

June 16, 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. 122 TO FACILITY  
OPERATING LICENSE NO. DPR-46 (TAC NO. 67405)

The Commission has issued the enclosed Amendment No. 122 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 March 25, 1988 (Change Number 55).

The amendment changes the Technical Specifications applicable to the 125 VDC Station Batteries.

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. 122 to License No. DPR-46
2. Safety Evaluation

cc w/enclosures:

See next page

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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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1. Amendment No.122 to  
License No. DPR-46
2. Safety Evaluation

cc w/enclosures:  
See next page

Mr. George A. Trevors  
Nebraska Public Power District

Cooper Nuclear Station

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Cooper Nuclear Station  
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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. 122  
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 March 25, 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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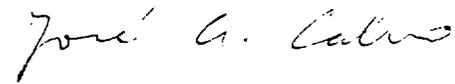
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 2.C.(2) of Facility Operating License No. DPR-46 is hereby amended to read as follows:

2. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No.122 , 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

  
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: June 16, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 122

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

195

198

## LIMITING CONDITIONS FOR OPERATION

## SURVEILLANCE REQUIREMENTS

3.9.A

B. Operation with Inoperable Equipment

1. Whenever the reactor is in Run Mode or Startup Mode with the reactor not in a Cold Condition, the availability of electric power shall be as specified in 3.9.A.1, except as specified in 3.9.B.1.

a. Incoming Power

1. From and after the date incoming power is not available from a startup or emergency transformer, continued reactor operation is permissible under this condition for seven days. At the end of this period, provided the second source of incoming power has not been made immediately available, the NRC must be notified of the event and the plan to restore this second source. During this period, the two diesel generators and associated critical buses must be demonstrated to be operable.
2. From and after the date that incoming power is not available from both startup and emergency transformers (i.e., both failed), continued operation is permissible, provided the two diesel generators and associated critical buses are demonstrated to be

4.9.A (cont'd.)

3. The pilot cell voltage is 2.15V minimum and specific gravity 1.195 minimum, corrected for 77°F and electrolyte level.
- b. Every quarter, the following parameters shall be verified. The actual values shall be measured and logged:
  1. The electrolyte level of each connected cell is between the minimum and maximum level indication marks.
  2. For each connected cell, the voltage is 2.15V minimum and specific gravity is 1.190 minimum, corrected for 77°F and electrolyte level. The average specific gravity of all connected cells will be a minimum of 1.200.
  3. The electrolyte temperatures in a representative sample of cells, consisting of at least every sixth cell, are within  $\pm 5^\circ\text{F}$ .
- c. Once each operating cycle the 125V battery charger will be tested to verify that the charger can supply 200 Amperes at 125V for four hours.
- d. Once each operating cycle, during shutdown, one of the following tests will be performed:
  1. A battery service test to verify that battery capacity is adequate to supply the emergency load profile.
  2. A performance discharge test, in lieu of the above service test, once every five years to verify that battery capacity is at least 85% of the manufacturer's rating.
  3. A performance discharge test, in lieu of the above service test, when the battery shows signs of degradation or has been in service seventeen years or longer.

### 3.9 BASES

The general objective of this Specification is to assure an adequate source of electrical power to operate the auxiliaries during plant operation, to operate facilities to cool and lubricate the plant during shutdown and to operate the engineered safeguards following the accident. There are three sources of ac electrical energy available; namely, the startup transformer, the emergency transformer and two diesel generators. The dc supply is required for switch gear and engineered safety feature systems. This supply consists of two 125V DC and two 250V DC batteries and their related chargers. Specification 3.9.A states the required availability of ac and dc power; i.e., active off-site ac sources and the required amount of on-site ac and dc sources.

Auxiliary power for CNS is supplied from the startup transformer and the normal transformer. Both of these transformers are sized to carry 100% of the station auxiliary load. The emergency transformer is about one third the size of these two transformers and is equal in size to both emergency diesel generators.

The startup transformer and the emergency transformers are the offsite power sources. Their voltage is monitored by undervoltage relays which provide low voltage protection for the emergency buses. Whenever the voltage setpoint and time delay limit for the undervoltage relays have been exceeded, the emergency buses are automatically disconnected from the offsite power source.

If the startup or emergency transformer is lost, the unit can continue to operate since the unit auxiliary transformer is in service, and the emergency or startup transformer and the diesels are available.

If both the startup and emergency transformers become inoperable, the power level must be reduced to a value where by the unit can safely reject the load and continue to supply auxiliary electric power to the station.

In the normal mode of operation, the startup and emergency transformers are energized and two diesel generators are operable. One diesel generator may be allowed out of service based on the availability of power from the startup transformer and the fact that one diesel generator carries sufficient engineered safeguards equipment to cover all breakers. With the startup transformer and one diesel generator out of service, the off site transmission line corresponding to the emergency transformer must be available. Upon the loss of one on-site and one off-site power source, power would be available from the other immediate off-site power source and the two operable on-site diesels to carry sufficient engineered safeguards equipment to cover all breaks. In addition to these two power sources, removal of the Isolated Phase Bus "quick" disconnect links would allow backfeed of power through the main transformer to the unit auxiliary transformer and provide power to carry the full station auxiliary load. The time required to perform this operation is comparable to the time the reactor could remain on RCIC operation before controlled depressurization need be initiated.

Once each operating cycle, during shutdown, either a service test or performance discharge is performed on the 125 volt batteries. The performance discharge test is performed in lieu of the service test when a battery shows signs of degradation. Degradation is indicated when battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 85% of the manufacturer's rating.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO.122 TO FACILITY OPERATING LICENSE NO. DPR-46

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

DOCKET NO. 50-298

1.0 INTRODUCTION

By letter dated March 25, 1988 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 specify revised Limiting Conditions for Operation and Surveillance Requirements for the 125 VDC batteries. The 125 VDC System supplies power to essential motor operated valves, instruments and control circuits.

2.0 DISCUSSION AND EVALUATION

The original 125 VDC lead acid batteries at Cooper Nuclear Station are being replaced during the 1988 Cycle 11 refueling outage due to age and deterioration. The licensee is replacing the lead-acid batteries with lead-calcium batteries having a higher ampere-hour rating. The existing 150 ampere chargers are also being replaced with 200 ampere chargers. The sizing criteria for new battery and charger installations were selected on the basis of system load profiles prepared by the licensee's contractor and verified by the licensee. In support of these changes, the licensee has requested changes to the Technical Specifications as follows:

- A. In Specification 4.9.A.3.a.3 (weekly pilot cell surveillance test), change the 125 VDC battery pilot cell minimum voltage from 2.0 to 2.15 Volts, and the temperature-corrected minimum specific gravity from 1.190 to 1.195.
- B. In Specification 4.9.A.3.b.2 (quarterly surveillance test of all cells), change the minimum voltage for each cell from 2.0 Volts to 2.15 Volts, and the minimum specific gravity for each cell from 1.190 to 1.195. In addition, a requirement for a minimum average specific gravity of 1.200 for all connected cells would be added.
- C. In Specification 4.9.A.3.c (once-per-cycle battery charger capacity test), the minimum charger capacity would be increased from 150 amperes to 200 amperes.

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The IEEE Battery Working Group has prepared draft Standard Technical Specifications for battery installations at BWR facilities. The IEEE draft criteria recommends (1) a minimum float voltage of 2.13 for the weekly and quarterly tests, (2) a minimum cell specific gravity of 1.195 for the weekly pilot cell surveillance, (3) a minimum individual cell specific gravity of 1.190 for the quarterly surveillance, (4) a minimum average specific gravity of 1.200 for the quarterly surveillance, (5) a battery service test at least once every 18 months, (6) a performance discharge test in lieu of a service test at least once every 60 months, and (7) an annual performance discharge test for a battery exhibiting signs of degradation.

These IEEE Working Group's recommendations, while not yet endorsed in the Standard Review Plan, have been adopted by the staff and included in the Technical Specifications for recently-licensed facilities. In addition, the battery vendor, C&D Power Systems, Inc., has recommended the draft IEEE recommendations for the Cooper application. Changes A, B & D have been reviewed against the IEEE draft criteria and have been determined to be conservative with respect to the criteria. The Staff also believes them to be conservative for the proposed use of the batteries at the Cooper Nuclear Station. Change C is consistent with FSAR criteria that the chargers have adequate capacity to restore completely discharged batteries while carrying the normal steady-state load. Based on conformance to the IEEE Working Group's recommendations and to the original licensing criteria, the licensee's proposed amendment 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: June 16, 1988

Principal Contributor: W. Long