October 25, 2002

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

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION, UNIT 1 RE: SECOND 10-YEAR INTERVAL INSERVICE INSPECTION RELIEF REQUEST NUMBERS A-3, A-4, REVISION 1, AND A-5, REVISION 2 (TAC. NO. MB5627)

Dear Mr. Terry:

By letter dated July 18, 2002, as supplemented by letters dated September 24 and October 1, 2002, TXU Generation Company, LP (the licensee), submitted Relief Request Numbers A-3, A-4, Revision 1, and A-5, Revision 2, for Comanche Peak Steam Electric Station, Unit 1, for the Second 10-Year Interval of the Inservice Inspection (ISI) Program.

For Relief Request Numbers A-3, A-4, Revision 1, and A-5, Revision 2, the staff concludes that the licensee's proposed alternative to use the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code), Section XI, Appendix VIII, provides an acceptable level of quality and safety. Therefore, the licensee's proposed alternative is authorized for the second 10-year ISI interval pursuant to 10 CFR 50.55a(a)(3)(i).

In addition, for Relief Request Numbers A-3, A-4, Revision 1, and A-5, Revision 2, the staff concludes that the licensee's proposed alternative to use the ASME Code, Section XI, Division 1, 1995 Edition, 1996 Addenda, provision that allows deferral of volumetric examinations of the subject components to the end of the interval provides an acceptable level of quality and safety. Therefore, the licensee's proposed alternative is authorized for the second 10-year ISI interval pursuant to 10 CFR 50.55a(g)(4)(iv), provided that all related requirements of the respective editions and addenda are met.

Sincerely,

/RA/

Robert A. Gramm, 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

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Sincerely,

Robert A. Gramm, Chief, Section 1 ***/RA/***
Project Directorate IV
Division of Licensing Project Management
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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SECOND 10-YEAR INSERVICE INSPECTION INTERVAL

REQUEST FOR RELIEF

TXU GENERATION COMPANY, LP

COMANCHE PEAK STEAM ELECTRIC STATION, UNIT 1

DOCKET NO. 50-445

1.0 INTRODUCTION

By letter dated July 18, 2002, as supplemented by letters dated September 24 and October 1, 2002, TXU Generation Company, LP (the licensee), submitted Relief Request Numbers A-3, A-4, Revision 1, and A-5, Revision 2, for Comanche Peak Steam Electric Station (CPSES), Unit 1, second 10-Year Interval of the Inservice Inspection (ISI) Program.

By letter dated February 24, 2000, the licensee[1] requested approval to delay updating the ISI program to the applicable American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code) edition for CPSES, Unit 1, until the time of the required update of the ISI program for CPSES, Unit 2, for the second 10-year ISI interval. After the start of the second 10-year interval for CPSES, Unit 2, both CPSES units would utilize the same edition of the Code. The NRC staff reviewed, evaluated, and approved the licensee's request to continue to use the 1986 Edition of the ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," pursuant to 10 CFR 50.55a(a)(3)(i) by letter dated June 29, 2000.

2.0 REGULATORY EVALUATION

ISI of ASME Code Class 1, 2 and 3 components is to be performed in accordance with Section XI of the ASME 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). Pursuant to 10 CFR 50.55a(a)(3), alternatives to the requirements of paragraph (g) may be used when authorized by the NRC if the applicant demonstrates that:

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[1] The application was submitted by TXU Electric, the corporate predecessor of TXU Generation Company, LP. By letter dated January 2, 2002, TXU Generation Company, LP adopted all licensing actions previously submitted to the U.S. Nuclear Regulatory Commission (NRC) under the corporate name of TXU Electric.

(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)(iv), inservice examination of components and system pressure tests may meet the requirements set forth in subsequent editions and addenda that are incorporated by reference in 10 CFR 50.55a(b), and subject to Commission approval. Portions of editions or addenda may be used provided that all related requirements of the respective editions and addenda are met.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) must meet the requirements, except design and access provisions and preservice examination requirements, set forth in 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 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) twelve months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The Code of record for the CPSES, Unit 1, second 10-year ISI interval is the 1986 Edition of the ASME Code.

3.0 TECHNICAL EVALUATION

3.1 Second 10-Year Interval ISI Relief Request Number A-3

3.1.1 Component for which Relief is Requested:

ASME Code, Section XI, Category B-A, Pressure Retaining Welds In Reactor Pressure Vessel (RPV), Item No. B1.30 shell-to-flange weld. The subject weld is depicted as weld number TBX-1-1100-1 in the CPSES, Unit 1, ISI Program Plan.

3.1.2 Code Requirement:

ASME Code, Section XI, Rules for Inservice Inspection of Nuclear Power Plant Components 1986 Edition, No addenda, Subsection IWA-2232, requires volumetric examination of the RPV vessel-to-flange weld to be in accordance with ASME Code, Section V, Article 4.

Additionally, according to the 1986 Edition of ASME Section XI, Table IWB-2500-1 for category B-A, Item No. B1.30 complete deferral of the volumetric inspection to the end of the interval is not permissible, except when the detected leakage of borated water requires a visual examination in accordance with IWA-5250(a)(2).

Section XI, IWA-5250(a)(2) requires that if leakage occurs at a bolted connection, the bolting shall be removed, VT-3 visually examined for corrosion, and evaluated in accordance with IWA-3100.

3.1.3 Licensee's Proposed Alternative: (as stated)

TXU Energy proposes to defer the partial inspection of the subject weld and perform 100 percent of the subject inspection at the end of the current interval for Comanche Peak Steam Electric Station Unit 1 RPV shell-to-flange weld.

This relief is requested to allow the use of a Performance Demonstration Initiative (PDI) qualified procedure to complete the UT [ultrasonic testing] examination of the RPV vessel-to-flange weld from the vessel side of the weld, in accordance with ASME [Code,] Section XI, Div[ision] 1, 1995 Edition, 1996 Addenda, Appendix VIII, Supplement[s] 4 and 6, at or near the end of the current interval.

3.1.4 Licensee's Basis for Relief: (as stated)

The subject weld has been examined during the pre-service inspection, and a 100 percent examination of weld TBX-1-1100-1 was performed during the last interval. There were no recordable indications identified by the volumetric examinations. Therefore, TXU Energy believes that the examinations performed provide adequate confidence that there are no matters of concerns regarding the structural integrity of the subject welds.

TXU Energy is proposing to use a remote examination at or near the end of the current interval. To perform this volumetric examination, TXU Energy will be utilizing personnel, procedures, and equipment demonstrated and qualified by PDI and in accordance with ASME [Code,] Section XI, Div[ision] 1, 1995 Edition, 1996 Addenda, Appendix VIII. Although [currently] Appendix VIII is not a requirement for this weld, the qualification process to Appendix VIII criteria demonstrates that the examination and evaluation techniques are equal [to] or surpass the requirements of paragraph IWA-2232, "Ultrasonic Examination," of Section XI of the ASME Code and the guidance in RG [Regulatory Guide] 1.150 ["Ultrasonic Testing of Reactor Vessel Welds During Preservice and Inservice Examinations," dated May 1979.]

The PDI qualified sizing method is considered more accurate than the method used in ASME Section V, Article 4. The proposed alternate UT examination technique provides an acceptable level of quality and examination repeatability as compared to the Article 4 requirements.

3.1.5 Staff Evaluation:

The Code requires volumetric examination of the RPV vessel-to-flange weld to be in accordance with ASME Code, Section V, Article 4, and complete deferral of the volumetric inspection to the end of the interval is not permissible, except when the detected leakage of borated water requires a visual VT-3 examination in accordance with IWA-5250(a)(2) and IWA-3100.

The licensee proposes to defer the partial inspection of the subject weld in accordance with ASME Code, Section XI, Division 1, 1995 Edition, 1996 Addenda and perform 100 percent of the subject inspection at the end of the current interval for RPV shell-to-flange weld. Additionally, the licensee proposes to use a PDI qualified procedure to perform the examination of the RPV vessel-to-flange weld from the vessel side of the weld, in accordance with ASME Code, Section XI, Division 1, 1995 Edition, 1996 Addenda, Appendix VIII, Supplements 4 and 6, at or near the end of the current interval.

The 1995 Edition, 1996 Addenda of the ASME Code, Section XI, requires that the RPV vessel-to-flange weld receive a volumetric examination and that examinations may be deferred to the end of the interval. ASME Code, Section XI, Division 1, 1995 Edition, 1996 Addenda is approved for general use in 10 CFR 50.55a.

Currently, Appendix VIII is not a requirement for the subject weld; however, the NRC staff determined that the qualification process to Appendix VIII criteria demonstrates that the examination and evaluation techniques are equal to or surpass the requirements of paragraph IWA-2232 of Section XI of the licensee's current ASME Code of record and the guidance in RG 1.150. Furthermore, the examiner's qualifications are more stringent and the PDI indication sizing method is considered more accurate than the method used in ASME Code, Section V, Article 4. The subject weld was examined by the licensee during the pre-service inspection, and a 100 percent examination of the subject weld was performed during the last interval. The licensee stated that there were no recordable indications identified by the volumetric examinations. Therefore, the licensee's proposed alternative provides an acceptable level of quality and safety.

3.2 Second Ten-Year Interval ISI Relief Request Number A-4, Revision 1

3.2.1 Component for which Relief is Requested:

ASME Class 1 RPV Flange Ligaments. The subject item is depicted as TBX-1-1100-LIG in the CPSES, Unit 1, ISI Program Plan.

3.2.2 Code Requirement:

ASME Code Section XI, Rules for Inservice Inspection of Nuclear Power Plant Components 1986 Edition, No addenda, Table IWB-2500-1 for category B-G-1, Item No. B6.40, Threads in Flange requires a volumetric examination and that the deferral of inspection to the end of the interval is not permissible, except when the detected leakage of borated water requires a visual examination in accordance with IWA-5250(a)(2).

Section XI, IWA-5250(a)(2) requires that if leakage occurs at a bolted connection, the bolting shall be removed, VT-3 visually examined for corrosion, and evaluated in accordance with IWA-3100.

3.2.3 Licensee's Proposed Alternative: (as stated)

TXU Energy proposes to use 1995 Edition, 1996 Addenda of the ASME [Code,] Section XI Table IWB-2500-1 for category B-G-1, Item No. B6.40, Threads in Flange, and requests deferral of this inspection to the end of the interval as permitted. However, when leakage of borated water is detected, a VT-3 examination will be performed in accordance with IWA-5250(a)(2) as required by ASME [Code,] Section XI.

3.2.4 Licensee's Basis for Relief: (as stated)

The NRC staff incorporated these changes by reference in 10 CFR 50.55a(b). The changes to Table IWB-2500-1, Item No. B6.40 examination criteria do not affect other parts of the Code. The change does not eliminate the examination or the required number of ligament

examinations; it only provides the option for consolidating the number of ligaments examined at any one time. Additionally, the volumetric examinations will be performed with procedures and personnel qualified in accordance with ASME Section XI Appendix VIII as required by 10 CFR 50.55a(g)(6)(ii)(C). Therefore, the proposed change will result in an acceptable level of quality and safety.

3.2.5 Staff Evaluation:

The 1986 Edition of the ASME Code, Section XI, Table IWB-2500-1 for category B-G-1, Item No. B6.40, Threads in Flange, requires that the RPV threads in flange stud hole be volumetrically examined and that the deferral of inspection to the end of the interval is not permissible, with the exception that deferral of the inspection is permissible except when the detected leakage of borated water requires a visual VT-3 examination in accordance with IWA-5250(a)(2) and IWA-3100.

The licensee proposes to use the 1995 Edition, 1996 Addenda of ASME Code, Section XI, Table IWB-2500-1 for category B-G-1, Item No. B6.40, Threads in Flange, and requests deferral of this inspection to the end of the interval as permitted. The 1995 Edition, 1996 Addenda of the ASME Code, Section XI requires that threads in flange receive a volumetric examination and that examinations may be deferred to the end of the interval. This change does not eliminate the examination or the required number of examinations; it only provides the option for consolidating the number of ligaments examined at any one time. ASME Code, Section XI, Division 1, 1995 Edition, 1996 Addenda is approved for general use in 10 CFR 50.55a.

Additionally, the volumetric examinations will be performed with procedures and personnel qualified in accordance with ASME Code, Section XI, Appendix VIII, as required by 10 CFR 50.55a(g)(6)(ii)(C). The NRC staff determined that the qualification process to Appendix VIII criteria demonstrates that the examination and evaluation techniques are equal to or surpass the requirements of paragraph IWA-2232 of Section XI of the licensee's current ASME Code of record and the guidance in RG 1.150. Furthermore, the examiner's qualifications are more stringent and the PDI indication sizing method is considered more accurate than the method used in ASME Code, Section V, Article 4. Therefore, the licensee's proposed alternative provides an acceptable level of quality and safety.

3.3 Second Ten-Year Interval ISI Relief Request Number A-5, Revision 2

3.3.1 Component for which Relief is Requested:

ASME Class 1 RPV Closure Head Nuts, Washers, and Studs. The subject items are depicted as TBX-1-1400-1 through -54 in the CPSES, Unit 1, Program Plan.

3.3.2 Code Requirement:

The 1986 Edition of the ASME Code, Section XI, Table, IWB-2500-1, Category B-G-1, Item B6.20 "Closure Studs, In Place" requires a volumetric examination and deferral of the inspection to end of the interval is not permissible, except when the detected leakage of borated water requires a visual examination in accordance with IWA-5250(a)(2).

The 1986 Edition of the ASME Code, Section XI, Table, IWB-2500-1, Category B-G-1, Item B6.50, "Closure Washers, Busing" requires a VT-1 visual examination and deferral of the inspection to end of the interval is not permissible, except when the detected leakage of borated water requires a visual examination in accordance with IWA-5250(a)(2).

Section XI, IWA-5250(a)(2) requires that if leakage occurs at a bolted connection, the bolting shall be removed, VT-3 visually examined for corrosion, and evaluated in accordance with IWA-3100.

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

TXU Energy proposes to use the 1995 Edition, 1996 Addenda, of the ASME Code, Section XI, Table IWB-2500-1 for category B-G-1, B6.20, "Closure Studs, In Place," and B6.50, "Closure Washers, Bushing," and requests deferral of this inspection to the end of the interval as permitted.

Deferrals for scheduling purposes will be utilized, provided a 10-year maximum duration is not exceeded between examinations. A "re-zeroing" of examinations will be necessary if the 10-year maximum duration is exceeded between examinations.

3.3.4 Licensee's Basis for Relief: (as stated)

The 1995 Edition, 1996 Addenda of the ASME [Code], Section XI allows the deferral of the aforementioned items to the end of the interval. The NRC staff incorporated these changes by reference in 10 CFR 50.55a(b). The changes to Table IWB-2500-1 examination criteria do not affect other parts of the Code. Moreover, the change does not eliminate the examination or the required number of examinations; it only provides the option for consolidating the number of items examined at any one time. Additionally, the volumetric examinations will be performed with procedures and personnel qualified in accordance with ASME [Code], Section XI, Appendix VIII as required by 10 CFR 50.55a(g)(6)(ii)(C). Therefore, the proposed change will result in an acceptable level of quality and safety.

3.3.5 Staff Evaluation:

The 1986 Edition of the ASME Code, Section XI, Table IWB-2500-1, Category B-G-1, Item B6.20, requires a volumetric examination, and deferral of the inspection to the end of the interval is not permissible, except when the detected leakage of borated water requires a visual VT-3 examination in accordance with IWA-5250(a)(2) and IWA-3100.

The 1986 Edition of the ASME Code, Section XI, Table IWB-2500-1, Category B-G-1, Item B6.50, requires a VT-1 visual examination, and deferral of the inspection to the end of the interval is not permissible, except when the detected leakage of borated water requires a visual VT-3 examination in accordance with IWA-5250(a)(2) and IWA-3100.

The licensee proposed to use the 1995 Edition through 1996 Addenda of the ASME Code, Section XI, Table IWB-2500-1 for category B-G-1, Item B6.20 that requires a volumetric examination, and Item B6.50 that requires a VT-1 visual examination, and allows deferral of these examinations to the end of the interval. The licensee noted that deferrals for scheduling purposes will be utilized, provided a 10-year maximum duration is not exceeded between

examinations. A “re-zeroing” of examinations will be necessary if the 10-year maximum duration is exceeded between examinations. The change does not eliminate the examination or the required number of examinations; it only provides the option for consolidating the number of items examined at any one time. ASME Code, Section XI, Division 1, 1995 Edition, 1996 Addenda is approved for general use in 10 CFR 50.55a.

Additionally, the licensee noted that the volumetric examinations will be performed with procedures and personnel qualified in accordance with ASME Code, Section XI, Appendix VIII as required by 10 CFR 50.55a(g)(6)(ii)(C). The staff determined that the qualification process to Appendix VIII criteria demonstrates that the examination and evaluation techniques are equal to or surpass the requirements of paragraph IWA-2232 of Section XI of the licensee’s current ASME Code of record and the guidance in RG 1.150. Furthermore, the examiner’s qualifications are more stringent and the PDI indication sizing method is considered more accurate than the method used in ASME Code, Section V, Article 4. Therefore the licensee’s proposed alternative provides an acceptable level of quality and safety.

4.0 CONCLUSION

For Relief Request Numbers A-3, A-4, Revision 1, and A-5, Revision 2, the staff concludes that the licensee’s proposed alternative to use the ASME Code, Section XI, Division 1, 1995 Edition, 1996 Addenda, provision that allows deferral of volumetric examinations of the subject components to the end of the interval provides an acceptable level of quality and safety. Therefore, the licensee’s proposed alternative is authorized for the second 10-year ISI interval pursuant to 10 CFR 50.55a(g)(4)(iv), provided that all related requirements of the respective editions and addenda are met.

For Relief Request Numbers A-3, A-4, Revision 1, and A-5, Revision 2, the staff concludes that the licensee’s proposed alternative to use ASME Code, Section XI, Appendix VIII provides an acceptable level of quality and safety. Therefore, the licensee’s proposed alternatives are authorized for the second 10-year ISI interval pursuant to 10 CFR 50.55a(a)(3)(i).

Principal Contributor: T. McLellan

Date: October 25, 2002

cc:

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