



South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, Texas 77483

June 6, 2000  
NOC-AE-00000852  
File No.: G09.16  
10CFR50.55a

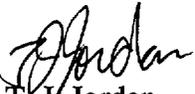
U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555-0001

South Texas Project  
Units 1 and 2  
Docket No. STN 50-498, STN 50-499  
Request for Relief from ASME Boiler and Pressure Vessel Code Section XI  
Requirements to Use Code Case N-307-2 (Relief Request RR-ENG-2-19)

In accordance with the provisions of 10CFR50.55a(a)(3)(i), the South Texas Project requests Nuclear Regulatory Commission approval of ASME Section XI Code Case N-307-2, "Revised Ultrasonic Examination Volume for Class 1 Bolting, Table IWB-2500-1, Examination Category B-G-1, When the Examinations Are Conducted From the End of the Bolt or Stud or From the Center-Drilled Hole, Section XI, Division 1," for use at the South Texas Project. Code Case N-307-2 provides an alternative to the ultrasonic examination requirements of Table IWB-2500-1 for pressure-retaining bolting greater than two inches in diameter. The South Texas Project believes the alternative ultrasonic examination requirements specified by Code Case N-307-2 will 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 applies the provisions of Section XI Code Case N-307-2, which has not yet been approved by the NRC in Regulatory Guide 1.147. The South Texas Project requests NRC review and approval of this relief request by August 31, 2000, to support development and issuance of the South Texas Project Ten Year Inservice Inspection Plan for the second inspection interval.

If there are any questions, please contact either Mr. M. S. Lashley at (361) 972-7523 or me at (361) 972-7902.

  
T. J. Jordan  
Manager,  
Nuclear Engineering

PLW/

Attachment: Request for Relief from ASME Boiler and Pressure Vessel Code Section XI  
Requirements to Use Code Case N-307-2 (Relief Request RR-ENG-2-19)

BGN-001

A047

cc:

Ellis W. Merschoff  
Regional Administrator, Region IV  
U. S. Nuclear Regulatory Commission  
611 Ryan Plaza Drive, Suite 400  
Arlington, Texas 76011-8064

John A. Nakoski  
Project Manager, Mail Code 0-4D3  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Cornelius F. O'Keefe  
c/o U. S. Nuclear Regulatory Commission  
P. O. Box 910  
Bay City, TX 77404-0910

A. H. Gutterman  
Morgan, Lewis & Bockius  
1800 M. Street, N.W.  
Washington, DC 20036-5869

M. T. Hardt/W. C. Gunst  
City Public Service  
P. O. Box 1771  
San Antonio, TX 78296

A. Ramirez/C. M. Canady  
City of Austin  
Electric Utility Department  
721 Barton Springs Road  
Austin, TX 78704

Jon C. Wood  
Matthews & Branscomb  
One Alamo Center  
106 S. St. Mary's Street, Suite 700  
San Antonio, TX 78205-3692

Institute of Nuclear Power  
Operations - Records Center  
700 Galleria Parkway  
Atlanta, GA 30339-5957

Richard A. Ratliff  
Bureau of Radiation Control  
Texas Department of Health  
1100 West 49th Street  
Austin, TX 78756-3189

D. G. Tees/R. L. Balcom  
Houston Lighting & Power Co.  
P. O. Box 1700  
Houston, TX 77251

Central Power and Light Company  
ATTN: G. E. Vaughn/C. A. Johnson  
P. O. Box 289, Mail Code: N5012  
Wadsworth, TX 77483

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

**SOUTH TEXAS PROJECT  
UNITS 1 AND 2  
REQUEST FOR RELIEF FROM ASME BOILER AND PRESSURE VESSEL  
CODE SECTION XI REQUIREMENTS TO USE CODE CASE N-307-2  
(RELIEF REQUEST RR-ENG-2-19)**

---

Reference Code: ASME Boiler and Pressure Vessel Code, Section XI, 1989 Edition

**A. Components for Which Exemption is Requested:**

- (a) Name: Components with pressure-retaining bolting greater than two inches in diameter
- (b) Function: Provide integrity of reactor coolant pressure boundary
- (c) Class: ASME Code Class 1

**B. Code Requirement from Which Relief is Requested:**

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 ultrasonically examined.

**C. Basis for Relief from Code Requirements:**

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 Nuclear Regulatory Commission, has been listed in Regulatory Guide 1.147, and has been applied in the South Texas Project Inservice Inspection Plan for the first interval. However, Section XI Code Case N-307-2 has been issued by ASME in Supplement 6 to the 1998 Nuclear Code Cases, superceding Code Case N-307-1. IWA-2441(c) states that code cases shall be in effect at the time the Inspection Plan is filed. Because Code Case N-307-1 has been superceded, it is no longer in effect with ASME, and it cannot be adopted in updated inservice inspection plans.

**D. Alternative Examination:**

In accordance with the provisions of 10CFR50.55a(a)(3)(i), the South Texas Project requests approval to use the ultrasonic examination volume criteria of Section XI 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 is very similar to Code Case N-307-1. N-307-1 allows the examination volume to be reduced from 100% of the bolt or stud (as required by Section XI) if:

- (1) the reduced volume is examined ultrasonically by scanning from the center-drilled hole, and
- (2) the center-drilled hole surface itself is also separately examined with a surface, ultrasonic, or eddy current examination technique.

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. This case also allows the reduced bolt or stud exam volume to be examined from the end surface with a straight beam technique.

This relief request will not affect any surface examination requirements that may be applicable to Class 1 bolts or studs.

**E. Justification for Granting Relief:**

Code Case N-307-2 is very similar to Code Case N-307-1, which has been approved by the Nuclear Regulatory Commission in Regulatory Guide 1.147. N-307-2 adds the option of scanning from the end surface of the bolt or stud. The South Texas Project believes the alternative examination requirements of Code Case N-307-2 will provide an acceptable level of quality and safety in accordance with 10CFR50.55a(a)(3)(i).

The examination requirement for the center bore hole surface was removed because cracking was concluded to be more likely to initiate at the outside surface of the bolt or stud than at the center bore hole surface. Code Case N-307-2 requires periodic ultrasonic examination of a ¼-inch deep, cylindrical volume below the thread roots, which is considered an adequate screening inspection for the entire bolt or stud.

Deletion of the center bore hole examination requirement was based on the following considerations:

- Stresses are higher on the outside surface under the combined axial and bending loads;
- The geometry of the thread root is a stress riser that increases the potential for crack initiation; and
- Cracking of reactor pressure vessel studs is an uncommon occurrence.

**F. Implementation Schedule:**

The South Texas Project requests Nuclear Regulatory Commission approval of this relief request by August 31, 2000, to support development and issuance of the Unit 1 and Unit 2 Ten Year Inservice Inspection Plan for the second inspection interval.