

August 12, 2010

Mr. Ashok Bhatnagar  
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6A Lookout Place  
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Chattanooga, TN 37402-2801

SUBJECT: WATTS BAR NUCLEAR PLANT, UNIT 2 – SAFETY EVALUATION REGARDING  
GENERIC LETTER 1995-07, “PRESSURE LOCKING AND THERMAL BINDING  
OF SAFETY-RELATED POWER-OPERATED GATE VALVES”  
(TAC NO. MD6717)

Dear Mr. Bhatnager:

In a letter dated September 7, 2007 (see Agencywide Document Access and Management System Accession No. ML072570676), that references letters dated February 13, March 15, July 26, 1996, and August 2, 1999, as supplemented by letter dated April 1, 2010 (ML100950044), and July 30, 2010 (ML102140191), the Tennessee Valley Authority (TVA) submitted a response to U.S. Nuclear Regulatory Commission (NRC) Generic Letter 1995-07, “Pressure Locking and Thermal Binding of Safety-Related Power-Operated Gate Valves,” for Watts Bar Nuclear Plant (WBN), 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. MD6717.

Sincerely,

**/RA/**

Stephen J. Campbell, 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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DATE	08 / 03 /10	08 / 13 /10	08 / 12 /10	08 / 12 /10

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SAFETY EVALUATION BY THE  
OFFICE OF NUCLEAR REACTOR REGULATION RELATED TO  
GENERIC LETTER 1995-07, "PRESSURE LOCKING AND THERMAL BINDING OF  
SAFETY-RELATED POWER-OPERATED GATE VALVES"  
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 (ADAMS) Accession No. ML072570676), that references letters dated February 13, March 15, July 26, 1996, and August 2, 1999, as supplemented by letter dated April 1, 2010 (ML100950044), and July 30, 2010 (ML102140191), the Tennessee Valley Authority (TVA) submitted a response to U.S. Nuclear Regulatory Commission (NRC, the Commission) Generic Letter (GL) 1995-07, "Pressure Locking and Thermal Binding of Safety-Related Power-Operated Gate Valves," for Watts Bar Nuclear Plant (WBN), Unit 2.

2.0 REGULATORY EVALUATION

Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50 (Appendix A, General Design Criteria 1 and 4), and plant licensing safety analyses require or commit that licensees design and test safety-related components and systems to provide adequate assurance that those systems can perform their safety functions. Other individual criteria in Appendix A to 10 CFR Part 50 apply to specific systems. In accordance with those regulations and licensing commitments, and under the additional provisions of 10 CFR Part 50 (Appendix B, Criterion XVI), licensees are expected to act to ensure that safety-related power-operated gate valves susceptible to pressure locking or thermal binding are capable of performing their required safety functions.

3.0 BACKGROUND

On August 17, 1995, the NRC issued GL 1995-07 to request that licensees take certain actions to ensure that safety-related power-operated gate valves that are susceptible to pressure locking or thermal binding are capable of performing their safety functions within the current licensing bases of the facility. GL 1995-07 requested that each licensee, within 180 days of the date of issuance of the GLs, (1) evaluate the operational configurations of safety-related power-operated gate valves in its plant to identify valves that are susceptible to pressure locking or thermal binding, and (2) perform further analyses and take needed corrective actions to ensure that the susceptible valves, identified in (1) above, are capable of performing their intended

safety function(s) under all modes of plant operation, including test configuration. In addition, GL 1995-07 requested that licensees, within 180 days of the date of issuance of the GL, provide to the NRC a summary description of (1) the susceptibility evaluation used to determine that valves are or are not susceptible to pressure locking or thermal binding, (2) the results of the susceptibility evaluation, including a listing of susceptible valves identified, and (3) the corrective actions, or other dispositioning, for the valves identified as susceptible to pressure locking or thermal binding. The NRC issued GL 1995-07 as a "compliance backfit" pursuant to 10 CFR 50.109(a)(4)(i) because modification may be necessary to bring facilities into compliance with the rules of the Commission referenced above.

In a letter dated February 13, 1996 (ADAMS Accession No. ML082420504), TVA submitted its 180-day response to GL 1995-07 for WBN Unit 1. In a letter dated March 15, 1996 (ADAMS Accession No. ML082420523), TVA supplemented its 180-day response to GL 1995-07 for WBN Unit 1. The NRC staff reviewed TVA's submittals and requested additional information in a letter dated June 28, 1996 (ADAMS Accession No. ML073231091). In a letter dated July 26, 1996 (ADAMS Accession No. ML07231094), TVA provided the additional information. The NRC staff reviewed the additional information and sent a second request for additional information in a letter dated May 28, 1999 (ADAMS Accession No. ML73201090). In a letter dated August 2, 1999 (ADAMS Accession No. ML073240666), TVA provided a response to the second request for additional information.

#### 4.0 TECHNICAL EVALUATION

In a safety evaluation dated September 15, 1999 (ADAMS Accession No. ML073230311), the NRC staff completed its review GL 1995-07 for WBN Unit 1. The NRC staff found that TVA performed appropriate evaluations of the operational configurations of safety-related power-operated gate valves to identify valves at WBN Unit 1 that are susceptible to pressure locking or thermal binding. The NRC staff concluded that TVA adequately addressed the requested actions discussed in GL 1995-07.

In a letter dated September 7, 2007, TVA noted that they intended to use the same approach for WBN Unit 2 as was used for WBN Unit 1. TVA also stated that the TVA Watts Bar Motor-Operated Valve (MOV) program includes implementation of GL 1995-07, and the TVA MOV program will be extended to include WBN Unit 2 to support the operating license of WBN Unit 2.

In a letter dated April 1, 2010, TVA supplemented its response to confirm that the calculation providing the basis for the evaluation of the affected WBN Unit 2 MOVs within the scope of GL 89-10 for susceptibility to pressure locking and thermal binding, in compliance with GL 95-07 has been issued. Based on the initial determination, approximately 20 valves require GL 95-07 modifications. In April 1, 2010 letter, TVA has indicated that the Construction Completion Project has identified a number of missing GL 89-10 MOVs for WBN Unit 2 (the valves that might have been removed in the past for use at WBN Unit 1). TVA is in the process of procuring new valves and has committed to evaluate these valves also for susceptibility to pressure locking and thermal binding, in compliance with GL 95-07.

In a letter dated July 30, 2010, TVA identified the following MOVs that need disk modification: (1) 2-FCV-1-16, (2) 2-FCV-63-8, (3) 2-FCV-63-11, (4) 2-FCV-63-156, (5) 2-FCV-63-157, (6) 2-FCV-74-1, (7) 2-FCV-74-2, (8) 2-FCV-74-8, (9) 2-FCV-74-9, (10) 2-FCV-74-33, and (11) 2-FCV-74-35.

In a letter dated July 30, 2010, TVA identified the following MOVs that need bonnet modification: (1) 2-FCV-63-72, (2) 2-FCV-63-73, (3) 2-FCV-63-172, (4) 2-FCV-72-40, (5) 2-FCV-72-41, (6) 2-FCV-72-44, and (7) 2-FCV-74-45. In addition, TVA identified that the following valves will have their controls modified to add a time delay: (1) 2-FCV-72-2 and (2) 2-FCV-72-39.

In a letter dated July 30, 2010, TVA confirmed that there are no WBN Unit 2 missing valves related to GL 1995-07. TVA stated that valves 2-FCV-63-25 and 2-FCV-63-26 will be evaluated for impact to new parameters from the Joint Owners' Group Topical Report MPR 2524A prior to startup.

The NRC staff has reviewed TVA's response provided in a letter dated September 7, 2007, as supplemented by letters dated April 1 and July 30, 2010, and confirmed that the required response for WBN Unit 2 is similar to WBN Unit 1. Since the WBN Unit 1 response was previously accepted by the NRC staff, in a letter dated September 15, 1999, the staff finds the response for WBN Unit 2 acceptable.

## 5.0 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 1995-07 are acceptable for the issue of pressure locking or thermal binding for safety-related power-operated gate valves since TVA will use the same approved approach as WBN Unit 1, provided that TVA completes the two commitments contained in the letter dated July 30, 2010, prior to startup.

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Date: August 12, 2010