



Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381-2000

APR 03 2002

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

10 CFR 50.46(a) (3) (ii)

Gentlemen:

In the Matter of)
Tennessee Valley Authority)

Docket Nos. 50-390

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 - EMERGENCY CORE COOLING
SYSTEM (ECCS) EVALUATION MODEL CHANGES - ANNUAL NOTIFICATION AND
REPORTING FOR 2001

Reference:

- (1) Westinghouse Electric Company letter to TVA (WAT-D-10999),
March 1, 2002, "Watts Bar Nuclear Plant Units 1 and 2, 10 CFR
50.46 Annual Notification and Reporting for 2001."

The purpose of this letter is to provide NRC with the WBN Unit 1
10 CFR 50.46 Annual Notification and Report for 2001. The report
notifies NRC of changes or errors discovered in the WBN ECCS
evaluation models for peak cladding temperature (PCT) in
accordance with 10 CFR 50.46. As detailed in Reference 1, there
have been no non-zero PCT changes since TVA's last report (Revised
Annual Notification Report for 2000), dated September 7, 2001. As
also discussed in Reference 1, the Evaluation Model changes and
errors (except plant specific errors in the application of the
model) will be reported to the NRC via Westinghouse letter.
Accordingly, only the WBN specific errors are discussed in this
report (Enclosure 1). The PCT margin allocations for this report
are summarized in Enclosure 2.

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U.S. Nuclear Regulatory Commission
Page 2

APR 03 2002

If you should have any questions concerning this matter, please contact me at (423) 365-1824.

Sincerely,



P. L. Pace
Manager, Licensing and
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Enclosure

cc (Enclosures):

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ENCLOSURE 1

DESCRIPTION OF CHANGES WHICH AFFECT WBN'S EMERGENCY CORE COOLING SYSTEM EVALUATION MODEL(S) AND ITS CALCULATION OF PEAK CLADDING TEMPERATURE

1. WBN SPECIFIC - Large Break LOCA Vessel Geometry Input Errors

Background

Several minor geometric errors associated with metal heat slabs and channel volumes in the vessel portion of the WCOBRA/TRAC model of the BELOCA analyses were identified. A list of errors follows:

- Small error leading to:
 - Too much lower plenum channel volume (judged conservative)
 - Too little metal heat slab in the lower plenum
- Under-specification of vessel wall metal mass in the active core elevation
- Some lower plenum metal heat slabs being apportioned too thick
- Hot leg nozzle channel volume several percent off (negligible)
- Over-specification of lower plenum radial keys metal heat slab volume

In the aggregate, the heat slab errors are judged conservative since the net over-specification of metal heat slab will tend to promote lower plenum boiling during reflood.

Estimated Effect

Engineering judgment was applied to assess the errors taking into account their relative magnitude and level of importance. The net impact of these vessel geometric errors is judged to be 0°F.

ENCLOSURE 2

SUMMARY OF PEAK CLADDING TEMPERATURE MARGIN ALLOCATIONS RESULTING FROM
CHANGES TO THE EMERGENCY CORE COOLING SYSTEM EVALUATION MODEL

Westinghouse LOCA Peak Clad Temperature Summary For Best Estimate Large Break

Plant Name: Watts Bar Unit 1
 Utility Name: Tennessee Valley Authority
 Revision Date: 2/12/02

Analysis Information

EM: WCOBRA/TRAC Analysis Date: 08/98 Limiting Break Size: Guillotine
 FQ: 2.5 FdH: 1.65
 Fuel: Vantage + SGTP (%): 10
 Notes: Mixed Core - Vantage + / Performance +

Composite

	Clad Temp (°F)	Ref.	Notes
LICENSING BASIS			
Analysis-Of-Record PCT	1892	1,2	
MARGIN ALLOCATIONS (Delta PCT)			
A. PRIOR PERMANENT ECCS MODEL ASSESSMENTS			
1 . Vessel Channel DX Error	-4	3	
2 . MONTECF Decay Heat Uncertainty Error	4	6	
B. PLANNED PLANT CHANGE EVALUATIONS			
1 . Accumulator Line/Pressurizer Surge Line Data Evaluation	-131	4	
2 . Increased Accumulator Temperature Range Evaluation	4	5	
3 . 1.4% Uprate Evaluation	12	5	
C. 2001 PERMANENT ECCS MODEL ASSESSMENTS			
1 . None	0		
D. TEMPORARY ECCS MODEL ISSUES*			
1 . None	0		
E. OTHER			
1 . None	0		
LICENSING BASIS PCT + MARGIN ALLOCATIONS		PCT = 1777	

* It is recommended that these temporary PCT allocations which address current LOCA model issues not be considered with respect to 10 CFR 50.46 reporting requirements.

References:

- 1 . WCAP-14839, Rev. 1, "Best Estimate Analysis of the Large Break Loss of Coolant Accident for the Watts Bar Nuclear Plant," August 1998.
- 2 . WAT-D-10499, "Tennessee Valley Authority Watts Bar Nuclear Plant Units 1 and 2, 10 CFR 50.46 Annual Notification and Reporting for 1997," February 27, 1998.
- 3 . WAT-D-10618, "Tennessee Valley Authority, Watts Bar Nuclear Plant Units 1 and 2, 10 CFR 50.46 Annual Notification and Reporting for 1998," March 5, 1999.
- 4 . WAT-D-10725, "Tennessee Valley Authority, Watts Bar Nuclear Plant Unit 1, 10 CFR 50.46 Annual Notification and Reporting for 1999," February 23, 2000.
- 5 . WAT-D-10840, "Tennessee Valley Authority, Watts Bar Nuclear Plant Unit 1, Final Deliverables for 1.4% Uprate Program," August 31, 2000.
- 6 . WAT-D-10904, "10 CFR 50.46 Annual Notification and Reporting for 2000," February 2001.

Notes:

None

Westinghouse LOCA Peak Clad Temperature Summary For Small Break

Plant Name: Watts Bar Unit 1
Utility Name: Tennessee Valley Authority
Revision Date: 2/12/02

Analysis Information

EM: NOTRUMP **Analysis Date:** 11/96 **Limiting Break Size:** 4 inch
FQ: 2.5 **FdH:** 1.65
Fuel: Vantage + **SGTP (%):** 10
Notes: Mixed Core - Vantage + / Performance +

	Clad Temp (°F)	Ref.	Notes
LICENSING BASIS			
Analysis-Of-Record PCT	1126	1,2	
MARGIN ALLOCATIONS (Delta PCT)			
A. PRIOR PERMANENT ECCS MODEL ASSESSMENTS			
1 . NOTRUMP Mixture Level Tracking / Region Depletion Errors	13	4	
B. PLANNED PLANT CHANGE EVALUATIONS			
1 . Annular Blankets	10	3	
C. 2001 PERMANENT ECCS MODEL ASSESSMENTS			
1 . None	0		
D. TEMPORARY ECCS MODEL ISSUES*			
1 . None	0		
E. OTHER			
1 . Tav _g Uncertainty of 6 °F	1		
2 . Temporary SI Leakage to PRT	120	5	(a)
LICENSING BASIS PCT + MARGIN ALLOCATIONS		PCT =	1270

* It is recommended that these temporary PCT allocations which address current LOCA model issues not be considered with respect to 10 CFR 50.46 reporting requirements.

References:

- 1 . WAT-D-10337, "Tennessee Valley Authority, Watts Bar Nuclear Plant, Final Safety Evaluation to Support Technical Specification Changes," March 5, 1997.
- 2 . WAT-D-10356, "Tennessee Valley Authority, Watts Bar Nuclear Plant Units 1 & 2, Final Report and Safety Evaluation for the 10% SGTP Program," June 2, 1997.
- 3 . WAT-D-10618, "Tennessee Valley Authority, Watts Bar Nuclear Plant Unit 1, 10 CFR 50.46 Annual Notification and Reporting for 1998," March 5, 1999.
- 4 . WAT-D-10810, "Tennessee Valley Authority, Watts Bar Nuclear Plant Unit 1, 10 CFR 50.46 Appendix K (BART/BASH/NOTRUMP) Evaluation Model Mid-Year Notification and Reporting for 2000," June 30, 2000.
- 5 . WAT-D-10942, "Tennessee Valley Authority, Watts Bar Nuclear Plant Unit 1, Evaluation of Temporary SI Leakage to PRT," August 8, 2001.

Notes:

- (a) PCT assessment for reduced SI flow due to SI leakage to PRT is applicable until the end of Cycle 4.