January 21, 2010

Mr. Ashok Bhatnagar
Senior Vice President
Nuclear Generation Development
and Construction
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: WATTS BAR NUCLEAR PLANT, UNIT 2 – SAFETY EVALUATION REGARDING GENERIC LETTERS 1996-06, "ASSURANCE OF EQUIPMENT OPERABILITY AND CONTAINMENT INTEGRITY DURING DESIGN-BASIS ACCIDENT CONDITIONS" (TAC NO. MD6718)

Dear Mr. Bhatnager:

In a letter dated September 7, 2007 (see Agencywide Document Access and Management System Accession No. ML072570676), which references letters dated January 28, 1997, August 31, 1998, and December 21, 1998, the Tennessee Valley Authority (TVA) submitted a response to U.S. Nuclear Regulatory Commission (NRC) Generic Letter 1996-06, "Assurance of Equipment Operability and Containment Integrity during Design-Basis Accident Conditions," for Watts Bar Nuclear Plant, Unit 2.

The NRC staff has reviewed TVA's response. Enclosed is the NRC staff's safety evaluation. This completes the NRC staff's efforts regarding WBN Unit 2 for TAC No. MD6718.

Sincerely,

/RA/

Patrick D. Milano, Acting Chief
Watts Bar Special Projects Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-391

Enclosure: Safety Evaluation

cc w/encl: Distribution via Listserv

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SAFETY EVALUATION BY THE

OFFICE OF NUCLEAR REACTOR REGULATION RELATED TO

GENERIC LETTER 1996-06, "ASSURANCE OF EQUIPMENT OPERABILITY AND

CONTAINMENT INTEGRITY DURING DESIGN-BASIS ACCIDENT CONDITIONS"

TENNESSEE VALLEY AUTHORITY

WATTS BAR NUCLEAR PLANT, UNIT 2

DOCKET NO. 50-391

1.0 INTRODUCTION

In a letter dated September 7, 2007 (Agencywide Document Access and Management System Accession No. ML072570676), which references letters dated January 28, 1997, August 31, 1998, and December 21, 1998, the Tennessee Valley Authority (TVA) submitted a response to U.S. Nuclear Regulatory Commission (NRC) Generic Letter (GL) 1996-06, "Assurance of Equipment Operability and Containment Integrity during Design-Basis Accident Conditions," for Watts Bar Nuclear Plant (WBN), Unit 2.

2.0 REGULATORY EVALUATION

The general design criteria (GDC) establish the necessary design, fabrication, construction, testing, and performance requirements for structures, systems and components important to safety. The applicable GDC for GL 1996-06 are GDC 44, "Cooling water," and GDC 50, "Containment design basis."

GDC 44 states the following:

> A system to transfer heat from structures, systems, and components important to safety, to an ultimate heat sink shall be provided. The system safety function shall be to transfer the combined heat load of these structures, systems, and components under normal operating and accident conditions.
>
> Suitable redundancy in components and features, and suitable interconnections, leak detection, and isolation capabilities shall be provided to assure that for onsite electric power system operation (assuming offsite power is not available) and for offsite electric power system operation (assuming onsite power is not available) the system safety function can be accomplished, assuming a single failure.

GDC 50 states the following:

> The reactor containment structure, including access openings, penetrations, and the containment heat removal system shall be designed so that the containment structure and its internal compartments can accommodate, without exceeding the design leakage rate and with sufficient margin, the calculated pressure and temperature conditions resulting from any loss-of-coolant accident. This margin shall reflect consideration of (1) the effects of potential energy sources which have not been included in the determination of the peak conditions, such as energy in steam generators and as required by § 50.44 energy from metal-water and other chemical reactions that may result from degradation but not total failure of emergency core cooling functioning, (2) the limited experience and experimental data available for defining accident phenomena and containment responses, and (3) the conservatism of the calculational model and input parameters.

3.0 TECHNICAL EVALUATION

GL 1996-06, dated September 30, 1996, included a request for licensees to evaluate cooling water systems that serve containment air coolers to assure that they are not vulnerable to waterhammer and two-phase flow conditions. TVA provided its initial response to GL 1996-06 for WBN Unit 1 in a letter dated January 28, 1997.

The NRC staff's letter, dated May 27, 1998, requested additional information on this topic for WBN Unit 1 that TVA responded by letters dated August 31, and December 21, 1998.

The NRC staff has reviewed TVA's response, dated September 7, 2007, and confirmed that the required response for WBN Unit 2 is identical to WBN Unit 1. Since the WBN Unit 1 response was previously accepted by the NRC staff by letter dated April 6, 1999, the staff finds the response for WBN Unit 2 acceptable.

4.0 CONCLUSION

Staff Requirements Memorandum (SRM), dated July 25, 2007 (ML072060688), for SECY-07-0096 – "Possible Reactivation of Construction and Licensing Activities for the Watts Bar Nuclear Plant Unit 2," stated

> The Commission supports a licensing review approach that employs the current licensing basis for Unit 1 as the reference basis for the review and licensing of Unit 2.

In accordance with the SRM for SECY-07-0096, the NRC staff finds that TVA's responses for WBN Unit 2 regarding GL 1996-06 are acceptable for the issue of thermally induced pressurization of piping runs penetrating the containment, waterhammer, and two-phase flow since TVA will use the same approved approach as WBN Unit 1.

Principle Contributor: John G. Lamb

Date: January 21, 2010