB PAD model that includes explicit modeling of fuel TCD. Therefore, the evaluations performed consider the fuel TCD effects cited in NRC Information Notice 2011-21 [3].

2.0 LBLOCA Input Parameters and Assumptions:

When considering fuel TCD, the large-break LOCA evaluations included other burnup effects such as the reduction in peaking factors with increased burnup. Peaking factor burndown starting at 20 GWD/MTU for FdH and Hot Assembly Average Power ($P_{bar_{HA}}$) and at 10 GWD/MTU for steady-state FQ (note that transient FQ burndown was not credited) was credited based on Dominion fuel management strategy. Accounting for fuel TCD leads to an increase in fuel temperature as the fuel is burned relative to PAD 4.0 [2], while accounting for peaking factor burndown leads to a reduction in fuel temperature as the fuel is burned. The compensating nature of these phenomena was considered in the evaluations in order to appropriately capture the effect of fuel TCD. The peaking factor limits supported by these evaluations are shown in Tables 1 and 2.

To provide a reasonable estimate of effect of fuel TCD and peaking factor burndown, large run sets were performed to stabilize the estimate of the PCT results. The effect of fuel TCD was then estimated by comparing the stabilized results between a rebaselined, pre-TCD run set and TCD run sets for fuel in its first and second cycle of irradiation.

[

] ^{a,c}

Explicit modeling of fuel TCD leads to an increase in fuel stored energy (relative to PAD 4.0 [2]) and coincident increase in rod internal pressure starting near beginning of life, with increasing effects as the fuel is burned. [

] ^{a,c}

[

] ^{a,c}

3.0 LBLOCA Description of Analysis and Evaluations:

The purpose of these evaluations was to consider fuel performance inputs that explicitly model fuel TCD and peaking factor burndown to show compliance with the 10 CFR 50.46 acceptance criteria while maintaining a margin of safety to the prescribed limits.

Fuel performance data that accounts for fuel TCD was used as input to the VRA/VGB evaluations. The new PAD fuel performance data was generated with an updated VRA/VGB PAD model that includes explicit modeling of fuel TCD. In addition, the thermal conductivity model in WCOBRA/TRAC and HOTSPOT codes was changed to the STAV 7.3 model to more accurately model the fuel temperature profile.

The evaluations [

] ^{a,c}

4.0 LBLOCA Results:

Unit 1

The effect on the Unit 1 PCT due to fuel pellet thermal conductivity degradation and peaking factor burndown is summarized in Table 3. The following observations are made based on the run sets performed:

- > The 10 CFR 50.46(b)(1) acceptance criterion of 2200°F is met for each run set.
- > The fuel pellet TCD and peaking factor burndown effect, [

] ^{a,c} estimate of 135°F for the effect of fuel pellet TCD and peaking factor burndown.

Unit 2

The effect on the Unit 2 PCT due to fuel pellet thermal conductivity degradation and peaking factor burndown is summarized in Table 4. The following observations are made based on the run sets performed:

- > The 10 CFR 50.46(b)(1) acceptance criterion of 2200°F is met for each run set.
- > The fuel pellet TCD and peaking factor burndown effect, [

]^{a,c} estimate of 101°F for the effect of fuel pellet TCD and
peaking factor burndown.

Updated large-break LOCA 10 CFR 50.46 rackup sheets for the VRA/VGB Reload Transition Safety Report (RTSR) analyses are included at the end of this document.

5.0 References:

1. Westinghouse Report WCAP-16009-P-A, "Realistic Large-Break LOCA Evaluation Methodology Using the Automated Statistical Treatment Of Uncertainty Method (ASTRUM)," January 2005. (Westinghouse Proprietary Class 2)
2. Westinghouse Report WCAP-15063-P-A, Revision 1 with Errata, "Westinghouse Improved Performance Analysis and Design Model (PAD 4.0)," July 2000. (Westinghouse Proprietary Class 2)
3. NRC Information Notice 2011-21, "Realistic Emergency Core Cooling System Evaluation Model Effects Resulting from Nuclear Fuel Thermal Conductivity Degradation," December 13, 2011. (NRC ADAMS Accession Number ML113430785)
4. Westinghouse Report WCAP-16996-P, Volumes I, II, and III, "Realistic LOCA Evaluation Methodology Applied to the Full Spectrum of Break Sizes (FULL SPECTRUM LOCA Methodology)," November 2010. (Westinghouse Proprietary Class 2)

Table 1: Summary of FdH Peaking Factor Limit and Burndown Supported by VRA/VGB BELOCA Fuel TCD Evaluation	
Hot Rod Burnup (GWD/MTU)	FdH (with uncertainties)
0	1.65
20	1.65
30	1.60
31	1.46
51	1.34
53	1.28
62	1.28
* The standard BELOCA assumption of [] ^{a,c}	

Table 2: Summary of FQ Steady State Peaking Factor Limit and Burndown Supported by VRA/VGB BELOCA Fuel TCD Evaluation	
Hot Rod Burnup (GWD/MTU)	FQ Steady-state (without uncertainties)
0	2.00
10	2.00
30	1.80
40	1.60
50	1.50
55	1.45
60	1.30

Table 3: Effect on Unit 1 PCT Results due to Fuel Pellet Thermal Conductivity Degradation and Peaking Factor Burndown	
Licensing Basis PCT	1852°F
Δ PCT due to Fuel Pellet TCD and Peaking Factor Burndown	135°F
Licensing Basis PCT + PCT Assessments PCT	1987°F

Table 4: Effect on Unit 2 PCT Results due to Fuel Pellet Thermal Conductivity Degradation and Peaking Factor Burndown	
Licensing Basis PCT	1871°F
Δ PCT due to Fuel Pellet TCD and Peaking Factor Burndown	101°F
Licensing Basis PCT + PCT Assessments PCT	1972°F

Westinghouse LOCA Peak Clad Temperature Summary for ASTRUM Best Estimate Large Break

Plant Name: North Anna Unit 1
Utility Name: Dominion Generation

Analysis Information

EM: ASTRUM (2004) **Analysis Date:** 8/25/2010 **Limiting Break Size:** DEG
FQ: 2.32 **FdH:** 1.65
Fuel: RFA-2 **SGTP (%):** 7

Notes: Core Power ≤ 100% of 2951 MWt; SG Model 54F; 17x17 RFA-2 Fuel with ZIRLO® or Optimized ZIRLO™ cladding, Non-IFBA or IFBA, IFMs.

	Clad Temp (°F)	Notes
LICENSING BASIS		
Analysis-Of-Record PCT	1852	
PCT ASSESSMENTS (Delta PCT)		
A. PRIOR ECCS MODEL ASSESSMENTS		
1. None	0	
B. PLANNED PLANT MODIFICATION EVALUATIONS		
1. None	0	
C. 2012 ECCS MODEL ASSESSMENTS		
1. Evaluation of Fuel Thermal Conductivity Degradation and Peaking Factor Burndown	135	b
D. OTHER		
1. Transition Core	0	a
LICENSING BASIS PCT + PCT ASSESSMENTS	PCT = 1987	

Notes:

- (a) The transition core line item is to be applied only for cycles containing both AREVA 17x17 Advanced Mark-BW Fuel and Westinghouse 17x17 RFA-2 Fuel.
- (b) Assessment considers burnup effects which include thermal conductivity degradation and peaking factor burndown.

Westinghouse LOCA Peak Clad Temperature Summary for ASTRUM Best Estimate Large Break

Plant Name: North Anna Unit 2
Utility Name: Dominion Generation

Analysis Information

EM: ASTRUM (2004) **Analysis Date:** 8/20/2010 **Limiting Break Size:** DEG
FQ: 2.32 **FdH:** 1.65
Fuel: RFA-2 **SGTP (%):** 7

Notes: Core Power ≤ 100% of 2951 MWt; SG Model 54F; 17x17 RFA-2 with ZIRLO® or Optimized ZIRLO™ cladding, Non-IFBA or IFBA, IFMs.

	Clad Temp (°F)	Notes
LICENSING BASIS		
Analysis-Of-Record PCT	1871	
PCT ASSESSMENTS (Delta PCT)		
A. PRIOR ECCS MODEL ASSESSMENTS		
1. None	0	
B. PLANNED PLANT MODIFICATION EVALUATIONS		
1. None	0	
C. 2012 ECCS MODEL ASSESSMENTS		
1. Evaluation of Fuel Thermal Conductivity Degradation and Peaking Factor Burndown	101	b
D. OTHER		
1. Transition Core	0	a
LICENSING BASIS PCT + PCT ASSESSMENTS	PCT = 1972	

Notes:

- (a) The transition core line item is to be applied only for cycles containing both AREVA 17x17 Advanced Mark-BW Fuel and Westinghouse 17x17 RFA-2 Fuel.
- (b) Assessment considers burnup effects which include thermal conductivity degradation and peaking factor burndown.

ATTACHMENT 3

**WESTINGHOUSE ELECTRIC COMPANY LLC, APPLICATION FOR
WITHHOLDING PROPRIETARY INFORMATION FROM PUBLIC DISCLOSURE
AND THE ACCOMPANYING AFFIDAVIT**

NORTH ANNA POWER STATION UNITS 1 AND 2

**VIRGINIA ELECTRIC AND POWER COMPANY
(DOMINION)
NORTH ANNA POWER STATION UNITS 1 AND 2**



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e-mail: greshaja@westinghouse.com
Proj letter: VRA-12-31

CAW-12-3413

May 7, 2012

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

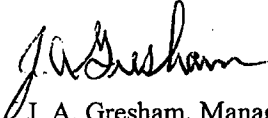
Subject: LTR-LIS-12-223 P-Attachment, Revision 1, "Thermal Conductivity Degradation Evaluation on the Large-Break LOCA BELOCA ASTRUM Analyses for North Anna Units 1 and 2 (VRA/VGB)" (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-12-3413 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.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference CAW-12-3413, 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,


J. A. Gresham, Manager
Regulatory Compliance

Enclosures

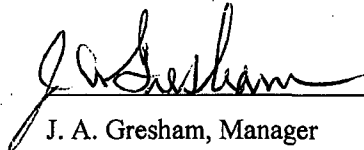
AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

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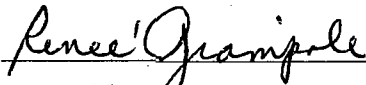
COUNTY OF BUTLER:

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:

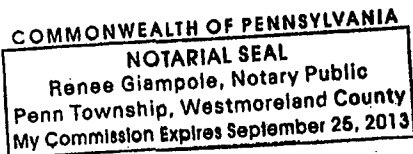


J. A. Gresham, Manager
Regulatory Compliance

Sworn to and subscribed before me
this 7th 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 LTR-LIS-12-223 P-Attachment, Revision 1, "Thermal Conductivity Degradation Evaluation on the Large-Break LOCA BELOCA ASTRUM Analyses for North Anna Units 1 and 2 (VRA/VGB)" (Proprietary), dated May 3, 2012, for submittal to the Commission, being transmitted by Dominion 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 the results of and method for the Thermal Conductivity Degradation evaluation for North Anna Units 1 and 2, and may be used only for that purpose.

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

- (a) Provide input to Dominion to provide to the U.S. Nuclear Regulatory Commission for review of the North Anna Units 1 and 2 50.46 submittal.
- (b) Provide additional information on the fuel thermal conductivity degradation evaluation for North Anna.
- (c) Provide licensing support for customer submittal.

Further this information has substantial commercial value as follows:

- (a) Westinghouse plans to sell the use of the information to its customers for the purpose of evaluating the PCT impacts of Thermal Conductivity Degradation.
- (b) Westinghouse can sell support and defense of the technology to its customer in the licensing process.
- (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 calculations 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).

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