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

May 8, 2007

TVA-SQN-TS-06-03

10 CFR 50.90

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	)		50-328

SEQUOYAH NUCLEAR PLANT (SQN) - UNITS 1 AND 2 - TECHNICAL SPECIFICATIONS (TS) CHANGE 06-03 "ULTIMATE HEAT SINK (UHS) TEMPERATURE INCREASE AND ELEVATION CHANGES - SUPPLEMENTAL INFORMATION NO. 2" (TAC NOS. MD2621 & MD2622)

- References: 1. TVA Letter to NRC dated, July, 12, 2006, "Sequoyah Nuclear Plant (SQN) - Units 1 and 2 - Technical Specifications (TS) Change 06-03 'Ultimate Heat Sink (UHS) Temperature Increase and Elevation Changes'"
  - 2. TVA Letter to NRC dated, December 7, 2006, "Sequoyah Nuclear Plant (SQN) - Units 1 and 2 - Technical Specifications (TS) Change 06-03 'Ultimate Heat Sink (UHS) Temperature Increase and Elevation Changes Supplemental Information' (TAC Nos. MD2621 and MD2622)"
  - 3. NRC letter to TVA dated November 22, 2006, "Sequoyah Nuclear Plant, Units 1 and 2 -Request for Additional Information Regarding Technical Specification Change Request for Ultimate Heat Sink Temperature (TAC Nos. MD2621 and MD2622)"

U.S. Nuclear Regulatory Commission Page 2 May 8, 2007

> 4. TVA letter to NRC dated January 26, 2007, "Sequoyah Nuclear Plant, Units 1 and 2 -Response to Request for Additional Information (RAI) for Technical Specification (TS) Change 06-03 (TAC Nos. MD2621 and MD2622)"

Pursuant to 10 CFR 50.90, Tennessee Valley Authority (TVA) has submitted a request for a TS change to Licenses DPR-77 and DPR-79 for SQN Units 1 and 2 by Reference 1. Additional information has been requested and provided by References 2, 3, and 4. The purpose of this letter is to provide TVA's response to an NRC question received by email and discussed in a teleconference held on April 17, 2007. The attached enclosure provides our response to NRC's question.

The supplemental information does not change the "No Significant Hazards Considerations" associated with the proposed change in Reference 1.

TVA has discovered a typographical error in Reference 1 on page E2-2. Item 5 under column titled "SQN Response" No. 108 referring to Rads should be 1e8.

Additionally, in accordance with 10 CFR 50.91(b)(1), TVA is sending a copy of this letter and enclosures to the Tennessee State Department of Public Health.

There are no commitments contained in this submittal.

U.S. Nuclear Regulatory Commission Page 3 May 8, 2007

If you have any questions about this change, please contact me at 843-7170.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this  $8^{th}$  day of May, 2007.

Sincerely,

W. Mou

Glenn W. Morris Manager, Site Licensing and Industry Affairs

Enclosure: TVA's Response to NRC Question

Enclosure 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

Mr. Lawrence E. Nanney, Director Division of Radiological Health Third Floor L&C Annex 401 Church Street Nashville, Tennessee 37243-1532

## ENCLOSURE

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

TVA's Response to NRC Question

## NRC QUESTION

In Enclosure 1 to your letter dated July 12, 2006, please refer to the Section titled "Long-Term Containment Cooling" on page E1-11. The second paragraph of this section refers to your 1988 submittal for information on the effect on containment cooldown due to a postulated loss of downstream dam (LODD) concurrent with a design basis loss-of-coolant accident (LOCA). In the 1988 submittal, which was for the licensing amendment to increase the ultimate heat sink (UHS) temperature from 83°F to 84.5°F, under Section titled "Long-Term Containment Cooling" on page 8, second paragraph provides an increase in containment temperature of 3°F due to 7% decrease in emergency raw cooling water (ERCW) heat removal capacity attributed to reduced reservoir level resulting from dam failure. It also provides an increase in containment temperature of no more than 4.5°F due to 7% reduced ERCW (resulting from dam failure) in conjunction with increased UHS temperature of 84.5°F. The July 12, 2006 submittal does not include the increase in containment temperature due to a 7% reduced ERCW flow in conjunction with a UHS temperature of 87°F. Please provide the assumptions made, the computer code used, and the results of the analysis including the long-term temperature profile and the maximum temperature reached in the containment for a 7% reduced ERCW flow in conjunction with UHS temperature of 87°F.

## TVA RESPONSE

The 1988 UHS TS change (Reference 1 of the July 12, 2006 letter) did include the effect of an increase in UHS temperature and a decreased ERCW flow (due to a LODD) on long-term containment temperatures. As discussed in the 1988 UHS TS change section titled "Long-Term Containment Cooling," "long term" is the time after the reservoir level has decreased below elevation of 670 feet. That is a little more than 2 hours after peak containment temperature and pressure occurs in the current analysis (see attached SQN Updated Final Safety Analysis Report [UFSAR] figures). Also, the increase in long-term containment temperature was calculated, for the 1988 UHS change, as the increase in UHS temperature (1.5 degrees Fahrenheit[°F]) plus the increase in sump water temperature needed to offset the decrease in ERCW flow to the containment spray heat exchanger (HX) and component cooling system HX that occurs due to the LODD (3°F).

Section titled "Containment Pressure Analysis - Long Term" in the July 2006, submittal (page E1-9) provided in part the major assumptions used in the current analysis (e.g., WCAP-12455 Revision 1, Supplement 1R dated September 2001). More detailed information of this analysis is found in Section 6.2.1.3.4 of the SQN UFSAR, including the assumptions made, the computer code used (i.e., LOTIC-1), and the final results of the analysis used in the 2006 UHS TS change. The analysis is based on an UHS temperature of 87°F and the minimum ERCW flow expected at a reservoir elevation of 670 feet.

It is reasonably expected that an increase of about 3°F (after about 10K seconds) over those containment temperatures shown in UFSAR Figures 6.2.1-16 and 6.2.1-17 would occur due to a 7 percent reduction in ERCW flow in conjunction with an UHS temperature of 87°F. This estimate of about 3°F uses the information in the 1988 UHS TS change, which as described above, determined that a 7 percent reduction in ERCW flow results in a 3°F increase in containment temperatures. As previously discussed, the UFSAR analysis explicitly accounts for an UHS temperature of 87°F. Also, the ERCW flow will not decrease below that assumed in the UFSAR analysis until more than 2 hours after peak containment temperature and pressure occurs. Therefore, the roughly 3°F increase in containment temperatures 6.2.1-16 and 6.2.1-17 after about 10K seconds.



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