

May 24, 1989

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. 130 TO FACILITY
OPERATING LICENSE NO. DPR-46 (TAC NO. 71990)

The Commission has issued the enclosed Amendment No.130 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 January 27, 1989.

The amendment changes the Technical Specifications to specify revised Limiting Conditions for Operation and Surveillance Requirements for the 250 Volt DC batteries and battery chargers.

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

Sincerely,

/s/

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

Enclosures:

1. Amendment No. 130 to License No. DPR-46
2. Safety Evaluation

cc w/enclosures:

See next page

DISTRIBUTION:

Docket File	BGrimes	FHebdon
NRC PDR	TMeek (4)	FRosa
Local PDR	Wanda Jones	
PD4 Reading	EButcher	
PNoonan	ACRS (10)	
PO'Connor (2)	GPA/PA	
JCalvo	ARM/LFMB	
OGC-Rockville	DHagan	
EJordan	Plant File	

DOCUMENT NAME: COOPER AMENDMENT TAC 71990

PD4/LA*	PD4/PM* <i>Pwoc</i>	SELB*	OGC-Rockville*	PD4/D <i>H</i>
PNoonan	PO'Connor:bj	FRosa		FHebdon
04/27/89	04/27/89	05/01/89	05/03/89	05/02/89

8906050221 890524
PDR ADOCK 05000298
P PDC

QFO1
1/1

CP-1
ca

May 24, 1989

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. 130 TO FACILITY
OPERATING LICENSE NO. DPR-46 (TAC NO. 71990)

The Commission has issued the enclosed Amendment No.130 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 January 27, 1989.

The amendment changes the Technical Specifications to specify revised Limiting Conditions for Operation and Surveillance Requirements for the 250 Volt DC batteries and battery chargers.

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

Sincerely,

/s/

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

Enclosures:

1. Amendment No. 130 to License No. DPR-46
2. Safety Evaluation

cc w/enclosures:

See next page

DISTRIBUTION:

Docket File	BGrimes	FHebdon
NRC PDR	TMeek (4)	FRosa
Local PDR	Wanda Jones	
PD4 Reading	EButcher	
PNoonan	ACRS (10)	
PO'Connor (2)	GPA/PA	
JCalvo	ARM/LFMB	
OGC-Rockville	DHagan	
EJordan	Plant File	

DOCUMENT NAME: COOPER AMENDMENT TAC 71990

PD4/LA*	PD4/PM* PwoC	SELB*	OGC-Rockville*	PD4/DJ
PNoonan	PO'Connor:bj	FRosa		FHebdon
04/27/89	04/27/89	05/01/89	05/03/89	05/27/89



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

May 24, 1989

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. 130 TO FACILITY
OPERATING LICENSE NO. DPR-46 (TAC NO. 71990)

The Commission has issued the enclosed Amendment No. 130 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 January 27, 1989.

The amendment changes the Technical Specifications to specify revised Limiting Conditions for Operation and Surveillance Requirements for the 250 Volt DC batteries and battery chargers.

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

Sincerely,

A handwritten signature in black ink that reads "Paul W. O'Connor".

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

Enclosures:

1. Amendment No. 130 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

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

Dennis Grams, Director
Nebraska Department of Environmental
Control
P. O. Box 98922
Lincoln, Nebraska 68509-8922

Mr. Larry Bohlken, Chairman
Nemaha County Board of Commissioners
Nemaha County Courthouse
1824 N Street
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 68509-5007



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. 130
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 January 27, 1989, 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.

8906050223 890524
PDR DOCK 0500298
PDC

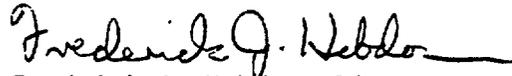
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 2.C.(2) of Facility Operating License No. DPR-46 is hereby amended to read as follows:

2. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No.130, 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



Fredrick J. Hebdon, 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: May 24, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 130

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

196

197

198

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.9.B (cont'd.)

operable, all core and containment cooling systems are operable, reactor power level is reduced to 25% of the rated and NRC is notified within 24 hours of the situation, the precautions to be taken during this period and the plans for prompt restoration of incoming power.

b. Diesel Generators

1. From and after the date that one of the diesel generators or an associated critical bus is made or found to be inoperable for any reason, continued reactor operation is permissible in accordance with Specification 3.5.F.1 if Specification 3.9.A.1 is satisfied.
2. From and after the date that both diesel generators are made or found to be inoperable for any reason, continued reactor operation is permissible only during the succeeding 24 hours in accordance with Specification 3.5.F.2 if Specification 3.9.A.1 is satisfied.
3. From and after the date that one of the diesel generators or associated critical buses and either the emergency or startup transformer power source are made or found to be inoperable for any reason, continued reactor operation is permissible in accordance with Specification 3.5.F.1, provided the other off-site source, startup transformer or emergency transformer is available and capable of automatically supplying power to the 4160V critical buses and the NRC is notified within 24 hours of the occurrence and the plans for restoration of the inoperable components.

4.9.A.4 250 VDC Unit Batteries

- a. Every week, the following parameters shall be verified. The actual values shall be measured and logged:
 1. The total battery terminal voltage on float charge shall be equal to or greater than 250 volts.
 2. The electrolyte level of each pilot cell is between the minimum and maximum level indication marks.
 3. The pilot cell voltage is 2.15V minimum and specific gravity 1.195 minimum, corrected to 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 250V battery charger will be tested to verify that the charger can supply 200 amperes at 250 volts for four hours.

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.9.B.5 (cont'd.)

c. DC Power

1. From and after the date that one of the 125 or 250 volt battery systems is made or found to be inoperable for any reason, continued reactor operation is permissible during the succeeding ten days within electrical safety considerations, provided repair work is initiated in the most expeditious manner to return the failed component to an operable state, and Specifications 3.5.A.5 and 3.5.F are satisfied. The NRC shall be notified within 24 hours of the situation, the precautions to be taken during this period and the plans to return the failed components to an operable state.

d. RPS/MG Sets

1. With one RPS electric power monitoring channel for an inservice RPS MG set or alternate power supply inoperable, restore the inoperable channel to operable status within 72 hours or remove the associated RPS MG set or alternate power supply from service.
2. With both RPS electric power monitoring channels for an inservice RPS MG set or alternate power supply inoperable, restore at least one to operable status within 30 minutes or remove the associated RPS MG set or alternate power supply from service.

4.9.A.4 (cont'd)

- 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.

5. Power Monitoring System for RPS System

The above specified RPS power monitoring system instrumentation shall be determined operable:

- a. At least once per operating cycle by demonstrating the operability of over-voltage, under-voltage and under-frequency protective instrumentation by performance of a channel calibration including simulated automatic actuation of the protective relays, tripping logic and output circuit breakers and verifying the following set-points.
 1. Over-voltage \leq 132 VAC, with time delay \leq 2 sec.
 2. Under-voltage \geq 108 VAC, with time delay \leq 2 sec.
 3. Under-frequency \geq 57 Hz. with time delay \leq 2 sec.

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 V and the 250 V 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. 130 TO FACILITY OPERATING LICENSE NO. DPR-46

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

DOCKET NO. 50-298

1.0 INTRODUCTION

By letter dated January 27, 1989 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 250 VDC batteries. The 250 VDC System supplies power to essential motor operated valves, instruments and control circuits.

2.0 DISCUSSION

The original 250 VDC lead-acid batteries at Cooper Nuclear Station are being replaced during the 1989 Cycle 12 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 200 ampere chargers are also being replaced with chargers of the same capacity. The sizing criteria for new battery and charge new 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.4.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.4.b.2 (quarterly surveillance test of all cells), change the minimum to voltage for each cell from 2.0 Volts to 2.15 Volts. 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.4.d (once-per-cycle battery capacity tests) an annual battery service test has been added with a performance discharge test required in lieu of the battery service test 1) every fifth year, 2) when the battery shows signs of degradation, and 3) when the battery has been in use for seventeen years.

- D. The bases for Specification 3.9 have been modified to include a reference to the new testing that is being added for the 250 Volt batteries.

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 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 & C 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. 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: May 24, 1989

Principal Contributor: Paul W. O'Connor