October 4, 2000

Mr. H. L. Sumner, Jr.
Vice President - Nuclear
Hatch Project
Southern Nuclear Operating
Company, Inc.
Post Office Box 1295
Birmingham, Alabama 35201-1295

SUBJECT: EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2 RE: EVALUATION OF RELIEF REQUESTS RR-MC-8, RR-MC-9 AND RR-12: IMPLEMENTATION OF SUBSECTIONS IWE AND IWL OF ASME SECTION XI FOR CONTAINMENT INSPECTION (TAC NOS. MA9569 AND MA9570)

Dear Mr. Sumner:

By letter dated July 19, 2000, Southern Nuclear Operating Company, Inc., the licensee for Edwin I. Hatch Nuclear Plant, Units 1 and 2, submitted the subject relief requests (relief requests RR-MC-8, RR-MC-9, and a revision to RR-12) for NRC approval.

The original relief request No. RR-12 stated that inspections or repairs and replacements following evaluations of leakage at bolted connections during system pressure test of Class 1, 2, and 3 systems shall be documented on NIS-1 or NIS-2 Forms of Appendix II, American Society of Mechanical Engineers (ASME) Code (the Code), Section XI, as applicable. The revision to this request states that, since Hatch has the NRC approval to use Code Case N-532, the documentation of repairs and replacement necessitated as a result of evaluation of leakage shall be made on Form OAR-1 “Owners Activity Report” as required by the code case. The staff has determined that since the original relief request RR-12 is authorized for the term of the inspection interval and the licensee subsequently obtained the NRC approval to use Code Case N-532, the revision to the relief request RR-12 that was enclosed with your letter dated July 19, 2000, is acceptable for the duration of the third 10-year inspection interval without a new safety evaluation.

For relief request RR-MC-8, the staff concludes that compliance with the Code requirements would result in a burden without a compensating increase in the level of quality and safety and that your proposed alternative will provide reasonable assurance of containment pressure integrity. Therefore, the proposed alternative is authorized pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(a)(3)(ii). For relief request RR-MC-9, the staff concludes that your proposed alternative will provide an acceptable level of quality and safety. Therefore, the proposed alternatives is authorized pursuant to 10 CFR 50.55a(a)(3)(i). The enclosure contains the staff's evaluation.

Sincerely,

***/RA/***

Richard L. Emch, Jr., Chief, Section 1
Project Directorate II-1
Division of Project Licensing Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-321 and 50-366

Enclosure: As stated

cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

OF RELIEF REQUESTS FROM ASME SECTION XI REQUIREMENTS

FOR CONTAINMENT INSPECTION

EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-321 AND 366

## 1.0 INTRODUCTION

In the *Federal Register* (FR) dated August 8, 1996 (61 FR 41303), the Nuclear Regulatory Commission (NRC) amended its regulations by reference to incorporate the 1992 edition with 1992 addenda of Subsections IWE and IWL of Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (the Code). Subsections IWE and IWL provide the requirements for inservice inspection (ISI) of Class CC (concrete containment) and Class MC (metallic containment) of light-water cooled power plants. The effective date for the amended rule was September 9, 1996, and it requires the licensees to incorporate the new requirements into their ISI plans and to complete the first containment inspection by September 9, 2001. However, a licensee may propose alternatives to or submit a request for relief from the requirements of the regulation pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(a)(3) or (g)(5), respectively.

By the letter dated July 19, 2000, Southern Nuclear Operating Company, Inc., the licensee, proposed alternatives to the requirements of Subsections IWE and IWL of Section XI of the ASME Code for its Edwin I. Hatch Nuclear Plant, Units 1 and 2. The NRC's findings with respect to authorizing or denying the proposed alternatives are discussed in this evaluation.

## 2.0 EVALUATION

### 2.1 Relief Request RR-MC-8

#### 2.1.1 Code Requirements

> The 1992 Edition, with the 1992 Addenda of the ASME Section XI, Table IWE -2500-1, Examination Category E-G, Pressure Retaining Bolting, Item E8.20 requires that bolt torque or tension testing be performed on pressure retaining bolting of bolted connections that have not been disassembled and reassembled during the inspection interval.

Enclosure

2.1.2 Specific Relief Requested

Relief is requested from performing the required torque or tension testing on the above identified pressure retaining bolting.

2.1.3 Alternative Examination

The following examinations and tests required by Subsection IWE ensure the structural integrity and the leak-tightness of Class MC pressure retaining bolting, and therefore, no additional alternative examinations are proposed:

(1) When accessible, exposed surfaces of bolted connections shall be visually examined in accordance with the requirements of Table IWE-2500-1, Examination Category E-G, Pressure Retaining Bolting, Item No. E8.10, and

(2) Bolted connections shall meet the pressure test requirements of Table IWE-2500-1, Examination Category E-P, All Pressure Retaining Components, Item No. E9.40.

2.1.4 Basis for Relief

10 CFR 50.55a was amended in the *Federal Register* (61 FR 41303) to require the use of the ASME Section XI, 1992 Edition, 1992 Addenda, when performing containment examinations. Bolt torque or tension testing is required on IWE bolted connections that have not been disassembled and reassembled during the inspection interval, but is not required on any other ASME Section XI, Class 1, 2, or 3 bolted connections. The ASME Code Committee recognized that these tests were not warranted and the 1998 Edition of the ASME Section XI Code has dropped this particular requirement.

10 CFR 50, Appendix J, Option B, requires leak rate testing at least every 5 years. Option B also requires more frequent testing if leak rate failures occur and the source of the leakage must also be determined. Additionally, any connection that is disassembled must be leakrate tested after reassembly to confirm leak tight integrity. Torque or tension testing of pressure retaining bolts on a ten year frequency does not provide any additional safety benefit when compared to the frequency of leak rate testing per Appendix J, Option B.

2.1.5 Justification for Granting Relief

Periodic leak-rate testing in accordance with 10CFR50 Appendix J and visual examination as detailed in the proposed alternate examination will provide a reasonable assurance of containment integrity and leak tightness.

2.1.6 Staff Evaluation of RR-MC-8

In lieu of performing the Code-required (Table IWE-2500-1, Examination Category E-G, Item E8.20) torque or tension testing on the pressure retaining bolting, the licensee proposed an alternative which includes: (1) when accessible, exposed surfaces of bolted connections shall be visually examined in accordance with the requirements of Table IWE-2500-1, Examination Category E-G, Pressure Retaining Bolting, Item No. E8.10, and (2) bolted connections shall meet the pressure test requirements of Table IWE-2500-1, Examination Category E-P, All Pressure Retaining Components, Item No. E9.40.

The staff realizes that bolt torque or tension testing on bolted connections that have not been disassembled and reassembled during the inspection interval would require the bolting be un-torqued and then re-torqued or re-tensioned. Moreover, the leakage testing as required by 10 CFR Part 50, Appendix J would adequately verify the leak-tight integrity of the containment. The staff also realizes that compliance with ASME Code requirements will cause a hardship or unnecessary radiation exposure and costs to perform the work without a compensating increase in the level of quality and safety. The staff also finds that the alternative approach proposed by the licensee (the test required by 10 CFR Part 50, Appendix J to verify the leak-tight integrity of bolted connections for containment vessel leak-tight integrity) will provide a reasonable assurance of the containment leak-tight integrity. On this basis, the staff concludes that the alternative proposed by the licensee is authorized pursuant to 10 CFR 50.55a(a)(3)(ii).

2.2 <u>Relief Request RR-MC-9</u>

2.2.1 <u>Code Requirements</u>

The 1992 Edition, with 1992 Addenda of the ASME Section XI, Table IWE -2500-1, Examination Category E-A, Item Numbers E1.12 and E1.20 requires that both nonsubmerged and submerged, accessible pressure boundary surfaces be visually examined (VT-3). One examination per 10-year inspection interval is required at the end of the interval.

2.2.2 <u>Specific Relief Requested</u>

Relief is requested from performing the required visual examination (VT-3) on non-submerged, accessible pressure boundary surfaces, including Vent System, at the end of the 10-year inspection interval.

2.2.3 <u>Alternative Examination</u>

A general visual examination in accordance with paragraph IWE-3510.1 will be performed on all non-submerged, accessible pressure boundary surfaces, including Vent System, in lieu of a visual examination (VT-3) performed at the end of the 10-year inspection interval.

In addition, nonsubmerged pressure boundary surfaces inside containment will be inspected in association with a "Qualified (N) Coatings" program. Any evidence of degradation to pressure boundary integrity or potential leakage is reported to the Responsible Engineer for evaluation and disposition.

2.2.4 Basis for Relief

The reactor building environment does not pose adverse conditions that would promote degradation of the outside pressure boundary surfaces of containment. Also, visual examination methodologies were developed for detecting various flaws in metal components and are more stringent than those required for detection of degradation in containment integrity, which is essentially due to corrosion. Since corrosion of base metal is the primary issue of concern for Containment Vessel pressure boundary surface areas, a general visual examination should be performed, which is appropriate for detecting age-related mechanisms that may affect structural integrity and/or leak-tightness of the containment. When evidence of degradation is detected, a detailed examination and evaluation would then be performed in response to established reporting procedures.

2.2.5 Justification for Granting Relief

The proposed alternative to perform general visual examination and the normally performed coatings inspection program is sufficient to identify the principal degradation mechanism for non-submerged, accessible containment pressure boundary surface areas. The qualification requirements for general visual examination and coatings inspections provide adequate levels of training and qualification. As a result, relief should be granted under 10 CFR 50.55a(a)(3)(i) because the proposed alternative provides an acceptable level of quality and safety.

2.2.6 Staff Evaluation of RR-MC-9

Table IWE-2500-1, Examination Category E-A (Item Nos. E1.12 and E1.20) requires a visual examination (VT-3) of the accessible containment surface areas (E 1.12) and accessible surface areas of the vent system (E1.20) during the inspection interval. The visual examination (VT-3) specified in Examination Category E-A requires that the visual examination meet the requirements of Subarticle IWA-2200. In lieu of conducting the Code-required visual examination (VT-3), the licensee proposed to perform a general visual examination on all non-submerged, accessible pressure boundary surfaces, including non-submerged portions of the vent system at the end of the 10-year inspection interval. In addition, the licensee proposed to perform inspection on the non-submerged pressure boundary surfaces inside containment in accordance with its “Qualified (N) Coatings” program. When any evidence of degradation is detected, a detailed examination and evaluation will be performed in response to established reporting procedures.

The staff realizes that the requirements specified in Subarticle IWA-2200 were developed for detecting flaws in metal components and are more stringent than those for the detection of degradation such as corrosion. The staff also realizes a general visual examination is generally sufficient to inspect accessible surface areas of the containment vessel and the use of visual examination (VT-3) for detecting degradation of accessible containment surface areas will not increase the level of quality and safety. In addition, the licensee committed to inspect the non-submerged pressure boundary surfaces inside containment in accordance with a “Qualified (N) Coatings” program which was discussed in the October 19, 1998, response to NRC Generic Letter 98-04, “Potential for Degradation of the Emergency Core Cooling System and the

Containment Spray System After a Loss-of-Coolant Accident Because of Construction and Protective Coating Deficiencies and Foreign Material in Containment." According to the licensee, the procedures in this program are in compliance with Regulatory Guide 1.54, 1973, and the implementation is based on the following documents: (1) ANSI N101.2 - 1972, "Protective Coatings (Plants) for Light Water Nuclear Reactor Containment Facilities;" (2) ANSI N101.4 - 1972, "Quality Assurance for Protective Coatings Applied to Nuclear Facilities;" and (3) EPRI Report TR-109937, "Guideline on Nuclear Safety-Related Coatings." This program was approved by the staff in a letter dated November 19, 1999.

Based on the discussion above, the staff finds that the examination method for the non-submerged, accessible surface areas will provide an acceptable level of quality and safety for protecting the containment components. On this basis, the staff concludes that the licensee's alternative is authorized pursuant to 10 CFR 50.55a(a)(3)(i).

## 3.0 CONCLUSION

For Relief Request RR-MC-8, the staff concludes that compliance with the Code requirements would result in a burden without a compensating increase in the level of quality and safety, and that licensee's proposed alternative will provide reasonable assurance of containment pressure integrity. Therefore, this proposed alternative is authorized pursuant to 10 CFR 50.55a(a)(3)(ii). For Relief Request RR-MC-9, the staff concludes that the licensee's proposed alternative will provide an acceptable level of quality and safety. Therefore, the proposed alternative is authorized pursuant to 10 CFR 50.55a(a)(3)(i).

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Dated: October 4, 2000

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