UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

February 28, 2011

Mr. Brian J. O'Grady
Vice President-Nuclear and CNO
Nebraska Public Power District
72676 648A Avenue
Brownville, NE 68321

SUBJECT: COOPER NUCLEAR STATION - ISSUANCE OF AMENDMENT RE: CORRECTION TO POWER FACTOR LIMIT AND INCORPORATION OF A GENERIC REVISION IN TECHNICAL SPECIFICATION SURVEILLANCE REQUIREMENT 3.8.1.9 (TAC NO. ME3441)

Dear Mr. O'Grady:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 237 to Renewed Facility Operating License No. DPR-46 for the Cooper Nuclear Station. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated February 25, 2010.

The amendment revises TS Surveillance Requirement (SR) 3.8.1.9, Diesel Generator (DG) Load Test, in TS Section 3.8.1, "AC [Alternating Current] Sources - Operating," to correct a non-conservative power factor value. In addition, this amendment adds a new note to SR 3.8.1.9 consistent with Technical Specifications Task Force (TSTF) change traveler TSTF-276-A, Revision 2, "Revise DG full load rejection test." This note allows the DG Load Test to be performed at the specified power factor with clarifications addressing situations when the power factor cannot be achieved.

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

Sincerely,

Lynnea E. Wilkins, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-298

Enclosures:
1. Amendment No. 237 to DPR-46
2. Safety Evaluation

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

NEBRASKA PUBLIC POWER DISTRICT

DOCKET NO. 50-298

COOPER NUCLEAR STATION

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 237
License No. DPR-46

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Nebraska Public Power District (the licensee), dated February 25, 2010, 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.

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 Renewed 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. 237, 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 and shall be implemented within 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Michael T. Markley, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Facility
Operating License No. DPR-46
and Technical Specifications

Date of Issuance: February 28, 2011

ATTACHMENT TO LICENSE AMENDMENT NO. 237

RENEWED FACILITY OPERATING LICENSE NO. DPR-46

DOCKET NO. 50-298

Replace the following pages of the Renewed Facility Operating License No. DPR-46 and Appendix A Technical Specifications with the enclosed revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Renewed Facility Operating License

REMOVE	INSERT
page 3 of 5	page 3 of 5

Technical Specifications

REMOVE	INSERT
3.8-8	3.8-8

(5) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by operation of the facility.

C. This license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

The licensee is authorized to operate the facility at steady state reactor core power levels not in excess of 2419 megawatts (thermal).

(2) Technical Specifications

The Technical Specifications contained in Appendix A as revised through Amendment No. 237, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

(3) Physical Protection

The licensee shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans, which contain Safeguards Information protected under 10 CFR 73.21, are entitled: "Cooper Nuclear Station Safeguards Plan," submitted by letter dated May 17, 2006.

(4) Fire Protection

The licensee shall implement and maintain in effect all provisions of the approved fire protection program as described in the Cooper Nuclear Station (CNS) Updated Safety Analysis Report and as approved in the Safety Evaluations dated November 29, 1977; May 23, 1979; November 21, 1980; April 29, 1983; April 16, 1984; June 1, 1984; January 3, 1985; August 21, 1985; April 10, 1986; September 9, 1986; November 7, 1988; February 3, 1989; August 15, 1995; and July 31, 1998, subject to the following provision:

The licensee may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.9	----------NOTES ---------- 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. 3. If performed with DG synchronized with offsite power, the surveillance shall be performed at a power factor $\leq$ 0.89. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition the power factor shall be maintained as close to the limit as practicable. ---------- Verify each DG operates for $\geq$ 8 hours: a. For $\geq$ 2 hours loaded $\geq$ 4200 kW and $\leq$ 4400 kW; and b. For the remaining hours of the test loaded $\geq$ 3600 kW and $\leq$ 4000 kW.	18 months
SR 3.8.1.10	----------NOTES ---------- This Surveillance shall not be performed in MODE 1, 2 or 3. However, credit may be taken for unplanned events that satisfy this SR. ---------- Verify interval between each sequenced load is within $\pm$ 10% of nominal timer setpoint.	18 months

(continued)

UNITED STATES
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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 237 TO

RENEWED FACILITY OPERATING LICENSE NO. DPR-46

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

DOCKET NO. 50-298

1.0 INTRODUCTION

By application dated February 25, 2010 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML100610521), Nebraska Public Power District (the licensee), requested changes to the Technical Specifications (TSs) for Cooper Nuclear Station (CNS). The proposed changes would revise TS Surveillance Requirement (SR) 3.8.1.9, Diesel Generator (DG) Load Test, in TS 3.8.1, "AC [Alternating Current] Sources - Operating," to correct a non-conservative power factor (PF) value. In addition, this amendment would add a new note to SR 3.8.1.9 consistent with Technical Specifications Task Force (TSTF) change traveler TSTF-276-A, Revision 2, "Revise DG full load rejection test." This note allows the DG Load Test to be performed at the specified PF with clarifications addressing situations when the PF cannot be achieved.

In its letter dated February 25, 2010, the licensee stated that the U.S. Nuclear Regulatory Commission (NRC) approved a similar license amendment to incorporate TSTF-276-A, Revision 2, for the Peach Bottom Atomic Power Station with an amendment approved on May 10, 2006 (ADAMS Accession No. ML061070292).

2.0 REGULATORY EVALUATION

Section 182a of the Atomic Energy Act requires applicants for nuclear power plant operating licenses to include TSs as part of the license. The TSs ensure the operational capability of structures, systems, and components that are required to protect the health and safety of the public. The NRC's regulatory requirements related to the content of the TSs are contained in Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.36, "Technical specifications," which requires that the TSs include items in the following specific categories: (1) safety limits, limiting safety systems settings, and limiting control settings; (2) limiting conditions for operations; (3) SRs; (4) design features; and (5) administrative controls. The regulations in 10 CFR 50.36(c)(3) specify that SRs are "requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

General Design Criterion (GDC) 17, "Electric power systems," of Appendix A[1], "General Design Criteria for Nuclear Power Plants," to Part 50 of 10 CFR requires, in part, that,

> An onsite electric power system and an offsite electric power system shall be provided to permit functioning of structures, systems, and components that are important to safety. The safety function for each system (assuming the other system is not functioning) shall be to provide sufficient capacity and capability to assure that (1) specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents.
>
> The onsite electric power supplies, including the batteries, and the onsite electric distribution system, shall have sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure.

The regulations in 10 CFR Part 50, Appendix A, GDC 18, "Inspection and testing of electric power systems," require, in part, that,

> Electric power systems important to safety shall be designed to permit appropriate periodic inspection and testing of important areas and features, such as wiring, insulation, connections, and switchboards, to assess the continuity of the systems and the condition of their components.

TSTF-276-A, Revision 2, modified NUREG-1433, Revision 3, "Standard Technical Specifications, General Electric Plants, BWR [Boiling-Water Reactor]/4" (ADAMS Accession No. ML062510045) (STS), to allow certain DG testing to be performed even if the specified PF cannot be achieved.

3.0 TECHNICAL EVALUATION

3.1 Description of CNS Class 1E DGs

In its letter dated February 25, 2010, the licensee provided the following description from the CNS Updated Safety Analysis Report (USAR) Safety Design Basis:

> CNS is a boiling water reactor (BWR) of General Electric BWR4 design, with Mark 1 containment. The Standby AC Power System at CNS consists of 2 independent, self-contained DG's independent of off-site power sources. Their purpose is to provide a single failure proof source of on-site AC power adequate for maintaining safe shutdown of the reactor following abnormal operational transients and postulated accidents. The generator sets have the ability to pick up loads as described in USAR Table VIII-5-1 in a sequence and time period

[1] The 1967 Proposed GDC as described in the CNS updated safety analysis report, Appendix F, are the licensing basis for CNS; however, the NRC staff concluded in its 1973 Safety Evaluation Report for CNS that the intent of the 1971 Final Rule for 10 CFR Part 50, Appendix A, had also been met.

> described in Table VIII-5-2 to satisfy design basis loss-of-coolant accident (DBA LOCA) acceptance criteria assuming a loss of off-site power. Each DG has a continuous rated capacity of 4000 KW [kilowatts] at a power factor of 0.8 with frequency at 60 Hz [hertz] and voltage at 4,160 volts AC. The DGs are capable of being independently synchronized to normal, startup, and emergency station service transformers. This synchronization is performed manually for system performance tests or live source transfers. In the emergency mode, provisions exist to prevent: (a) automatic parallel electrical interconnection of both DGs and (b) automatic interconnection of either DG with station service transformers. The standby AC power system conforms to the applicable sections of "IEEE [Institute of Electrical and Electronics Engineers] 308 Criteria for Class 1 E Electrical Systems for Nuclear Power Generating Stations", issued in 1970.

In its letter dated February 25, 2010, the licensee stated that during Temporary Inspection 2515/176, "Emergency Diesel Generator Technical Specification Surveillance Requirements Regarding Endurance and Margin Testing," it discovered that the calculation for DG loading was not conservative with respect to expected worst-case voltage and frequency. Consequently, the licensee determined the SR 3.8.1.9 PF limit of ≤ 0.9 was not conservative with respect to the calculated DG loading. As a result, the surveillance procedures were placed on hold in order to revise the calculation to incorporate worst-case voltage and frequencies as well as to determine the appropriate kilovolt ampere reactive limit and corresponding PF limit.

3.2 Proposed Changes

In its letter dated February 25, 2010, the licensee requested the following TS changes:

> Revise the surveillance statement in SR 3.8.1.9 to delete the phrase "operating at a power factor of< 0.9" in accordance with TSTF-276-A, Revision 2.
>
> Add a new Note 3 in SR 3.8.1.9 in accordance with TSTF-276-A, Revision 2, to state, "If performed with DG synchronized with offsite power, the surveillance shall be performed at a power factor ≤ 0.89. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition the power factor shall be maintained as close to the limit as practicable."

The licensee also proposed to make conforming changes to the TS Bases.

3.3 NRC Staff Evaluation

The NRC staff has reviewed the licensee's proposed changes and the design of the CNS Class 1E DGs as described in the CNS USAR and has determined that as required by GDC 17, the DGs are designed to have sufficient independence, redundancy, and testability to perform their safety functions, assuming a single failure. The two DGs are physically and electrically separated and independent; therefore, testing and inspection of a DG is acceptable since it can be done without adversely affecting the other DG, thus satisfying the requirements of GDC 18.

The requirement of SR 3.8.1.9 to test the DGs at a PF of less than 0.89 ensures that the DG is tested under load conditions that are as close to design basis conditions as possible per the

revised DG load calculation. This PF is representative of the actual design basis reactive loading that the DG would experience. This change, to allow PF to be maintained as close to the limit as possible, provides flexibility in DG testing when synchronized to offsite power. If the offsite power system voltage is high at the time this SR is performed, increased excitation will be necessary for the DG to match system voltage when synchronizing to the associated emergency bus. Once the DG is tied to the bus, it may not be possible to increase DG excitation sufficiently to meet the required reactive load value (and thereby ensure the PF value is met) without exceeding the DG excitation system ratings.

In addition, if the DG is operating at or near the limits of the excitation system during a test run and a transient or swing in reactive load flow occurs, the capabilities of the DG excitation system will be challenged. Therefore, to ensure that the DG is not placed in an unsafe condition during SR 3.8.1.9, the new Note 3 states that under these conditions the PF value will be maintained as close to the limit as practicable when the DG is tied to offsite power. This change to the SR ensures that DGs are tested in a safe manner and in a way which best verifies that they can supply design-basis accident loads. The DGs thereby perform their intended safety functions as required.

The NRC staff concludes that the licensee has provided sufficient assurance that performing SR 3.8.1.9, as modified, while at power and with a PF of less than 0.89, or as close to the limit as practicable, will not create a transient that could disrupt power operation and challenge the safety systems. The changes would correct a non-conservative PF value and add an additional note to SR 3.8.1.9 which is consistent with TSTF-276-A, Revision 2, and the STS. In addition, the unavailability of the DGs will not increase. Based on the above, the NRC staff concludes that the proposed changes do not affect compliance with the requirements of GDCs 17 and 18 and 10 CFR 50.36. Therefore, the NRC staff concludes the proposed changes to TS SR 3.8.1.9 are acceptable. The NRC staff has no objection to the proposed changes to the TS Bases.

4.0 STATE CONSULTATION

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 comments.

5.0 ENVIRONMENTAL CONSIDERATION

The 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 NRC 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 published in the *Federal Register* on April 20, 2010 (75 FR 20639). 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.

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: K. Miller

Date: February 28, 2011

February 28, 2011

Mr. Brian J. O'Grady
Vice President-Nuclear and CNO
Nebraska Public Power District
72676 648A Avenue
Brownville, NE 68321

SUBJECT: COOPER NUCLEAR STATION - ISSUANCE OF AMENDMENT RE: CORRECTION TO POWER FACTOR LIMIT AND INCORPORATION OF A GENERIC REVISION IN TECHNICAL SPECIFICATION SURVEILLANCE REQUIREMENT 3.8.1.9 (TAC NO. ME3441)

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Sincerely,
/RA/

Lynnea E. Wilkins, Project Manager
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Docket No. 50-298

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2. Safety Evaluation

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