

TXU Power  
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Mike Blevins  
Senior Vice President &  
Chief Nuclear Officer

REF: 10 CFR 50.55a(3)(i)

CPSES-200402114  
Log # TXX-04168

September 29, 2004

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

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)  
DOCKET NO. 50-445  
RELIEF REQUEST B-5 FOR THE SECOND 10 YEAR ISI  
INTERVAL FOR UNIT 1 FROM 10 CFR 50.55a FOR  
THE PURPOSE OF INVOKING CODE CASE N-698, "DESIGN  
STRESS INTENSITIES AND YIELD STRENGTH VALUES FOR  
UNS N06690 WITH A MINIMUM SPECIFIED YIELD STRENGTH  
OF 35 KSI (240 MPA), CLASS 1 COMPONENTS," FOR NEW  
CONSTRUCTION OF REPLACEMENT REACTOR VESSEL HEAD

Gentlemen:

Pursuant to 10CFR50.55a(3)(i), TXU Generation Company LP (TXU Power) hereby requests NRC approval of the attached relief request. The relief from Section III of the 1989 Edition of the ASME Code is being requested for the fabrication of a replacement reactor vessel head for CPSES Unit 1. The details of the 10 CFR 50.55a request are attached.

TXU Power requests that the NRC authorize the use of ASME Code Case N-698, "Design Stress Intensities and Yield Strength Values for UNS N06690 With a Minimum Specified Yield Strength of 35 ksi (240 Mpa), Class 1 Components," as an alternative to certain requirements of NB-3112.4 for the new construction of the replacement reactor vessel head for CPSES Unit 1.

A member of the STARS (Strategic Teaming and Resource Sharing) Alliance

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This communication contains no new licensing basis commitments regarding CPSES.


TXU Power requests approval of this relief request by March 31, 2005. The approval date was selected to allow procurement of long lead material that will be used in the fabrication of the replacement reactor vessel head. If you have any questions regarding this request, please contact Jack Hicks at (254) 897-6725.

Sincerely,

TXU Generation Company LP

By: TXU Generation Management Company LLC,  
Its General Partner

Mike Blevins  
Senior Vice President and Principal Nuclear Officer

By:   
Fred W. Madden  
Director, Regulatory Affairs

JCH  
Attachment  
Enclosure

c - B. S. Mallet, Region IV  
W. D. Johnson, Region IV  
M. C. Thadani, NRR  
Resident Inspectors, CPSES  
Terry Parks, Chief Inspector, TDLR

**TXU POWER  
COMANCHE PEAK STEAM ELECTRIC STATION UNIT 1  
SECOND TEN-YEAR INTERVAL ISI RELIEF REQUEST NO. B-5**

**PROPOSED USE OF CODE CASE N-698**

**I. ASME System/Component(s) Affected:**

Relief is requested for Reactor Pressure Vessel (RPV) closure heads manufactured to the requirements of Section III of 1989 Edition of the ASME Boiler and Pressure Vessel Code.

**II. Applicable Code Edition and Addenda:**

The replacement reactor vessel head manufactured to the requirements of Section III of the 1989 Edition of the ASME Code, Section NB-3112.4 requires the use of design stress intensity values for materials listed in the tables of Section II, Part D, Subpart 1.

Table 2B of Section II, Part D contains the design stress intensity values for Type Designation UNS N06690 for the SB-167 specification for Class 1 components.

**III. Proposed Subsequent Code Edition and Addenda and Code Case:**

Pursuant to 10 CFR 50.55a(a)(3)(i), CPSES is requesting relief from the requirements of Section III of the ASME Code, 1989 Edition, Section NB-3112.4.

**IV. Reason for Request:**

Section II, Part B, Table 3 of the SB-167 specification provides an UNS N06690 yield strength that is dependent on manufactured condition. For seamless pipe and tube that are less than or equal to 5.0 inch outside diameter, Table 3 specifies a minimum yield strength of 30 kilopounds per square inch (ksi) for hot-worked or hot-worked annealed and 35 ksi for cold-worked annealed.

The UNS N06690 penetration tubes in the replacement reactor vessel closure head are manufactured using a hot-working process. Evaluation of the hot-worked UNS N06690 tubing has shown that a minimum yield strength of 35 ksi is inherent to the material. Because of the large margin in the minimum yield strength in ASME Section II, Table 3, an ASME Code Case was needed to permit the use of higher design stress intensity values (23.3 ksi in lieu of 20 ksi) when the minimum yield strength is specified as 35 ksi for hot-worked UNS N06690 Class 1 components.

**TXU POWER**  
**COMANCHE PEAK STEAM ELECTRIC STATION UNIT 1**  
**SECOND TEN-YEAR INTERVAL ISI RELIEF REQUEST NO. B-5**

**PROPOSED USE OF CODE CASE N-698**

**V. Proposed Alternative:**

ASME developed and approved ASME Code Case N-698 "Design Stress Intensities and Yield Strength Values for UNS N06690 with a Minimum Specified Yield Strength of 35 ksi, Class 1 Components Section III, Division 1," permitting the use of higher stress intensities associated with 35 ksi minimum yield strength, hot-worked UNS N06690 SB-167. TXU Power is requesting that the design stress intensity values of Code Case N-698 be approved pursuant to 10 CFR 50.55a(a)(3)(i).

**VI. Basis of Using the Code Case:**

Pursuant to 10 CFR 50.55a(a)(3)(i), relief is requested on the basis that the proposed alternative provides an acceptable level of quality and safety.

**VII. Duration of Proposed Alternative:**

This relief is requested for the Comanche Peak Steam Electric Station Unit 1.

**VIII. Precedent:**

- 1) Farley Nuclear Plant (Reference SER dated May 26, 2004, TAC Nos. MC1598 and MC1599.

ENCLOSURE TO TXX-04168

CODE CASE N-698

CASES OF ASME BOILER AND PRESSURE VESSEL CODE

Approval Date: November 18, 2003

See Numeric Index for expiration  
and any reaffirmation dates.

Case N-698

Design Stress Intensities and Yield Strength  
Values for UNS N06690 With a Minimum  
Specified Yield Strength of 35 ksi (240 MPa),  
Class 1 Components  
Section III, Division 1

*Inquiry:* Is it permissible in the construction of Class 1 components conforming to the requirements of Section III, Division 1, to use a nickel-chromium-iron UNS N06690 hot-worked and annealed condition with minimum yield strength of 35 ksi (240 MPa) otherwise conforming to material Specification SB-167?

*Reply:* It is the opinion of the Committee that the material specified in the Inquiry may be used in the construction of Class 1 components under the rules of Section III, Division 1, provided the following additional requirements are met.

(a) The design stress intensity and yield strength values shall be as shown in Table 1.

(b) The outer diameter is equal to or less than NPS 5 (DN 125).

TABLE 1  
DESIGN STRESS INTENSITY AND YIELD STRENGTH  
VALUES

Temperature °F	Design Stress Intensity Values, $S_m$ ksi (MPa)	Yield Strength, ksi (MPa)
100	23.3 (161.5)	35.0 (240.0)
200	23.3 (161.5)	31.6 (216.2)
300	23.3 (161.5)	29.8 (204.0)
400	23.3 (161.5)	28.7 (198.5)
500	23.3 (161.5)	27.8 (193.0)
600	23.3 (161.5)	27.6 (191.0)
700	23.3 (161.5)	27.6 (191.0)
800	23.3 (161.5)	27.6 (191.0)

(c) For external pressure the required thickness shall be determined in accordance with NB-3133 using Fig. NFN-4 in Section II, Part D, Subpart 3.

(d) Welding procedures and performance qualification shall be in accordance with Section IX and this Code Case. The material shall be considered to be P-No. 43.

(e) This Case number shall be shown on the Data Report for the component and the marking and certification of the material.