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

November 30, 2022

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

SUBJECT: COOPER NUCLEAR STATION - ISSUANCE OF AMENDMENT NO. 272 RE: REVISION TO TECHNICAL SPECIFICATIONS TO ADOPT TSTF-554, REVISION 1, "REVISE REACTOR COOLANT LEAKAGE REQUIREMENTS" (EPID L-2022-LLA-0090)

Dear Mr. Dent:

The U.S. Nuclear Regulatory Commission (NRC, the Commission) has issued the enclosed Amendment No. 272 to Renewed Facility Operating License No. DPR-46 for Cooper Nuclear Station (Cooper). The amendment consists of changes to the license and technical specifications (TS) in response to your application dated June 16, 2022.

The amendment revises the Cooper TSs to adopt Technical Specifications Task Force (TSTF) Traveler TSTF-554, "Revise Reactor Coolant Leakage Requirements," Revision 1. Specifically, the amendment changes the TS definition of "Leakage," clarifying the requirements when pressure boundary leakage is detected and adds a Required Action when pressure boundary leakage is identified.

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. 272 to DPR-46
2. Safety Evaluation

cc: Listserv

UNITED STATES
NUCLEAR REGULATORY COMMISSION
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NEBRASKA PUBLIC POWER DISTRICT

DOCKET NO. 50-298

COOPER NUCLEAR STATION

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 272
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 June 16, 2022, 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. 272, 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

Digitally signed by Jennifer L. Dixon-Herrity
Date: 2022.11.30 12:08:17 -05'00'

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: November 30, 2022

ATTACHMENT TO LICENSE AMENDMENT NO. 272

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	INSERT
3	3

Technical Specifications

REMOVE	INSERT
1.1-4	1.1-4
3.4-8	3.4-8
3.4-9	3.4-9

(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. 272, 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

1.1 Definitions

DRAIN TIME (continued)

c. The penetration flow paths required to be evaluated per paragraph b. are assumed to open instantaneously and are not subsequently isolated, and no water is assumed to be subsequently added to the RPV water inventory;

d. No additional draining events occur; and

e. Realistic cross-sectional areas and drain rates are used.

A bounding DRAIN TIME may be used in lieu of a calculated value.

INSERVICE TESTING PROGRAM

The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).

LEAKAGE

LEAKAGE shall be:

a. Identified LEAKAGE

1. LEAKAGE into the drywell, such as that from pump seals or valve packing, that is captured and conducted to a sump or collecting tank; or

2. LEAKAGE into the drywell atmosphere from sources that are both specifically located and known to not interfere with the operation of leakage detection systems;

b. Unidentified LEAKAGE

All LEAKAGE into the drywell that is not identified LEAKAGE

c. Total LEAKAGE

Sum of the identified and unidentified LEAKAGE; and

d. Pressure Boundary LEAKAGE

LEAKAGE through a fault in a Reactor Coolant System (RCS) component body, pipe wall, or vessel wall. LEAKAGE past seals, packing, and gaskets is not pressure boundary LEAKAGE.

(continued)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.4 RCS Operational LEAKAGE

LCO 3.4.4 RCS operational LEAKAGE shall be limited to:

a. No pressure boundary LEAKAGE;

b. ≤ 5 gpm unidentified LEAKAGE;

c. ≤ 30 gpm total LEAKAGE averaged over the previous 24 hour period; and

d. ≤ 2 gpm increase in unidentified LEAKAGE within the previous 24 hour period in MODE 1.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressure boundary LEAKAGE exists.	A.1 Isolate affected component, pipe, or vessel from the RCS by use of a closed manual valve, closed and de-activated automatic valve, blind flange, or check valve.	4 hours
B. Unidentified LEAKAGE not within limit. OR Total LEAKAGE not within limit.	B.1 Reduce LEAKAGE to within limits.	4 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Unidentified LEAKAGE increase not within limit.	C.1	Reduce unidentified LEAKAGE increase to within limits.	4 hours
	OR		
	C.2	Verify source of unidentified LEAKAGE increase is not service sensitive type 304 or type 316 austenitic stainless steel.	4 hours
D. Required Action and associated Completion Time not met.	D.1	Be in MODE 3.	12 hours
	AND		
	D.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.4.1	Verify RCS unidentified and total LEAKAGE and unidentified LEAKAGE increase are within limits.	In accordance with the Surveillance Frequency Control Program

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 272 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 June 16, 2022 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22171A009), Nebraska Public Power District (the licensee) submitted a license amendment request (LAR) for an amendment to the Technical Specifications (TSs) for Cooper Nuclear Station (Cooper).

In its application, the licensee requested that the U.S. Nuclear Regulatory Commission (NRC, the Commission) process the proposed LAR under the Consolidated Line Item Improvement Process (CLIIP).

The proposed changes would revise the TSs related to reactor coolant system (RCS) operational leakage and the definition of the term “LEAKAGE” based on Technical Specifications Task Force (TSTF) Traveler TSTF-554, Revision 1, “Revise Reactor Coolant Leakage Requirements” (ML20016A233), and the associated NRC staff safety evaluation (SE) of TSTF-554, dated December 18, 2020 (ML20322A024).

The licensee has proposed variations from the TS changes described in Traveler TSTF-554, Revision 1. The variations are described and evaluated in section 3.2 of this SE.

Components that contain or transport the coolant to or from the reactor core make up the RCS. Materials can degrade as a result of the complex interaction of the materials, the stresses they encounter, and through operational wear or mechanical deterioration during normal and upset operating environments. Such material degradation could lead to leakage of reactor coolant into containment buildings.

The RCS leakage falls under two main categories – identified leakage and unidentified leakage. Identifying the sources of leakage is necessary for prompt identification of potentially adverse conditions, assessment of the safety significance of the leakage, and quick corrective action. A limited amount of leakage from the reactor coolant pressure boundary (RCPB) directly into the drywell atmosphere is expected as the RCS and other connected systems cannot be made

100 percent leak tight. This leakage is detected, located, and isolated from the containment atmosphere so as not to interfere with measurement of unexpected RCS leakage detection.

The safety significance of RCS leakage varies widely depending on its source, rate, and duration. Therefore, detecting and monitoring RCS leakage into the containment area is necessary. Separation of identified leakage from unidentified leakage provides quantitative information to the operators, allowing them to take corrective action should leakage occur that is detrimental to the safety of the unit and the public.

1.1 Proposed TS Changes to Adopt TSTF-554

The licensee proposed changes consistent with NRC staff-approved TSTF-554 that would revise the TSs related to RCS operational leakage and the definition of the term "LEAKAGE." Specifically, the licensee proposed the following changes be made to the Cooper TSs in order to adopt TSTF-554:

- The TS 1.1 identified LEAKAGE definition a.2 would be revised to remove the exclusion of pressure boundary leakage from identified leakage by deleting the word "either" and the phrase "not to be pressure boundary LEAKAGE."

- The TS 1.1 pressure boundary LEAKAGE definition d would be revised to delete the word "nonisolable." The sentence, "LEAKAGE past seals, packing, and gaskets is not pressure boundary LEAKAGE," would be adopted from the Standard TS (STS) Bases and added to the definition.

- Additionally, the LEAKAGE definition would be revised by other editorial and punctuation changes to reflect the deletion and listed definitions.

- The ACTIONS section of TS 3.4.4, "RCS Operational LEAKAGE," would be revised to add a new Condition A to isolate the pressure boundary leakage within 4 hours.

- Existing Condition C would be revised to be applicable should any Action of LCO 3.4.4 not be met by deleting "of Condition A or B."

- Existing Conditions A, B, and C would be renumbered to reflect the new Condition A. The existing Condition C would be revised to delete the condition for when pressure boundary leakage exists because pressure boundary leakage would be addressed by the new Condition A. The required actions associated with existing Conditions A, B, and C would be renumbered accordingly.

1.2 Additional Proposed TS Changes

The application identified certain variations from TSTF-554. Section 3.2 of this SE provides a description of the variations and the NRC staff's evaluation.

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 limiting conditions for operation (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 requires that when an LCO of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the TSs until the condition can be met.

The regulation at 10 CFR 50.2 defines RCPB as "all those pressure-containing components of boiling and pressurized water-cooled nuclear power reactors, such as pressure vessels, piping, pumps, and valves…"

Regulatory Guide (RG) 1.45, Revision 1, "Guidance on Monitoring and Responding to Reactor Coolant System Leakage," dated May 2008 (ML073200271), section B, Discussion "Leakage Separation," provides information related to separation between identified and unidentified leakage.

The NRC staff's guidance for the review of TSs is 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 NUREG-1433,[1] as modified by NRC-approved travelers. Traveler TSTF-554 revised the STSs related to RCS operational leakage and the definition of the term "LEAKAGE." The NRC approved TSTF-554, under the CLIIP on December 18, 2020.

3.0 TECHNICAL EVALUATION

3.1 Proposed TS Changes to Adopt TSTF-554

The NRC staff compared the licensee's proposed TS changes in section 1.1 of this SE to the changes approved in TSTF-554. In accordance with SRP Chapter 16.0, the NRC staff determined that the STS changes approved in TSTF-554 are applicable to the Cooper TSs because Cooper is a General Electric Boiling Water Reactor (BWR/4) and the NRC staff approved the TSTF-554 changes for BWR designs. The NRC staff finds that the licensee's proposed changes to the Cooper TSs in section 1.2 of this SE are consistent with those the staff found acceptable in TSTF-554.

In the SE of TSTF-554, the NRC staff concluded that the TSTF-554 changes to the STS 1.1 definition of "LEAKAGE" and to STS 3.4.4, the LCO addressing conditions and required actions when RCS pressure boundary leakage exists, are acceptable. The NRC staff found that removing the term "nonisolable" provides a clearer definition of pressure boundary leakage and that the source of the leakage is not relevant to this capability provided that separate, appropriate limits on pressure boundary leakage have been established. Therefore, the proposed change to the definition of identified leakage was acceptable as it did not conflict with the RCPB definition in 10 CFR 50.2 and was consistent with RG 1.45. The NRC staff further found that proposed new Condition A on pressure boundary leakage, including its associated Required Action A.1 and Completion Time, is acceptable because the LCO

[1] U.S. Nuclear Regulatory Commission, "Standard Technical Specifications, General Electric BWR/4 Plants" NUREG-1433, Volume 1, "Specifications," and Volume 2, "Bases," Revision 5.0, dated September 2021 (ML21272A357 and ML21272A358, respectively).

revisions continue to specify the lowest functional capability of equipment, identify remedial actions, and require shutdown of the reactor if the remedial actions cannot be met.

Based on the discussions above, the NRC staff finds that the proposed changes to the Cooper TS 1.1 definition and LCO 3.4.4 correctly specify the lowest functional capability or performance levels of equipment required for safe operation of the facility in accordance with 10 CFR 50.36(c)(2)(i). Also, the remedial actions to be taken until each LCO can be met provide protection to the health and safety of the public, thereby satisfying 10 CFR 50.36(c)(2)(i).

3.2 Technical Evaluation of Additional Proposed TS Changes

3.2.1 Editorial Variations

The licensee noted that the Cooper TSs have different nomenclature than the STSs. The NRC staff finds that the different TS nomenclature changes are acceptable because they do not substantively alter TS requirements.

3.2.2 Other Variations

In section 2.2.4 of attachment 1 to the LAR, the licensee noted that the TSTF-554 Traveler and SE discuss the applicable regulatory requirements and guidance, including the 10 CFR Part 50, Appendix A, General Design Criteria (GDC). The licensee further stated that Cooper was not licensed to the 10 CFR Part 50, Appendix A, GDC, which therefore represents a variation from TSTF-554.

The NRC staff notes that the Cooper construction predated the issuance of the GDC in Appendix A to 10 CFR Part 50, and that Cooper was designed to conform to the proposed GDC published in the *Federal Register* on July 11, 1967 (32 FR 10213), except where commitments were made to specific 1971 GDC. As stated in section 1.0 of Appendix F, “Conformance to AEC Proposed General Design Criteria,” of the Cooper Updated Safety Analysis Report (USAR) (Amendment 30 - ML21130A114), “The Atomic Energy Commission (AEC) accepted [Cooper’s] conformance with the proposed [GDC] during the proceedings for a Construction Permit with the exception of Criterion 35 which was later resolved with the Advisory Committee on Reactor Safeguards,” and concluded that “ … the intent of the criteria contained in the 1971 10 CFR 50 Appendix A Final Rule had also been met.” Therefore, the NRC staff concludes that this variation is acceptable for the purposes of the adoption of TSTF-554 at Cooper.

3.3 TS Change Consistency

The NRC staff reviewed the proposed TS changes for technical clarity and consistency with the existing guidance for customary terminology and formatting in Chapter 16.0 of the SRP and NUREG-1433. The NRC staff finds that the proposed changes are consistent with these documents 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 on September 30, 2022. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes requirements 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 amount, 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 (87 FR 48517 dated August 9, 2022). 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 Contributors: G. Lentchner, NRR
R. Grover, NRR

Date: November 30, 2022

SUBJECT: COOPER NUCLEAR STATION - ISSUANCE OF AMENDMENT NO. 272 RE: REVISION TO TECHNICAL SPECIFICATIONS TO ADOPT TSTF-554, REVISION 1, "REVISE REACTOR COOLANT LEAKAGE REQUIREMENTS" (EPID L-2022-LLA-0090) DATED NOVEMBER 30, 2022

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