

JUN 11 2019

Docket Nos.: 50-348
50-364

NL-19-0676

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

Joseph M. Farley Nuclear Plant – Units 1 and 2
Proposed Alternative FNP-ISI-ALT-05-04, Version 1.0
SNC Response to NRC Request for Additional Information

Ladies and Gentlemen:

By letter dated March 8, 2019 (Agencywide Documents Access and Management System Accession Number ML19067A213), Southern Nuclear Operating Company (SNC) submitted proposed alternative FNP-ISI-ALT-05-04, Version 1.0, to the inservice inspection (ISI) requirements of the ASME Code, Section XI for the Joseph M. Farley Nuclear Plant (FNP), Units 1 and 2. This proposed alternative would allow the deferral of the performance of the initial IWL inspection of the augmented scope of the Unit 1 tendons affected by the H11AB failure extent of condition. The 1-year (+/- 3 months) inspection prescribed in Table IWL-2521-2 will instead be performed during the next regularly scheduled IWL examination (July 2026, +/- 1 year).

By email dated May 29, 2019, the U.S. Nuclear Regulatory Commission (NRC) staff notified SNC that additional information is needed for the staff to complete their review. The enclosure to this letter provides the SNC response to the NRC request for additional information (RAI).

This letter contains no NRC commitments. If you have any questions, please contact Jamie Coleman at 205.992.6611.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 11th day of June 2019.

Respectfully submitted,

Cheryl A. Gayheart
Director, Regulatory Affairs
Southern Nuclear Operating Company

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Enclosure:

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cc: Regional Administrator, Region II
NRR Project Manager – Farley Nuclear Plant
Senior Resident Inspector – Farley Nuclear Plant
RType: CFA04.054

**Joseph M. Farley Nuclear Plant – Units 1 and 2
Proposed Alternative FNP-ISI-ALT-05-04, Version 1.0
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Enclosure

SNC Response to NRC RAI

NRC RAI

Regulatory Basis

Pursuant to 10 CFR 50.55a(g)(4), throughout the service life of a pressurized water-cooled nuclear power facility, components that are classified as American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 must meet the requirements, except the design and access provisions and preservice examination requirements, set forth in the ASME Code, Section XI, to the extent practical, within the limitations of design, geometry, and materials of construction of the components.

Further, these regulations require that inservice examination of components and system pressure tests conducted during the first 10-year interval, and subsequent intervals, comply with the requirements in the latest edition and addenda of Section XI of the ASME Code, incorporated by reference in paragraph (b) of 10 CFR 50.55a, on the date 12 months prior to the start of the 120 month interval, subject to the limitations and modifications listed therein.

Alternatives to requirements under 10 CFR 50.55a(g) may be authorized by the U.S. Nuclear Regulatory Commission (NRC) pursuant to 10 CFR 50.55a(z)(1) or 10 CFR 50.55a(z)(2). In proposing alternatives or requests for relief, the licensee must demonstrate that: (1) the proposed alternatives would provide an acceptable level of quality and safety; or (2) compliance with the specified requirements would result in hardship or unusual difficulty, without a compensating increase in the level of quality and safety.

ASME Code Section XI, 2007 Edition including Addenda through 2008, Subsection IWL-2500, "Examination Requirements," states that examination shall be performed in accordance with the requirements of Table IWL-2500-1.

ASME Code Section XI, 2007 Edition including Addenda through 2008, Subsection IWL-2521.2 "Tendons Affected by Repair/Replacement Activities," require augmented examination of tendons affected by post-tensioning system repair/replacement activities. Table IWL-2521-2 requires an initial examination of tendons affected by post-tensioning system repair/replacement activities within one year (+/- 3 months) following the completion of repair/replacement activities.

IWL-2420 describes the inservice inspection schedule for unbonded post-tensioning systems and requires their examination at 1, 3, and 5 years following the completion of the Structural Integrity Test and every 5 years thereafter.

Background

By letter dated March 8, 2019 (Agencywide Documents Access and Management System Accession No. ML19067A213), Southern Nuclear Operating Company (SNC, the licensee), submitted proposed alternative FNP-ISI-ALT-05-04, Version 1.0, to the inservice inspection (ISI) requirements of the ASME Code, Section XI. This proposed alternative relates only to the initial augmented examination requirements pursuant to ASME Section XI, Table IWL-2521-2, for Unit 1 containment tendons affected by repair/replacement activities during the Fifth ISI Interval which began December 1, 2017, and is scheduled to end on November 30, 2027.

Up to fifteen horizontal tendons (H1AC, H1BC, H3BC, H5BC, H7BC, H9AB, H13BC, H15AB, H15BC, H29AC, H31AC, H37AB, H7AC, H9AC, and H15AC) were affected by post-tensioning repair/replacement activities. This proposed alternative will allow the deferral of performing the initial IWL inspection of the augmented scope of the tendons affected by the H11AB failure extent of condition. The 1-year (+/- 3 months) inspection prescribed in Table IWL-2521-2 will instead be performed during the next regularly scheduled IWL examination (July 2026, +/- 1 year), a deferral of almost 7 years.

Request

The NRC staff has reviewed the request and determined that additional information is necessary to complete the review. The NRC staff requests that SNC provide the required horizontal tendon force, according to the FNP Unit 1 current licensing basis (CLB), along with the minimum predicted tendon force values expected at the next regularly scheduled FNP Unit 1 ASME IWL examination scheduled for July 2026 for these tendons. SNC is also requested to provide the minimum predicted tendon force values expected in July 2027 which would ensure that the minimum predicted tendon force remain greater than required CLB values, which would allow SNC to utilize the +/- 1 year grace period permitted by IWL-2420(c), if needed for scheduling optimization.

SNC Response to RAI

The required horizontal tendons force is 6.01 kips/wire or 1021.7 kips total for one tendon (based on 170 wire tendon). The minimum predicted force at the next regularly scheduled ASME IWL examination (July 2026) and the minimum predicted force using the Code allowed plus 1-year grace period (July 2027) for the tendons addressed by this RAI are listed below.

Work for the tendon anchorhead project for 2019 has not yet started. The associated purchase order requires the project contractor to set the lock-off force at 1200 kips within a tolerance of minus 0% and plus 5%.

The measured prestress force of an FNP Unit 1 horizontal tendon that was retensioned in 2013 was 1123.58 kips. That tendon was rechecked in 2017 (four years later) and determined to have a prestress force of 1116.60 kips. The prestress had decreased 0.155% per year.

Applying that measured prestress decrease to predict prestress forces for the similar tendons discussed in the RAI and assuming a retension in July 2019 yields the following results for July 2026 and July 2027.

Predicted prestress value for 2026:

$$1200 \text{ kips} \times 0.155\% \times 7 \text{ years} = 13.0 \text{ Kip loss};$$

$$1200 - 13.0 = 1187.0 \text{ kips (2026)}$$

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Predicted prestress value for 2027:

$$1200 \text{ kips} \times 0.155\% \times 8 \text{ years} = 14.9 \text{ Kip loss}$$

$$1200 - 14.9 = 1185.1 \text{ kips (2027)}$$

All values of predicted force are above the minimum value of 1021.7 kips for horizontal tendons.