



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELIEF REQUEST TO USE THE 1998 EDITION OF

ASME CODE SECTION XI, SUBSECTION IWE

FOR CONTAINMENT LINER INSPECTION

UNION ELECTRIC COMPANY

CALLAWAY PLANT, UNIT 1

DOCKET NO. 50-483

1.0 INTRODUCTION

The Code of Federal Regulations, 10 CFR 50.55a(g)(6)(ii)(B), requires containment inspections per Subsections IWE and IWL of the 1992 Edition with the 1992 Addenda (1992 Edition & Addenda) of Section XI of the American Society of Mechanical Engineers Boiler Pressure Vessel Code (the ASME Code), as modified by 10 CFR 50.55a(b)(2)(ix) and 10 CFR 50.55a(b)(2)(x). Licensees of all operating nuclear power plants are required to complete the first period inspections by September 9, 2001.

By letter dated January 11, 1999, Union Electric Company (the licensee) submitted a request seeking relief from the requirements of the 1992 Edition & Addenda of Subsection IWE of the Code. Instead, the licensee proposed to use the 1998 Edition of Subsection IWE of the Code pursuant to 10 CFR 50.55a(a)(3)(i). The licensee provided a table comparing the requirements of 1998 Edition with the 1992 Edition and Addenda. This evaluation addresses the acceptability of the licensee's alternative proposal.

2.0 EVALUATION

Idaho National Engineering and Environmental Laboratory (INEEL), as a contractor to the NRC, evaluated the content of the subject relief request. The review resulted in two requests for additional information (RAIs). The licensee responded to the RAIs in letters dated July 9 and September 10, 1999.

INEEL's evaluation of the licensee's request included a review and comparison of Subsection IWE requirements in the 1992 Edition & Addenda and 1998 Edition, and a brief analysis of the changes and/or implications of the proposed ASME Code changes. INEEL's technical evaluation report (TER) (attached to this safety evaluation) describes the licensee's bases for requesting the relief request, and discusses the implication of the alternative in terms of quality and safety related to the inspection of the Callaway containment.

Appendix A attached to the TER is a table of comparison. The four columns of the table indicate the following:

- Col. 1 - Paragraph: The paragraph (sometimes includes Articles and Subarticles) corresponds to the 1992 Edition & Addenda of Subsections IWE and IWL of the ASME Code.
- Col. 2 - Changes between the 1992 Edition & Addenda and 1998 Edition of the ASME Code.
- Col. 3 - Licensee's statement of significance and/or basis for use as an alternative examination.
- Col. 4 - INEEL's recommended disposition/comments: INEEL's disposition is principally related to the acceptance of the requirements of the 1998 Edition of the Code in terms of quality and safety related to the containment inspection.

Based on the review of the comparative requirements, the staff identified five significant changes in the relief request that required additional information from the licensee. They are discussed in the following paragraphs:

1. IWE-2300: The 1992 Edition & Addenda (Table-2500-1) invokes the use of IWA-2200 and IWA-2300 for visual, surface, and volumetric examination methods, and for qualification of personnel. IWE-2300 (1998) requires the owner to define requirements for visual examination of containment surfaces, and for qualifying the personnel performing visual examinations. Additionally, IWE-2320 requires the owner to designate a responsible individual (RI) who will be responsible for activities related to the containment surface visual examinations and personnel qualification. In response to the RAIs, the licensee provided the following information:
 - A general visual examination will be performed on 100 percent of the containment pressure boundary. The examination will be performed by a qualified NDE QC inspector qualified to ASNT CP-189.
 - The examination shall be performed either directly or remotely, by an examiner with visual acuity sufficient to detect evidence of degradation that may affect either the structural integrity or leak tightness.
 - The examination will be made from existing floors, platforms, and vantage points to cover the entire pressure boundary. Ladders may be used in some cases to allow the inspector to view the upper side of penetrations or other features.
 - Pressure retaining bolting that is not disassembled will be subjected to general visual examination. Bolted connections that are disassembled anytime during the inspection period will be subjected to VT-1 inspection in accordance with the 1998 Code (IWA-2000).

- During the general visual examination of the Callaway liner plate and its attachments, the inspectors will be looking for corrosion, blistering, flaking, or peeling paint, general deformation, bulges, or other signs of distress. If the acceptance criteria are not met, a detailed visual inspection will be performed.
- The general visual examination and VT-1, VT-3 examinations will be performed by NDE quality control (QC) inspectors certified to ANSI/ASNT CP-189.

The incorporation of these provisions in the licensee's containment inservice inspection (ISI) procedures provides adequate assurance regarding the licensee defined visual examination and personnel qualification requirements.

2. IWE-2500: The requirement to examine paint or coating prior to removal was deleted in the 1998 Code Edition. The staff has no objection to this deletion. However, the staff is concerned that in absence of any examination for detecting flaws or degradation in the containment base metal, the recoating may be applied to the degraded containment surface. In response to the RAI related to the subject, the licensee provided the following information:

The entire liner plate is painted and will receive a general visual examination each inspection period. If the liner plate meets the general visual examination acceptance criteria, no further examinations would be required and the coating would not be removed. If an area is not acceptable, the area will be subjected to a detailed visual examination. A failed general visual examination will have already determined that a potential problem exists. The acceptance criteria for the detailed inspection for the liner plate requires that the failed coating and loose rust be removed in order to determine if the liner plate meets the acceptance criteria of the detailed inspection.

The staff concludes that the implementation of the above process will ensure that the base metal degradation will be identified, and appropriate action taken, prior to recoating of the Callaway containment liner.

3. IWE 3510.1 IWE 3511.1 (1998): The owner is required to define the acceptance criteria for visual examination of containment surfaces in performing Category E-A and Category E-C examinations. However, the basic requirements for these examinations are provided in IWE-2310 as augmented by the licensee and described in "1" above.

The staff concludes that complying with the 1998 Edition of the Code augmented by the specific requirements in the licensee's containment inspection procedure (as described in 1 above) will be adequate in identifying significant flaws and degradations during Category E-A and Category E-C examinations.

4. In Paragraph IWE-3511.3 of the 1998 Code, examination of Class CC metallic liners has been excluded from the acceptance criterion, which require disposition of areas where material loss exceeds 10 percent of the nominal wall thickness. Therefore, the 1998 Code is not acceptable for Class CC metallic liners without augmentation by the licensee. At the Callaway Plant, the licensee has committed to document and perform an engineering evaluation, on a case-by-case basis, of any defect or deterioration that

exceeds a depth of 10 percent the nominal wall thickness. This is equivalent to the requirements of the 1992 Addenda of the Code.

Therefore, the staff concludes that the proposed acceptance criterion for wall thinning will ensure that the integrity of the liner plate will be maintained and will provide an acceptable level of quality and safety.

5. The licensee has not requested the use of the 1998 Edition of Subsection IWL of the Code for inservice inspection of concrete and post-tensioning system at Callaway. In response to the question, the licensee stated that, at this time, Callaway is using the 1992 Edition and Addenda of Subsection IWL, supplemented by 10 CFR 50.55a and relief request dated December 15, 1998. The alternative proposed in this 1998 letter was authorized on April 19, 1999. The relief authorized the licensee to perform the concrete visual examinations in accordance with the procedure described in the relief request.

The staff concludes that the combined use of the requirements of 10 CFR 50.55a and the alternative proposed in the letter of December 15, 1998, is acceptable for inspection of concrete and post-tensioning tendon system at Callaway plant.

3.0 CONCLUSION

Based on the review of the licensee's submittal and responses to the staff's RAIs, the staff finds that the use of the 1998 Edition of the Code, supplemented by the licensee's commitments in its letters of July 9 and September 10, 1999, will provide an acceptable level of quality and safety for ensuring the integrity of the Callaway containment. Therefore, the staff authorizes the use of the proposed alternative for inspection of the containment pursuant to 10 CFR 50.55a(a)(3)(i) in that the proposed alternative would provide an acceptable level of quality and safety.

Attachment: Technical Evaluation Report

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