



Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

CNL-16-033

May 16, 2016

10 CFR 50.90

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

Watts Bar Nuclear Plant, Unit 2  
Facility Operating License No. NPF-96  
NRC Docket No. 50-391

Subject: **Application to Modify Watts Bar Plant, Unit 2 Technical Specifications Regarding Steam Generator Minimum Narrow Range Level Surveillance Requirement Error Correction (WBN-TS-16-07)**

References: Letter from TVA to NRC, CNL-15-190, "Watts Bar Nuclear Plant Unit 2 – Submittal of Final Revision 0 of the Technical Specifications & Technical Specification Bases, and Final Revision 0 of the Technical Requirements Manual & Technical Requirements Manual Bases," dated September 23, 2015 (ML15267A183)

In accordance with the provisions of Title 10 of the Code of Federal Regulations (10 CFR) 50.90, "Application for amendment of license, construction permit, or early site permit," the Tennessee Valley Authority (TVA) is submitting a request for an amendment (WBN-TS-16-07) to Facility Operating License NFP-96 for the Watts Bar Nuclear Plant (WBN) Unit 2.

This license amendment request (LAR) proposes to amend the WBN Unit 2 Technical Specifications (TS) by correcting an administrative error in the initial submittal of the WBN Unit 2 Revision 0 TS (Reference) regarding the steam generator (SG) narrow range (NR) level specified in Surveillance Requirement (SR) 3.4.6.3. To correct this error, TVA is requesting the WBN Unit 2 SG narrow range NR level in SR 3.4.6.3 be changed from 32 percent (32%) to 6 percent (6%).

The value of 6% is correctly reflected in the WBN Unit 2 TS Limiting Condition for Operation (LCO) 3.4.7 and SRs 3.4.5.2 and 3.4.7.2. The purpose of this LCO and SRs is to specify under what conditions a SG is considered operable. As stated in the WBN TS Bases for SR 3.4.6.3, verification of the secondary side NR water level of each SG assures that the SG tubes will not become uncovered and that the SGs will be capable of performing their decay heat removal function. For the WBN Unit 2 SGs, this water level corresponds to a value of  $\geq 6\%$  SG NR level. This LAR will correct the inaccurate value in SR 3.4.6.3. TVA has entered this error in the WBN TS in the TVA Corrective Action Program.

TVA has determined that there are no significant hazards considerations associated with the proposed change and that the TS change qualifies for a categorical exclusion from environmental review pursuant to the provisions of 10 CFR 51.22(c)(9).

The WBN Plant Operations Review Committee and the TVA Nuclear Safety Review Board have reviewed this proposed change and determined that operation of WBN Unit 2 in accordance with the proposed change will not endanger the health and safety of the public.

In accordance with 10 CFR 50.91(b)(1), TVA is sending a copy of this letter and the enclosures to the Tennessee Department of Environment and Conservation.

TVA requests the Nuclear Regulatory Commission (NRC) approval of this TS amendment by May 31, 2017 with implementation following 60 days of NRC approval.

There are no new regulatory commitments associated with this submittal. Should you have questions regarding this amendment request, please contact Gordon Arent, Manager, WBN Site Licensing at (423) 365-2004.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 16<sup>th</sup> day of May 2016.

Respectfully,



J. W. Shea  
Vice President, Nuclear Licensing

Enclosure: Evaluation of Proposed Change

cc (Enclosure):

NRC Regional Administrator - Region II  
NRC Senior Resident Inspector - Watts Bar Nuclear Plant  
NRC Project Manager – Watts Bar Nuclear Plant  
Director, Division of Radiological Health - Tennessee State Department of  
Environment and Conservation (w/o enclosures)

## ENCLOSURE

### TENNESSEE VALLEY AUTHORITY WATTS BAR PLANT UNIT 2

#### EVALUATION OF PROPOSED CHANGE

Subject: **Application to Modify Watts Bar Plant, Unit 2 Technical Specifications  
Regarding Steam Generator Minimum Narrow Range Level Surveillance  
Requirement Error Correction (WBN-TS-16-07)**

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#### ATTACHMENTS

1. Proposed TS Changes (Mark-Ups) for WBN Unit 2
2. Proposed TS Bases Changes (Mark-Ups) for WBN Unit 2 (For Information Only)
3. Proposed TS Changes (Final Typed) for WBN Unit 2
4. Proposed TS Bases Changes (Final Typed) for WBN unit 2 (For Information Only)

## **1.0 SUMMARY DESCRIPTION**

The Tennessee Valley Authority (TVA) is requesting a license amendment to amend the Watts Bar Nuclear Plant (WBN) Unit 2 Technical Specification (TS) by correcting an administrative error regarding the steam generator (SG) narrow range (NR) level in Surveillance Requirement (SR) 3.4.6.3. This error was incorporated in the initial submittal of the WBN Unit 2 Revision 0 TS (Reference 1) included in the WBN Unit 2 Facility Operating License (OL) (Reference 2). To correct the error, the proposed change modifies the WBN Unit 2 steam generator (SG) narrow range (NR) level in Surveillance Requirement (SR) 3.4.6.3 from 32 percent (32%) to the correct value of 6 percent (6%).

## **2.0 DETAILED DESCRIPTION**

### **2.1 PROPOSED CHANGES**

SR 3.4.6.3 currently states:

"Verify SG secondary side water levels are greater than or equal to 32% narrow range for required RCS loops."

The proposed change revises SR 3.4.6.3 as follows:

"Verify SG secondary side water levels are greater than or equal to 6% narrow range for required RCS loops."

Attachments 1 and 2 to this enclosure provide the existing WBN Unit 2 TS and Bases pages marked-up to show the proposed changes. Attachments 3 and 4 to this enclosure provide the clean typed TS and Bases pages with the proposed changes incorporated.

The proposed Bases changes are provided to the NRC for information only.

### **2.2 CONDITION INTENDED TO RESOLVE**

The proposed TS change corrects an administrative error that was incorporated into the initial submittal of the WBN Unit 2 Revision 0 TS (Reference 1). To correct this error, the proposed change modifies the WBN Unit 2 SG NR level in SR 3.4.6.3 from 32% to the correct WBN Unit 2 value of 6%.

The value of 6% is correctly specified in TS Limiting Condition for Operation (LCO) 3.4.7 and SRs 3.4.5.2 and 3.4.7.2. The purpose of this LCO and SRs is to specify under what conditions a SG is considered operable. As stated in the WBN TS Bases for SR 3.4.6.3, verification of the secondary side NR water level of each SG assures that the SG tubes will not become uncovered and that the SGs will be capable of performing their decay heat removal function. For the WBN Unit 2 SGs, this water level corresponds to a value of  $\geq 6\%$  SG NR level. This license amendment will correct the inaccurate value in SR 3.4.6.3. TVA has entered this condition in the WBN TS in the TVA Corrective Action Program.

### 3.0 TECHNICAL EVALUATION

#### 3.1 STEAM GENERATOR BACKGROUND

Originally, WBN Unit 1 and Unit 2 had the same model SGs; however, WBN Unit 1 replaced its SGs with a different model. The Unit 1 SGs originally were Westinghouse Model D3 SGs but were replaced in 2006 with Westinghouse Model 68AXP SGs. The WBN Unit 2 SGs have not been replaced and are Model D3 SGs. This change in SG model resulted in the difference between the SG NR values contained in WBN Unit 1 and Unit 2 TS.

##### Change to WBN Unit 1 SG NR Level

When WBN Unit 1 received its OL, WBN Unit 1 TS SR 3.4.5.2, SR 3.4.6.3, SR 3.4.7.3, and LCO 3.4.7 contained the same value for the required SR minimum NR level (i.e., 6%) (Reference 3). During the Fall-2006 Unit 1 Refueling Outage, TVA replaced the four original WBN Unit 1 SGs (Model D3) with four Model 68AXP replacement SGs (RSGs). The change in SGs resulted in a change in the relative position of the SG NR level instrument lower tap to the top of the RSG U-tubes. In the Model D3 SG, the lower NR level instrument tap is located above the top to the SG U-tube bundle. In the Model 68AXP RSG the lower NR level instrument tap is located below the top to the SG U-tube bundle.

In support of the installation of the WBN Unit 1 RSGs, TVA submitted a license amendment request (LAR) to increase the minimum SG NR level setpoint that corresponded to the top of the SG U-tubes (Reference 4). As stated in Section 1.0, "Description," of Reference 4:

"The proposed change would revise the WBN Unit 1 Operating License to change the Steam Generator (SG) level requirement for Limiting Condition for Operation (LCO) 3.4.7 and Surveillance Requirements (SRs) 3.4.5.2, 3.4.6.3 and 3.4.7.2 from greater than or equal to ( $\geq$ ) 6 percent (%) to  $\geq$  32% following replacement of the SGs."

The Nuclear Regulatory Commission (NRC) approved this proposed change in Amendment No. 61 to the WBN Facility Operating License (Reference 5).

##### Introduction of WBN Unit 2 SG NR Level Error

In Reference 6, TVA described the regulatory framework for the completion of construction and licensing activities for WBN Unit 2 based on key assumptions provided in TVA's letter of April 3, 2007 (Reference 9). As noted in Reference 6, one of these Key Assumptions was that the current licensing basis for WBN Unit 1 would be used as the reference basis for the review and licensing of WBN Unit 2. Accordingly, TVA developed the WBN Unit 2 TS using the WBN Unit 1 TS as the starting basis.

TVA submitted the Developmental Revision J version of the WBN Unit 2 TS to the NRC on July 6, 2015 (Reference 7). This submittal contained the correct value for minimum SG NR level in SR 3.4.6.3 (i. e., 6%), the same value as in SR 3.4.5.2, SR 3.4.7.2 and LCO 3.4.7.

However, on September 4, 2015, TVA submitted replacement pages for Developmental and Final Revision J of the WBN Unit 2 TS and TS Bases (Reference 8) for a change unrelated to SR 3.4.6.3. Included in this submittal was TS page 3.4-13 and TS Bases page B 3.4-32 that contained SR 3.4.6.3 and its bases. Although, these TS replacement pages were not intended to revise SR 3.4.6.3, the replacement pages contained the SG NR minimum value used for WBN Unit 1 (i.e., 32%).

The incorrect value was then carried forward into the TVA submittal of the final WBN Unit 2 Revision 0 TS (Reference 1) and issued in the WBN Unit 2 Facility Operating License (Reference 2).

### **3.2 EVALUATION**

The proposed change to the WBN Unit 2 TS corrects an error made during the development of the WBN Unit 2 TS and does not affect how plant equipment is operated or maintained. No changes to the physical plant or analytical methods are described and there are no impacts to the WBN Unit 2 Final Safety Analysis Report (FSAR) accident analyses. This proposed change corrects an inconsistency between different specifications in the WBN Unit 2 TS.

## **4.0 REGULATORY EVALUATION**

### **4.1 APPLICABLE REGULATORY REQUIREMENTS/CRITERIA**

The proposed amendment to the WBN Unit 2 TS corrects an inaccurate value that was incorporated into the initial submittal of the WBN Unit 2 Revision 0 TS (Reference 1). This amendment request will not affect how plant equipment is operated or maintained and there are no changes to the physical plant or analytical methods. Therefore, there are no impacts to the WBN Unit 2 FSAR accident analyses.

### **4.2 PRECEDENT**

No precedents were found.

### **4.3 SIGNIFICANT HAZARDS CONSIDERATION**

Tennessee Valley Authority (TVA) is proposing an amendment to the Watts Bar Nuclear Plant (WBN) Unit 2 Technical Specifications (TS) to correct an administrative error that was incorporated into the initial submittal of the WBN Unit 2 Revision 0 TS. To correct this error, TVA is requesting the WBN Unit 2 Steam Generator (SG) narrow range (NR) level specified in Surveillance Requirement (SR) 3.4.6.3 be corrected from 32 percent (32%) to 6 percent (6%).

TVA has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

## Enclosure

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The WBN Unit 2 TS SR 3.4.6.3 is being amended due an administrative error that was incorporated into the initial submittal of the WBN Unit 2 Revision 0 TS. The impact of this amendment will not affect how plant equipment is operated or maintained. This proposed amendment corrects an error in the required SG NR level minimum value, while in Mode 4, from 32% to 6%. The purpose for this SR is to ensure the steam generator u-tubes are covered with water on the secondary side of the tubes. For the WBN Unit 2 SGs the lower SG NR level tap is above the top of the U-tubes. Therefore, a 6% NR level ensures the U-tubes are covered with water. There are no changes to the physical plant or analytical methods.

The proposed amendment does not impact any accident initiators, analyzed events, or assumed mitigation of accident or transient events. The proposed changes do not involve the addition or removal of any equipment or any design changes to the facility. The proposed changes do not affect any design functions, or analyses that verify the capability of structures, systems, and components (SSCs) to perform a design function. The proposed changes do not change any of the accidents previously evaluated in the Final Safety Analysis Report (FSAR). The proposed changes do not affect SSCs, operating procedures, and administrative controls that have the function of preventing or mitigating any of these accidents.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

No actual plant equipment or accident analyses will be affected by the proposed amendment. The proposed amendment will not change the design function of any SSCs or result in any new failure mechanisms, malfunctions, or accident initiators not considered in the design and licensing bases. The proposed amendment does not impact any accident initiators, analyzed events, or assumed mitigation of accident or transient events.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No.

The proposed amendment does not involve any physical changes to the plant or alter the manner in which plant systems are intended to be operated, maintained, modified, tested, or inspected. The proposed amendment does not alter the manner in which safety limits, limiting safety system settings or limiting conditions for operation are

determined. The safety analysis acceptance criteria are not affected by this change. The proposed amendment will not result in plant operation in a configuration outside the design basis. The proposed amendment does not adversely affect systems that respond to safely shutdown the plant and to maintain the plant in a safe shutdown condition.

The proposed change does not alter the manner in which safety limits, limiting safety system settings or limiting conditions for operation are determined. The safety analysis acceptance criteria are not affected by this change. The proposed change will not result in plant operation in a configuration outside the design basis.

Therefore, the proposed amendment does not involve a significant reduction in a margin of safety.

Based on the above, TVA concludes that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92 (c), and, accordingly, a finding of "no significant hazards consideration" is justified.

#### **4.4 CONCLUSIONS**

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

#### **5.0 ENVIRONMENTAL CONSIDERATION**

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

#### **6.0 REFERENCES**

1. TVA letter to NRC, CNL-15-190, "Watts Bar Nuclear Plant Unit 2 – Submittal of Final Revision 0 of the Technical Specifications & Technical Specification Bases, and Final Revision 0 of the Technical Requirements Manual & Technical Requirements Manual Bases," dated September 23, 2015 (ML15267A183)
2. NRC letter to TVA, "Issuance of Facility Operating License No. NPF-96, Watts Bar Nuclear Plant Unit 2," dated October 22, 2015 (ML15251A587)



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3. NRC letter to TVA, "Issuance of Facility Operating License No. NPF-90, Watts Bar Nuclear Plant, Unit 1 (TAC M94025)," dated February 7, 1996 (ML080290360 and ML073460319)
4. TVA letter to NRC, WBN-TS-05-06, "Watts Bar Nuclear Plant (WBN) - Unit 1- Proposed License Amendment Request Change No. WBN-TS-05-06 to Change the Steam Generator Secondary Side Water Level to Greater Than or Equal to 32% of Narrow Range," dated December 13, 2005 (ML053530127)
5. NRC letter to TVA, "Watts Bar Nuclear Plant, Unit 1 - Issuance of Amendment Regarding the Change in the Steam Generator Narrow Range Level Requirements to Accommodate the Replacement Steam Generators at Watts Bar Nuclear Plant, Unit 1 (TAC NO. MC9235)," dated May 5, 2006 (ML060960075)
6. TVA letter to NRC, "Watts Bar Nuclear Plant (WBN) - Unit 2 - Regulatory Framework for the Completion of Construction and Licensing Activities for Unit-2," dated January 29, 2008 (ML080320443)
7. TVA letter to NRC, CNL-15-134, "Watts Bar Nuclear Plant Unit 2 – Submittal of Developmental and Final Revision J of the Technical Specification & Technical Specification Bases, and Developmental and Final Revision E of the Technical Requirements Manual & Technical Requirements Manual Bases," dated July 6, 2015 (ML15187A461)
8. TVA letter to NRC, CNL-15-177, "Watts Bar Nuclear Plant Unit 2 – Submittal of Replacement Pages for Developmental and Final Revision J of the Technical Specification & Technical Specification Bases, and Developmental and Final Revision E of the Technical Requirements Manual & Technical Requirements Manual Bases," dated September 4, 2015 (ML15247A564)
9. TVA letter to NRC, "Watts Bar Nuclear Plant (WBN) - Unit 2 - Key Assumptions for the Possible Completion of Construction Activities," dated April 3, 2007 (ML071220020)

Enclosure

ATTACHMENT 1

Proposed TS Changes (Mark-Ups) for WBN Unit 2

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	Verify two RCS loops are in operation when the rod control system is capable of rod withdrawal.	12 hours
SR 3.4.6.2	Verify one required RHR or RCS loop is in operation when the rod control system is not capable of rod withdrawal.	12 hours
SR 3.4.6.3	Verify SG secondary side water levels are greater than or equal to <del>63</del> <sup>62</sup> % narrow range for required RCS loops.	12 hours
SR 3.4.6.4	Verify correct breaker alignment and indicated power are available to the required pump that is not in operation.	7 days

Enclosure

ATTACHMENT 2

Proposed TS Bases Changes (Mark-Ups) for WBN Unit 2 (For Information Only)

BASES

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SURVEILLANCE  
REQUIREMENTS  
(continued)

SR 3.4.6.2

This SR requires verification every 12 hours that one required RCS or RHR loop is in operation when the rod control system is not capable of rod withdrawal. Verification includes flow rate, temperature, or pump status monitoring, which help ensure that forced flow is providing heat removal. The Frequency of 12 hours is sufficient considering other indications and alarms available to the operator in the control room to monitor RCS and RHR loop performance.

SR 3.4.6.3

SR 3.4.6.3 requires verification of SG OPERABILITY. SG OPERABILITY is verified by ensuring that the secondary side narrow range water level is greater than or equal to ~~63~~<sup>62</sup>% (value does not account for instrument error, Ref. 1). If the SG secondary side narrow range water level is less than ~~63~~<sup>62</sup>%, the tubes may become uncovered and the associated loop may not be capable of providing the heat sink necessary for removal of decay heat. The 12-hour Frequency is considered adequate in view of other indications available in the control room to alert the operator to the loss of SG level.

SR 3.4.6.4

Verification that the required pump is OPERABLE ensures that an additional RCS or RHR pump can be placed in operation, if needed, to maintain decay heat removal and reactor coolant circulation. Verification is performed by verifying proper breaker alignment and power available to the required pump. The Frequency of 7 days is considered reasonable in view of other administrative controls available and has been shown to be acceptable by operating experience.

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REFERENCES

~~None~~<sup>1.</sup> [Watts Bar Drawing 2-47W605-242, "Electrical Tech Spec Compliance Tables."](#)

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Enclosure

ATTACHMENT 3

Proposed TS Changes (Final Typed) for WBN Unit 2

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	Verify two RCS loops are in operation when the rod control system is capable of rod withdrawal.	12 hours
SR 3.4.6.2	Verify one required RHR or RCS loop is in operation when the rod control system is not capable of rod withdrawal.	12 hours
SR 3.4.6.3	Verify SG secondary side water levels are greater than or equal to 6% narrow range for required RCS loops.	12 hours
SR 3.4.6.4	Verify correct breaker alignment and indicated power are available to the required pump that is not in operation.	7 days

Enclosure

ATTACHMENT 4

Proposed TS Bases Changes (Final Typed) for WBN Unit 2 (For Information Only)



BASES

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SURVEILLANCE  
REQUIREMENTS  
(continued)

SR 3.4.6.2

This SR requires verification every 12 hours that one required RCS or RHR loop is in operation when the rod control system is not capable of rod withdrawal. Verification includes flow rate, temperature, or pump status monitoring, which help ensure that forced flow is providing heat removal. The Frequency of 12 hours is sufficient considering other indications and alarms available to the operator in the control room to monitor RCS and RHR loop performance.

SR 3.4.6.3

SR 3.4.6.3 requires verification of SG OPERABILITY. SG OPERABILITY is verified by ensuring that the secondary side narrow range water level is greater than or equal to 6% (value does not account for instrument error, Ref. 1). If the SG secondary side narrow range water level is less than 6%, the tubes may become uncovered and the associated loop may not be capable of providing the heat sink necessary for removal of decay heat. The 12-hour Frequency is considered adequate in view of other indications available in the control room to alert the operator to the loss of SG level.

SR 3.4.6.4

Verification that the required pump is OPERABLE ensures that an additional RCS or RHR pump can be placed in operation, if needed, to maintain decay heat removal and reactor coolant circulation. Verification is performed by verifying proper breaker alignment and power available to the required pump. The Frequency of 7 days is considered reasonable in view of other administrative controls available and has been shown to be acceptable by operating experience.

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REFERENCES

1. Watts Bar Drawing 2-47W605-242, "Electrical Tech Spec Compliance Tables."
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