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10 CFR 50.55a

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

Shearon Harris Nuclear Power Plant, Unit 1
Docket No. 50-400 / Renewed License No. NPF-63

SUBJECT: Proposed Alternative for Inservice Inspection Interval Code of Record

Ladies and Gentlemen:

Pursuant to 10 CFR 50.55a(z)(1), Duke Energy Progress, LLC (Duke Energy) is proposing an Inservice Inspection (ISI) alternative for the Shearon Harris Nuclear Power Plant, Unit 1 (HNP). Specifically, this request is to utilize the 2019 Edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI in lieu of the 2021 Edition that would be required by 10 CFR 50.55a(g)(4)(ii). This proposed alternative applies to the next HNP Code of Record Interval, which includes the Fifth and Sixth ISI Intervals.

The proposed alternative is described in the enclosure of this letter.

Duke Energy requests approval of this proposed alternative prior to the start of the Fifth ISI Interval, scheduled to start on September 9, 2027. If you have additional questions, please contact Ryan Treadway, Director – Nuclear Fleet Licensing, at 980-373-5873.

Sincerely,

A handwritten signature in black ink, appearing to be 'K. Ellis', written over a horizontal line.

Kevin M. Ellis
General Manager – Nuclear Regulatory Affairs, Policy & Emergency Preparedness

Enclosure: Proposed Alternative for Inservice Inspection Interval Code of Record

cc:

USNRC Region II Regional Administrator
USNRC Senior Resident Inspector for HNP
USNRC NRR Project Manager for HNP

Enclosure

Proposed Alternative for Inservice Inspection Interval Code of Record

4 Pages Follow

1.0 ASME CODE COMPONENTS AFFECTED:

All components included in the Inservice Inspection (ISI) Program for Shearon Harris Nuclear Power Plant, Unit 1 (HNP).

2.0 APPLICABLE CODE EDITION AND ADDENDA:

American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (BPV) Code, Section XI, 2019 Edition. (Reference 8.1)

American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (BPV) Code, Section XI, 2021 Edition. (Reference 8.2)

3.0 APPLICABLE REGULATORY OR CODE REQUIREMENT:

Information from 10 CFR 50.55a

Paragraph (g)(4)(ii) states the following:

“Applicable ISI Code: Successive code of record intervals. Inservice examination of components and system pressure tests conducted during successive code of record intervals must comply with the requirements of the latest edition and addenda of the ASME BPV Code incorporated by reference in paragraph (a) of this section no more than 18 months before the start of the code of record interval (or the optional ASME Code Cases listed in NRC Regulatory Guide 1.147, when using ASME BPV Code, Section XI, or NRC Regulatory Guide 1.192, when using the ASME OM Code, as incorporated by reference in paragraphs (a)(3)(ii) and (iii) of this section), subject to the conditions listed in paragraph (b) of this section...”

Paragraph (b)(2) states the following:

“Conditions on ASME BPV Code, Section XI. As used in this section, references to Section XI refer to Section XI, Division 1, in the editions and addenda of the ASME BPV Code incorporated by reference in paragraph (a)(1)(ii) of this section, subject to the following conditions:”

4.0 REASON FOR REQUEST:

HNP is performing a code of record interval update to the ISI Program as required by 10 CFR 50.55a(g)(4)(ii).

Paragraph (g)(4)(ii) requires (emphasis added):

*“Applicable ISI Code: Successive code of record intervals. Inservice examination of components and system pressure tests conducted during successive code of record intervals must comply with the requirements of the **latest edition and addenda of the ASME BPV Code incorporated by reference in paragraph (a) of this section no more than 18 months before the start of the code of record interval** (or the optional ASME Code Cases listed in NRC Regulatory Guide 1.147, when using ASME BPV Code, Section XI, or NRC Regulatory Guide 1.192, when using the ASME OM Code, as incorporated by reference in paragraphs (a)(3)(ii) and (iii) of this section), subject to the conditions listed in paragraph (b) of this section...”*

The next HNP Code of Record Interval, which will include the Fifth and Sixth ISI Inspection Intervals, is scheduled to start September 9, 2027. Given this Code of Record Interval start date, the date which the latest edition and addenda of the ASME BPV Code incorporated by reference in 10 CFR 50.55a(a) must comply is March 9, 2026. The latest change to 10 CFR 50.55a to incorporate a new ASME Code edition was published in the Federal Register on August 30, 2024 (Reference 8.4), with an effective date of September 30, 2024. This update incorporates by reference the 2021 Edition of the BPV Section XI Code in 10 CFR 50.55a(a)(1)(ii). Subsequently, the ASME Section XI Code of Record for the new ISI Interval at HNP as required by 10 CFR 50.55a would be the 2021 Edition.

Implementation of the 2019 Edition of the BPV Section XI code would provide many benefits including maintaining consistency with the Catawba Nuclear Station (CNS), Oconee Nuclear Station (ONS), and McGuire Nuclear Station (MNS), which recently updated to the 2019 Edition. Additional benefits include fleet resource sharing, standardization of code requirements, sharing operating experience, the reduction of administrative burden, and the reduction of error-likely situations.

5.0 PROPOSED ALTERNATIVE AND BASIS FOR USE:

Pursuant to 10 CFR 50.55a, Codes and Standards, paragraph (z)(1), HNP proposes the following as an alternative to the requirements of 10 CFR 50.55a(g)(4)(ii): HNP will update the ISI Program to the Rules of the 2019 Edition of ASME Section XI Code, rather than the 2021 Edition of the ASME Section XI Code, while still maintaining the ISI Fifth Interval start date of September 9, 2027.

The proposed alternative is being requested to maintain HNP, CNS, ONS, and MNS on the same edition of the ASME Section XI Code. This will allow Duke Energy to maintain a higher level of standardization between the HNP, CNS, ONS, and MNS ISI Programs.

Duke Energy is structured as a Corporate Inspections Programs Group that maintains all ISI programs across the fleet of six sites. As HNP, CNS, ONS, and MNS share Operating Experience and resources between sites, utilizing a common set of code requirements would minimize the risk of errors during program development and implementation.

Although the 2021 Edition of ASME Section XI Code includes changes from the 2019 Edition, both editions continue to ensure an acceptable level of quality and safety. Furthermore, the changes did not address any deficiencies in the Code that adversely impacted safety. The most recent update to 10 CFR 50.55a (Reference 8.4) by the NRC does not require facilities utilizing earlier editions and addenda to implement any new provisions from the 2021 Edition of ASME Section XI.

A thorough review and comparison of the 2019 and 2021 Editions was conducted, including a review of the ASME publication titled "Summary of Significant Changes in the 2021 ASME Boiler and Pressure Vessel Code" (reference 8.3). The comparison revealed three notable changes which include the addition of a Buried Piping and Component Inspection Program, alignment with ASME Section V regarding linearity verification, and qualification requirements regarding PWR upper head penetration examinations. Other changes were found to provide alternative approaches, clarification,

or to incorporate previous NRC conditions directly into the code. There were no changes that were necessary to ensure acceptable quality and safety standards, nor were any revisions made to correct deficiencies present in the 2019 Edition.

The three notable changes in the 2021 Edition from the 2019 Edition of the ASME Section XI Code, including Duke Energy's policy and/or position, are as follows:

- Subsections IWC, "Requirements for Class 2 Components of Light-Water-Cooled Plants" and IWD, "Requirements for Class 3 Components of Light-Water-Cooled Plants": Paragraphs IWC-2500 and IWD-2500 were revised along with the addition of Tables IWC-2500-1 (C-J) and IWD-2500-1 (D-C) to require the Owner to have a Buried Piping and Component Inspection Program. Nonmandatory Appendix Z was added to provide guidance for this Program, and it allows for other industry standards and Owner buried piping programs be used to meet this requirement.
 - Duke Energy has an existing Buried Piping Integrity Program (BPIP), following NEI-09-14 guidance that satisfies these requirements.
- Mandatory Appendix I, "Ultrasonic Examinations" and Mandatory Appendix III, "Ultrasonic Examination of Vessel and Piping Welds": Mandatory Appendix I, Supplement 7 and Mandatory Appendix III, III-3310 were revised to incorporate the requirements of Section V, Article 4, T-461 regarding performance of linearity verification, aligning Section XI with Section V for digital UT instruments.
 - Duke Energy performs linearity verification for UT instruments that meets the 2021 Edition requirements of Mandatory Appendix I, Supplement 7 and Mandatory Appendix III, Paragraph III-3310.
- Mandatory Appendix VIII, "Performance Demonstration for Ultrasonic Examination Systems": Mandatory Appendix VIII, Supplement 15 was added to Mandatory Appendix VIII to define the qualification requirements for procedures, personnel, and equipment used for the volumetric examination of PWR vessel upper head penetrations.
 - Duke Energy will utilize Mandatory Appendix VIII Supplement 15 when using the 2019 Edition per 10 CFR 50.55a(g)(6)(ii)(D)(9).

When implementing this alternative Duke Energy shall comply with all NRC limitations and modifications specified in 10 CFR 50.55a(b)(2) applicable to the 2019 Edition of Section XI. Code Cases, if used, shall comply with the requirements specified in Regulatory Guides 1.147 and 1.262.

Updating the HNP ISI Program to the 2019 Edition to be consistent with the CNS, ONS, and MNS ISI Programs will maintain an acceptable level of quality and safety. This enables resource and knowledge sharing across multiple sites within the Duke Energy fleet for ISI activities, including program development, planning, and scheduling, thereby providing extensive experience to reference.

Based on the above, Duke Energy requests authorization for the proposed alternative pursuant to 10 CFR 50.55a(z)(1) on the basis that it provides an acceptable level of quality and safety.

6.0 DURATION OF PROPOSED ALTERNATIVE:

The proposed alternative is requested for the Code of Record Interval, as defined in 10 CFR 50.55a(y), which includes the Fifth and Sixth Inspection Intervals for HNP. Use of this proposed alternative does not preclude the ability to utilize ASME Code Case N-921 to extend the baseline inspection interval duration from 10 years to 12 years.

7.0 PRECEDENTS:

The following precedents provide a similar basis for updating a code of record for ISI Programs in accordance with 10 CFR 50.55a(g)(4)(ii).

- 7.1 Michael T. Markley to Thomas D. Ray dated August 21, 2020, Subject: McGuire Nuclear Station, Unit 1 – Relief Request RA-20-0031, Delay to Update the Code of Record for Inservice Inspection (EPID L-2019-LLR-0119), ADAMS Accession Number (ML20230A205).
- 7.2 Robert J. Pascarelli to ANO Site Vice President dated June 11, 2019, Subject: Arkansas Nuclear One, Unit 2 - Request for Alternative AN02-ISI-021 to Permit Continued Application of the 2007 Edition Through the 2008 Addenda of the ASME CODE (EPID L-2018-LLR-0122), ADAMS Accession Number (ML19156A400).
- 7.3 Robert J. Pascarelli to David A Heacock dated April 29, 2013, Subject: Surry Power Station, Unit Nos 1 and 2 - Relief From the Requirements of the ASME Section XI Code S1-15-ISI-01 & S2-15-ISI-01 Regarding Use of ASME Section XI 2004 Edition (TAC NOS. ME8774 AND ME8775), ADAMS Accession Number (ML13100A049).

The following precedent related to updating an Inservice Testing (IST) Program's Code of Record in accordance with 10 CFR 50.55a(f)(4)(ii) provides a similar basis for updating the ISI Program in accordance with 10 CFR 50.55a(g)(4)(ii).

- 7.4 Michael T. Markley to Johnathan Huecker dated January 8, 2026, Subject: Catawba Nuclear Station, Units 1 and 2 – Authorization of Proposed Alternative RA-25-0064 for Inservice Testing Interval Code of Record (EPID L-2025-LLR-0072), ADAMS Accession Number (ML26005A084).

8.0 REFERENCES:

- 8.1 American Society of Mechanical Engineers, Boiler and Pressure Vessel Code, Section XI, 2019 Edition.
- 8.2 American Society of Mechanical Engineers, Boiler and Pressure Vessel Code, Section XI, 2021 Edition.
- 8.3 American Society of Mechanical Engineers, Summary of Significant Changes in the 2021 ASME Boiler and Pressure Vessel Code, issued April 23, 2021.
- 8.4 Federal Register, Vol. 89, No. 169, dated August 30, 2024.