May 31, 1995

Mr. C. Lance Terry
Group Vice President, Nuclear
TU Electric
Energy Plaza
1601 Bryan Street, 12th Floor
Dallas, TX 75201-3411

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION, UNITS 1 AND 2 - AMENDMENT NOS. 41 AND 27 TO FACILITY OPERATING LICENSE NOS. NPF-87 AND NPF-89 (TAC NOS. M88954 AND M88955)

Dear Mr. Terry:

The Commission has issued the enclosed Amendment Nos. 41 and 27 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 February 14, 1994 (TXX-94046).

These amendments consist of three changes: 1) a change to the allowable value for the Unit 2 pressurizer pressure-low and Unit 2 overtemperature N-16 (OTN-16) reactor trip setpoints; 2) an administrative change to delete an option which allowed continued operation for a period of time when a reactor trip system (RTS) or engineered safety features actuation system (ESFAS) instrumentation or interlocks trip setpoint is found less conservative than the allowable value; and 3) an administrative change to combine the Unit 1 and Unit 2 line items for RTS or ESFAS Trip Setpoint and allowable values which are the same.

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. 41 to NPF-87
2. Amendment No. 27 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

May 31, 1995

Mr. C. Lance Terry
Group Vice President, Nuclear
TU Electric
Energy Plaza
1601 Bryan Street, 12th Floor
Dallas, TX 75201-3411

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION, UNITS 1 AND 2 - AMENDMENT NOS. 41 AND 27 TO FACILITY OPERATING LICENSE NOS. NPF-87 AND NPF-89 (TAC NOS. M88954 AND M88955)

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1. Amendment No. 41 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:
Senior Resident Inspector
U.S. Nuclear Regulatory Commission
P. O. Box 1029
Granbury, TX 76048

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

Mrs. Juanita Ellis, President
Citizens Association for Sound Energy
1426 South Polk
Dallas, TX 75224

Mr. Roger D. Walker, Manager
Regulatory Affairs for Nuclear
Engineering Organization
Texas Utilities Electric Company
1601 Bryan Street, 12th Floor
Dallas, TX 75201-3411

Texas Utilities Electric Company
c/o Bethesda Licensing
3 Metro Center, Suite 610
Bethesda, MD 20814

William A. Burchette, Esq.
Counsel for Tex-La Electric
Cooperative of Texas
Jorden, Schulte, & Burchette
1025 Thomas Jefferson Street, N.W.
Washington, DC 20007

GDS Associates, Inc.
Suite 720
1850 Parkway Place
Marietta, GA 30067-8237

Jack R. Newman, Esq.
Newman, Bouknight, & Edgar, P.C.
1615 L Street, N.W.
Suite 1000
Washington, DC 20036

Chief, Texas Bureau of Radiation
Control
Texas Department of Health
1100 West 49th Street
Austin, TX 78756

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

Office of the Governor
ATTN: Susan Rieff, Director
Environmental Policy
P. O. Box 12428
Austin, TX 78711

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. 41
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 February 14, 1994 (TXX-94046), 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. 41, 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 30 days.

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: May 31, 1995

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. 27
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 February 14, 1994 (TXX-94046), 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. 27 , 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 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Timothy J. Polich

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: May 31, 1995

ATTACHMENT TO LICENSE AMENDMENT NOS. 41 AND 27

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	INSERT
2-4	2-4
2-5	2-5
2-6	2-6
2-7	2-7
2-8	2-8
2-11	2-11
B 2-3	B 2-3
3/4 3-13	3/4 3-13
3/4 3-25	3/4 3-25
3/4 3-26	3/4 3-26
3/4 3-27	3/4 3-27
3/4 3-28	3/4 3-28
3/4 3-29	3/4 3-29
3/4 3-30	3/4 3-30
B 3/4 3-1	B 3/4 3-1
B 3/4 3-2	B 3/4 3-2

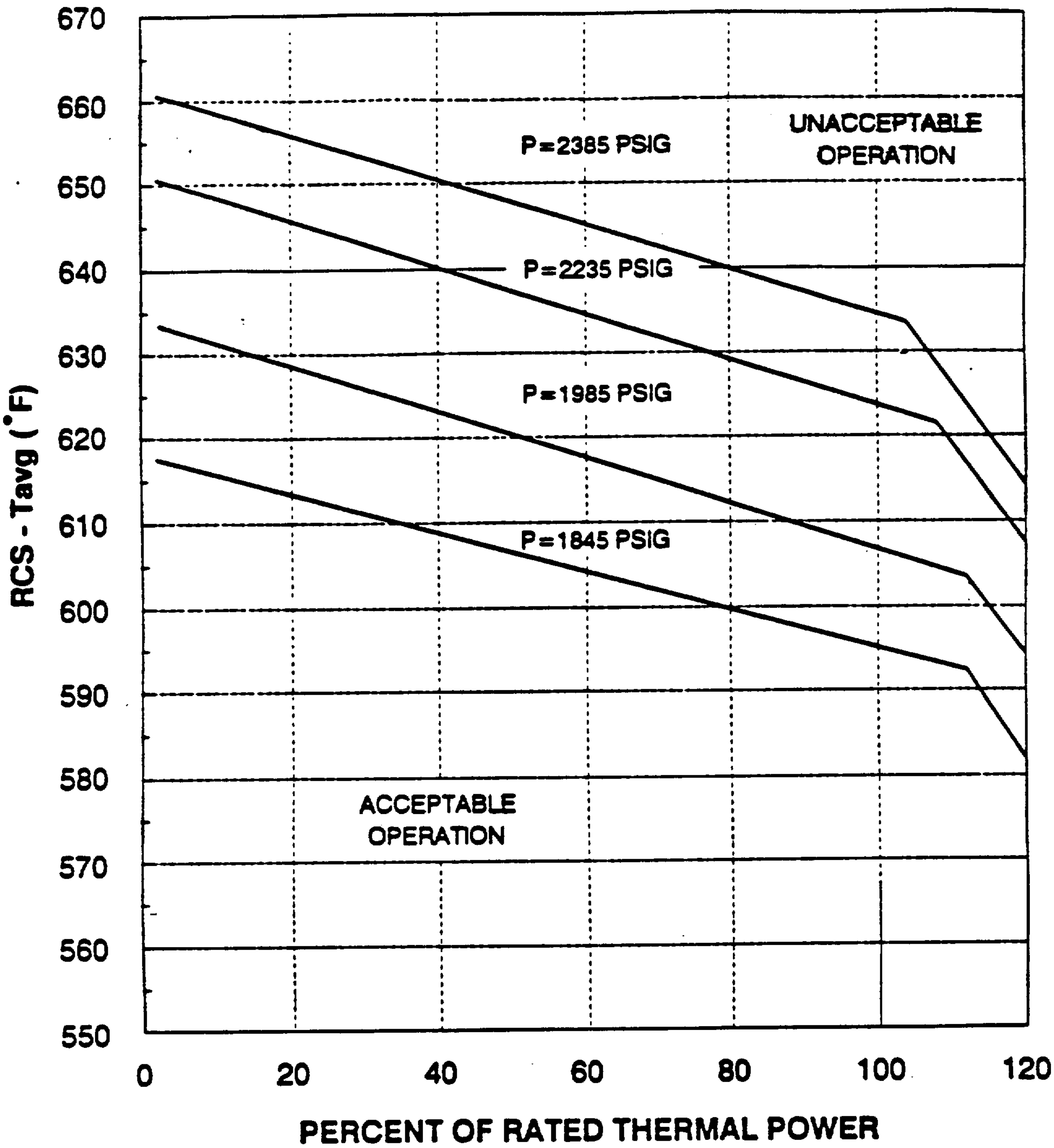

FIGURE 2.1-1b

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

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUE
1. Manual Reactor Trip	N.A.	N.A
2. Power Range, Neutron Flux		
a. High Setpoint	≤109% of RTP*	≤111.7% of RTP*
b. Low Setpoint	≤25% of RTP*	≤27.7 of RTP*
3. Power Range, Neutron Flux, High Positive Rate	≤5% of RTP* with a time constant ≥2 seconds	≤6.3% of RTP* with a time constant ≥2 seconds
4. Not Used		
5. Intermediate Range, Neutron Flux	≤25% of RTP*	≤31.5 of RTP*
6. Source Range, Neutron Flux	≤10^5 cps	≤1.4×10^5 cps
7. Overtemperature N-16	See Note 1	See Note 2

* RTP = RATED THERMAL POWER

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUE
8. Overpower N-16	≤112% of RTP*	≤114.5% of RTP*
9. Pressurizer Pressure-Low		
a. Unit 1	≥1880 psig	≥1863.6 psig
b. Unit 2	≥1880 psig	≥1865.2 psig
10. Pressurizer Pressure-High		
a. Unit 1	≤2385 psig	≤2400.8 psig
b. Unit 2	≤2385 psig	≤2401.4 psig
11. Pressurizer Water Level-High	≤92% of instrument span	≤93.9% of instrument span
12. Reactor Coolant Flow-Low		
a. Unit 1	≥90% of loop design flow**	≥88.6% of loop design flow**
b. Unit 2	≥90% of loop minimum measured flow***	≥88.8% of loop minimum measured flow***

* RTP = RATED THERMAL POWER
** Loop design flow = 99,050 gpm
*** Loop minimum measured flow = 98,500 gpm

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUE
13. Steam Generator Water Level - Low-Low		
a. Unit 1	≥25.0% of narrow range instrument span	≥23.1% of narrow range instrument span
b. Unit 2	≥35.4% of narrow range instrument span	≥33.4% of narrow range instrument span
14. Undervoltage - Reactor Coolant Pumps	≥4830 volts-each bus	≥4753 volts-each bus
15. Underfrequency - Reactor Coolant Pumps	≥57.2 Hz	≥57.06 Hz
16. Turbine Trip		
a. Low Trip System Pressure	≥59 psig	≥46.6 psig
b. Turbine Stop Valve Closure	≥1% open	≥1% open
17. Safety Injection Input from ESF	N.A.	N.A.

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUE
18. Reactor Trip System Interlocks		
a. Intermediate Range Neutron Flux, P-6	1×10^{-10} amps	$\geq 6 \times 10^{-11}$ amps
b. Low Power Reactor Trips Block, P-7		
1) P-10 input	10% of RTP*	≤12.7% of RTP*
2) P-13 input	10% RTP* Turbine First Stage Pressure Equivalent	≤12.7% RTP* Turbine First Stage Pressure Equivalent
c. Power Range Neutron Flux, P-8	48% of RTP*	≤50.7% of RTP*
d. Power Range Neutron Flux, P-9	≤50% of RTP*	≤52.7% of RTP*
e. Power Range Neutron Flux, P-10	10% of RTP*	≥7.3% of RTP*
19. Reactor Trip Breakers	N.A.	N.A.
20. Automatic Trip and Interlock Logic	N.A.	N.A.

*RTP = RATED THERMAL POWER

NOTE 1: (Continued)

For Unit 2

(i) for $q_t - q_b$ between -52% and +5.5%, $f_1(\Delta q) = 0$, 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 -52%, the N-16 Trip Setpoint shall be automatically reduced by 2.15% of its value at RATED THERMAL POWER, and

(iii) for each percent that the magnitude of $q_t - q_b$ exceeds +5.5%, the N-16 Trip Setpoint shall be automatically reduced by 2.17% of its value at RATED THERMAL POWER.

NOTE 2: The channel's maximum Trip Setpoint shall not exceed its computed Trip Setpoint by more than 3.51% of span for Unit 1 or 2.85% of span for Unit 2.

2.2 LIMITING SAFETY SYSTEM SETTINGS

BASES

2.2.1 REACTOR TRIP SYSTEM INSTRUMENTATION SETPOINTS

The Reactor Trip Setpoint Limits specified in Table 2.2-1 are the nominal values at which the Reactor trips are set for each functional unit. The Trip Setpoints have been selected to ensure that the core and Reactor Coolant System are prevented from exceeding their safety limits during normal operation and design basis anticipated operational occurrences and to assist the Engineered Safety Features Actuation System in mitigating the consequences of accidents. The setpoint for a Reactor Trip System or interlock function is considered to be adjusted consistent with the nominal value when the "as left" setpoint is within the band allowed for calibration accuracy and instrument drift.

To accommodate the instrument drift assumed to occur between operational tests and the accuracy to which setpoints can be measured and calibrated, Allowable Values for the Reactor Trip Setpoints have been specified in Table 2.2-1. Operation with setpoints less conservative than the Trip Setpoint but within the Allowable Value is acceptable since an allowance has been made in the safety analysis to accommodate this error.

The methodology to derive the Trip Setpoints is based upon combining all of the uncertainties in the channels. Inherent to the determination of the Trip Setpoints are the magnitudes of these channel uncertainties. Sensors and other instrumentation utilized in these channels are expected to be capable of operating within the allowances of these uncertainty magnitudes. Rack drift in excess of the Allowable Value exhibits the behavior that the rack has not met its allowance. Being that there is a small statistical chance that this will happen, an infrequent excessive drift is expected. Rack or sensor drift, in excess of the allowance that is more than occasional, may be indicative of more serious problems and should warrant further investigation.

REACTOR TRIP SYSTEM INSTRUMENTATION SETPOINTS (Continued)

The various Reactor trip circuits automatically open the Reactor trip breakers whenever a condition monitored by the Reactor Trip System reaches a preset or calculated level. In addition to redundant channels and trains, the design approach provides a Reactor Trip System which monitors numerous system variables, therefore providing Trip System functional diversity. The functional capability at the specified trip setting is required for those anticipatory or diverse Reactor trips for which no direct credit was assumed in the safety analysis to enhance the overall reliability of the Reactor Trip System. The Reactor Trip System initiates a Turbine trip signal whenever Reactor trip is initiated. This prevents the insertion of positive reactivity that would otherwise result from excessive Reactor Coolant System cooldown and thus avoids unnecessary actuation of the Engineered Safety Features Actuation System.

Manual Reactor Trip

The Reactor Trip System includes manual Reactor trip capability.

Power Range, Neutron Flux

In each of the Power Range Neutron Flux channels there are two independent bistables, each with its own trip setting used for a High and Low Range trip setting. The Low Setpoint trip provides protection during subcritical and low power operations to mitigate the consequences of a power excursion beginning from low power, and the High Setpoint trip provides protection during power operations to mitigate the consequences of a reactivity excursion from all power levels.

The Low Setpoint trip may be manually blocked above P-10 (a power level of approximately 10% of RATED THERMAL POWER) and is automatically reinstated below the P-10 Setpoint.

Power Range, Neutron Flux, High Rates

The Power Range Positive Rate trip provides protection against rapid flux increases which are characteristic of a rupture of a control rod drive housing. Specifically, this trip complements the Power Range Neutron Flux High and Low trips to ensure that the criteria are met for rod ejection from mid-power.

3/4.3.2 ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.2 The Engineered Safety Features Actuation System (ESFAS) instrumentation channels and interlocks shown in Table 3.3-2 shall be OPERABLE with their Trip Setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3-3.

APPLICABILITY: As shown in Table 3.3-2.

ACTION:

a. With an ESFAS Instrumentation or Interlock Trip Setpoint trip 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 3.3-3, adjust the Setpoint consistent with the Trip Setpoint value.

b. With an ESFAS Instrumentation or Interlock Trip Setpoint less conservative than the value shown in the Allowable Value column of Table 3.3-3, declare the channel inoperable and apply the applicable ACTION statement requirements of Table 3.3-2 until the channel is restored to OPERABLE status with its Setpoint adjusted consistent with the Trip Setpoint value.

c. With an ESFAS instrumentation channel or interlock inoperable, take the ACTION shown in Table 3.3-2.

SURVEILLANCE REQUIREMENTS

4.3.2.1 Each ESFAS instrumentation channel and interlock and the automatic actuation logic and relays shall be demonstrated OPERABLE by performance of the ESFAS Instrumentation Surveillance Requirements specified in Table 4.3-2.

4.3.2.2 The ENGINEERED SAFETY FEATURES RESPONSE TIME of each ESFAS function shall be demonstrated to be within the limit at least once per 18 months.* Each test shall include at least one train such that both trains are tested at least once per 36 months and one channel per function such that all channels are tested at least once per N times 18 months where N is the total number of redundant channels in a specific ESFAS function as shown in the "Total No. of Channels" column of Table 3.3-2.

*This surveillance test interval is extended to 24 months for Unit 2, to remain in effect until the completion of the second refueling outage for Unit 2, for the following functions and initiation signals:

- Safety Injection (ECCS), Phase "A" Isolation, Auxiliary Feedwater and Emergency Diesel Generator Operation on Containment Pressure--High--1, Pressurizer Pressure--Low, and Steam Line Pressure--Low;
- Containment Spray Pump on Containment Pressure High--1; and
- Those functions with response times which are initiated by Loss of Power (6.9kV and 480V Safeguards System Undervoltage).

TABLE 3.3-3

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUE
1. Safety Injection (ECCS, Reactor Trip, Feedwater Isolation, Control Room Emergency Recirculation, Emergency Diesel Generator Operation, Containment Vent Isolation, Station Service Water, Phase A Isolation, Auxiliary Feedwater-Motor Driven Pump, Turbine Trip, Component Cooling Water, Essential Ventilation Systems, and Containment Spray Pump).		
a. Manual Initiation	N.A.	N.A.
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A
c. Containment Pressure--High 1	≤3.2 psig	≤3.8 psig
d. Pressurizer Pressure--Low	≥1820 psig	≥1803.6 psig
e. Steam Line Pressure--Low		
1) Unit 1	≥605 psig*	≥593.5 psig*
2) Unit 2	≥605 psig*	≥578.4 psig*
2. Containment Spray		
a. Manual Initiation	N.A.	N.A
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A
c. Containment Pressure--High-3	≤18.2 psig	≤18.8 psig

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUE
3. Containment Isolation		
a. Phase "A" Isolation		
1) Manual Initiation	N.A.	N.A
2) Automatic Actuation Logic and Actuation Relays	N.A.	N.A
3) Safety Injection	See Item 1. above for all Safety Injection Trip Setpoints and Allowable Values.	
b. Phase "B" Isolation		
1) Manual Initiation	See Item 2.a above. Phase "B" isolation is manually initiated when containment spray function is manually initiated.	
2) Automatic Actuation Logic and Actuation Relays	N.A.	N.A
3) Containment Pressure--High-3	≤18.2 psig	≤18.8 psig
c. Containment Vent Isolation		
1) Manual Initiation	See Items 3.a.1 and 2.a above. Containment Vent Isolation is manually initiated when Phase "A" isolation function or containment spray function is manually initiated.	
2) Automatic Actuation Logic and Actuation Relays	N.A.	N.A
3) Safety Injection	See Item 1. above for all Safety Injection Trip Setpoints and Allowable Values.	

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUE
4. Steam Line Isolation		
a. Manual Initiation	N.A.	N.A
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A
c. Containment Pressure--High-2	≤6.2 psig	≤6.8 psig
d. Steam Line Pressure--Low		
1) Unit 1	≥605 psig*	≥593.5 psig*
2) Unit 2	≥605 psig*	≥578.4 psig*
e. Steam Line Pressure - Negative Rate--High	≤100 psi**	≤178.7 psi**

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUE
5. Turbine Trip and Feedwater Isolation		
a. Automatic Actuation Logic and Actuation Relays	N.A.	N.A
b. Steam Generator Water Level--High-High		
1) Unit 1	≤82.4% of narrow range instrument span.	≤84.3% of narrow range instrument span
2) Unit 2	≤81.5% of narrow range instrument span.	≤83.5% of narrow range instrument span
c. Safety Injection	See Item 1. above for all Safety Injection Trip Setpoints and Allowable Values.	

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUE
6. Auxiliary Feedwater		
a. Automatic Actuation Logic and Actuation Relays	N.A.	N.A
b. Steam Generator Water Level--Low-Low		
1) Unit 1	≥25.0% of narrow range instrument span.	≥23.1% of narrow range instrument span.
2) Unit 2	≥35.4% of narrow range instrument span.	≥33.4% of narrow range instrument span.
c. Safety Injection - Start Motor Driven Pumps	See Item 1. above for all Safety Injection Trip Setpoints and Allowable Values.	
d. Loss-of-Offsite Power	N.A.	N.A
e. Trip of All Main Feedwater Pumps	N.A.	N.A
7. Automatic Initiation of ECCS Switchover to Containment Sump		
a. Automatic Actuation Logic and Actuation Relays	N.A.	N.A
b. RWST Level--Low-Low		
1) Unit 1	≥40.0% of span	≥38.9% of span
2) Unit 2	≥40.0% of span	≥39.1% of span
Coincident With Safety Injection	See Item 1. above for all Safety Injection Trip Setpoints and Allowable Values.	

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUE
8. Loss of Power (6.9 kV & 480 V Safeguards System Undervoltage)		
a. 6.9 kV Preferred Offsite Source Undervoltage	≥5004 V	≤5900 V ≥4900 V
b. 6.9 kV Alternate Offsite Source Undervoltage	≥5004 V	≤5900 V ≥4900 V
c. 6.9 kV Bus Undervoltage	≥2037 V	≥1935 V ≤3450 V
d. 6.9 kV Degraded Voltage	≥6054 V	≥5933 V
e. 480 V Degraded Voltage	≥439 V	≥435 V
f. 480 V Low Grid Undervoltage	≥447 V	≥443 V
9. Control Room Emergency Recirculation		
a. Manual Initiation	N.A.	N.A
b. Safety Injection	See Item 1. above for all Safety Injection Trip Setpoints and Allowable Values.	
10. Engineered Safety Features Actuation System Interlocks		
a. Pressurizer Pressure, P-11		
1) Unit 1	≤1960 psig	≤1975.2 psig
2) Unit 2	≤1960 psig	≤1976.4 psig
b. Reactor Trip, P-4	N.A.	N.A
11. Solid State Safeguards Sequencer (SSSS)	N.A.	N.A

3/4.3.1 and 3/4.3.2 REACTOR TRIP SYSTEM and ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

The OPERABILITY of the Reactor Trip System and the Engineered Safety Features Actuation System instrumentation and interlocks ensures that: (1) the associated ACTION and/or Reactor trip will be initiated when the parameter monitored by each channel or combination thereof reaches its Setpoint, (2) the specified coincidence logic and sufficient redundancy is maintained to permit a channel to be out-of-service for testing or maintenance consistent with maintaining an appropriate level of reliability of the reactor protection and engineered safety features instrumentation, and (3) sufficient system functional capability is available from diverse parameters.

The OPERABILITY of these systems is required to provide the overall reliability, redundancy, and diversity assumed available in the facility design for the protection and mitigation of accident and transient conditions. The integrated operation of each of these systems is consistent with the assumptions used in the safety analyses. The Surveillance Requirements specified for these systems ensure that the overall system functional capability is maintained comparable to the original design standards. The periodic surveillance tests performed at the minimum frequencies are sufficient to demonstrate this capability. Specified surveillance intervals and surveillance and maintenance outage times have been determined in accordance with WCAP-10271, "Evaluation of Surveillance Frequencies and Out of Service Times for the Reactor Protection Instrumentation System", WCAP-10271 Supplement 2, "Evaluation of Surveillance Frequencies and Out of Service Times for the Engineered Safety Features Actuation System" and supplements to these reports as approved by the NRC and documented in the SER (letters to Westinghouse Owners Group (WOG) dated February 21, 1985, February 22, 1989, and April 30, 1990).

The Engineered Safety Features Actuation System Instrumentation Trip Setpoints specified in Table 3.3-3 are the nominal values at which the bistables are set for each functional unit. A Setpoint is considered to be adjusted consistent with the nominal value when the "as left" Setpoint is within the band allowed for calibration accuracy.

To accommodate the instrument drift assumed to occur between operational tests and the accuracy to which Setpoints can be measured and calibrated, Allowable Values for the Setpoints have been specified in Table 3.3-3. Operation with Setpoints less conservative than the Trip Setpoint but within the Allowable Value is acceptable since an allowance has been made in the safety analysis to accommodate this error.

REACTOR TRIP SYSTEM and ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION (Continued)

The methodology to derive the Trip Setpoints is based upon combining all of the uncertainties in the channels. Inherent to the determination of the Trip Setpoints are the magnitudes of these channel uncertainties. Sensor and rack instrumentation utilized in these channels are expected to be capable of operating within the allowances of these uncertainty magnitudes. Rack drift in excess of the Allowable Value exhibits the behavior that the rack has not met its allowance. Being that there is a small statistical chance that this will happen, an infrequent excessive drift is expected. Rack or sensor drift, in excess of the allowance that is more than occasional, may be indicative of more serious problems and should warrant further investigation.

The measurement of response time specified in the Technical Requirements Manual at the specified frequencies provides assurance that the Reactor trip and the Engineered Safety Features actuation associated with each channel is completed within the time limit assumed in the safety analyses. No credit was taken in the analyses for those channels with response times indicated as not applicable. Response time may be demonstrated by any series of sequential, overlapping, or total channel test measurements provided that such tests demonstrate the total channel response time as defined. Sensor response time verification may be demonstrated by either: (1) in place, onsite, or offsite test measurements, or (2) utilizing replacement sensors with certified response time.

The Engineered Safety Features Actuation System senses selected plant parameters and determines whether or not predetermined limits are being exceeded. If they are, the signals are combined into logic matrices sensitive to combinations indicative of various accidents events, and transients. Once the required logic combination is completed, the system sends actuation signals to those Engineered Safety Features components whose aggregate function best serves the requirements of the condition. As an example, the following actions may be initiated by the Engineered Safety Features Actuation System to mitigate the consequences of a steam line break or loss-of-coolant accident: (1) ECCS pumps start and automatic valves position, (2) Reactor trip, (3) feedwater isolation, (4) startup of the emergency diesel generators, (5) containment spray pumps start and automatic valves position (6) containment isolation, (7) steam line isolation, (8) turbine trip, (9) auxiliary feedwater pumps start and automatic valves position, (10) station service water pumps start and automatic valves position, (11) Control Room Emergency Recirculation starts, and (12) essential ventilation systems (safety chilled water, electrical area fans, primary plant ventilation ESF exhaust fans, battery room exhaust fans, and UPS ventilation) start.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 41 AND 27 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 February 14, 1994 (TXX-94046), Texas Utilities Electric Company (TU Electric/the licensee) requested changes to the Technical Specifications (TSs) (Appendix A to Facility Operating License Nos. NPF-87 and NPF-89) for the Comanche Peak Steam Electric Station (CPSES), Units 1 and 2. The proposed changes would revise TS for CPSES Units 1 and 2 in the following three areas: 1) a change to the allowable value for the Unit 2 pressurizer pressure-low and Unit 2 overtemperature N-16 (OTN-16) reactor trip setpoints; 2) an administrative change to delete an option which allowed continued operation for a period of time when a reactor trip system (RTS) or engineered safety features actuation system (ESFAS) instrumentation or interlocks trip setpoint is found less conservative than the allowable value; and 3) an administrative change to combine the Unit 1 and Unit 2 line items for RTS or ESFAS trip setpoint and allowable values which are the same.

2.0 BACKGROUND

On May 27, 1993, TU Electric was informed by Rosemount Aerospace Inc. (Rosemount) that Model 1154 Series H transmitters with improved temperature performance were not meeting the published temperature specifications. The notification, required by 10 CFR Part 21, stated that the transmitter output variation over the 40°F - 130°F ranges was greater than expected. An assessment by the licensee identified an impact on the Unit 2 allowable values for pressurizer pressure-low and OTN-16. The same channels on Unit 1 are not affected as they do not use Rosemount Transmitters.

Equation 2.2-1 ($Z + R + S \leq TA$) is used in TS 2.2.1 and TS 3.3.2 to determine the operability of a channel if its setpoint is less conservative than its allowable value. The channel may be considered operable if the setpoint is adjusted to be consistent with the trip setpoint and Equation 2.2-1 is confirmed satisfied within 12 hours. In practice, the licensee does not exercise this option. If the setpoint exceeds the allowable value, the licensee declares the channel inoperable, applies the applicable action requirements and calibrates the channel to restore its operability. Even though the option offered by Equation 2.2-1 is not used, it is an administrative burden to confirm and revise the values provided for the elements in this equation (TA, Z and S) as provided in Tables 2.2-1 and 3.3-3. For example, the Rosemount temperature effect described above was another in a series of items that potentially impacted these values and required assessment and possibly a TS change. This burden can be eliminated with the deletion of this equation and the associated values in the instrumentation tables.

3.0 EVALUATION

Overtemperature N-16

The OTN-16 trip provides core protection to prevent departure from nucleate boiling (DNB) for all combinations of pressure, power, coolant temperature, and axial power distribution, provided that the transient is slow with respect to piping transit delays from the core to the N-16 detectors, and pressure is within the range between the pressurizer high and low pressure trips. The calculated setpoint for OTN-16 trip is a function of reactor coolant temperature, pressurizer pressure, and axial power distribution. The CPSES statistical setpoint study (SSS) identifies the uncertainties associated with the channel.

The added uncertainties reported by Rosemount increase the required allowance in the SSS for the sensor temperature effect (STE). The STE represents an allowance for changes in the transmitter response when operating at a temperature different from the temperature at which it was calibrated. The STE is used to calculate both the allowable value and nominal trip setpoint presented in the TSs. The increased uncertainties reported by Rosemount change the Unit 2 OTN-16 allowable value so that, as stated in revised Note 2 of Table 2.2-1, the maximum trip setpoint (allowable value) shall not exceed its computed trip setpoint by more than 2.85-percent of the span for Unit 2.

Reducing the maximum allowable value from 2.88-percent of span above the trip setpoint to 2.85-percent of span above the trip setpoint is a change in the conservative direction. The change, however, merely compensates for the increased uncertainty of the channel's transmitter due to temperature effects and actually maintains the same level of safety intended in the original allowable value. Therefore, the staff concludes that the proposed TS change does not adversely affect plant safety and is acceptable.

Pressurizer Pressure - Low, Unit 2

The pressurizer pressure-low reactor trip function protects against depressurization of the primary system while at power which could lead to DNB. The pressurizer pressure-low trip will shutdown the reactor in the event of loss of coolant accidents either small or large break, a steam generator tube rupture event, and other loss of inventory or increased cooling from the secondary side events.

The increase in the minimum allowable value for Unit 2 pressurizer pressure-low from ≥ 1863.6 psig to ≥ 1865.2 psig is a change in the conservative direction. Pressurizer pressure could have decreased to a lower value before the trip actuated with the existing allowable value. The change, however, merely compensates for the increased uncertainty of the channel's uncertainty due to temperature effects and actually maintains the same level of safety intended in the original allowable value. Therefore, the staff concludes that the proposed TS change does not adversely affect plant safety and is acceptable.

Equation 2.2-1

Currently, TS 2.2.1 and TS 3.3.2 allow adjustment of a bistable if the "as found" setpoint value is found to be less conservative than its corresponding allowable value. These TSs allow either of two options to be used in making the bistable adjustment. ACTION b.1. requires adjustment of the bistable to remove the difference between the trip setpoint and the "as found" trip value. This adjustment compensates for, but does not necessarily restore the accuracy of the channel in that the bistable is adjusted consistent with the setpoint value listed in Table 2.2-1 or Table 3.3-3 but the drift in the other channel components is not removed. This ACTION further requires that within 12 hours of making the bistable adjustment, a determination that the sum of the pre-adjustment rack drift ("R" term of Equation 2.2-1) and other uncertainty allowances in the channel ("Z" and "S" terms of Equation 2.2-1) do not exceed the total allowance (TA) value listed in Table 2.2-1 or Table 3.3-3.

In the alternative, ACTION b.2. requires that if a setpoint is found to be less conservative than its corresponding allowable value, the channel be declared inoperable, and the applicable action statements be applied until the channel is restored to operable status.

A channel is restored to operable status by performing a full channel calibration thereby removing the as found deviations in the channel. This calibration in effect will force channel operation closer to the nominal setpoint, which is a more conservative operating point.

The proposal to remove the option provided by ACTION b.1. in TS 2.2.1 and TS 3.3.2, as well as Equation 2.2-1 with its definitions and values, deletes a potentially less conservative option and assures a more conservative operating point for the RTS and ESFAS instrument setpoints than allowed by the current TSs. Therefore, the staff concludes that the proposed changes to the TSs and Bases do not adversely affect plant safety, will result in a net benefit to the safe operation of the facility, and are acceptable.

Finally, the change to combine the Unit 1 and Unit 2 line items for RTS or ESFAS trip setpoint and allowable values in Tables 2.2-1 and 3.3-3, which are identical, is an administrative change. Therefore, the staff concludes that the proposed TS change does not adversely affect plant safety, will result in a net benefit to the safe operation of the facility, and is 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 (59 FR 32238). 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: Timothy Polich

Date: May 31, 1995