

November 17, 2023

10 CFR 50.90

Docket Nos.: 50-424
50-425

NL-23-0827

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

Vogtle Electric Generating Plant – Units 1 and 2
Response to Requests for Additional Information for a License
Amendment Request and a Proposed Alternative Related to TS 3.4.14

Ladies and Gentlemen:

Pursuant to 10 CFR 50.90 and 10 CFR 50.55a, Southern Nuclear Operating Company (SNC) submitted a license amendment request (LAR) and a proposed alternative request for Vogtle Electric Generating Plant (Vogtle), Units 1 and 2 renewed facility operating licenses NPF-68 and NPF-81, respectively, via letter NL-23-0217 dated May 1, 2023 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML23121A267).

The proposed change would revise Technical Specification (TS) 3.4.14, “RCS Pressure Isolation Valve (PIV) Leakage” and Surveillance Requirement (SR) 3.4.14.1 to only require testing at the frequencies specified in the Inservice Testing Program in accordance with the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance (OM) of Nuclear Power Plants. This would effectively remove PIV testing at 18-month, nine-month, and event-based frequencies to conform with the ASME OM 2-year testing on applicable Vogtle PIVs. Additionally, SNC proposed an alternative to the requirements of ASME OM Code Section ISTC-3522, “Category C Check Valves,” and Subsection ISTC-3630(a) under Section ISTC-3630, “Leakage Rate for Other Than Containment Isolation Valves,” for applicable Vogtle PIVs to allow testing to be conducted at a performance-based frequency, as specified in Nuclear Engineering Institute 94-01, Revision 3-A.

On October 5, 2023, the NRC staff issued a Request for Additional Information (RAI) (ADAMS Accession No. ML23279A209) seeking clarifications related to the requested LAR and Proposed Alternative.

Enclosure 1 to this letter provides SNC responses to the RAI for the LAR, and Enclosure 2 provides SNC responses to the RAI for the proposed Alternative.

In accordance with 10 CFR 50.91, SNC is notifying the State of Georgia of this license amendment request by transmitting a copy of this letter and enclosure to the designated State Official.

Enclosure 1 to NL-23-0827

Response to Request for Additional Information for LAR to Revise TS SR 3.4.14.1

This letter contains no NRC commitments. If you have any questions, please contact Amy Chamberlain at 205.992.6361.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 17 day of November 2023.

Respectfully submitted,



Jamie Coleman
Regulatory Affairs Director

JMC/dsp/cbg

Enclosure 1: Response to Request for Additional Information for LAR to Revise TS SR 3.4.14.1

Enclosure 2: Response to Request for Additional Information for Alternative ALT-VR-02

cc: Regional Administrator
NRR Project Manager – Vogtle 1 & 2
Senior Resident Inspector – Vogtle 1 & 2
State of Georgia Environmental Protection Division
RType: CVC7000

**Vogtle Electric Generating Plant – Units 1 and 2
Response to Requests for Additional Information for a License
Amendment Request and a Proposed Alternative Request Related to TS 3.4.14**

Enclosure 1

Response to Request for Additional Information for LAR to Revise TS SR 3.4.14.1

On May 1, 2023, Southern Nuclear Operating Company (SNC) submitted a license amendment request (LAR) for Vogtle Electric Generating Plant (Vogtle), Units 1 and 2 renewed facility operating licenses NPF-68 and NPF-81, respectively, via letter NL-23-0217 (ADAMS) Accession No. ML23121A267. The proposed changes would revise Technical Specification (TS) 3.4.14, "RCS Pressure Isolation Valve (PIV) Leakage" and Surveillance Requirement (SR) 3.4.14.1 to only require testing at the frequencies specified in the Inservice Testing Program in accordance with the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance (OM) of Nuclear Power Plants. This would effectively remove PIV testing at 18-month, nine-month, and event-based frequencies to conform with the ASME OM 2-year testing on applicable Vogtle PIVs.

On October 5, 2023, the NRC staff issued a Request for Additional Information (RAI) (ADAMS Accession No. ML23279A209) seeking clarifications related to the requested LAR.

NRC RAI #1 (EMIB-LAR-RAI-1):

In the submitted LAR for VEGP, Enclosure 1, Section 1.1, Summary Description, states in part, that the proposed amendment would revise Technical Specification (TS) 3.4.14, "RCS Pressure Isolation Valve (PIV) Leakage," Surveillance Requirement (SR) 3.4.14.1, to only require testing at the frequencies specified in the Inservice Testing (IST) Program. Attachment 4 of the submittal provides a list of all the PIVs in the scope of this LAR. The NRC staff reviewed the PIVs listed in Attachment 4 and VEGP Units 1 and 2 IST Program Plan, and found the following apparent discrepancies:

VEGP Units 1 and 2 IST Program Plan includes the following PIVs to be tested at frequencies as specified by TS SR 3.4.14.1.

1/2-1204-U6-079	1/2-1204-U6-083
1/2-1204-U6-080	1/2-1204-U6-084
1/2-1204-U6-081	1/2-1204-U6-085
1/2-1204-U6-082	1/2-1204-U6-086

For other PIVs included in the LAR (Attachment 4), the VEGP IST Program Plan requires leakage tests without specifying TS SR 3.4.14.1 for the following valves:

1/2-HV-8701A/B	
1/2-HV-8702A/B	
1/2-1204-U4-143	1/2-1204-U6-147
1/2-1204-U4-144	1/2-1204-U6-148
1/2-1204-U4-145	1/2-1204-U6-149
1/2-1204-U4-146	1/2-1204-U6-150
1/2-1204-U4-120	
1/2-1204-U4-121	
1/2-1204-U4-123	
1/2-1204-U4-122	

Please provide the following information:

- a. Clarify the apparent discrepancy of the leakage testing of PIVs between the LAR, Attachment 4, and VEGP IST Program Plan (ML17298A197) as specified above.
- b. Clarify if the IST Program will be updated based on the above.
- c. Clarify if the TS SR 3.4.14.1 requirement will be deleted from the VEGP IST Program Plan after approval of this LAR.

SNC RAI #1 (EMIB-LAR-RAI-1) Response:

- a. The IST Program Plan (ML17298A197) includes Note 4 for the following valves listed in Attachment 4 of the LAR:

1/2-1204-U6-079
1/2-1204-U6-080
1/2-1204-U6-081
1/2-1204-U6-082
1/2-1204-U6-083
1/2-1204-U6-084
1/2-1204-U6-085
1/2-1204-U6-086

Note 4 states that these PIVs are tested at the frequencies specified in TS SR 3.4.14.1.

The IST Program Plan references procedure 14450-1/2, respectively, for the remaining PIVs listed in Attachment 4 of the LAR, namely:

1/2-HV-8701A/B
1/2-HV-8702A/B
1/2-1204-U4-143
1/2-1204-U4-144
1/2-1204-U4-145
1/2-1204-U4-146
1/2-1204-U6-147
1/2-1204-U6-148
1/2-1204-U6-149
1/2-1204-U6-150
1/2-1204-U4-120
1/2-1204-U4-121
1/2-1204-U4-123
1/2-1204-U4-122

Procedure 14450-1/2, RCS Pressure Isolation Valve Inservice Leak Test, Section 1.2, states: "The purpose of this procedure is to provide instructions to demonstrate that the leakage of the Reactor Coolant System (RCS) Pressure Isolation Valves (PIVs) is within limits in accordance with Technical Specification SR 3.4.14.1."

All valves listed in Attachment 4 of the LAR are tested the satisfy the requirements of TS 3.4.14.1.

Enclosure 1 to NL-23-0827

Response to Request for Additional Information for LAR to Revise TS SR 3.4.14.1

- b. The IST Program Plan will be revised following NRC approval, to clarify that testing of the other PIVs listed in Attachment 4 is required to satisfy TS SR 3.4.14.1.
- c. Following NRC approval of the LAR, reference to TS 3.4.14.1 will remain in the IST Program Plan for the valves listed in Attachment 4.

**Vogtle Electric Generating Plant – Units 1 and 2
Response to Requests for Additional Information for a License
Amendment Request and a Proposed Alternative Request Related to TS 3.4.14**

Enclosure 2

Response to Request for Additional Information for Alternative ALT-VR-02

On May 1, 2023, Southern Nuclear Operating Company (SNC) submitted a proposed alternative request ALT-VR-02 for Vogtle Electric Generating Plant (Vogtle), Units 1 and 2 via letter NL-23-0217 (ADAMS) Accession No. ML23121A267. SNC proposed an alternative to the requirements of ASME OM Code Section ISTC-3522, "Category C Check Valves," and Subsection ISTC-3630(a) under Section ISTC-3630, "Leakage Rate for Other Than Containment Isolation Valves," for applicable Vogtle PIVs to allow testing to be conducted at a performance-based frequency, as specified in Nuclear Engineering Institute 94-01, Revision 3-A.

On October 5, 2023, the NRC staff issued a Request for Additional Information (RAI) (ADAMS Accession No. ML23279A209) seeking clarifications related to the Proposed Alternative.

NRC RAI #1 (EMIB-RAI-1):

Alternative Request ALT-VR-02, Section 4.0, "Reason for Change," on page E-2-2, first and second paragraph, states, in part, that:

In accordance with 10 CFR 50.55a, "Codes and standards," paragraph (z)(1), "Alternatives to codes and standards requirements," Southern Nuclear Operating Company (SNC) proposes an alternative to the requirements of ASME OM Code Section ISTC-3522, "Category C Check Valves," and Subsection ISTC-3630(a) under Section ISTC-3630, "Leakage Rate for Other Than Containment Isolation Valves," for the subject pressure isolation valves (PIVs) listed in Table 1. Approval of this alternative will allow PIV testing to be performed at the Vogtle Electric Generating Plant (VEGP) on a performance-based frequency.

Since pressure isolation valves (PIVs) may or may not be containment isolation valves, they are not necessarily included in scope for performance-based testing, as provided in 10 CFR 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," Option B, "Performance-Based Requirements." The reason for this 10 CFR 50, Appendix J, Option B alternative for containment isolation valve testing is for VEGP to adopt cost effective methods, including the setting of test intervals, for complying with regulatory requirements. Nuclear Energy Institute (NEI) 94-01, "Industry Guideline for Implementing Performance Based Option of 10 CFR 50, Appendix J," Revision 3-A (Reference 1), describes a risk-informed basis for extending containment isolation valve test intervals under Option B.

ASME OM Code, Subsection ISTC, paragraph ISTC-3630, "Leakage Rate for other than Containment Isolation Valves," requires that ASME OM Code Category A Valves with leakage requirements not based on an Owner's 10 CFR Part 50, Appendix J Program shall be tested to verify their seat leakage within the acceptable limits.

The NRC staff approved the use of NEI 94-01, Revision 3-A, with conditions (ML12226A546) for PIVs other than containment isolation valves (CIVs) testing intervals in lieu of the ASME OM Code, Subsection ISTC, paragraph ISTC-3630(a) requirement of at least once every 2 years.

- a. As described in the first paragraph of Section 4.0 above, explain whether Alternative Request ALT-VR-02 for ASME OM Code, Subsection ISTC, paragraph ISTC-3630, includes any PIVs that are CIVs.

- b. As described in the first and second paragraphs of the Section 4.0 above, explain how Alternative Request ALT-VR-02 for use of NEI 94-01 for PIVs is applicable to any CIVs in the request.

SNC Response to NRC RAI #1 (EMIB-RAI-1):

- a. Alternative Request ALT-VR-02 is specific to PIVs that are being leakage tested at least once every 2 years in accordance with ISTC-3630(a), frequency. CIVs tested to meet ISTC-3620, Containment Isolation Valves, are not listed in Alternative Request ALT-VR-02.
- b. Alternative Request ALT-VR-02 does not list any CIVs tested per ISTC-3620, Containment Isolation Valves.

NRC RAI #2 (EMIB-RAI-2):

Alternative Request ALT-VR-02, Section 4.0, "Reason for Request," on page E-2-3, last two paragraphs, state, in part, that:

The performance of PIV leak rate testing provides assurance of acceptable seat leakage with the valve in a closed condition. For check valves, functional testing is accomplished per ASME OM Code ISTC-3522, "Category C Check Valves," under ISTC-3520, "Exercising Requirements." Power-operated valves are routinely full stroke tested per ASME OM Code ISTC-5100, "Power-Operated Valves," to ensure their functional capabilities. Upon approval of this alternative, the closure functional testing of the PIV check valves will be monitored through a Condition Monitoring Plan in accordance with ISTC-5222, "Condition-Monitoring Program."

The use of a Condition Monitoring Plan is intended to align the frequency for the closure exercise testing with the pressure isolation valve test. By use of a Condition Monitoring Plan, the check valve closure test, based on performance, would be verified concurrently with the PIV seat leakage test. The frequency of the check valve closure test would then be the same as the PIV seat leakage test since closure performance and seat leakage performance are linked. The PIV seat leakage test would not pass if the valve failed to close.

The licensee states that upon approval of this alternative, the closure functional testing of the PIV check valves will be monitored through a Conditioning Monitoring Plan in accordance with ASME OM Code, Subsection ISTC, paragraph ISTC-5222. Please explain the following:

- a. Vogtle 1 and 2 Fourth 10-Year IST Program Plan dated October 23, 2017, (ML17298A197) indicates that the PIV check valves included in Alternative Request ALT-VR-02 are already included in a Condition Monitoring Program. Explain the statement that "the PIV check valves will be monitored through a Condition Monitoring Plan."
- b. Explain the implementation of the provisions in ASME OM Code, Appendix II, "Check Valve Condition Monitoring Program," for the PIV check valves at Vogtle Units 1 and 2.

SNC Response to NRC RAI #2 (EMIB-RAI-2):

- a. Following NRC approval of Alternative Request ALT-VR-02, impacts to the IST program due to this Alternative will be implemented, including the Check Valve Condition Monitoring (CVCM) plans, to allow performance-based leakage testing in accordance with the requirements of NEI-94-01, Rev. 3A.
- b. Following NRC approval of Alternative Request ALT-VR-02, impacts to the IST program due to this Alternative will be implemented, including the CVCM plans for the PIV check valves at Vogtle Units 1 and 2 that are listed in Attachment 4 of the LAR. Leakage testing of these PIVs will specify in the CVCM plan that it is performed to meet the guidance of NEI 94-01, Rev 3-A. Other provisions specified in ASME OM Code, Appendix II, such as groupings, analysis, condition-monitoring activities, corrective maintenance, and documentation will be documented accordingly in the CVCM plan.

NRC RAI #3 (EMIB-RAI-3):

Alternative Request ALT-VR-02, Section 5.0, "Proposed Alternative and Basis for Use," fourth paragraph, on page E-3-3, states, in part, that:

The functional capability of the check valves is demonstrated by exercise testing which consist of open and close tests. The open testing is separate and distinct from the PIV testing and is currently performed in accordance with the Condition Monitoring Program, currently every 54 months. The close testing will take credit for the PIV leak rate testing and will be on the same frequency as the PIV leak rate testing. The fact that the PIVs exhibit excellent historical performance (i.e., none of the check valve test results have exceeded the Required Action Limit) shows that the Category A/C check valves are exhibiting the required obturator movement to close and remain closed.

Explain how the Condition Monitoring Program interval as specified in Table II-4000-1, "Maximum Intervals for Use When Applying Interval Extensions," of ASME OM Code, Appendix II, will align with the NEI 94-01 interval if the alternative is authorized by NRC.

SNC Response to NRC RAI #3 (EMIB-RAI-3):

Following NRC approval of ALT-VR-02, leakage testing frequencies for PIV check valves with consecutive good performance will be increased using NEI 94-01, Rev 3-A, maximum frequency of every 75 months with a permissible extension (for non-routine emergent conditions) of nine months (84 months total). Table II-4000-1 will not be used for PIV leakage testing frequencies as the frequency in NEI 94-01 Rev, 3-A is more conservative than Table II-4000-1.

NRC RAI #4 (EMIB-RAI-4):

Alternative Request ALT-VR-02, Section 7.0, "Precedent," lists several alternatives recently authorized by the NRC staff for licensees of other nuclear power plants that are said to have used a "similar" approach to Alternative Request ALT-VR-02 for Vogtle Units 1 and 2. Describe any differences in the provisions of Alternative Request ALT-VR-02 for Vogtle Units 1 and 2 in comparison to the most recent alternative (River Bend) authorized by the NRC staff in 2022.

SNC Response to NRC RAI #4 (EMIB-RAI-4):

The main differences between the River Bend alternative and the Vogtle alternative are as follows:

1. Vogtle Alternative Request ALT-VR-02 is applicable to 30 PIVs for Vogtle's two units. River Bend Alternative VRR-RBS-2021-1 is applicable to 13 PIVs for River Bend's single unit.
2. The Vogtle Alternative Request includes valve test data from eight (8) consecutive refueling outages. The River Bend Alternative includes valve test data from five (5) consecutive refueling outages.
3. The Vogtle Alternative Request states the check valve condition monitoring program is already being used whereas the River Bend Alternative Request states that check valves are tested in accordance with ASME OM Code Section ISTC.

Other than the above, the Vogtle and River Bend Alternative Requests are essentially the same.