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Michael E. Mason
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Waterford 3

W3F1-2012-0063

August 3, 2012

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Subject: Waterford 3 Relief Request VRR-WF3-2012-1 Associated with Category A Leak Test of Check Valve ACC-108B
Waterford Steam Electric Station, Unit 3
Docket No. 50-382
License No. NPF-38

Dear Sir or Madam:

Pursuant to 10 CFR 50.55a(f)(5)(iii), Entergy Operations, Inc. (Entergy) requests NRC approval of relief request number VRR-WF3-2012-1, the details of which are contained in the attachment.

In summary, Waterford 3 is requesting a one-time relief that will allow an alternative to the requirement to perform a Category A Leak Test on Auxiliary Component Cooling Water (ACCW) Pump B Discharge Line Check Valve (ACC-108B). Currently the Category A Leak Test on ACC-108B is required to be performed in any plant mode by August 21, 2012. The request dictates that the alternative Inservice Test of ACC-108B will be completed during a unit shutdown prior to startup from RF18, which is scheduled to begin in October 2012.

Pending the conclusion of your review for the impracticality of this test, Waterford 3 intends to proceed with its proposed alternative as outlined in the attached.

This letter contains no new commitments. If you have any questions or require additional information, please contact the acting Licensing Manager, Michael E. Mason, at (504) 739-6673.

Sincerely,

MEM/RJP

Attachment: 10 CFR 50.55a Request Number VRR-WF3-2012-1

A047
NRR

cc:

Mr. Elmo E. Collins, Jr. Regional Administrator U. S. Nuclear Regulatory Commission Region IV 1600 E. Lamar Blvd. Arlington, TX 76011-4511	RidsRgn4MailCenter@nrc.gov
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Attachment to

W3F1-2012-0063

10 CFR 50.55a Request Number VRR-WF3-2012-1

10 CFR 50.55a Request Number VRR-W3-2012-1

Relief Request in Accordance with 10 CFR 50.55a(f)(5)(iii)

— Inservice Testing Impracticality —

I. ASME CODE COMPONENT AFFECTED

Component Number: ACC-108B, Auxiliary Component Cooling Water Pump Discharge Line Check valve, Code Class 3

II. APPLICABLE CODE EDITION AND ADDENDA

Code References: ASME OM Code-2001 Edition with addenda through and including the ASME OMb Code-2003 Addenda

Examination Category: Category A,C

Unit / Inspection: Waterford 3 / Third 10-year IST Interval

Interval Applicability: December 1, 2007 through November 30, 2017.

III. APPLICABLE CODE REQUIREMENT

ASME OM Code-2001 Code for Operation and Maintenance of Nuclear Power Plants, Subsection ISTC, "Inservice Testing of Valves in Light-Water Reactor Nuclear Power Plants," Paragraph ISTC-3630, "Leakage Rate for Other Than Containment Isolation Valve", ISTC-3630(a), Frequency. Tests shall be conducted at least once every 2 years.

There is one valve affected by this request. The valve is ACC-108B. It is an ASME Code Class 3 Check Valve. This valve is tested in the Waterford 3 Inservice Testing Program as a Category A,C. The Category A leakage testing is performed under site procedure OP-903-128. The testing requirement is a 2 year frequency test.

IV. IMPRACTICALITY OF COMPLIANCE

ACC-108B is a spring-loaded check valve in the discharge line of Auxiliary Component Cooling Water (ACCW) Pump B, and must open to allow flow to the Component Cooling Water (CCW) heat exchanger when the ACCW system is required to be operable. The Waterford 3 Technical Specifications require the ACCW system to be operable in Modes 1, 2, 3, and 4. With ACCW Pump B secured, non-safety ACC Jockey Pump B is designed to keep ACCW system Train B full during normal operations with ACC-108B closed. ACC-108B closes when ACCW Pump B is secured to prevent draining portions of ACCW Train B, which are at higher elevations than the ACCW B basin. This precludes a hydraulic transient and preserves system structural integrity when ACCW Pump B starts automatically on Emergency Diesel Generator (EDG) B following a Loss of Offsite Power (LOOP) event. In addition, a combined maximum allowable leak rate limit of one gallon per minute (gpm) for ACC-108B, ACC-1045B, and ACC-114B has been determined based on the acceptable void size in the ACCW System, and the 27 second interval immediately following a LOOP during which time the ACCW pump would remain idle (10 seconds for the EDG to come up to speed plus 17 seconds to load the ACCW pump on the EDG). Based on the size of ACC-108B relative to the other two valves, ACC-108B is assigned an administrative leakage limit of 0.667 gpm.

The Waterford 3 test procedure facilitates seat leakage testing of ACC-108B by draining the piping between ACC-101B (ACCW Pump B Suction Isolation Valve) and ACC-108B, and measuring the leakage past ACC-108B at an upstream drain valve. The test procedure requires that the draining process prior to the leak test allow for removal of the existing water between ACC-108B and ACC-101B until the visible drain flow reduces to (near) zero leakage, in order to measure the leakage past ACC-108B.

Attempts to perform the inservice test have been unsuccessful due to gross leakage identified past valve ACC-101B that does not allow establishment of the required test conditions. Field Operators have reported that a solid stream of water has issued from the vent and drain paths on ACCW Pump B and ACC Jockey Pump B. Plant process data has reflected a rise in Waste Tank level and corresponding lowering of the B Wet Cooling Tower Basin during draining. It has been determined that the above conditions indicate that the leakage was from the basin through ACC-101B. Repeated attempts to obtain a tight seal on ACC-101B have been unsuccessful, and repair of the valve is required in order to complete the test procedure. Repair of the isolation valves will require draining the Wet Cooling Tower Basin, which is not a practical task online.

Alternative test methods were evaluated to identify ways in which to monitor the ACCW Train B for leakage past check valve ACC-108B. Due to the piping arrangement, the specification of wafer type butterfly valves at system interconnections, and the ACCW system cross connection with the CCW system, minor system in-leakage from CCW occurs as indicated by CCW surge tank level trends. Due to the impracticality of securing the CCW system while the facility is in mode 1, this ingress will mask leakage past check valve ACC-108B and preclude performing a water level decay test, using either ultrasonic examination, or a clear tubing level indicator. Methods for partial draining of the ACCW Train B piping downstream of ACC-108B to create a discernible water level for leakage trending past ACC-108B were considered; however, establishing required initial conditions for a successful test are uncertain due to the large amount of horizontal system piping at the ACCW Train B upper elevation, and due to ingress/egress at interconnecting wafer butterfly valves.

Other means of isolating the ACCW Train B suction piping were evaluated, including inserting a bladder at the suction opening inside the basin and potential use of a freeze seal. Due to the piping arrangement, a freeze seal cannot be employed because of proximity to butt welds, penetrations, and/or branch connections. The ACCW Train B pump suction piping opening in the wet basin is 20" in diameter and cut on a 45 degree bias (parallel with the basin floor). The opening is approximately 8" - 12" off of the floor and has a vortex eliminator installed at the end of the pipe as well as a strainer cage around the area with 1" square openings to preclude trash ingress into the ACCW piping. Per the vendor representative, a bladder cannot be successfully installed in the suction entrance due to the pipe size, sealing area surface, and the basin head present (the basing pressure head and piping diameter would exceed limits for the pressure sealing ability of a bladder). In addition, removing the Wet Tower B basin water volume, as required to facilitate testing of ACC-108B with ACC-101B leakage, would exceed a 72 hour Limiting Condition for Operation (LCO) limit that would require entry into Mode 3 within the next 6 hours.

An alternative test method that was also evaluated involves establishing a positive pressure downstream of check valve ACC-108B (between ACC-108B and ACC-110B) with an additional pressurized water source downstream of the ACCW Pump Discharge Isolation, ACC-110B. By maintaining a delta-pressure across ACC-110B (~ 2" water), and metering flow into the piping between ACC-108B and ACC-110B, leakage past both ACC-108B and ACC-110B can be measured (the DP across ACC-108B would be created by the difference between the pressure source and the Wet Cooling Tower "B" Basin water level). The success of this test is hampered by the presence of leakage past ACC-110B, which can mask leakage past

ACC-108B. The quantity of leakage past ACC-110B cannot be positively determined (there was a visual approximation of 4 to 5 gpm), which could lead to inaccurate results from the performance of a test in this configuration. Like ACC-101B, this discharge isolation valve is normally open while its associated pump is in operation. Due to the uncertainty in successfully achieving the necessary test conditions and the potential for inconclusive results, Waterford 3 considers this test, though potentially feasible, impractical.

In summary, it is impractical to perform the IST type 'A' leakage test on check valve ACC-108B due to excessive leakage on a maintenance 20" butterfly valve (ACC-101B) used to establish test conditions in the current plant condition. Waterford 3 is requesting a one-time relief request that will require performing the Inservice Test prior to startup from RF18, which is scheduled to begin in October 2012. This will result in an approximately two month extension while the applicable system is required to be operable in Modes 1 through 4.

V. BURDEN CAUSED BY COMPLIANCE

The Category A Leak Test for ACC-108B (ACCW Pump B Discharge Line Check Inservice Testing test is currently required by August 21, 2012 by the Inservice Testing Program.

The current condition of boundary valves ACC-101B and ACC-110B does not allow for establishing an adequate test boundary. Repair of the isolation valves will require draining the Wet Cooling Tower Basin, which is not a practical task online and requires a Cold Shutdown or Refueling outage to accomplish due to duration.

The inability to complete the inservice test on ACC-108B within the required time frame would result in declaring the Auxiliary Component Cooling Water train B inoperable and a 72 hour shutdown action statement would need to be entered. Technical Specification (TS) 3.7.3 (Component Cooling Water and Auxiliary Component Cooling Water Systems) requires the following: At least two independent Component Cooling Water and associated Auxiliary Component Cooling Water trains shall be OPERABLE in MODES 1, 2, 3 and 4.

VI. PROPOSED ALTERNATIVE AND BASIS FOR USE

This is a proposed alternative to ASME OM Code-2001 Code for Operation and Maintenance of Nuclear Power Plants, Subsection ISTC "Inservice Testing of Valves in Light-Water Reactor Nuclear Power Plants" Paragraph ISTC-3630 "Leakage Rate for Other Than Containment Isolation Valve"; ISTC-3630 (a), Frequency. Tests shall be conducted at least once every 2 years.

Proposed Alternative
Entergy proposes to perform the Category A seat leakage test of ACC-108B prior to returning WF3 to operation post RF18. This would defer the 2 year frequency leakage test with its 25% extension from August 2012 to RF18, which is scheduled to begin on October 17, 2012.

Basis for Use
Previous leakage test history from 2002 to date for ACC-108B is good and the valve was rebuilt in 2010 with a successful post maintenance test. Therefore, the current condition of the valve is expected to be good.

The following are the historical test results as compared to a combined leakage limit of 1.0 gpm:

Date	Combined Leakage Result (gpm).
2/5/2002	0.00143
7/15/2004	0.1626
1/25/2006	0.068
7/13/2008	0.0479
2/22/2010	0.005

The Category A leak testing of ACC-108B, ACC-114B and ACC-1045B is completed per a test procedure that stipulates the three valves have a combined leakage limit of less than 1 gpm. Category A leak testing of ACC-114B and ACC-1045B was completed on 7/31/12 and each had a measured leak rate of 0.00 gpm. Though ACC-108B has an administrative leak rate limit of 0.667 gpm, there is currently a postulated margin up to 1.0 gpm based on no leakage through ACC-114B and ACC-1045B.

Additionally, ACC-108B was disassembled and inspected on 1/20/2010 as a Preventative Maintenance (PM) task. The retest following this work was the inservice test procedure and resulted in 0.0 gpm leakage.

ACC108-B was tested in 2002, 2004, 2006, 2008, and 2010; and disassembled and inspected in 2010. The disassemble/Inspection task frequency of 12 years is based on inputs from plant and component operating experience, component criticality, service environment, and duty cycle. The internal inspection includes checking for debris and damage to seat, hinge arm, and disk; inspection for loose, damaged, or missing parts; verifying the check arm and disk assembly moves freely and easily; inspection for damage, unusual wear, cracked, or missing disk pin or post; inspection of the disk arm disk post hole and disk hinge pin hole for unusual wear; checking for erosion and corrosion of the valve body, disk, disk arm, and hinge pin; checking for proper alignment of the disk assembly and the seat; inspection for cracked, chipped, or distorted seats; inspecting for crud build up; cleaning all parts as required; and checking for evidence of leakage around or near the valve body cover gasket, hinge pin cover, valve position indicators, fasteners, pipe flanges and connections. The 2010 task confirmed that the check valve stroked freely from full open to full closed and had disc to seat contact. The 2010 inspection found acceptable conditions (visual and dimensional) of the internals, stop pin, hinge pin, disc plates, seat, and body, and some wear of the internal spring and bushing. The spring and bushings were replaced. Additionally, the task documents an acceptable 50 ml/min seat leakage rate measured by bench testing at 40-50 psig. The acceptable test results and disassemble/Inspection as-found conditions serve to validate the adequacy of the disassemble/Inspection task frequency as part of the living PM program and provide evidence that this requested alternative for testing in RF18 is acceptable.

As is evident from the information above, valve ACC-108B has a history of having very little leakage, always within the acceptance criteria, and it is reasonable to assume that there is additional margin for leakage. The recent completion of the PM task for disassembly and inspection provides an additional level of quality and safety. Extending the inservice test interval to the refueling outage should not adversely affect the operational readiness of ACC-108B.

In review of potential compensatory measures, multiple and diverse methods for ensuring that the Auxiliary Component Cooling Water (ACC) Train B remains full and that ACC-108B is seated when in the design basis accident scenario were evaluated. These included venting, system pressure monitoring, ultrasonic examination, visual monitoring, and non-intrusive closure testing. The system normal operating configuration precludes using any of these methods to provide additional substantial confidence that ACC-108B does not experience back-leakage. The ACCW interconnects with the operating Component Cooling Water (CCW) in maintaining Essential Chiller cooling, and experiences some minor ingress and egress at system

boundaries due to the specification of wafer butterfly valves as boundary isolations. The piping configuration, as discussed in the previous paragraphs, precludes using ultrasonic measurement to check the system water level. None of the above methods were selected to be a compensatory measure.

The proposed alternative is to perform the Category A seat leakage test of ACC-108B prior to returning WF3 to operation post RF18. Additionally, since non-intrusive testing can provide indication that the check valve has closed, Waterford 3 will perform a non-intrusive closure test by September 15, 2012 to provide an additional data point of component performance. The non-intrusive test has not been recently attempted and we are not certain the test will yield valid and conclusive results.

The combination of the operational history (the recent PM and good test results) and the non-intrusive closure testing associated with ACC-108B helps justify the extension of the test interval to the end of Refueling Outage 18.

The extension will enable repairs to butterfly valve ACC-101B so that acceptable test conditions can be established.

VII. DURATION OF PROPOSED ALTERNATIVE

This alternative is proposed as a one-time alternative and would expire after completion of RF18. Entergy proposes to perform the Category A seat leakage test of ACC-108B prior to returning WF3 to operation post RF18. This would defer the 2 year frequency leakage test with its 25% extension from August 2012 to October 2012 when the system is no longer required.

VIII. PRECEDENTS

A search of the NRC's ADAMS database did not identify a precedent similar to this request.

IX. REFERENCES

1. Entergy Letter CNRO-2007-00044 "Inservice Testing Plan" (ADAMS Accession No. ML073410350)