

Docket No. 50-298

MAY 24 1976

DISTRIBUTION

Docket	OPA (CMiles)
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Nebraska Public Power District
 ATTN: Mr. J. M. Pilant, Director
 Licensing and Quality Assurance
 Post Office Box 499
 Columbus, Nebraska 68601

Gentlemen:

The Commission has issued the enclosed Amendment No. 27 to Facility Operating License No. DPR-46 for the Cooper Nuclear Power Station. The amendment is in response to your application dated April 20, 1976, as modified by letter dated May 24, 1976.

The amendment consists of changes in the Technical Specifications that increase the allowable reactor coolant conductivity limit from 2 to 35 micromhos prior to startup, during operation up to 10% of rated power, and during hot standby.

Copies of the related Safety Evaluation and the Federal Register Notice also are enclosed.

Sincerely,
 Original Signed by:
 Dennis L. Ziemann

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

Enclosures:

1. Amendment No. 27 to License DPR-46
2. Safety Evaluation
3. Notice

cc w/enclosures:
 See next page

I CALLED JAY PILANT OF NPPD AT ~ 1735 EDT ON 5/24/76 & INFORMED HIM THAT PACKAGE HAD BEEN SIGNED FOR ISSUE.

[Handwritten signature]

OFFICE >	OR:ORB #2	OR:ORB #2	OELD <i>DA</i>	OR:ORB#2	ACRS	ADOR:OR
SURNAME >	RPSnaider r:ah	RMDiggs	<i>D SWANSON</i>	DLZiemann	DGEisenhut	KRGoller
DATE >	5/24/76	5/24/76	5/24/76	5/24/76	5/24/76	5-24-76

MAY 24 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
118 - 15th Street
Auburn, Nebraska 68305

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

cc w/enclosures and cy of NPPD
filings dtd. 4/20/76 and
5/24/76:

Mr. D. Drain, Director
Department of Environmental Control
Executive Building, 2nd Floor
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. 27
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 20, 1976, as modified by letter dated May 24, 1976, 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. 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:
Dennis L. Ziemann
Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance:

MAY 21 1976

ATTACHMENT TO LICENSE AMENDMENT NO. 27

FACILITY OPERATING LICENSE NO. DPR-46

DOCKET NO. 50-298

Replace existing page 134 of the Appendix A portion of the Technical Specifications with the attached revised page bearing the same number. The changed area on the revised page is reflected by a marginal line.

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3.6.B (cont'd)

2. Prior to startup and during the operation of the reactor up to 10% of rated power, and during hot standby, the reactor coolant shall not exceed the following limits:

- a. Conductivity <math>< 5 \mu\text{mho/cm}</math> at 25°C
- b. Chloride 0.1 ppm

The reactor shall be shut down if pH is <math>< 5.6</math> or > 8.6 for a 24-hour period.

3. During reactor operation in excess of 10% of rated power, the reactor coolant shall not exceed the following limits:

- a. Conductivity 1 $\mu\text{mho/cm}$ at 25°C
- b. Chloride 0.2 ppm

4. During the reactor operation in excess of 10% of rated power, the reactor coolant may exceed the limits of Paragraph 3.6.B.3 only for the time limits specified here. If these time limits or the following maximum limits are exceeded, the reactor shall be shutdown immediately and placed in the cold shutdown condition.

- a. Conductivity Time above 1 $\mu\text{mho/cm}$ at 25°C, 2 weeks/year
Maximum limit-10 $\mu\text{mho/cm}$ at 25°C
- b. Chloride Time above 0.2 ppm, 2 weeks/year
Maximum limit-0.5 ppm

The reactor shall be shut down if pH is <math>< 5.6</math> or > 8.6 for a 24-hour period.

5. When the reactor is not pressurized (i.e. at or below 212°F), reactor coolant shall be maintained below the following limits:

- a. Conductivity 10 $\mu\text{mho/cm}$ at 25°C
- b. Chloride 0.5 ppm

4.6 (cont'd)

b. If the gross activity counts of a sample indicate an activity concentration above 3.1 uCi/gm of dose equivalent I-131, an isotopic analysis shall be performed and quantitative measurements made to determine the dose equivalent I-131 concentration.

c. An isotopic analysis of a reactor coolant sample shall be made at least once per month.

2. Reactor coolant shall be continuously monitored for conductivity.

3. Prior to startup, during the operation of the reactor and during hot standby, a sample of the reactor coolant shall be analyzed.

a. At least every 80 hours for conductivity and chloride ion content when the continuous conductivity monitor reading is $\leq 0.7 \mu\text{mho/cm}$ 25°C.

b. At least every 24 hours for conductivity and chloride ion content when the continuous conductivity monitor reading is $> 0.7 \leq 2.0 \mu\text{mho/cm}$ at 25°C.

c. At least every 8 hours for conductivity and chloride ion content when the continuous conductivity monitor reading is > 2 but $\leq 3.5 \mu\text{mho/cm}$ at 25°C.

d. At least every 4 hours for conductivity, chloride ion content, and pH, when the continuous conductivity monitor reading is $> 3.5 \mu\text{mho/cm}$ at 25°C or when the continuous conductivity monitor is inoperable.

4. When the reactor is not pressurized, a sample of the reactor coolant shall be analyzed at least every 80 hours for conductivity and chloride ion content.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 27 TO LICENSE NO. DPR-46

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

DOCKET NO. 50-298

INTRODUCTION

By letter dated April 20, 1976, as modified by letter dated May 24, 1976, Nebraska Public Power District (NPPD) requested an amendment to Facility Operating License No. DPR-46 for the Cooper Nuclear Station. The request involves revisions to the Appendix A Technical Specifications to allow increased reactor coolant conductivity prior to startup, during operation up to 10% of rated power, and during hot standby.

DISCUSSION

Reactor coolant chemistry limits have been established to prevent damage to reactor materials in contact with the coolant. Because conductivity is affected by pH, chlorides, and other impurities, measurements of this parameter are required on a continuous basis since changes in conductivity are an indication of abnormal conditions.

A problem affecting conductivity is the inadvertent release of resin from either the condensate demineralizers or the Reactor Water Cleanup (RWCU) System demineralizer. Similar releases, for various reasons, have occurred at other Boiling Water Reactors. When such a release of resin into the reactor coolant occurs, the resin is decomposed by the high temperature and radiation in the reactor core, forming acids and causing changes in the conductivity and pH. The pH can be controlled by neutralization, but conductivity reduction is dependent upon removal of acids or neutral salts by demineralization. Removal can be expedited by operation of the reactor to produce the heat and radiation necessary for decomposition. We agree that the most effective method for removing the inadvertently injected demineralizer resin from the reactor coolant is to decompose it in situ by a combination of radiation exposure and thermal energy additions.

EVALUATION

NPPD has requested that specification 3.6.B.2 be amended to increase the conductivity limit to $<5 \mu\text{mho/cm}$ @ 25°C prior to startup, during the operation of the reactor up to 10% of rated power, and during hot standby. A restriction has been placed upon pH during these periods such that the pH shall not be less than 5.6 nor greater than 8.6. The reactor must be shut down if these values are exceeded. The lower limit is greater than the pH 4.6 determined to be an acceptable minimum based on several years of successful operation of BNL-HFBR with an oxygenated coolant acidified to a pH of approximately this level. Both the upper and lower pH limits are specified in the existing specification 3.6.B.4 for operation above 10% of rated power. These values have been previously accepted by NRC. These limits are merely being extended to include operation at less than 10% power.

Chloride is a very important parameter to monitor, in that chloride stress corrosion of stainless steels is a function of chloride concentration. The chloride limit has not been changed.

The 2 week/year limitation on conductivity values greater than $1 \mu\text{mho/cm}$ during reactor operation in excess of 10% of rated power remains unchanged. This is important in that, depending upon the ions involved, cumulative buildup can accelerate stress-corrosion cracking and/or other forms of corrosion, can promote crud buildup on fuel and other components, and can cause increased radiation levels.

The increase in allowable conductivity is consistent with the guidance in Appendix A of Regulatory Guide 1.56, which provides limits found acceptable by the Regulatory Staff.

Based on the above and the technical specification requirements to increase sampling frequencies for chloride and pH when readings from the continuous conductivity monitor exceed various threshold values, thus providing increased assurance that limiting values of these important parameters will not be violated, this change is acceptable.

ENVIRONMENTAL CONSIDERATION

We 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.

CONCLUSION

We have concluded, based on the considerations discussed above, that: (1) because the change does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the change does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date: **MAY 24 1976**

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-298

NEBRASKA PUBLIC POWER DISTRICT

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY
OPERATING LICENSE

Notice is hereby given that the U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 27 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.

This amendment ~~revised~~ the Technical Specifications for the facility to increase the allowable reactor coolant conductivity limit from 2 to ≤ 5 micromhos prior to startup, during operation up to 10% of rated power, and during hot standby.

The application, as modified, for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. 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. Prior public notice of this amendment was not required since the amendment does not involve a significant hazards consideration.

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The Commission has determined that the issuance of this amendment 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 the issuance of this amendment.

For further details with respect to this action, see (1) the application for amendment dated April 20, 1976 and letter dated May 24, 1976, (2) Amendment No. 27 to License No. DPR-46, and (3) the Commission's concurrently issued Safety Evaluation. 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 copy of items (2) and (3) may be obtained upon request addressed to the United States Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland, this MAY 24 1976

FOR THE NUCLEAR REGULATORY COMMISSION

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

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