



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

INSERVICE TESTING PROGRAM REQUESTS

ENTERGY OPERATIONS, INC.

ARKANSAS NUCLEAR ONE, UNITS 1 AND 2, DOCKET NOS. 50-313 AND 50-368

GRAND GULF NUCLEAR STATION, DOCKET NO. 50-416

RIVER BEND STATION, DOCKET 50-458

WATERFORD STEAM ELECTRIC STATION, UNIT 3, DOCKET NO. 50-382

1.0 INTRODUCTION

The Code of Federal Regulations, 10 CFR 50.55a, requires that inservice inspection (ISI) and inservice testing (IST) of certain American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components and their supports be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code (the Code) and applicable addenda, except where alternatives have been authorized or relief has been requested by the licensee and granted by the Commission pursuant to Sections (a)(3)(i), (a)(3)(ii), (f)(6)(i), or (g)(6)(i) of 10 CFR 50.55a. In proposing alternatives or requesting relief, the licensee must demonstrate that (1) the proposed alternatives provide an acceptable level of quality and safety, (2) compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety, or (3) conformance is impractical for its facility. Section 50.55a authorizes the Commission to approve alternatives and to grant relief from ASME Code requirements upon making the necessary findings.

The provisions of 10 CFR 50.55a, paragraphs (f)(4)(ii) and (g)(4)(ii), require licensees to update the IST and ISI programs, respectively, every 120-months following the initial 120-month interval from commercial operations or the affected unit. The provisions of 10 CFR 50.55a, paragraphs (f)(4)(iv) and (g)(4)(iv), specify that IST or ISI may be performed to the requirements of later editions of the ASME Code incorporated by reference in paragraph (b) of 10 CFR 50.55a, or portions or later editions with the implementation of all related requirements, subject to Commission approval.

In its letter of January 5, 1996, Entergy Operations, Inc. (EOI), licensee for Arkansas Nuclear One, Units 1 and 2, Grand Gulf Nuclear Station, River Bend Station, and Waterford Steam Electric Station, Unit 3, requested alternatives to 10 CFR 50.55a, "Codes and Standards," under the provisions of paragraphs (a)(3)(i) and (a)(3)(ii). The NRC staff's findings with respect to authorizing alternatives as part of the licensee's ISI program is continuing

and will be the subject of a separate evaluation. The NRC staff's findings with respect to authorizing alternatives as part of the licensee's IST programs for the five nuclear units are contained in this safety evaluation.

2.0 BACKGROUND

In its letter of October 21, 1993, EOI requested alternatives under the provisions of 10 CFR 50.55a, paragraphs (a)(3)(i) and (a)(3)(ii), related to the updating provisions and use of later revisions of the ASME Code in 10 CFR 50.55a, as prescribed in paragraphs (f)(4)(ii), (f)(4)(iv), (g)(4)(ii), and (g)(4)(iv). The staff informed EOI that the alternatives represented generic issues that would be addressed by rulemaking. EOI requested an extension of the current 120-month intervals for four of its five nuclear units (Arkansas Nuclear One, Unit 1, Grand Gulf Nuclear Station, River Bend Station, and Waterford Steam Electric Station, Unit 3, (reference EOI letters dated April 14, 1994, and July 28, 1995)). The NRC approved the interval extensions in letters dated August 1, 1994 (Grand Gulf), August 2, 1994 (Arkansas Nuclear One, Unit 1, and Waterford), and November 13, 1995 (River Bend).

In a letter dated November 13, 1995, the NRC informed EOI that the rulemaking efforts had been delayed and requested that EOI inform the NRC what actions it intended to take with respect to meeting the provisions of the regulations for updating the ISI and IST programs at the expiration of the interval extensions. EOI responded January 5, 1996, with a request for alternatives to the regulations, as noted above. This safety evaluation addresses only the alternatives requested for the IST programs for the licensees.

3.0 REQUEST FOR ALTERNATIVES RELATED TO IST PROGRAMS

EOI has requested, as an alternate to updating the IST programs, to "continue to comply with the versions of the Code currently in use at each plant." The basis for its request is that the current programs provide an acceptable level of quality and safety. EOI also notes that ASME Code changes which constitute a substantial safety benefit (e.g., augmented examination of the reactor vessel) are separately addressed by rulemaking as required by the backfit provisions of 10 CFR 50.109, "Backfitting."

As stated in the Statements of Consideration for final rule changes to 10 CFR 50.55a dated August 6, 1992 (final rule effective September 8, 1992; see 57 FR 34666, Thursday, August 6, 1992), the incorporation by reference into the regulations of later editions and addenda of Section XI of the ASME Code is not a backfit "because Section XI requirements are an integral part of the longstanding § 50.55a(g)(4)(ii) requirement to update inservice inspection and inservice testing program to reflect the requirements of the latest edition and addenda of Section XI incorporated by reference in § 50.55a(b) 12 months prior to the start of the 120-month inspection interval."

The 1989 Edition of Section XI was incorporated by reference in the August 6, 1992, final rule publication and is, therefore, the edition which must be used as a comparison for any alternative requests related to updating the EOI units. This safety evaluation does not address EOI's assertion in Footnote 2 of its alternative request (i.e., EOI letter dated January 5, 1996) that the NRC's past practice of incorporation by reference was contrary to the backfit rule. The position stated in the final rule was approved as part of the rule change package and was included in the proposed rule for public comment (see 56 FR 38011, January 31, 1991). No public comments were received on the stated backfit position. However, the NRC is currently reassessing the application of the backfit provisions to § 50.55a for implementation of Revision 2 of NUREG/BR-0058, "Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission," issued November 1995.

EOI's justification for the alternative discussed a number of points made by the NRC in approving the extension of the current programs in the letters noted above. The NRC's safety evaluation for the extension was based on interim periods during which the requirements of earlier editions could be continued for only those interim periods. The evaluation was not based on and was not intended to address long-term continuation of the programs. Additionally, it is the licensee's responsibility, upon request of alternatives to the requirements in Section 50.55a, to demonstrate that the proposed alternatives would provide an acceptable level of quality and safety, or that compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

3.1 Discussion

The regulation of IST at nuclear power plants has taken a somewhat different approach than that of ISI. In the late 1980's, the backlog of the NRC's review of licensee's submittals related to IST program relief requests and requests for alternatives was unmanageable. The number of program revisions being made by licensees throughout their 120-month intervals resulted in the need for frequent reviews by the NRC and required additional interaction by the NRC with utilities before safety evaluations could be issued. To address a number of generic concerns and to eliminate the backlog of reviews, the NRC issued Generic Letter (GL) 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," on April 3, 1989. For certain plants listed in GL 89-04, the NRC had issued or planned to issue a safety evaluation in the near future and those plants were not required to respond to GL 89-04. Both River Bend and Waterford 3 were in the listed plants and safety evaluations were issued for both plants for the first 120-month interval: Waterford 3 — February 7, 1989; River Bend — January 2, 1991. Though not listed in GL 89-04, Arkansas Nuclear One, Unit 2, received a supplemental safety evaluation (supplementing the previous NRC safety evaluation issued in 1986) on November 15, 1989, effectively negating the need for a response to GL 89-04. Subsequently, on January 12, 1990, an updated IST program for the second 120-month interval for

Arkansas Nuclear One, Unit 2, was submitted and the NRC issued a safety evaluation on January 22, 1993. There have also been a number of individual relief requests submitted since these initial safety evaluations were issued, and the NRC has issued safety evaluations and granted or denied relief, as appropriate.

Grand Gulf Nuclear Station and Arkansas Nuclear One, Unit 1, were required to respond to GL 89-04. The NRC evaluated the response from Arkansas Nuclear One, Unit 1, and issued a safety evaluation on September 21, 1992. In its letter of October 19, 1990, the NRC issued an acknowledgement to Grand Gulf Nuclear Station's assessment (letter dated May 18, 1990) of its IST program as compared to the concerns expressed in GL 89-04; however, no safety evaluation was issued because the licensee concluded that the Grand Gulf Nuclear Station IST program conformed to the positions stated in GL 89-04. As a result, there are relief requests in the IST programs for Arkansas Nuclear One, Unit 1, and Grand Gulf which were "grandfathered" under the provisions in GL 89-04. Such relief requests were approved, under the generic provisions of GL 89-04 without review by the NRC, until the end of the specific interval. There are no regulatory provisions that would authorize continued use of these relief requests beyond the end of the interval without specific review and approval by the NRC.

In April 1995, the NRC issued Supplement 1 to GL 89-04 which endorsed the recommendations in NUREG-1482, "Guidelines for Inservice Testing in Nuclear Power Plants," and gave generic approval pursuant to 10 CFR 50.55a(f)(4)(iv) for certain provisions contained in the 1989 Edition of Section XI (i.e., by reference in Section XI, the Operations and Maintenance Standards, Part 6 and Part 10). It was the NRC's intent to encourage licensees to update to the Operations and Maintenance Standards, in part, to reduce the number of relief requests for issues that had already been addressed by the ASME Code consensus process and endorsed by the NRC. The ASME Committee structure has moved the responsibility for IST from the Boiler and Pressure Vessel Committee, Section XI, to the Operations and Maintenance Committee. The NRC believes that updating to the 1989 Edition of Section XI, which is in effect updating to the Operations and Maintenance Standards, is necessary to ensure the continuity of the IST requirements.

Because of the varied history of IST regulation and the allowed mix of code editions through generic and plant-specific approvals, the NRC cannot make an assessment as to the current requirements being implemented by the four EOI units with extended intervals (i.e., no single code edition is used at a specific site) without further review of the programs. As such, the staff can not assess the adequacy of maintaining an earlier edition of the code versus the current latest edition in the regulation without further review on a plant-by-plant basis. Additionally, a generic alternative as requested by EOI cannot stand on its own technical merits as to the acceptable level of quality and safety of the current IST programs being implemented at the four EOI units; neither does it describe the specific hardship that will ensue if the requirements of the latest edition of the code are imposed. Therefore, the alternative as requested cannot be authorized.

4.0 Conclusion

Any further requests for alternatives to maintain the current IST programs should be on a plant-specific basis and include: (1) a copy of the program and (2) specific requests for those provisions of the 1989 Edition of Section XI of the ASME Code, which is the current edition incorporated by reference in paragraph (b) of § 50.55a, that will not be implemented and (3) the requests for relief with appropriate justification for the impractical requirements. The programs submitted will be compared to the latest requirements and to the previously granted relief requests and authorized alternatives, where appropriate, in completing the staff's evaluation. Only with such detailed information and justification may the staff consider authorizing alternatives for the IST programs for the next 120-month interval at the four EOI units.

For further plant-specific review, the proposed IST program, whether a continuation of the current program plan or an update to the 1989 Edition of the ASME Code, should be submitted prior to the end of the extended interval in accord with applicable provisions of 10 CFR 50.55a(f).

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