

April 4, 2005

Mr. Michael R. Blevins
Senior Vice President &
Principal Nuclear Officer
TXU Energy
Attn: Regulatory Affairs Department
P. O. Box 1002
Glen Rose, TX 76043

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION, UNIT 1 - RELIEF
REQUEST B-5: RELIEF FROM THE AMERICAN SOCIETY OF MECHANICAL
ENGINEERS BOILER AND PRESSURE VESSEL CODE, SECTION III,
REQUIREMENTS FOR USE OF CODE CASE N-698 FOR THE FABRICATION
OF A REPLACEMENT REACTOR VESSEL HEAD (TAC NO. MC4909)

Dear Mr. Blevins:

By letter dated September 29, 2004, TXU Generation Company LP (the licensee) submitted relief request B-5, pursuant to 50.55a(a)(3)(i) of Title 10 of the *Code of Federal Regulations* (10 CFR), seeking relief from American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code), Section III, requirements for the fabrication of a replacement reactor vessel head for Comanche Peak Steam Electric Station (CPSES), Unit 1. Specifically, the licensee proposed the use of the design stress intensity values of Code Case N-698, "Design Stress Intensities and Yield Strength Values for UNS N06690 [nickel-chromium-iron alloy] With a Minimum Specified Yield Strength of 35 ksi [kilo-pounds per square inch] (240 Mpa), Class 1 Components, Section III, Division 1." The use of Code Case N-698 is currently pending endorsement by the Nuclear Regulatory Commission (NRC).

The NRC staff has evaluated the licensee's request. Based on its evaluation, the NRC staff concludes that the licensee's proposed alternative, as discussed in the licensee's Relief Request B-5, provides an acceptable level of quality and safety; and that the proposed alternative satisfies the requirements of 10 CFR 50.55(a)(3)(i).

Therefore, the proposed alternative to use ASME Code Case N-698 is authorized by law for the CPSES, Unit 1 for the second 10-year inservice inspection interval or until Code Case N-698 is approved for general use by reference in Regulatory Guide 1.84. After that time, if the licensee wishes to continue to use Code Case N-698, the licensee must follow the conditions, if any, specified in the regulatory guide.

All other ASME Code, Section XI requirements for which relief was not specifically requested and approved in this relief request remain applicable, including third party review by the Authorized Nuclear Inservice Inspector.

Michael R. Blevins

-2-

The NRC staff's evaluation and conclusions are contained in the enclosed safety evaluation. If there are any questions regarding this evaluation, please contact Mr. Mohan C. Thadani at (301) 415-1476.

Sincerely,

/RA/

Allen G Howe, Chief, Section 1
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-445

Enclosure: Safety Evaluation

cc w/encl: See next page

Michael R. Blevins

-2-

The NRC staff's evaluation and conclusions are contained in the enclosed safety evaluation. If there are any questions regarding this evaluation, please contact Mr. Mohan C. Thadani at (301) 415-1476.

Sincerely,

/RA/

Allen G. Howe, Chief, Section 1
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-445

Enclosure: Safety Evaluation

cc w/encl: See next page

DISTRIBUTION

PUBLIC

PDIV-1 Reading

RidsNrrDlpmLpdiv (HBerkow)

RidsNrrDlpmLpdiv1 (AHowe)

RidsNrrPMMThadani

RidsNrrLADBaxley

RidsOgcRp

RidsAcrcAcnwMailCenter

EReichelt

RidsRgn4MailCenter(AHowell, WJohnson)

ADAMS Accession No.: ML050420462

*No significant change from input

NRR-028

| | | | | | |
|--------|-----------|-----------|----------|-------------|-----------|
| OFFICE | PDIV-1/PM | PDIV-1/LA | EMCB/SC | OGC | PDIV-1/SC |
| NAME | MThadani | DBaxley | TChan* | MWoods(NLO) | AHowe |
| DATE | 3/30/05 | 3/30/05 | 02/01/05 | 3/22/05 | 4/4/05 |

OFFICIAL RECORD COPY

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELIEF REQUEST B-5 FOR

SECOND 10-YEAR INSERVICE INSPECTION INTERVAL

TXU GENERATION COMPANY, LP

COMANCHE PEAK STEAM ELECTRIC STATION, UNIT 1

DOCKET NO. 50-445

1.0 INTRODUCTION

By letter dated September 29, 2004, (ML042800255), TXU Generation Company LP (the licensee) submitted, pursuant to 50.55a(a)(3)(i) of Title 10 of the *Code of Federal Regulations* (10 CFR), Relief Request B-5 from American Society of Mechanical Engineers (ASME) Boiler and pressure vessel code (Code) Section III requirements for the fabrication of a replacement reactor vessel head for Comanche Peak Steam Electric Station (CPES) Unit 1. Specifically, the licensee proposed the use of the design stress intensity values of Code Case N-698, "Design Stress Intensities and Yield Strength Values for UNS N06690 [nickel-chromium-iron alloy] With a Minimum Specified Yield Strength of 35 ksi [kilo-pounds per square inch] (240 Mpa), Class 1 Components Section III, Division 1." Use of Code Case N-698 is currently pending endorsement by the Nuclear Regulatory Commission (NRC).

2.0 REGULATORY EVALUATION

The regulation at 10 CFR 50.55a(a)(3) states that alternatives to the requirements of 10 CFR 50.55a(g) may be used, when authorized by the NRC, if (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.

3.0 TECHNICAL EVALUATION

ASME System/Component(s) for Which Relief is Requested (As Stated):

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

ENCLOSURE

Code Requirements for Which Relief is Requested (As Stated):

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.

Licensee's Proposed Alternative

The licensee stated that the 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. The licensee is requesting that the design stress intensity values of Code Case N-698 be approved for use pursuant to 10 CFR 50.55a(a)(3)(i).

Licensee's Basis for Relief

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 ksi for hot-worked or hot-worked annealed and 35 ksi for cold-worked annealed.

The licensee stated that 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.

NRC STAFF EVALUATION

The licensee requested the use of UNS N06690 penetration tubes in the replacement reactor vessel closure head which 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. Therefore, a design stress intensity value of 23.2 ksi that corresponds to a yield strength of 35 ksi as permitted by Code Case N-698 is justified. Further, the use of UNS N06690 in the SB-167 specification has been previously approved by the ASME as Code Case N-474-2, "Design Stress Intensities and Yield Strength Values for UNS N06690 with a Minimum Specified Yield Strength of 35 ksi, Class I Components Section III, Division 1," and accepted by the NRC in Regulatory Guide 1.85, Revision 31, dated March 1999. The design stress intensities and yield strengths of Code Case N-474-2 were incorporated into the 1999 Addenda for the annealed condition, however, the addenda did not specify the type of anneal. Based on the evaluation of hot-worked UNS N06690 SB-167, Code Case N-698 adjusts the yield strength values for hot-worked UNS N06690 to the evaluated value of 35 ksi minimum and provides

associated design stress intensity values that coincide with those of Section II, Part D, Subpart 1, of the 1999 Addenda. Therefore, the staff finds that the proposed use of the design stress intensity value of 23.3 ksi, as stated in Code Case N-698, is acceptable.

4.0 CONCLUSIONS

Based on the above evaluation, the NRC staff concludes that the proposed alternative as discussed in the licensee's request for relief provides an acceptable level of quality and safety. Therefore, the proposed alternative to use Code Case N-698 is authorized pursuant to 10 CFR 50.55a(a)(3)(i) for CPSES, Unit 1 for the second 10-year ISI interval or until Code Case N-698 is approved for general use by reference in Regulatory Guide 1.84. After that time, if the licensee wishes to continue to use Code Case N-698, the licensee must follow the conditions, if any, specified in the regulatory guide. All other ASME Code, Section XI requirements for which relief was not specifically requested and approved in this relief request remain applicable, including third party review by the Authorized Nuclear Inservice Inspector.

Principal Contributor: E. Reichelt

Date: April 4, 2005

Comanche Peak Steam Electric Station

cc:

Senior Resident Inspector
U.S. Nuclear Regulatory Commission
P. O. Box 2159
Glen Rose, TX 76403-2159

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

Mr. Fred W. Madden, Director
Regulatory Affairs
TXU Generation Company LP
P. O. Box 1002
Glen Rose, TX 76043

George L. Edgar, Esq.
Morgan Lewis
1111 Pennsylvania Avenue, NW
Washington, DC 20004

County Judge
P. O. Box 851
Glen Rose, TX 76043

Environmental and Natural
Resources Policy Director
Office of the Governor
P. O. Box 12428
Austin, TX 78711-3189

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

Mr. Brian Almon
Public Utility Commission
William B. Travis Building
P. O. Box 13326
1701 North Congress Avenue
Austin, TX 78701-3326

Ms. Susan M. Jablonski
Office of Permitting, Remediation
and Registration
Texas Commission on Environmental
Quality
MC-122
P. O. Box 13087
Austin, TX 78711-3087

Terry Parks, Chief Inspector
Texas Department of Licensing
and Regulation
Boiler Program
P. O. Box 12157
Austin, TX 78711