



Nebraska Public Power District

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NLS8800109
April 29, 1988

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Gentlemen:

Subject: Proposed Change No. 35 to Technical Specifications
Standby Liquid Control System
Cooper Nuclear Station
NRC Docket No. 50-298, DPR-46

In accordance with the applicable provisions specified in 10CFR50, Nebraska Public Power District requests that the Technical Specifications for Cooper Nuclear Station be revised to reflect modifications to the Standby Liquid Control System for compliance with 10CFR50.62.

A discussion and the applicable revised Technical Specification pages are contained in the Attachment. The modifications to the Technical Specifications within this proposed change have been evaluated with respect to the requirements of 10CFR50.92. The results of the evaluations are also included in the attachment.

This proposed change incorporates all amendments to the CNS Facility Operating License through Amendment 118 issued April 1, 1988. By copy of this letter and attachment the appropriate State of Nebraska official is being notified in accordance with 10CFR50.91(b).

This change has been reviewed by the necessary Safety Review Committees and payment of \$150 is submitted in accordance with 10CFR170.12.

In addition to the signed original, 37 copies are also submitted for your use. Copies to the NRC Region IV Office and the CNS

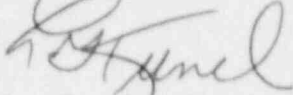
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Page 2
April 29, 1988

Resident Inspector are also being sent in accordance with 10CFR50.4(b) (2). Should you have any questions or require additional information, please contact me.

Sincerely,



L. G. Kyncl
Nuclear Power Group Manager

LGK/grs:mh12/1
Attachment

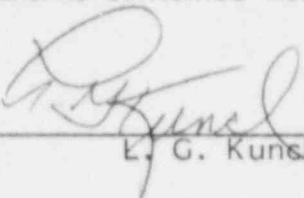
cc: H. R. Borchert
Department of Health
State of Nebraska

NRC Regional Office
Region IV
Arlington, TX

NRC Resident Inspector Office
Cooper Nuclear Station

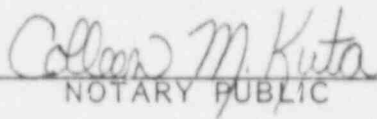
STATE OF NEBRASKA)
)ss
PLATTE COUNTY)

L. G. Kuncl, being first duly sworn, deposes and says that he is an authorized representative of the Nebraska Public Power District, a public corporation and political subdivision of the State of Nebraska; that he is duly authorized to submit this request on behalf of Nebraska Public Power District; and that the statements contained herein are true to the best of his knowledge and belief.



L. G. Kuncl

Subscribed in my presence and sworn to before me this 29th day of
April, 1988.



NOTARY PUBLIC



Revised Technical Specifications
for Standby Liquid Control System

Revised Pages: 107
111
112

- Reference: 1) Letter from G. A. Trevors to NRC dated November 18, 1987,
"ATWS (10CFR50.62) Additional Information"
- 2) Letter from W. O. Long to G. A. Trevors dated January 8, 1987,
"ATWS Rule (10CFR50.62)"

Nebraska Public Power District is proposing revisions to the Cooper Nuclear Station (CNS) Technical Specifications to comply with 10CFR50.62, the ATWS rule. These modifications are based on the BWR Owners' Group's Licensing Topical Report NEDE-31096-P-A, "ANTICIPATED TRANSIENTS WITHOUT SCRAM; RESPONSE TO NRC ATWS RULE, 10CFR50.62" which was accepted by the NRC in an SER dated October 1, 1986. The Standby Liquid Control System (SLCS) pump control circuitry and system piping is being modified to provide simultaneous operation of the two existing SLCS pumps from the Control Room. The associated sodium pentaborate solution volume-concentration curve has been revised to reflect the minimum concentration limit of 11.5% for ATWS as stated in Reference 1. The maximum concentration limit of 16.0% remains. The increased boron injection rate resulting from two-pump operation at 16.0% concentration has been analyzed and its effect on the boron mixing in the core has been found to be insignificant. The revised volume-concentration curve is based on a new storage tank zero reference level. The curve has also been revised to account for tank level indication accuracy and a more conservative amount of total water in the reactor vessel, recirculation loops and Residual Heat Removal loops. The revised curve also does not denote the net tank volumes for the high and low level alarms.

The setpoints for the two SLCS relief valves will be raised to 1450 psi as discussed in Reference 2 since simultaneous pump operation will increase the pump discharge pressure. The system head pressure against which the minimum pump flow rate is verified will also be raised to better ensure ATWS requirements are met.

Description of Changes

1. On page 107, Specification 4.4.A.2a is changed to state that the system relieve valve settings (P) are $1450 < P < 1680$ psig and that the valves will reset at a pressure of ≥ 1300 psig.
2. On page 107, Specification 4.4.A.2b is revised to state that minimum pump head is verified against a system head of 1300 psig. Also in this specification, the term "Standby Liquid Control System" is changed to "Standby Liquid Control Storage Tank" to clarify from what tank the SLC pumps take suction for this surveillance.

3. On page 111, the bases are revised to describe how the SLCS has been modified to satisfy both the new ATWS requirements and the original SLCS design requirements.
4. On page 112, the sodium pentaborate volume-concentration curve is revised to reflect the new minimum concentration limit (11.5%) which will ensure that the plant meets the new ATWS requirements and the original SLCS design basis.

Evaluation of this Revision with Respect to 10CFR50.92

This revision consists of two changes:

- A. Modify SLCS operation for simultaneous two-pump operation and the attendant changes to the sodium pentaborate volume-concentration curve.
- B. Revisions to the SLCS pressure relief valve setpoint and reset values as well as the system head requirements for minimum pump flow verification.

The enclosed Technical Specification change is judged to involve no significant hazards based on the following:

1. Does the proposed license amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Evaluation

- A. The addition of simultaneous operation of both SLCS pumps has no effect on the probability of an accident. The pump discharge pressure remains within its design limit and periodic testing will verify the operability of the system. The proposed change will not alter the total amount of boron injection previously required by Technical Specifications thus maintaining the previous shutdown reactivity capability. The two-pump operation will increase the boron injection rate to conform with the requirements of 10CFR50.62 (ATWS). Use of two pump operation has been reviewed and found acceptable as an option to meet the ATWS requirements. The sodium pentaborate solution volume-concentration curve is being revised to be more conservative in order to meet the new ATWS requirements and to ensure adequate boron mixing in the vessel. The original SLCS design basis remain in effect so with failure of one pump, the remaining pump can deliver the required boron amount into the vessel. The proposed change will not involve a significant increase in the probability or consequences of an accident previously evaluated.
- B. Dual SLCS pump operation will increase the pump discharge pressure and decrease the margin to the relief valve setpoint. By raising the relief valve pressure setpoint and reset values, leakage through the relief valve during two-pump operation is minimized thus avoiding any bypass flowpaths around the reactor vessel from the SLCS pumps. This ensures the requirements for ATWS injection rates and the total amount of boron injected into the vessel are met. The new relief setpoint remains below the pump design pressure of 1500 psig. Raising the system head requirements during testing ensures the pumps will deliver the required flow against the system pressures expected during two-pump operation.

Raising the pressure setpoints will not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed license amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Evaluation:

- A. Dual pump operation is an enhancement of the existing single-pump operating mode and the SLCS will operate on one pump at no greater risk than before this change. The SLCS provides a backup shutdown capability and continues to be isolated from inadvertent actuation and injection into the reactor vessel by fail safe explosive squib valves. The revisions to the sodium pentaborate solution volume-concentration curve will ensure consistency with the original design basis and ATWS requirements. The proposed change will not create the possibility of a new or different kind of accident.
 - B. Raising the pressure setpoints will ensure the SLCS will inject the required amount and rates of boron into the reactor vessel in the event a backup shutdown capability is needed. System integrity is not degraded by the higher relief setpoint, and no new mode of plant operation is permitted by the change. Determination of adequate pump flow rates is enhanced by testing against higher, expected system head values. The proposed change will not create the possibility of a new or different kind of accident.
3. Does the proposed amendment involve a significant reduction in a margin of safety?

Evaluation:

- A. The change will not reduce the overall shutdown reactivity capability of the SLCS because the total amount of boron injected into the reactor vessel is the same as before. Two-pump operation will increase the rate of boron injection to conform to 10CFR50.62 requirements and provides a greater margin of safety for ATWS events. The sodium pentaborate solution volume-concentration curve has been revised to require a minimum of 11.5 percent concentration to meet the ATWS requirement. The increased boron injection rate resulting from two pump operation at 16% by weight sodium pentaborate solution has been analyzed and its effect on the boron mixing in the core found to be insignificant. The change will not involve a significant reduction in a margin of safety.
- B. Raising the relief valve setpoint will ensure there is approximately 70 psi margin to the calculated pump discharge pressure to minimize relief valve leakage during two-pump operation. Margin still exists between the setpoint and the SLCS pump design pressure with no detriment to the system integrity. The increase in required system head against which minimum pump flow is measured ensures greater confidence in pump operability. The change will not involve a significant reduction in a margin of safety.