
Watts Bar Nuclear Plant

Watts Bar Nuclear Plant (WBN)
Pre-submittal Meeting for Inservice Testing (IST) Program Request for One-Time Extension of
Test Frequency of WBN Unit 1 Group 6 Relief Valves

April 7, 2021

Agenda

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Introduction

- Purpose of the meeting is to provide information for a planned request for relief due to hardship from the ASME OM Code for a one-time extension of the test frequency for the WBN Unit 1 Group 6 Relief Valves 1-FCV-62-1221, 1-RFV-62-1222, and 1-RFV-63-835.
- Because of a change to the schedule for the upcoming WBN Unit 1 Cycle 17 refueling outage (U1R17) scheduled for Fall 2021, TVA is requesting an approximate six-week extension for the test frequency of these valves from the current late date of October 12, 2021, until no later than the end of U1R17, currently scheduled for November 27, 2021.
- Without this relief, TVA would be required to perform a mid-cycle outage to perform the OM Code required testing.

Description of Valves

Site/ Unit	Component ID	Component Description	Valve Category	Code Class	Test Plan Group*
WBN Unit 1	1-RFV-62-1221	Centrifugal Charging Pump (CCP) 1A-A Suction Relief	C-Active	2	6
WBN Unit 1	1-RFV-62-1222	CCP 1B-B Suction Relief	C-Active	2	6
WBN Unit 1	1-RFV-63-835	Residual Heat Removal (RHR) Heat Exchanger 1B-B Outlet to Safety Injection (SI) Pump Suction Relief	C-Active	2	6

* The Test Plan Group 6 (hereafter referred to as Group 6) relief valves contains 13 valves including the valves listed in the above table

Applicable Code Requirement

- ASME 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", states "Classes 2 and 3 pressure relief valves, with the exception of PWR main steam safety valves, shall be tested every 10 years, starting with initial electric power generation. No maximum limit is specified for the number of valves to be tested during any single plant operating cycle; however, a minimum of 20% of the valves from each valve group shall be tested within any 48-month interval."
- Code Case OMN-20 allows a 6-month extension for test frequencies ≥ 2 years.

Reason for Request

- During the U1R16 outage in Spring 2020, it was discovered that the valves were not scheduled to be tested.
- Because planned work during this outage was limited due to the Covid-19 pandemic and that the valves would remain in frequency by invoking the six-month grace period allowed by Nuclear Regulatory Commission (NRC)-approved Code Case OMN-20, testing of these valves was extended to U1R17 (Fall 2021).

Reason for Request

- Group 6 was last sampled during U1R14 in Spring 2017. The last three test dates during U1R14 were April 8, 2017, (one valve) and April 9, 2017, (two valves). Utilizing the April 8, 2017, date and applying 54 months results in a late date of October 12, 2021, for the next sample testing of the Group 6 valves.
 - This date was calculated using definition for annually in the WBN Unit 1 TS 5.7.2.11, “Inservice Testing Program,” and OMN-20 for annually (366 days) (multiplied by four years) and semiannually (184 days) for a total of 1648 days.
- WBN U1R17 was originally scheduled to begin September 18, 2021, and end October 18, 2021, which would have allowed the valve testing to occur within the 48-month interval plus the six months grace of Code Case OMN-20.

Reason for Request

- WBN U1R17 was originally scheduled to be followed by Sequoyah Nuclear Plant (SQN) U2R24, which was scheduled to commence on October 23, 2021.
- However, TVA decided to change the sequence of the WBN U1R17 and SQN U2R24 outages. The current WBN U1R17 outage is now scheduled to commence on October 29, 2021 and end November 27, 2021.
- Therefore, the relief valves that are the subject of this alternative request will exceed the allowable 54-month window by no greater than six-weeks (i.e., from October 12, 2021 to no later than November 27, 2021).

Valve Test History and Results

The individual test history of the three valve locations associated with this request is:

- 1-RFV-62-1221 was last tested in U1R11 (Fall 2012). The valve was removed from the field, set-pressure tested acceptably on September 26, 2012, and was replaced with a pre-tested spare valve, which was set-pressure tested on July 23, 2012.
- 1-RFV-62-1222 was last tested in U1R11. The valve was removed from the field, set-pressure tested acceptably on September 18, 2012, and was reinstalled in the same location.
- 1-RFV-63-835 was last tested in U1R11. The valve was removed from the field and set-pressure tested acceptably on October 6, 2012, and was replaced with a pre tested spare valve, which was set-pressure tested on October 5, 2012.
- None of these valves will exceed the ten-year test-to-test interval.

Valve Test History and Results

- WBN typically performs Class 2 and 3 relief valve testing by utilizing Mandatory Appendix I, Section I-1350(b), “Replacement With Pretested Valves.” The test history of this group for the past six fuel cycles records a total of five valves tested in each of the following three refueling outages: U1R11 (Fall 2012), U1R13 (Fall 2015), and U1R14 (Spring 2017), which represents 100% of the Group 6 relief valve population.
- Of the 15 valves tested in these three outages, there were two set-pressure test failures; one in U1R11 and one in U1R14, neither of which involve the relief valves that are the subject of this alternative request.
- Of the 15 valves tested, 13 of the valves were tested using the allowance for replacement with a pretested spare and two valves were pulled from their installed location, tested, and reinstalled in the same location.

Acceptability of the Test Frequency Extension

- As previously noted, the relief valves that are the subject of this alternative request will remain within the ten-year test-to-test interval.
- Therefore, increasing the test frequency by no greater than six weeks will not adversely affect plant safety and will have no quantifiable increase in plant risk.

Description of Hardship

- The WBN Group 6 relief valves are tested during refueling outages due to the discharge piping being routed to the pressurizer relief tank inside containment.
- Removal of the valves for testing or replacement creates a breach in a closed containment, which places the unit in a one hour Completion Time in accordance with WBN Unit 1 Technical Specification (TS) 3.6.1, “Containment.”
- Testing of the valves by the current required due date of October 12, 2021, would necessitate a mid-cycle outage to perform the testing.
- The next opportunity to perform the OM code required testing is the next scheduled refueling outage (U1R17), scheduled to commence on October 29, 2021 .

Proposed Alternative and Duration

- TVA is requesting a one-time extension to the testing frequency of ASME OM Code, Division 1, Mandatory Appendix I, Section I-1350(a) and the six-month grace period allowed by OMN-20 in order to perform the testing of the subject valves during WBN U1R17.
- The duration of the proposed alternative request will be through the completion of WBN U1R17, which is currently scheduled to be completed by November 27, 2021 (an approximate 6-week extension at the latest).

Precedents

- WBN Unit 1 Relief Request PV-05 dated July 29, 2010 (ML102090015), which granted a one-time six month extension to the test interval for two pressure relief valves; one in the essential raw cooling water system and one in the component cooling system.
- Point Beach Nuclear Plant Unit 1 - Relief Request VR-01 dated June 24, 2015 (ML15161A535), which granted a one-time seven month extension for the 1B reactor coolant pump component cooling water return header relief valve.
- Perry Nuclear Power Plant Relief Requests VR-4, VR-6 and VR-8 dated February 8, 2021 (ML21039A409), which requested a one-time approximate two-year extension of exercising test frequency, position verification testing, and valve test frequency for 35 valves due to coronavirus disease 2019 (COVID-19). NRC granted verbal approval of this alternative request on March 4, 2021 (ML21063A192, ML21063A195, and ML21063A198).

Schedule for Submittal

- TVA to submit request for relief to NRC by April 21, 2021
- TVA requests NRC approval by October 1, 2021.



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