



Tennessee Valley Authority, Post Office Box 2000, Spring City, TN 37381-2000

April 1, 2010

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Watts Bar Nuclear Plant, Unit 2
NRC Docket No. 50-391

Subject: **Watts Bar Nuclear Plant (WBN) Unit 2 – Supplemental Information
Regarding Certain NRC Generic Letters and Bulletins**

- References:
1. TVA letter to NRC dated September 7, 2007, "Watts Bar Nuclear Plant (WBN) - Unit 2 - Initial Responses to Bulletins and Generic Letters"
 2. TVA letter to NRC dated January 29, 2008, "Watts Bar Nuclear Plant (WBN) - Unit 2 - Regulatory Framework for the Completion of Construction and Licensing Activities for Unit 2"

The purpose of this letter is to submit from the Tennessee Valley Authority (TVA) Supplemental Information for the following Bulletins and Generic Letters (GL):

- Bulletin 2001-01 – Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles
- Bulletin 2002-01 – Reactor Pressure Vessel Head Degradation and Reactor Coolant Pressure Boundary Integrity
- Bulletin 2002-02 – Reactor Pressure Vessel Head and Vessel Head Penetration Nozzle Inspection Programs
- GL 97-01 - Degradation of Control Rod Drive Mechanism Nozzle and Other Vessel Closure Head Penetrations
- GL 98-02 - Loss of Reactor Coolant Inventory and Associated Potential for Loss of Emergency Mitigation Functions While in a Shutdown Condition
- Bulletin 96-01 - Control Rod Insertion Problems

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- GL 95-07 - Pressure Locking and Thermal Binding of Safety-Related Power-Operated Gate Valves
- Bulletin 2004-01 - Inspection of Alloy 82/182/600 Materials Used in the Fabrication of Pressurizer Penetrations and Steam Space Piping Connections at Pressurized Water Reactors

Enclosures 1 through 5 to this letter provide a summary of the previous response and the supplemental information for each response. With the exception of GL 97-01, these Bulletins and GLs were included in the letter dated September 7, 2007 (Reference 1). The Bulletins and GLs listed above were included in the letter dated January 29, 2008 (Reference 2). Enclosure 1 includes GL 97-01 with other Bulletins concerning the same issue. According to the letter dated January 29, 2008 (Reference 2), TVA WBN Unit 2 action for GL 97-01 was to provide a report to address the inspection program. The inspection program is described in Enclosure 1.

In the letter dated September 7, 2007 (Reference 1), TVA described that if TVA determines that a different strategy or additional action is appropriate, TVA will submit such changes to the NRC for review and concurrence. If you have any questions, please contact me at (423) 365-2351.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 1st day of April, 2010.

Sincerely,


Masoud Bajestani
Watts Bar Unit 2 Vice President

Enclosures:

1. NRC BULLETIN 2001-01, NRC BULLETIN 2002-01, NRC BULLETIN 2002-02, and NRC GL 97-01
2. NRC GL 98-02
3. NRC BULLETIN 96-01
4. NRC GL 95-07
5. NRC BULLETIN 2004-01

Enclosures
cc (See Page 3):

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cc (Enclosures):

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Enclosure 1

NRC BULLETIN 2001-01: CIRCUMFERENTIAL CRACKING OF REACTOR PRESSURE VESSEL HEAD PENETRATION NOZZLES

NRC BULLETIN 2002-01: REACTOR PRESSURE VESSEL HEAD DEGRADATION AND REACTOR COOLANT PRESSURE BOUNDARY INTEGRITY

NRC BULLETIN 2002-02: REACTOR PRESSURE VESSEL HEAD AND VESSEL HEAD PENETRATION NOZZLE INSPECTION PROGRAMS

NRC GL 97-01: DEGRADATION OF CONTROL ROD DRIVE MECHANISM NOZZLE AND OTHER VESSEL CLOSURE HEAD PENETRATIONS

In previous responses, TVA WBN Unit 2 committed to perform the first inspections according to the requirements of paragraphs IV.C(5)(a) and IV.C(5)(b) of the First Revised NRC Order EA-03-009 (Reference 1 below) at the first refueling outage. EA-03-009 has been superseded by 10 CFR 50.55a Codes and Standards (g)(6)(ii)(D)(2) through (6) and ASME Code Case N-729-1. TVA WBN Unit 2 will perform inspections during the first refueling outage according to 10 CFR 50.55a (g)(6)(ii)(D)(2) through (6) and ASME Code Case N-729-1.

As committed previously, TVA WBN Unit 2 will perform a baseline inspection prior to fuel load that consists of paragraph IV.C(5)(b) of the First Revised NRC Order EA-03-009 (Reference 1).

Reference:

1. NRC Letter dated February 20, 2004, to holders of Licenses for Operating Pressurized Water Reactors, "Issuance of First Revised NRC Order (EA-03-009) Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors"

Enclosure 2

NRC GL 98-02: LOSS OF REACTOR COOLANT INVENTORY AND ASSOCIATED POTENTIAL FOR LOSS OF EMERGENCY MITIGATION FUNCTIONS WHILE IN A SHUTDOWN CONDITION

Previously, TVA WBN Unit 2 described the following in the September 7, 2007 letter to the NRC.

The TVA review of relevant flow paths did not identify specific vulnerabilities which could reasonably be expected to result in a specific flow of hot RCS water to the refueling water storage tank (RWST)/ECCS header, and no corrective actions were identified as a result of this review. Reference 1 provides the information requested by NRC for Watts Bar Unit 1 and also indicates that a report summarizing 10CFR50 Appendix B controls that will act to prevent or assist in the mitigation of, such an event had been prepared and was retained for NRC inspection. For Watts Bar Unit 2, TVA will perform a similar review and document the results.

Reference:

- 1. TVA letter dated November 24, 1998, "Sequoyah Nuclear Plant (SQN), and Watts Bar Nuclear Plant (WBN), 180-Day Response to Generic Letter (GL) 98-02, 'Loss of Reactor Coolant Inventory and Associated Potential for Loss of Emergency Mitigation Functions While in a Shutdown Condition,' dated May 28, 1998"*

In addition to the previous commitment, TVA WBN Unit 2 will ensure that the guidance added to the Unit 1 procedure as a result of the review of NRC GL 98-02 is incorporated into the Unit 2 procedures. Specifically, when decreasing power, valve HCV-74-34, Refueling Water Return (normally locked closed valve) has a hold order placed with specific release criteria before entry into Mode 4 and to remove the hold order before entry into Mode 3 when returning to power.

Enclosure 3

NRC BULLETIN 96-01: CONTROL ROD INSERTION PROBLEMS

Previously, TVA WBN Unit 2 described the following in the September 7, 2007 letter to the NRC.

Watts Bar Unit 2 will demonstrate operability of the rod control system as part of the Power Ascension Test Program by performance of the following tests:

- *Refueling and Core Alterations (includes drag test)*
- *Control Rod Drive Mechanism Timing*
- *Rod Position Indication System*
- *Rod Drop Testing*
- *Rod Drop Time Measurement*

In addition to the above commitment, TVA WBN Unit 2 will load all new fuel for the first operating cycle. To clarify the original response, the Rod Position Indication System test is a calibration test. Rod Drop Testing is the same as the Rod Drop Time Measurement.

Enclosure 4

NRC GL 95-07: PRESSURE LOCKING AND THERMAL BINDING OF SAFETY-RELATED POWER-OPERATED GATE VALVES

Previously, TVA WBN Unit 2 described the following in the September 7, 2007 letter to the NRC.

TVA intends to use the same approach for Unit 2 as was used for Unit 1. The TVA Watts Bar MOV program includes implementation of GL 95-07 and is described in Maintenance and Modification Department Procedure (MMDP)-5, MOV Program. To support completion of Unit 2, the MOV program will be extended to include Unit 2.

Calculation MDQ0029992009-0311 has been issued. This calculation provides the basis for the evaluation of affected WBN Unit 2 Motor Operated Valves (MOVs) within the scope of GL 89-10 for susceptibility to pressure locking and thermal binding, in compliance with GL 95-07. WBN Unit 2 MOVs will be evaluated in accordance with GL 95-07. An initial determination has been made of Unit 2 components affected based on WBN Unit 1. Approximately 20 valves require GL 95-07 modifications that include disk modifications, bonnet modifications, and operator action to stroke valve. In addition, the Unit 2 Construction Completion Project has identified a number of missing GL 89-10 MOVs. These missing valves will be evaluated for susceptibility to pressure locking and thermal binding, in compliance with NRC GL 95-07.

Enclosure 5

NRC BULLETIN 2004-01: INSPECTION OF ALLOY 82/182/600 MATERIALS USED IN THE FABRICATION OF PRESSURIZER PENETRATIONS AND STEAM SPACE PIPING CONNECTIONS AT PRESSURIZED-WATER REACTORS

In previous responses:

Prior to placing the pressurizer in service, TVA Watts Bar Unit 2 committed to perform a non-destructive examination (NDE) of the Pressurizer Power Operated Relief Valve connections, the safety relief valve connections, the spray line nozzle, and the surge line nozzle connections. Then TVA will apply the Mechanical Stress Improvement Process (MSIP) to the same components followed by another NDE of the same components.

TVA will perform a bare metal visual (BMV) inspection of the upper pressurizer Alloy 600 locations at the first refueling outage.

TVA will perform NDE prior to and after performance of the MSIP. If circumferential cracking is observed in either pressure boundary or non-pressure boundary portions of any locations covered under the scope of the bulletin, TVA will develop plans to perform an adequate extent-of-condition evaluation, and TVA will discuss those plans with cognizant NRC technical staff prior to starting Unit 2.

After performing the BMV inspection during the first refueling outage, if any evidence of apparent reactor coolant pressure boundary leakage is discovered, then NDE capable of determining crack orientation will be performed in order to accurately characterize the flaw, the orientation, and extent. TVA will develop plans to perform an adequate extent of condition evaluation, and plans to possibly expand the scope of NDE to other components in the pressurizer will be discussed with NRC technical staff prior to restarting of Unit 2.