



Tennessee Valley Authority
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R. M. Krich
Vice President
Nuclear Licensing

July 1, 2010

10 CFR 50.4
10 CFR 50.55a

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

Watts Bar Nuclear Plant, Unit 1
Facility Operating License No. NPF-90
NRC Docket No. 50-390

Subject: **American Society of Mechanical Engineers Request for Relief PV-02, Revision 1**

Reference: Letter from NRC to TVA, "Watts Bar Nuclear Plant, Unit 1 - Requests for Relief for the Second 10-Year Pump and Valve Inservice Testing Program (TAC Nos. MD2527, MD2528, MD2529, and MC2530)," dated March 9, 2007

In accordance with 10 CFR 50.55a, "Codes and Standards," the Tennessee Valley Authority (TVA) requests NRC approval of Request for Relief PV-02, Revision 1. The original version of PV-02 was authorized by the NRC in the safety evaluation issued March 9, 2007 (Reference).

The Code of Record for the current second 10-year interval is American Society of Mechanical Engineers/American National Standards Institute, "Code for Operation and Maintenance (O&M) of Nuclear Power Plants," 2001 Edition through 2003 Addenda.

The revision to PV-02 requests authorization to include relief from the "preservice" testing requirements of ISTB-5210(a) in addition to relief from the "inservice" testing requirements as authorized in the original version of PV-02. The "Basis for Relief" is unchanged from the original relief request because the basis is applicable to both preservice and inservice testing.

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In addition to the "preservice" requirements, the revision to PV-02 also corrects the O&M Code reference from section ISTB-5121(b) to section ISTB-5221(b). ISTB-5121(b) is in the O&M Code section for "Centrifugal Pumps (excluding vertical line-shaft pumps)," whereas the correct reference should be ISTB-5221(b) which is for "Vertical Line-Shaft Pumps." The Essential Raw Cooling Water (ERCW) Screen Wash Pumps, for which we are requesting this revised relief, are vertical line-shaft pumps. The sections are essentially the same with only minor changes associated with the pump type. Identification of this correction has been entered in TVA's Corrective Action Program.

The request for relief is provided in the enclosure. The revised portions are shown in bold italic text.

TVA requests approval of this request for relief by September 1, 2010, in order to permit elimination of preservice testing during the replacement of the ERCW Screen Wash Pump, 1-PMP-67-431, currently scheduled for the week of September 14, 2010.

This relief request was discussed with representatives of NRC on June 22, 2010.

There are no commitments associated with this submittal. If you have any questions about this change, please contact Kevin Casey at (423) 751-8523.

Respectfully,

Handwritten signature in black ink, appearing to read "R. M. Krich" with "for" written below it.

R. M. Krich

Enclosure

cc: (Enclosure):

NRC Regional Administrator – Region II
NRC Resident Inspector – Watts Bar Nuclear Plant

Enclosure

Tennessee Valley Authority Watts Bar Nuclear Plant, Unit 1 Second 10-Year Interval

REQUEST FOR RELIEF PV-02, REVISION 1

Systems/Components For Which Relief Is Requested

Code Class 3 Essential Raw Cooling Water Screen Wash Pumps:

- 1-PMP-67-431-A (reference drawing 1-47W845-1)
- 1-PMP-67-440-B (reference drawing 1-47W845-1)
- 2-PMP-67-437-A (reference drawing 1-47W845-1)
- 2-PMP-67-447-B (reference drawing 1-47W845-1)

Applicable Code Edition and Addenda

For the current, second 10-year inservice testing (IST) interval, the applicable Code edition is the American Society of Mechanical Engineers (ASME), "Code for Operation and Maintenance of Nuclear Power Plants" (ASME OM Code), 2001 Edition through 2003 Addenda. The second interval began on May 27, 2007 and will end on May 26, 2016, which will return the Watts Bar Nuclear Plant (WBN) IST intervals to the original 10-year schedule, as the first interval was extended to 11 years.

Applicable Code Requirement

ASME OM Code, 2001 Edition through 2003 Addenda, ISTB-5210, "Preservice Testing," (a), "In systems where resistance can be varied, flow rate and differential pressure shall be measured at a minimum of five points. If practicable, these points shall be from pump minimum flow to at least pump design flow. A pump curve shall be established based upon the measured points. At least one point shall be designated as the reference point(s). Data taken at the reference point will be used to compare the results of inservice tests. A pump curve need not be established for pumps in systems where the resistance cannot be varied."

ASME OM Code, ***ISTB-5221(b)***, "The resistance of the system shall be varied until the flow rate equals the reference point. The differential pressure shall be determined and compared to its reference value. Alternatively, the flow rate shall be varied until the differential pressure equals the reference point and the flow rate determined and compared to the reference flow rate value."

Code Requirement From Which Relief Is Requested

Relief is being requested from:

1. Measuring flow rate and differential pressure at five points during **Preservice Testing and** establishment of a pump curve, and
2. Measuring the pump flow rate during **Preservice or** Inservice Testing of the Screen Wash Pumps.

Basis for Relief

No in-line instrumentation exists to measure flow and the physical configuration of the pump and piping does not allow the use of portable flow measuring equipment such as ultrasonics. Piping from the discharge of the screen wash pumps is open-ended to the spray nozzles at the traveling screen and is relatively short with multiple elbows, reducers, and valves in different planes. The physical configuration of this piping system is such that no portion of the piping meets the requirements for adequate installation of a permanent flow measuring device. Therefore, measured flow readings from an installed device may not be repeatable nor representative of actual pump flow. Significant system modifications, such as piping rerouting and support redesign, would be required to obtain a configuration that would provide reliable flow readings.

Flow is not the critical parameter for these pumps. The nature of their operation is to ensure that sufficient pressure is maintained at the spray nozzles during flushing operations of the traveling water screens to ensure that sufficient force is exerted on the debris accumulated on the screen to remove it. This can be verified by verifying the effectiveness of the flushing operation.

Maintenance history was reviewed for spray nozzle plugging and it was determined that nozzle plugging is infrequent. The spray nozzles are inspected by operations personnel during spray operation with corrective maintenance initiated as required.

Alternative Examinations

Testing will be performed by setting the system resistance to the same point for each test with the throttle valves full open. Flow will not be measured. The remaining variable that could affect system resistance is the spray nozzles. The condition of the spray nozzles will be inspected during each test performance with corrective actions initiated as necessary, thus providing assurance that the spray nozzle condition will not affect flow rate. With system resistance maintained constant for each test, pump degradation would be identified through changes in differential pressure. Differential pressure is calculated using inlet (based on lake level or suction pressure) and discharge pressure. The pump will be trended for degradation based on differential pressure at this point. Vibration readings will also be taken at this reference point. The pumps will be tested in this manner for the **Preservice, and** the quarterly Group A and the biennial Comprehensive inservice tests.

Instrument accuracy and acceptance criteria for pump differential pressure and vibration will meet the requirements of Table ISTB-3500-1 and Table ISTB-5200-1, respectively, for the appropriate test type.

Preservice test data for differential pressure and vibration data will be evaluated to verify it represents acceptable pump operation and will be used as reference values for subsequent quarterly Group A and Comprehensive tests.

Justification for the Granting of Relief

Based upon the above discussion, the alternative test provides an acceptable level of quality and safety. Authorization to implement the proposed alternative is requested in accordance with 10 CFR 50.55a(3)(i).

Revision 0 of this Request for Relief was authorized by letter from Margaret H. Chernoff, Acting Branch Chief Plant Licensing Branch, to Karl W. Singer dated March 9, 2007. The attached Safety Evaluation transmitted by this letter authorized the use of Relief Requests PV-01, PV-02, PV-03, and PV-04 for the Second Inservice Interval at WBN.

Implementation Schedule

This proposed alternative is requested for the Second Inservice Interval.