



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. 49
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 21, 1995 (TXX-95288), as supplemented by letters dated December 15, 1995 (TXX-95306), and February 2, 1996 (TXX-96040), 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.

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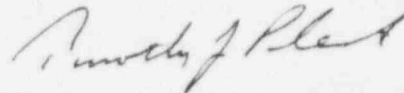
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 2.C.(2) of Facility Operating License No. NPF-87 is hereby amended to read as follows:

2. Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. , 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: April 1, 1996



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. 35
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 21, 1995 (TXX-95288), as supplemented by letters dated December 15, 1995, (TXX-95306), and February 2, 1996 (TXX-96040), 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.

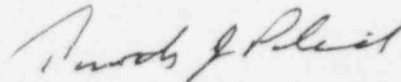
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 2.C.(2) of Facility Operating License No. NPF-89 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. , 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, 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: April 1, 1996

ATTACHMENT TO LICENSE AMENDMENT NOS. 49 AND 35
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
2-6
2-9
2-11
B 2-7
3/4 2-12

INSERT

2-3
2-6
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B 2-7
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UNIT 2 REACTOR CORE SAFETY LIMITS

RCS - TAVG (F)

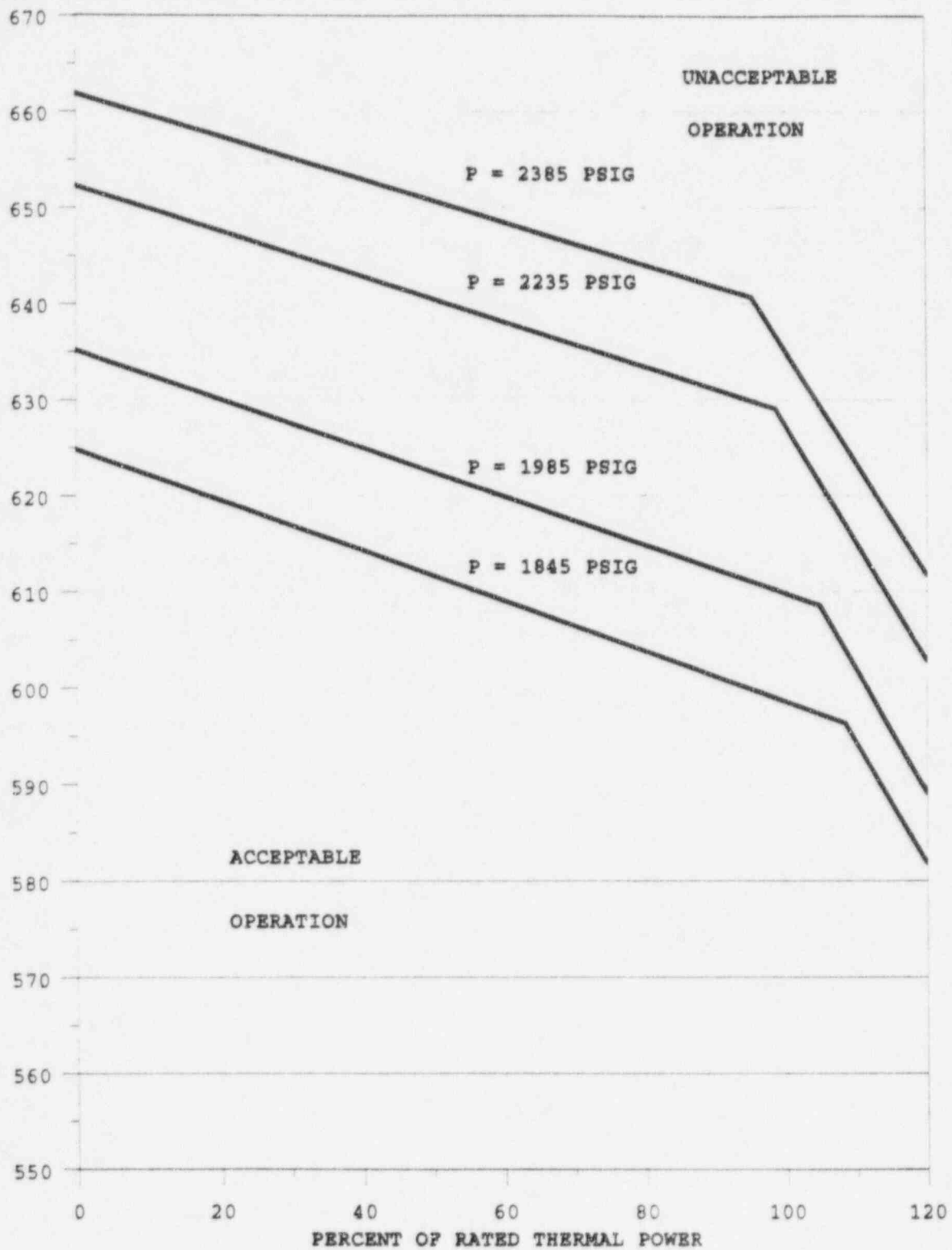


FIGURE 2.1-1b
UNIT 2 REACTOR CORE SAFETY LIMITS

TABLE 2.2-1

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUE</u>
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 x 10 ⁵ cps
7. Overtemperature N-16	See Note 1	See Note 2

* RTP = RATED THERMAL POWER

TABLE 2.2-1 (Continued)
TABLE NOTATIONS

NOTE 1: Overtemperature N-16

$$N = K_1 - K_2 \left[\frac{1 + \tau_1 s}{1 + \tau_2 s} T_c - T_c^o \right] + K_3 (P - P^1) - f_1 (\Delta q)$$

- Where:
- N = Measured N-16 Power by ion chambers,
 - T_c = Cold leg temperature, °F,
 - T_c^o = 560.5°F for Unit 1, 560.8°F for Unit 2 - Reference T_c at RATED THERMAL POWER, |
 - K_1 = 1.150,
 - K_2 = 0.0134/°F for Unit 1
0.0138/°F for Unit 2 |
 - $\frac{1 + \tau_1 s}{1 + \tau_2 s}$ = The function generated by the lead-lag controller for T_c dynamic compensation, |
 - τ_1, τ_2 = Time constants utilized in the lead-lag controller for T_c , $\tau_1 \geq 10$ s, and $\tau_2 \leq 3$ s,
 - K_3 = 0.000719/psig for Unit 1
0.000720/psig for Unit 2 |

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

NOTE 1: (Continued)

For Unit 2

- (i) for $q_t - q_b$ between -65% and +2.5%, $f_1(\Delta q) = 0$, 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 -65%, the N-16 Trip Setpoint shall be automatically reduced by 1.86% of its value at RATED THERMAL POWER, and
- (iii) for each percent that the magnitude of $q_t - q_b$ exceeds +2.5%, the N-16 Trip Setpoint shall be automatically reduced by 1.65% 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 1.88% of span for Unit 2.

LIMITING SAFETY SYSTEM SETTINGS

BASES

Undervoltage and Underfrequency - Reactor Coolant Pump Busses

The Undervoltage and Underfrequency Reactor Coolant Pump Bus trips provide core protection against DNB as a result of complete loss of forced coolant flow. The specified setpoints assure a Reactor trip signal is generated before the Low Flow Trip Setpoint is reached. Time delays are incorporated in the Underfrequency and Undervoltage trips to prevent spurious Reactor trips from momentary electrical power transients. On decreasing power the Undervoltage and Underfrequency Reactor Coolant Pump Bus trips are automatically blocked by P-7 (a power level of approximately 10% of RATED THERMAL POWER with a turbine first stage chamber pressure at approximately 10% of full power equivalent); and on increasing power, reinstated automatically by P-7.

Turbine Trip

A Turbine trip initiates a Reactor trip. On decreasing power the Reactor trip from the Turbine trip is automatically blocked by P-9 (a power level of approximately 50% of RATED THERMAL POWER); and on increasing power, reinstated automatically by P-9.

Safety Injection Input from ESF

If a Reactor trip has not already been generated by the Reactor Trip System instrumentation, the ESF automatic actuation logic channels will initiate a Reactor trip upon any signal which initiates a Safety Injection. The ESF instrumentation channels which initiate a Safety Injection signal are shown in Table 3.3-2.

UNIT 2 REACTOR CORE SAFETY LIMITS

RCS - TAVG (F)

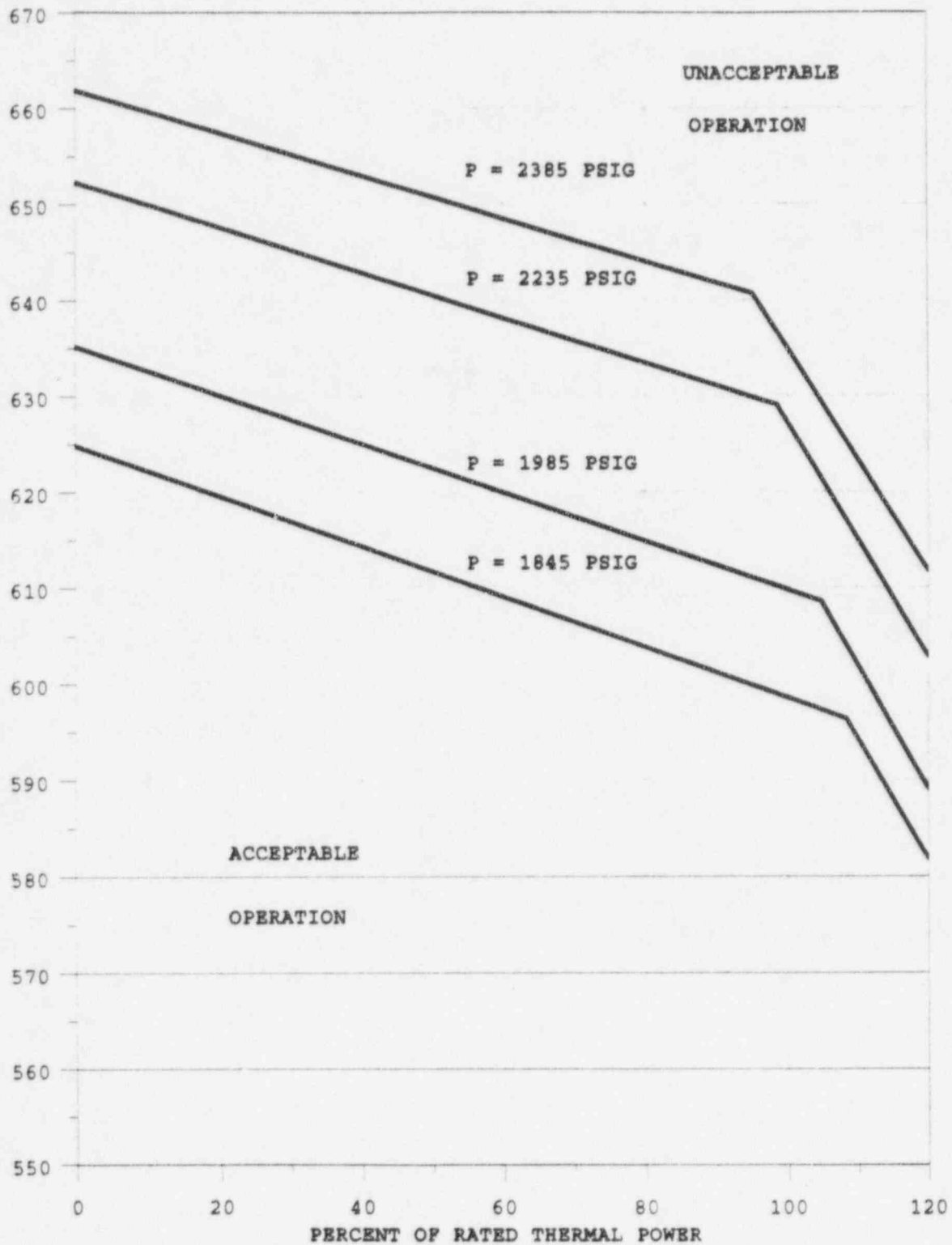


FIGURE 2.1-1b
UNIT 2 REACTOR CORE SAFETY LIMITS

SAFETY LIMITS AND LIMITING SAFETY SYSTEM SETTINGS

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

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUE</u>
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 x 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

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUE</u>
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 instrument span	≥88.6% of instrument span
b. Unit 2	≥90% of instrument span	≥88.8% of instrument span

* RTP = RATED THERMAL POWER

TABLE 2.2-1 (Continued)
TABLE NOTATIONS

NOTE 1: Overtemperature N-16

$$N = K_1 - K_2 \left[\frac{1 + \tau_1 s}{1 + \tau_2 s} T_c - T_c^o \right] + K_3 (P - P^1) - f_1 (\Delta q)$$

- Where:
- N = Measured N-16 Power by ion chambers,
 - T_c = Cold leg temperature, °F,
 - T_c^o = 560.5°F for Unit 1, 560.8°F for Unit 2 - Reference T_c at RATED THERMAL POWER, |
 - K_1 = 1.150,
 - K_2 = 0.0134/°F for Unit 1
0.0138/°F for Unit 2 |
 - $\frac{1 + \tau_1 s}{1 + \tau_2 s}$ = The function generated by the lead-lag controller for T_c dynamic compensation,
 - τ_1, τ_2 = Time constants utilized in the lead-lag controller for T_c , $\tau_1 \geq 10$ s, and $\tau_2 \leq 3$ s,
 - K_3 = 0.000719/psig for Unit 1
0.000720/psig for Unit 2 |

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

NOTE 1: (Continued)

- P = Pressurizer pressure, psig,
 $P^1 \geq 2235$ 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 +4%, $f_1(\Delta q) = 0$, 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 1.81% of its value at RATED THERMAL POWER, and
- (iii) for each percent that the magnitude of $q_t - q_b$ exceeds +4%, the N-16 Trip Setpoint shall be automatically reduced by 2.26% of its value at RATED THERMAL POWER.

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

NOTE 1: (Continued)

For Unit 2

- (i) for $q_t - q_b$ between -65% and +2.5%, $f_1(\Delta q) = 0$, 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 -65%, the N-16 Trip Setpoint shall be automatically reduced by 1.86% of its value at RATED THERMAL POWER, and
- (iii) for each percent that the magnitude of $q_t - q_b$ exceeds +2.5%, the N-16 Trip Setpoint shall be automatically reduced by 1.65% 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 1.88% of span for Unit 2.

LIMITING SAFETY SYSTEM SETTINGS

BASES

Undervoltage and Underfrequency - Reactor Coolant Pump Busses

The Undervoltage and Underfrequency Reactor Coolant Pump Bus trips provide core protection against DNB as a result of complete loss of forced coolant flow. The specified setpoints assure a Reactor trip signal is generated before the Low Flow Trip Setpoint is reached. Time delays are incorporated in the Underfrequency and Undervoltage trips to prevent spurious Reactor trips from momentary electrical power transients. On decreasing power the Undervoltage and Underfrequency Reactor Coolant Pump Bus trips are automatically blocked by P-7 (a power level of approximately 10% of RATED THERMAL POWER with a turbine first stage chamber pressure at approximately 10% of full power equivalent); and on increasing power, reinstated automatically by P-7.

Turbine Trip

A Turbine trip initiates a Reactor trip. On decreasing power the Reactor trip from the Turbine trip is automatically blocked by P-9 (a power level of approximately 50% of RATED THERMAL POWER); and on increasing power, reinstated automatically by P-9.

Safety Injection Input from ESF

If a Reactor trip has not already been generated by the Reactor Trip System instrumentation, the ESF automatic actuation logic channels will initiate a Reactor trip upon any signal which initiates a Safety Injection. The ESF instrumentation channels which initiate a Safety Injection signal are shown in Table 3.3-2.

LIMITING SAFETY SYSTEM SETTINGS

BASES

Reactor Trip System Interlocks

The Reactor Trip System interlocks perform the following functions:

- P-6 On increasing power, P-6 allows the manual block of the Source Range trip (i.e., prevents premature block of Source Range trip), provides a backup block for Source Range Neutron Flux doubling, and deenergizes the high voltage to the detectors. On decreasing power, Source Range Level trips are automatically reactivated and high voltage restored.
- P-7 On increasing power, P-7 automatically enables Reactor trips on low flow in more than one reactor coolant loop, reactor coolant pump bus undervoltage and underfrequency, pressurizer low pressure and pressurizer high level. On decreasing power, the above listed trips are automatically blocked.
- P-8 On increasing power, P-8 automatically enables the Reactor trip on low flow in one reactor coolant loop. On decreasing power, the P-8 automatically blocks the reactor trip on low flow in one reactor coolant loop.
- P-9 On increasing power, P-9 automatically enables Reactor trip on Turbine trip. On decreasing power, P-9 automatically blocks Reactor trip on Turbine trip.
- P-10 On increasing power, P-10 allows the manual block of the Intermediate Range trip and the Low Setpoint Power Range trip; and automatically blocks the Source Range trip and de-energizes the Source Range high voltage power. On decreasing power, the Intermediate Range trip and the Low Setpoint Power Range trip are automatically reactivated. Provides input to P-7.
- P-13 Turbine first stage chamber pressure provides input to P-7.

POWER DISTRIBUTION LIMITS

SURVEILLANCE REQUIREMENTS

4.2.4.1 The QUADRANT POWER TILT RATIO shall be determined to be within the limit above 50% of RATED THERMAL POWER by:

- a. Calculating the ratio at least once per 7 days when the alarm is OPERABLE,
- b. Calculating the ratio at least once per 12 hours when the alarm is inoperable, and
- c. Calculating the ratio at least once per 12 hours when above 75% RATED THERMAL POWER with one Power Range channel inoperable.

POWER DISTRIBUTION LIMITS

3/4.2.5 DNB PARAMETERS

LIMITING CONDITION FOR OPERATION

3.2.5 The following DNB-related parameters shall be maintained within the stated limits:

- a. Indicated Reactor Coolant System $T_{avg} \leq 592^{\circ}\text{F}$
- b. Indicated Pressurizer Pressure ≥ 2219 psig*
- c. Indicated Reactor Coolant System (RCS) Flow $\geq 403,400$ gpm** for Unit 1
 $\geq 408,000$ gpm** for Unit 2

APPLICABILITY: MODE 1.

ACTION:

With any of the above parameters exceeding its limit, restore the parameter to within its limit within 2 hours or reduce THERMAL POWER to less than 5% of RATED THERMAL POWER within the next 4 hours.

SURVEILLANCE REQUIREMENTS

4.2.5.1 Each of the above parameters shall be verified to be within its limits at least once per 12 hours.

4.2.5.2 The RCS total flow rate shall be verified to be within its limits at least once per 31 days by plant computer indication or measurement of the RCS elbow tap differential pressure transmitters' output voltage.

4.2.5.3 The RCS loop flow rate indicators shall be subjected to a CHANNEL CALIBRATION at least once per 18 months. The channels shall be normalized based on the RCS flow rate determination of Surveillance Requirement 4.2.5.4.

4.2.5.4 The RCS total flow rate shall be determined by precision heat balance measurement after each fuel loading and prior to operation above 85% of RATED THERMAL POWER. The feedwater pressure and temperature, the main steam pressure, and feedwater flow differential pressure instruments shall be calibrated within 90 days of performing the calorimetric flow measurement.

*Limit not applicable during either a THERMAL POWER ramp in excess of 5% of RATED THERMAL POWER per minute or a THERMAL POWER step in excess of 10% of RATED THERMAL POWER.

**Includes a 1.8% flow measurement uncertainty.

COMANCHE PEAK - UNITS 1 AND 2

3/4 2-12

Unit 1 - Amendment No. ~~14, 21, 30~~, 49
Unit 2 - Amendment No. ~~7, 16~~, 35