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Group Vice President

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U. S. Nuclear Regulatory Commission
Attn: Document Control Room
Washington, DC 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)
DOCKET NOS. 50-445 AND 50-446
TRANSMITTAL OF TECHNICAL REQUIREMENTS MANUAL (TRM)
REVISION 21

Gentlemen:

TU Electric herewith submits Revision 21 (enclosed) of the CPSES Technical Requirements Manual (TRM). Enclosed are the following documents:

Technical Requirements Manual	1 signed original
Revision 21	and 10 copies

The attachment contains a page-by-page description of the changes. As has been the TU Electric practice in the past several TRM revisions, all changes described in the attachment have been evaluated for relative significance (i.e., the group number 1, 2, 3, or 4 corresponds to each change justification as discussed in TU Electric letter TXX-88467 dated June 1, 1988). In addition, all changes applicable to CPSES Units 1 and 2 have been reviewed under the TU Electric 10CFR50.59 process and found not to include any "unreviewed safety questions".

TRM Revision 21, dated January 24, 1996, will become effective at 12:01 AM CST on February 15, 1996.

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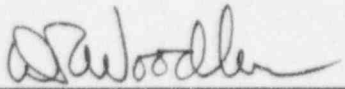
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If you should have any questions, please contact Mr. Carl B. Corbin at
(214) 812-8859.

Sincerely,

C. L. Terry

By: 
D. R. Woodlan
Docket Licensing Manager

CBC/cbc
Attachment
Enclosure

cc: Mr. L. J. Callan, Region IV
Mr. W. D. Johnson Region IV
Mr. T. J. Polich, NRR
Resident Inspectors

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2

Description

Revises the "Source Range, Neutron Flux" response time from "less than or equal to 0.5 second" to "N.A." (Item 6 of Table 1.1.1, Reactor Trip System Instrumentation Response Times).

Revision

The Source Range Neutron Flux Reactor Trip function is not credited in any analyzed event in Chapter 15 of the FSAR; therefore, the response time in the TRM should be marked as "N.A.". The TRM Bases for Reactor Trip System Response Times states in part "...No credit was taken in the analyses for those channels with response times indicated as not applicable...." Of the neutron flux reactor trip functions, only those trip functions associated with the power range detectors are credited in the Chapter 15 reactivity excursion events. This change makes the TRM consistent with the design basis in Chapter 15 of the FSAR.

Change Request Number

TR - 94 - 4 . 1

Related SER : 15

SSER :

SER/SSER Impact

1- 03

3

Clarifies Undervoltage - Reactor Coolant Pump response time due to back EMF noted in Westinghouse Technical Bulletin (WTB) 92-03 and making it consistent with Technical Specifications. (Item 14 of Table 1.1.1, Reactor Trip System Instrumentation Response Times.)

Clarification

Voltage decay is a process of time which falls outside the definition of Reactor Trip System Response Time (which starts when the monitored parameter exceeds its trip setpoint). The monitored parameter is clearly voltage which does not instantaneously decay; voltage decay on the bus is proportional to flow decay in the loop. The response time of 1.5 seconds currently given in Table 1.1.1 is not consistent with this definition. The response time has been shortened appropriately to exclude voltage decay time based on calculated and/or tested time for EMF decay. The response time has been changed to 1.1 seconds with a footnote stating that an additional 0.4 second maximum calculated voltage decay time from the opening of RCP breaker until voltage reaches the undervoltage set-point provides an overall response time of less than or equal to 1.5 seconds.

Change Request Number

TR - 92 - 19 . 1

Related SER : 16.0

SSER :

SER/SSER Impact

1- 06

2

Clarifies ECCS response time by adding Note 10 to Item 2.a, "Containment

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GroupDescription

Pressure--High-1 / Safety Injection (ECCS)

Revision

The response time assumed in the accident analysis is defined as the time interval from when the monitored parameter exceeds its ESF Actuation Setpoint at the channel sensor until the ESF equipment is capable of performing its safety function. In order for the RHR system to be capable of delivering the flow assumed in the accident analyses, the RHR mini-flow valves, FCV-610 and FCV-611 must be closed. However, in order to provide RHR pump protection, these valves must be open until the RCS pressure falls below the RHR shutoff head. This change clarifies the ECCS response time in that the RHR System must be capable of performing its intended safety function; i.e., the RHR pumps are loaded onto the safeguards buses and are operating at rated speed and all required valve repositionings have been completed. Because actual RCS conditions may not warrant the closure of the miniflow valves, the addition of Note 10 would exclude the stroke time from this ECCS response time requirement. Allocations for the stroke times of these valves have been included in the accident analyses, as described in previous Safety Evaluations 94-65 (Unit 1) and 94-34 (Unit 2). Compliance with the stroke time requirement for valves FCV-610 and FCV-611 is monitored through the ASME Inservice Testing Program.

Change Request Number

TR - 94 - 4 . 2

Related SER : 15

SSER :

SER/SSER Impact

1-06

2

Adds Note 11 to the response time (less than or equal to 2 seconds) for Reactor Trip on Containment Pressure - High 1 (item 2.b of Table 1.2.1, "Engineered Safety Features Response Times"). Note 11 states, "The response time of less than or equal to 2 seconds is applicable for MODES 1 and 2. The response time is not applicable (N.A.) for MODES 3 and 4."

Revision

The proposed activity would clarify the response time requirements for the reactor trip function following a safety injection signal actuation on Containment Pressure--High-1 (item 2.b of TRM Table 1.2.1), Pressurizer Pressure--Low (item 3.b of Table 1.2.1), and steamline Pressure--Low (item 4.b of Table 1.2.1). The response time is defined as that time interval from when the monitored parameter exceed its ESF Actuation Setpoint at the channel sensor until the ESF equipment is capable of performing its safety function. In this situation, the latter point is defined as the point when there is a loss of stationary gripper coil voltage; i.e., the control rods are free to fall into the core. This reactor trip function is part of the automatic actuation logic and actuation relays described in Technical Specification Table 3.3-2,

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Description

Function Unit 1b following generation of Safety Injection actuation signal from Functional Units 1c, 1d, and 2e.

A two second response time is assumed in the accident analyses for these functions; however, the analyses only require a reactor trip when the Reactor Trip System is operable; i.e., in MODES 1 and 2.

As defined in Technical Specification Table 3.3-2, the automatic actuation logic and actuation relays are required to be operable in MODES 1, 2, 3, and 4. However, as described in Technical Specification Table 3.3-1, Functional Unit 17, the reactor trip function is only required to be operable in MODES 1 and 2.

To maintain consistency with the accident analyses and with the Reactor Trip System Technical Specification requirements, the response times in TRM Table 1.2.1, items 2.b, 3.b, and 4.b are revised to indicate that the response time is less than or equal to 2 seconds in MODES 1 and 2 and is measured to the loss of stationary gripper coil voltage only. The response time will be marked as "N.A." for MODES 3 and 4. (The "N.A." designation is used in the TRM tables to indicate that a particular function is not credited in the accident analyses.)

This change is consistent with Technical Specification Table 3.3-1, "Reactor Trip System Instrumentation," Table 3.3-2, "Engineered Safety Features Actuation System Instrumentation," and the accident analyses in FSAR Section 15.

Change Request Number

TR - 94 - 7 . 1

Related SER : 7.3

SSER : 22

SER/SSER Impact

1-06

2

Revises item 2.f (Containment Pressure--High-1) of Table 1.2.1 (Engineered Safety Features Response Times) by changing "Auxiliary Feedwater" to "Motor-Driven Auxiliary Feedwater," and by adding the existing Note 1 to the response time (less than or equal to 60 seconds.) Note 1 states, "Diesel generator starting and sequence loading delays included."

Revision

In the analysis of the small break LOCA, the motor-driven auxiliary feedwater pumps are assumed to start following receipt of the low pressurizer pressure safety injection trip. In this scenario, the reactor is tripped on low pressurizer pressure. A turbine trip and coincident loss of offsite power are assumed to occur immediately following the reactor trip. Almost immediately thereafter, the low pressurizer pressure safety injection actuation

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signal is generated. The motor-driven auxiliary pumps are assumed to be capable of delivering flow to the steam generators 60 seconds after the low pressurizer Safety Injection Actuation Signal (SIAS) is generated; therefore, the diesel generator starting and sequencer loading delays must be included in this response time.

Even though the motor-driven auxiliary feedwater pumps are assumed to start only from the low pressurizer pressure safety injection signal, in reality, the motor-driven auxiliary feedwater pumps are started by a SIAS, regardless of the source of the SIAS. Therefore, these changes are applied to all sources of a SIAS (Containment Pressure--High-1, Pressurizer Pressure--Low, and Steam Line Pressure--Low), not just the low pressurizer pressure - SI signal.

These changes make the TRM response times consistent with the existing accident analyses described in FSAR Sections 15.2.6, 15.2.7, 15.2.8, and 15.6.5.

Change Request Number TR - 95 - 19 1
Related SER : 15.2 SSER : 22
SER/SSER Impact N

1- 06

2

Revises item 2.c (Containment Pressure--High-1: Feedwater Isolation) of Table 1.2.1 (Engineered Safety Features Response Times) from less than or equal to 6.5 seconds to less than or equal to 7 seconds.

Revision

This change revises the required ESF actuation times for feedwater isolation and main steam isolation valves closure following an Safety Injection Actuation Signal. The 6.5 seconds was based on a limiting old analysis of the containment response to steamline breaks. A new analysis (containment response to steamline breaks) incorporates an allowance for completion of the main feedwater and main steam isolation function of greater than 7 seconds. The main feedwater and/or main steamline isolation functions are credited in many of the FSAR Chapter 6 and 15 accident analyses. However, in all of these accident analyses performed, allowances for the completion of the isolation function of 7 seconds or greater are included. Based on the new containment response analysis and existing accident analyses, it is acceptable to change the isolation time from 6.5 to 7 seconds.

Change Request Number TR - 95 - 3 1
Related SER : 6.2 SSER :
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1-07

Group

2

Description

Clarifies ECCS response time by adding Note 10 to Item 3.a, "Pressurizer Pressure--Low-1 / Safety Injection (ECCS)

Revision

See justification for change on TRM page 1-6 (Change Request Number: TR-94-4.2).

Change Request Number

TR - 94 - 4 . 3

Related SER : 15

SSER :

SER/SSER Impact

1-07

2

Revises item 3.f (Pressurizer Pressure--Low) of Table 1.2.1 (Engineered Safety Features Response Times) by changing "Auxiliary Feedwater" to "Motor-Driven Auxiliary Feedwater," and by adding the existing Note 1 to the response time (less than or equal to 60 seconds.) Note 1 states, "Diesel generator starting and sequence loading delays included."

Revision

See justification for change on TRM page 1-6 (Change Request Number TR-95-19.1).

Change Request Number

TR - 95 - 19 . 2

Related SER : 15.2

SSER : 22

SER/SSER Impact

N

1-07

3

Adds Note 11 to the response time (less than or equal to 2 seconds) for Reactor Trip on Pressurizer Pressure - Low (item 3.b of Table 1.2.1, "Engineered Safety Features Response Times").

Revision

See justification for change on TRM page 1-6 (Change Request Number: TR-94-7.1).

Change Request Number

TR - 94 - 7 . 2

Related SER : 7.3

SSER : 22

SER/SSER Impact

1-08

2

Revises item 4.f (Steam Line Pressure--Low) of Table 1.2.1 (Engineered Safety Features Response Times) by changing "Auxiliary Feedwater" to "Motor-Driven Auxiliary Feedwater," and by adding the existing Note 1 to the response time (less than or equal to 60 seconds.) Note 1 states, "Diesel

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generator starting and sequence loading delays included."

Revision

See justification for change on TRM page 1-6 (Change Request Number TR-95-019.1).

Change Request Number TR - 95 - 19 . 3
Related SER : 15.2 SSER : 22
SER/SSER Impact N

1-08

2

Revises item 4.n (Steam Line Pressure--Low: Steam Line Isolation) of Table 1.2.1 (Engineered Safety Features Response Times) from less than or equal to 6.5 seconds to less than or equal to 7 seconds.

Revision

See justification for change on TRM page 1-6 (Change Request Number: TR-95-3.1).

Change Request Number TR - 95 - 3 . 3
Related SER : 6.2 SSER :
SER/SSER Impact

1-08

2

Revises item 4.c (Steam Line Pressure--Low: Feedwater Isolation) of Table 1.2.1 (Engineered Safety Features Response Times) from less than or equal to 6.5 seconds to less than or equal to 7 seconds.

Revision

See justification for change on TRM page 1-6 (Change Request Number: TR-95-3.1).

Change Request Number TR - 95 - 3 . 2
Related SER : 6.2 SSER :
SER/SSER Impact

1-08

3

Adds Note 11 to the response time (less than or equal to 2 seconds) for Reactor Trip on Steam Line Pressure - Low (item 4.b of Table 1.2.1, "Engineered Safety Features Response Times").

Revision

See justification for change on TRM page 1-6 (Change Request Number: TR-94-7.1) .

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		Change Request Number TR - 94 - 7 . 3 Related SER : 7.3 SSER : 22 SER/SSER Impact	
1- 08	2	Clarifies ECCS response time by adding Note 10 to Item 4.a, "Steam Line Pressure--Low-1 / Safety Injection (ECCS) Revision See justification for change on TRM page 1-6 (Change Request Number: TR-94-4.2). Change Request Number TR - 94 - 4 . 4 Related SER : 15 SSER : SER/SSER Impact	
1- 09	2	Revises item 6 (Containment Pressure--High-2: Steam Line Isolation) of Table 1.2.1 (Engineered Safety Features Response Times) from less than or equal to 6.5 seconds to less than or equal to 7 seconds. Revision See justification for change on TRM page 1-6 (Change Request Number: TR-95-3.1). Change Request Number TR - 95 - 3 . 4 Related SER : 6.2 SSER : SER/SSER Impact	
1- 09	2	Revises item 10 (Loss-of-Offsite Power) of Table 1.2.1 (Engineered Safety Features Response Times) by changing "Auxiliary Feedwater" to "Motor-Driven Auxiliary Feedwater Pump," and by changing the response time from "N.A." to less than or equal to 58 seconds. Also the existing Note 1 is added to the response time. Note 1 states, "Diesel generator starting and sequence loading delays included." Revision In the analyses of the Loss of AC Power to the Station Auxiliaries event and Feedline Break events, offsite power is assumed to be lost shortly after a reactor trip signal is generated on low-low steam generator water level. The motor-driven and turbine-driven auxiliary feedwater pumps are assumed to start within 60 seconds and 85 seconds, respectively, of the low-low steam	

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generator water level signal. For these events, the low-low steam generator water trip signal also initiates a reactor trip. A turbine trip and loss of offsite power are assumed to occur simultaneously with the reactor trip. The loss of offsite power signal and subsequent DG start and blackout sequencing are credited in the mitigation of these events. Thus, the response time testing in the TRM for the loss of offsite power and the start of the motor-driven AFW pumps should include diesel startup and blackout sequencing delays. (The turbine-driven AFW pump starts on low-low steam generator water level and is unaffected by the availability of offsite power. The split flow bypass valves and auxiliary feedwater flow control valves go to their required position following the low-low steam generator water level signal; this function is unaffected by the availability of offsite power.) Because of the 2 second difference between the time the low-low steam generator water level signal initiated the auxiliary feedwater actuation and the time offsite power is assumed to be lost, the motor-driven AFW Pump response time in the TRM for the loss of offsite power signal is required to be less than or equal to 58 seconds.

These changes make the TRM response times consistent with the existing accident analyses described in FSAR Sections 15.2.6, 15.2.7, 15.2.8, and 15.6.5.

Change Request Number

TR - 95 - 19 . 4

Related SER : 15.2

SSER : 22

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N

1- 09

2

Revises items 9.a (Steam Generator Water Level - Low-Low) of Table 1.2.1 (Engineered Safety Features Response Times) by changing "Motor-Driven Auxiliary Feedwater Pumps," to "Motor-Driven Auxiliary Feedwater."
Revises items 9.b (Steam Generator Water Level - Low-Low) of Table 1.2.1 (Engineered Safety Features Response Times) by changing "Turbine-Driven Auxiliary Feedwater Pumps," to "Turbine-Driven Auxiliary Feedwater."

Revision

Items 9.a and 9.b refer to functions not specific components. This change is for clarification only.

Change Request Number

TR - 95 - 19 . 5

Related SER : 15.2

SSER : 22

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1- 11

3

Adds Note 11 to the end of Table 1.2.1. Note 11 states, "The response time

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of less than or equal to 2 seconds is applicable for MODES 1 and 2 and is measured to the loss of stationary gripper coil voltage only. The response time is not applicable (N.A.) for MODES 3 and 4."

Revision

See justification for change on TRM page 1-6 (Change Request Number: TR-94-7.1) .

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Related SER : 7.3 SSER : 22
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1- 11

- 2 Clarifies ECCS response time by adding Note 10 at end of TRM Table 1.2.1 for Items 2.a, 3.a, and 4.a. Note 10 states, "Excludes stroke times of RHR mini-flow valves (FCV-610 and FCV-611)."

Revision

See justification for change on TRM page 1-6 (Change Request Number: TR-94-4.2.).

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Related SER : 15 SSER :
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2- 03

- 2 Revises the required closure time for the containment isolation valve (demineralized water supply HV-5365 and HV-5366) from "5" to "10" seconds (Table 2.1.1, "Containment Isolation Valves")

Revision

The operating/closing times for a number of valves have been baselined as part of the ASME IST program. A result of this effort is that several valves have been baselined with closing times which are marginally faster than the times noted in the TRM (Table 2.1.1). In order to accommodate the normally expected degradaton in the valve closing times, the containment isolation requirements were examined. It was determined that the required closing times could be increased without impacting the design basis analyses of CPSES, that the changes would be consistent with the guidelines provided in ANS 56.2-1976 (ANSI N271), and that the changes are consistent with TRM Bases Section 2.1 and T/S Bases 3/4.6.1.7.

This change will not impact the previously evaluated radiological consequences of an accident or the environmental qualification of the components in the areas of the subject valves.

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The relaxed closure time allows for longer valve stroke times before valve rework is required. However, the reliability /operability of the valves is also assured by the ASME Inservice Testing Program.

A change to the FSAR (Table 6.2.4-3) has been initiated to reflect the changes to the TRM and the design basis (LDCR-SA-95-063).

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Related SER : 6.2.3 SSER :

SER/SSER Impact

2-07

2

Revises the required closure time for the containment isolation valve (CCW Return from RCP's Motors, HV-4700, HV-4701, and HV-4708) from "15" to "30" seconds (Table 2.1.1, "Containment Isolation Valves")

Revision

See justification for change on TRM page 2-3 (Change Request Number: TR-93-016.1).

Change Request Number TR - 93 - 16 . 4

Related SER : 6.2.3 SSER :

SER/SSER Impact

2-07

2

Revises the required closure time for the containment isolation valve (Chilled Water Supply to Containment Coolers, HV-6082, HV-6083, and HV-6084) from "10" to "15" seconds (Table 2.1.1, "Containment Isolation Valves")

Revision

See justification for change on TRM page 2-3 (Change Request Number: TR-93-016.1).

Change Request Number TR - 93 - 16 . 3

Related SER : 6.2.3 SSER :

SER/SSER Impact

2-07

2

Revises the required closure time for the containment isolation valve (Containment CCW Drain Tank Pumps Discharge, HV-4725 and HV-4726) from "5" to "10" seconds (Table 2.1.1, "Containment Isolation Valves")

Revision

See justification for change on TRM page 2-3 (Change Request Number:

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		TR-93-016.1).
		Change Request Number TR - 93 - 16 . 2 Related SER : 6.2.3 SSER : SER/SSER Impact
2- 09	2	Revises the required closure time for the containment isolation valve (Containment Pressure Relief, HV-5548 and HV-5549) from "3" to "5" seconds (Table 2.1.1, "Containment Isolation Valves") and adds note "Including the instrumentation delays of the containment ventilation isolation signal from Pressurizer Pressure Low," to the 5 second time requirement. Revision See justification for change on TRM page 2-3 (Change Request Number: TR-93-16.1).
		Change Request Number TR - 93 - 16 . 5 Related SER : 6.2.3 SSER : SER/SSER Impact
2- 25	2	Add Note 8, "Including the instrumentation delays of the containment ventilation isolation signal from Pressurizer Pressure Low," to the table notation section of Table 2.1.1. Revision See justification for change on TRM pages 2-3 (Change Request Number: TR-93-16.1) and 2-9 (Change Request Number: TR-93-16.5).
		Change Request Number TR - 93 - 16 . 6 Related SER : 6.2.3 SSER : SER/SSER Impact

ENCLOSURE TO TXX-96027