



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

September 20, 2021

**WATTS BAR NUCLEAR PLANT, UNIT 1 – AUTHORIZATION AND SAFETY EVALUATION
FOR ALTERNATIVE REQUEST NO. IST-RR-9 (EPID L-2021-LLR-0031)**

LICENSEE INFORMATION

Recipient's Name and Address: Mr. James Barstow
Vice President, Nuclear Regulatory Affairs
and Support Services
Tennessee Valley Authority
1101 Market Street, LP 4A-C
Chattanooga, TN 37402-2801

Licensee: Tennessee Valley Authority

Plant Name(s) and Unit(s): Watts Bar Nuclear Plant, Unit 1

Docket No(s): 50-390

APPLICATION INFORMATION

Submittal Date: April 26, 2021

**Submittal Agencywide Documents Access and Management System (ADAMS)
Accession No.:** ML21117A387

**Applicable Inservice Inspection (ISI) or Inservice Testing (IST) Program Interval and
Interval Start/End Dates:** Third 10-Year IST Interval, October 19, 2016 to October 18, 2026

Alternative Provision: The applicant requested an alternative under Title 10 of the *Code of Federal Regulations* (10 CFR), "Codes and standards," paragraph 50.55a(z)(2).

ISI or IST Requirement: American Society of Mechanical Engineers (ASME) Operation and Maintenance (OM) Code, Division 1, Mandatory Appendix I, "Inservice Testing of Pressure Relief Devices in Light-Water Reactor Nuclear Power Plants," Section I-1350(a), "Test Frequency, Classes 2 and 3 Pressure Relief Valves 10-Year Test Interval."

Applicable Code Edition and Addenda: ASME OM Code 2004 Edition through 2006 Addenda

Brief Description of the Proposed Alternative: In accordance with 10 CFR 50.55a(z)(2), Tennessee Valley Authority (TVA) requests Nuclear Regulatory Commission (NRC) approval of alternative request IST-RR-9 for Watts Bar Nuclear Plant (Watts Bar), Unit 1. This alternative request proposes a one-time extension of the test frequency for the Watts Bar, Unit 1 Test Plan Group 6 relief valves 1-RFV-62-1221, 1-RFV-62-1222, and 1-RFV-63-835. The 2004 Edition through 2006 Addenda of the American Society of Mechanical Engineers (ASME) Operation and Maintenance (OM) Code, Mandatory Appendix I, Subsection I-1350(a),

“Test Frequency, Classes 2 and 3 Pressure Relief Valves 10-Year Test Interval,” mandates, in part, that a minimum of 20 percent of the valves from each valve group shall be tested within any 48-month interval. Additionally, Code Case OMN-20, “Inservice Test Frequency,” permits a 6-month grace period for test frequencies that are greater than or equal to 2 years. Because of a change to the schedule for the upcoming Watts Bar, Unit 1 Cycle 17 refueling outage (U1R17) in the fall of 2021, TVA is requesting an approximate 6-week extension for the test frequency of these relief valves from the current late date of October 12, 2021, until no later than the end of U1R17, currently scheduled for November 27, 2021.

Compliance with Mandatory Appendix I, Subsection I-1350(a) would cause a hardship or unusual difficulty without a compensating increase in the level of quality or safety due to the need to perform a mid-cycle shutdown in order to perform the required testing. Therefore, TVA is submitting this alternative request in accordance with 10 CFR 50.55a(z)(2).

For additional details on the licensee’s request, please refer to the documents located at the ADAMS Accession Number identified above.

STAFF EVALUATION

Subparagraph I-1350(a) of Mandatory Appendix I to the ASME OM Code mandates that Classes 2 and 3 relief valves shall be tested every 10 years. In addition, a minimum of 20 percent of the valves in a group shall be tested within any 48-month interval. Relief valves 1-RFV-62-1221, 1-RFV-62-1222, and 1-RFV-63-835 in Test Plan Group 6 are scheduled to be tested during U1R17; originally scheduled to begin September 18, 2021, and end October 18, 2021. Testing the three relief valves during this time period would meet the test interval in I-1350(a) after applying the 6-month grace extension allowed by Code Case OMN-20. The test interval would be 54 months.

The licensee changed the U1R17 schedule so that the refueling outage now begins on October 29, 2021 and ends on November 27, 2021. This means that the three valves will exceed the 54 month test interval by approximately 6 weeks and the licensee would have to perform a mid-cycle shutdown to test the valves and comply with Subparagraph I-1350(a) of Mandatory Appendix I. The NRC staff finds that performing a mid-cycle shutdown to test the three relief valves is a hardship.

The licensee requests to delay the testing of the three valves approximately 6 weeks so that the valves can be tested during U1R17. With this delay in testing, the three valves will still meet the requirement in Subparagraph I-1350(a) of Mandatory Appendix I that they be tested every 10 years. The licensee stated that five valves from Test Plan Group 6 were tested in 2017. There was one failure in this test sample, and none of the three valves listed above were tested. Also, the licensee stated that there have been 38 as-found set point tests performed for the Test Plan Group 6 valves since 1995, and there were three test failures. None of the failures involved the three valves listed above. The three valves listed above were last pressure tested in 2012, and all three valves were tested successfully.

Based on the information described above for relief valves 1-RFV-62-1221, 1-RFV-62-1222, and 1-RFV-63-835, identified in the licensee’s submittal, the NRC staff finds that (1) previous testing of these relief valves indicate their acceptable historical performance; (2) no current concerns with the performance of these relief valves have been identified; and (3) periodic maintenance activities are not modified by this request.

CONCLUSION

The NRC staff has determined that complying with the specified requirements described in the licensee's request referenced above would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

The proposed alternative provides reasonable assurance that relief valves 1-RFV-62-1221, 1-RFV-62-1222, and 1-RFV-63-835 are operationally ready.

The NRC staff concludes that the licensee has adequately addressed the regulatory requirements set forth in 10 CFR 50.55a(z)(2).

The NRC staff authorizes the use of proposed alternative IST-RR-9 at Watts Bar, Unit 1, from October 12, 2021, until no later than the end of U1R17, currently scheduled for November 27, 2021.

All other ASME OM Code requirements for which an alternative was not specifically requested and approved remain applicable.

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Date: September 20, 2021

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**WATTS BAR NUCLEAR PLANT, UNIT 1 – AUTHORIZATION AND SAFETY EVALUATION
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