Tennessee Valley Authority, Post Office Box 2000, Soddy-Daisy, Tennessee 37384-2000

November 14, 2007

10 CFR 50.46

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Gentlemen:

In the Matter of	)	Docket Nos. 50-327
Tennessee Valley Authority (TVA)	)	50-328

SEQUOYAH NUCLEAR PLANT (SQN) - 10 CFR 50.46 ANNUAL REPORT OF NON-SIGNIFICANT CHANGES

References:
1. TVA letter to NRC dated May 5, 2006, "Sequoyah Nuclear Plant (SQN) - 10 CFR 50.46 30-Day Special Report of Significant Changes"
2. TVA letter to NRC dated July 26, 2007, "Sequoyah Nuclear Plant (SQN) - Unit 2 - Technical Specifications (TS) Change 07-04 Revision of Core Operating Limits Report (COLR) References for Realistic Large Break Loss-of-Coolant-Accident Methodology"

The purpose of this letter is to provide changes to the calculated peak cladding temperature (PCT) resulting from recent changes to the SQN emergency core cooling system (ECCS) evaluation model. This submittal satisfies the annual reporting requirements in accordance with 10 CFR 50.46(a)(3)(ii). The enclosure contains a summary of the recent changes to the SQN ECCS evaluation model and the effect of these changes on the calculated PCT. These changes have occurred since the special report that was submitted under Reference 1. There were no further changes in the ECCS evaluation model for the 2006 annual reporting period.

A002

NRR

Printed on recycled paper

TVA submitted a license amendment request (LAR) on July 26, 2007 (Reference 2), as supplemented on October 3, 2007, for reanalysis of the large break loss-of-coolant accident to support the spring 2008 Unit 2 refueling outage. It is expected that approval of this LAR will be used for Unit 2 core design, resulting in a significant calculated PCT change.

There are no regulatory commitments in this letter.

Please direct questions concerning this issue to me at (423) 843-7170.

Sincerely,

James D. Smith
Manager, Site Licensing and
Industry Affairs

Enclosure
10 CFR 50.46 Annual Report of Non-Significant Changes

cc (Enclosure):
Mr. Brendan T. Moroney, Senior Project Manager
U.S. Nuclear Regulatory Commission
Mail Stop 08G-9a
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852-2739

ENCLOSURE

TENNESSEE VALLEY AUTHORITY (TVA)
SEQUOYAH NUCLEAR PLANT (SQN)
UNITS 1 AND 2

10 CFR 50.46 ANNUAL REPORT OF NON-SIGNIFICANT CHANGES

In accordance with the annual reporting requirements of 10 CFR 50.46 (a)(3)(ii), the following is a summary of the limiting design basis accident (loss-of-coolant accident) analysis results established using the current SQN emergency core cooling system (ECCS) evaluation model.

Large Break Loss of Coolant Accident (LB LOCA)

	PCT	Attachment
Previous Licensing Basis peak cladding temperature (PCT) (Reference 1)	2195°F	
1. Maximum Core Power Peaking Factor Increase from 2.39 to 2.48	+ 2°F	1
Updated Licensing Basis PCT	2197°F	
Net Change	+ 2°F	

Small Break Loss of Coolant Accident (SB LOCA)

	PCT	Attachment
Previous Licensing Basis PCT (Reference 2)	1162°F	
Updated Licensing Basis PCT	1162°F	
Net Change	None	

A detailed discussion of the ECCS evaluation model change outlined above is described in Attachment 1. The information in this submittal is based on information provided to TVA by AREVA Nuclear Power, Inc. under Reference 3.

References

1. TVA letter to NRC dated May 5, 2006, "Sequoyah Nuclear Plant (SQN) - 10 CFR 50.46 30-Day Special Report of Significant Changes"

2. TVA letter to NRC dated November 08, 2004, "Sequoyah Nuclear Plant (SQN) - 10 CFR 50.46 Annual Report of Non-Significant Changes"

3. AREVA Nuclear Power, Inc letter to TVA dated November 13, 2006, "SQN 10 CFR 50.46 Annual Report and Operational Peaking Changes, FAB06-624" (B38 061214 802)

Attachment

1. Maximum Core Power Peaking Factor Increase

ATTACHMENT 1
MAXIMUM CORE POWER PEAKING FACTOR INCREASE

Background

To offset the reactor coolant pump internals flow resistance modeling error described in the Sequoyah Nuclear Plant (SQN) 10 CFR 50.46 special report dated May 05, 2006, the assumed maximum core power peaking limit (F_Q) for the large break loss of coolant accident was reduced from 2.50 to 2.39. Revised axial flux difference (AFD) limits were established for Unit 2, Cycle 14 and Unit 1, Cycle 15 operation to ensure that the 2.39 power peaking limit was met.

During the design of the SQN Unit 2, Cycle 15 core, the preliminary maneuvering analysis indicated that adequate power peaking margins could not be maintained with a reasonable negative AFD limit. To increase the operating margins in the lower portion of the core, the power peaking limit was increased from 2.39 to 2.48 for Unit 2, Cycle 15 and later core designs. The increase in F_Q was coupled with restrictions to the AFD limits for the upper core (6-ft elevation and above) designed to approximate the previous 2.39 power peaking limit at the limiting fuel elevation (10-ft elevation). A sensitivity analysis was performed using the existing SQN emergency core cooling system (ECCS) evaluation model to demonstrate the acceptability of the revised limits for the limiting fuel assembly elevation.

Results

The analyses supporting the revised 2.48 power peaking limit and revised AFD limits resulted in a calculated fuel cladding peak temperature of 2197°F for the large break loss-of-coolant accident.