

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO REQUEST FOR ALTERNATIVE REQUIREMENTS

FOR INITIAL INSERVICE TEST PROGRAM INTERVAL CODE EDITION

(VEGP 3&4-IST-ALT-01R2)

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MEAG POWER SPVM, LLC

MEAG POWER SPVJ, LLC

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CITY OF DALTON, GEORGIA

VOGTLE ELECTRIC GENERATING PLANT, UNITS 3 AND 4

DOCKET NOS. 52-025 AND 52-026

1.0 INTRODUCTION

By letter dated October 31, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19304C432), and a supplement dated February 6, 2020 (ADAMS Accession No. ML20037A329), Southern Nuclear Operating Company, Inc. (SNC or licensee), requested U.S. Nuclear Regulatory Commission (NRC or Commission) approval of an alternative 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 Vogtle Electric Generating Plant (VEGP) Unit 4. In a letter dated March 2, 2020 (ADAMS Accession No. ML20045D487), the NRC authorized this alternative (VEGP-IST-ALT-01) for VEGP Unit 4 initial fuel load dates prior to November 23, 2022. By letter dated March 22, 2022 (ADAMS Accession No. ML22081A381), SNC submitted Alternative Request VEGP 3&4-IST-ALT-01R2 to the NRC to revise the previously authorized alternative. Specifically, the licensee proposed in VEGP 3&4-IST-ALT-01R2 to remove the latest date condition imposed in the authorization of VEGP-IST-ALT-01 and implement the 2012 Edition of the ASME OM Code as the OM Code of Record for the Initial IST Program intervals at both VEGP Units 3 and 4 on the basis that having a common ASME OM Code edition 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 Section 55a in Title 10, "Energy," of the *Code of Federal Regulations* (10 CFR 50.55a). The NRC staff describes its review of this request and its related aspects in this safety evaluation (SE).

2.0 REGULATORY EVALUATION

The NRC regulations in 10 CFR 50.55a(f)(4), "Inservice testing standards requirement for operating plants," state, 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.

The NRC regulations in 10 CFR 50.55a(f)(4)(i), "Applicable IST Code: Initial 120-month interval," state, 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 referenced in 10 CFR 50.55a(a)(1)(iv) on the date 18 months before the date scheduled for initial loading of fuel under a combined license under 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants."

The NRC regulations in 10 CFR 50.55a(f)(4)(ii), "Applicable IST Code: Successive 120-month intervals," state, 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 referenced in 10 CFR 50.55a(a)(1)(iv) 18 months before the start of the 120-month IST Program interval.

In a *Federal Register* notice dated August 28, 2007 (72 FR 49352), the Commission provided a final rule that included the 10 CFR 50.55a requirement for the applicable ASME OM Code edition to apply to the Initial 120-month IST Program interval for a nuclear power plant licensed under 10 CFR Part 52. In the *Federal Register* notice, the Commission discusses the scheduled date for initial fuel loading and its updated revisions for various requirements in 10 CFR Part 52. For example, the Commission specified that the scheduled date for initial fuel loading must be provided and then periodically updated to revise the scheduled date for fuel loading as necessary for the 10 CFR Part 52 requirements. The NRC staff considers this discussion in the *Federal Register* notice to apply to the date scheduled for initial fuel loading for a combined license under 10 CFR Part 52 as specified in 10 CFR 50.55a(f)(4)(i).

The NRC regulations in 10 CFR 50.55a(z) state, 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 the licensee to request and the Commission to authorize the alternative to the requirements in 10 CFR 50.55a(f)(4)(i).

3.0 TECHNICAL EVALUATION

3.1 Licensee's Alternative Request VEGP 3&4-IST-ALT-01R2

In VEGP 3&4-IST-ALT-01R2, the licensee requested to remove the latest date condition imposed in the authorization of VEGP-IST-ALT-01 and implement the 2012 Edition of the ASME

OM Code Edition as the OM Code of Record for the Initial IST Program intervals at both VEGP Units 3 and 4.

Proposed Alternative

The licensee stated the following:

SNC requests authorization of the alternative for the Unit 4 first interval concurrent with, and until the end of, the Unit 3 first interval. This ending of the applicability for the 2012 Edition of the OM Code for Unit 4 would continue to provide an acceptable level of quality and safety in accordance with 10 CFR 50.55a(z)(1).

Reason for Request

The licensee stated the following reason for its request:

The NRC staff authorization [of Alternative Request VEGP 3&4-IST-ALT-01] included a condition allowing the proposed alternative pursuant to 10 CFR 50.55a(z)(1) for VEGP Unit 4 for initial fuel load dates prior to November 23, 2022. As noted in discussions held with NRC staff during the March 17, 2022 public meeting, SNC has experienced unforeseen delays and although the current fuel load date for Unit 4 is prior to November 23, 2022, there is some risk that the initial fuel load moving beyond November 23, 2022, and thus, to provide some certainty in IST plan preparation and program procedure development, SNC is requesting removal of the condition of a latest date for use of the alternative for the initial Unit 4 IST interval.

Justification for Request

The licensee provided the following justification for its request:

As noted in the alternative request, having both units on the same Code Edition for their initial intervals allows both IST programs to be developed utilizing the same edition of the applicable Codes, which makes it less complicated for involved personnel to become familiar with the Code requirements, provides consistency for IST between the units, and reduces the effort associated with surveillance procedure revisions for the program update and for maintenance of the program documents.

The Code of Record established for Unit 3, ASME OM Code 2012 Edition, is in accordance with the 10 CFR 50.55a requirements and represents requirements established by the NRC to adequately test the equipment for safe plant operation. Applying a common Code edition to both Unit 3 and Unit 4 provides for common requirements which minimizes potential errors caused by having to maintain two separate program requirements for the two units. Additionally, based on the version of the Code applied for the Unit 3 IST program, the units will use the same Code Edition as that used for Preservice testing, which provides further consistency of preservice and inservice testing.

Per NUREG-1482, Revision 3, 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.”

These bases led to authorization of the alternative as providing an acceptable level of quality and safety in accordance with 10 CFR 50.55a(z)(1).

Finally, it is noted that the primary difference between the current IST Code of Record and an update to the 2017 Edition of the OM Code is Appendix IV for air operated valves (AOVs). Vogtle 3&4 UFSAR [Updated Final Safety Analysis Report] Subsection 3.9.6.4.5 describes the additional testing for AOVs previously included in the test program. As noted therein, the additional testing is performed as part of the AOV program, which includes the key elements for an AOV Program as identified in the Joint Owners Group (JOG) AOV program document, Revision 1, December 13, 2000. The AOV program incorporates the attributes for a successful power-operated valve long-term periodic verification program, as discussed in Regulatory Issue Summary 2000-03, Resolution of Generic Safety Issue 158: Performance of Safety-Related Power-Operated Valves Under Design Basis Conditions, by incorporating lessons learned from previous nuclear power plant operations and research programs as they apply to the periodic testing of air- and other power-operated valves included in the IST program. NRC is inspecting the AOV testing additions using Inspection Procedure (IP) 73758, including evaluating the additions against RIS 2000-03. As such, updating to the 2017 Edition would not significantly increase the level of safety and quality of the Unit 4 IST program.

Removing this alternative at this late date in the construction process would result in considerable burden without a corresponding increase in safety or quality. The Unit 3 IST program plan is complete utilizing the 2012 Edition, and efforts to-date are to develop procedures consistent with the IST program plan based on the 2012 Edition. With the resources required to complete Unit 3 construction, fuel load and power ascension, it would be a significant burden to develop a Unit 4 IST program to a different Code edition and develop or revise the Unit 4 procedures (this would essentially be a 10-year update prior to Unit 4 startup) and maintain the two units on different IST program plan update schedules over the life of the plants. Additionally, as previously discussed, having the two units on different editions creates an error likely situation for the periods where the two unit's IST program plans are based on different Code editions.

Both units are still on schedules such that Unit 4 initial fuel load is expected to follow Unit 3 initial fuel load by approximately one year. Allowing the two units to maintain consistent IST program plans will also reduce NRC burden as NRC is already reviewing the current plan and implementing procedures. The NRC staff will thus be able to apply results of Unit 3 inspection to the upcoming Unit 4 inspections if the plan is not required to be changed.

3.2 NRC Staff Evaluation

For a nuclear power plant with a combined license under 10 CFR Part 52, the NRC regulations in 10 CFR 50.55a(f)(4)(i) specify that the inservice tests conducted during the Initial 120-month IST Program interval must comply with the requirements in the latest edition of the ASME OM Code incorporated by referenced in 10 CFR 50.55a(a)(1)(iv) on the date 18 months before the date scheduled for initial loading of fuel. In VEGP 3&4-IST-ALT-01R2, the licensee proposes to apply the 2012 Edition of the ASME OM Code for VEGP Unit 4 concurrent with, and until the end of, the Unit 3 Initial 120-month IST Program interval on the basis that the alternative would provide an acceptable level of quality and safety in accordance with 10 CFR 50.55a(z)(1).

In VEGP 3&4-IST-ALT-01R2, the licensee discusses the development of the IST Program based on the 2012 Edition of the ASME OM Code for the Initial 120-month IST Program interval

at VEGP Units 3 and 4. Further, the licensee submitted the single combined IST Program Plan for VEGP Units 3 and 4 on April 7, 2022 (ADAMS Accession No. ML22097A331). Based on these submittals, the requirements in 10 CFR 50.55a(f)(4)(i), and the discussions of scheduled fuel load dates in the *Federal Register* notice dated August 28, 2007 (72 FR 49352), the NRC staff considers it appropriate to evaluate VEGP 3&4-IST-ALT-01R2 as a request to apply the 2012 Edition of the ASME OM Code as incorporated by reference in 10 CFR 50.55a as the OM Code of Record for the Initial 120-month IST Program interval for both VEGP Units 3 and 4.

As stated in NUREG-1482 (Revision 3), "Guidelines for Inservice Testing at Nuclear Power Plants," the NRC staff believes that conducting IST Programs for multiple unit sites using the same OM Code edition could provide an improvement in program effectiveness. In this instance, the licensee has developed the IST Program for the Initial 120-month IST Program interval at both VEGP Units 3 and 4 based on the 2012 Edition of the ASME OM Code as incorporated by reference in 10 CFR 50.55a. As a result, the NRC staff finds that the use of this edition of the ASME OM Code as the OM Code of Record for the Initial 120-month IST Program interval at VEGP Units 3 and 4 will minimize the potential for errors when performing inservice tests in both units. The NRC staff also finds that adverse safety impacts might occur if the IST Program that has been developed for both VEGP Units 3 and 4 is revised immediately prior to fuel loading.

In evaluating Alternative Request VEGP 3&4-IST-ALT-01R2, the NRC staff compared the 2012 Edition of the ASME OM Code to the 2017 Edition of the ASME OM Code recently incorporated by reference in 10 CFR 50.55a, which includes Appendix IV, "Preservice and Inservice Testing of Active Pneumatically Operated Valve Assemblies in Nuclear Reactor Power Plants." Based on NRC inspections of VEGP Units 3 and 4, the NRC staff has determined that the licensee is addressing the lessons learned from the operating experience and research testing for motor-operated valve (MOV) performance discussed in NRC Regulatory Issue Summary 2000-03. For example, the licensee is implementing the Joint Owners Group (JOG) Air-Operated Valve (AOV) Program with consideration of NRC staff comments on the JOG AOV Program for VEGP Units 3 and 4. At the successive 120-month IST Program interval, the licensee will be required by 10 CFR 50.55a(f)(4)(ii) to update the OM Code of Record for the IST Program at VEGP Units 3 and 4 to implement a more recent ASME OM Code edition (including Appendix IV) as incorporated by reference in 10 CFR 50.55a.

Based on its review, the NRC staff finds that VEGP 3&4-IST-ALT-01R2 to apply the 2012 Edition of the ASME OM Code as incorporated by reference in 10 CFR 50.55a as the OM Code of Record for the Initial 120-month IST Program interval at both VEGP Units 3 and 4 as an alternative to the schedule requirement in 10 CFR 50.55a(f)(4)(i) represents an acceptable level of quality and safety that will provide reasonable assurance of the operational readiness of the ASME OM Code components in accordance with 10 CFR 50.55a(z)(1).

4.0 CONCLUSION

Based on the above evaluation, the NRC staff concludes that VEGP 3&4-IST-ALT-01R2 provides an acceptable level of quality and safety in accordance with 10 CFR 50.55a(z)(1). Therefore, the staff authorizes the use of VEGP 3&4-IST-ALT-01R2 in establishing the 2012 Edition of the ASME OM Code as incorporated by reference in 10 CFR 50.55a as the OM Code of Record for the Initial 120-month IST Program Interval for VEGP Units 3 and 4 as an alternative to the schedule requirement in 10 CFR 50.55a(f)(4)(i). The applicability of the 2012 Edition of the ASME OM Code as incorporated by reference in 10 CFR 50.55a as the OM Code of Record for VEGP Unit 4 ends with the completion of the Initial 120-month IST Program

interval for VEGP Unit 3 so that the OM Code of Record will remain consistent for both VEGP Units 3 and 4. All other ASME OM Code requirements as incorporated by reference in 10 CFR 50.55a for which relief from, or an alternative to, were not addressed in this SE remain applicable.

5.0 REFERENCES

1. Southern Nuclear Operating Company, VEGP 3&4-IST-ALT-01 R2, "Revision to Request for Alternative: Alternative Requirements for Inservice Test Interval Code Edition, Unit 4," dated March 22, 2022 (ADAMS Accession No. ML22081A381).
2. U.S. Nuclear Regulatory Commission, "Vogtle Electric Generating Plant, Unit 4 – Request for Alternative Under Title 10 of the Code of Federal Regulations, Section 50.55a(z)(1): Alternative Requirements for Inservice Test Interval Code Edition, Unit 4 (IST-ALT-01)," dated March 2, 2020 (ADAMS Accession No. ML20045D487).
3. *Federal Register* Notice, "Licenses, Certifications, and Approvals for Nuclear Power Plants," Nuclear Regulatory Commission Final Rule, dated August 28, 2007 (72 FR 49352).
4. Southern Nuclear Operating Company, "Vogtle Electric Generating Plant, Units 3 and 4, Submittal of Inservice Testing Program Plan – 1st Interval, Version 2.0," dated April 7, 2022 (ADAMS Accession No. ML22097A331).
5. Combined License NPF-91 for Vogtle Electric Generating Plant Unit 3, Southern Nuclear Operating Company, Revised November 3, 2021 (ADAMS Accession No. ML14100A106).
6. Combined License NPF-92 for Vogtle Electric Generating Plant Unit 4, Southern Nuclear Operating Company, Revised March 17, 2022 (ADAMS Accession No. ML14100A135).
7. NUREG-1482, Revision 3, "Guidelines for Inservice Testing at Nuclear Power Plants," dated July 2020 (ADAMS Accession No. ML20202A473).
8. Vogtle Electric Generating Plant, Units 3 and 4, Updated Final Safety Analysis Report, dated June 15, 2021 (ADAMS Accession No. ML21179A130).
9. American Society of Mechanical Engineers *Operation and Maintenance of Nuclear Power Plants*, Division 1, OM Code: Section IST.
10. U.S. Nuclear Regulatory Commission, Regulatory Information Summary 2000-03, "Resolution of Generic Safety Issue 158: Performance of Safety-Related Power-Operated Valves Under Design Basis Conditions," dated March 15, 2000 (ADAMS Accession No. ML003686003).