

TUELECTRIC

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Ref. # 10CFR50.90
10CFR50.92

August 9, 1991

William J. Cahill, Jr.
Executive Vice President

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

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES) - UNIT 1
DOCKET NO. 50-445
LICENSE AMENDMENT REQUEST 91-014
INCREASE IN MODE 5 SHUTDOWN MARGIN

Gentlemen:

Pursuant to 10CFR50.90, TU Electric hereby requests an amendment to the CPSES Unit 1 Operating License (NFP-87) by incorporating the enclosed changes into the CPSES Unit 1 Technical Specifications.

The proposed changes increase the required minimum SHUTDOWN MARGIN for MODE 5 operation from $1\% \Delta k/k$ to $1.3\% \Delta k/k$, and increase the minimum boration requirement from a SHUTDOWN MARGIN equivalent to $1\% \Delta k/k$ at 200°F to a SHUTDOWN MARGIN equivalent to $1.3\% \Delta k/k$ at 200°F for the ACTION of the LIMITING CONDITIONS FOR OPERATION for boration systems. The proposed changes result from revisions to the analysis for the Boron Dilution event to account for cycling time delays associated with the Boron Dilution Mitigation System (Flux Doubling). Westinghouse has revised the Boron Dilution event analysis as part of the Cycle 2 reload safety evaluation to support the implementation of the proposed change. This change is not required to support the remaining CPSES Unit 1, Cycle 1 operations.

Enclosure 1 provides a detailed description of the proposed changes, the basis for the changes, and TU Electric's determination that the proposed changes do not involve a significant hazards consideration.

Enclosure 2 provides the affected Technical Specification pages which have been marked up to reflect the proposed changes.

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TU Electric requests approval of the proposed amendment by October 1, 1991, with an allowable implementation period of 30 days following the date of issuance. This will allow for orderly implementation of the changes during the refueling outage. Administrative controls to maintain the shutdown margin at the revised value in this proposed change are being incorporated into plant operating procedures and will be in effect prior to reloading fuel into the CPSES Unit 1 reactor vessel for Cycle 2. This revised shutdown margin value is conservative with respect to the current Technical Specification value and therefore can be implemented prior to approval of this change. Final Safety Analysis Report (FSAR) updates will be provided through the normal amendment process in a future FSAR amendment.

Should you have any questions in this matter please contact Jimmy Seawright at (214) 812-4375.

Sincerely,



William J. Cahill, Jr.

JDS/grp
Attachment
Enclosures

c - Mr. R. D. Martin, Region IV
Resident Inspectors, CPSES (2)
Mr. T. A. Bergman, NRR

Mr. D. K. Lacker
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1100 West 49th Street
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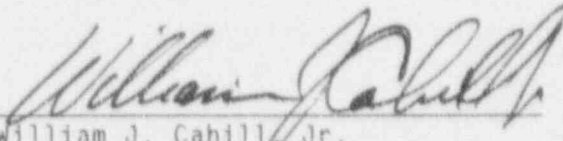
UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the matter of)
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Texas Utilities Electric Company))
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(Comanche Peak Steam Electric)
Station, Unit 1))

Docket No. 50-445

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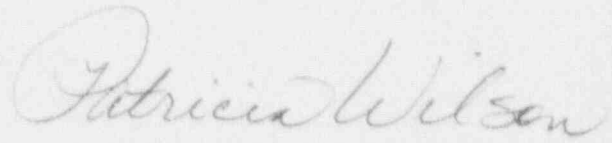
William J. Cahill, Jr. being duly sworn, hereby deposes and says that he is Executive Vice President, Nuclear of TU Electric, that he is duly authorized to sign and file with the Nuclear Regulatory Commission this transmittal of License Amendment Request 91-014; that he is familiar with the content thereof; and that the matters set forth therein are true and correct to the best of his knowledge, information and belief.


William J. Cahill, Jr.
Executive Vice President, Nuclear

STATE OF TEXAS)
)
COUNTY OF SOMERVELL)

Subscribed and sworn to before me, a Notary Public, on this 9th day of
August 1991.




Notary Public

SIGNIFICANT HAZARDS CONSIDERATION

Enclosure 1 to TXX-91299

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SIGNIFICANT HAZARDS CONSIDERATION
PROPOSED CPSES UNIT 1 TECHNICAL SPECIFICATION CHANGE

SHUTDOWN MARGIN REQUIREMENT FOR COLD SHUTDOWN (MODE 5)

I. BACKGROUND

The Boron Dilution Mitigation System (BDMS) is designed to detect and mitigate a boron dilution event occurring in MODES 3, 4, or 5 prior to the complete loss of the shutdown margin. The BDMS detects a boron dilution event by monitoring the output of the source range neutron flux detectors to determine if the neutron flux has increased by a factor of two or more over a specified time period. Upon detection of a flux-doubling, the BDMS initiates the opening of isolation valves to the Refueling Water Storage Tank (RWST) and the closure of isolation valves to the Volume Control Tank (VCT). This change in valve alignment blocks the source of the diluted water and lines up the borated water from the RWST for injection into the Reactor Coolant System (RCS). These functions must be completed in sufficient time to prevent the loss of shutdown margin, i.e., to prevent a return to critical. Therefore, important items to consider for the analysis are the time to flux-doubling, the time to critical, and the time differential from flux-doubling to critical.

A potential discrepancy was noted by TU Electric that pertains to the modelling of the BDMS flux-doubling detection circuitry for the safety analyses. Specifically, the circuitry delay associated with averaging of the source range flux signal over a specified time period for the generation of the flux-doubling signal may not have been

properly modelled. As a result, the response of the BDMS assumed in the licensing-basis boron dilution event analysis presented in Final Safety Analysis Report (FSAR) Section 15.4.6 may be quicker than the actual system response.

Westinghouse orally informed TU Electric, and subsequently documented in correspondence dated March 12, 1991, that the boron dilution issue appeared to be a valid concern. The CPSES operations staff was immediately notified of the issue. TU Electric, in conjunction with Westinghouse, performed a technical evaluation of the issue. This evaluation concluded, based on the information available at the time and the documented core exposure, that a shutdown margin of 1% $\Delta k/k$ was sufficient to preclude a return to critical during a boron dilution event for Cycle 1.

To resolve the boron dilution issue for CPSES, Westinghouse performed an analysis, which was documented in correspondence dated August 2, 1991, of the licensing-basis boron dilution event initiated from MODES 3, 4, and 5. The analysis demonstrated that for Cycle 2 an increase to the Technical Specification minimum SHUTDOWN MARGIN from 1.0% $\Delta k/k$ to 1.3% $\Delta k/k$ when $T_{avg} \leq 200^\circ F$ is required. The analysis further demonstrated that for the entire Cycle 1 operation, using the current shutdown margin requirement of 1.0% $\Delta k/k$ in conjunction with cycle specific parameters, sufficient shutdown margin is maintained to preclude a return to critical during a boron dilution event.

II. DESCRIPTION OF TECHNICAL SPECIFICATION CHANGE REQUEST

The proposed Technical Specification change increases the minimum SHUTDOWN MARGIN for MODE 5 from 1.0% $\Delta k/k$ to 1.3% $\Delta k/k$. The specific Technical Specifications to be revised are:

- 3.1.1.2 SHUTDOWN MARGIN - T_{avg} LESS THAN OR EQUAL TO 200°F,
- 3.1.2.2 FLOW PATHS - OPERATING,
- 3.1.2.4 CHARGING PUMPS - OPERATING, and
- 3.1.2.6 BORATED WATER SOURCES - OPERATING.

The BASES for the affected Technical Specifications are revised to reflect these changes.

A detailed discussion of these changes is provided below:

A. Specification 3/4.1.1.2

Specification 3/4.1.1.2 is changed to increase the minimum SHUTDOWN MARGIN for MODE 5 from 1.0% $\Delta k/k$ to 1.3% $\Delta k/k$. The associated BASES are changed to identify the new requirement and to clarify that the required SHUTDOWN MARGIN when the RCS T_{avg} is less than or equal to 200°F is based on the boron dilution accident.

B. Specification 3.1.2.2

The ACTION for Specification 3.1.2.2 and its associated BASES are changed to increase the minimum boration requirement from a SHUTDOWN MARGIN equivalent to 1.0% $\Delta k/k$

at 200°F to a SHUTDOWN MARGIN equivalent to 1.3% $\Delta k/k$ at 200°F.

C. Specification 3.1.2.4

The ACTION for Specification 3.1.2.4 and its associated BASES are changed to increase the minimum boration requirement from a SHUTDOWN MARGIN equivalent to 1.0% $\Delta k/k$ at 200°F to a SHUTDOWN MARGIN equivalent to 1.3% $\Delta k/k$ at 200°F.

D. Specification 3.1.2.6

The ACTION for Specification 3.1.2.6 and its associated BASES are changed to increase the minimum boration requirement from a SHUTDOWN MARGIN equivalent to 1.0% $\Delta k/k$ at 200°F to a SHUTDOWN MARGIN equivalent to 1.3% $\Delta k/k$ at 200°F.

III. ANALYSIS

The basic description of the boron dilution event as provided in the CPSES FSAR (see Section 15.4.6) and the CPSES Safety Evaluation Report (NUREG-0797, Section 15.2.3.1) are unchanged, although the boration parameters and event times in the time sequence are different based on the proposed SHUTDOWN MARGIN and the supporting analysis. In MODE 5, the new minimum SHUTDOWN MARGIN, 1.3% $\Delta k/k$, precludes a return to critical during a boron dilution event. In MODES 3 and 4, the existing minimum SHUTDOWN MARGIN, 1.0% $\Delta k/k$, continues to preclude a return to critical. Increasing the minimum boration requirement

during a condition of reduced boration capability (see ACTIONS for Specifications 3.1.2.2, 3.1.2.4, and 3.1.2.6) ensures that adequate SHUTDOWN MARGIN for MODE 5 is established in a timely manner. This ensures that the MODE 5 SHUTDOWN MARGIN requirement can be established prior to entering MODE 5 in spite of the reduced boration capability.

IV. SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

TU Electric has evaluated the no significant hazards consideration involved with the proposed changes in accordance with the three standards set forth in 10CFR50.92(c) as discussed below:

Does the proposed change:

- (1) Involve a significant increase in the probability or consequences of an accident previously evaluated?

Operation with the proposed minimum shutdown margin requirement only affects the transient response following an initiating event from MODE 5. Therefore, the probability of an initiating event is unaffected by the proposed change. The accident analyses have been evaluated and the only accident of concern is the boron dilution event in MODE 5. This event has been analyzed and the applicable event acceptance criteria continue to be met with the conclusions of the FSAR remaining valid.

Therefore, the proposed Technical Specification changes do not involve an increase in the probability or consequences of an accident previously evaluated.

- (2) Create the possibility of a new or different kind of accident from any accident previously evaluated?

The use of the increased minimum shutdown margin requirement for MODE 5 does not involve any design changes to the fuel, Reactor Coolant System or engineered safety features. Thus, implementation of the increased minimum shutdown margin requirement for MODE 5 does not result in any new or different types of accidents.

Therefore, the proposed Technical Specification changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

- (3) Involve a significant reduction in the margin of safety?

As described in the FSAR, the SER, and the Technical Specification BASES for these specifications, the margin of safety is established by precluding a return to critical for a postulated boron dilution event in MODE 5. The boron dilution event has been analyzed using methodology approved for CPSES and the proposed minimum SHUTDOWN MARGIN. The result of this analysis is that the reactor remains subcritical.

Therefore, the proposed Technical Specification changes do not involve a reduction in the margin of safety.

Based on the above evaluations, TU Electric concludes that the above described changes satisfy the no significant hazards consideration standards of 10CFR50.54(c) and, accordingly, a no significant hazards finding is justified.

V. ENVIRONMENTAL EVALUATION

TU Electric has evaluated the proposed changes and has determined that the changes do not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed changes meet the eligibility criterion for categorical exclusion set forth in 10CFR51.22(c)(9). Therefore, pursuant to 10CFR51.22(b), an environmental assessment of the proposed change is not required.