

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

February 24, 2022

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

Serial No.: NA3-22-001
NRA/SS R0
Docket No.: 52-017
License No.: NPF-103

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA UNIT 3
REPORT OF 10 CFR 50.46 EMERGENCY CORE COOLING SYSTEM
(ECCS) MODEL CHANGES


General Electric Hitachi Nuclear Energy (GEH) submitted one error notification to the ECCS model for the Certified Economic Simplified Boiling Water Reactor (ESBWR) Design in letter M210098 from Michelle P. Catts (GEH) to U. S. Nuclear Regulatory Commission, "ESBWR Design Certification Annual 10 CFR 50.46 Report for 2021," dated September 1, 2021. The evaluation model error was corrected, but because the notification was a zero-degree effect on the PCT calculation, there was no change to any reported analysis results.

The ECCS evaluation model change conclusion provided by GEH is applicable to the North Anna Unit 3 (NA3) Combined Operating License. Therefore, in accordance with 10 CFR 50.46 (a)(3)(ii), this report is being submitted on the NA3 docket.

Attachment 1 provides the Report of Changes in the GEH ECCS Evaluation Model. Attachment 2 provides the 2021 Annual Reporting of 10 CFR 50.46 Margin Utilization for North Anna Unit 3.

If you have any questions regarding this submittal, please contact Mr. Shayan Sinha at (804) 273-4687.

Very truly yours,



Douglas C. Lawrence

Vice President – Nuclear Engineering and Fleet Support

Commitments made in this letter: None

Attachments:

1. Report of Changes in GEH ECCS Evaluation Model
2. 2021 Annual Reporting of 10 CFR 50.46 Margin Utilization – North Anna Unit 3

cc: (electronic distribution, except where noted)

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Attachment 1

**2021 ANNUAL REPORT OF EMERGENCY CORE COOLING SYSTEM (ECCS)
MODEL CHANGES PURSUANT TO THE REQUIREMENTS OF 10 CFR 50.46**

REPORT OF CHANGES IN GEH ECCS EVALUATION MODEL

**VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA UNIT 3**

**REPORT OF CHANGES IN
GEH ECCS EVALUATION MODEL**

North Anna Unit 3

1. General Electric Hitachi Nuclear Energy (GEH) identified the following change and error applicable to the ECCS Loss of Coolant Accident (LOCA) TRACG Evaluation Model for North Anna Unit 3 during 2021:
 - **2021-04: NON-CONDENSABLE GAS ERROR IN ZERO CELL SIDE BRANCH.**
A coding error was identified in TRACG04P which, under certain circumstances, miscalculates the amount of noncondensable gas flowing through a side branch of a component resulting in a mass error accumulation over time in the analysis. An error impact evaluation showed negligible effect on calculated PCT. Therefore, the 50.46 impact estimate is 0°F.

Attachment 2

**2021 ANNUAL REPORT OF EMERGENCY CORE COOLING SYSTEM (ECCS)
MODEL CHANGES PURSUANT TO THE REQUIREMENTS OF 10 CFR 50.46**

2021 ANNUAL REPORTING OF 10 CFR 50.46 MARGIN UTILIZATION

**VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA UNIT 3**

Report of Changes in GEH ECCS Evaluation Model

Plant Name		North Anna Unit 3 (Docket 52-017)		
Utility Name		Virginia Electric and Power Company		
Reporting Year: 2021				
	Evaluation Model: TRACG			
	Vendor: GE Hitachi			
		LBPCT	Net PCT Effect	Absolute PCT Effect
	Analysis of Record Licensing Basis PCT (LBPCT), with prior updates	600°F		
I.	Prior 10 CFR 50.46 Changes or Error Corrections			
	2019-01 - TRACG Channel Inlet Subcooling Calculation	ΔPCT =	+ 0°F	+ 0°F
	2019-02 - TRACG Radiation Heat Transfer Calculation	ΔPCT =	+ 0°F	+ 0°F
	2017-02 - Fuel Rod Plenum Temperature Update	ΔPCT =	+ 0°F	+ 0°F
II.	10 CFR 50.46 Changes or Error Corrections for 2021			
	2021-04 - Non-condensable Gas Error in Zero Cell Side Branch	ΔPCT =	+ 0°F	+ 0°F
	Sum of 10 CFR 50.46 Changes	ΔPCT =	+ 0°F	+ 0°F
	Projected LBPCT based on these changes	600°F		