Watts Bar Nuclear Plant

Watts Bar Nuclear Plant (WBN)

Pre-submittal Meeting for American Society of Mechanical Engineers Boiler and Pressure Vessel Code Section XI, Request for Alternative WBN-2-ISI-01

November 16, 2022

TVA TENNESSEE VALLEY AUTHORITY

Agenda

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Introduction

- The purpose of the meeting is to provide information for a planned proposed alternative to the requirements of the 10 CFR 50.55a(g)(6)(ii)(F), which requires that licensees of pressurized water reactors augment the inservice inspection (ISI) program with ASME Code Case N-770-5, “Alternative Examination Requirements and Acceptance Standards for Class 1 PWR Piping and Vessel Nozzle Butt Welds Fabricated With UNS N06082 or UNSW86182 Weld Filler Material With or Without Application of Listed Mitigation Activities Section XI, Division 1,” subject to the conditions specified in paragraphs (g)(6)(ii)(F)(2) through (16) of this section.
- Approval of this alternative request would allow the volumetric examination frequency of ASME BPVC Code Case N-770-5, Inspection Item B-1, for the WBN Unit 2 upper head injection (UHI) dissimilar metal butt welds containing Alloy 82/182 to be extended, on a one-time basis, for approximately 30 days from the required frequency of "not to exceed 7 yr."
- TVA is submitting this alternative request in accordance with 10 CFR 50.55a(z)(1) in that the proposed alternative will maintain an acceptable level of quality and safety.
- The proposed alternative is needed to support the upcoming WBN Unit 2 Cycle 5 refueling outage (U2R5), originally scheduled for October 2023, but has been rescheduled to begin November 2023.

ASME Components Affected

Code Class:	1
Reference:	ASME Code Case - N-770-5, Table 1
Item Number:	B-1
Component ID:	UPIAH-2/3-A, UPIAH-2/3-B, UPIAH-2/3-C, UPIAH-2/3-D, UPIAH-4-A, UPIAH-4-B, UPIAH-4-C, UPIAH-4-D
Description:	WBN Unit 2 upper head injection dissimilar metal piping butt welds containing Alloy 82/182, unmitigated butt welds at cold leg operating temperature.

Applicable Code Edition and Addenda

- The Code of Record (Code) for the second ISI interval for WBN Unit 2 is the 2007 Edition with 2008 Addenda of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPVC), Section XI, Division 1, “Rules for Inservice Inspection of Nuclear Power Plant Components.”

Applicable Code Requirement

- Examinations of the upper head injection (UHI) nozzle dissimilar metal welds are performed in accordance with ASME Code Case N-770-5 as conditioned by 10 CFR 50.55a(g)(6)(ii)(F).
- In part, 10 CFR 50.55a(g)(6)(ii)(F) requires that licensees of pressurized water reactors augment the ISI program with ASME Code Case N-770-5 subject to the conditions specified in paragraphs (g)(6)(ii)(F)(2) through (16) of this section.
- Table 1 of Code Case N-770-5 requires the following frequency of examination per Inspection Item B-1:
  - Visual: "Once per interval“
  - Volumetric: "Every second inspection period not to exceed 7 yr."

Reason for Request

- The operating license for WBN Unit 2 was issued on October 22, 2015. The initial ISI interval commenced on October 19, 2016; therefore, the required 10 CFR 50.55a(g)(6)(ii)(F) and Code Case N-770-5, Item B-1 examination is required to be completed by October 19, 2023.
- This examination was originally scheduled to be completed during the WBN Unit 2 Cycle 4 refueling outage (U2R4), which was performed in spring 2022. The U2R4 outage was an extensive steam generator (SG) replacement outage, which required the reactor missile shields to remain in place for the heavy lifts of the SG.
- Therefore, the 10 CFR 50.55a(g)(6)(ii)(F) and Code Case N-770-5, Item B-1 examination of the UHI nozzles were rescheduled to U2R5 to be concurrent with the volumetric head exam.

Reason for Request (cont'd)

- The U2R5 outage was originally scheduled to commence on October 13, 2023, which would have permitted sufficient time to complete the 10 CFR 50.55a(g)(6)(ii)(F) and Code Case N-770-5, Item B-1 required examinations. However, in July 2022, U2R5 was rescheduled to commence on November 3, 2023, and end on December 2, 2023.
- Therefore, the proposed alternative is to request a one-time extension of approximately 30 days to allow the 10 CFR 50.55a(g)(6)(ii)(F) and Code Case N-770-5, Item B-1 required examinations of the UHI nozzles to be performed during U2R5.

Proposed Alternative and Basis for Use

- As noted in Section IV, this alternative is primarily administrative in nature to allow an extension of approximately 30 days beyond the seven-year requirement to perform the 10 CFR 50.55a(g)(6)(ii)(F) and Code Case N-770-5, Item B-1 required examinations during U2R5. No alternative examination is being proposed.
- The WBN Unit 2 UHI nozzles, listed in the scope of this alternative request, were last examined as a preservice inspection before Unit 2 startup with no recordable indications observed. WBN U2R5 will be the first exam performed in accordance with 10 CFR 50.55a(g)(6)(ii)(F) and Code Case N-770-5, Item B-1.
- The similar WBN Unit 1 UHI nozzles were examined during U1R16 in spring 2020 and U1R12 in spring 2014 with no recordable indications observed.

Proposed Alternative and Basis for Use (cont'd)

- The results of the previous 10 CFR 50.55a(g)(6)(ii)(F) and Code Case N-770-5, Item B-1 required examinations for the WBN UHI nozzles demonstrate that the proposed alternative reexamination frequency of approximately seven years and 30 days will maintain an acceptable level of quality and safety.
- Therefore, TVA requests that the NRC authorize this proposed alternative in accordance with 10 CFR 50.55a(z)(1).

Duration of Proposed Alternative

- The proposed alternative examination schedule extension is requested until completion of the 10 CFR 50.55a(g)(6)(ii)(F) and Code Case N-770-5, Item B-1 required examinations during the upcoming U2R5 outage scheduled to be completed by December 2, 2023.

Precedents

The following precedents are similar to the proposed alternative in that they also allowed an extension to the seven-year frequency of Code Case N-770-5, Item B-1.

- NRC Letter to Entergy Operations, Inc, “Arkansas Nuclear One, Unit 1 – Authorization and Safety Evaluation for Alternative Request No. ANO1-ISI-034 (EPID L 2020 LLR 0110),” dated February 8, 2021 (ML21026A260), which authorized an alternative from the requirements of Code Case N-770-2 for the examinations of the ANO-1 HPI nozzle “D” dissimilar metal weld to allow a one-time extension to 7.5 years.
- NRC Letter to Dominion Energy Nuclear Connecticut, Inc., “Millstone Power Station, Unit No. 2 – Alternative Request RR-05-03 for the Fifth 10-Year Inservice Inspection Interval (EPID L-2019-LLR-0095),” dated March 24, 2020 (ML20080K508), which authorized an alternative from the requirements of Code Case N-770-2 for the examinations of the reactor coolant pump inlet and outlet nozzle dissimilar metal butt welds of Millstone 2 to allow a one-time extension of 7.5 years.

Schedule for Submittal

- TVA to submit request for alternative to NRC by November 30, 2022.
- TVA requests NRC approval by October 1, 2023, prior to the current expiration date of the Case N-770-5 seven-year frequency due date of October 19, 2023.


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