



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

September 29, 2010

10 CFR 50.4(b)(6)  
10 CFR 50.34(b)  
10 CFR 2.390(d)(1)

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 - Response to Request for Additional Information (RAI) Regarding the Preservice Inspection Program Plan (TAC Nos. ME4074 and ME3113)**


By letter dated June 17, 2010 (Reference 3, ADAMS Accession No. ML101680561), TVA submitted the Preservice Inspection Program Plan as part of the Final Safety Analysis Report for Watts Bar Nuclear Plant, Unit 2. The NRC staff reviewed the information provided by TVA.

In two letters to TVA dated September 7, 2010 (References 1 and 2), the NRC provided RAIs needed to complete the NRC staff review. This letter provides the response to those RAIs.

There are no new regulatory commitments associated with this submittal. If you have any questions, please contact Bill Crouch at (423) 365-2004.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 29<sup>th</sup> day of September, 2010.

Sincerely,

  
Masoud Bajestani  
Watts Bar Unit 2 Vice President

Enclosure:

1. Responses to RAIs Regarding the Preservice Inspection Program Plan

- References:
1. Letter from NRC to TVA, "Watts Bar Nuclear Plant, Unit 2 - Request for Additional Information Regarding Section 3.5 of the Preservice Inspection Program Plan (TAC No. ME4074)," dated September 7, 2010 [ADAMS Accession No. ML102420625]
  2. Letter from NRC to TVA, "Watts Bar Nuclear Plant, Unit 2 - Request for Additional Information From the Vessels Internals Integrity Branch Regarding Preservice Inspection Program Plan (TAC No. ME3113)," dated September 7, 2010 [ADAMS Accession No. ML102430175]
  3. Letter from TVA to NRC, "Watts Bar Nuclear Plant (WBN) Unit 2 - Preservice Inspection Program Plan and Additional Information," dated June 17, 2010 [ADAMS Accession No. ML101680561]
  4. Letter from NRC to TVA, "Watts Bar Nuclear Plant, Unit 2 - Relief Request WBN-2/PDI-4 Related to Ultrasonic Examination of the Reactor Pressure Vessel Shell-To-Flange Welds (TAC No. ME0022)," dated September 3, 2009 [ADAMS Accession No. ML092300608]

cc (Enclosure):

U. S. Nuclear Regulatory Commission  
Region II  
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NRC Resident Inspector Unit 2  
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1260 Nuclear Plant Road  
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## ENCLOSURE 1

### Responses to RAIs Regarding the Preservice Inspection Program Plan (PSIPP) Tennessee Valley Authority - Watts Bar Nuclear Plant - Unit 2, Docket No. 50-391

RAIs Regarding Section 3.5 of the PSIPP [taken from NRC letter dated 09/07/2010  
(ADAMS Accession No. ML102420625):

**EMCB RAI  
PSIPP-1:**

*In Section 3.5.3 of the Preservice Inspection Program Plan (Reference 3), the applicant states that, "The rules of IWB shall be applied to those components that are classified [as] ASME [American Society of Mechanical Engineers Boiler and Pressure Vessel Code] Class 1 or TVA [Tennessee Valley Authority] Class A." Please confirm that TVA has met the requirements of ASME Section XI, Subarticle IWB-1200, "Components Subject to Examination." Additionally, please indicate whether any variance exists between the scopes of inspection required under Subsection IWB for Watts Bar Nuclear Plant (WBN) Unit 2 and WBN Unit 1. If variances are present that exclude components at WBN Unit 2 from the inspection requirements of Subsection IWB, please provide justification for the exclusion of those components within the WBN Unit 2 Subsection IWB inspection plan.*

**Response:** The WBN Unit 2 Preservice Inspection (PSI) program for ASME Class 1 components (TVA Class A) includes those systems containing water, steam, or radioactive waste subject to the exemptions listed in ASME Section XI, IWB-1220, "Components Exempt from Examination." There is no variance in the systems requiring examination between WBN Units 1 and 2 and the applicable IWB-1220 exemptions, since both the current interval WBN Unit 1 Inservice Inspection (ISI) Program and the WBN Unit 2 PSI Program were developed using the 2001 Edition through 2003 Addenda of ASME Section XI.

The only reductions in inspection scope are the inherent differences between the PSI requirements of IWB-2200 for WBN Unit 2 and the ISI requirements of IWB-2400 for WBN Unit 1. ASME Section XI, IWB-2200, does not require performance of Examination Category B-P (pressure test) or the VT-3 examination for Examination Categories B-L-2 and B-M-2. ASME Section XI, IWB-2400, requires the examinations associated with Examination Categories B-P, B-L-2, and B-M-2 for the ISI Program.

The WBN Unit 2 construction completion process is ongoing for the systems within the ASME Class 1 scope, and the Unit 2 PSI program will continue to be revised to reflect the addition of welds for Class 1 systems.

## ENCLOSURE 1

### Responses to RAIs Regarding the Preservice Inspection Program Plan (PSIPP) Tennessee Valley Authority - Watts Bar Nuclear Plant - Unit 2, Docket No. 50-391

**EMCB RAI  
PSIPP-2:**

*In Section 3.5.4 of Reference 1, the applicant states that, "The rules of IWC shall be applied to those components that are classified [as] ASME Class 2 or TVA Class B." Please confirm that TVA has met the requirements of ASME Section XI, Subarticle IWC-1200, "Components Subject to Examination." Additionally, please indicate whether any variance exists between the scopes of inspection required under Subsection IWC for WBN Unit 2 and WBN Unit 1. If variances are present that exclude components at WBN Unit 2 from the inspection requirements of Subsection IWC, please provide justification for the exclusion of those components within the WBN Unit 2 Subsection IWC inspection plan.*

**Response:** The WBN Unit 2 PSI program for ASME Class 2 components (TVA Class B) includes those systems containing water, steam, or radioactive waste subject to the exemptions listed in ASME Section XI, IWC-1220, "Components Exempt from Examination." There is no variance in the systems requiring examination between WBN Units 1 and 2 and the applicable IWC-1220 exemptions, since both the current interval WBN Unit 1 Inservice Program and the WBN Unit 2 Preservice Program were developed using the 2001 Edition through 2003 Addenda of ASME Section XI.

The only reductions in inspection scope are the inherent differences between the PSI requirements of IWC-2200 for WBN Unit 2 and the ISI requirements of IWC-2400 for WBN Unit 1. ASME Section XI, IWC-2200, does not require performance of Examination Category C-H (pressure test). ASME Section XI, IWC-2400, requires the examinations associated with Examination Category C-H for the ISI program.

The WBN Unit 2 construction completion process is ongoing for the systems within the ASME Class 2 scope, and the Unit 2 PSI program will continue to be revised to reflect the addition of welds for Class 2 systems.

## ENCLOSURE 1

### Responses to RAIs Regarding the Preservice Inspection Program Plan (PSIPP) Tennessee Valley Authority - Watts Bar Nuclear Plant - Unit 2, Docket No. 50-391

**EMCB RAI  
PSIPP-3:**

*In Section 3.5.5 of Reference 1, the applicant states that, "The rules of IWD shall be applied to those components that are classified [as] ASME Class 3 or TVA Class C or D." Please confirm that TVA has met the requirements of ASME Section XI, Subarticle IWD-1200, "Components Subject to Examination." Additionally, please indicate whether any variance exists between the scopes of inspection required under Subsection IWD for WBN Unit 2 and WBN Unit 1. If variances are present that exclude components at WBN Unit 2 from the inspection requirements of Subsection IWD, please provide justification for the exclusion of those components within the WBN Unit 2 Subsection IWD inspection plan.*

**Response:** The WBN Unit 2 PSI program for ASME Class 3 components (TVA Class C and D) includes those systems containing water, steam, or radioactive waste subject to the exemptions listed in ASME Section XI, IWD-1220, "Components Exempt from Examination." There is no variance in the systems requiring examination between WBN Units 1 and 2 and the applicable IWD-1220 exemptions, since both the current interval WBN Unit 1 Inservice Program and the WBN Unit 2 Preservice Program were developed using the 2001 Edition through 2003 Addenda of ASME Section XI.

The only reductions in inspection scope are the inherent differences between the PSI requirements of IWD-2200 for WBN Unit 2 and the inservice requirements of IWD-2400 for WBN Unit 1. ASME Section XI, IWD-2200, does not require performance of Examination Category D-B (pressure test). ASME Section XI, IWD-2400, requires the examinations associated with Examination Category D-B for the ISI program.

The WBN Unit 2 construction completion process is ongoing for the systems within the ASME Class 3 scope, and the Unit 2 PSI program will continue to be revised to reflect the addition of integral attachment welds for Class 3 systems.

## ENCLOSURE 1

### Responses to RAIs Regarding the Preservice Inspection Program Plan (PSIPP)

#### Tennessee Valley Authority - Watts Bar Nuclear Plant - Unit 2, Docket No. 50-391

**EMCB RAI  
PSIPP-4:**

*In Section 3.5.6 of Reference 1, the applicant states that, "The requirements of IWF shall be applied to component supports classified [as] ASME Class 1, 2, and 3 or TVA Class A, B, C, and D as describe[d] above." Please confirm that TVA has met the requirements of ASME Section XI, Subarticle IWF-1300, "Support Examination Boundaries," including the requirements associated with Figure IWF 1300-1, "Illustration of Typical Support Examination Boundaries." Additionally, please indicate whether any variance exists between the scopes of inspection required under Subsection IWF for WBN Unit 2 and WBN Unit 1. If variances are present that exclude components at WBN Unit 2 from the inspection requirements of Subsection IWF, please provide justification for the exclusion of those components within the WBN Unit 2 Subsection IWF inspection plan.*

**Response:** The WBN Unit 2 PSI program for ASME Class 1, 2, and 3 component supports (TVA Class A, B, C and D) includes those systems containing water, steam, or radioactive waste subject to the exemptions listed in ASME Section XI, IW (B, C, or D, as applicable)-1220, "Components Exempt from Examination." There is no variance in the systems requiring examination between WBN Units 1 and 2 and the applicable IWF-1230 exemptions, since both the current interval WBN Unit 1 Inservice Program and the WBN Unit 2 Preservice Program were developed using the 2001 Edition through 2003 Addenda of ASME Section XI. Also, there is no variance in the ASME Section XI, Subarticle IWF-1300, "Support Examination Boundaries," requirement between the WBN Unit 2 PSI Program and the WBN Unit 1 ISI Program.

The only differences in inspection scope are the inherent differences between the PSI requirements of IWF-2210 for WBN Unit 2 and the ISI requirements of IWF-2400 for WBN Unit 1. There is no reduction in inspection scope based on these inherent differences.

The WBN Unit 2 construction completion process is ongoing for the systems within the ASME Class 1, 2, and 3 scope, and the Unit 2 PSI program will continue to be revised to reflect the inclusion of those supports for Class 1, 2, and 3 systems.

## ENCLOSURE 1

### Responses to RAIs Regarding the Preservice Inspection Program Plan (PSIPP) Tennessee Valley Authority - Watts Bar Nuclear Plant - Unit 2, Docket No. 50-391

**RAIs from the Vessels Internals Integrity Branch Regarding the PSIPP [taken from NRC letter dated 09/07/2010 (ADAMS Accession No. ML02430175):**

1. *In the licensee's submittal dated June 17, 2010, on pages 10 and 11 of 77, in Section 3.8.3 it was noted by the licensee that it will substitute alternative examination methods, or newly developed techniques, by invoking alternatives as outlined in ASME Code, Section XI, IWA-2240. The NRC Staff has found that some licensees have used IWA-2240 to implement ASME Code, Section XI, Appendix VIII techniques in lieu of the ASME Code required examination techniques without submitting an alternative pursuant to 10 CFR 50.55a(a)(3).*

*The NRC staff recognizes that TVA did submit an alternative for the use of ASME Code, Section XI, Appendix VIII for the examination of the reactor pressure vessel (RPV) shell-to-flange weld. However, clarify your intention on the use of ASME Code, Section XI, paragraph IWA-2240 and confirm that the subject paragraph will not be invoked for alternatives such as using ASME Code, Section XI, Appendix VIII as a substitute for other ASME Code requirements (e.g., RPV dome-to-flange weld or any other components) or the use of ASME Code, Section XI, ultrasonic examination requirements are used in lieu of ASME Code, Section III radiography requirements without seeking NRC approval of the alternative in accordance with 10 CFR 50.55a(3).*

**Response:** ASME Section XI, paragraph IWA-2240 has not been used by WBN Unit 2 to implement ASME Section XI Appendix VIII techniques for code credit unless approved in a relief request. Relief Request WBN-2/PDI-4 for ASME Section XI, Appendix VIII, examination of the RPV shell-to-flange weld, was approved in a letter from NRC to TVA, "Watts Bar Nuclear Plant, Unit 2 - Relief Request WBN-2/PDI-4 Related to Ultrasonic Examination of the Reactor Pressure Vessel Shell-To-Flange Welds (TAC No. ME0022)," dated September 3, 2009 [ADAMS Accession No. ML092300608] (Reference 4).

The RPV head-to-flange weld was not included in the subject relief request, and the examination performed for "Code credit" was conducted in accordance with ASME Section XI, Mandatory Appendix I, which references ASME Section V, Article 4. The RPV head-to-flange weld examination was supplemented with an ASME Section XI, Appendix VIII examination; however, no credit was taken and no additional coverage was achieved.

ASME Section XI, IWA-2240, is not and will not be used to perform ASME Section XI ultrasonic examinations in lieu of ASME Section III radiography requirements at WBN Unit 2.

10 CFR 50.55a(b)(2)(xix) states, "Substitution of alternative methods. The provisions for the substitution of alternative examination methods, a combination of methods, or newly developed techniques in the 1997 Addenda of IWA-2240 must be applied. The provisions in IWA-2240, 1998 Edition through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section, are not approved for use...."

## ENCLOSURE 1

### Responses to RAIs Regarding the Preservice Inspection Program Plan (PSIPP) Tennessee Valley Authority - Watts Bar Nuclear Plant - Unit 2, Docket No. 50-391

Section 3.8.3 of *WBN-2 PSI (Watts Bar Nuclear Plant Unit 2 Preservice Inspection Program Plan)* identifies the restriction placed on the use of IWA-2240 for the use of Editions/Addenda later than the 1997 Addenda of ASME Section XI by NRC in the Code of Federal Regulations (CFR). Section 3.8.3 states, in part, "The provision for substitution of these alternative examination methods, combination of methods, or newly developed techniques as outlined in IWA-2240 will utilize the 1997 Addenda of Section XI as stated in 10CFR50.55a(b)(2)(xix)."

2. *Several components in WBN, Unit 2 PSI Program Plan IWB Summary Tables, under the column Component Compliance contained in pages 26 through 36 of 77 are noted as None Applicable (N/A) for WBN, Unit 2. Clarify as to why these components are N/A for WBN, Unit 2 (e.g., the components are common with WBN, Unit 1, the components were examined or tested in the manufacture's fabrication shop, etc.).*

**Response:** These components were noted as "None Applicable (N/A) for WBN Unit 2" in the initial development of *WBN-2 PSI (Watts Bar Nuclear Plant Unit 2 Preservice Inspection Program Plan)* because there were no components in the Examination Category and Item Number in the WBN Unit 1 ISI Program Plan; and since the units were virtually identical, the corresponding Examination Category and Item Number for WBN Unit 2 was noted as "N/A for WBN Unit 2."

The WBN Unit 2 Construction Completion project has procured new components in multiple instances and the subject Examination Categories and Item Numbers will be updated as components in the Examination Categories and Item Numbers are identified during the course of WBN Unit 2 PSI plan development.