

FEB 3 1976

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Docket No. 50-298

Nebraska Public Power District  
 Attn: Mr. J. M. Filant, Director  
 Licensing and Quality Assurance  
 Post Office Box 499  
 Columbus, Nebraska 68601

Gentlemen:

The Commission has issued the enclosed Amendment No. 20 to Facility License No. DFR-46 for the Cooper Nuclear Station. The amendment includes changes to the Technical Specifications and are based on our letters to you dated September 22, 1975 and December 4, 1975.

The amendment revises the Technical Specifications to (1) add requirements that would limit the period of time operation can be continued with immovable control rods that could have control rod drive mechanism collet housing failures and (2) require increased control rod surveillance when the possibility of a control rod drive mechanism collet housing failure exists.

We have evaluated the potential for environmental impact of plant operation in accordance with the enclosed amendment, and have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level, and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and pursuant to 10 CFR § 51.5(d)(4) that an environmental statement, negative declaration or environmental impact appraisal need not be prepared in connection with the issuance of this amendment. We have also concluded that there is reasonable assurance that the health and safety of the public will not be endangered by this action.

A copy of the related Federal Register Notice is also enclosed. Our Safety Evaluation relating to this action was forwarded to you with our letter dated September 22, 1975.

Sincerely

Original signed by  
 Dennis L. Ziemann, Chief  
 Operating Reactors Branch #2  
 Division of Operating Reactors

*[Signature]*  
 KR G  
 OR/AD  
 KR Goller

Enclosures:

OFFICE	Amendment no. 20 to License DFR-46	OR:ORB #2	OR:ORB #2	OELD	OR:ORB #2
SURNAME	Federal Register Notice	RMDiggs:ro	MFletcher	D Swanson	DLZiemann
DATE		1/29/76	1/30/76	2/1/76	2/3/76

2/3/76

FEB. 3 1976

cc w/enclosures:

Gene Watson, Attorney  
Barlow, Watson & Johnson  
P. O. Box 81686  
Lincoln, Nebraska 68501

Mr. Arthur C. Gehr, Attorney  
Snell & Wilmer  
400 Security Building  
Phoenix, Arizona 85004

Auburn Public Library  
1118 - 15th Street  
Auburn, Nebraska 68305

Mr. William Siebert, Commissioner  
Nemaha County Board of Commissioners  
Nebraska County Courtroom  
Auburn, Nebraska 68305

Mr. D. Drain, Director  
Department of Environmental Control  
Executive Building, Second Floor  
Lincoln, Nebraska 68509

NEBRASKA PUBLIC POWER DISTRICT

DOCKET NO. 50-298

COOPER NUCLEAR STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 20  
License No. DPR-46

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. 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;
  - B. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public;
  - C. The facility will operate in conformity with the provisions of the Act, and the rules and regulations of the Commission; and
  - D. An environmental statement or negative declaration need not be prepared in connection with the issuance of this amendment.
2. Accordingly, the license is amended by a change to the Technical Specifications as indicated in the attachment to this license amendment.
3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by:  
**Karl R. Goller**

Karl R. Goller, Assistant Director  
for Operating Reactors  
Division of Operating Reactors

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: **FEB 3 1976**

OFFICE →						
SURNAME →						
DATE →						

DATE	SURNAME	OFFICE				

Delete existing pages 93 and 100 of the Technical Specifications contained in Appendix A and insert the attached revised pages 93, 93a, 100 and 100a. The changed areas on the revised pages are shown by marginal lines.

ATTACHMENT TO LICENSE AMENDMENT NO. 20  
 FACILITY OPERATING LICENSE NO. DPR-46  
 DOCKET NO. 50-298

3.3 REACTIVITY CONTROLApplicability:

Applies to the operational status of the control rod system.

Objective:

To assure the ability of the control rod system to control reactivity.

Specification:A. Reactivity Limitations

## 1. Reactivity margin - core loading

A sufficient number of control rods shall be operable so that the core could be made subcritical in the most reactive condition during the operating cycle with the strongest control rod fully withdrawn and all other operable control rods fully inserted.

## 2. Reactivity margin - inoperable control rods

- a. Control rods which cannot be moved with control rod drive pressure shall be considered inoperable. If a partially or fully withdrawn control rod drive cannot be moved with drive or scram pressure the reactor shall be brought to a shutdown condition within 48 hours unless investigation demonstrates that the cause of the failure is not due to a failed control rod drive mechanism collet housing.

4.3 REACTIVITY CONTROLApplicability:

Applies to the surveillance requirements to the control rod system.

Objective:

To verify the ability of the control rod system to control reactivity.

Specification:A. Reactivity Limitations

## 1. Reactivity margin - core loading

Sufficient control rods shall be withdrawn following a refueling outage when core alternations were performed to demonstrate, with a margin of 0.38%  $\Delta k/k$ , that the core can be made subcritical at any time in the subsequent fuel cycle with the analytically determined strongest operable control rod fully withdrawn and all other operable rods fully inserted.

## 2. Reactivity margin inoperable control rods

- a. Each partially or fully withdrawn operable control rod shall be exercised one notch at least once each week, when operating above 30% power. This test shall be performed at least once per 24 hours when operating above 30% power in the event power operation is continuing with three or more inoperable control rods or in the event power operation is continuing with one fully or partially withdrawn rod which cannot be moved and for which control rod drive mechanism damage has not been ruled out. The surveillance need not be completed within 24 hours if the number of inoperable rods has been reduced to less than three and if it has been demonstrated that control rod drive mechanism collet housing failure is not the cause of an immovable control rod.

LIMITING CONDITION FOR OPERATION

SURVEILLANCE REQUIREMENT

3.3 REACTIVITY CONTROL

- b. The control rod directional control valve for inoperable control rods shall be disarmed electrically.
- c. Control rods with scram times greater than those permitted by

4.3 REACTIVITY CONTROL

- b. A second licensed operator shall verify the conformance to Specification 3.3.A. 2.d before a rod may be bypassed in the Rod Sequence Control System.
- c. Once per week, check the status of the pressure and level alarms for each accumulator.

### 3.3 and 4.3 BASES (cont'd)

cannot be moved with drive pressure. If the rod is fully inserted and then disarmed electrically\*, it is in a safe position of maximum contribution to shutdown reactivity. If it is disarmed electrically in a non-fully inserted position, that position shall be consistent with the shutdown reactivity limitation stated in Specification 3.3.A.1. This assures that the core can be shutdown at all times with the remaining control rods assuming the strongest operable control rod does not insert. An allowable pattern for control rods valved out of service, which shall meet this Specification, will be determined and made available to the operator. The Rod Sequence Control System is not automatically bypassed until reactor power is at or above 22% power. Therefore, control rod movement is restricted and the exercise surveillance test is only performed above this power level. The Rod Sequence Control System prevents movement of out-of-sequence rods unless power is above 20%. Also if damage within the control rod drive mechanism and in particular, cracks in drive internal housings, cannot be ruled out, then a generic problem affecting a number of drives cannot be ruled out. Circumferential cracks resulting from stress assisted intergranular corrosion have occurred in the collet housing of drives at several BWRs. This type of cracking could occur in a number of drives and if the cracks propagated until severance of the collet housing occurred, scram could be prevented in the affected rods. Limiting the period of operation with a potentially severed collet housing and requiring increased surveillance after detecting one stuck rod will assure that the reactor will not be operated with a large number of rods with failed collet housings.

#### B. Control Rod

1. Control rod dropout accidents as discussed in the FSAR can lead to significant core damage. If coupling integrity is maintained, the possibility of a rod dropout accident is eliminated. The overtravel position feature provides a positive check as only uncoupled drives may reach this position. Neutron instrumentation response to rod movement provides a verification that the rod is following its drive. Absence of such response to drive movement could indicate an uncoupled condition. Rod position indication is required for proper function of the rod sequence control system and the rod worth minimizer (RWM).
2. The control rod housing support restricts the outward movement of a control rod to less than 3 inches in the extremely remote event of a housing failure. The amount of reactivity which could be added by this small amount of rod withdrawal, which is less than a normal single withdrawal increment, will not contribute to any damage to the primary coolant system. The design basis is given in subsection III.8.2 of the

\*To disarm the drive electrically, four Amphenol type plug connectors are removed from the drive insert and withdrawal solenoids rendering the rod incapable of withdrawal. This procedure is equivalent to valving out the drive and is preferred because, in this condition, drive water cools and minimizes crud accumulation in the drive. Electrical disarming does not eliminate position indication.

3.3 and 4.3 BASES (cont'd)

FSAR and the safety evaluation is given in subsection VIII.8.4. This support is not required if the reactor coolant system is at atmospheric pressure since there would then be no driving force to rapidly eject a drive housing. Additionally, the support is not required if all control rods are fully inserted and if an adequate shutdown margin with one control rod withdrawn has been demonstrated, since the reactor would remain critical even in the event of complete ejection of the strongest control rod.

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-298

NEBRASKA PUBLIC POWER DISTRICT

NOTICE OF ISSUANCE OF AMENDMENT TO  
FACILITY OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 20 to Facility Operating License No. DPR-46, issued to the Nebraska Public Power District (the licensee), which revised Technical Specifications for operation of the Cooper Nuclear Station (the facility) located in Nemaha County, Nebraska. The amendment is effective as of its date of issuance.

The amendment revises the Technical Specifications to (1) add requirements that would limit the period of time operation can be continued with immovable control rods that could have control rod drive mechanism collet housing failures and (2) require increased control rod surveillance when the possibility of a control rod drive mechanism collet housing failure exists.

The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Notice of the Proposed Issuance of Amendment to facility operating License in connection with this action was published in the FEDERAL REGISTER on December 11, 1975 (40 FR 57724). No request for a hearing or petition for leave to intervene was filed following notice of the proposed action.

The Commission has determined that the issuance of these amendments will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental statement, negative declaration or environmental impact appraisal need not be prepared in connection with issuance of these amendments.

For further details with respect to this action, see (1) the Commission's letters to Nebraska Public Power District dated September 22, 1975, and December 4, 1975, (2) Amendment No. 20 to License No. DPR-46, and (3) the Commission's related Safety Evaluation issued on September 22, 1975. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. and at the Auburn Public Library, 118 - 15th Street, Auburn, Nebraska 68305.

A single copy of items (1) through (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555. Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland this *Third day of February, 1976.*

FOR THE NUCLEAR REGULATORY COMMISSION

**Original signed by**  
**Dennis L. Ziemann**, Chief  
 Operating Reactors Branch #2  
 Division of Operating Reactors

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DATE ➤	1/29/76	1/30/76	2/2/76	2/3/76	2/3/76