

September 28, 2000

Mr. William T. Cottle
President and Chief Executive Officer
STP Nuclear Operating Company
South Texas Project Electric
Generating Station
P. O. Box 289
Wadsworth, TX 77483

SUBJECT: SOUTH TEXAS PROJECT, UNITS 1 AND 2 - REQUEST FOR RELIEF
(RR-ENG-2-19) FROM ASME CODE, SECTION XI REQUIREMENTS
(TAC NOS. MA9177 AND MA9178)

Dear Mr. Cottle:

By letter dated June 6, 2000, the STP Nuclear Operating Company (STPNOC) submitted a request (RR-ENG-2-19) seeking relief from the ultrasonic examination requirements specified in Table IWB-2500-1 of the American Society of Mechanical Engineers (ASME) Code, Section XI, for the second 10-year inservice inspection (ISI) interval at the South Texas Project, Units 1 and 2. This request proposed adopting Code Case N-307-2 as an alternative in accordance with the provisions of 10 CFR 50.55a(a)(3)(i).

Based on our review of your June 6, 2000, submittal, we have concluded that the proposed ultrasonic examination requirements specified in Code Case N-307-2 will provide an acceptable level of quality and safety as an alternative to the current requirements of Table IWB-2500-1. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), Relief Request RR-ENG-2-19 is hereby authorized for the second 10-year ISI interval at STP, Units 1 and 2.

The staff's evaluation and conclusions are contained in the enclosed safety evaluation. Should you have questions regarding this safety evaluation, please contact Mr. T. J. Kim, of my staff at (301) 415-1392.

Sincerely,

/RA by M. Thadani for/

Robert A. Gramm, Chief, Section 1
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-498 and 50-499

Enclosure: Safety Evaluation

cc w/encl: See next page

South Texas, Units 1 & 2

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February 2000

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
REQUEST FOR RELIEF (RR-ENG-2-19) FROM ASME CODE REQUIREMENTS FOR
SECOND 10-YEAR INSERVICE INSPECTION PROGRAM
SOUTH TEXAS PROJECT, UNITS 1 AND 2
SOUTH TEXAS PROJECT NUCLEAR OPERATING COMPANY
DOCKET NOS. 50-498 AND 50-499

1.0 INTRODUCTION

By letter dated June 6, 2000, the STP Nuclear Operating Company (the licensee) submitted a request (RR-ENG-2-19) seeking relief from the ultrasonic examination requirements specified in Table IWB-2500-1 of the American Society of Mechanical Engineers (ASME) Code, Section XI, for the second 10-year inservice inspection (ISI) interval at the South Texas Project (STP), Units 1 and 2. In accordance with the provisions of 10 CFR 50.55a(a)(3)(i), this request proposed adopting Code Case N-307-2 as an alternative to the ultrasonic examination requirements of Table IWB-2500-1 for pressure retaining bolting greater than 2 inches in diameter.

2.0 APPLICABLE REQUIREMENTS

Section 50.55a(g) of Title 10 of the *Code of Federal Regulations* (10 CFR) requires that ISI of ASME Code Class 1, 2, and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code (hereafter called ASME Code) and the applicable addenda, except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). The regulation at 10 CFR 50.55a(a)(3) states in part that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if (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) shall meet the 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 ISI of components 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) 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein.

For STP Units 1 and 2, the applicable edition of Section XI of the ASME Code for the second 10-year ISI interval, which begins on September 25, 2000, and October 19, 2000, for Units 1 and 2, respectively, is the 1989 edition.

3.0 EVALUATION

3.1 Licensee Evaluation

Components for which relief is requested - ASME Code Class 1 components with pressure-retaining bolting greater than 2 inches in diameter that provide integrity of reactor coolant pressure boundary.

Code requirement from which relief is requested - ASME Code, Section XI, Table IWB-2500-1, "Examination Category B-G-1, Pressure Retaining Bolting, Greater Than 2 in. in Diameter," provides volumetric examination requirements for bolts and studs. Figure IWB-2500-12 depicts the volumes to be examined ultrasonically.

Licensee's basis for requesting relief - Code Case N-307-1 provides modified criteria for volumetric examination of bolts and studs as stated in IWB-2500. Code Case N-307-1 has been approved by the NRC, has been listed in Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability - ASME Section XI, Division 1," and has been applied in the South Texas Project ISI Plan for the first 10-year interval. However, Code Case N-307-2 has been issued by the ASME in Supplement 6 to the 1998 Nuclear Code Cases, superseding Code Case N-307-1. Paragraph IWA-2441(c) of the ASME Code, Section XI, states that code cases shall be in effect at the time the ISI Plan is filed. Because Code Case N-307-1 has been superseded, it is no longer in effect, and it cannot be adopted in an updated ISI plan.

Alternative examination - In accordance with the provisions of 10 CFR 50.55a(a)(3)(i), the licensee has proposed adoption of Code Case N-307-2 as an alternative to Table IWB-2500-1, Examination Category B-G-1, and Figure IWB-2500-12, for the ultrasonic examination requirements for Class 1 bolting. Code Case N-307-2 removes the requirement to perform a separate examination of the center-drilled hole surface. The ultrasonic examination volume of the bolt or stud remains the same as N-307-1. This code case also allows the reduced bolt or stud exam volume to be examined from the end surface with a straight beam technique.

3.2 Staff Evaluation

The licensee stated that Code Case N-307-2 is similar to Code Case N-307-1, which has been approved by the staff and is incorporated in Regulatory Guide 1.147. Code Case N-307-2 no longer requires the surface examination of the center-drilled hole, and instead provides the option of scanning from the end surface of the bolt or stud. The ultrasonic examination volume of the bolt or stud is the same regardless of whether the ultrasonic examination occurs in the center-drilled hole or from the end of the stud or bolt. The staff finds that the area of concern is effectively examined scanning either the center-drilled hole or scanning from the end surface.

The licensee justified the elimination of the center-drilled hole surface examination based on the following: (1) stresses are higher on the outside surface under the combined axial and bending

loads, (2) the geometry of the thread root is a stress riser that increases the potential for crack initiation, and (3) cracking of reactor pressure vessel studs is an uncommon occurrence. The staff finds that the licensee has provided adequate justifications for eliminating the center-drilled hole surface examination.

In the licensee's submittal, the licensee requested approval to use an alternative ultrasonic examination of bolts or studs over 2 inches in diameter as specified in Code Case N-307-2 pursuant to 10 CFR 50.55a(a)(3)(i). The staff finds that the use of this alternative is acceptable.

4.0 CONCLUSION

The staff has concluded that the proposed ultrasonic examination requirements specified in Code Case N-307-2 will provide an acceptable level of quality and safety as an alternative to the current requirements of Table IWB-2500-1. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), this alternative as requested in Relief Request RR-ENG-2-19 is hereby authorized for the second 10-year ISI interval at STP, Units 1 and 2.

Principal Contributor: J. Davis

Date: September 28, 2000

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President and Chief Executive Officer
STP Nuclear Operating Company
South Texas Project Electric
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Sincerely,

Robert A. Gramm, Chief, Section 1
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Docket Nos. 50-498 and 50-499

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