

August 23, 2001

Mr. C. Lance Terry  
Senior Vice President &  
Principal Nuclear Officer  
TXU Electric Company  
Attn: Regulatory Affairs Department  
P. O. Box 1002  
Glen Rose, TX 76043

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES), UNITS 1 AND 2 -  
REQUEST FOR THE USE OF ASME CODE CASE N-597 AS AN  
ALTERNATIVE ANALYTICAL EVALUATION OF WALL THINNING  
(TAC NOS. MB2260 AND MB2261)

Dear Mr. Terry:

By letter dated June 21, 2001, as supplemented by letter dated July 11, 2001, TXU Electric (the licensee) submitted a request for relief from the Inservice Inspection requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (the Code), Section XI (IWA-3100, "Standards for Examination Evaluation") for Comanche Peak Steam Electric Station (CPSES), Units 1 and 2. The Code provides the process for the disposition of flaw examination evaluations which exceed the acceptance standards for materials and welds applicable to the construction of the component. The licensee proposes to use the provisions of ASME Code Case N-597, "Requirements for Analytical Evaluation of Pipe Wall Thinning, Section XI, Division 1," for the analytical evaluation of Class 2 and 3 carbon and low-alloy steel piping items subjected to wall thinning as a result of flow accelerated or other corrosion phenomena. CPSES, Units 1 and 2, has no carbon and low-alloy steel piping items classified as Code Class 1. Code Case N-597 has not been endorsed by the U. S. Nuclear Regulatory Commission (NRC).

The Code Case N-597, itself, does not address inspection requirements and wall thinning rates since this becomes the responsibility of the licensee with implementation of the Code Case. The licensee plans to implement Code Case N-597 through the use of industry standard, NSAC-202L-R2, "Recommendations for an Effective Flow Accelerated Corrosion (FAC) Program," for calculating wear rates, forecasting remaining life, and conducting inspections of FAC degradation at CPSES, Units 1 and 2.

In the supplemental letter dated July 11, 2001, the licensee clarified the definitions of "shall" and "should" in the plant procedures that implement Code Case N-597. These procedures are based on industry standard NSAC-202L, "Recommendations for an Effective Flow Accelerated Corrosion Program." The use of the term "shall" denotes absolute requirements and is normally reserved for regulatory requirements or commitments. The use of the term "should" denotes firm CPSES management expectations. In addition, deviation from a procedural step using the term "should" is a departure from the norm and requires supervisory concurrence. The use of either term is simply a mechanism to distinguish actions that have a direct regulation or License commitment basis versus those which do not.

C. Lance Terry

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Based on its review, the NRC staff has concluded that the licensee's alternative to use Code Case N-597 and industry standard NSAC-202L, with clarification of the application of "shall" and "should" in this standard, provide an acceptable level of quality and safety. Therefore, the proposed alternative, to use Code Case N-597 for the analytical evaluation of Class 2 and 3 carbon and low-alloy steel piping items subjected to wall thinning as a result of flow accelerated or other corrosion phenomena, is authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the second ten-year interval (August 13, 2000, to August 13, 2010) of the Inservice Inspection (ISI) Program for CPSES, Unit 1, and for the first ten-year interval (August 3, 1993, to August 3, 2003) of the ISI Program for CPSES, Unit 2, or until ASME Code Case N-597 is approved for general use by reference in Regulatory Guide (RG) 1.147. After that time, the licensee must follow the conditions, if any, specified in RG 1.147.

Sincerely,

**/RA/**

David H. Jaffe, Senior Project Manager, Section 1  
Project Directorate IV  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-445 and 50-446

Enclosure: Safety Evaluation

cc w/encl: See next page

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Sincerely,

/RA/

David H. Jaffe, Senior Project Manager, Section 1  
Project Directorate IV  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-445 and 50-446

Enclosure: Safety Evaluation

cc w/encl: See next page

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Comanche Peak Steam Electric Station

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO THE USE OF CODE CASE N-597 AS AN ALTERNATIVE  
FOR THE ANALYTICAL EVALUATION OF CLASS 2 AND 3  
CARBON AND LOW-ALLOY STEEL PIPING ITEMS  
TXU ELECTRIC  
COMANCHE PEAK STEAM ELECTRIC STATION, UNITS 1 AND 2  
DOCKET NUMBERS 50-445 AND 50-446

1.0 INTRODUCTION

The inservice inspection (ISI) of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (the Code) Class 1, 2, and 3 components shall be performed in accordance with Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," of the Code and applicable edition and addenda as required by Title 10 of the Code of Federal Regulations (10 CFR) Section 50.55a(g), except where specific written relief has been granted by the Nuclear Regulatory Commission (NRC) pursuant to 10 CFR 50.55a(a)(3). The requirements of 10CFR 50.55a(a)(3) state, in part, that alternatives to the requirements may be used provided 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, 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 ten-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) twelve months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein and subject to NRC approval.

By letter dated June 21, 2001, as supplemented by letter dated July 11, 2001, TXU Electric (the licensee) submitted a request for relief from the ASME Code, Section XI (Article IWA-3100, "Standards for Examination Evaluation"), for Comanche Peak Steam Electric Station (CPSES), Units 1 and 2, which provides the process for the disposition of flaw examination evaluations which exceed the acceptance standards for materials and welds specified in the Section III Edition applicable to the construction of the component. The flaw evaluation requirement is

from the 1986 Edition of the ASME Code, Section XI, no addenda. The request provides for an analytical evaluation of Class 2 and 3 carbon and low-alloy steel piping items subjected to wall thinning as a result of flow accelerated or other corrosion phenomenon. CPSES, Units 1 and 2, has no carbon and low-alloy steel piping items classified as Code Class 1.

## 2.0 BACKGROUND

### 2.1 ASME Section XI Code Requirement

ASME Code, Section XI (IWA-3100), provides the process for the disposition of flaw examination evaluations which exceed the acceptance standards for materials and welds specified in the Code applicable to the construction of the component. This provision stipulates that the disposition shall be subjected to review by the regulatory and enforcement authorities having jurisdiction at the plant site. This flaw evaluation requirement for CPSES is from the 1986 Edition of the ASME Code, Section XI, no addenda.

### 2.2 Proposed Alternative

As an alternative to the requirements of IWA-3100, the licensee proposes to use the provisions of ASME Code Case N-597, "Requirements for Analytical Evaluation of Pipe Wall Thinning," for the analytical evaluation of Class 2 and 3 carbon and low-alloy steel piping items subjected to wall thinning as a result of flow accelerated or other corrosion phenomena, rather than to repair the component if the construction code minimum wall thickness has been reached. This code case stipulates that the methods of predicting the rate of wall thickness loss and the predicted remaining wall thickness shall be the responsibility of the owner. The licensee plans to implement the code case through the use of industry standard, NSAC-202L-R2, "Recommendations for an Effective Flow Accelerated Corrosion (FAC) Program" for calculating wear rates, forecasting remaining life, and conducting inspections of FAC degradation at CPSES.

## 3.0 EVALUATION

The Code requires that the component whose flaws exceed the acceptance standards shall be evaluated to determine disposition which shall be subjected to review by the regulatory and enforcement authorities having jurisdiction at the plant site. As an alternative to the Code requirements, the licensee has proposed to use Code Case N-597, Section XI, for Class 2 and 3 carbon and low-alloy steel piping items for CPSES, Units 1 and 2. The NRC staff has previously reviewed this code case in preparing its position for incorporation into 10 CFR Part 50 and determined that it is conditionally acceptable. Code Case N-597, itself, does not address inspection requirements and wall thinning rates, since this becomes the responsibility of the licensee with implementation of the Code Case.

The staff finds that the licensee's use of Code Case N-597 provides an acceptable approach for determining wall thinning as a result of flow-accelerated or other corrosion phenomena. However, the approach makes note of the owner's responsibility in developing the methods of predicting the rate of wall thickness loss and the value of the predicted remaining wall thickness. For the NRC staff to find the use of this code case acceptable, the licensee provided information on the plant inspection and evaluation procedures for calculating wear rates, remaining life, and predicting remaining wall thickness. These procedures are based on

NSAC-202L, "Recommendations for an Effective Flow Accelerated Corrosion Program." The licensee, in its implementation procedures, has eliminated the ambiguities in NSAC-202L; in particular, the licensee clarified, by supplemental letter dated July 11, 2001, the following definitions used in the plant procedures governing their flow accelerated corrosion program:

Shall - used for absolute requirements (normally reserved for regulatory requirements or commitments). If a commitment is to achieve a desired result, all procedure steps that describe the process to achieve that result do not have to be shall steps; if the step explicitly meets the commitment, use shall.

Should - used to indicate firm CPSES management expectations. Deviation is a departure from the norm and requires supervisory concurrence. This should be noted in writing which may include logs, procedures, work orders, memos, etc.

The licensee further clarified that from an internal implementation perspective, the use of the term "should" carries the same weight and importance as that of "shall." In addition, the use of these two different terms is simply a mechanism to distinguish actions that have a direct regulation or License commitment basis versus those which do not.

Components to which this code case is applied must be repaired or replaced in accordance with the construction code of record and licensee's requirements, or a later NRC-approved edition of ASME Section III prior to reaching the allowable minimum wall thickness as specified in this code case.

The NRC staff finds that the licensee's alternative to the use of Code Case N-597 and industry standard NSAC-202L, with clarifications of the application of "shall" and "should" in this standard, provides an acceptable level of quality and safety.

#### 4.0 CONCLUSION

The staff concludes that the use of Code Case N-597 and industry standard NSAC-202L-R2, with clarification of the terms "shall" and "should" in this standard, as an alternative evaluation for Class 2 and 3 carbon and low-alloy steel piping items is authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the second ten-year interval (August 13, 2000, to August 13, 2010) of the ISI Program for CPSES, Unit 1, and for the first ten-year interval (August 3, 1993, to August 3, 2003) of the ISI Program for CPSES, Unit 2, or until ASME Code Case N-597 is approved for general use by reference in Regulatory Guide (RG) 1.147. After that time, the licensee must follow the conditions, if any, specified in RG 1.147. In addition, components to which this code case is applied must be repaired or replaced in accordance with the construction code of record and licensee's requirements prior to reaching the allowable minimum wall thickness as specified in this code case. At such time that Code Case N-597 is incorporated into 10 CFR Part 50 and the licensee intends to continue to implement Code Case N-597, the licensee should follow all the provisions in Code Case N-597 with limitations issued in the rule, if any.

Principal Contributor: C. Lauron

Date: August 23, 2001