

July 5, 1991

Docket No. 50-298

Mr. Guy R. Horn
Nuclear Power Group Manager
Nebraska Public Power District
Post Office Box 499
Columbus, Nebraska 68602-0499

Dear Mr. Horn:

SUBJECT: COOPER NUCLEAR STATION - AMENDMENT NO. 143 TO FACILITY
OPERATING LICENSE NO. DPR-46 (TAC NO. 74843)

The Commission has issued the enclosed Amendment No. 143 to Facility Operating License No. DPR-46 for the Cooper Nuclear Station. The amendment consists of changes to the Facility Operating License in response to your application dated August 31, 1989, as supplemented by letter dated June 7, 1991.

The amendment changes the expiration date for the Cooper Nuclear Station Facility Operating License No. DPR-46 from June 4, 2008 to January 18, 2014. This extends the duration of the license to 40 years from the date of issuance of the operating license. The license was initially issued for a duration of 40 years from the date of issuance of the construction permit.

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

Sincerely,

Paul W. O'Connor, Project Manager
Project Directorate IV-1
Division of Reactor Projects III, IV, and V
Office of Nuclear Reactor Regulation

Enclosures:

- Amendment No.143 to License No. DPR-46
- Safety Evaluation

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

July 5, 1991

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Sincerely,

A handwritten signature in cursive script, appearing to read "Paul W. O'Connor".

Paul W. O'Connor, Project Manager
Project Directorate IV-1
Division of Reactor Projects III, IV, and V
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 143 to License No. DPR-46
2. Safety Evaluation

cc w/enclosures:
See next page

Mr. Guy R. Horn
Nuclear Power Group Manager

Cooper Nuclear Station

cc:

Mr. G. D. Watson, General Counsel
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Columbus, Nebraska 68602-0499

Cooper Nuclear Station
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U.S. Nuclear Regulatory Commission
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Mr. Harold Borchert, Director
Division of Radiological Health
Nebraska Department of Health
301 Centennial Mall, South
P. O. Box 95007
Lincoln, Nebraska 68509-5007



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. 143
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 August 31, 1989, as supplemented June 7, 1991, 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 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, paragraph 2.E of Facility Operating License No. DPR-46 is hereby amended to read as follows:

E. This license is effective as of the date of issuance and shall expire at midnight, January 18, 2014.

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

FOR THE NUCLEAR REGULATORY COMMISSION



Theodore R. Quay, Director
Project Directorate IV-1
Division of Reactor Projects III, IV, and V
Office of Nuclear Reactor Regulation

Attachment:
Page 4a of license

Date of Issuance: July 5, 1991

ATTACHMENT TO LICENSE AMENDMENT NO. 143

FACILITY OPERATING LICENSE NO. DPR-46

DOCKET NO. 50-298

Replace the following page of the Facility Operating License DPR-46 with the enclosed page. The revised page is identified by Amendment number and contains a vertical line indicating the area of change.

REMOVE PAGE

4a

INSERT PAGE

4a

E. This license is effective as of the date of issuance and shall expire at midnight, January 18, 2014.

FOR THE ATOMIC ENERGY COMMISSION

Original Signed by:

A. Giambusso, Deputy Director
for Reactor Projects
Directorate of Licensing

Attachments:
Appendices A & B -
Technical Specifications

Date of Issuance: January 18, 1974



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 143 TO FACILITY OPERATING LICENSE NO. DPR-46

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

DOCKET NO. 50-298

1.0 INTRODUCTION

By letter dated August 31, 1989 as supplemented by letter dated June 7, 1991, Nebraska Public Power District (the licensee) submitted a request for changes to the Cooper Nuclear Station, Facility Operating License No. DPR-46. The proposed amendment would change the expiration date of the operating license from June 4, 2008 to January 18, 2014. This extends the duration of the license to 40 years from the date of issuance of the operating license. The license was initially issued for a duration of 40 years from the date of issuance of the construction permit. The June 7, 1991, letter provided clarifications regarding the licensee's Reactor Vessel Surveillance Program and did not change the action noticed or affect the initial proposed no significant hazards consideration determination.

2.0 DISCUSSION

Section 103.c of the Atomic Energy Act of 1954 provides that the license is to be issued for a specified period not exceeding 40 years. 10 CFR 50.51 specifies that each license will be issued for a fixed period of time not to exceed 40 years from the date of issuance. 10 CFR 50.56 and 10 CFR 50.57 allow the issuance of an operating license pursuant to 10 CFR 50.51 after the construction of the facility has been substantially completed, in conformity with the construction permit and when other provisions specified in 10 CFR 50.57 are met. The currently licensed term for Cooper Nuclear Station is 40 years commencing with the issuance of the construction permit (June 4, 1968). Accounting for the time that was required for plant construction, this represents an effective operating license term of 34 years and 5 months. Consistent with Section 103.c of the Atomic Energy Act and Sections 50.51, 50.56, and 50.57 of the Commission's regulations, the licensee, by its application of August 31, 1989, seeks extension of the operation license term for the Cooper Nuclear Station such that the fixed period of the license would be 40 years from the date of the operating license issuance.

3.0 EVALUATION

The licensee's request for extension of the operating license is based on the fact that a 40-year service life was considered during the design and construction of the plant. Although this does not mean that some components will not wear out during the plant lifetime, design features were incorporated which maximize the inspectability of structures, systems and equipment. Surveillance

and maintenance practices which have been implemented in accordance with the ASME code and the facility Technical Specifications provide assurance that any unexpected degradation in plant equipment will be identified and corrected.

3.1 Electrical Equipment

The staff evaluated the safety implications of extending the Cooper operating license on safety-related electrical systems and equipment. The evaluation considered the licensee's response to 10 CFR 50.49 and other programs associated with the environmental qualification of electrical equipment. For the electrical equipment identified as important to safety, aging reviews have either determined a replacement schedule or demonstrated that the equipment will perform satisfactorily for the 40 year plant design lifetime. For this equipment, the staff believes that the licensee has controls in place to ensure required surveillances and maintenance are performed. The NRC Safety Evaluation associated with the licensee's environmental qualification program was issued on January 30, 1985, and NRC Inspection Report 50-298/89-13 documented the close out of the last environmental qualification open items. Additional environmental qualification issues may be occasionally identified and shall be resolved as they arise.

Based upon this evaluation, the staff concludes that electrical systems design, electrical equipment selection and application, and environmental qualification of electrical equipment either considered the effects of a 40-year operational lifetime or will not be affected by a 40-year operational lifetime.

3.2 Mechanical Equipment

The Cooper reactor vessel was designed considering the effects of 40 years of operation with a plant capacity factor of 80% (32 EFPY). The initial vessel material surveillance program consisted of three surveillance capsules with the first capsule withdrawn and analyzed after operating cycle 9. As described in the letter dated June 7, 1991, the licensee plans to reconstitute those specimens within the second capsule which will be withdrawn during the Fall 1991 refueling outage. These reconstituted specimens will be reinserted into the reactor vessel during the 1993 refueling outage. The reconstitution of the capsule withdrawn in 1991 is equivalent to a fourth capsule and thereby makes the licensee's surveillance program consistent with the requirements of ASTM E185-82 and 10 CFR Part 50 Appendix H. The withdrawal schedule for the reconstituted capsule and the original third capsule will be determined based upon the analysis of the capsule withdrawn in 1991 and Technical Specification 4.6.A.3 will be revised accordingly. The radiation induced material property changes are incorporated into the Technical Specification pressure/temperature limits to ensure compliance with Appendix G. The stress analyses and load combinations for the reactor vessel were evaluated for the cycles expected throughout a 40-year life and are monitored in accordance with Technical Specification 6.4.2G and ASME code requirements to ensure the analyses bound actual plant operation.

Intergranular Stress Corrosion Cracking (IGSCC) has affected the recirculation system and connected piping at several BWRs. In response to the discoveries of degraded piping, the staff issued Generic Letter 88-01 which, along with

NUREG-0313, Revision 2, "Technical Report on Material Selection and Processing Guidelines for BWR Coolant Pressure Boundary Piping," provided the staff's position regarding acceptable methods to address the IGSCC issue. By letter dated August 3, 1988, the licensee described the actions taken and planned in response to the IGSCC issues and Generic Letter 88-01. The licensee's response is currently under staff review.

Other mechanical equipment such as pumps and valves are routinely tested and inspected in accordance with programs required by various industry codes and standards and approved by the staff. The Cooper Inservice Inspection Program and Inservice Testing Program are periodically submitted to the NRC for review. These programs, as supplemented by NRC and industry programs addressing specific problems, are considered to adequately ensure the identification and correction of problems associated with plant equipment.

3.3 Structures

The plant buildings at Cooper are constructed of reinforced concrete and steel. Industrial experience has shown that a service life in excess of forty years can be expected. Surveillance, inspection and testing programs are in place to monitor the condition of all important structures so that any degradation can be identified and corrected. This includes local and integrated leak rate testing of the primary containment as required by Technical Specification 4.7. The construction of the plant structures and the ongoing testing and inspection programs ensure that the structures are adequate for an operating lifetime of 40 years.

3.4 Summary of Findings

The NRC staff concluded in the Environmental Assessment that the annual radiological effects during the additional years of operation that would be authorized by the proposed license amendment are not more than were estimated in the Final Environmental Statement or subsequent evaluations (10 CFR Part 50, Appendix I, Radiological Effluent Technical Specifications (Amendment No. 89), etc) and are acceptable.

The staff concludes from its considerations of the design, operation, testing and monitoring of the mechanical and electrical equipment, structures, and reactor vessel and pressure boundary piping that an extension of the Cooper operating license to a 40-year service life is acceptable. The revision of the license expiration date is consistent with the USARs, SERs, and submittals made by the licensee and there is reasonable assurance that the unit will continue to operate safely for the additional 5 years and 7 months authorized by the amendment. The plant has and is expected to continue to operate in compliance with the Commission's regulations and issues associated with plant degradation have been adequately addressed.

In summary, the staff finds that the extension of the operating license for Cooper Nuclear Station to January 18, 2014, is consistent with the Final Environmental Statement, the Safety Evaluation Reports, and subsequent Safety Evaluations and that the Commission's previous findings are not changed.

4.0 STATE CONSULATION

In accordance with the Commission's regulations, the Nebraska State official was notified of the proposed issuance of the amendment. The State official had no comment.

5.0 ENVIRONMENTAL CONSIDERATION

A Notice of Issuance of Environmental Assessment and Finding of No Significant Impact relating to the proposed extension of the Facility Operating License expiration date for Cooper Nuclear Station was published in the Federal Register on June 5, 1991 (56 FR 25701).

6.0 CONCLUSION

The Commission 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: W. Reckley, NRR

Date: July 5, 1991