



1101 Market Street, Chattanooga, Tennessee 37402

CNL-22-101

November 28, 2022

10 CFR 50.55a

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

Watts Bar Nuclear Plant, Unit 2
Facility Operating License No. NPF-96
NRC Docket No. 50-391

Subject: **Watts Bar Nuclear Plant, Unit 2 – American Society of Mechanical Engineers Boiler and Pressure Vessel Code Section XI, Request for Alternative WBN-2-ISI-01**

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a, “Codes and Standards,” paragraph (z)(2), Tennessee Valley Authority (TVA) requests Nuclear Regulatory Commission (NRC) approval of the enclosed inservice inspection (ISI) alternative request for the Watts Bar Nuclear Plant (WBN), Unit 2. The American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPVC) 2007 Edition with 2008 Addenda is the Code of Record for WBN Unit 2.

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, “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). 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, from the required frequency of “not to exceed 7 yr” for Item B-1 of Code Case N-770-5. The required 10 CFR 50.55a(g)(6)(ii)(F) and Code Case N-770-5, Item B-1 examination is currently required to be completed by October 19, 2023. The proposed alternative would 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, which is scheduled to commence on November 3, 2023, and end on December 2, 2023.

TVA is submitting this alternative request in accordance with 10 CFR 50.55a(z)(2) in that compliance with the current Code Case N-770-5, Item B-1 volumetric examination frequency requirement would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

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TVA requests approval of this alternative request 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.

There are no new regulatory commitments associated with this submittal. Please address any questions regarding this request to srymer@tva.gov.

Respectfully,



Digitally signed by Rymer, Stuart Loveridge
Date: 2022.11.28 16:54:40 -05'00'

Stuart L. Rymer
Director (Acting), Nuclear Regulatory Affairs

Enclosure:

Watts Bar Nuclear Plant, Unit 2, American Society of Mechanical Engineers, Boiler and Pressure Vessel Code, Section XI, Request for Alternative, WBN-2-ISI-01

cc (Enclosure):

NRC Regional Administrator - Region II
NRC Senior Resident Inspector - Watts Bar Nuclear Plant
NRC Project Manager - Watts Bar Nuclear Plant

**Watts Bar Nuclear Plant, Unit 2
American Society of Mechanical Engineers, Boiler and Pressure Vessel Code, Section XI,
Request for Alternative, WBN-2-ISI-01**

I. ASME Code 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:	Watts Bar Nuclear Plant (WBN) Unit 2 upper head injection dissimilar metal piping butt welds containing Alloy 82/182, unmitigated butt welds at cold leg operating temperature.

II. Applicable Code Edition and Addenda

The Code of Record (Code) for the first inservice inspection (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."

III. 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, "Alternative Examination Requirements and Acceptance Standards for Class 1 PWR Piping and Vessel Nozzle Butt Welds Fabricated with UNS N06082 or UNS W86182 Weld Filler Material with or without Application of Listed Mitigation Activities Section XI, Division 1," as conditioned by Title 10 of the *Code of Federal Regulations* (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 inservice inspection (ISI) program with ASME Code Case N-770-5 subject to the conditions specified in paragraphs (g)(6)(ii)(F)(2) through (16).

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."

IV. 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

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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 was rescheduled to U2R5 to be concurrent with the volumetric head exam.

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 to allow the 10CFR 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.

V. Proposed Alternative and Basis for Use

As noted in Section IV, this alternative is primarily administrative in nature to allow an extension beyond the seven-year requirement of Code Case N-770-5, Item B-1, which expires on October 13, 2023, in order to perform the 10 CFR 50.55a(g)(6)(ii)(F) and Code Case N-770-5, Item B-1 required examinations during U2R5, which is currently scheduled to commence on November 3, 2023, and end on December 2, 2023. No alternative examination is being proposed.

There are four auxiliary head adapters that originally were the nozzle connections for the UHI system. Because these nozzles were originally part of a piping system rather than a control rod drive mechanism (CRDM) attachment, the dissimilar metal butt welds (B-J welds) are required to be inspected in accordance with ASME Code Case N-770-5, as prescribed by 10 CFR 50.55a(g)(6)(ii)(F). This includes the dissimilar metal nozzle-to pipe girth welds above the head penetration and the nozzle-to-head connections.

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.

Therefore, 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 will maintain an acceptable level of quality and safety.

TVA would be required to perform a forced, unscheduled outage of WBN Unit 2 in order to perform the Code Case N-770-5, Item B-1 volumetric exams of the UHI nozzles within the current seven-year frequency, which expires on October 19, 2023, which would result in unnecessary plant transients and unnecessary radiological dose to plant personnel. Therefore, TVA requests that the NRC authorize this proposed alternative in accordance with 10 CFR 50.55a(z)(2) in that compliance with the current volumetric examination frequency requirement would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

VI. 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 currently scheduled to be completed by December 2, 2023.

VII. Precedent

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.

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-770-5 for the examinations of the ANO-1 HPI nozzle "D" dissimilar metal weld to allow a one-time extension to 7.5 years.
2. 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.