CONNECTICUT YANKEE ATOMIC POWER COMPANY

HADDAM NECK PLANT
362 INJUN HOLLOW ROAD • EAST HAMPTON, CT 06424-3099

June 3, 1997
Docket No. 50-213
CY-97-061

Re: 10CFR50.46 (a)

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

Haddam Neck Plant
Annual Reporting of Changes to, and Errors in,
Emergency Core Cooling System Models or Applications

In accordance with 10CFR50.46(a)(3)(ii), Connecticut Yankee Atomic Power Company (CYAPCO) hereby submits changes to, and errors in, the emergency core cooling system (ECCS) evaluation models or applications of those models for the Haddam Neck Plant.

The last annual update was submitted to the NRC Staff on March 21, 1996.[1] This report covers the period from January 1, 1996, through December 31, 1996, and identifies changes in peak cladding temperature (PCT) based on changes to, or errors identified in, the ECCS evaluation models, and changes in the applications of the models beyond the range that was intended. The following is a breakdown of the information provided in Attachment 1.

An error in the NULAP5 small break evaluation model was identified and corrected. The error, identified in the choked flow model, would potentially result in an incorrect delay in switching from choked to unchoked flow conditions. An evaluation was performed to determine the impact of the error correction on the current small break LOCA analysis of record for PCT. This evaluation determined that the error correction had no impact on the current small break LOCA PCT of 1215°F.

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[1] F. R. Dacimo letter to U.S. Nuclear Regulatory Commission, "Haddam Neck Plant - Annual Reporting of Changes to, and Errors in, Emergency Core Cooling System Models or Applications," dated March 21, 1996.

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Westinghouse identified a plant specific input error in the large break ECCS evaluation model for the Haddam Neck Plant. This error is considered an error in the application of the model as defined in 10CFR50.46. Westinghouse evaluated the error as a conservative 0°F effect on PCT.

We believe that this information satisfies the reporting requirements of 10CFR50.46(a)(3)(ii). The Haddam Neck Plant permanently ceased power operation and is permanently defueled as of December 5, 1996[2]. Therefore, this is the last annual report of changes to, and errors in, the ECCS evaluation models or applications. If you have any questions, please contact Mr. G. P. van Noordennen at (860) 267-3938.

Very truly yours,

CONNECTICUT YANKEE ATOMIC POWER COMPANY

Ted. C. Feigenbaum
Executive Vice President and Chief Nuclear Officer

Attachment

cc: H. J. Miller, NRC Region I Administrator
M. B. Fairtile, NRC Project Manager, Haddam Neck Plant
W. J. Raymond, NRC Senior Resident Inspector, Haddam Neck Plant

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[2] T.C. Feigenbaum letter to the NRC "Certifications of Permanent Cessation of Power Operation and That Fuel Has Been Permanently Removed From The Reactor," dated December 5, 1996.

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Attachment 1

Haddam Neck Plant

Annual Reporting of 10CFR50.46 Margin Utilization

June 1997

Annual Reporting of 10CFR50.46 Margin Utilization
Small Break LOCA

PLANT NAME: Haddam Neck Plant

		Clad Temperature	Notes
A.	Analysis of Record (8/94)	PCT = 1215°F	(1)
	Eval. Model: NULAP5		
	Vendor: NUSCO		
B.	Prior Permanent LOCA Model Assessments (Thru 12/1995)		
	1. None	ΔPCT= 0°F	
C.	Current Permanent LOCA Model Assessments (Thru 12/1996) (Permanent Assessment of PCT Margin)		
	1. Choked flow model error	ΔPCT= 0°F	
D.	10 CFR 50.59 Safety Evaluations	ΔPCT= 0°F	
	ANALYSIS OF RECORD PCT + MARGIN ALLOCATIONS	**PCT = 1215°F**	

Notes:

(1) New Analysis of Record.

Annual Reporting of 10CFR50.46 Margin Utilization
Large Break LOCA

PLANT NAME: Haddam Neck Plant

			Clad Temperature	Notes
A.	Analysis of Record (9/94)	PCT =	2058°F	(1)
	1. Transition Core Assessment	ΔPCT=	80°F	
	Eval. Model: WC/T			
	Vendor: Westinghouse			
	Peak Linear Power: 13.2 kw/ft.			
	FΔH: 1.67			
B.	Prior Permanent LOCA Model Assessments (Thru 12/1995)			
	1. Identified Errors, Momentum Equation Deficiency Model Change, Steady State ΔP	ΔPCT=	-40°F	(2)
	2. Fixed Heat Transfer Node Assignment Error	ΔPCT=	-39°F	
C.	Current Permanent LOCA Model Assessments(Thru 12/1996) (Permanent Assessment of PCT Margin)			
	1. Downcomer Input Discrepancy	ΔPCT=	0°F	
D.	10 CFR 50.59 Safety Evaluations (Permanent Assessment of PCT Margin)			
	1. LPSI Flowrate Evaluation	ΔPCT=	-169°F	(3)
	ANALYSIS OF RECORD PCT + MARGIN ALLOCATIONS		**PCT = 1890°F**	**(4)**

Notes:

(1) Analysis of Record was performed for Cycle 19 and bounded Cycle 18 operation.

(2) This PCT benefit was conservatively not credited in the 1994 annual 10CFR50.46 report. The 40°F benefit has been credited since the 1995 annual report.

(3) Includes reduced LPSI flowrate, increased HPSI flowrate, and credit for burn-up of 4000 MWD/MTU.

(4) 1890°F covers Cycle 19 after 4000 MWD/MTU burn-up. Operation prior to this burn-up was evaluated crediting maximum achievable peaking factors. The analysis yielded a PCT equal to 2171°F.