

VIRGINIA ELECTRIC AND POWER COMPANY  
RICHMOND, VIRGINIA 23261

March 22, 2007

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

Serial No. 07-0142  
NL&OS/ETS R0  
Docket Nos. 50-338/339  
50-280/281  
License Nos. NPF-4/7  
DPR-32/37

**VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)**  
**NORTH ANNA POWER STATION UNITS 1 AND 2**  
**SURRY 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 a change to the Westinghouse Emergency Core Cooling System (ECCS) Evaluation Model for the NOTRUMP Small Break Loss of Coolant Accident (SBLOCA) analyses. This notification applies for North Anna Power Station (NAPS) Units 1 and 2 and Surry Power Station (SPS) Units 1 and 2.

Attachment 1 provides a report describing the change. Information regarding the effect of the NOTRUMP ECCS Evaluation Model change upon the reported SBLOCA analyses of record (AOR) results is provided for NAPS 1 and 2 and SPS 1 and 2 in Attachment 2. To summarize the information in Attachment 2, the calculated peak cladding temperature (PCT) for the SBLOCA analyses is increased by 85°F to a new value of 1809°F for NAPS 1 and 2 and 1845°F for SPS 1 and 2. This result 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, which includes 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 SBLOCA PCT values and the manner in which they were derived continue to conform to the requirements of 10 CFR 50.46 with no further action. As such, Dominion considers the requirements of 10 CFR 50.46(a)(3)(ii) to be satisfied with the submission of this notification. Dominion routinely tracks adjustments to the SBLOCA and Large Break Loss of Coolant Accident (LBLOCA)

calculated PCT values to ensure that reasonable margins to the acceptance value set by 10 CFR 50.46 are maintained.

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

Very truly yours,

A handwritten signature in black ink, appearing to read "Eugene S. Grecheck". The signature is fluid and cursive, with the first name "Eugene" being more prominent.

Eugene S. Grecheck  
Vice President – Nuclear Support Services

Commitments made in this letter: None

Attachments: (2)

- 1) Report of Changes in Westinghouse NOTRUMP Small Break LOCA ECCS Evaluation Model – North Anna Power Station Units 1 and 2, Surry Power Station Units 1 and 2.
- 2) 30 Day Reporting of 10 CFR 50.46 Margin Utilization – North Anna Power Station Units 1 and 2, Surry Power Station Units 1 and 2.

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**ATTACHMENT 1**

**REPORT OF CHANGES IN  
WESTINGHOUSE NOTRUMP SMALL BREAK LOCA ECCS EVALUATION MODEL  
NORTH ANNA POWER STATION UNITS 1 AND 2  
SURRY POWER STATION UNITS 1 AND 2**

**VIRGINIA ELECTRIC AND POWER COMPANY  
(DOMINION)**

**Report of Changes in  
Westinghouse NOTRUMP Small Break LOCA ECCS Evaluation Model  
North Anna Power Station Units 1 and 2  
Surry Power Station Units 1 and 2**

**Identification of ECCS Evaluation Model Change**

The current small break loss of coolant accident (SBLOCA) analyses for Westinghouse fuel in North Anna Power Station (NAPS) Units 1 and 2 and Surry Power Station (SPS) Units 1 and 2 were performed using the Westinghouse NOTRUMP SBLOCA Evaluation Model (EM). Westinghouse identified the change described below and provided the results of an assessment to determine the impact on peak cladding temperature (PCT).

Change: NOTRUMP-EM Refined Break Spectrum

During the course of reviewing several extended power uprate and replacement steam generator SBLOCA analyses, the Nuclear Regulatory Commission (NRC) questioned the break spectrum analyzed in the NOTRUMP EM. The NRC was concerned that the resolution of the break spectrum used in the NOTRUMP EM (1.5, 2, 3, 4, and 6 inch cases) may not be fine enough to capture the worst break with regard to limiting PCT as per 10 CFR 50.46. That is, the plant could be SBLOCA limited with regard to overall LOCA results. In response to this, Westinghouse performed some preliminary work indicating that in some cases more limiting results could be obtained from non-integer break sizes; however, the magnitude of the impact was far less than that shown in preliminary work performed by the NRC. Based on this, Westinghouse performed evaluations to determine if all currently operating plants would maintain compliance with the 10 CFR 50.46 acceptance criteria when considering a refined SBLOCA break spectrum.

The evaluations performed by Westinghouse showed that the maximum beginning-of-life (BOL) PCT difference between integer and non-integer break sizes was 85°F. This result was reviewed and concluded to be bounding for NAPS 1 and 2 and SPS 1 and 2.

**Conclusion**

Dominion has performed an evaluation of PCT for comparison to 10 CFR 50.46 requirements. The analysis of record (AOR) PCT for NAPS 1 and 2 is 1704°F. The AOR PCT for SPS 1 and 2 is 1717°F. Considering the current PCT change, as well as all previously reported changes and errors, the licensing basis SBLOCA PCT is 1809°F for NAPS 1 and 2 and 1845°F for SPS 1 and 2. The SBLOCA results have sufficient margin to the 2200°F limit specified in 10 CFR 50.46(b)(1). The current PCT assessment of 85°F is greater than the 50°F limit for reporting as defined in 10 CFR 50.46(a)(3)(i); hence, the change is significant and submittal of this 30 day report to the NRC is required.

**ATTACHMENT 2**

**30 DAY REPORTING OF 10 CFR 50.46 MARGIN UTILIZATION**

**NORTH ANNA POWER STATION UNITS 1 AND 2  
SURRY POWER STATION UNITS 1 AND 2**

**VIRGINIA ELECTRIC AND POWER COMPANY  
(DOMINION)**

**10 CFR 50.46 Margin Utilization – Westinghouse Small Break LOCA**

<b>Plant Name:</b>	North Anna Power Station, Unit 1
<b>Utility Name:</b>	Virginia Electric and Power Company

**Analysis Information**

<b>EM:</b>	NOTRUMP	<b>Limiting Break Size:</b>	3 Inches
<b>Analysis Date:</b>	1995		
<b>Vendor:</b>	Westinghouse		
<b>FQ:</b>	2.32	<b>FΔH:</b>	1.65
<b>Fuel:</b>	NAIF	<b>SGTP (%):</b>	7
<b>Notes:</b>	None		

**Clad Temp (°F)**

**LICENSING BASIS**

Analysis of Record PCT	1704
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**PCT ASSESSMENTS (Delta PCT)**

**A. Prior ECCS Model Assessments**

1.	NOTRUMP Specific Enthalpy Error	20
2.	SALIBRARY Double Precision Error	-15
3.	Fuel Rod Initialization Error	10
4.	Loop Seal Elevation Error	-44
5.	NOTRUMP-Mixture Level Tracking Errors	13
6.	Removal of Part Length CRDMs	1
7.	NOTRUMP-Bubble Rise/Drift Flux Model Inconsistencies	35

**B. Planned Plant Modification Evaluations**

1.	None	0
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**C. 2007 ECCS Model Assessments**

1.	NOTRUMP-EM Refined Break Spectrum	85
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**D. Other**

1.	None	0
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**LICENSING BASIS PCT + PCT ASSESSMENTS**

**PCT = 1809**

**10 CFR 50.46 Margin Utilization – Westinghouse Small Break LOCA**

<b>Plant Name:</b>	North Anna Power Station, Unit 2
<b>Utility Name:</b>	Virginia Electric and Power Company

**Analysis Information**

<b>EM:</b>	NOTRUMP	<b>Limiting Break Size:</b>	3 Inches
<b>Analysis Date:</b>	1995		
<b>Vendor:</b>	Westinghouse		
<b>FQ:</b>	2.32	<b>FΔH:</b>	1.65
<b>Fuel:</b>	NAIF	<b>SGTP (%):</b>	7
<b>Notes:</b>	None		

**Clad Temp (°F)**

**LICENSING BASIS**

Analysis of Record PCT	1704
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**PCT ASSESSMENTS (Delta PCT)**

**A. Prior ECCS Model Assessments**

1.	NOTRUMP Specific Enthalpy Error	20
2.	SALIBRARY Double Precision Error	-15
3.	Fuel Rod Initialization Error	10
4.	Loop Seal Elevation Error	-44
5.	Removal of Part Length CRDMs	1
6.	NOTRUMP-Mixture Level Tracking Errors	13
7.	NOTRUMP-Bubble Rise/Drift Flux Model Inconsistencies	35

**B. Planned Plant Modification Evaluations**

1.	None	0
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**C. 2007 ECCS Model Assessments**

1.	NOTRUMP-EM Refined Break Spectrum	85
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**D. Other**

1.	None	0
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**LICENSING BASIS PCT + PCT ASSESSMENTS**

**PCT = 1809**



**10 CFR 50.46 Margin Utilization – Westinghouse Small Break LOCA**

<b>Plant Name:</b>	Surry Power Station, Unit 1
<b>Utility Name:</b>	Virginia Electric and Power Company

**Analysis Information**

<b>EM:</b>	NOTRUMP	<b>Limiting Break Size:</b>	3 Inches
<b>Analysis Date:</b>	1996		
<b>Vendor:</b>	Westinghouse		
<b>FQ:</b>	2.5	<b>FΔH:</b>	1.7
<b>Fuel:</b>	SIF	<b>SGTP (%):</b>	15
<b>Notes:</b>	None		

**Clad Temp (°F)**

**LICENSING BASIS**

Analysis of Record PCT	1717
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**PCT ASSESSMENTS (Delta PCT)**

**A. Prior ECCS Model Assessments**

1. NOTRUMP - Mixture Level Tracking Errors	13
2. Removal of Part Length CRDMs	-15
3. NOTRUMP-Bubble Rise/Drift Flux Model Inconsistencies	35

**B. Planned Plant Modification Evaluations**

1. Westinghouse IFBA Fuel Product Implementation	10
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**C. 2007 ECCS Model Assessments**

1. NOTRUMP-EM Refined Break Spectrum	85
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**D. Other**

1. None	0
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**LICENSING BASIS PCT + PCT ASSESSMENTS**

**PCT = 1845**

**10 CFR 50.46 Margin Utilization – Westinghouse Small Break LOCA**

<b>Plant Name:</b>	Surry Power Station, Unit 2
<b>Utility Name:</b>	Virginia Electric and Power Company

**Analysis Information**

<b>EM:</b>	NOTRUMP	<b>Limiting Break Size:</b>	3 Inches
<b>Analysis Date:</b>	1996		
<b>Vendor:</b>	Westinghouse		
<b>FQ:</b>	2.5	<b>FΔH:</b>	1.7
<b>Fuel:</b>	SIF	<b>SGTP (%):</b>	15
<b>Notes:</b>	None		

**Clad Temp (°F)**

**LICENSING BASIS**

Analysis of Record PCT	1717
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**PCT ASSESSMENTS (Delta PCT)**

**A. Prior ECCS Model Assessments**

1. NOTRUMP - Mixture Level Tracking Errors	13
2. Removal of Part Length CRDMs	-15
3. NOTRUMP-Bubble Rise/Drift Flux Model Inconsistencies	35

**B. Planned Plant Modification Evaluations**

1. Westinghouse IFBA Fuel Product Implementation	10
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**C. 2007 ECCS Model Assessments**

1. NOTRUMP-EM Refined Break Spectrum	85
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**D. Other**

1. None	0
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<b>LICENSING BASIS PCT + PCT ASSESSMENTS</b>	<b>PCT = 1845</b>
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