

September 4, 2008

TVA-WBN-TS-08-03

10 CFR 50.90

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

Gentlemen:

In the Matter of the  
Tennessee Valley Authority

)  
)

Docket No. 50-390

**WATTS BAR NUCLEAR PLANT (WBN) - UNIT 1 - TECHNICAL SPECIFICATIONS  
(TS) CHANGE 08-03, "REQUEST FOR TECHNICAL SPECIFICATION  
IMPROVEMENT TO ELIMINATE REQUIREMENTS FOR HYDROGEN  
RECOMBINERS AND HYDROGEN MONITORS USING THE CONSOLIDATED LINE  
ITEM IMPROVEMENT PROCESS"**

Pursuant to 10 CFR 50.90, Tennessee Valley Authority (TVA) is submitting a request for a TS change (TS 08-03) to License NPF-90 for WBN Unit 1.

The proposed amendment will delete the TS requirements related to hydrogen recombiners and hydrogen monitors. The proposed TS changes support implementation of the revisions to 10 CFR 50.44, "Standards for Combustible Gas Control System in Light-Water-Cooled Power Reactors," that became effective on October 16, 2003. The changes are consistent with Revision 1 of NRC-approved Industry/Technical Specification Task Force (TSTF) Standard Technical Specification Change Traveler, TSTF-447, "Elimination of Hydrogen Recombiners and Change to Hydrogen and Oxygen Monitors." The availability of this TS improvement was announced in the *Federal Register* on September 25, 2003, as part of the consolidated line item improvement process (CLIIP).

Enclosure 1 provides a description of the proposed change, the requested confirmation of applicability, and plant-specific verifications and commitment. Enclosure 2 provides the existing TS pages marked-up to show the proposed change. Implementation of TSTF-447 also involves various changes to the TS Bases. The TS Bases changes will be submitted with a future update in accordance with WBN TS 5.6, "Technical Specifications (TS) Bases Control Program."

TVA requests that the implementation of the revised TS be within 60 days of NRC approval.

U.S. Nuclear Regulatory Commission  
Page 2  
September 4, 2008

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

The commitment contained in this submittal is detailed in Section 6.1.1 of Enclosure 1.

If you have any questions about this change, please contact me at 423-365-1824.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 4th day of September, 2008.

Sincerely,

M. K. Brandon  
Manager, Site Licensing and  
Industry Affairs

Enclosures:

1. Description and Assessment of the Proposed Change
2. Proposed Technical Specification Changes

Enclosures

cc (Enclosures):

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## ENCLOSURE 1

### TENNESSEE VALLEY AUTHORITY (TVA) WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 TS-08-03

#### Description and Assessment

#### 1.0 INTRODUCTION

The proposed License amendment deletes Technical Specification (TS) 3.6.7, "Hydrogen Recombiners," and references to the hydrogen monitors in TS 3.3.3, "Post Accident Monitoring (PAM) Instrumentation." The proposed TS changes support implementation of the revisions to 10 CFR 50.44, "Standards for Combustible Gas Control System in Light-Water-Cooled Power Reactors," that became effective on October 16, 2003. The deletion of the requirements for the hydrogen recombiner and references to the hydrogen monitors resulted in numbering and formatting changes to other TS, which were otherwise unaffected by this proposed amendment.

The changes are consistent with Revision 1 of NRC-approved Industry/Technical Specification Task Force (TSTF) Standard Technical Specification Change Traveler, TSTF-447, "Elimination of Hydrogen Recombiners and Change to Hydrogen and Oxygen Monitors." The availability of this TS improvement was announced in the *Federal Register* on September 25, 2003, as part of the consolidated line item improvement process (CLIIP) (Reference 1).

#### 2.0 DESCRIPTION OF PROPOSED AMENDMENT

Consistent with the NRC-approved Revision 1 of TSTF-447, the proposed TS changes include:

TS 3.3.3, Condition D	Two Hydrogen Monitor Channels Inoperable	Deleted
TS 3.3.3, SR 3.3.3.2	Perform COT on Hydrogen Monitor Channels	Deleted
TS Table 3.3.3-1	Item 13, Containment Hydrogen Concentration	Deleted
TS 3.6.7	Hydrogen Recombiners	Deleted

Other TS changes included in this request are limited to renumbering and formatting changes that resulted directly from the deletion of the above requirements related to hydrogen recombiners and hydrogen monitors.

As described in NRC-approved Revision 1 of TSTF-447, the changes to TS requirements results in changes to various TS Bases sections. The TS Bases changes will be submitted with a future update in accordance with WBN TS 5.6, "Technical Specifications (TS) Bases Control Program."

### **3.0 BACKGROUND**

The background for this request is adequately addressed by the NRC Notice of Availability published on September 25, 2003 (68 FR 55416), TSTF-447, the documentation associated with the 10 CFR 50.44 rulemaking, and other related documents.

### **4.0 REGULATORY REQUIREMENTS AND GUIDANCE**

The applicable regulatory requirements and guidance associated with this request are adequately addressed by the NRC Notice of Availability published on September 25, 2003, (68 FR 55416), TSTF-447, the documentation associated with the 10 CFR 50.44 rulemaking, and other related documents.

### **5.0 TECHNICAL ANALYSIS**

TVA has reviewed the safety evaluation (SE) published on September 25, 2003, (68 FR 55416) as part of the CLIIP Notice of Availability. This verification included a review of the NRC staff's SE, as well as the supporting information provided to support TSTF-447.

In addition, TVA reviewed the staff's SE associated with Amendment No. 40 to the WBN Operating License (Reference 2). Amendment 40 approved the irradiation of up to 2304 Tritium-Producing Burnable Absorber Rods (TPBARs) in the reactor core. The TPBARs are an additional source of hydrogen that is unique to the WBN facility. The potential post-LOCA hydrogen contribution from this source was evaluated in the Amendment 40 SE. The contribution was shown to be small and the NRC staff concluded that the TPBARs are not a significant contributor to the post-LOCA hydrogen inventory. The SE for Amendment 40 did credit the use of the hydrogen recombiner system for maintaining the maximum containment hydrogen concentration at less than the lower flammability limit. However, the WBN Hydrogen Management System (i.e., hydrogen ignitors), which will remain in the WBN TS, will continue to provide an effective means for mitigating unacceptable post-LOCA hydrogen concentrations consistent with WBN's current licensing basis and the current regulatory requirements for Combustible Gas Control as specified in 10 CFR 50.44. Additionally, as noted in Amendment 40, the hydrogen concentration remains below 4% for more than 24 hours (section 2.6, p 20) which is consistent with the TSTF conclusion that the design basis LOCA does not contribute to the conditional probability of a large release of hydrogen within 24 hours after the onset of core damage.

Based on these reviews, TVA has concluded that the justifications presented in the TSTF proposal and the SE prepared by the NRC staff are applicable to WBN Unit 1 and justify this amendment for the incorporation of the changes to the WBN TS.

### **6.0 REGULATORY ANALYSIS**

A description of this proposed change and its relationship to applicable regulatory requirements and guidance was provided in the NRC Notice of Availability published on September 25, 2003 (68 FR 55416), TSTF-447, the documentation associated with the 10 CFR 50.44 rulemaking, and other related documents.

## **6.1 Verification and Commitment**

As discussed in the model SE published in the *Federal Register* on September 25, 2003, (68 FR 55416) for this TS improvement, TVA is making the following verifications and regulatory commitment:

1. TVA has verified that a hydrogen monitoring system capable of diagnosing beyond design-basis accidents is installed at WBN and is making a regulatory commitment to maintain that capability. The hydrogen monitoring function will be included in the WBN Technical Requirements Manual. This regulatory commitment will be implemented in conjunction with the implementation of the proposed TS revision.
2. WBN does not have an inerted containment.

## **7.0 NO SIGNIFICANT HAZARDS CONSIDERATION**

TVA has reviewed the proposed no significant hazards consideration determination published on September 25, 2003, (68 FR 55416) as part of the CLIIP. TVA has concluded that the proposed determination presented in the notice is applicable to WBN, and the determination is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

## **8.0 ENVIRONMENTAL EVALUATION**

TVA has reviewed the environmental evaluation included in the model SE published on September 25, 2003, (68 FR 55416) as part of the CLIIP. TVA has concluded that the NRC staff's findings presented in that evaluation are applicable to WBN, and the evaluation is hereby incorporated by reference for this requested TS change.

## **9.0 PRECEDENT**

This request is being made in accordance with the CLIIP. TVA is not proposing variations or deviations from the TS changes described in TSTF-447 or the NRC staff's model SE published on September 25, 2003 (68 FR 55416).

## **10.0 REFERENCES**

- 1) Federal Register Notice: Notice of Availability of Model Application Concerning Technical Specification Improvement To Eliminate Hydrogen Recombiner Requirement, and Relax the Hydrogen and Oxygen Monitor Requirements for Light Water Reactors Using the Consolidated Line Item Improvement Process, published September 25, 2003 (68 FR 55416).
- 2) NRC letter to J. A. Scalice (TVA), "Watts Bar Nuclear Plant, Unit 1 - Issuance of Amendment to Irradiate Up to 2304 Tritium-Producing Burnable Absorber Rods in the Reactor Core (TAC No. MB1884)," dated September 23, 2002.

**ENCLOSURE 2**

**TENNESSEE VALLEY AUTHORITY  
WATTS BAR NUCLEAR PLANT (WBN)  
UNIT 1 TS-08-03**

**PROPOSED TECHNICAL SPECIFICATION CHANGES (MARK-UP)**

**I. AFFECTED PAGE LIST**

Unit 1  
3.3-42  
3.3.43  
3.3-44  
3.3-45  
3.6-20  
3.6-21

**II. MARKED PAGES**

See attached.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. <del>NOTE</del> <del>Not applicable to hydrogen monitor channels.</del></p> <p>One or more Functions with two required channels inoperable.</p> <p>OR</p> <p>Functions 3, 4, <del>15</del>, and <del>17</del> with one required channel inoperable.</p> <p>14 16</p>	C.1 Restore one channel to OPERABLE status.	7 days
D. <del>Two hydrogen monitor channels inoperable.</del>	D.1 <del>Restore one hydrogen monitor channel to OPERABLE status.</del>	72 hours
E. Required Action and associated Completion Time of Condition C or D not met. D	E.1 Enter the Condition referenced in Table 3.3.3-1 for the channel. D	Immediately
F. As required by Required Action E.1 and referenced in Table 3.3.3-1. E D	F.1 Be in MODE 3. E AND F.2 Be in MODE 4. E	6 hours  12 hours
G. As required by Required Action E.1 and referenced in Table 3.3.3-1. F D	G.1 Initiate action in accordance with Specification 5.9.8. F	Immediately

SURVEILLANCE REQUIREMENTS

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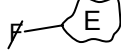

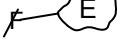
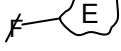


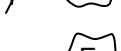

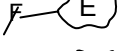
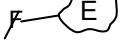
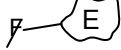



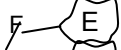

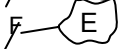






NOTE

SR 3.3.3.1 and SR 3.3.3.2 apply to each PAM instrumentation Function in Table 3.3.3-1.

SURVEILLANCE		FREQUENCY
SR 3.3.3.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days
<del>SR 3.3.3.2</del>	<del>Perform COT on hydrogen monitor channels.</del>	<del>31 days</del>
SR 3.3.3.3	<p>NOTES</p> <ol style="list-style-type: none"> <li>Neutron detectors are excluded from CHANNEL CALIBRATION.</li> <li>Not applicable to Functions 11 and 17.</li> </ol> <p>Perform CHANNEL CALIBRATION.</p>	18 months
SR 3.3.3.4	<p>NOTES</p> <ol style="list-style-type: none"> <li>Verification of relay setpoints not required.</li> <li>Only applicable to Functions 11 and 17.</li> </ol> <p>Perform TADOT.</p>	18 months

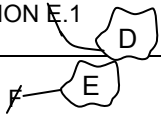
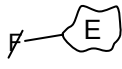
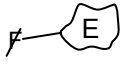




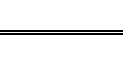


**Table 3.3.3-1 (page 1 of 2)**  
**Post Accident Monitoring Instrumentation**

FUNCTION		APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS/TRAINS	CONDITION REFERENCED FROM REQUIRED ACTION E.1	D
1.	Intermediate Range Neutron Flux(g)	1 <sup>(a)</sup> , 2 <sup>(b)</sup> , 3	2		
2.	Source Range Neutron Flux	2 <sup>(c)</sup> , 3	2		
3.	Reactor Coolant System (RCS) Hot Leg Temperature (T-Hot)	1,2,3	1 per loop		
4.	RCS Cold Leg Temperature (T-Cold)	1,2,3	1 per loop		
5.	RCS Pressure (Wide Range)	1,2,3	3		
6.	Reactor Vessel Water Level <sup>(f)</sup> <sup>(g)</sup>	1,2,3	2		
7.	Containment Sump Water Level (Wide Range)	1,2,3	2		
8.	Containment Lower Comp. Atm. Temperature	1,2,3	2		
9.	Containment Pressure (Wide Range) <sup>(g)</sup>	1,2,3	2		
10.	Containment Pressure (Narrow Range)	1,2,3	4		
11.	Containment Isolation Valve Position <sup>(g)</sup>	1,2,3	2 per penetration flow path <sup>(d)(i)</sup>		
12.	Containment Radiation (High Range)	1,2,3	2 upper containment 2 lower containment		
<del>13.</del>	<del>Containment Hydrogen Concentration <sup>(g)</sup></del>	<del>1,2,3</del>	<del>-2</del>	<del></del>	
 <del>14.</del>	<del>RCS Pressurizer Level</del>	<del>1,2,3</del>	<del>3</del>	<del></del>	
 <del>15.</del>	<del>Steam Generator (SG) Water Level (Wide Range) <sup>(g)</sup></del>	<del>1,2,3</del>	<del>1/SG</del>	<del></del>	
 <del>16.</del>	<del>Steam Generator Water Level (Narrow Range)</del>	<del>1,2,3</del>	<del>3/SG</del>	<del></del>	
 <del>17.</del>	<del>AFW Valve Status <sup>(i)</sup></del>	<del>1,2,3</del>	<del>1 per valve</del>	<del></del>	
 <del>18.</del>	<del>Core Exit Temperature-Quadrant 1 <sup>(f)</sup></del>	<del>1,2,3</del>	<del>2 <sup>(e)</sup></del>	<del></del>	

(continued)

**Table 3.3.3-1 (page 2 of 2)**  
**Post Accident Monitoring Instrumentation**

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS/TRAINS	CONDITION REFERENCED FROM REQUIRED ACTION E.1
19. Core Exit Temperature- Quadrant 2 <sup>(f)</sup>	1,2,3	2 <sup>(e)</sup>	
20. Core Exit Temperature- Quadrant 3 <sup>(f)</sup>	1,2,3	2 <sup>(e)</sup>	
21. Core Exit Temperature- Quadrant 4 <sup>(f)</sup>	1,2,3	2 <sup>(e)</sup>	
22. Auxiliary Feedwater Flow	1,2,3	2/SG	
23. Reactor Coolant System Subcooling Margin Monitor <sup>(h)</sup>	1,2,3	2	
24. Refueling Water Storage Tank Water Level	1,2,3	2	
25. Steam Generator Pressure	1,2,3	2/SG	
26. Auxiliary Building Passive Sump Level <sup>(i)</sup>	1,2,3	2	

- (a) Below the P-10 (Power Range Neutron Flux) interlocks.
- (b) Above the P-6 (Intermediate Range Neutron Flux) interlocks.
- (c) Below the P-6 (Intermediate Range Neutron Flux) interlocks.
- (d) Not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, pressure relief valve, or check valve with flow through the valve secured.
- (e) A channel consists of two core exit thermocouples (CETs).
- (f) The ICCM provides these functions on a plasma display.
- (g) Regulatory Guide 1.97, non-Type A, Category 1 Variables.
- (h) This function is displayed on the ICCM plasma display and digital panel meters.
- (i) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.
- (j) Watts Bar specific (not required by Regulatory Guide 1.97) non-Type A Category 1 variable.

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.7 Hydrogen Recombiners ***This Specification Deleted***

LCO 3.6.7 ~~Two hydrogen recombiners shall be OPERABLE.~~

APPLICABILITY: ~~MODES 1 and 2.~~

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. <del>One hydrogen recombiner inoperable.</del>	A.1 <del>Restore hydrogen recombiner to OPERABLE status.</del>	30 days
B. <del>Two hydrogen recombiners inoperable.</del>	B.1 <del>Verify by administrative means that the hydrogen control function is maintained.</del>  <u>AND</u> B.2 <del>Restore one hydrogen recombiner to OPERABLE status.</del>	1 hour  <u>AND</u> Once per 12 hours thereafter  7 days
C. <del>Required Action and associated Completion Time not met.</del>	C.1 <del>Be in MODE 3.</del>	6 hours

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
SR 3.6.7.1	Perform a system functional test for each hydrogen recombinder.	18 months
SR 3.6.7.2	Visually examine each hydrogen recombinder enclosure and verify there is no evidence of abnormal conditions.	18 months
SR 3.6.7.3	Perform a resistance to ground test for each heater phase.	18 months

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