

July 27, 2001

Mr. Garry L. Randolph  
Vice President and Chief Nuclear Officer  
Union Electric Company  
Post Office Box 620  
Fulton, MO 65251

SUBJECT: ASME CODE RELIEF REQUESTS ISI-21 AND ISI-22 FOR CALLAWAY PLANT,  
UNIT 1 (TAC NO. MB1168)

Dear Mr. Randolph:

In your application dated February 5, 2001 (ULNRC-4379), you requested relief from inservice inspection (ISI) requirements in Appendix VIII of Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) in accordance with 10 CFR 50.55a(a)(3)(i) and 50.55a(g)(6)(i) in Relief Requests (RRs) ISI -21 and ISI-22, respectively. However, RR ISI-22 was withdrawn in your letter of March 30, 2001 (ULNRC-04428).

Based on the enclosed safety evaluation on RR ISI-21, the staff concludes that the proposed alternative in RR ISI-21 to use the criteria in 10 CFR 50.55a(b)(2)(xiv) in lieu of Subarticle VII-4240 will provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), the licensee's proposed alternative described in RR ISI-21 is authorized for the second 10-year ISI interval.

Sincerely,

*/RA/*

Stephen Dembek, Chief, Section 2  
Project Directorate IV  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-483

Enclosure: Safety Evaluation

cc w/encl: See next page

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\* Memo dated 06/29/01 (ML011860406)

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Callaway Plant, Unit 1

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO SECOND 10-YEAR INSERVICE INSPECTION INTERVAL

REQUESTS FOR RELIEF NO. ISI-21

UNION ELECTRIC COMPANY

CALLAWAY PLANT, UNIT 1

DOCKET NO. 50-483

1.0 INTRODUCTION

The inservice inspection (ISI) of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code) Class 1, Class 2, and Class 3 components is to be performed in accordance with Section XI of the ASME Code and applicable edition and addenda as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). Section 50.55a(a)(3) of Title 10 Code of the *Federal Regulations* states in part that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if the licensee demonstrates that: (i) the proposed alternatives would provide an acceptable level of quality and safety, or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) will meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) twelve months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The inservice inspection Code of record for Callaway Plant is the 1989 Edition of Section XI of the ASME Code. The Second 10-year interval began August 1, 1995. The code of record and the date when the second 10-year interval began was provided by the licensee on June 18, 2001.

By letter dated February 5, 2001, Union Electric Company (the licensee) requested relief from certain ultrasonic testing (UT) requirements pertaining to UT performance qualification and examinations for the second 10-year ISI interval at Callaway Plant. In that letter, the licensee submitted Relief Requests ISI-21 and ISI-22. Specifically, ISI-21 proposed conducting annual

training for UT according to 10 CFR 50.55a(b)(2)(xiv). In the supplemental letter dated March 30, 2001, the licensee withdrew ISI-22.

## 2.0 RELIEF REQUEST ISI-21

Relief Request ISI-21 involves the annual training requirements for UT personnel in Subarticle VII-4240 of ASME Code Section XI.

### 2.1 Code Requirements for which Relief is Requested

The licensee is requesting relief from the 1995 Edition with 1996 Addenda, Appendix VII to Section XI of the Code, Subarticle VII-4240 for UT personnel. Subarticle VII-4240 requires a minimum of 10 hours of annual UT training.

### 2.2 Licensee's Proposed Alternative to Code

Pursuant to 10 CFR 50.55a(a)(3)(i), the licensee proposed conducting annual UT training for Appendix VIII qualified UT personnel in accordance with 10 CFR 50.55a(b)(2)(xiv) requirements in lieu of Subarticle VII-4240 to Appendix VII of Section XI of the Code.

### 2.3 Licensee's Bases for Requesting Relief (as stated in its application)

The licensee stated:

10 CFR 50.55a requires the 1995 Edition, 1996 Addenda, of Section XI, Appendix VIII, qualification requirements. Appendix VIII imposes the requirements of Appendix VII of the 1995 Edition, with 1996 Addenda of Section XI, including Subarticle VII-4240, which requires a minimum of 10 hours of annual training.

10 CFR 50.55a(b)(2)(xiv) requires that all personnel qualified for performing ultrasonic examinations in accordance with Appendix VIII shall receive 8 hours of annual hands-on training on specimens that contain cracks. This training must be completed no earlier than 6 months prior to performing ultrasonic examinations at a licensee's facility.

Paragraph 2.4.1.1.1 in the *Federal Register* notice for the final rule (64 Fed. Reg. 51370 (1999)) contained the following statements:

The NRC had determined that this requirement (10 hours of training on an annual basis) was inadequate for two reasons. The first reason was that the training does not require laboratory work and examination of flawed specimens. Signals can be difficult to interpret and, as detailed in the regulatory analysis for this rulemaking, experience and studies indicate that the examiner must practice on a frequent basis to maintain the capability for proper interpretation. The second reason is related to the length of training and its frequency. Studies have shown that an examiner's capability begins to diminish within approximately 6 months if skills are not maintained. Thus, NRC had determined that 10 hours

of annual training is not sufficient practice to maintain skills, and that an examiner must practice on a more frequent basis to maintain proper skill level... The PDI program has adopted a requirement for 8 hours of training, but it is required to be hands-on practice. In addition, the training must be taken no earlier than 6 months prior to performing examinations at a licensee's facility. PDI believes that 8 hours will be acceptable relative to an examiner's abilities in this highly specialized skill area because personnel can gain knowledge of new developments, material failure modes, and other pertinent technical topics through other means. Thus the NRC has decided to adopt in the Final Rule the PDI position on this matter. These changes are reflected in 50.55a(b)(2)(xiv).

## 2.4 Evaluation

Subarticle VII-4240, Appendix VII of Section XI of the Code requires 10 hours of annual training to impart knowledge of new developments, material failure modes, and any pertinent technical topics as determined by the licensee. No hands-on training or practice is required to be included in the 10 hours of training. This training is required of all UT personnel qualified to perform examinations of ASME Code Class 1, 2, and 3 systems. Independent of the ASME Code, 10 CFR 50.55a(b)(2)(xiv) imposes the requirement that 8 hours of hands-on training with flawed specimens containing cracks be performed no earlier than 6 months prior to performing examinations at a licensee's facility. The licensee contends that maintaining two separate UT annual training programs create confusion, redundancies, and extra paper work.

As part of the staff's rulemaking effort to revise 10 CFR 50.55a(b)(2), the issue of UT annual training requirements was reviewed. This review was included in the summary of comments to the rule that was published in the *Federal Register* on September 22, 1999 (64 *FR* 51370). In the review, the staff determined that the 10 hours of annual training requirement specified in the ASME Code was inadequate for two reasons. The first reason was that the training does not require practice with flawed specimens. Practice with flaws is necessary because signals can be difficult to interpret. The second reason is related to the length of training and its frequency. Studies have shown that an examiner's capability begins to diminish within 6 months if skills are not maintained. Therefore, examiners must practice on a frequent basis to maintain their capability for proper interpretation of flaws.

Based on resolution of public comments for the above rulemaking, the staff accepted an industry initiative by the Electric Power Research Institute (EPRI), which proposed eight hours of hands-on practice with flawed specimens containing cracks. The practice would occur no earlier than six months prior to performing examinations at a licensee's facility. The initiative was adopted in 10 CFR 50.55a(b)(2)(xiv) for personnel maintaining their Appendix VIII qualifications.

Therefore, based on the adoption of Appendix VIII qualifications in 10 CFR 50.55a(b)(2)(xiv), the staff concludes that the proposed alternative to use 10 CFR 50.55a(b)(2)(xiv) in lieu of Subarticle VII-4240 will maintain the skill and proficiency of UT personnel at or above the level provided in the Code for annual UT training, thereby, providing an acceptable level of quality and safety.

### 3.0 CONCLUSION

Based on the evaluation above for Relief Request ISI-21, the staff concludes that the proposed alternative to use the criteria in 10 CFR 50.55a(b)(2)(xiv) in lieu of Subarticle VII-4240 will provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), the licensee's proposed alternative described in Relief Request ISI-21 is authorized for the second 10-year ISI interval.

Principal Contributor: Don Naujock

Date: July 27, 2001