VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

December 17, 2008

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

Serial No. 08-0739
NL&OS/GDM R0
Docket Nos. 50-280/281
License Nos. DPR-32/37

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION UNITS 1 AND 2
SUBMITTAL OF RESULTS OF BE-LBLOCA REANALYSIS WITH ASTRUM AND 30-DAY 10 CFR 50.46 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), Virginia Electric and Power Company (Dominion) hereby submits information regarding the results of a full reanalysis of the Westinghouse Best-Estimate Large Break Loss of Coolant Accident (BE-LBLOCA) analyses using the Automated Statistical Treatment of Uncertainty Method (ASTRUM) for Surry Power Station Units 1 and 2 (SPS 1 and 2).

In a letter dated July 31, 2007 (Serial No. 06-936B), Dominion committed to perform a full BE-LBLOCA reanalysis for SPS 1 and 2 and to submit the reanalysis results to the NRC by December 31, 2008. The attachment provides a report describing the reanalysis results for SPS 1 and 2. The results satisfy the acceptance criteria defined in 10 CFR 50.46(b). Dominion has determined that the peak cladding temperature (PCT) result of 1857°F for SPS 1 and 2 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. Since the PCT result described above is based on a full reanalysis of the BE-LBLOCA analysis with ASTRUM, Dominion considers the schedular requirements of 10 CFR 50.46(a)(3)(ii) to be satisfied with the submission of this notification. Dominion routinely tracks adjustments to the 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. Gary Miller at (804) 273-2771.

Sincerely,

J. Alan Price
Vice President – Nuclear Engineering

Commitments made in this letter: None

Attachment:

- Summary of BE-LBLOCA Reanalysis Results Using ASTRUM and 30-Day 10 CFR 50.46 Report – Surry Power Station Units 1 and 2.

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ATTACHMENT

SUMMARY OF BE-LBLOCA REANALYSIS RESULTS USING ASTRUM AND 30-DAY 10 CFR 50.46 REPORT

SURRY POWER STATION UNITS 1 AND 2

VIRGINIA ELECTRIC AND POWER COMPANY
(DOMINION)

Summary of BE-LBLOCA Reanalysis Results Using ASTRUM
and
30-Day 10 CFR 50.46 Report
Surry Power Station Units 1 and 2

Surry Power Station Units 1 and 2 (SPS 1 and 2) utilize the Westinghouse Best-Estimate Large Break Loss of Coolant Accident (BE-LBLOCA) methodology using the Automated Statistical Treatment of Uncertainty Method (ASTRUM) for the analysis of the large break loss of coolant accident (LBLOCA). The ASTRUM methodology has received NRC approval for referencing in licensing calculations in WCAP-16009-P-A.

The initial application of the ASTRUM methodology was documented in WCAP-16547. The peak cladding temperature was calculated to be 2044°F. During the course of the NRC review of WCAP-16547, Westinghouse identified an error in the HOTSPOT code, which is part of the ASTRUM methodology. Westinghouse evaluated the impact of this error on peak cladding temperature (PCT). A 51°F PCT penalty was applied to account for the HOTSPOT error. This resulted in an overall PCT of 2095°F. The NRC approved the initial application of the ASTRUM methodology by letter dated September 6, 2007. In a letter dated July 31, 2007 (Serial No. 06-936B), Dominion committed to perform a full BE-LBLOCA reanalysis for SPS 1 and 2 and to submit the reanalysis results to the NRC by December 31, 2008.

The purpose of the reanalysis was to incorporate the resolution of the error in the HOTSPOT code and to incorporate minor changes to the input parameters to recover margin (e.g., reduced FQ from 2.6 to 2.5). Dominion and Westinghouse Electric Company (analysis vendor) have ongoing processes that assure that the ranges and values of input parameters for the SPS 1 and 2 BE-LBLOCA analysis using ASTRUM bound the ranges and values of the as-operated plant values for those parameters. Dominion developed detailed data for plant input parameters in accordance with the approved analysis methodology (WCAP-16009-P-A). There are no differences between SPS 1 and 2 that affect the analytical input for the BE-LBLOCA analysis using ASTRUM; consequently, the BE-LBLOCA analysis is applicable to both units. Dominion will continue to evaluate plant issues and changes on a unit-specific basis. Future reporting of the peak clad temperature (PCT) pursuant to the requirements of 10 CFR 50.46 will also be on a unit-specific basis.

Westinghouse provided the results of the full BE-LBLOCA reanalysis in WCAP-16977-P. The results of the full reanalysis of the BE-LBLOCA and comparison to the 10 CFR 50.46(b) acceptance criteria are summarized as follows:

1. The results of the full BE-LBLOCA reanalysis results and comparison to the 10 CFR 50.46(b1), (b2), and (b3) acceptance criterion are provided in the following table:

	Result	Criterion
95/95 Peak Cladding Temperature	1,857°F	< 2,200°F
95/95 Local Maximum Oxidation	3.74%	< 17%
95/95 Core Wide Oxidation	0.3%	< 1%

The transient oxidation decreases from 3.74% (calculated in the SPS 1 and 2 ASTRUM reanalysis) to a negligible value at EOL. The pre-transient oxidation increases with burnup, from zero at beginning of life (BOL) to a maximum value at the discharge of the fuel (end of life, or EOL). It has been confirmed that the sum of the pre-transient plus transient oxidation remains below 17% at all times in life for SPS 1 and 2.

2. 10 CFR 50.46 acceptance criterion (b)(4) has historically been satisfied by adherence to criteria (b)(1) and (b)(2), and by ensuring that fuel deformation due to combined LOCA and seismic loads is specifically addressed. Criteria (b)(1) and (b)(2) remain in effect for BE-LBLOCA applications. The approved methodology specifies that effects of LOCA and seismic loads on core geometry do not need to be considered unless grid crushing extends beyond the 28 assemblies in the low-power channel as defined in the WCOBRA/TRAC model for SPS 1 and 2. This situation has not been calculated to occur for SPS 1 and 2. Therefore, acceptance criterion (b)(4) is satisfied.

3. 10 CFR 50.46 acceptance criterion (b)(5) requires that long-term core cooling be provided following the successful initial operation of the Emergency Core Cooling System (ECCS). Long-term cooling is dependent on the demonstration of continued delivery of cooling water to the core. The actions, automatic or manual, that are currently in place at these plants to maintain long-term cooling remain unchanged with the application of the ASTRUM methodology.

10 CFR 50.46 Reporting Consideration

Dominion has reviewed the results of the full reanalysis of the BE-LBLOCA results for SPS 1 and 2. The new PCT of 1857°F represents a "significant" change in PCT (relative to the current Analysis of Record (AOR) PCT of 2044°F) as defined in 10 CFR 50.46(a)(3)(i). As such, a 30-day report to the NRC is required per

10 CFR 50.46(a)(3)(ii). The enclosed PCT Margin Utilization sheets summarize the PCT results for the BE-LBLOCA reanalysis for SPS 1 and 2.

10 CFR 50.46(a)(3)(ii) requires that the 30-day report include a "proposed schedule for providing a reanalysis or taking other action as may be needed to show compliance with Section 50.46 requirements." Since the PCT result described above is based on a full reanalysis of the BE-LBLOCA analysis with ASTRUM, Dominion considers the requirements of 10 CFR 50.46(a)(3)(ii) to be satisfied with the submission of this notification.

10 CFR 50.46 MARGIN UTILIZATION - WESTINGHOUSE LARGE BREAK LOCA WITH ASTRUM

Plant Name:	Surry Power Station, Unit 1		
Utility Name:	Virginia Electric and Power Company		
Analysis Information			
EM:	ASTRUM (2004)	**Limiting Break Size:**	DEG
Analysis Date:	11/3/2008		
Vendor:	Westinghouse		
FQ:	2.5	**FΔH:**	1.7
Fuel:	OFA	**SGTP (%):**	7
Notes:	None		

		Clad Temp (°F)
LICENSING BASIS		
	Analysis of Record PCT	1857
PCT ASSESSMENTS (Delta PCT)		
A.	**Prior ECCS Model Assessments**	
1.	None	0
B.	**Planned Plant Modification Evaluations**	
1.	None	0
C.	**2008 ECCS Model Assessments**	
1.	None	0
D.	**Other**	
1.	None	0
LICENSING BASIS PCT + PCT ASSESSMENTS		**PCT = 1857**

10 CFR 50.46 MARGIN UTILIZATION - WESTINGHOUSE LARGE BREAK LOCA WITH ASTRUM

Plant Name:	Surry Power Station, Unit 2		
Utility Name:	Virginia Electric and Power Company		
Analysis Information			
EM:	ASTRUM (2004)	**Limiting Break Size:**	DEG
Analysis Date:	11/3/2008		
Vendor:	Westinghouse		
FQ:	2.5	**FΔH:**	1.7
Fuel:	OFA	**SGTP (%):**	7
Notes:	None		

		Clad Temp (°F)
LICENSING BASIS		
	Analysis of Record PCT	1857
PCT ASSESSMENTS (Delta PCT)		
A.	**Prior ECCS Model Assessments**	
1.	None	0
B.	**Planned Plant Modification Evaluations**	
1.	None	0
C.	**2008 ECCS Model Assessments**	
1.	None	0
D.	**Other**	
1.	None	0
LICENSING BASIS PCT + PCT ASSESSMENTS		**PCT = 1857**