

January 24, 2002

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 - APPROVAL OF REQUEST FOR
RELIEF FROM ASME BOILER AND PRESSURE VESSEL CODE SECTION XI
REQUIREMENTS FOR WELD EXAMINATIONS, RELIEF REQUEST
RR-ENG-38 (TAC NOS. MB3115 AND MB3116)

Dear Mr. Cottle:

By letter dated September 18, 2001, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a(g)(5)(iv), STP Nuclear Operating Company (STPNOC) requested relief from achieving complete coverage of examinations required by the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI in the inservice inspection (ISI) program for Class 1 and Class 2 components. The request was for the first 10-year ISI interval at South Texas Project, Units 1 and 2.

Specifically, STPNOC requested relief from obtaining results from 100 percent of the examination volume or area of the Class 1 and 2 component welds, excluding reactor pressure vessel welds inspected by automated examination, as provided in ASME Section XI, Tables IWB-2500-1 and IWC-2500-1, for ISI by nondestructive examination of component welds during the first inspection interval.

The U. S. Nuclear Regulatory Commission staff has reviewed the STPNOC relief request for not complying with the Code requirements to perform a 100 percent volumetric and/or surface examination on the subject components and finds that the examinations performed by STPNOC provide reasonable assurance of structural integrity of the subject components, as discussed in the enclosed Safety Evaluation.

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Therefore, STPNOC is granted relief from obtaining results from 100 percent of the examination volume or area of the Class 1 and 2 component welds pursuant to 10 CFR 50.55a(g)(6)(i), for the first 10-year ISI interval at South Texas Project, Units 1 and 2.

Sincerely,

/RA/

Robert A. Gramm, Chief, Section 1
Project Directorate IV
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

REQUESTS FOR RELIEF FROM ASME SECTION XI REQUIREMENTS

RELIEF REQUEST RR-ENG-38

STP NUCLEAR OPERATING COMPANY

SOUTH TEXAS PROJECT, UNITS 1 AND 2

DOCKET NOS. 50-498 AND 50-499

1.0 INTRODUCTION

By letter dated September 18, 2001, and pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a(g)(5)(iv), STP Nuclear Operating Company (STPNOC or the licensee) submitted the bases for not achieving complete coverage of examinations required by the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI Code in the inservice inspection (ISI) program for Class 1 and Class 2 components. These examination requirements are provided in ASME Section XI, Tables IWB-2500-1 and IWC-2500-1, for ISI by nondestructive examination of component welds during the first inspection interval. The request was for the first 10-year ISI interval at South Texas Project, Units 1 and 2.

Specifically, STPNOC requested relief from obtaining results from 100 percent of the examination volume or area of the Class 1 and 2 component welds, excluding reactor pressure vessel welds inspected by automated examination. STPNOC stated that 100 percent examination coverage of these welds is impractical because of component configuration and geometry, and because of the limitations of the examination equipment and techniques used to perform these examinations.

2.0 BACKGROUND

ISI of the ASME Code Class 1, 2, and 3 components is to 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 relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). The requirement 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 the licensee demonstrates that: (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 (ISI) 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 the limitations and modifications listed therein. The Code of record for the South Texas Project Electric Generating Station, Units 1 and 2 first 10-year ISI interval is the 1983 Edition through the Summer 1983 Addenda of the ASME B&PV Code.

3.0 EVALUATION

The NRC staff has reviewed the information concerning South Texas Project Electric Generating Station, Units 1 and 2 first 10-year ISI program Request for Relief No. RR-ENG-38, as provided by the licensee in a letter dated September 18, 2001, and the clarifying information in its e-mail dated November 8, 2001, regarding Break Exclusion Zone (BEZ) Welds. The information provided by the licensee in support of the request for relief from Code requirements has been evaluated by the NRC staff as discussed below.

3.1 Licensee Request for Relief RR-ENG-38

- Code Requirements: (As stated)

"ASME Section XI Code Table IWB-2500-1 and Table IWC-2500-1 specifies the examination method and extent of coverage for nondestructive examination of welds. Relief is requested from the full volumetric or surface examination coverage requirements of the Section XI Code when the obtained coverage is 90% or less. The welds for which relief is requested are listed in the attached tables¹.

Welds having a reduction in volumetric or surface examination coverage of less than 10% are considered to have essentially 100% coverage in accordance with Section XI Code Case N-460."

- System/Components(s) for Which Relief is Requested:

Class 1 and 2 Piping Welds, Components, Valves, Pumps, and Integral Attachments.

The licensee listed the subject components in "Weld Examination Tables" for Units 1 and 2 as part of its submittal dated September 18, 2001. The subject tables are not included in this safety evaluation.

The licensee also included 22 welds on which they performed augmented examinations and classified as BEZ welds.

1 The Weld Examination Tables are part of the licensee's submittal dated September 18, 2001, and are not included in this safety evaluation.

- Licensee's Code Relief Request (as stated):

"The South Texas Project requests relief from full examination coverage requirements for the welds listed in the attached tables based on the impracticality of achieving required coverage.

"Obtaining required examination coverage of welds may not be practical due to various factors, including:

- component configuration,
- geometry, and
- examination equipment and techniques utilized for the examinations."

- Licensee's Basis for Requesting Relief (as stated):

"100% examination coverage of these welds is impractical because of component configuration and geometry, and because of the limitations of the examination equipment and techniques used to perform these examinations. However, volumetric and surface examinations of accessible locations will continue as required.

Pursuant to 10 CFR 50.55a(g)(5)(iv), the South Texas Project submitted the bases for not achieving complete coverage of examinations required by the ASME Section XI Code in the inservice inspection program. Examination requirements for Class 1 and Class 2 components are provided in ASME Section XI, Tables IWB-2500-1 and IWC-2500-1, for inservice inspection by nondestructive examination of component welds during the first inspection interval. The South Texas Project requests relief from obtaining results from essentially 100% of the examination volume or area of component welds during the first inspection interval, excluding reactor pressure vessel welds inspected by automated examination. 100% examination coverage of these welds is impractical because of component configuration and geometry, and because of the limitations of the examination equipment and techniques used to perform these examinations.

Limitations on examination coverage by automated examination of reactor pressure vessel welds were approved by the NRC in the referenced letter²."

- Licensee's Proposed Alternative Examination (as stated):

"No alternate examinations are proposed for the welds for which relief is requested."

3.2 Staff Evaluation:

ASME Code, Section XI, Table IWB-2500-1 and Table IWC-2500-1 specifies the examination method and extent of coverage for nondestructive examination of welds. The licensee requested relief from 100 percent volumetric and/or surface examination coverage requirements of the Code.

2 The licensee's submittal dated September 18, 2001, references NRC letter dated June 20, 2001 to William T. Cottle. This letter is not included in this safety evaluation.

As a part of the Code relief, the licensee included 22 BEZ welds, as defined by NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants" (SRP) Section 3.6.2, "Determination of Rupture Locations and Dynamic Effects Associated with the Postulated Rupture of Piping," which are subjected to augmented examination requirements. The licensee noted that these are circumferential and longitudinal pipe welds within the BEZ of high energy fluid system piping at containment penetrations. These welds will either be 100 percent volumetrically examined during each inspection interval of the ISI program in accordance with ASME Code, Section XI and SRP Section 6.6, "Inservice Inspection of Class 2 and 3 Piping," or exceptions due to access limitations will be documented in the ISI program.

The NRC staff determined that, because of the physical limitations due to geometric configuration of the subject welded areas, the Code requirements are impractical. In order for the licensee to perform 100 percent volumetric examination and/or 100 percent surface examination, the subject welds would have to be redesigned. The resulting increase in plant safety would not be commensurate with the burden that would result from imposition of the Code requirements.

The licensee has obtained 28 percent to 89 percent volumetric coverage, and 28 percent to 100 percent surface examination coverage. The volumetric and surface examinations obtained should detect any significant patterns of degradation. Therefore, the licensee's proposed volumetric and/or surface examination coverages of the subject components provides reasonable assurance of structural integrity of the subject components.

4.0 CONCLUSION

The NRC staff concludes that compliance with the Code requirements to perform a 100 percent volumetric and/or surface examination on the subject components is impractical and that the examinations performed by the licensee provide reasonable assurance of structural integrity of the subject components. The NRC staff further concludes that in order for the licensee to perform 100 percent volumetric examination and/or 100 percent surface examination, the subject welds would have to be redesigned. The resulting increase in plant safety would not be commensurate with the burden that would result from imposition of the Code requirements. Therefore, the licensee's relief is granted pursuant to 10 CFR 50.55a(g)(6)(i) for the Class 1 and 2, and BEZ welds for the 10-year ISI interval at South Texas Project, Units 1 and 2.

The NRC staff has determined that this grant of relief is authorized by law and will not endanger life or property, or the common defense and security and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility.

Principal Contributor: T. K. McLellan

Date: January 24, 2002

South Texas, Units 1 & 2

cc:

Mr. Cornelius F. O'Keefe
Senior Resident Inspector
U.S. Nuclear Regulatory Commission
P. O. Box 910
Bay City, TX 77414

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

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

Mr. C. A. Johnson/R. P. Powers
AEP - Central Power and Light Company
P. O. Box 289
Mail Code: N5022
Wadsworth, TX 77483

INPO
Records Center
700 Galleria Parkway
Atlanta, GA 30339-3064

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011

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

Judge, Matagorda County
Matagorda County Courthouse
1700 Seventh Street
Bay City, TX 77414

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

Mr. J. J. Sheppard, Vice President
Engineering & Technical Services
STP Nuclear Operating Company
P. O. Box 289
Wadsworth, TX 77483

S. M. Head, Manager, Licensing
Nuclear Quality & Licensing Department
STP Nuclear Operating Company
P. O. Box 289, Mail Code: N5014
Wadsworth, TX 77483

Office of the Governor
ATTN: John Howard, Director
Environmental and Natural
Resources Policy
P. O. Box 12428
Austin, TX 78711

Jon C. Wood
Matthews & Branscomb
112 East Pecan, Suite 1100
San Antonio, TX 78205

Arthur C. Tate, Director
Division of Compliance & Inspection
Bureau of Radiation Control
Texas Department of Health
1100 West 49th Street
Austin, TX 78756

Jim Calloway
Public Utility Commission of Texas
Electric Industry Analysis
P. O. Box 13326
Austin, TX 78711-3326

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