



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

July 17, 2000  
NOC-AE-00000884  
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 Nos. STN 50-498, STN 50-499  
Supplement to Request for Relief from ASME Boiler and Pressure Vessel  
Code Section XI Requirements of IWA-5242(a) (RR-ENG-2-15)

Reference: J. J. Sheppard, South Texas Project, to NRC Document Control Desk, Relief Request RR-ENG-2-15 dated October 7, 1999 (NOC-AE-000625)

The South Texas Project submits this correspondence to address questions from NRC staff reviewers regarding relief request RR-ENG-2-15. As described in the referenced correspondence, the South Texas Project has requested partial relief from the ASME visual examination requirements of IWA-5242(a). IWA-5242(a) states that for systems borated for the purpose of controlling reactivity, insulation shall be removed from pressure-retaining bolted connections for VT-2 visual examination.

In place of removing insulation, the South Texas Project would perform VT-2 visual examinations of bolted connections with the insulation in place provided that the bolting material contains sufficient chromium content to render it resistant to boric acid degradation. This alternate practice is consistent with code case N-616, "Alternative Requirements for VT-2 Visual Examination of Class 1, 2, and 3 Insulated Pressure-Retaining Bolted Connections."

NRC staff reviewers have expressed concern regarding the potential for stress corrosion cracking of bolts in these applications and have requested that the following information be provided to support approval of the relief request:

- Bolt material
- Bolt preload
- Hold time

Material:

Bolting material used at the South Texas Project in the affected applications is SA-193, SA-453, SA-194, and SA-564. Bolts in applications at the South Texas Project that could come in contact with borated water contain at least 12% chromium, which exceeds the 10% chromium content required under code case N-616. Piping specifications require that bolting material in these

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applications meet these criteria. This request does not affect examination procedures for connections with non-corrosive resistant bolting material.

The materials of concern for stress corrosion cracking are SA-564 Grade 330, SA-194 Grade 6, and SA-453 Grade 660. However, the potential for stress corrosion cracking is alleviated by the chromium content (noted above) and through use of heat treatment. Review of records indicates that affected bolting material at the South Texas Project has been heat treated at 1100°F or higher, which reduces susceptibility to stress corrosion cracking. Furthermore, SA-194 Grade 6 is a nut material and should not be a concern for stress corrosion cracking because it is typically loaded under compression.

Preload:

The South Texas Project uses 70% of the yield strength of bolting material as long as the bolting material and the flange material yield strengths are compatible. If the yield strength of the flanged material is less than that of the bolting material, then the clamping stress value is found for the flange material. This would be less than the 70% of the bolting yield strength.

Hold time:

ASME Section XI subsection IWA-5213 specifies test condition hold times after pressurization. The South Texas Project applies the criteria of IWA-5213 when testing to identify system leakage.


Conclusion:

The South Texas Project submits the above information to resolve any issues regarding inspection for potential stress corrosion cracking. Please note also that IWA-5242 only requires VT-2 inspections of bolted connections for evidence of boron leakage, and does not stipulate inspections of the bolting material for stress cracks. A VT-2 examination will not find stress corrosion cracking. Identification of stress cracks in bolting material requires a VT-1 visual inspection and not a VT-2.

Provisions remain for identifying leakage from these locations. Any failure that results in leakage would be noticed because of build-up of boric acid residue. A failure that does not result in leakage would not be noticeable even with the insulation removed.

Consequently, in accordance with the provisions of 10CFR50.55a(a)(3)(ii), the South Texas Project requests relief from full compliance with IWA-5242(a). Full compliance with IWA-5242(a) will result in a hardship or unusual difficulty without a compensating increase in the level of quality and safety.

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

  
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