



Nebraska Public Power District

COOPER NUCLEAR STATION
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NLS970001
February 10, 1997

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

Subject: Proposed Change to CNS Technical Specifications
Implementation of BWR Thermal Hydraulic Stability Solution
Cooper Nuclear Station
NRC Docket No. 50-298, License No. DPR-46

- References:
1. NEDO-31960 and NEDO-31960, Supplement 1, BWR Owner's Group Long-Term Stability Solutions Licensing Methodology.
 2. Generic Letter 94-02, dated July 11, 1994, "Long-Term Solutions and Upgrade of Interim Operating Recommendations for Thermal hydraulic Instabilities in Boiling Water Reactors."
 3. Letter to USNRC from G. R. Horn (Nebraska Public Power District), dated September 9, 1994, "Generic Letter 94-02."

Gentlemen:

In accordance with the provisions of 10 CFR 50.4 and 50.90, the Nebraska Public Power District (District) hereby submits a request for an amendment to license DPR-46 to change the Cooper Nuclear Station (CNS) Technical Specifications. The proposed change provides the requirements for avoidance and protection from thermal hydraulic instabilities to be consistent with Reference (1).

Attachment 1 contains the bases for the changes, the no significant hazard consideration determination, and the CNS Technical Specifications pages revised by this change. This proposed change has been reviewed by the necessary safety review committees and incorporates all amendments to the CNS Facility Operating License through Amendment 175 issued April 29, 1996.

In response to NRC Generic Letter 94-02 (Reference 2), the District by a letter (Reference 3) committed to install the Long-Term Solution Stability System (LTSSS) Option III features at

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CNS by June 1, 1997, and to have it operational by December 1, 1997 following acceptance testing. Since then, evaluations have been performed by General Electric (GE), and they have conclusively demonstrated that the "Regional Exclusion with Flow-Biased APRM Neutron Flux Scram" Stability Solution Option I-D of Reference (1) is applicable to the Cycle 18 as-loaded-core of CNS, in compliance with General Design Criteria 12. Enclosed with this submittal is the plant specific licensing topical report, GENE-A13-00395-01, Application of the "Regional Exclusion with Flow-Biased APRM Neutron Flux Scram" Stability Solution (Option I-D) to the Cooper Nuclear Station. The report presents an Exclusion Region for CNS which identifies plant conditions that may lead to an instability. Following are the conclusions drawn in the report:

- (1) The Exclusion Region Analysis confirms that the core-wide reactor instability is the predominate mode, and that regional mode oscillations are not expected to occur for CNS.
- (2) A statistically based Detect and Suppress Analysis demonstrates that the APRM Flow-Biased Neutron Flux trip provides protection to the Safety Limit Minimum Critical Power Ratio (SLMCPR) in the event of a core-wide mode of thermal-hydraulic/neutronic oscillation at CNS.
- (3) An on-line stability predictor and administrative controls are necessary to provide a high degree of assurance that fuel thermal limits cannot be approached.

In light of the above conclusions, the District has re-evaluated its original commitment to install LTSSS Option III features. Based on the conclusion provided in the enclosed GE report, the District by this letter is proposing LTSSS Option I-D at CNS instead of Option III as follows:

- (1) An Exclusion Region in the Power/flow operating map will be implemented.
- (2) The ability of the APRM flow-biased flux trip to detect and suppress the most probable mode of power oscillations (core-wide mode) before the SLMCPR is reached has been demonstrated using the statistical methodology described in NEDO-32465.
- (3) An on-line stability predictor will be installed and made operable with the necessary administrative controls at CNS.

The District is hereby submitting the required Technical Specification change request to implement the above mentioned actions under LTSSS Option I-D by December 1, 1997. The District requests that this Technical Specification change request be approved on or before November 1, 1997. This date will allow sufficient time of at least 30 days for licensed operator

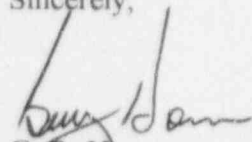
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training and the revision of station procedures prior to the amendment effective date of December 1, 1997.

By copy of this letter and its attachment, the appropriate State of Nebraska official is being notified in accordance with 10CFR50.91(b)(1). Copies to the NRC Region IV Office and the CNS Resident Inspector are also being provided in accordance with 10CFR50.4(b)(2).

Should you have any questions or require any additional information regarding this submittal, please contact Jim Pelletier at (402) 825-5646.

Sincerely,



G. R. Horn
Senior Vice-President of Energy Supply

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Attachment

Enclosure


cc: Regional Administrator
USNRC - Region IV

Senior Project Manager
USNRC - NRR Project Directorate IV-1

Senior Resident Inspector
USNRC

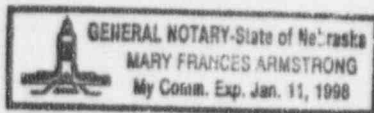
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STATE OF NEBRASKA))
NEMAHA COUNTY)


G. R. Horn
Senior Vice-President of Energy Supply

subscribed in my presence and sworn to before me this 10th day of February, 1997.

Mary Frances Armstrong
NOTARY PUBLIC



COOPER NUCLEAR STATION
TECHNICAL SPECIFICATIONS
IMPLEMENTATION OF BWR THERMAL HYDRAULIC
STABILITY SOLUTION

<u>Revised Pages</u>		
17	98b (deleted)	212a
98	98c (deleted)	214a
98a (deleted)	103	234

1.0 Bases for Changes

Section 2.1.A.1.a Bases

The Bases to the APRM Flux Scram Trip Setting was changed to reflect the fact that the APRM flow-biased flux scram provides protection to the Safety Limit MCPR in the event of a thermal-hydraulic instability.

Sections 3.3.F.2, 3.3.F.3.a, 3.3.F.3.b, 4.3.F.1, 4.3.F.2, Figure 3.3.1 and Applicable Bases

These sections deal with core plate dP, APRM and LPRM neutron flux noise levels associated with single and two recirculation loop operations. The measures described in these sections had been adopted as interim actions, required until long-term stability solutions became available and were implemented. As this change would implement the BWROG Long-Term Stability Solution Option I-D for CNS, these specifications are no longer necessary and therefore, they have been deleted.

Section 3.3.F.3 Bases

This section, which deals with no recirculation loops in operation, has been added to ensure that operation close to a region where thermal-hydraulic instabilities can happen, does not occur. The completion time of 12 hours, is based on operating experience of a reasonable time to reach the Hot Shutdown condition, in an orderly manner and without challenging plant systems.

Section 3.11 D and Applicable Bases

The section on Thermal-hydraulic Stability has been changed to reflect the actions required to implement the BWROG Long-Term Stability Solution Option I-D. This specification prohibits intentional entry into the Stability Exclusion Region and requires immediately exiting the Region, if it is entered.

Section 6.5.1.G Bases

Changes have been made to this section to ensure the Core Operating Limits Reports, COLR, can be updated with data necessary for the current cycle. A power/flow map has been added to the list of items required for the COLR, because this map contains the definition of the Stability Exclusion Region, which may vary from cycle to cycle. Additionally, the core flow MCPR adjustment factor, K_f , has been deleted since it does not exist due to the ARTS/ELLLA modification.

2.0 Significant Hazards Determination

10 CFR 50.91 (a) (1) requires that licensee requests for operating license amendments be accompanied by an evaluation of significant hazards posed by the issuance of an amendment. This evaluation is performed with respect to the criteria given in 10 CFR 50.92 (c).

This proposed change to Cooper Nuclear Station (CNS) Technical Specifications provides the requirements for avoidance and protection from thermal hydraulic instabilities.

- 2.1 The proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated. In fact, it does not result in an increase in the probability or consequences of any previously evaluated accidents. The implementation of BWROG Long-Term Stability Solution Option I-D at CNS does not modify the assumptions contained in the existing accident analysis. The use of an exclusion region and the operator actions required to avoid and minimize operation inside the region do not increase the possibility of an accident. Conditions of operation outside of the exclusion region are within the analytical envelope of the existing safety analysis. The operator action requirement to exit the exclusion region upon entry minimizes the possibility of an oscillation occurring. The actions to drive control rods and/or to increase recirculation flow to exit the region are maneuvers within the envelope of normal plant evolutions. The flow-biased scram has been analyzed and will provide automatic fuel protection in the event of an instability. Thus, each proposed Technical Specification requirement provides defense for protection from an instability event within the existing assumptions of the accident analysis.

- 2.2 As stated above, the proposed Technical Specification requirements either mandate operation

within the envelope of existing plant operating conditions or force specific operating maneuvers within those carried out in normal operation. Since operation of the plant with all of the proposed requirements is within the existing operating basis, an unanalyzed accident will not be created through implementation of the proposed change.

- 2.3 Each of the proposed requirements for plant thermal-hydraulic stability provides a means for fuel protection. The combination of avoiding possible unstable conditions and the automatic flow-biased reactor scram provides an in depth means for fuel protection. Therefore, the individual or combination of means to avoid and suppress an instability supplements the margin of safety.

3.0 Conclusion

The District has evaluated the proposed changes described above against the criteria of 10 CFR 50.92 in accordance with the requirements of 10 CFR 50.91 (a) (1). This evaluation has determined that the proposed change to Technical Specifications will not (1) involve a significant increase in the probability or consequences of an accident previously evaluated, (2) create the possibility for a new or different kind of accident from any accident previously evaluated, or (3) create a significant reduction in the margin of safety. Therefore, the District requests NRC approval of this proposed change.