VIRGINIA ELECTRIC AND POWER COMPANY Richmond, Virginia 23261

July 7, 2005

U.S. Nuclear Regulatory Commission Attention: Document Control Desk Washington, DC 20555 Serial No. 05-383 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 30-DAY REPORT OF EMERGENCY CORE COOLING SYSTEM (ECCS) MODEL CHANGES PURSUANT TO THE REQUIREMENTS OF 10 CFR 50.46

Pursuant to 10CFR50.46(a)(3)(ii), Virginia Electric and Power Company (Dominion) is providing information concerning changes to the Surry Power Station Units 1 and 2 large break LOCA ECCS Evaluation Model and its application in existing licensing analyses. Information is also provided which quantifies the effect of these changes upon reported results for Surry Units 1 and 2 and demonstrates continued compliance with the acceptance criteria of 10CFR50.46.

Attachment 1 provides information describing plant-specific model changes associated with the application of the Westinghouse large break LOCA evaluation model for Surry Units 1 and 2. These changes are in addition to those previously provided in Dominion's 2004 10CFR50.46 Annual Report dated June 30, 2005 (Serial No. 05-380).

Information regarding the effect of the ECCS Evaluation Model changes upon the reported large break LOCA analysis of record (AOR) results is provided for Surry Units 1 and 2 in Attachment 2. To summarize the information in Attachment 2, the calculated peak cladding temperature (PCT) for Surry Units 1 and 2 is 1963°F. The Surry Units 1 and 2 large break LOCA results were confirmed to have sufficient margin to the 2200°F limit 10CFR50.46(b)(1). the specified in However, PCT Assessments for 10CFR50.46(a)(3)(i) accumulation are greater than the 50°F limit for reporting and thus represent a significant change based on the criterion established in 10CFR50.46(a)(3)(i). A 30-day report is therefore required to report the PCT assessment results.

10CFR50.46(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 10CFR50.46 requirements. In a letter dated May 21, 2003 (Serial No. 03-350), Dominion submitted the 2002 annual report of ECCS model changes, as well as a 30-day report due to a significant change in PCT for the Surry large break LOCA. In that letter Dominion committed to complete a re-analysis of the large break LOCA for Surry by March 31, 2006. No further action beyond the previous commitment is required to demonstrate compliance with 10CFR50.46 requirements.

If you have further questions or require additional information, please contact Mr. Gary D. Miller at (804) 273-2771.

Very truly yours,

E. S. Grecheck Vice President -- Nuclear Support Services

Commitments made in this letter:

1. No new commitments are made in this letter. Consistent with previous commitment: The Large Break LOCA re-analysis for Surry will be submitted by March 31, 2006.

Attachments

- 1. Report of Changes in Westinghouse Large Break LOCA ECCS Evaluation Model -Surry Power Station Units 1 and 2
- 2. Reporting of 10CFR50.46 Margin Utilization Westinghouse Large Break LOCA ECCS Evaluation Model Surry Power Station Units 1 and 2

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Mr. N. P. Garrett NRC Senior Resident Inspector Surry Power Station

ATTACHMENT 1

REPORT OF CHANGES IN

WESTINGHOUSE LARGE BREAK LOCA ECCS EVALUATION MODEL

SURRY POWER STATION UNITS 1 AND 2

VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)

Report of Changes in Westinghouse Large Break LOCA ECCS Evaluation Model Surry Power Station Units 1 and 2

Dominion recently performed site-specific sensitivity cases for the large break LOCA analysis for Surry Units 1 and 2. As a result of this analysis, changes in the PCT licensing basis were identified and assessed. The results of this PCT assessment are provided below.

Identification of ECCS EM Changes

The current large break LOCA analysis for Surry Units 1 and 2 was performed using the Westinghouse BASH Evaluation Model. The LOCBART computer code is one of the codes used in the Westinghouse BASH Evaluation Model. The LOCBART code calculates the cladding temperature and oxidation transients for the highest powered fuel rod in the core, which are ultimately reviewed against the acceptance limits of 10CFR50.46. The four separate changes addressed in this evaluation are summarized below.

• LOCBART ZIRLO Cladding Specific Heat Model Error

Dominion quantified a Surry-specific sensitivity result to assess the impact of the revised LOCBART ZIRLO cladding specific heat model on the Surry analysis of record (AOR). Previously, Reference 1 reported a generic effect of $+40^{\circ}$ F for this item that was provided by Westinghouse. The Surry-specific sensitivity result quantifies the effect of this item as $+16^{\circ}$ F.

• PAD 4.0 Initial Pellet Temperatures

Dominion quantified a Surry-specific sensitivity result to assess the impact of using the PAD 4.0 fuel properties versus PAD 3.4 used in the Surry AOR. Previously, Reference 1 reported a generic effect of -40° F for this item that was provided by Westinghouse. The Surry-specific sensitivity result quantifies the effect of this item as -122° F.

• Removal of Part-Length Control Rod Drive Mechanisms (CRDMs)

Dominion quantified the effect of an input correction in the previous calculation of the sensitivity result that assessed the removal of the Part-Length CRDMs. The previous result of $+6^{\circ}F$ was reported in Reference 1. Correction of the input error resulted in a PCT impact of $-66^{\circ}F$.

• Pressurizer Surge Line Piping Schedule Reconciliation

Dominion quantified a Surry-specific sensitivity result to assess the impact of a change in the surge line piping inner diameter (ID) and schedule assumed in the Surry AOR. This item was addressed by Dominion and Westinghouse during preparation of model design inputs for a Surry Best-Estimate LBLOCA analysis. The documented design input data was used in the BASH sensitivity calculation. The design input involved revising the assumed surge line geometry from a 14-inch Schedule 160 to a 12-inch Schedule 140 pipe. This item has not been previously reported. The Surry-specific sensitivity result quantifies the effect of this item as $+8^{\circ}F$.

<u>Conclusion</u>

Dominion has performed an evaluation of PCT for comparison to 10 CFR 50.46 requirements. The Surry Units 1 and 2 large break LOCA results were confirmed to have sufficient margin to the 2200°F limit specified in 10CFR50.46(b)(1). An evaluation was also performed to determine if the reported changes are significant. The PCT Assessments for 10CFR50.46(a)(3)(i) accumulation are greater than the 50°F limit for reporting; hence, the changes are significant and submittal of a 30-Day Report to the NRC is required. Previously, a commitment to reanalyze the large break LOCA for Surry was made in a May 21, 2003 letter (Serial No. 03-350). Based upon the evaluation of this information, the associated changes in the applicable licensing basis PCT results and the previous commitment to submit the large break LOCA re-analysis for Surry by March 31, 2006, no further action is required to demonstrate compliance with 10CFR50.46 requirements.

References

 Letter from E. S. Grecheck of Virginia Electric and Power Company to the USNRC dated June 30, 2005 (Serial No. 05-380), "Dominion Nuclear Connecticut, Inc., Virginia Electric and Power Company, Millstone Power Station Units 2 and 3, North Anna Power Station Units 1 and 2, Surry Power Station Units 1 and 2, 2004 Annual Report of Emergency Core Cooling System Model Changes Pursuant to the Requirements of 10 CFR 50.46."

ATTACHMENT 2

REPORTING OF 10CFR50.46 MARGIN UTILIZATION WESTINGHOUSE LARGE BREAK LOCA ECCS EVALUATION MODEL

SURRY POWER STATION UNITS 1 AND 2

VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)

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	100	FR50.46 Margin Utiliz	zation – Westinghouse La	irge Break	(LOCA	
Plant N	lant Name: Surry Power Station, Unit 1					
Utility	Utility Name: Virginia Electric and Power Company					
Analys	sis Informa	ation				
EM:		BASH	BASH Limiting Break Size:		d=0.4	
Analysis Date:		2001	_			
Vendo	or:	Westinghouse				
FQ:		2.32	FAH:	1.62		
Fuel:		SIF	SGTP (%):	15		
Notes:		None				
				Clad T	emp (°F)	<u>Notes</u>
LICEN	ISING BAS	SIS				
Analysis of R		of Record PCT			2117	
MARG	IN ALLOC	ATIONS (Delta PCT)				
А.					0	[4]
		ASH EM Transiont To	ube Collapse		0	{1}
	$\frac{2}{3}$	CRART Fluid Proper	ty Logic Issue		10	[2]
	U. L.				10	[]
B.	Planned	Plant Change Evalua	ations			
	1. Ne	one		0		
C.	2005 Per	manent ECCS Mode	I Assessments			
	1. L(DCBART ZIRLO M Cla	Error	16	{2}	
	2. P/	AD 4.0 Initial Pellet Te	emperatures		-122	{2}
	3. R	emoval of Part-Lengtr) CRDMs Dising Ochedule Deservili		-66	{2}
	4. PI	ressurizer Surge Line	Piping Schedule Reconcili	ation	8	{2}
D.	Temporary ECCS Model Issues					
2.	1. N	one			0	
					-	
Ε.	Other Ma	argin Allocations				
	1. N	one			0	
LICEN	ISING BAS	SIS PCT + MARGIN A	LLOCATIONS	PCT =	: 1963	

Notes:

- {1} A generic steam generator LOCA/seismic load evaluation was performed by Westinghouse to quantify the potential steam generator tube collapse, which may occur at the time of the LOCA due to combined LOCA and seismic loads. Based on this analysis, a total steam generator tube reduction equivalent to 5% tube plugging was allocated as a permanent assessment for those plants that do not have a detailed analysis. The 5% steam generator tube plugging reduction will be used to account for the effects of a combined LOCA/seismic event at Surry.
- {2} The accumulation of changes for these items (sum of absolute magnitudes) since the last 30-day report or reanalysis is greater than 50°F and is significant, as defined in 10CFR50.46(a)(3)(i).

	10	CFR50.46 Margin Utilizati	on – Westinghouse L	arge Bre	ak LOCA				
Plant I	Name:	Surry Power Statior	n, Unit 2						
Utility	Name:	Virginia Electric and	Virginia Electric and Power Company						
Analys	sis Infori	nation							
EM:		BASH	BASH Limiting Break Size:		Cd=0.4				
Analysis Date:		2001							
Vendo	or:	Westinghouse							
FQ:		2.32	F∆H:	1.62					
Fuel:		SIF	SGTP (%):	15					
Notes	:	None							
				Clad	Temp (°F)	<u>Notes</u>			
LICEN	ISING B	NSIS							
Analysis of R		s of Record PCT			2117				
MARG									
	Drior D	ormanent ECCS Model A	seasemente						
~ .	1	BLOCA/Seismic SG Tube	o Collanse		0	513			
	2	BASH EM Transient Termi		0	ניז				
	3.	OCBART Fluid Property L	_ogic Issue		10	{2}			
R	Planne	d Plant Change Evaluatio							
	1.	None			0				
C	2005 P	ermanent ECCS Model As							
•	1.	_OCBART ZIRLO [™] Cladd	el Error	16	{2}				
	2.	PAD 4.0 Initial Pellet Temp	-	-122	{2}				
3. Rer		Removal of Part-Length C	oval of Part-Length CRDMs			{2}			
	4.	Pressurizer Surge Line Pip	bing Schedule Reconcil	liation	8	{2}			
D.	Tempo	rary ECCS Model Issues							
	1.	None			0				
E.	Other	Margin Allocations							
	1.	None			0				
LICEN	NSING B	ASIS PCT + MARGIN ALL	OCATIONS	PCT	- 1963	an a			

Notes:

- {1} A generic steam generator LOCA/seismic load evaluation was performed by Westinghouse to quantify the potential steam generator tube collapse, which may occur at the time of the LOCA due to combined LOCA and seismic loads. Based on this analysis, a total steam generator tube reduction equivalent to 5% tube plugging was allocated as a permanent assessment for those plants that do not have a detailed analysis. The 5% steam generator tube plugging reduction will be used to account for the effects of a combined LOCA/seismic event at Surry.
- {2} The accumulation of changes for these items (sum of absolute magnitudes) since the last 30-day report or reanalysis is greater than 50°F and is significant, as defined in 10CFR50.46(a)(3)(i).