Tennessee Valley Authority, Post Office Box 2000, Soddy-Daisy, Tennessee 37379

November 20, 2000

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

Gentlemen:

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

SEQUOYAH NUCLEAR PLANT (SQN) - 10 CFR 50.46 ANNUAL REPORT

The purpose of this letter is to provide changes to the calculated peak fuel 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 peak fuel cladding temperature. These changes have occurred since the last annual report that was submitted on November 23, 1999.

Please direct questions concerning this issue to me at (423) 843-7170 or J. D. Smith at (423) 843-6672.

Sincerely,

Pedro Salas
Licensing and Industry Affairs Manager

Enclosure
cc: See page 2

D030

Enclosure
cc (Enclosure):
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ENCLOSURE

SEQUOYAH NUCLEAR PLANT (SQN) - 10 CFR 50.46 ANNUAL REPORT EMERGENCY CORE COOLING SYSTEM (ECCS) EVALUATION MODEL CHANGES

In accordance with the annual reporting requirements of 10 CFR 50.46 (a)(3)(ii), the following is a summary of recent changes to the SQN ECCS evaluation model and the effect of these changes on the calculated peak fuel cladding temperature. These changes have occurred since the last annual report submitted to NRC on November 23, 1999.

Large Break Loss-of-Coolant Accident (LB LOCA)

	PCT
Previous Licensing Basis PCT (November 23, 1999)	2185°F
Low Pressure Drop Fuel Assembly Transition Core Penalty (Framatome Cogema Fuel (FCF) Letter BPP-99-1136, Dated December 21, 1999)	+5°F
Updated Licensing Basis PCT	2190°F
Net Change	**+5°F**

Small Break (SB) LOCA

	PCT
Previous Licensing Basis PCT (November 25, 1997)	1162°F
Updated Licensing Basis PCT	1162°F
Net Change	**None**

A detailed discussion of the LB LOCA change outlined above is attached to this enclosure. The information in the attachment is based upon the referenced Framatome Cogema Fuel submittal and information contained in TVA Design Change Notice No. E-20335-A.

ATTACHMENT

LOW PRESSURE DROP FUEL ASSEMBLY TRANSITION CORE PENALTY

Background

The Sequoyah reload fuel supplier (Framatome Cogema Fuels, FCF) has developed a new fuel assembly top and bottom nozzle design which enhances the performance of the FCF Mark-BW17 reload fuel type. The updated nozzle design incorporates a modified grill pattern which increases the nozzle flow area and reduces the pressure drop across the fuel assembly. It is anticipated that the full flow pressure drop across the reactor core will be reduced by approximately 0.5 psid when the modified nozzles are installed for a full core application. The reload fuel supplied to Sequoyah includes the modified nozzle design beginning with the fresh fuel assemblies supplied for the Unit 1, Cycle 11 core.

To support the use of the modified fuel nozzle design, Framatome Technologies Incorporated (FTI) performed a number of large break loss of coolant accident sensitivity studies using the current Sequoyah emergency core cooling system (ECCS) evaluation model. The study indicated that there will be no calculated peak fuel cladding temperature increase for the full core application of the low pressure loss nozzle design. During the transition to a full core of low pressure drop fuel assemblies, FCF indicated that the original fuel assemblies may experience a small decrease in coolant flow when residing with the modified assemblies. This small reduction in flow results from the preferential flow of coolant through the low resistance fuel assemblies. The reduced flow will result in a slightly higher calculated peak clad fuel temperature for the fuel assemblies with the original nozzle design. FTI performed a number of additional large break loss of coolant accident sensitivity studies using the Sequoyah plant specific ECCS evaluation model to establish a bounding fuel assembly peak clad temperature increase for the transition cores.

Results

Based upon sensitivity calculations performed by FTI, a 5°F penalty applied to the calculated peak fuel cladding temperature will bound the hydraulic effect of the low pressure drop fuel assemblies in the transition cores.