

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

January 29, 1999

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION, UNITS 1 AND 2 -
AMENDMENT NOS. 63 AND 49 TO FACILITY OPERATING LICENSE
NOS. NPF-87 AND NPF-89 (TAC NOS. MA4204 AND MA4205)

Dear Mr. Terry:

The Commission has issued the enclosed Amendment Nos. 63 and 49 to Facility Operating License Nos. NPF-87 and NPF-89 for the Comanche Peak Steam Electric Station, Units 1 and 2. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated November 11, 1998 (TXX-98240).

The amendments revised core safety limit curves and Overtemperature N-16 reactor trip setpoints based on analyses of the core configuration and expected operation for CPSES Unit 2, Cycle 5. The changes apply equally to CPSES Units 1 and 2 licenses since the Technical Specifications are combined.

A copy of our related Safety Evaluation is enclosed. The Notice of Issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

ORIGINAL SIGNED BY:
Timothy J. Polich, Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket Nos. 50-445 and 50-446

Enclosures: 1. Amendment No. 63 to NPF-87
2. Amendment No. 49 to NPF-89
3. Safety Evaluation

cc w/encls: See next page

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

January 29, 1999

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Senior Vice President & Principal Nuclear Officer
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A copy of our related Safety Evaluation is enclosed. The Notice of Issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

A handwritten signature in black ink, appearing to read "Timothy J. Polich", is written over a horizontal line.

Timothy J. Polich, Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket Nos. 50-445 and 50-446

Enclosures: 1. Amendment No. 63 to NPF-87
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3. Safety Evaluation

cc w/encls: See next page

Mr. C. Lance Terry
TU Electric Company

Comanche Peak, Units 1 and 2

cc:

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

TEXAS UTILITIES ELECTRIC COMPANY
COMANCHE PEAK STEAM ELECTRIC STATION, UNIT 1
DOCKET NO. 50-445
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 63
License No. NPF-87

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Texas Utilities Electric Company (TU Electric, the licensee) dated November 11, 1998 (TXX-98240), 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. 63, and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated in the license. The licensee 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, to be implemented within 90 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Timothy J. Polich, Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: January 29, 1999



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

TEXAS UTILITIES ELECTRIC COMPANY
COMANCHE PEAK STEAM ELECTRIC STATION, UNIT 2
DOCKET NO. 50-446
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 49
License No. NPF-89

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Texas Utilities Electric Company (TU Electric, the licensee) dated November 11, 1998 (TXX-98240), 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. 49 , and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this license. TU 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, to be implemented within 90 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Timothy J. Polich, Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: January 29, 1999

ATTACHMENT TO LICENSE AMENDMENT NOS. 63 AND 49

FACILITY OPERATING LICENSE NOS. NPF-87 AND NPF-89

DOCKET NOS. 50-445 AND 50-446

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain marginal lines indicating the areas of change. The corresponding overleaf pages are also provided to maintain document completeness.

REMOVE

2-3
2-9
2-11

INSERT

2-3
2-9
2-11

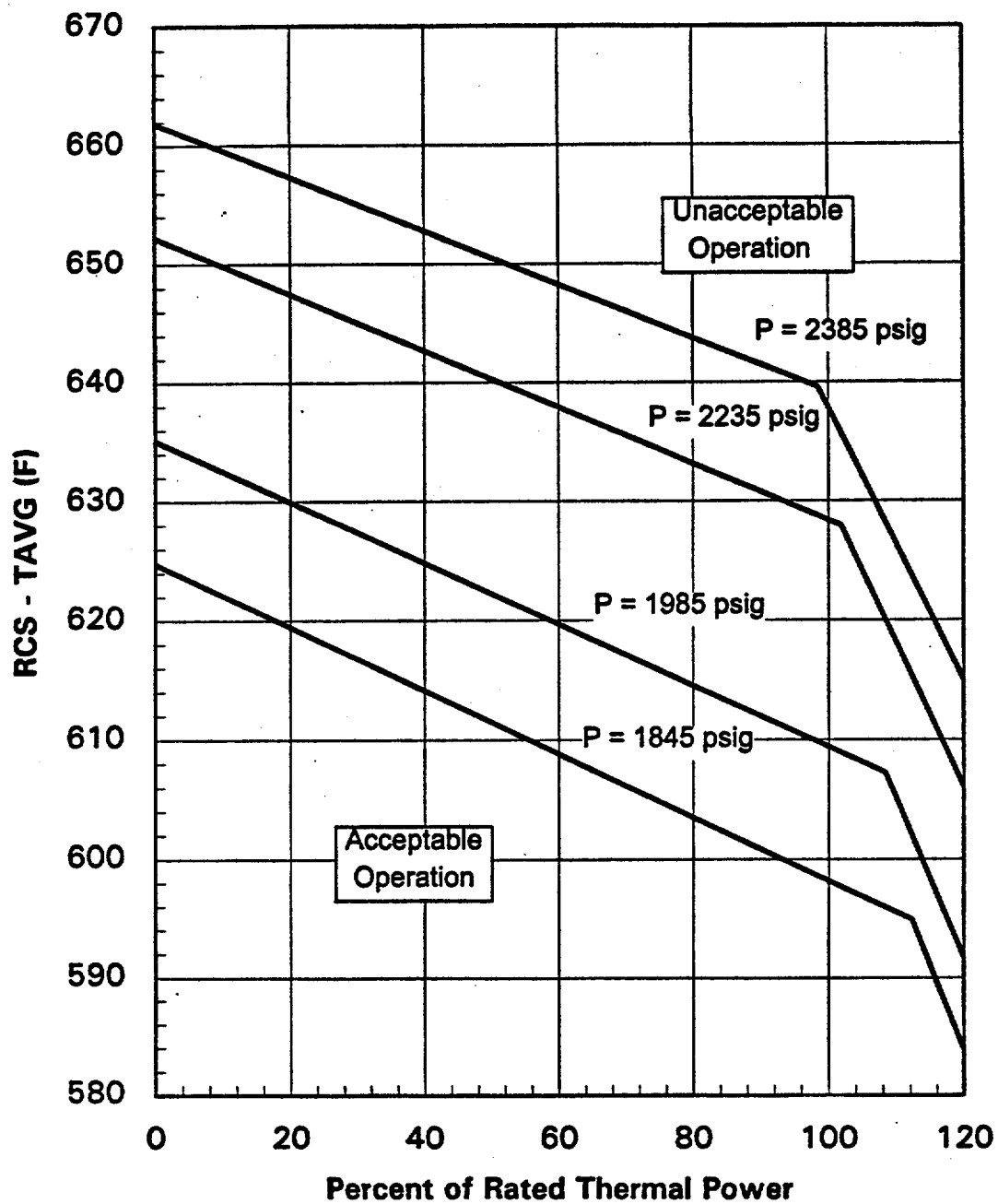


FIGURE 2.1-1b
UNIT 2 REACTOR CORE SAFETY LIMITS

2.2 LIMITING SAFETY SYSTEM SETTINGS

REACTOR TRIP SYSTEM INSTRUMENTATION SETPOINTS

2.2.1 The Reactor Trip System Instrumentation and Interlock Setpoints shall be set consistent with the Trip Setpoint values shown in Table 2.2-1.

APPLICABILITY: As shown for each channel in Table 3.3-1.

ACTION:

- a. With a Reactor Trip System Instrumentation or Interlock Setpoint less conservative than the value shown in the Trip Setpoint column but more conservative than the value shown in the Allowable Value column of Table 2.2-1, adjust the setpoint consistent with the Trip Setpoint value.
- b. With the Reactor Trip System Instrumentation or Interlock Setpoint less conservative than the value shown in the Allowable Values column of Table 2.2-1, declare the channel inoperable and apply the applicable ACTION statement requirement of Specification 3.3.1 until the channel is restored to OPERABLE status with its setpoint adjusted consistent with the Trip Setpoint value.

TABLE 2.2-1 (Continued)

TABLE NOTATIONS

NOTE 1: Overtemperature N-16

$$Q_{\text{setpoint}} = K_1 - K_2 \frac{1 + T_1 S}{1 + T_2 S} T_c - T_c^\circ + K_3 (P - P') - f_1 (\Delta q)$$

Where:

Q_{setpoint} = Overtemperature N-16 trip setpoint.

T_c = Cold leg temperature, °F,

T_c° = 560.5°F for Unit 1, 560.6°F for Unit 2 - Reference T_c at RATED THERMAL POWER,

K_1 = 1.150,

K_2 = 0.0148/°F for Unit 1
0.0147/°F for Unit 2

$\frac{1 + T_1 S}{1 + T_2 S}$ = The function generated by the lead-lag controller for T_c dynamic compensation,

T_1, T_2 = Time constants utilized in the lead-lag controller for T_c , $T_1 \geq 10$ s, and $T_2 \leq 3$ s,

K_3 = 0.00080/psig for Unit 1
0.000770/psig for Unit 2

TABLE 2.2-1 (Continued)

TABLE NOTATIONS (Continued)

NOTE 1: (Continued)

- P = Pressurizer pressure, psig,
P' ≥ 2235 psig (Nominal RCS operating pressure),
S = Laplace transform operator, s⁻¹,

and $f_1(\Delta q)$ is a function of the indicated difference between top and bottom halves of detectors of the power-range neutron ion chambers; with gains to be selected based on measured instrument response during plant STARTUP tests such that:

For Unit 1

- (i) for $q_t - q_b$ between -65% and +5.0%, $f_1(\Delta q) = 0$, where q_t and q_b are percent RATED THERMAL POWER in the top and bottom halves of the core respectively, and $q_t + q_b$ is total THERMAL POWER in percent of RATED THERMAL POWER,
 - (ii) for each percent that the magnitude of $q_t - q_b$ exceeds -65%, the N-16 Trip Setpoint shall be automatically reduced by 0.0%* of its value at RATED THERMAL POWER, and
 - (iii) for each percent that the magnitude of $q_t - q_b$ exceeds +5.0%, the N-16 Trip Setpoint shall be automatically reduced by 2.15% of its value at RATED THERMAL POWER.
- * No setpoint reduction is required for the span of the ΔI indication.

TABLE 2.2-1 (Continued)
TABLE NOTATIONS (Continued)

NOTE 1: (Continued)

For Unit 2

- (i) for $q_t - q_b$ between -65% and +5.1%, $f_1(\Delta q) = 0$, where q_t and q_b are percent RATED THERMAL POWER in the top and bottom halves of the core respectively, and $q_t + q_b$ is total THERMAL POWER in percent of RATED THERMAL POWER,
- (ii) for each percent that the magnitude of $q_t - q_b$ exceeds -65%, the N-16 Trip Setpoint shall be automatically reduced by 0.0%* of its value at RATED THERMAL POWER, and
- (iii) for each percent that the magnitude of $q_t - q_b$ exceeds +5.1%, the N-16 Trip Setpoint shall be automatically reduced by 2.28% of its value at RATED THERMAL POWER.

* No setpoint reduction is required for the span of the ΔI indication.

NOTE 2: The channel's maximum Trip Setpoint shall not exceed its computed Trip Setpoint by more than 1.72% of span for Unit 1 or 2.82% of span for Unit 2.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 63 AND 49 TO

FACILITY OPERATING LICENSE NOS. NPF-87 AND NPF-89

TEXAS UTILITIES ELECTRIC COMPANY

COMANCHE PEAK STEAM ELECTRIC STATION, UNITS 1 AND 2

DOCKET NOS. 50-445 AND 50-446

1.0 INTRODUCTION

By application dated November 11, 1998, (TXX-98240), Texas Utilities Electric Company (TU Electric/the licensee) requested changes to the Technical Specifications (Appendix A to Facility Operating License Nos. NPF-87 and NPF-89) for the Comanche Peak Steam Electric Station, Units 1 and 2. The proposed changes would revise core safety limit curves and Overtemperature N-16 reactor trip setpoints based on analyses of the core configuration for CPSES Unit 2, Cycle 5. The specific changes are to TS Figure 2.1-1b, Unit 2 Reactor Core Safety Limits and TS Table 2.2-1, "Reactor Trip System Instrumentation Trip Setpoints," Units 1 and 2. These changes are required due to the change in core configuration for CPSES Unit 2, Cycle 5 refueling.

2.0 BACKGROUND

The core safety limits are the set of points of Thermal Power, Reactor Coolant System (RCS) pressure, and average temperature below which (1) the calculated Departure from Nucleate Boiling Ratio (DNBR) is no less than the safety analysis limit value, or (2) the average enthalpy at the vessel exit is less than the enthalpy of saturated liquid. The significant parameters used to determine these lines include the RCS flow rate, the design nuclear enthalpy rise hot channel factor ($F_{\Delta H}$), the cycle-specific reference axial power shape, and the cycle-specific core configuration.

To avoid exceeding the core safety limits during operation, the Overtemperature N-16 reactor trip initiates a reactor trip before the limits are exceeded, providing DNB protection from events that impact power, pressure, temperature, or axial power shape. The setpoint for the N-16 trip is continuously calculated for each loop by analog circuitry by solving the setpoint equation that includes the trip reset function term $f(\Delta I)$.

The actual core power is measured on each loop with an N-16 power meter and used as a comparison to the calculated trip setpoint. Should an axial power distribution occur during operation that is more severe than the reference axial power shape, the trip reset function term of the setpoint equation, reduces the trip setpoint to account for the resultant effects. The range over which the Overtemperature N-16 trip setpoint is calculated is bounded by the

pressurizer pressure low, the pressurizer pressure high, and the overpower reactor trip setpoints. The power/temperature range that the Overtemperature N-16 trip must provide DNB protection is further limited by the operation of the Main Steam Safety Valves.

3.0 EVALUATION

The Unit 2, Cycle 5 core configuration consists of 191 fuel assemblies manufactured by Siemens Power Company and 2 fuel assemblies manufactured by Westinghouse Electric Company. Because there are only two Westinghouse fuel assemblies and they are not in close proximity to each other, the mixed-core DNBR penalty is small. The licensee calculated the Unit 2, Cycle 5 axial power distributions to be less skewed toward the top half of the core than those calculated for Unit 2, Cycle 4. It was necessary for the licensee to change the $f(\Delta I)$ trip reset function of the Overtemperature N-16 trip setpoint to reflect the Unit 2, Cycle 5 core configuration.

The licensee indicated that they used NRC-approved methodologies as stated in TS 6.9.1.6b Items 9 through 14 to determine the new reactor core safety limit curves for Unit 2, TS Figure 2.1-1b. The resultant core safety limit curves were evaluated by NRC-approved analytical methods to determine the appropriate values of K_1 , K_2 , and K_3 , coefficients of the overtemperature setpoint and the $f(\Delta I)$ trip reset functions as noted below:

In TS Table 2.2-1, Note 1 for the Overtemperature N-16 Trip Setpoint, the following terms have been changed for Unit 2:

- K_2 revised from 0.0138 to 0.0147/ $^{\circ}\text{F}$
- K_3 revised from 0.000720 to 0.00077/psig
- T_c revised from 560.8 $^{\circ}\text{F}$ to 560.6 $^{\circ}\text{F}$
- q_t - q_b range from -65% and +7.5% to -65% and +5.1%
- Automatic Overtemperature N-16 setpoint reduction for each percent that the magnitude of q_t - q_b exceeds +5.1% (current value +7.5%) is increased from 2.00% to 2.28%.

In TS Table 2.2-1, Note 2, for the Overtemperature N-16 Allowable Value, the maximum amount by which the Trip Setpoint is allowed to exceed the computed Trip Setpoint, is increased from 1.66% to 2.82%.

The licensee also made clarifying changes to the N-16 trip setpoint equation to more accurately reflect the CPSES plant nomenclature. This is an administrative change.

The licensee determined that the CPSES Final Safety Analysis Report (FSAR) Chapter 15 event most affected by the change in the Overtemperature N-16 trip setpoint is 15.4.2, "Rod Withdrawal at Power." The licensee reanalyzed the event using NRC-approved methodologies listed in TS 6.9.1.6b, Items 9 through 14, and determined that all relevant acceptance criteria were satisfied.

The licensee has requested to change TS Figure 2.1-1b, Unit 2 Reactor Core Safety Limits and TS Table 2.2-1, "Reactor Trip System Instrumentation Trip Setpoints," Units 1 and 2 to accommodate changes due to the designed core configuration for Unit 2, Cycle 5. The staff has reviewed the changes to verify that all safety criteria have been satisfied. The proposed revisions to the safety limit curves and the trip setpoints, and the use of NRC-approved

methodologies will provide assurance of DNB margin. Therefore, the staff finds the licensee's requested changes acceptable.

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 (63 FR 71974). 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: Marsha Gamberoni

Date: January 29, 1999