UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO REQUEST FOR ALTERNATIVE REQUIREMENTS

FOR INITIAL INSERVICE TEST INTERVAL CODE EDITION, UNIT 4

(VEGP 3&4-IST-ALT-01)

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MEAG POWER SPVM, LLC

MEAG POWER SPVJ, LLC

MEAG POWER SPVP, LLC

CITY OF DALTON, GEORGIA

VOGTLE ELECTRIC GENERATING PLANT UNIT 4

DOCKET NO. 52-026

1.0 INTRODUCTION

By letter dated October 31, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19304C432), and supplement dated February 6, 2020 (ADAMS Accession No. ML20037A329), Southern Nuclear Operating Company, Inc. (SNC), requested U.S. Nuclear Regulatory Commission (NRC) approval of an alternative, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(1), to the inservice testing (IST) requirements of the American Society of Mechanical Engineers (ASME) *Operation and Maintenance of Nuclear Power Plants*, Division 1, OM Code: Section IST (OM Code) associated with establishing the applicable OM Code Edition for the initial 120-month IST Program interval for the Vogtle Electric Generating Plant (VEGP) Unit 4. Specifically, SNC requested to implement a proposed alternative to specific provisions of the ASME OM Code as incorporated by reference in 10 CFR 50.55a in request IST-ALT-01 on the basis that the alternative provides an acceptable level of quality and safety pursuant to subparagraph (1), "Acceptable level of quality and safety," in paragraph (z), "Alternatives to codes and standards requirements," of 10 CFR 50.55a.

2.0 REGULATORY EVALUATION

10 CFR 50.55a(f)(4), "Inservice testing standards requirement for operating plants," states, in part, that throughout the service life of a boiling or pressurized water-cooled nuclear power

facility, pumps and valves that are within the scope of the ASME OM Code must meet the IST requirements (except design and access provisions) set forth in the ASME OM Code and addenda that become effective subsequent to editions and addenda specified in 10 CFR 50.55a(f)(2) and (3), and that are incorporated by reference in 10 CFR 50.55a(a)(1)(iv), to the extent practical within the limitations of design, geometry, and materials of construction of the components. 10 CFR 50.55a(f)(4)(i), "Applicable IST Code: Initial 120-month interval," states, in part, that the inservice tests conducted during the initial 120-month IST Program interval must comply with the requirements in the latest edition and addenda of the ASME OM Code incorporated by reference in 10 CFR 50.55a(a)(1)(iv) on the date 12 months before the date scheduled for initial loading of fuel under a combined license under 10 CFR Part 52. 10 CFR 50.55a(f)(4)(ii), "Applicable IST Code: Successive 120-month intervals," states, in part, that the inservice tests conducted during successive 120-month intervals must comply with the requirements in the latest edition and addenda of the ASME OM Code incorporated by reference in 10 CFR 50.55a(a)(1)(iv) 12 months before the start of the 120-month IST Program interval.

10 CFR 50.55a(z) states, in part, that alternatives to the requirements of paragraphs (b) through (h) of 10 CFR 50.55a may be used, when authorized by the NRC, if a licensee demonstrates
(1) the proposed alternative 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.

Based on the above, and subject to the following technical evaluation, the staff finds that regulatory authority exists for SNC to request and the Commission to authorize the alternative requested by SNC to specific provisions of the ASME OM Code as incorporated by reference in 10 CFR 50.55a.

3.0 TECHNICAL EVALUATION

3.1 SNC's Alternative

SNC requested an alternative to the requirements for establishing the applicable OM Code Edition for the initial 120-month IST Program interval for VEGP Unit 4, as specified in 10 CFR 50.55a(f)(4)(i), 10 CFR 50.55a(f)(4)(ii), and paragraph ISTA-3200 of the ASME OM Code.

10 CFR 50.55a(f)(4)(i) states, in part, that inservice tests conducted during the initial 120-month interval must comply with the requirements in the latest edition and addenda of the ASME OM Code incorporated by reference in 10 CFR 50.55a(a)(1)(iv) on the date 12 months before the date scheduled for initial loading of fuel under a combined license under 10 CFR Part 52 (or the optional ASME OM Code Cases listed in NRC Regulatory Guide 1.192, "Operation and Maintenance Code Case Acceptability, ASME OM Code," as incorporated by reference in 10 CFR 50.55a(a)(3)(iii)), subject to the conditions listed in paragraph 10 CFR 50.55a(b).

10 CFR 50.55a(f)(4)(ii) states, in part, that inservice tests conducted during successive 120-month intervals must comply with the requirements of the latest edition and addenda of the ASME OM Code incorporated by reference in 10 CFR 50.55a(a)(1)(iv) 12 months before the start of the 120-month interval (or the optional ASME Code Cases listed in NRC Regulatory Guide 1.192, as incorporated by reference in 10 CFR 50.55a(a)(3)(iii)), subject to the conditions listed in 10 CFR 50.55a(b).

Paragraph ISTA-3200(f) of the ASME OM Code states equivalent requirements to those cited above.

Reason for Request

SNC provided the following reason for the alternative request:

> With a one year gap between the scheduled fuel loadings (and subsequent IST intervals) of Vogtle Unit 3 and Unit 4, there is a possibility that the Code Edition required for the Inservice Testing program plan will be different between the two units. Because the two units are nearly identical, the Combined License application was for both units, and both units share a common UFSAR [Updated Final Safety Analysis Report], it would create inconsistencies between the two units that would increase the complexity of the UFSAR and testing programs that would increase the probability of human error in implementing and maintaining two different programs.
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> To minimize the problems of maintaining two separate IST programs, it would be preferable to have both IST Programs be developed to the Code Edition and Addenda required for the lead unit (Unit 3).
>
> Based on the current scheduled initial loading of fuel for Unit 3 being November 23, 2020, and the current schedule for addition of ASME OM Code Editions to 10 CFR 50.55a being late February 2020, the current latest edition of the OM Code listed in 10 CFR 50.55a (2012 Edition) would be used for establishing the initial 120-month interval IST Programs for Vogtle 3 & 4.

SNC provided the following basis for the use of its proposed alternative:

> Maintaining both units on the same interval schedule allows both IST programs to be developed utilizing the same edition of the applicable Codes, which will make it less complicated for involved personnel to become familiar with the Code requirements, will ensure a greater degree of consistency for IST between the units, and will reduce the effort associated with surveillance procedure revisions for the program update and for maintenance of the program documents.
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> The Code of Record established for Unit 3 is in accordance with the 10 CFR 50.55a requirements and represents requirements established by the NRC to ensure the equipment is adequately tested to ensure safe plant operation. Applying a common Code edition to both Unit 3 and Unit 4 would establish common requirements which would minimize potential errors caused by having to maintain two separate program requirements for the 2 units. Additionally, based on the version of the Code anticipated for the Unit 3 IST program, the units will use the same Code Edition as that used for Preservice testing, which will ensure consistency of Preservice to Inservice testing.
>
> Per NUREG-1482, Rev. 2, Basis for 3.3.2, Concurrent Intervals states “The staff believes that conducting IST programs for multiple unit sites using the same Code edition could provide an improvement in program effectiveness.”
>
> Based on the above, the proposed alternative provides an equivalent level of quality and safety in accordance with 10 CFR 50.55a(z)(1).

Proposed Alternative

SNC submitted the following proposed alternative:

> In lieu of the requirements of 10 CFR 50.55a(f)(4)(i), for establishing the ASME OM Code edition and addenda for the initial Inservice Test interval, or 10 CFR 50.55a(f)(4)(ii) for establishing the ASME OM Code edition and addenda for subsequent inservice test intervals, and the equivalent requirements in ISTA-3200(f)(2) & (3), it is proposed that the Code Edition for each Unit 4 IST Interval be the same edition and/or addenda as established for the associated Unit 3 Interval (which will be established in accordance with 10 CFR 50.55a(f)(4)(i) or (ii)). Inservice Test Plans for each Interval will be combined into a single plan for both Units.

SNC had initially requested that the IST alternative be authorized for the life of the plant. SNC revised the requested duration of the IST alternative to only include the initial interval after discussion at a public meeting held on January 23, 2020 (ADAMS Accession No. ML20027A231). SNC made this revision by supplemental letter ND-20-0083, dated February 6, 2020 (ADAMS Accession No. ML20037A329).

NRC Staff Evaluation

The IST requirements for VEGP Unit 3 and 4 are established based on the latest edition and addenda of the ASME OM Code incorporated by reference in 10 CFR 50.55a(a)(1)(iv) on the date 12 months before the date scheduled for initial loading of fuel under a combined license under 10 CFR Part 52. IST requirements for tests conducted during successive 120-month intervals must comply with the requirements in the latest edition and addenda of the ASME OM Code incorporated by reference in 10 CFR 50.55a(a)(1)(iv) 12 months before the start of the 120-month IST Program interval. Given the forecasted timing of initial loading of fuel for VEGP Unit 3, the forecasted effective date of rulemaking for 10 CFR 50.55a, and the forecasted initial loading of fuel for VEGP Unit 4, there exists the potential for a decoupling of the required ASME OM Code edition and addenda for VEGP Units 3 and 4.

As the licensee notes, VEGP Unit 3 and Unit 4 share a common Combined License Application and UFSAR. As currently forecasted, VEGP Unit 3 and Unit 4 will have initial fuel loading dates that are in close proximity to each other. It is not unusual for licensees with multiple unit sites to establish concurrent intervals to reduce complexity in maintaining IST programs, so there is a precedent for considering this proposed alternative. However, there are unique aspects to this proposed alternative for VEGP Unit 4 that required further consideration by the staff.

During a public meeting on December 19, 2019, the NRC staff discussed the proposed alternative with SNC. SNC indicated that the Preservice Testing (PST) Program had started for VEGP Unit 3 and Unit 4 using the 2012 Edition of the ASME OM Code. Further, SNC noted that the IST Program for VEGP Unit 3 was in preparation using the 2012 Edition of the ASME OM Code. SNC noted that the use of a consistent OM Code Edition between PST and IST will minimize the potential for errors in the transition from the PST Program to the IST Program, and could provide improved program effectiveness.

The proposed alternative modifies the IST Program interval for VEGP Unit 4 prior to the date of its initial fuel load. As discussed above, several dates are forecasted, so there is potential movement in the actual dates of initial fuel load and effective date of the 10 CFR 50.55a rulemaking. However, as specified in the proposed alternative, the dates established for Unit 3

will be the milestones used for establishing the initial IST Program interval for Unit 4. The IST Program interval requirements for Unit 3 are unchanged by this request, so Unit 4 will be updated on the same schedule as that of Unit 3, which is 120 months from Unit 3 initial fuel load, as required by 10 CFR 50.55a(f)(4)(ii). The staff notes that paragraph ISTA-3120(d) of the ASME OM Code allows for as much as a 1-year adjustment to an IST Program interval duration, so the proposed duration alignment is already allowed by the ASME OM Code and NRC authorization is not needed for this aspect. Instead, NRC authorization is necessary for use of an earlier edition of the ASME OM Code for an IST Program interval.

SNC had initially requested that the proposed alternative be authorized for the life of the VEGP. The staff has determined it is more appropriate to authorize the proposed alternative for the duration of the first 120-month IST Program interval, which is expected to extend from November 23, 2020, to November 22, 2030. The staff discussed this during a public meeting held on January 23, 2020 (ADAMS Accession No. ML20027A231). After the public meeting, SNC revised the requested duration of the IST alternative to only include the initial 120-month IST Program interval. SNC made this revision by supplemental letter ND-20-0083, dated February 6, 2020 (ADAMS Accession No. ML20037A329).

Because construction schedules can by dynamic, the staff is providing a reasonable amount of flexibility to its authorization of the proposed alternative to account for potential schedule shifts. The staff's authorization of this proposed alternative is valid for VEGP Unit 4 initial fuel load dates prior to November 23, 2022, which bounds the dates forecast by SNC, but allows a reasonable amount of flexibility to account for small delays in the initial fuel loading for Unit 4. If an extended delay of initial fuel loading for VEGP Unit 4 occurs, such that the initial fuel load date for VEGP Unit 4 occurs after November 23, 2022, SNC will be required to update the initial IST Program interval for VEGP Unit 4 to comply with the requirements of the ASME OM Code incorporated by reference in 10 CFR 50.55a in accordance with the time period prior to initial fuel load specified in 10 CFR 50.55a.

Based on its review, the NRC staff finds that the SNC's proposed alternative to the IST Program Interval Code Edition requirements for VEGP Unit 4 will provide reasonable assurance of the operational readiness of the components in VEGP Unit 4 for the initial 120-month IST Program interval, for initial fuel load dates prior to November 23, 2022. The staff authorizes use of the 2012 Edition of the ASME OM Code, as incorporated by reference in 10 CFR 50.55a, for VEGP Unit 4, for its initial 120-month IST Program interval, as discussed above.

4.0 CONCLUSION

Based on the above evaluation, the NRC staff concludes that SNC's proposed alternative IST-ALT-01 provides an acceptable level of quality and safety. Therefore, the staff authorizes the use of the alternative request IST-ALT-01 for establishing the applicable Code Edition for the Initial IST Program Interval for VEGP Unit 4 for initial fuel load prior to November 23, 2022. All other ASME OM Code requirements as incorporated by reference in 10 CFR 50.55a for which relief from, or an alternative to, was not specifically requested and approved in this subject request remain applicable.

5.0 REFERENCES

1. VEGP 3&4-IST-ALT-01, “Request for Alternative: Alternative Requirements for Inservice Test Interval Code Edition, Unit 4,” dated October 31, 2019 (ADAMS Accession No. ML19304C432).

2. VEGP 3&4-IST-ALT-01R1, “Revision to Request for Alternative: Alternative Requirements for Inservice Test Interval Code Edition, Unit 4,” dated February 6, 2020 (ADAMS Accession No. ML20037A329).

3. Combined License NPF-91 for Vogtle Electric Generating Plant Unit 3, Southern Nuclear Operating Company, Revised January 24, 2020 (ADAMS Accession No. ML14100A106).

4. Combined License NPF-92 for Vogtle Electric Generating Plant Unit 4, Southern Nuclear Operating Company, Revised January 24, 2020 (ADAMS Accession No. ML14100A135).

5. NUREG-1482, Revision 2, “Guidelines for Inservice Testing at Nuclear Power Plants,” dated October 2013 (ADAMS Accession No. ML13295A020).

6. Vogtle Electric Generating Plant, Units 3 and 4, Updated Final Safety Analysis Report, dated June 14, 2019 (ADAMS Accession No. ML19171A096).

7. American Society of Mechanical Engineers *Operation and Maintenance of Nuclear Power Plants*, Division 1, OM Code: Section IST.