

April 11, 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. 118, TO FACILITY
OPERATING LICENSE NO. DPR-46 (TAC NO. 66193)

The Commission has issued the enclosed Amendment No. 118 to Facility Operating License No. DPR-46 for the Cooper Nuclear Station. This amendment consists of changes to the Technical Specifications in response to your application dated December 14, 1987 (Change Number 53).

The amendment changes the Technical Specifications to permit installation of Lead Test Assembly fuel assemblies and control blades.

A copy of the Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's 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. 118 to License No. DPR-46
- 2. Safety Evaluation

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Sincerely,

William O. Long, Project Manager
Project Directorate - IV
Division of Reactor Projects - III,
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April 1, 1988

Docket No. 50-298

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Nuclear Power Group
Nebraska Public Power District
Post Office Box 499
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Sincerely,

/s/

William O. Long, Project Manager
Project Directorate - IV
Division of Reactor Projects - III,
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555
April 1, 1988

Docket No. 50-298

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Nebraska Public Power District
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The amendment changes the Technical Specifications to permit installation of Lead Test Assembly fuel assemblies and control blades.

A copy of the Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's Bi-Weekly Federal Register Notice.

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

Enclosures:

1. Amendment No. 118 to
License No. DPR-46
2. Safety Evaluation

cc w/enclosures:
See next page

bMr. George A. Trevors
Nebraska Public Power District

Cooper Nuclear Station

cc:

Mr. G. D. Watson, General Counsel
Nebraska Public Power District
P. O. Box 499
Columbus, Nebraska 68601

Cooper Nuclear Station
ATTN: Mr. Guy R. Horn, Division
Manager of Nuclear Operations
P. O. Box 98
Brownville, Nebraska 68321

Director
Nebraska Department of Environmental
Control
P. O. Box 94877
State House Station
Lincoln, Nebraska 68509-4877

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

Senior Resident Inspector
U.S. Nuclear Regulatory Commission
P. O. Box 218
Brownville, Nebraska 68321

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

Mr. Harold Borchart, Director
Division of Radiological Health
Department of Health
301 Centennial Mall, South
P. O. Box 95007
Lincoln, Nebraska 68509



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. 118
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 December 14, 1987, 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, 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 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.

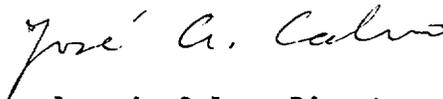
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-46 is hereby amended to read as follows:

(2) Technical Specification

The Technical Specifications contained in Appendix A, as revised through Amendment No. 118, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

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

FOR THE NUCLEAR REGULATORY COMMISSION



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: April 1, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 118

FACILITY OPERATING LICENSE NO. DPR-46

DOCKET NO. 50-298

Replace the following page of the Appendix A Technical Specifications with the enclosed page. The revised area is indicated by marginal line.

Pages

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5.0 MAJOR DESIGN FEATURES

5.1 Site Features

The Cooper Nuclear Station site is located in Nemaha County, Nebraska, on the west bank of the Missouri River, at river mile 532.5. This part of the river is referred to by the Corps of Engineers as the Lower Brownville Bend. Site coordinates are approximately 40° 21' north latitude and 95° 38' west longitude. The site consists of 1351 acres of land owned by Nebraska Public Power District. About 205 acres of this property is located in Atchison County, Missouri, opposite the Nebraska portion of the station site. The land area upon which the station is constructed is crossed by the Missouri River on the east and is bounded by privately owned property on the north, south, and west. At the west site boundary, a county road and Burlington Northern Railroad spur pass the site.

The reactor (center line) is located approximately 3600 feet from the nearest property boundary. No part of the present property shall be sold or leased by the applicant which would reduce the minimum distance from the reactor to the nearest site boundary to less than 3600 feet without prior NRC approval.

The protected area is formed by a seven foot chain link fence which surrounds the site buildings.

5.2 Reactor

- A. The core shall consist of not more than 548 fuel assemblies in any combination of 7x7 (49 fuel rods) and 8x8 (63 fuel rods) and 8x8R/P8x8R/BP8x8R (62 fuel rods).
- B. The core shall contain 137 cruciform-shaped control rods. The control material shall be boron carbide powder (B₄C) compacted to approximately 70% theoretical density, except for the Hybrid I control rods which contain approximately 15% hafnium.
- C. Lead Test Assembly (LTA) control blades and fuel assemblies of different design than described above may be installed under the provisions of 10 CFR 50.59 in conjunction with vendor test programs. The LTAs shall have been analysed using methods previously approved by the NRC. The licensee will provide the NRC with a report describing the LTAs and analyses not less than 30 days prior to startup.

5.3 Reactor Vessel

The reactor vessel shall be as described in Section IV-20 of the SAR. The applicable design shall be as described in this section of the SAR.

5.4 Containment

- A. The principal design parameters for the primary containment shall be as given in Table V-2-1 of the SAR. The applicable design shall be as described in Section XII-2.3 of the SAR.
- B. The secondary containment shall be as described in Section V-3.0 of the SAR.
- C. Penetrations to the primary containment and piping passing through such



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 118 TO FACILITY OPERATING LICENSE NO. DPR-46
NEBRASKA PUBLIC POWER DISTRICT
COOPER NUCLEAR STATION
DOCKET NO. 50-298

1.0 INTRODUCTION

The Cooper Nuclear Station Technical Specifications presently limit the facility to the use of specified fuel and control blade designs. By letter dated December 14, 1987 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 to permit installation of new design (Lead Test Assembly or "LTA") fuel assemblies and control blades.

2.0 DISCUSSION

Nuclear fuel vendors, as part of the continuing process of improving their products, subject new design fuel assemblies and control blades to actual commercial service conditions. This is done after the materials have been evaluated to the extent practicable by other means (i.e. test reactor or Naval reactor service) and prior to submittal of a licensing topical report for the new design. Since the vendors do not possess power reactors of their own, the service condition experience is gained in cooperation with operating power reactor licensees. During the forthcoming reload in preparation for Cycle 12 operation, the Cooper Nuclear Station (CNS) licensee, in cooperation with the General Electric Co., plans to install four fuel assembly and two LTA control blades in the CNS core. Each LTA control blade will contain a limited number of (1) Rare Earth Oxide (REO) absorber rods and (2) boron carbide absorber rods clad with RADRESIST alloys. One blade will be irradiated for two cycles of operation, the other for four cycles. The control blade LTA's have been analyzed and verified by tests to be mechanically acceptable. A reactivity evaluation was performed by the vendor using the model described in "NEDO 22290 GE Hybrid I Control Rod Assembly, September 1983". The fuel assembly LTA's are similar to standard P8x8R fuel except for an interactive channel with less Zircaloy, and a lower tie plate that will offset the bundle 40 mils toward the control blade. They have been analyzed using the approved methods of "General Electric Standard Application for Reactor Fuel" NEDE-24011-P-A-8 and NEDE-24011-P-A-8-US, May 1986. Based on the vendor's 10 CFR 50.59 evaluations, the fuel assembly and control blade LTA's are acceptable for installation in Cooper.

LTA programs such as the above are encouraged by the staff because of their general benefits in safety and operational flexibility. LTAs are

inserted into reactors to confirm expected operation and have a low probability of abnormal behavior. In addition, the number of LTAs installed in a core at one time is numerically small. In a letter from T. Ippolito to R. Engel dated September 23, 1981, the staff advised the General Electric Co. that as long as analyses were performed using approved methods and acceptance criteria it would be assumed that use of LTAs involves no unresolved safety question.

The licensee's amendment application proposed a requirement for prior NRC approval of LTA installations. However, based on the determination cited in the above referenced Ippolito letter (that the use of properly analyzed LTA's involves no unresolved safety question), the staff has determined that prior NRC approval is not required. The staff informed the licensee of its desire to amend Technical Specification 5.2.C so as to only require prior NRC notification and the licensee agreed to the change. This change simply reflects the NRC's regulations governing the procedure for modifying design features not specified in the Technical Specifications and does not change the substance of the proposed amendment.

The proposed amendment, as revised by the staff, and agreed to by the licensee, will enable the licensee to implement LTA programs in a method acceptable to the NRC and consistent with 10 CFR 50.59. It is therefore acceptable.

3.0 ENVIRONMENTAL CONSIDERATIONS

This amendment changes a requirement with respect to 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 exposure. 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 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

We have 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: April 1, 1988

Principal Contributor: W. Long