

October 16, 2000

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

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES), UNIT 2 -  
RE: FIRST 10-YEAR INSERVICE INSPECTION (ISI) INTERVAL REQUEST  
FOR RELIEF FROM THE REQUIREMENTS OF THE AMERICAN SOCIETY OF  
MECHANICAL ENGINEERS (ASME) BOILER AND PRESSURE VESSEL CODE  
(CODE) CONCERNING RELIEF REQUESTS D-1 AND E-2 (TAC NO. MA8706)

Dear Mr. Terry:

By letter dated April 19, 2000, as supplemented by letter dated August 10, 2000, TXU Electric (the licensee) requested relief from the requirements of the ASME Code for the first 10-year ISI interval for the CPSES, Unit 2. The licensee requested relief from the ISI requirements for Component Cooling Water System component supports (Relief Request D-1) and Electrical Penetrations (Relief Request E-2).

With regard to Relief Request D-1, the U.S. Nuclear Regulatory Commission (NRC) staff finds that compliance with the Code's requirements for the subject component supports results in a hardship or unusual difficulty without a compensating increase in the level of quality and safety. Therefore, the licensee's proposed relief is authorized, pursuant to 10 CFR 50.55a(a)(3)(ii) for the first 10-year ISI interval at CPSES, Unit 2.

For Relief Request E-2, the staff concludes that compliance with the Code requirements would result in hardship without a compensating increase in the level of quality and safety, and the licensee's commitment to examine radiant energy shield (RES)-covered areas if conditions exist in accessible areas that would indicate degradation could have extended into RES-covered

October 16, 2000

areas will provide reasonable assurance of containment integrity. Therefore, the licensee's proposed relief is authorized pursuant to 10 CFR 50.55a(a)(3)(ii), for the first 10-year ISI interval at CPSES, Unit 2.

The NRC staff's safety evaluation is enclosed.

Sincerely,

*/RA/*

Robert A. Gramm, Chief, Section 1  
Project Directorate IV & Decommissioning  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-446

Enclosure: Safety Evaluation

cc w/encl: See next page

October 16, 2000

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Comanche Peak Steam Electric Station

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

FIRST 10-YEAR INTERVAL INSERVICE INSPECTION

REQUEST FOR RELIEF

TXU ELECTRIC

COMANCHE PEAK STEAM ELECTRIC STATION, UNIT 2

DOCKET NO. 50-446

1.0 INTRODUCTION

By letter dated April 19, 2000, as supplemented by letter dated August 10, 2000, TXU Electric (the licensee) requested relief from the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (the Code) for the first 10-year inservice inspection (ISI) interval for the Comanche Peak Steam Electric Station (CPSES), Unit 2. The licensee requested relief from the ISI requirements for Component Cooling Water (CCW) System component supports (Relief Request D-1) and Electrical Penetrations (Relief Request E-2).

2.0 BACKGROUND

ISI of the ASME Code Class 1, 2 and 3 components shall 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 written relief has been granted by the U. S. Nuclear Regulatory Commission (NRC) pursuant to 10 CFR 50.55a(g)(6)(i). The regulation 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 (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.

With regard to Relief Request D-1, 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 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 applicable edition of

ENCLOSURE

Section XI of the ASME Code for the first 10-year ISI interval at the CPSES, Unit 2, is the 1986 Edition.

With regard to Relief Request E-2, in Federal Register Notice No. 154, Volume 61, dated August 8, 1996, the NRC announced an amendment to its regulation at 10 CFR 50.55a (rule). The rule incorporated by reference the 1992 edition with 1992 addenda of Subsections IWE and IWL of Section XI of the ASME Code. Subsections IWE and IWL provide the requirements for ISI of Class CC (concrete containments), and Class MC (metallic containments) including integral attachments of MC and metallic liners of Class CC components of light-water cooled power plants. The effective date for the amended rule was September 9, 1996, and it requires the licensees to incorporate the new requirements into their ISI plans and complete the first containment inspection by September 9, 2001. However, a licensee may submit a request for relief or propose an alternative to one or more requirements of the regulation pursuant to 10 CFR 50.55a(g)(6) or 10 CFR 50.55a(a)(3), respectively.

The regulation at 10 CFR 50.55a(g)(6)(ii)(B)(1) states that the inservice examinations specified for the first period of the first inspection interval in Subsection IWE of the 1992 Edition with the 1992 Addenda as modified in 10 CFR 50.55a(b)(2)(ix) will serve the same purpose for operating plants as the preservice examination specified for plants not yet in operation. The regulation at 10 CFR 50.55a(g)(6)(ii)(B)(2) allows licensees to implement the inservice examinations which correspond to the number of years of operation which are specified in Subsection IWL of the 1992 Edition with the 1992 Addenda as modified in 10 CFR 50.55a(b)(2)(ix) and will serve the same purpose for operating plants as the preservice examination specified for plants not yet in operation. The licensee developed its containment ISI program using Subsection IWE/IWL of the 1998 Edition of the Code, as authorized by the NRC staff in its Safety Evaluation dated July 23, 1999.

### 3.0 EVALUATION

#### 3.1 Relief Request D-1

##### Relief from the Requirement for Visual Examination of 100 percent of the Weld Length as Described in Table IWD-2500-1, Examination Category D-A, Item No. D1.20

The items for which relief is requested:

CCW System component supports  
Tag No's: CC-2-155-408-S53R and CC-2-159-409-S53R

Code Requirement:

ASME Section XI, 1986 Edition, Table IWD-2500-1, Category D-A, Item No. D1.20, requires a 100% visual examination of the weld length each inspection interval.

Licensee's Proposed Alternative:

The licensee has proposed no alternative examination.

Licensee's Basis for Relief (as stated):

"Bolted pipe chase covers prevent access to the integral welded attachments for these two component supports and therefore preclude the visual examination of the weld surface required by [Figure] IWD-2500-1. Administrative controls and barriers restrict access to the pipe chases due to high radiation levels and confined space designation. Relief is being requested for the integral welded attachments for two component supports which represent less than one percent of the total number of component supports with integral welded attachments in the plant. More than 53 percent of these welded attachments have been examined to date. No unacceptable conditions have been identified on any of these previously examined items. The damage mechanisms associated with welded attachments would typically result from piping system transients that would also affect the component supports immediately adjacent to these inaccessible supports. The immediately adjacent component supports of similar type, design and function on the same pipe lines and the remaining 68 integral welded attachments in the CCW system are not covered and are accessible for the required examination. The bolted pipe chase covers will be removed if conditions exist in the accessible areas that could indicate the integrity of the integral welded attachments on the two inaccessible component supports are suspect for continued service. Therefore, there are no additional safety benefits to be gained by examining these inaccessible welded attachments.

A total of 200 man-hours will be required to perform this activity. The radiation exposure hazards are not certain because no access has been provided to these areas to obtain survey data. However, these areas do contain CVCS [charging and volume control system] letdown piping, which in accessible areas have developed hot spots / pipes with dose rates up to 2 R/hr, with 12" readings up to 700 mR/hr. There is a high probability for the sections of piping containing the welded attachments in these pipe chases to have similar or higher dose rates associated with them. The extensive craft, radiation protection, and safety department support for scaffolding, rigging, plate removal, confined space entry, radiological surveys, and plate reinstallation that would be required if the bolted pipe chase covers for these [two] component supports are removed would not be compensated for by an increase in the level of plant quality and safety. "

Evaluation:

The Code requires 100 percent visual examination (VT-2) of Category D-A, Item No. D1.20, integral attachments (component supports and restraints) each inspection interval. The licensee has requested relief from examining two integral welded attachments which are currently inaccessible due to bolted pipe chase covers. The licensee has examined more than 53 percent of this item's welded attachments to date. No unacceptable conditions have been identified on any of the examined items. The licensee states that the damage mechanisms associated with welded attachments would typically result from piping system transients that would also affect the component supports immediately adjacent to these two inaccessible supports. The component supports of similar type, design, and function on the same pipe lines, and the 68 additional integral welded attachments in the CCW system are all accessible for the required examination. The licensee stated they would remove the bolted pipe chase covers if conditions exist in the accessible areas that could indicate the integrity of the integral welded attachments on the two inaccessible component supports are suspect for continued service.

Consequently, since the licensee has so far examined 53 percent of these attachments without finding any significant indications, and has committed to inspect the two subject integral welded attachments if conditions of the accessible integral attachments indicate a potential problem, the NRC staff concludes that there is reasonable assurance that component integrity will be maintained.

### 3.2 Relief Request E-2

#### Relief from Requirement for Visual Examination of 100 percent of the Containment Surface Areas as Described in, Table IWE-2500-1, Examination Category E-A, Item No. E1.11

The items for which relief is requested:

Electrical Penetration Nos.:

2-E-0006, -0009, -0015, -0016, -0018, -0039, -0040, -0045, -0056, -0060, and -0066

Code Requirement:

ASME Section XI, 1998 Edition, Table IWE-2500-1, Examination Category E-A, Item No. E1.11, requires a general visual inspection of 100 percent of accessible containment surfaces once each inspection period during the interval.

Licensee's Proposed Alternative:

The licensee has proposed no alternative examination.

Licensee's Basis for Relief (as stated):

"The surfaces of these 11 electrical penetrations are covered with radiant energy shield (RES) material which precludes the general visual examination of the surface required by Table IWE-2500-1, Examination Category E-A, Item No. E1.11. This RES material is designed for post fire safe shutdown protection. RES is made from a custom sewn ceramic fiber blanket in a fireproof fabric envelope which is banded in place and is not designed for removal and reinstallation. The construction of the RES is such that, if damaged, the fibrous material can create excessive waste, and will require additional attention to prevent sump clogging. The metal containment liner surfaces, including all mechanical penetrations and the remaining 64 electrical penetrations are not covered and are accessible for the required examination. An evaluation of these covered penetrations will be performed and the RES will be removed if conditions exist in accessible areas that could indicate degradation could also exist or could have extended into the RES covered areas. This relief is being requested for 11 electrical penetration[s] which are all of stainless steel construction and represent less than [one] percent of the total IWE metal containment surface area. More than 90 percent of the containment surface area has been examined to date. The previously examined mechanical penetration assemblies and the containment liner are of carbon steel construction and are more susceptible to corrosion type damage mechanisms. No matters of concern with respect to any damage mechanism were identified. TXU Electric has adequate confidence that these stainless steel surfaces are not susceptible to the damage mechanisms that may affect the carbon steel surfaces. Therefore, there are no additional safety benefits in examining these penetration surfaces.

A total of 1200 man-hours will be required to perform this activity. The radiation exposure is expected to exceed 3.5 man-Rem. The extensive craft and radiation protection support for scaffolding, RES material removal, repair or replacement of damaged RES material, and RES material reinstallation that would be required if the RES wrapping on these 11 electrical penetrations is removed would not be compensated for by an increase in the level of plant quality and safety.”

Evaluation:

In a letter dated July 23, 1999, the NRC staff authorized the licensee’s alternative to use the ASME Section XI, 1998 Edition, for containment ISI as supplemented by the licensee’s commitments in the submittal.

IWE-2500, Table IWE-2500-1, Examination Category E-A, Item E1.11 requires a general visual examination of 100 percent of the accessible surface areas be completed once each inspection period during the interval. The licensee has requested relief from examining 11 electrical penetrations which are currently covered with a RES material that precludes examination without removal, and is used for post fire safe shutdown protection of the 11 penetrations. The licensee has examined greater than 90 percent of the accessible containment surfaces, which include mechanical and electrical penetrations, and no significant degradation was identified. In addition, the licensee has committed to remove the RES material and examine the electrical penetrations if conditions exist in accessible areas that indicate degradation may have extended into the RES-covered areas. Consequently, having examined more than 90 percent of accessible containment surfaces without finding any significant indications, in conjunction with the licensee’s commitment to general visual examination of RES-covered areas if conditions are present in accessible areas that would indicate degradation may have extended into the RES-covered areas, provides reasonable assurance that containment integrity will be maintained.

4.0 CONCLUSIONS

For Relief Request D-1, the NRC staff concludes that compliance with the Code’s requirements for the subject two component supports results in a hardship or unusual difficulty without a compensating increase in the level of quality and safety. Therefore, the licensee’s proposed relief is authorized, pursuant to 10 CFR 50.55a(a)(3)(ii) for the first 10-year ISI interval at CPSES, Unit 2.

For Relief Request E-2, the NRC staff concludes that compliance with the Code’s requirements for the subject 11 electrical penetrations results in a hardship or unusual difficulty without a compensating increase in the level of quality and safety, and the licensee’s commitment to examine RES-covered areas if conditions exist in accessible areas that would indicate degradation could have extended into the RES-covered areas will provide reasonable assurance of containment integrity. Therefore, the proposed relief is authorized pursuant to 10 CFR 50.55a(a)(3)(ii) for the first 10-year ISI interval at CPSES, Unit 2.

Principal Contributor: G. Hatchett  
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Date: October 16, 2000