



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

October 11, 2023

Mr. John Dent, Jr.  
Executive Vice President and  
Chief Nuclear Officer  
Nebraska Public Power District  
Cooper Nuclear Station  
72676 648A Avenue  
P.O. Box 98  
Brownville, NE 68321

SUBJECT: COOPER NUCLEAR STATION - ISSUANCE OF AMENDMENT NO. 273 RE:  
REVISION TO TECHNICAL SPECIFICATIONS TO ADOPT TSTF-580,  
REVISION 1, "PROVIDE EXCEPTION FROM ENTERING MODE 4 WITH NO  
OPERABLE RHR SHUTDOWN COOLING" (EPID L-2023-LLA-0067)

Dear Mr. Dent:

The U.S. Nuclear Regulatory Commission (NRC, the Commission) has issued the enclosed Amendment No. 273 to Renewed Facility Operating License No. DPR-46 for the Cooper Nuclear Station (Cooper). The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated May 3, 2023.

The amendment revises the Cooper TSs to adopt TSs Task Force (TSTF) Traveler TSTF-580, "Provide Exception from Entering Mode 4 with No Operable RHR Shutdown Cooling," Revision 1. Specifically, the amendment revises TS 3.4.7, "Residual Heat Removal (RHR) Shutdown Cooling System – Hot Shutdown."

J. Dent, Jr.

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

Sincerely,

*/RA/*

Thomas J. Wengert, Senior Project Manager  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-298

Enclosures:

1. Amendment No. 273 to DPR-46
2. Safety Evaluation

cc: Listserv



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. 273  
Renewed 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 May 3, 2023, 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. 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. 273, 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

Jennifer L. Dixon-Herrity, Chief  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

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

Date of Issuance: October 11, 2023

ATTACHMENT TO LICENSE AMENDMENT NO. 273

RENEWED FACILITY OPERATING LICENSE NO. DPR-46

COOPER NUCLEAR STATION

DOCKET NO. 50-298

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

Renewed Facility Operating License

REMOVE

-3-

INSERT

-3-

Technical Specifications

REMOVE

3.4-15

3.4-16

INSERT

3.4-15

3.4-16

(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. 273, 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.

NPPD shall fully implement and maintain in effect all provisions of the Commission-approved cyber security plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The NPPD CSP was approved by License Amendment No. 238 as supplemented by changes approved by License Amendments 244 and 249.

(4) Fire Protection

NPPD shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the license amendment request dated April 24, 2012 (and supplements dated July 12, 2012, January 14, 2013, February 12, 2013, March 13, 2013, June 13, 2013, December 12, 2013, January 17, 2014, February 18, 2014, and April 11, 2014), and as approved in the safety evaluation dated April 29, 2014. Except where NRC approval for changes or deviations is required by 10 CFR 50.48(c), and provided no other regulation, technical specification, license condition or requirement would require prior NRC approval, the licensee may make changes to the fire protection program without prior approval of the Commission if

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 Residual Heat Removal (RHR) Shutdown Cooling System - Hot Shutdown

LCO 3.4.7 Two RHR shutdown cooling subsystems shall be OPERABLE, and, with no recirculation pump in operation, at least one RHR shutdown cooling subsystem shall be in operation.

-----NOTES-----

1. Both RHR shutdown cooling subsystems and recirculation pumps may be removed from operation for up to 2 hours per 8 hour period.
  2. One RHR shutdown cooling subsystem may be inoperable for up to 2 hours for the performance of Surveillances.
- 

APPLICABILITY: MODE 3, with reactor steam dome pressure less than the shutdown cooling permissive pressure.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each RHR shutdown cooling subsystem.

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CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required RHR shutdown cooling subsystem inoperable.	A.1 Verify an alternate method of decay heat removal is available.	1 hour <u>AND</u> Once per 24 hours thereafter
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action to restore RHR shutdown cooling subsystem to OPERABLE status.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Two required RHR shutdown cooling subsystems inoperable.</p>	<p>C.1 Verify an alternate method of decay heat removal is available for each inoperable RHR shutdown cooling subsystem.</p>	<p>1 hour <u>AND</u> Once per 24 hours thereafter</p>
<p>D. Required Action and associated Completion Time of Condition C not met.</p>	<p>-----NOTE----- LCO 3.0.3 and all other LCO Required Actions requiring a MODE change to MODE 4 may be suspended until one RHR shutdown cooling subsystem is restored to OPERABLE status. -----</p> <p>D.1 Initiate action to restore one RHR shutdown cooling subsystem to OPERABLE status.</p>	<p>Immediately</p>
<p>E. No RHR shutdown cooling subsystem in operation.</p> <p><u>AND</u></p> <p>No recirculation pump in operation.</p>	<p>E.1 Initiate action to restore one RHR shutdown cooling subsystem or one recirculation pump to operation.</p> <p><u>AND</u></p> <p>E.2 Verify reactor coolant circulation by an alternate method.</p> <p><u>AND</u></p> <p>E.3 Monitor reactor coolant temperature and pressure.</p>	<p>Immediately</p> <p>1 hour from discovery of no reactor coolant circulation</p> <p><u>AND</u></p> <p>Once per 12 hours thereafter</p> <p>Once per hour</p>





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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 273 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 May 3, 2023 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML23124A358), Nebraska Public Power District (the licensee) submitted a license amendment request (LAR) for amendment to the technical specifications (TSs) for Cooper Nuclear Station (Cooper, CNS). The proposed changes would revise TS 3.4.7, "Residual Heat Removal (RHR) Shutdown Cooling System – Hot Shutdown," based on Technical Specifications Task Force (TSTF) Traveler TSTF-580, Revision 1, "Provide Exception from Entering Mode 4 With No Operable RHR Shutdown Cooling," dated January 26, 2021 (ML21025A232), and the associated U.S. Nuclear Regulatory Commission (NRC, the Commission) staff safety evaluation (SE) of TSTF-580, dated July 11, 2021 (ML21188A227).

Irradiated fuel in the shutdown reactor core generates heat during the decay of fission products and increases the temperature of the reactor coolant. This decay heat must be removed to reduce the temperature of the reactor coolant to less than or equal to 212 degrees Fahrenheit. This decay heat is removed by the RHR shutdown cooling system in preparation for performing refueling or maintenance operations, or for keeping the reactor in the hot or cold shutdown condition.

The reactor coolant system (RCS) design for Cooper includes two redundant, manually controlled shutdown cooling subsystems of the RHR system, which provide decay heat removal. Each subsystem consists of two motor-driven pumps, a heat exchanger, and associated piping and valves. The RHR heat exchangers transfer heat to the service water system.

Cooper TS 3.4.7 is applicable in Mode 3, with the reactor steam dome pressure less than the shutdown cooling permissive pressure. The limiting condition for operation (LCO) requires two operable RHR shutdown cooling subsystems and, if no recirculation pump is in operation, then at least one RHR shutdown cooling subsystem shall be in operation.

### 1.1 Proposed TS Changes to Adopt TSTF-580

The licensee's proposed changes would revise Cooper TS 3.4.7 in accordance with NRC staff-approved TSTF-580, as described below:

- Condition A would be changed to be applicable to a single inoperable subsystem by revising it to state: "One required RHR shutdown cooling subsystem inoperable" with a Required Action to "Verify an alternate method of decay heat removal is available."
- Condition B addresses situations when Required Action A.1 and the associated completion time (CT) are not met. The plural "(s)" would be deleted in Required Action B.1 as a conforming change to Condition A, which would now address a single inoperable RHR shutdown cooling subsystem.
- New Condition C would be added to address two required RHR shutdown cooling subsystems inoperable with a new Required Action C.1 to verify that an alternate method of decay heat removal is available for each inoperable RHR shutdown cooling subsystem. The new Condition C Required Action would have a CT of 1 hour and once per 24 hours thereafter.
- New Condition D would be added to address situations when new Required Action C.1 and the associated CT are not met. New Required Action D.1 requires action be initiated to restore one RHR shutdown cooling subsystem to operable status immediately. Required Action D.1 would be modified by a note stating that "LCO 3.0.3 and all other LCO Required Actions requiring a mode change to Mode 4 may be suspended until one RHR shutdown cooling subsystem is restored to OPERABLE status."
- Existing Condition C and the associated Required Actions would be renumbered as Condition E due to the new Conditions C and D.

TSTF-580 makes additional changes to the Actions of TS 3.4.7 that were revised by TSTF-566, "Revise Actions for Inoperable RHR Shutdown Cooling Subsystems," which is consistent with the NRC staff's approval of TSTF-580. The TSTF-580 justification states that adoption is dependent on the previous adoption of TSTF-566-A. Adoption of TSTF-566-A was approved by the NRC for Cooper on December 2, 2020 (ML20314A235).

### 1.2 Additional Proposed TS Changes

In the LAR, the licensee proposed the following variation from the TS changes described in TSTF-580:

The CNS TS utilize different numbering than the Standard Technical Specifications (STS) on which TSTF-580 was based. Specifically, CNS equivalent TS are numbered as TS 3.4.7 instead of the STS numbering of TS 3.4.8. This difference is administrative and does not affect the applicability of TSTF-580 to the CNS TS.

## 2.0 REGULATORY EVALUATION

The regulation at Title 10 of the *Code of Federal Regulations* (10 CFR) 50.36(c)(2) requires that TSs include LCOs. Per 10 CFR 50.36(c)(2)(i), LCOs “are the lowest functional capability or performance levels of equipment required for safe operation of the facility.” The regulation also states that “when a limiting condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the technical specifications until the condition can be met.”

The NRC staff’s guidance for the review of TSs is provided in Chapter 16.0, “Technical Specifications,” of NUREG-0800, Revision 3, “Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR [Light-Water Reactor] Edition” (SRP), dated March 2010 (ML100351425). As described therein, as part of the regulatory standardization effort, the NRC staff has prepared STSs for each of the LWR nuclear designs. Accordingly, the NRC staff’s review includes consideration of whether the proposed changes are consistent with the STSs,<sup>1</sup> as modified by NRC-approved travelers.

Traveler TSTF-580 revised the STSs related to the RHR shutdown cooling system. The NRC staff approved TSTF-580 under the Consolidated Line Item Improvement Process (CLIIP) on July 11, 2021 (ADAMS Package Accession No. ML21188A283).

## 3.0 TECHNICAL EVALUATION

### 3.1 Evaluation of Proposed TS Changes to Adopt TSTF-580

The NRC staff compared the licensee’s proposed TS changes in section 1.1 of this SE against the changes approved in TSTF-580. In accordance with the SRP, Chapter 16.0, the NRC staff determined that the STS changes approved in TSTF-580 are applicable because Cooper is a boiling water reactor (BWR) design plant, and the NRC staff approved the TSTF-580 changes for BWR designs. The NRC staff finds that the licensee’s proposed changes, as stated in section 1.1 of this SE, are consistent with those found acceptable by the NRC staff in TSTF-580.

In the NRC staff SE for TSTF-580, the NRC staff concluded that TSTF-580 changes to STS 3.4.8, “Residual Heat Removal (RHR) Shutdown Cooling System – Hot Shutdown,” Condition A, Required Actions A.1 and B.1, and new Condition C, Required Action C.1 and associated completion times (CT) were acceptable because these changes preserve the existing requirements and do not alter the way the TSs are implemented. Therefore, the NRC staff finds these continue to meet the requirements of 10 CFR 50.36(c)(2)(i) by providing remedial actions for when the LCO is not met.

In the NRC staff SE for TSTF-580, the staff also concluded that the proposed addition of new Condition D to STS 3.4.8 is acceptable, because, without an operable RHR shutdown cooling subsystem and in a period of high decay heat load, it may not be possible to reduce the RCS temperature to the Mode 4 entry condition within the CT. Under this condition, remaining in Mode 3 allows fission product decay heat and other residual heat from the reactor core to be transferred at a rate such that specified acceptable fuel design limits and the design conditions

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<sup>1</sup> U.S. Nuclear Regulatory Commission, “Standard Technical Specifications, General Electric Plants, BWR/4,” NUREG-1433, Volume 1, “Specifications,” and Volume 2, “Bases,” Revision 5.0, September 2021 (ML21272A357 and ML21272A358, respectively).

of the reactor coolant pressure boundary will not be exceeded. The CT reflects the importance of restoring a normal path for heat removal. Therefore, the NRC staff finds that proposed new Condition D and the associated Required Action D.1 and CT, are acceptable because the changes provide appropriate remedial actions if the LCO is not met and will continue to meet the requirements of 10 CFR 50.36(c)(2)(i).

### 3.2 Technical Evaluation of Additional Proposed TS Changes

Regarding the variation described in section 1.2 of this SE, the NRC staff finds that the variation is editorial in nature and does not affect the applicability of TSTF-580 to the Cooper TSs.

### 3.3 TS Change Consistency

The NRC staff reviewed the proposed TS changes for technical clarity and consistency with the existing requirements for customary terminology and formatting. The NRC staff finds that the proposed changes are consistent with Chapter 16.0 of the SRP and are therefore acceptable.

### 4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Nebraska State official was notified of the proposed issuance of the amendment on August 6, 2023. 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, published in the *Federal Register* on July 11, 2023 (88 FR 44162), 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 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) there is reasonable assurance that 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: R. Grover, NRR

Date: October 11, 2023

SUBJECT: COOPER NUCLEAR STATION - ISSUANCE OF AMENDMENT NO. 273 RE: REVISION TO TECHNICAL SPECIFICATIONS TO ADOPT TSTF-580, REVISION 1, "PROVIDE EXCEPTION FROM ENTERING MODE 4 WITH NO OPERABLE RHR SHUTDOWN COOLING" (EPID L-2023-LLA-0067) DATED OCTOBER 11, 2023

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**ADAMS Accession No. ML23264A805**

**\*concurrence via email**

**NRR-058**

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