

May 31, 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 - THIRD TEN-YEAR
INTERVAL INSERVICE INSPECTION PROGRAM, RELIEF REQUEST
NOS. RR-25 AND RR-26 (TAC NOS. MA6123 AND MA6124)

Dear Mr. Sumner:

On March 3, 2000, the Southern Nuclear Operating Company, Inc. (SNC), submitted Relief Requests Nos. RR-25 and RR-26 for the Edwin I. Hatch Nuclear Plant, Units 1 and 2. The relief requests modified information in earlier submittals dated July 9, 1999, and January 11, 2000. Specifically, the latest versions of the relief requests modify the previous relief requests to limit the application of the proposed alternative repair techniques for specific degradation mechanisms, as proposed in accordance with American Society of Mechanical Engineers (ASME) Code Cases N-562 and N-561, to the Plant Service Water System (PSW) and Residual Heat Removal Service Water System (RHRSW), respectively. The letter of March 3, 2000, supercedes the letters of July 9, 1999, and January 11, 2000. SNC is proposing these alternative repair techniques pursuant to the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(a)(3)(i), which states that alternatives to the requirements of Section XI of the ASME Code may be used, when authorized by the NRC, if the proposed alternatives would provide an acceptable level of quality and safety in lieu of actually complying with the corresponding requirements of the Code.

Section XI of the ASME Code requires that repairs be reconciled to the original Construction Code or to the Owners Design Specification for the component or system, and that defects be removed or reduced in size in accordance with the requirement of Section XI Article IWA. The staff has reviewed SNC's submittal of March 3, 2000, and has determined that SNC's proposed alternatives provide an acceptable level of quality and safety in lieu of actually performing a Code repair on these systems. The staff's safety evaluation is provided in the enclosure that follows. This completes our efforts on TAC Nos. MA6123 and MA6124.

Sincerely,

/RA/

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

Docket Nos. 50-321 and 50-366

cc w/encl: See next page

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Dear Mr. Sumner:

On March 3, 2000, the Southern Nuclear Operating Company, Inc. (SNC), submitted Relief Requests Nos. RR-25 and RR-26 for the Edwin I. Hatch Nuclear Plant, Units 1 and 2. The relief requests modified information in earlier submittals dated July 9, 1999, and January 11, 2000. Specifically, the latest versions of the relief requests modify the previous relief requests to limit the application of the proposed alternative repair techniques for specific degradation mechanisms, as proposed in accordance with American Society of Mechanical Engineers (ASME) Code Cases N-562 and N-561, to the Plant Service Water System (PSW) and Residual Heat Removal Service Water System (RHRSW), respectively. The letter of March 3, 2000, supercedes the letters of July 9, 1999, and January 11, 2000. SNC is proposing these alternative repair techniques pursuant to the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(a)(3)(i), which states that alternatives to the requirements of Section XI of the ASME Code may be used, when authorized by the NRC, if the proposed alternatives would provide an acceptable level of quality and safety in lieu of actually complying with the corresponding requirements of the Code.

Section XI of the ASME Code requires that repairs be reconciled to the Owners original Construction Code or to the Owners Design Specification for the component or system, and that defects be removed or reduced in size in accordance with the requirement of Section XI Article IWA. The staff has reviewed SNC's submittal of March 3, 2000, and has determined that SNC's proposed alternatives provide an acceptable level of quality and safety in lieu of actually performing a Code repair on these systems. The staff's safety evaluation is provided in the enclosure that follows. This completes our efforts on TAC Nos. MA6123 and MA6124.

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Division of Licensing Project Management
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Docket Nos. 50-321 and 50-366

cc w/encl: See next page

DOCUMENT NAME: C:\Hatch RRs 25 and 26.wpd *See previous concurrence

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO HATCH RELIEF REQUEST NOS. 25 AND 26

SOUTHERN NUCLEAR OPERATING COMPANY, INC., ET AL.

EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-321 AND 50-366

1.0 BACKGROUND

On March 3, 2000, the Southern Nuclear Operating Company, Inc. (SNC), submitted Relief Requests Nos. RR-25 and RR-26 for the Edwin I. Hatch Nuclear Plant, Units 1 and 2. Section XI of the ASME Code requires that repairs be reconciled to the original Construction Code or to the Owners Design Specification for the component or system, and that defects be removed or reduced in size in accordance with the repair requirements of Section XI Article IWA. SNC is proposing alternative repair techniques provided in the Code cases pursuant to the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(a)(3)(i), which states that alternatives to the requirements of Section XI of the ASME Code may be used, when authorized by the NRC, if (i) the proposed alternative would provide an acceptable level of quality and safety or (ii) compliance with the specified required would result in hardship or unusual difficult without a compensating increase in the level of quality and safety.

The relief request of March 3, 2000, modifies information in earlier submittals dated July 9, 1999, and January 11, 2000. Specifically, the latest versions of the relief requests modify the previous relief requests to limit the application of the proposed alternative repair techniques for specific degradation mechanisms, as proposed in accordance with American Society of Mechanical Engineers (ASME) Code Cases N-562 and N-561, to the Plant Service Water System (PSW) and Residual Heat Removal Service Water System (RHRSW), respectively. The letter of March 3, 2000, supercedes the letters of July 9, 1999, and January 11, 2000.

2.0 EVALUATION OF RR-25 and RR-26

2.1 Applicable Code Requirements

- ASME Boiler and Pressure Vessel Code, Section XI, Paragraph IWA-4120(a) requires that repairs be performed in accordance with the Owner's Design Specification or the original Construction Code of the component or system.
- ASME Boiler and Pressure Vessel Code, Section XI, Paragraph IWA-4320 requires that defects be removed or reduced in size prior to implementing weld repair procedures.

Enclosure

2.2 Code Relief Request

Relief is requested from removing defects and repairing in accordance with the Design Specification or the original Construction Code for internal under-deposit pitting including microbiologically induced corrosion (MIC).

2.3 Licensee's Basis for Relief

The ASME Section XI Code committee recognized that an alternative existed for internal wall thinning of Class 3 piping systems which have experienced degradation mechanisms, such as MIC, that would provide an acceptable repair configuration. The primary purpose for implementing this repair method is to allow for adequate time for additional examination of adjacent piping so that pipe replacement can be planned to reduce impact on system availability including Maintenance Rule applicability, availability of replacement materials and cost. This alternative repair technique involves the application of additional weld metal on the exterior of the piping system which restores the wall thickness requirement. For ASME Code Class 3, moderate energy systems (i.e., $\leq 200^{\circ}\text{F}$, and ≤ 275 psig), Code Case N-562 was approved by the ASME Section XI Code committee on December 31, 1996; however, Code Case N-562 has not been incorporated into NRC Regulatory Guide 1.147, and thus is not yet available for application at nuclear power plants. Similarly, for ASME Code Class 2, high energy systems (i.e., $> 200^{\circ}\text{F}$, or > 275 psig), Code Case N-561 was approved by the ASME Section XI Code committee on December 31, 1996; however, Code Case N-561 has not been incorporated into NRC Regulatory Guide 1.147, and thus is also not yet available for application at nuclear power plants.

2.4 Proposed Alternative Program

Pursuant to 10 CFR 50.55a(a)(3)(i), licensees may propose alternatives to the requirements of Section XI to the ASME Boiler and Pressure Vessel Code if the licensees can demonstrate that the alternatives will provide an acceptable level of quality and safety in lieu of actually complying the requirements themselves.

SNC proposes the following alternatives in lieu of an immediate Code repairs to the PSW and RHRSW systems:

- For the moderate energy, ASME Code Class 3 PSW system, SNC will implement the repair requirements of Code Case N-562 in its entirety, as subject to the additional restrictions and exceptions as described below for repairs to defects resulting from under-deposit pitting such as MIC. These types of defects are typically identified by small leaks in the piping system or by preemptive non-code required examinations performed by the licensee to monitor the degradation mechanisms. The repair technique described in Code Case N-562 will be utilized whenever an engineering evaluation determines that such a repair is suitable for general localized corrosion or under-deposit type defects. Provisions for use of this Code case will be addressed in the repair and replacement program procedure. Those provisions will require that the adjacent area be examined to verify that the entire flawed area will be encompassed by the repair and that there are no other unacceptable degraded locations within a representative area depending on the degradation mechanism present. An evaluation of the degradation mechanism will be performed to determine the reexamination schedule over the life of the repair. The repair will be considered to have a

maximum service life of two fuel cycles unless specific approval is requested and received from the NRC to make it permanent.

- For the RHRSW, SNC will implement the requirements of Code Case N-561 in its entirety, subject to the additional restrictions and exceptions as described below, for repairs to defects in Class 2 and high energy (i.e., > 200°F or > 275 psig) Class 3 piping systems resulting from under-deposit pitting such as MIC. These types of defects are typically identified by small leaks in the piping system or by preemptive non-code required examinations performed by the licensee to monitor the degradation mechanisms. The repair technique described in Code Case N-561 will be utilized whenever an engineering evaluation determines that such a repair is suitable for general localized corrosion or under-deposit type defects. Provisions for use of this Code Case will be addressed in the repair and replacement program procedure. Those provisions will require that the adjacent area be examined to verify that the entire flawed area will be encompassed by the repair and that there are no other unacceptable degraded locations within a representative area depending on the degradation mechanism present. An evaluation of the degradation mechanism will be performed to determine the re-examination schedule over the life of the repair. The repair will be considered to have a maximum service life of two fuel cycles unless specific approval is requested and received from the NRC to make it permanent.
- In ISI Relief Request RR-14, SNC requested approval to utilize ASME Section XI Code Case N-532. Code Case N-532 provides alternatives for the documentation requirements for repair and replacement activities. In part, Code Case N-532 allows use of ISI Form NIS-2A in lieu of ISI Form NIS-2 which is required to be filled out by Paragraph 7.0 of Code Cases N-561 and N-562. Therefore, SNC proposes to document the use of Code Cases N-561 and N-562 on Form NIS-2A in lieu of Form NIS-2, as previously approved by the NRC by granting Relief Request RR-14.

2.5 Staff Evaluation - Justification for Granting Relief

ASME Code Cases N-561 and N-562 provide alternative requirements to those of IWA-4000 and for the repair of internal defects or degradation in ASME Code Class 2 and high energy Code Class 3 piping systems (Code Case N-561), and in moderate energy, ASME Code Class 3 piping systems, respectively. The ASME Section XI Code committee determined that these alternative repair techniques will provide an acceptable level of quality and safety in lieu of actually complying with the repair requirements of Section XI Paragraphs IWA-4120(a) and IWA-4320. The weld overlay repair technique described in the Code Cases is designed to meet ASME Boiler and Pressure Vessel Code design criteria and safety margins. The staff concurs that the Code Cases are acceptable alternatives pursuant to 10CFR50.55a(3)(i), as modified by the following restrictions proposed by SNC:

- the scope of the alternative repair techniques in RRs 25 and 26 is limited to repairs of general localized corrosion or under-deposit defects in the PSW and RHRSW systems only;
- if implemented, the allowable time for leaving the alternative repair techniques in service is limited to a period not to exceed two operating cycles;

- SNC has proposed to conduct additional inservice inspections of any regions of the PSW and RHRSW systems repaired by these alternative techniques; and
- the provisions for implementing these alternative repair techniques will be addressed in the licensee's Repair and Replacement Program Procedure.

These provisions provide reasonable assurance that the alternative repair techniques of Code Cases N-561 and N-562 will provide an acceptable level of quality and safety in lieu of performing the required ASME Code, Section XI, repairs on the PSW and RHRSW systems.

3.0 CONCLUSIONS

The staff has determined that SNC has proposed acceptable alternative techniques for repair of the PSW and RHRSW systems. The licensee will follow the methods proposed in Code Cases N-562 for repair of the PSW system and Code Case N-561 for repair of the RHRSW system. However, use of the Code Cases are subject to the following restrictions that have been proposed by SNC and accepted by the NRC:

- the scope of the alternative repair techniques in RRs 25 and 26 is limited to general localized corrosion or under-deposit type defects in the PSW and RHRSW systems only;
- if implemented, the allowable time for leaving the alternative repair techniques in service is limited to a period not to exceed two operating cycles;
- SNC shall conduct additional inservice inspections of any regions of the PSW and RHRSW systems repaired by these alternative techniques; and
- the provisions for implementing and documenting these alternative repair techniques shall be addressed in the licensee's Repair and Replacement Program Procedure.

Pursuant to 10 CFR 50.55a(a)(3)(i), the staff concludes that these additional restrictions provide adequate assurance that the alternative repair techniques of Code Cases N-562 and N-561 will provide an acceptable level of quality and safety in lieu of performing the ASME Code, Section XI, repairs on the systems.

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Date: May 31, 2000

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