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John H. Garrity
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AUG 12 1991

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

Gentlemen:

In the Matter of the Application of	)	Docket Nos. 50-390
Tennessee Valley Authority	)	50-391

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 AND 2 - RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION - FSAR SECTION 4.2, AMENDMENT 65 (TAC NOS. 80143 AND 80144)

Enclosed is TVA's response to the NRC request for additional information (RAI) on WBN FSAR Section 4.2, concerning seismic qualification of reactor vessel internals.

If any questions exist relative to the enclosed, please contact P. L. Pace at (615) 365-1824.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

JHGarrity

John H. Garrity

Enclosure
cc: See page 2

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cc (Enclosure):
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ENCLOSURE

WATTS BAR NUCLEAR PLANT
RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION (RAI)
FINAL SAFETY ANALYSIS REPORT (FSAR) SECTION 4.2
AMENDMENT 65

NRC QUESTION

FSAR page 4.2-29

This section of the FSAR discusses the design loading conditions for the reactor vessel internals. Amendment 65 changes the method of combining the seismic and blowdown forces from "assuming the maximum amplitude of each force to act concurrently" to "statistically combining the maximum amplitude of each force." The staff finds that the proposed method is unclear and that the licensee should explicitly describe the methodology of combining the forces.

TVA RESPONSE

The previous version of the FSAR, prior to Amendment 65, reflects wording which existed when the FSAR was first prepared. Previous words in the FSAR, addressing the design loading conditions considered ". . . the maximum amplitude of each force to act concurrently." This design approach is documented in WCAP-7630.

Starting in the mid-70s, the analysis performed for the reactor internals was assigned by Westinghouse to the Pensacola division, and work was done in preparation for building and evaluating the reactor internals to subsection NG of the ASME code. The load combination for Watts Bar considers the square root of the sum of the squares load combination and is supported by the generic analysis for a 4-loop plant. This analysis is documented in report WNEP-7702, entitled "Generic Stress Report 4-Loop Standard Reactor Core Support Structures Structural/Fatigue Analysis, June 1977, Westinghouse Proprietary Class 1.

NRC QUESTION

FSAR page 4.2-34

This section of the FSAR discusses the seismic analysis of the control rod drive mechanisms (CRDMs). Amendment 65 deletes the last part of the first sentence on page 4.2-34 which states that the seismic analysis should confirm the ability of the CRDMs to trip when subjected to seismic disturbances. The staff is concerned as to how the applicant intends to verify the operability of the CRDMs under seismic disturbances and where this will be discussed in the FSAR.

TVA RESPONSE

This section of the FSAR is directed at the pressure boundary qualification of the components which make up the CRDMs. The staff's concern is directed towards CRDM operability. CRDM operability at WBN is assured by the following actions:

a. Since control rods fall into the core because of gravitational acceleration and loss of power to grippers releases control rods, the CRDM is a fail-safe component.

b. Rod drop time measurements during startup perform verification of operability of CRDMs.

c. Rod drop capability under abnormal conditions has been demonstrated by:

Prototype flow tests which were performed for flows in excess of 150 percent of design flow over a range of temperatures.

Scram deflection tests on CRDMs.

Scram deflection tests on guide tubes and fuel assemblies.

In addition, a Westinghouse licensee has performed dynamic tests on a prototype CRDM which provide additional evidence of the ability to insert control rods during seismic events.

Concluding statement: The ability to insert control rods is assured by the fail-safe CRDM design employed. Periodic rod drop time tests provide confirmation of acceptable CRDM performance. Furthermore, capability under abnormal conditions has been demonstrated by tests performed by Westinghouse and Westinghouse licensees.

As discussed during the TVA/NRC teleconference of July 11, 1991, CRDM operability is presently not described within the Watts Bar FSAR, nor is future incorporation planned. This type of evaluation is not typically described in the FSAR.