



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

April 19, 1996

50-313/368
50-382
50-416
50-458

Mr. Jerry W. Yelverton
Vice President, Operations ANO
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SUBJECT: USE OF CODE CASE N-498-2 AT ENTERGY PLANTS: ARKANSAS NUCLEAR ONE, UNITS 1 AND 2, GRAND GULF NUCLEAR STATION, UNIT 1, WATERFORD STEAM ELECTRIC STATION, UNIT 3, AND RIVER BEND STATION (TAC NOS. M94384, M94485, M94413, M94427, M94443)

Dear Mr. Yelverton:

The NRC Staff has reviewed the Entergy Operations, Inc. (EOI) submittal of October 31, 1995, requesting approval to use ASME Code Case N-498-2 in lieu of performing the Code required 10-year hydrostatic test for Class 1, 2, and 3 systems. The request applies to all of EOI's nuclear units, i.e., Arkansas Nuclear One, Units 1 and 2, Grand Gulf Nuclear Station, Unit 1, Waterford Steam Electric Station, Unit 3, and River Bend Station. Based on its review, the staff finds that the use of the Code Case N-498-2 which eliminates hold times during system leakage and pressure tests is not acceptable for generic implementation on a plant-wide basis.

The Code Case N-498-2 was recently approved by ASME, but it has not been reviewed and endorsed by the NRC staff for incorporation into the Regulatory Guide 1.147 "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1." Pursuant to 10 CFR 50.55(a)(3), alternatives to ASME Code requirements may be found acceptable if (i) the proposed alternatives would provide acceptable level of quality and safety, or (ii) compliance with the specified requirements would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety.

The staff has approved the use of ASME Code Case N-498-1 "Alternative Rules for 10-year System Hydrostatic Testing for Class 1, 2, and 3 Systems, Section XI, Division 1." In its safety evaluation for approving the use of this Code Case, the NRC staff has noted that hydrostatic testing is primarily regarded as a means to enhance leakage detection during the examination of components under pressure because such testing provides a good indication of any system leakages, especially those very small leaks that might originate from small through-wall cracks of the pressure boundary. The capability to detect a very small leak is a function of both test pressures and hold times. Code Case N-498-1 was written to lower the test pressure slightly from that required by the hydrostatic test. However, the hold times required by hydrostatic test are specifically retained in the Code Case N-498-1.

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The slightly higher pressures imposed on the pressure boundary components during hydrostatic testing produce only a minor enhancement in leak detection capability. This enhancement of detecting leakage above that which occurs during a system leakage test at nominal operating pressure results in only a small increase in the ability to determine the pressure boundary integrity.

The Code Case N-498-1 was approved by NRC staff on the basis that the compensating increase in the level of quality and safety in the performance of a hydrostatic test does not offset or justify certain hardships created in setting up a hydrostatic test due to slightly higher test pressures.

The intent of the hydrostatic test is to detect the smallest leak that might originate from a small, through-wall flaw of the pressure boundary. After a 10-year period of operation, the Code-required 10-year hydrostatic test can provide timely discovery and good indication of small through-wall leaks which might not be readily detected by any other means such as system walkdowns or installed leak detection systems. The capability of detecting a small leak is proportional to some degree to the hold times of a pressurized system, especially if it is insulated. Hydrostatic tests or system leakage and pressure tests specified in Code Case N-498-1, if performed without any hold times, might be insensitive to small through-wall leaks because of the long hold times required for them to become visible. As such, the stipulation of no hold times in Code Case N-498-2 does not meet the intent of the hydrostatic test and is, therefore, not acceptable.

In the letter dated December 28, 1995, the licensee submitted that the use of Code Case N-498-1 would provide a significant reduction in the burden associated with the performance of 10-year hydrostatic tests and that additional burden reduction would be realized from the use of Code Case N-498-2 by elimination of the hold time requirements. As discussed above, the use of Code Case N-498-1 was found acceptable, because a slightly higher test pressure required by a hydrostatic test would result in unusual hardships and burden without a compensating increase in the level of safety margin. However, with regard to the use of Code Case N-498-2, the staff cannot conclude its review based on the simple statement of additional burden reduction. The staff will continue its review if the licensee can submit additional information demonstrating that the additional burden reduction does not result in an unacceptable compromise in the level of quality and safety provided by a hydrostatic test.

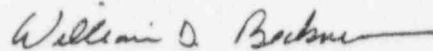
Although the staff finds the generic implementation of Code Case N-498-2 on a plant wide basis to be unacceptable, the staff will review on a system-by-system basis special situations or alternatives similar to Code Case N-498-2 including the use of shorter hold times in accordance with provisions of 10 CFR 50.55a(a)(3). In those cases, the licensee must submit sufficient information to demonstrate that the proposal meets the intent

Jerry W. Yelverton

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of the hydrostatic test, and that compliance with the hydrostatic test requirements will result in hardships and unusual difficulties without a compensating increase in the level of quality and safety.

Sincerely,



William D. Beckner, Director
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket Nos. 50-313, 50-368, 50-416,
50-382, and 50-458

cc: See next page

of the hydrostatic test, and that compliance with the hydrostatic test requirements will result in hardships and unusual difficulties without a compensating increase in the level of quality and safety.

Sincerely,

ORIGINAL SIGNED BY:

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