



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

October 6, 2000

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

**SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES), UNITS 1 AND 2 -
ISSUANCE OF AMENDMENTS RE: LARGE BREAK LOSS-OF-COOLANT
ACCIDENT (LBLOCA) METHODOLOGY AND ASSOCIATED CHANGE TO
CORE OPERATING LIMITS REPORT (COLR) (TAC NOS. MA8656, MA8657,
MA9719, AND MA9720)**

Dear Mr. Terry:

The Nuclear Regulatory Commission (NRC or the Commission) has issued the enclosed Amendment No. 80 to Facility Operating License No. NPF-87 and Amendment No. 80 to Facility Operating License No. NPF-89 for CPSES, Units 1 and 2, respectively. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated August 10, 2000.

The amendments change TS 5.6.5, "Core Operating Limits Report," to incorporate the latest NRC-approved methodology for analysis of LBLOCAs for CPSES, Units 1 and 2. The approval of this change is based upon the NRC staff's conclusions that (1) the LBLOCA methodology described in TXU Electric's Topical Report ERX-2000-002-P, "Revised Large Break Loss of Coolant Accident Methodology," March 2000, satisfies applicable requirements of 10 CFR 50.46 and 10 CFR Part 50, Appendix K; (2) the methodology is acceptable for application to CPSES, Units 1 and 2; and (3) the methodology is suitable for referencing in the COLR.

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A copy of our related Safety Evaluation, addressing the basis for acceptability of the subject LBLOCA analysis methodology and the change to TS 5.6.5, is enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

/RA/

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

Docket Nos. 50-445 and 50-446

- Enclosures: 1. Amendment No. 80 to NPF-87
- 2. Amendment No. 80 to NPF-89
- 3. Safety Evaluation

cc w/encls: See next page

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NAME	DJaffe	DJohnson	SOJ	RGramm
DATE	9/29/00	9/29/00	10/4/00	9/29/00

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C. L. Terry

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October 6, 2000

A copy of our related Safety Evaluation, addressing the basis for acceptability of the subject LBLOCA analysis methodology and the change to TS 5.6.5, is enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,



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

Docket Nos. 50-445 and 50-446

Enclosures: 1. Amendment No. 80 to NPF-87
2. Amendment No. 80 to NPF-89
3. Safety Evaluation

cc w/encls: See next page

Comanche Peak Steam Electric Station

cc:

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

TXU ELECTRIC

COMANCHE PEAK STEAM ELECTRIC STATION, UNIT NO. 1

DOCKET NO. 50-445

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 80
License No. NPF-87

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by TXU Electric dated August 10, 2000, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. NPF-87 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 80 , and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this license. TXU Electric shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. The license amendment is effective as of its date of issuance and shall be implemented within 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



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

Attachment: Changes to the Technical
Specifications

Date of Issuance: October 6, 2000



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

TXU ELECTRIC

COMANCHE PEAK STEAM ELECTRIC STATION, UNIT NO. 2

DOCKET NO. 50-446

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 80
License No. NPF-89

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by TXU Electric dated August 10, 2000, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. NPF-89 is hereby amended to read as follows:

(2) **Technical Specifications and Environmental Protection Plan**

The Technical Specifications contained in Appendix A, as revised through Amendment No. 80 , and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this license. TXU Electric shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



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

Attachment: Changes to the Technical
Specifications

Date of Issuance: October 6, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 80

TO FACILITY OPERATING LICENSE NO. NPF-87

AND AMENDMENT NO. 80

FACILITY OPERATING LICENSE NO. NPF-89

DOCKET NOS. 50-445 AND 50-446

Replace the following page of the Appendix A Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains a marginal line indicating the area of change.

Remove

Insert

5.0-34

5.0-34

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (continued)

- 10) RXE-88-102-P-A, "TUE-1 Departure from Nucleate Boiling Correlation", July 1992.
 - 11) RXE-88-102-P, Sup. 1, "TUE-1 DNB Correlation - Supplement 1", December 1990.
 - 12) RXE-89-002-A, "VIPRE-01 Core Thermal-Hydraulic Analysis Methods for Comanche Peak Steam Electric Station Licensing Applications", September 1993.
 - 13) RXE-91-001-A, "Transient Analysis Methods for Comanche Peak Steam Electric Station Licensing Applications", October 1993.
 - 14) RXE-91-002-A, "Reactivity Anomaly Events Methodology", October 1993.
 - 15) ERX-2000-002-P, "Revised Large Break Loss of Coolant Accident Analysis Methodology," March 2000.
 - 16) TXX-88306, "Steam Generator Tube Rupture Analysis", March 15, 1988.
 - 17) RXE-91-005-A, "Methodology for Reactor Core Response to Steamline Break Events," February 1994.
 - 18) RXE-94-001-A, "Safety Analysis of Postulated Inadvertent Boron Dilution Event in Modes 3,4, and 5," February 1994.
 - 19) RXE-95-001-P-A, "Small Break Loss of Coolant Accident Analysis Methodology," September 1996.
 - 20) Caldon, Inc. Engineering Report-80P, "Improving Thermal Power Accuracy and Plant Safety While Increasing Operating Power Level Using the LEFM/ System," Revision 0, March 1997.
- c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.
- d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

(continued)



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 80 TO

FACILITY OPERATING LICENSE NO. NPF-87

AND AMENDMENT NO. 80 TO

FACILITY OPERATING LICENSE NO. NPF-89

TXU ELECTRIC

COMANCHE PEAK STEAM ELECTRIC STATION, UNITS 1 AND 2

DOCKET NOS. 50-445 AND 50-446

1.0 INTRODUCTION

By application dated August 10, 2000, TXU Electric (the licensee) requested changes to the Technical Specifications (TSs) for the Comanche Peak Steam Electric Station (CPSES), Units 1 and 2. The proposed changes would change TS 5.6.5, "Core Operating Limits Report [COLR]," to incorporate the latest Nuclear Regulatory Commission (NRC)-approved methodology for analysis of large break loss-of-coolant accidents (LBLOCAs) for CPSES. In order to establish the basis for the change to TS 5.6.5, the proposed LBLOCA methodology must be approved by the NRC staff for use at CPSES.

2.0 BACKGROUND

The COLR was established through implementation of Generic Letter 88-16, which provides guidelines for the removal of cycle-specific parameter limits from the TSs. The limits presented in the COLR may be modified without prior NRC approval, provided the requirements of TS 5.6.5 are met (i.e., the modifications are determined using specific, NRC-approved methodologies and meet all applicable limits of the plant safety analysis). In this case, the licensee has requested that a revised LBLOCA methodology, described in Topical Report ERX-2000-002-P, "Revised Large Break Loss of Coolant Accident Analysis Methodology," March 2000, be referenced in the COLR to replace an existing LBLOCA methodology. Approval of ERX-2000-002-P is a prerequisite for incorporation of this methodology into TS 5.6.5.

By letters dated April 13 and September 6, 2000, the licensee requested NRC staff review and approval of ERX-2000-002-P for application to CPSES, Units 1 and 2. The submitted documentation discusses how the revised methodology applies to CPSES, Units 1 and 2, by describing the modifications to its previous methodology and certain usage provisions, such as the treatment of mixed cores and compliance with the revised Appendix K provision for

consideration of initial (pre-accident) reactor power. The documentation also describes programmatic provisions to confirm ongoing applicability of the revised methodology.

3.0 EVALUATION

The NRC staff's review of ERX-2000-002-P involved the verification of the acceptability of the licensee's proposed adaptation of the LBLOCA methodology for application to CPSES, Units 1 and 2. In addition, the review required the verification that this version of the licensee's LBLOCA methodology applies to CPSES, Units 1 and 2. The incorporation of an acceptable LBLOCA methodology in TS 5.6.5 is an administrative change to the TS.

3.1 ERX-2000-002-P Items Which Differ From Siemens Power Company (SPC) SEM/PWR-98

ERX-2000-002-P identifies a number of items in which the licensee's LBLOCA methodology differs from that described in SPC, "SEM/PWR-98: ECCS [Emergency Core Cooling System] Evaluation Model for PWR [Pressurized Water Reactor] LBLOCA Applications, EMF-2087(P), Revision 0, August 1998." The NRC staff considered these differences in its review.

3.1.1 Axial Power Shape Adjustment Approach

The Axial Power Shape Adjustment Approach is a licensee method of identifying the axial power shape to be used in the licensing LBLOCA analyses. This method is a carry-over from the previous version of the licensee's LBLOCA methodology. While it is not the same as used in the SPC source methodology, it has been approved by the NRC staff for use with the licensee's LBLOCA methodology. In its review, the NRC staff did not find a reason why this method could not be used with the updated licensee methodology as well; therefore, the licensee's Axial Power Shape Adjustment Approach is acceptable for use in the LBLOCA analysis methodology described in ERX-2000-002-P.

3.1.2 Automation of Data Transfer Between Analysis Codes

The licensee has automated data transfer between the licensee's LBLOCA methodology's constituent codes and verified this automation through the administrative processes approved for the licensee in the implementation of the original licensee LBLOCA methodology. The automation is a licensee-independent process, verified by approved licensee processes, and itself has an insignificant impact on analysis results. The original processes continue to be acceptable and apply to this change. Therefore, this automation is acceptable.

3.1.3 Inclusion of Engineering Hot Spot Factor

The licensee's LBLOCA methodology described in ERX-2000-002-P does not include a change to the way an engineering hot spot factor is used, as was done in the SEM/PWR-98 methodology. The effect of the change was found to lower the calculated peak cladding temperature (PCT) insignificantly. Since the effect is small and reduces the calculated PCT, the licensee concluded that it was conservative not to include the change at this time. Based on the information provided by the licensee, we conclude that omitting the change is acceptable.

3.1.4 Mixed Cores

For mixed cores, the licensee has described its procedure by which each individual fuel type will be treated as a "hot channel," unless considerations, such as loading pattern, would preclude it from being the "hot channel." The "hot rod" would be of the fuel type of the limiting "hot channel." This process is acceptable provided that the fuel types involved have similar geometry. Mixed cores with fuel types that have dissimilar geometries are not within the scope of this review.

3.1.5 Power Measurement Uncertainty

The requirements of 10 CFR Part 50, Appendix K were revised effective August 1, 2000, to provide for LOCA analyses invoking Appendix K to assume an operating power less than 1.02 times the licensed operating power if justified by actual plant measurement instrumentation error of less than 2 percent. The licensee has implemented an improved power measurement technology, which has been reviewed and approved by the NRC staff. In ERX-2000-002-P, the licensee proposes to analyze LBLOCAs assuming a power level as justified by the CPSES measurement uncertainty.

This is acceptable because it complies with the provision of revised Appendix K.

3.2 LOCA Methodology Applicability and the Proposed TS

The version of the licensee's LBLOCA methodology described in ERX-2000-002-P is a custom adaptation of the SPC SEM/PWR-98 LBLOCA methodology. The SEM/PWR-98 incorporates corrections of errors found in the methodology and was approved in a letter from C.A. Carpenter (NRC) to J.F. Mallay (SPC) dated June 15, 1999.

The licensee has not changed the CPSES, Unit 1 and 2, design features which would have invalidated continued use of the methodology. In its September 6, 2000, letter the licensee states that it implements ongoing processes which assure that analysis input values for PCT-sensitive parameters will bound the as-operated plant values for those parameters or, where appropriate, the ranges of such parameters input to the analyses will bound the as-operated plant values of those parameters.

Because the methodology discussed in ERX-2000-002-P incorporates corrections which were found acceptable for its source methodology (SEM/PWR-98), and because of programmatic provisions by the licensee to assure appropriate analysis input values, the staff concludes that the methodology discussed in ERX-2000-002-P applies to CPSES, Units 1 and 2.

Based on its review, the NRC staff concludes that (1) the licensee's LBLOCA methodology described in ERX-2000-002-P satisfies applicable requirements of 10 CFR 50.46 and 10 CFR Part 50, Appendix K; (2) the methodology is acceptable for application to CPSES, Units 1 and 2; and (3) the methodology is suitable for reference in licensing documentation, including the COLR.

Since the LBLOCA methodology is acceptable, the proposed change to TS 5.6.5 is administrative in nature. The sole purpose of the proposed TS change is to reflect the latest, NRC-approved methodology, for analysis of LBLOCA for CPSES, Units 1 and 2. Since ERX-2000-002-P is acceptable, as noted above, it is acceptable to change TS 5.6.5, Item 15, to incorporate this reference in the TS.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Texas State official was notified of the proposed issuance of the amendments. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (65 FR 51363, dated August 23, 2000). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: F. Orr
D. H. Jaffe

Date: October 6, 2000