



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

August 15, 2011

10 CFR 50.4

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 – TRANSMITTAL OF  
REVISED UNIT 1 / UNIT 2 AS-DESIGNED FIRE PROTECTION REPORT (TAC  
NO. ME3091)**

Reference: TVA Letter to NRC dated August 5, 2011, "Watts Bar Nuclear Plant, Unit 2 - Request for Additional Information (RAI) Group 6 'Fire Protection Report' (TAC NO. ME3091)"

The purpose of this letter is to transmit a revision to the WBN Unit 1/Unit 2 Fire Protection Report (FPR) and to address two questions received from the Staff regarding the FPR Feasibility and Reliability evaluations (F&R evaluations) for Unit 2. Enclosure 1 contains the Unit 1/Unit 2 FPR in its entirety for completeness. Additionally, revision bars are utilized throughout the enclosed document to identify the changes. The main purpose of this FPR revision is to include the modifications required to reduce the number of Operator Manual Actions (OMAs) required for Unit 2 operation.

Enclosure 2 provides an update to the summary listing of Fire Protection commitments that was submitted in the referenced letter. This update is based upon items addressed by this letter. This summary listing contains a description of the commitment, the status (open or closed), as well as pertinent references (initiating, closing, etc.). The commitment date for one item has been updated based on the current project schedule.

The following provides the two NRC questions regarding the FPR OMA Feasibility and Reliability evaluations for Unit 2 and TVA's responses:

- 1. It appears the OMA times contained in the report are for each individual action and are not added up to show that the time required for all the actions that a specific AUO has to perform is less than the available time. In other words are the times cumulative or individual?*
- 2. It appears the demonstrated travel time does not account for any margin.*

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The following discussion is based on the F&R evaluations contained in the July 1, 2011 letter. Some of the section numbers may change in the August 15, 2011 submittal, but the concepts/justifications will still be the same.

### **Question 1**

The times quoted in the FPR Part VII, Section 8 for Unit 2 are cumulative times for all required actions based upon Unit 1 walkdowns (see Part VII, Section 8.2.a, last sentence). The walkdowns for Unit 1 were performed for each of the fire protection Abnormal Operating Instructions (AOIs) demonstrating the timing for the specific actions in that particular AOI in the order performed by that AOI. Even if multiple AOIs required the same actions by an operator, the OMA sequence was validated again in conjunction with validation of the OMAs performed by the other operators. The demonstrated times for the OMAs for a given AOI are cumulative times accounting for all required OMAs. Since the time of the Unit 1 validation, the OMAs have been categorized as either "green box" (required for safe shutdown) or "orange box" (important to safety). The validation walkdowns included all OMAs within a given AOI (both green and orange) and thus the times in the F&R evaluations are total cumulative times.

It appears the confusion lies in the presentation of the information in the FPR. FPR Part VII, Section 8 discusses the OMAs required for each fire room (e.g., for fire room 692-A1B, Section 8.3.1.3 for OMA 1047, Section 8.3.1.4 for OMAs 1159 and 1160, Section 8.3.1.5 for OMA 1164 and Section 8.3.1.6 for OMA 1165). These sections contain the Unit 1 demonstrated times for each OMA required for safe shutdown (i.e., green box) having a required performance time of less than 120 minutes, as validated by the associated AOI. Then, Section 8.3.1.7 describes the staffing required to accomplish all of the OMAs (i.e., green box and orange box) within the required time. The F&R of each green box OMA of required times less than 120 minutes is evaluated in its corresponding section (e.g., 8.3.1.3.a and 8.3.1.3.b for OMA 1047). For this fire room, OMA 1047 is the sole action performed by the designated AUO, and thus the demonstrated time for OMA 1047 used for both the F&R evaluations is quite clear.

However, for other fire rooms, the presentation of the information could be confusing. For example, fire room 737.0-A1A (FPR Section 8.3.25) requires AUO #3 to perform five actions (Section 8.3.25.12.c). They are the same five actions demonstrated for Unit 1. The discussion of F&R in Sections 8.3.25.3 through 8.3.25.11 discusses each action as if it were an individual, discrete action. In reality, the demonstrated times quoted in the sections (e.g., 8.3.25.11.a and 8.3.25.11.b) are the cumulative time used by the operator in performing not only that action, but also any preceding actions. The OMAs are not discussed/presented in the order performed by the AUO and thus the times do not appear to be cumulative even though in actuality they are cumulative. Additionally, the demonstrated times account for orange box OMAs (e.g., 1044) and OMAs with required times greater than 120 minutes even though these OMAs are not evaluated in the report.

In a few places the report shows the same time for two actions (e.g., OMAs 1022 and 1023 in Sections 8.3.15.3 and 8.3.15.4). In this case the time is cumulative for both actions to be performed. The actions are performed in the same area and thus only a single cumulative time was recorded.

**Question 2**

NUREG-1852 Section 4.2.2 describes two methods of ensuring adequate time is estimated for operator action performance time.

- a. Conservatively estimate the time to envelope all possible uncertainties. The second sentence at the top of page 4-4 indicates that 100% margin should be adequate (but not required) to envelope all uncertainties. The acceptance criteria in FPR Part V, Section 2.1.2.1.a uses this approach.
- b. Specifically account for each uncertainty and add additional time to the demonstrated performance time to account for the uncertainties applicable to each situation. The acceptance criteria in FPR Part V, Section 2.1.2.1.b uses this approach.

There are no new regulatory commitments in this letter. If you have any questions, please contact William Crouch at (423) 365-2004.

I declare under the penalty of perjury that the foregoing is true and correct. Executed on the 15<sup>th</sup> day of August, 2011.

Respectfully,



David Stinson  
Watts Bar Unit 2 Vice President

Enclosures:

1. Revised Unit 1 / Unit 2 As-Designed "Fire Protection Report
2. Summary Listing of Fire Protection Commitments

cc (Enclosures):

U. S. Nuclear Regulatory Commission  
Region II  
Marquis One Tower  
245 Peachtree Center Ave., NE Suite 1200  
Atlanta, Georgia 30303-1257

NRC Resident Inspector Unit 2  
Watts Bar Nuclear Plant  
1260 Nuclear Plant Road  
Spring City, Tennessee 37381