



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
WASHINGTON, D.C. 20555-0001

February 1, 2010

Mr. Ashok Bhatnagar
Senior Vice President
Nuclear Generation Development
and Construction
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

**SUBJECT: WATTS BAR NUCLEAR PLANT, UNIT 2 – SAFETY EVALUATION REGARDING
GENERIC LETTER 2003-01, “CONTROL ROOM HABITABILITY”
(TAC NO. MD6724)**

Dear Mr. Bhatnager:

In a letter dated September 7, 2007 (see Agencywide Document Access and Management System Accession No. ML072570676), which references letter dated August 4, 2004 (ML042230173), the Tennessee Valley Authority (TVA) submitted a response to U.S. Nuclear Regulatory Commission (NRC) Generic Letter 2003-01, “Control Room Habitability,” 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. MD6724.

Sincerely,

A handwritten signature in black ink, appearing to read "P. D. Milano", is positioned above the typed name.

Patrick D. Milano, Acting Chief
Watts Bar Special Projects Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-391

Enclosure: Safety Evaluation

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SAFETY EVALUATION BY THE
OFFICE OF NUCLEAR REACTOR REGULATION RELATED TO
GENERIC LETTER 2003-01, "CONTROL ROOM HABITABILITY"
TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT, UNIT 2
DOCKET NO. 50-391

1.0 INTRODUCTION

In a letter dated September 7, 2007 (see Agencywide Document Access and Management System Accession No. ML072570676), which references letter dated August 4, 2004 (ML042230173), the Tennessee Valley Authority (TVA) submitted a response to U.S. Nuclear Regulatory Commission (NRC) Generic Letter (GL) 2003-01, "Control Room Habitability," for Watts Bar Nuclear Plant (WBN), Unit 2.

2.0 REGULATORY EVALUATION

The general design criteria (GDC) establish the necessary design, fabrication, construction, testing, and performance requirements for structures, systems and components important to safety. The applicable GDC for GL 2003-01 are GDC 1, "Quality standards and records;" GDC 3, "Fire protection;" GDC 4, "Environmental and dynamic effects design bases;" GDC 5, "Sharing structures, systems, and components;" and GDC 19, "Control room."

The control room is the plant area, defined in the facility licensing basis, from which actions are taken to operate the plant safely under normal conditions and to maintain the reactor in a safe condition during accident situations. The control room envelope (CRE) is the plant area, defined in the facility-licensing basis, that encompasses the control room and may encompass other plant areas. The structures that make up the CRE are designed to limit the inleakage of radioactive and hazardous materials from areas external to the CRE. Control room habitability

Enclosure

systems (CRHSs) typically provide the functions of shielding, isolation, pressurization, heating, ventilation, air conditioning and filtration, monitoring, and the sustenance and sanitation necessary to ensure that the control room operators can remain in the control room and take actions to operate the plant under normal and accident conditions. The personnel protection features incorporated into the design of a particular plant's CRHSs depend on the nature and scope of the plant-specific challenges to maintaining control room habitability (CRH). In the majority of the CRHS designs, isolation of the normal supply and exhaust flow paths and pressurization of the CRE relative to adjacent areas are fundamental to ensuring a habitable control room.

During the design of a nuclear power plant, licensees perform analyses to demonstrate that the CRHSs, as designed, provide a habitable environment during postulated design basis events. These design analyses model the transport of potential contaminants into the CRE and their removal. The amount of inleakage of assumed contaminants is important to these analyses. Unaccounted-for contaminants entering the CRE may impact the ability of the operators to perform plant control functions. If contaminants impair the response of the operators to an accident, there could be increased consequences to the public health and safety.

3.0 TECHNICAL EVALUATION

GL 2003-01, dated June 12, 2003 (ML031620248), requested that TVA confirm that WBN control rooms meet their design bases (e.g., GDC 1, 3, 4, 5, & 19, draft GDC, or principal design criteria), with special attention to: (1) Determination of the most limiting unfiltered and/or filtered inleakage into the control room and comparison to values used in your design bases for meeting control room operator dose limits from accidents (Item 1(a)); (2) Determination that the most limiting unfiltered inleakage is incorporated into your hazardous chemical assessments (Item 1(b)); and, (3) Determination that reactor control capability is maintained in the control room or at the alternate shutdown location in the event of smoke (Item 1(b)). GL 2003-01 further requested information on any compensatory measures in use to demonstrate CRH, and plans to retire them (Item 2).

TVA responded to GL 2003-01 for WBN Unit 1 in letters dated August 8, 2003 (ML032230507) and August 4, 2004 (ML042230173). In a letter, dated December 4, 2006 (ML063070139), the NRC staff acknowledged receipt of the TVA WBN Unit 1 responses for GL 2003-01 and stated "The information you provided also supported the conclusion that you are committed to meet the GDC regarding CRH."

In the letter, dated August 4, 2004, TVA committed to provide an amendment request to adopt Technical Specification Task Force (TSTF)-448, "Control Room Habitability," for WBN Unit 1. By letter dated October 26, 2007 (ML073380948), TVA submitted a request for changes to the WBN Unit 1 Technical Specifications (TSs). The requested changes modified TS requirements related to CRE habitability in accordance with TSTF-448 Revision 3. By letter, dated October 8, 2008 (ML082720261), the NRC staff approved this amendment request for WBN Unit 1.

WBN Unit 2 control room is part of the WBN Unit 1 main CRH zone (MCRHZ). The MCRHZ is periodically tested per the WBN Unit 1 TS requirements. In a letter, dated September 7, 2007, TVA stated that the responses to the NRC questions in letter dated August 4, 2004, are applicable to WBN Unit 2.

TVA noted that WBN Unit 2 modifications that penetrate the MCRHZ boundary will be performed in a manner to maintain the operability of the boundary to support WBN Unit 1 operation. Also, TVA will incorporate the TS surveillance requirement from TSTF-448 into the WBN Unit 2 TS submittal.

4.0 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 acceptable for WBN Unit 2 regarding GL 2003-01 since TVA will use the same approved methodology and approach as WBN Unit 1 and will meet the commitment as stated in the letter, dated September 7, 2007.

Principle Contributor: John G. Lamb

Date: February 1, 2010

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/RA/

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