

April 8, 2005

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

10 CFR 50.46

Gentlemen:

In the Matter of)	Docket Nos. 50-259
Tennessee Valley Authority)	50-260
		50-296

TENNESSEE VALLEY AUTHORITY - BROWNS FERRY NUCLEAR PLANT (BFN) - UNITS 1, 2, and 3 - DOCKETS 50-259, -260, AND -296 - FACILITY OPERATING LICENSES DPR - 33, DPR - 52, AND DPR - 68 - REPORT OF EMERGENCY CORE COOLING SYSTEM (ECCS) EVALUATION MODEL CHANGES

The purpose of this letter is to report, in accordance with 10 CFR 50.46(a)(3)(ii), changes in the modeling used to determine compliance with ECCS requirements.

General Electric (GE) has provided TVA with updated loss-of-coolant accident (LOCA) analyses, which cover operations at the Unit 2/Unit 3 current licensed thermal power (CLTP) of 3458 thermal megawatts. These analyses address the GE13 and GE14 fuel bundles supplied by Global Nuclear Fuels (GNF) currently being utilized in Unit 2 and Unit 3. These analyses also apply to BFN Unit 1, which will utilize both types of GNF fuel upon its restart.

The updated evaluation was performed to address process updates, error corrections, and plant configuration/modeling changes. The main factors affecting peak clad temperature (PCT) in the updated GE analyses were assumed ECCS initiation delay time increases, changes in power distribution calculations, assumed ECCS flow leakage rate increases, and different assumptions regarding recirculation pump discharge valve closure.

Unit 2 will restart from its current refueling outage with a mixed-core fuel load. The new fuel being loaded for upcoming

Cycle 14 operations is Framatome Advanced Nuclear Power (FANP) designed ATRIUM-10 fuel bundles, similar to those currently operating in Unit 3 Cycle 12. FANP has also provided LOCA updated analyses to TVA.

The updated FANP evaluation was performed to include plant configuration/modeling changes and a more limiting representative fuel lattice design. The modeling changes affecting PCT in the updated FANP analyses were changes in the automatic depressurization system (ADS) initiation logic, revised low pressure coolant injection (LPCI) and low pressure core spray (LPCS) initiation logic, revised diesel generator starting assumptions, and reduced LPCI and LPCS flows. The more limiting representative ATRIUM-10 lattice design has higher rod power peaking than was assumed in the previous analysis. The purpose of the lattice change is to bound both current and expected future ATRIUM-10 fuel designs at BFN.

The FANP analyses were performed assuming extended power uprate (EPU) conditions (3952 thermal megawatts), and they are bounding for operation at CLTP conditions. No separate PCT value was provided by FANP for CLTP conditions.

The post-LOCA PCT results determined by the updated GE and FANP analyses for each of the three fuel types are tabulated below:

Fuel Vendor	Affected BFN Unit	Fuel Type	Updated PCT
GNF	U1 ⁽¹⁾ , U2, U3	GE13	1810
GNF	U1 ⁽¹⁾ , U2, U3	GE14	1760
FANP ⁽²⁾	U2, U3	ATRIUM-10	2007

Note 1: The PCT values for GNF fuel assume the Unit 2/Unit 3 CLTP of 3458 MW. The updated CLTP analysis is bounding for the Unit 1 licensed power level of 3293 MW.

Note 2: The FANP PCT value was calculated for EPU operation, and it is bounding for CLTP operation.

The PCT values resulting from these updated LOCA analyses exceed the current PCT values by more than 50°F. However, BFN retains significant remaining margin (greater than 190°F) to the maximum allowable PCT of 2200°F specified in 10 CFR 50.46(b)(1). Since these changes were calculated via full reevaluations by GE and FANP, no further action is required.

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There are no commitments contained in this letter. If you have any questions regarding this letter, please contact me at (256) 729-2636.

Sincerely,

Original signed by:

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