

South Texas Project Electric Generating Station P.O. Box 28.9 Wadsworth, Texas 77483

August 31, 1999 NOC-AE-000562 File No.: G09.16 10CFR50.55a

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U.S. Nuclear Regulatory Commission Attention: Document Control Desk Washington, DC 20555

South Texas Project Units 1 and 2 Docket Nos. STN 50-498, 50-499 Request for Relief from ASME Boiler and Pressure Vessel Code Section XI Requirements (Relief Request RR-ENG-2-12)

In accordance with the provisions of 10CFR50.55a(a)(3)(i), the South Texas Project requests relief from the Construction Code nondestructive examination requirements for repair/replacement activities during the second inservice inspection interval of Units 1 and 2. The NRC is requested to approve substitution of alternative nondestructive examination methods as described in the attached relief request. The South Texas Project believes these alternative nondestructive examination methods provide an acceptable level of quality and safety.

The attached relief request includes a discussion of the basis and justification for the relief request and an implementation schedule. This relief request is based on the provisions of Section XI Code Case N-587, which has not yet been approved by NRC in Regulatory Guide 1.147.

The South Texas Project requests NRC review and approval of this relief request by February 1, 2000, to support development and submittal of the Unit 1 and 2 Ten Year ISI Plan for the second interval.

If there are any questions, please contact either Mr. C. A. Murry at (512) 972-8285 or me at (512) 972-7902.

Manager, Systems Engineering 1/1 A047

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Attachment: Request for Relief from ASME Boiler and Pressure Vessel Code Section XI Requirements (Relief Request RR-ENG-2-12)

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U. S. Nuclear Regulatory Commission Attention: Document Control Desk Washington, D.C. 20555-0001

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SOUTH TEXAS PROJECT UNITS 1 & 2 REQUEST FOR RELIEF FROM ASME BOILER AND PRESSURE VESSEL CODE, SECTION XI REQUIREMENTS (RELIEF REQUEST RR-ENG-2-12)

Reference Code: Construction Code for Repair/Replacement Activities as Required by ASME Boiler and Pressure Vessel Code, Section XI, 1989 Edition

A. Components for Which Exemption is Requested:

- (a) Type: Components subject to repair/replacement activity under ASME Section XI
- (b) Function: Refer to UFSAR Sections on Class 1, 2, and 3 components
- (c) Class: ASME Code Classes 1, 2, and 3

B. Code Requirement from Which Relief is Requested:

Repair/replacement activities on Class 1, 2, and 3 components and their supports in operating nuclear power plants are controlled by ASME Section XI. Section XI requires that replacement items be fabricated to the requirements of the original construction code, including the code's material and weld acceptance nondestructive examination requirements. Radiographic examination is usually performed to meet the volumetric examination requirements of the Construction Code.

Later editions of the Construction Code or ASME Section III may be used if any differences in the specified attributes between the original code and the selected code are reconciled.

C. Basis for Relief from Code Requirements

Performing radiographic examinations on fabrication welds at the plant site to meet construction code nondestructive examination requirements can be a hardship, especially for installation welds attaching replacement items to an existing system or component. Radiographic examinations require significant resources for planning, coordination, and implementation. The area of the exposure must be roped off and evacuated to prevent exposure of personnel. Outage operations are disrupted and workers lose productivity while they are kept out of the area for the exposures, which may take several hours for large components. If an alternative nondestructive examination method, such as ultrasonic examination, can be substituted for the radiographic examination to meet the construction code nondestructive examination, significant resources can be saved and a potential source of radiation exposure to plant personnel can be avoided.

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An ultrasonic examination can be performed on a weld much faster and with much less plant impact than a radiographic examination. An ultrasonic examination does not impact the work of others because evacuation of the surrounding area is not required. An ultrasonic examination can be performed on a component weld while the component is filled with water or other fluid whereas a radiographic examination usually requires that the component be drained.

D. Alternative Examination:

Code Case N-587 allows alternative nondestructive examination methods to be used to meet the examination requirements of the Construction Code if the provisions of the case are met. Alternative examination methods, a combination of methods, or newly-developed techniques may be substituted for the methods specified in the Construction Code, provided the Authorized Nuclear Inservice Inspector is satisfied that the methods are demonstrated to be equivalent or superior to those specified in the Construction Code.

The South Texas Project believes alternative nondestructive examination methods and techniques should be permitted in lieu of those specified by the construction code. For example, ultrasonic examinations can be performed more quickly and with much less plant disruption than radiographic examination. Properly selected ultrasonic examination techniques employed by qualified NDE personnel can provide an accurate and reliable acceptance examination for material and fabrication welds currently accepted by radiographic examination. Ultrasonic examination is especially effective in detecting laminar defects in base materials and planar defects in the weld and adjacent base metal that are more likely to lead to long term degradation, leakage, or structural failure. The radiographic examination method may be more sensitive for the detection of certain types of volumetric defects (e.g., weld porosity), but these defects are fairly benign and not likely to lead to component leakage or structural failure. The use of ultrasonic examination in lieu of radiographic examination is currently allowed for Section VIII pressure vessel fabrication for wall thickness of 4 inches or greater under Code Case 2235, "Use of Ultrasonic Examination in Lieu of Radiography, Section VIII, Divisions I and II."

The South Texas Project will demonstrate alternative nondestructive examination methods and techniques to the Authorized Nuclear Inservice Inspector which are equivalent or superior to the methods specified by the construction code. Nondestructive examination methods and techniques employed as alternatives to the construction code will meet the applicable requirements of the Section XI edition and addenda, including referenced codes and standards, required by the inservice inspection program. Therefore, all alternative nondestructive examination methods and techniques will utilize qualified procedures, equipment, and materials and will be employed by qualified and certified personnel. The alternative nondestructive examination method or technique will be used to examine the examination volumes and areas required by the construction code. Any flaws detected by the alternative nondestructive examination methods or techniques will be evaluated by

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comparing their sizes with the applicable Section XI acceptance standards. If appropriate acceptance standards are not available in Section XI, the flaw acceptance standards of the construction code will be used.

A copy of Code Case N-587 is included with this attachment. The Nuclear Regulatory Commission has not yet generically approved it for use.

E. Justification for Granting Relief:

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In accordance with the provisions of 10CFR50.55a(a)(3)(i), the alternative nondestructive examination methods and techniques proposed by the South Texas Project will provide an acceptable level of quality and safety.

The proposed alternative nondestructive examination methods and techniques are consistent with the criteria of ASME Section XI Code Case N-587. The alternative nondestructive examination method must be demonstrated to the satisfaction of the Authorized Nuclear Inservice Inspector as being equivalent or superior to the fabrication nondestructive examination method to be considered acceptable. The South Texas Project believes the proposed alternative examination requirements for construction code nondestructive examination, will provide an acceptable level of quality and safety for replacement items. In addition, these alternative requirements will provide relief from the high costs of performing radiographic examinations of replacement installation welds in the plant during refueling outages and will remove a potential source of radiation exposure to plant personnel.

F. Implementation Schedule:

The South Texas Project requests relief from the nondestructive examination requirements of the Construction Code for repair/replacement activities for the second ten-year inservice inspection interval of Units 1 and 2. The NRC is requested to review and approve this relief request by February 1, 2000, to support development and submittal of the Unit 1 and 2 Ten Year ISI Plan for the second interval.

CASE N-587

CASES OF ASME BOILER AND PRESSURE VESSEL CODE

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Approval Date: December 12, 1997

See Numerical Index for expiration and any reaffirmation dates.

Case N-587 Alternative NDE Requirements for Repair/ Replacement Activities Section XI, Division 1

Inquiry: What alternative NDE may be performed in lieu of the NDE required by the Construction Code for repair/replacement activities?

Reply: It is the opinion of the Committee that, in lieu or performing the NDE required by the Construction Code for repair/replacement activities, alternative examination methods, a combination of methods, or newly developed techniques may be substituted for the methods specified in the Construction Code, provided the Inspector is satisfied that the results are demonstrated to be equivalent or superior to those specified in the Construction Code methods.