

October 15, 1999

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 - SECOND 10-YEAR INTERVAL
INSERVICE INSPECTION PROGRAM PLAN - RELIEF REQUEST RR-ENG-2-3
(TAC NOS. MA5870 AND MA5871)

Dear Mr. Cottle:

By letter dated June 9, 1999, STP Nuclear Operating Company (STPNOC) submitted relief request RR-ENG-2-3 for relief from the American Society of Mechanical Engineers Code, Section XI, nondestructive examination requirements applicable to the South Texas Project (STP), Units 1 and 2, pressurizer support attachment welds. STPNOC proposes to perform an alternative ultrasonic examination from the outside surface of the skirt attachment weld, in lieu of a surface examination from inside the pressurizer skirt.

The Nuclear Regulatory Commission staff has evaluated the information provided by STPNOC. The staff concludes that STPNOC's proposed alternative to perform an ultrasonic examination to detect flaws in the weld provides an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), the alternative proposed in relief request RR-ENG-2-3 is authorized for the second 10-year inservice inspection interval of the STP, Units 1 and 2. Our related safety evaluation is enclosed.

Sincerely,

Original signed by:

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

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO THE SECOND 10-YEAR INSERVICE INSPECTION PROGRAM

RELIEF REQUEST RR-ENG-2-3

STP NUCLEAR OPERATING COMPANY

SOUTH TEXAS PROJECT, UNITS 1 AND 2

DOCKET NOS. 50-498 AND 50-499

1.0 INTRODUCTION

By letter dated June 9, 1999, STP Nuclear Operating Company (the licensee) submitted a request for relief from the American Society of Mechanical Engineers (ASME) Code, Section XI, nondestructive examination requirements applicable to South Texas Project (STP), Units 1 and 2, pressurizer support attachment welds (Relief No. RR-ENG-2-3). The licensee proposes to perform an alternative ultrasonic examination from the outside surface of the skirt attachment weld, in lieu of a surface examination on the inside of the pressurizer skirt. The licensee's relief request is applicable to the second 10-year inservice inspection (ISI) interval for STP, Units 1 and 2.

2.0 BACKGROUND

ISI of the ASME Code Class 1, 2, and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel (B&PV) Code and applicable addenda as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(6)(g)(i). The regulation at 10 CFR 50.55a(a)(3) states 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, except the design and access provisions and the preservice examination 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 inservice examination of components and system pressure tests 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

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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 is the 1989 Edition.

3.0 LICENSEE'S REQUEST

The components for which relief is requested

Pressurizer support skirt attachment welds for Unit 1 (pressurizer 1A, weld number 1R111NPZ101A) and Unit 2 (pressurizer 2A, weld number 2R112NPZ201A)

Applicable Code requirement from which relief is requested

ASME Code, Section XI, Table IWB-2500-1, Examination Category B-H, and Figures IWB-2500-13, -14, and -15 require surface (i.e., magnetic particle) examination of the interior surfaces of the support skirt attachment weld and adjacent base material located inside the pressurizer support skirt.

Licensee's Basis for Requesting Relief (as stated)

In accordance with the provisions of 10CFR 50.55a(a)(3)(i), the South Texas Project requests relief from the ASME Section XI requirement for a surface examination of the inside surface of the Unit 1 and Unit 2 pressurizer support skirt attachment weld. This relief request proposes application of an ultrasonic examination as an alternative approach to surface examination of the subject weld.

ASME Section XI requires that integral attachments to Class 1 vessels be examined by either a surface or volumetric examination method, depending on the specific design of the attachment. The configuration of the skirt attachment welds most nearly resembles that of Figure IWB-2500-13 of Section XI (Figure 1). This figure requires surface examination of both the exterior (A-B) and interior (C-D) surfaces of the attachment weld and adjacent base materials. However, the configuration of the South Texas Project pressurizers (see UFSAR [updated final safety analysis report] Figures 5.4-10 and -15) does not permit adequate access to the interior examination area to perform the specified magnetic particle examination. Pressurizer heaters, located approximately 13 inches from the inside surface of the support skirt, restrict access to this area.

Licensee's Proposed Alternative Examination (as stated)

In lieu of the magnetic particle examination of the inside surface of the skirt attachment weld, the South Texas Project proposes to perform an ultrasonic examination from the outside surfaces of the attachment weld and adjacent base materials. The extent of the ultrasonic examination coverage is shown on the attached sketch (Figure 2). This ultrasonic examination will provide coverage of the interior surfaces that would have been examined by the internal magnetic particle examination. Furthermore, this ultrasonic examination will provide coverage of the attachment weld and portions of adjacent base material volumes not obtainable by magnetic particle examination. A magnetic particle

examination will be conducted on the exterior surfaces of the attachment weld and adjacent base materials (examination surface A-B) in accordance with Section XI.

Licensee's Justification for Granting Relief (as stated)

The South Texas Project requests relief from the requirement for magnetic particle examination of the inside surface of the pressurizer support attachment weld and proposes an alternative ultrasonic examination as described above in accordance with 10 CFR 50.55a(a)(3)(i). The proposed ultrasonic examination is expected to provide results at least comparable to those from a magnetic particle surface examination, as well as cover a wider area. Consequently, the South Texas Project believes the proposed alternative ultrasonic examination will provide an acceptable level of quality and safety.

4.0 EVALUATION

The applicable code requirements for the licensee's second 10-year ISI interval would require the licensee to perform a magnetic particle examination on the interior and exterior surfaces of the support skirt attachment welds (ASME Code, Section XI, 1989 Edition, Table IWB-2500, Examination Category B-H). Performing the required surface examination on the interior surface of the support skirt attachment welds is not feasible due to inadequate access to the interior examination area of the support skirt attachment welds. The licensee proposes to perform an ultrasonic examination from the exterior surface of the support skirt attachment welds.

The code-required magnetic particle examination is intended to provide detection of surface crack initiation, but does not provide information on the depth of the cracks. The proposed ultrasonic examination would be expected to reveal cracking before it becomes significant and provides an estimate of crack depth. The ultrasonic examination can be performed on the exterior surface of the weld and provides indication of discontinuities throughout the volume of the material. Therefore, the staff finds the licensee's proposed alternative of performing an ultrasonic examination on the exterior surface of the support skirt attachment welds will provide acceptable assurance of structural integrity by identifying any significant indications in the support skirt attachment welds.

5.0 CONCLUSION

Based on the above evaluation, the staff has determined that the code-required examination is not feasible to perform on the interior surface of the support skirt attachment welds. The staff concludes that the licensee's proposed alternative to perform an ultrasonic examination to detect flaws in the weld provides an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), the alternative proposed in relief request RR-ENG-2-3 is authorized for the second 10-year ISI interval of the STP, Units 1 and 2.

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Date: October 15, 1999

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