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U. S. Nuclear Regulatory Commission
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Subject: Request for Authorization of Alternative Examination to Section IWL of ASME Code Regarding VT-1C and VT-3C Visual Examination Requirements

Grand Gulf Nuclear Station
Docket No. 50-416
License No. NPF-29

CNRO-2000/00003

Ladies and Gentlemen:

In the *Federal Register* dated August 8, 1996 (61 *FR* 41303), the NRC amended its regulations to incorporate by reference the 1992 Edition and Addenda of Subsections IWE and IWL of Section XI of the American Society of Mechanical Engineers (ASME) Code. Subsections IWE and IWL give the requirements for inservice inspection (ISI) of Class MC (metallic containment) and Class CC (concrete containment) components, respectively.

Pursuant to the provisions of 10 CFR 50.55a(a)(3)(i), Entergy proposes an alternative examination to the requirements of ASME Section XI, Subsubarticles IWL-2310 and IWL-2510. Alternative Request IWL-001 (Attachment 1) proposes an alternative examination method to the requirements for visual examination of the accessible areas (VT-3C) and a visual examination of potentially degraded areas (VT-1C) imposed by ASME Section XI, IWL-2310, IWL-2510, and Table IWL-2500-1, Examination Category L-A (Item Nos. L1.11 and L1.12). This request applies to Entergy's Grand Gulf Nuclear Station (GGNS).

This request is similar to ones granted by the NRC for Arkansas Nuclear One (Alternative Examination 99-0-002)[1] and Brunswick Steam Electric Plant (CIP-14)[2].

[1] Letter dated June 2, 1999, "Evaluation of Alternative Examination 99-0-002 for Arkansas Nuclear One, Unit Nos. 1 and 2 (TAC Nos. MA5144 and MA5145)"

[2] Letter dated August 10, 1999, "Evaluation of Relief Requests CIP-01 to CIP-18 – Implementation of Subsections IWE and IWL of ASME Section XI for Containment Inspection for Carolina Power and Light Company's Brunswick Steam Electric Plant, Unit Nos. 1 and 2 (TAC Nos. MA4166 and MA4167)"

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GGNS is currently scheduled to begin initial IWL inspections in the autumn of 2000. Entergy requests the NRC review and approve this proposed alternative examination to support this schedule.

This letter contains no commitments.

Should you have any questions regarding this submittal, please contact Guy Davant at (601) 368-5756.

Very truly yours,

M. A. Krupa

MAK/GHD/baa
attachment
cc: Mr. W. A. Eaton (GGNS)
Mr. G. J. Taylor (ECH)

Ms. J. L. Dixon-Herrity, NRC Senior Resident Inspector (GGNS)
Mr. E. W. Merschoff, NRC Region IV Regional Administrator
Mr. S. P. Sekerak, NRC Project Manager (GGNS)

GRAND GULF NUCLEAR STATION

ALTERNATIVE REQUEST #IWL-001, Rev. 0

SYSTEM/COMPONENTS FOR WHICH AN ALTERNATIVE IS PROPOSED

Accessible concrete surface areas subject to examination per Table IWL-2500-1, Examination Category L-A (Item Nos. L1.11 and L1.12)

CODE REQUIREMENTS

ASME Section XI, 1992 Edition, 1992 Addenda, Table IWL-2500-1, Examination Category L-A (Item Nos. L1.11 and L1.12), Subsubarticles IWL-2310 and IWL-2510 require a visual examination of the accessible areas (VT-3C) and a visual examination of suspect areas (VT-1C).

CODE REQUIREMENT FOR WHICH AN ALTERNATIVE IS PROPOSED

Pursuant to 10CFR50.55a(a)(3)(i), Entergy proposes an alternative examination to performing the visual examination of the accessible areas (VT-3C) and a visual examination of potentially degraded areas (VT-1C) per Table IWL-2500-1, Examination Category L-A (Item Nos. L1.11 and L1.12), IWL-2310, and IWL-2510.

PROPOSED ALTERNATIVE EXAMINATION

To satisfy the requirements of Table IWL-2500-1, Examination Category L-A (Item Nos. L1.11 and L1.12), Entergy proposes the following alternative actions:

1. General Visual Examination

   A general visual examination of the accessible concrete surfaces will be performed. The general visual examination will be a thorough examination of the accessible areas. Certified and properly trained examiners will perform the examinations.

2. Detailed Visual Examination

   If the examiner detects evidence of degradation, a detailed visual examination will be performed and compared to established acceptance criteria. The acceptance criteria will be approved by the Responsible Engineer and will be consistent with the guidance outlined in the American Concrete Institute (ACI) Standard 349.3R-96, "Evaluation of Existing Nuclear Safety-Related Concrete Structure."

   If the detailed visual examination cannot be performed for some reason (e.g., access limitation), Entergy will evaluate the acceptability of the suspect area. This engineering evaluation will assume the suspect area is inaccessible and will address the requirements outlined in 10CFR50.55a(b)(2)(viii)(E). The Responsible Engineer will approve the engineering evaluation.

BASIS FOR PROPOSED ALTERNATIVE EXAMINATION

The visual examination methods (VT-1C and VT-3C) specified in Examination Category L-A of Table IWL-2500-1 require that examiners meet applicable visual examination and qualification requirements of IWA-2210 and IWA-2300. The requirements specified in these ASME Code provisions were developed for detecting flaws in metal components and, as such, are more stringent than those that would be required for detecting degradation on a concrete structure. Degradation mechanisms for a concrete structure are different from the degradation mechanisms of Class 1, 2, and 3 components to which the applicable requirements of IWA-2210 and IWA-2300 were developed. The requirements of IWA-2210 and IWA-2300 were first introduced in Subsection IWL in the 1992 Addenda. Until the issuance of these Addenda to Subsection IWL, Examination Categories L-A only required visual examination performed by or under direction of the Responsible Engineer, a Registered Professional Engineer.

In its response to Public Comment #2.3 in Part III of Attachment 6A to SECY-96-080, "Issuance of Final Amendment to 10CFR50.55a to Incorporate by Reference the ASME Boiler and Pressure Vessel Code, Section XI, Division 1, Subsection IWE and Subsection IWL," the NRC stated:

> "Comments received from ASME members on the containment committees indicate that the newer, more stringent requirements of IWA-2210 were not intended to be used for the examination of containments and were inadvertently included in Subsection IWL. The NRC agrees that remote examinations are the only practical method for inspecting much of the containment surface area. §50.55a(b)(2)(x)(B) has been added to the final rule which contains alternative lighting and resolution requirements which may be used in lieu of the requirements contained in Table IWA-2210-1."[3]

The ASME Main Committee and the Board of Nuclear Codes and Standards have also determined that Code provisions outlined in IWA-2210 and IWA-2300 are not warranted for visually examining concrete surfaces or post-tensioning system anchorage hardware or surrounding concrete. Both organizations approved a rewrite of Subsection IWL that eliminated the requirements of IWA-2210 and IWA-2300. This rewrite of Subsection IWL was published in the 1997 Addenda of the ASME Code, Section XI.

In evaluating the requirements of these ASME Code provisions, Entergy has concluded that concrete deterioration and distress, as defined in ACI 201.1, "Guide for Making a Condition Survey of Concrete in Service," can be effectively identified by performing a general visual examination. As such, Entergy will establish procedures for performing a general visual examination of the concrete structure, as specified in the **PROPOSED ALTERNATIVE EXAMINATION** section above.

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[3] §50.55a(b)(2)(x)(B), as referenced in SECY-96-080, has been renumbered to §50.55a(b)(2)(ix)(B) in the current CFR. As published in the rule, this section applies only to MC components and not to both MC and CC components as anticipated.

To ensure the controls and techniques are adequate for detecting evidence of degradation, the Responsible Engineer will periodically witness the performance of these examinations in accordance with Entergy approved procedures.

The general visual examination of the concrete surfaces and the detailed visual examination of the suspect areas detected by the general visual examination will be performed in accordance with an approved procedure. The examination methods outlined in the procedure will be consistent with the methods approved in the rewrite of Subsection IWL (1997 Addenda) and will be approved by the Responsible Engineer. These approved methods will delineate the necessary controls for ensuring these examinations are performed in a manner sufficient to detect evidence of degradation.

Certified and properly trained personnel will perform the general and/or detailed visual examination. Personnel performing these visual examinations will be certified in accordance with ANSI N45.2.6, "Qualification of Inspection, Examination, and Testing Personnel for Nuclear Power Plants," and by Entergy procedure. This level of certification ensures the capability and visual acuity of the examiners is sufficient to detect evidence of degradation in the concrete structure.

Prior to performing examinations, the examiners will successfully complete approved training (i.e., training developed by the Electric Power Research Institute or equivalent) on the proper techniques for examining components subject to the requirements of Subsection IWL. In addition, examiners will receive site-specific training regarding the methods outlined in the approved plant procedure. The site-specific training will be conducted under the direction of the Responsible Engineer and will be held at the beginning of each subsequent inservice inspection used to satisfy the applicable requirements of IWL-2410. Successfully completing the above training ensures the examiners have a basic, working knowledge of the components being examined and the types of degradation to be detected.

10CFR50.55a(a)(3)(i) states that a proposed alternative may be used if the applicant demonstrates the proposed alternative provides an acceptable level of quality and safety. Based on the above discussion, Entergy believes the proposed alternative examination actions specified in the **PROPOSED ALTERNATIVE EXAMINATION** section above meets this criterion and requests the NRC authorize their use.