

July 5, 1988

Docket No. 50-298

Mr. George A. Trevors, Division
Manager - Nuclear Support
Nuclear Power Group
Nebraska Public Power District
Post Office Box 499
Columbus, Nebraska 68601

Dear Mr. Trevors:

SUBJECT: COOPER NUCLEAR STATION - AMENDMENT NO. 123 TO FACILITY
OPERATING LICENSE NO. DPR-46 (TAC NO. 68043)

The Commission has issued the enclosed Amendment No. 123 to Facility Operating License No. DPR-46 for the Cooper Nuclear Station. The amendment consist of changes to the Technical Specifications in response to your application dated April 29, 1988 (Change Number 35).

The amendment changes the Technical Specifications for the Standby Liquid Control System to reflect 10 CFR 50.62 Anticipated Transient Without Scram (ATWS) modifications.

A copy of our related Safety Evaluation is enclosed. Notice of Issuance will be included in the Commission's next Bi-weekly Federal Register notice.

Sincerely,
/s/
William O. Long, Project Manager
Project Directorate - IV
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 123 to License No. DPR-46
2. Safety Evaluation

cc w/enclosures:

See next page
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DOCUMENT NAME: COOPER AMEND SLCS

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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Sincerely,

A handwritten signature in cursive script that reads "William O. Long".

William O. Long, Project Manager
Project Directorate - IV
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

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See next page

Mr. George A. Trevors
Nebraska Public Power District

Cooper Nuclear Station

cc:
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

NEBRASKA PUBLIC POWER DISTRICT

DOCKET NO. 50-298

COOPER NUCLEAR STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 123
License No. DPR-46

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Nebraska Public Power District (the licensee) dated April 29, 1988, 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. DPR-46 is hereby amended to read as follows:

2. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 123, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. The license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

A. Bourne / for

Jose A. Calvo, Director
Project Directorate - IV
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: July 5, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 123

FACILITY OPERATING LICENSE NO. DPR-46

DOCKET NO. 50-298

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised areas are indicated by marginal lines.

Pages

107

111

112

3.4 STANDBY LIQUID CONTROL SYSTEMApplicability:

Applies to the operating status of the Standby Liquid Control System.

Objective:

To assure the availability of a system with the capability to shutdown the reactor and maintain the shutdown condition without the use of control rods.

Specification:

A. Normal System Availability

During periods when fuel is in the reactor and prior to startup from a Cold Condition, the Standby Liquid Control System shall be operable, except as specified in 3.4.B below. This system need not be operable when the reactor is in the Cold Condition and all control rods are fully inserted and Specification 3.3.A is met.

4.4 STANDBY LIQUID CONTROL SYSTEMApplicability:

Applies to the surveillance requirements of the Standby Liquid Control System.

Objective:

To verify the operability of the Standby Liquid Control System.

Specification:

A. Normal System Availability

The operability of the Standby Liquid Control System shall be shown by the performance of the following tests:

1. At least once per month each pump loop shall be tested for operability by recirculating demineralized water to the test tank.
2. At least once during each operating cycle:
 - a. Check that the settings of the system relief valves are $1450 < P < 1680$ psig and the valves will reset at $P \geq 1300$ psig.
 - b. Manually initiate the system, except explosive valves, and pump boron solution from the Standby Liquid Control Storage Tank through the recirculation path. Minimum pump flow rate of 38.2 gpm against a system head of 1300 psig shall be verified. After pumping boron solution the system will be flushed with demineralized water.
 - c. Manually initiate one of the Standby Liquid Control System Pumps and

3.4 BASES (cont'd.)

The volume versus concentration requirement of the solution is such that, should evaporation occur from any point within the curve, a low level alarm will annunciate before the temperature versus concentration requirements are exceeded.

The quantity of stored boron includes an additional margin (25 percent) beyond the amount needed to shutdown the reactor to allow for possible imperfect mixing of the chemical solution in the reactor water.

A minimum quantity of 2840 gallons of solution having a 16.0 percent sodium pentaborate concentration, or the equivalent as shown in Figure 3.4.1, is required to meet this shutdown requirement.

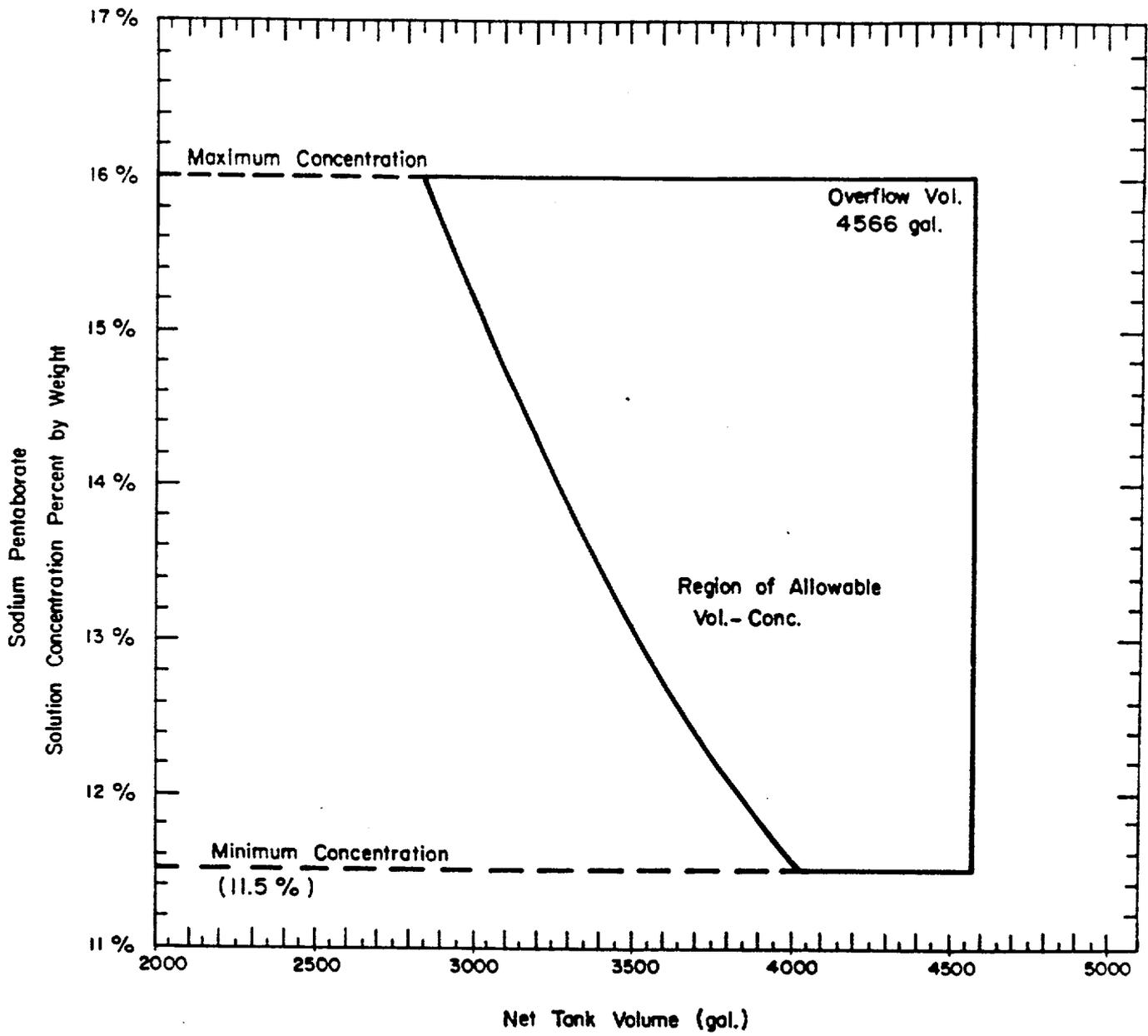
The NRC's final rule on Anticipated Transients Without Scram (ATWS), 10CFR50.62, requires that the Standby Liquid Control System (SLCS) be modified to provide a minimum flow capacity and boron content equivalent in control capacity to 86 gpm of 13 weight percent sodium pentaborate solution for a 251 inch I.D. vessel. For Cooper Nuclear Station, with a 218 inch I.D. vessel, the equivalent minimum flow rate is 66 gpm at 13 weight percent sodium pentaborate. This equivalence is met with both SLCS pumps supplying their minimum flow rate of 38.2 gpm with a solution concentration of at least 11.5 weight percent of sodium pentaborate. Because ATWS is a very low probability event and is considered to be beyond the design basis for CNS, the surveillance and limiting condition for operation requirements need not be more stringent than the original SLCS design basis requirements. The SLCS changes made as a result of the ATWS rule do not invalidate the original system design basis.

4.4 BASES

STANDBY LIQUID CONTROL SYSTEM

Experience with pump operability indicates that the monthly test, in combination with the tests during each operating cycle, is sufficient to maintain pump performance. The only practical time to fully test the liquid control system is during a refueling outage. Various components of the system are individually tested periodically, thus making unnecessary more frequent testing of the entire system.

The bases for the surveillance requirements are given in subsection III.9.6 of the Final Safety Analysis Report, and the details of the various tests are discussed in subsection III.9.5. The solution temperature and volume are checked at a frequency to assure a high reliability of operation of the system should it ever be required.



NEBRASKA PUBLIC POWER DISTRICT
COOPER NUCLEAR STATION

**Sodium Pentaborate
Solution Volume-Concentration
Requirements**

FIGURE 3.4.1



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 123 TO FACILITY OPERATING LICENSE NO. DPR-46
NEBRASKA PUBLIC POWER DISTRICT
COOPER NUCLEAR STATION
DOCKET NO. 50-298

1.0 INTRODUCTION

By letter dated April 29, 1988 (Change No. 35) the Nebraska Public Power District (the licensee) requested an amendment to Facility Operating License No. DPR-46 for the Cooper Nuclear Station. The proposed amendment would change the Technical Specifications for the Standby Liquid Control System (SLCS) to reflect 10 CFR 50.62 modifications.

2.0 DISCUSSION

The licensee has requested revisions to the Cooper Technical Specifications to reflect modifications being made during the Cycle 11 refueling outage to comply with 10 CFR 50.62, the Anticipated Transient Without Scram (ATWS) Rule. The modifications to the SLCS have been previously evaluated by the staff (Ref: Letter from William C. Long to George A. Trevors dated December 23, 1987) and determined to be consistent with the requirements of the Rule. The modifications provide for simultaneous two-pump operation, and revised sodium-pentaborate solution volume-concentration limits. The Technical Specifications amendment requested by the licensee would:

- (1) Revise SLCS pump discharge pressure relief valve settings to raise the minimum opening pressure from 1400 psig to 1450 psig, and raise the minimum reset pressure from 1215 psig to 1300 psig,
- (2) Revise the monthly flow rate surveillance test to clarify that pump suction is to be from the "Standby Liquid Control Storage Tank" during the test, and
- (3) Revise the SLCS Tank volume vs. sodium pentaborate concentration limits figure.

Relief Valve Minimum Opening and Reset Pressure Settings

The Technical Specifications specify a minimum and a maximum relief valve opening pressure setpoint and a minimum reset pressure setpoint. The maximum opening pressure setpoint is based on system overpressure protection requirements and would remain unchanged at 1680 psig. The purpose of the minimum opening pressure and reset pressure setpoints is to preclude recirculation flow through the relief valves. Recirculation would allow

a portion of the pumped solution to flow back to the pump suction instead of to the reactor vessel, and thereby reduce the rate of boron injection. Due to the increased discharge pressure resulting from two-pump operation, an increased minimum opening setpoint and an increased minimum reset setpoint is necessary. As stated in the December 23, 1987 evaluation, the increased minimum setpoints will restore the margin between valve operating pressure and pump operating discharge pressure, and are acceptable.

Monthly Surveillance Test Pump Suction

The Surveillance Requirement presently states that boron solution will be pumped "from the Standby Liquid Control System through the recirculation path." The statement would be changed to clarify that the solution will be pumped from the Storage Tank. This would eliminate any ambiguity as to whether suction is to be from the Test Tank or Storage Tank (the two possible sources) for the monthly flow verification test. The intent of the test requires that suction be from the Storage Tank. The proposed change is considered a simple clarification and is acceptable.

Storage Tank Volume-Concentration Limits

The volume-concentration envelope of the figure would be revised to specify the new minimum concentration limit (11.5%) which will ensure that the system meets both the new requirements and the original system design basis. The new limits were previously evaluated and determined to be acceptable. The amendment will implement the requirement and is acceptable. It is noted that the licensee proposes to delete Storage Tank level alarm setpoint data from the figure. Since there are no Limiting Conditions for Operation or Surveillance Requirements associated with the level alarms such information need not be included on the figure. This is consistent with the guidance of the Standard Technical Specifications (NUREG-0123) and is acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

The amendment involves a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposures. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR Section 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

4.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date: July 5, 1988

Principal Contributors: W. Long