



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

March 08, 2024

Nicole Flippin
Site Vice President
Catawba Nuclear Station
Duke Energy Carolinas, LLC
4800 Concord Road
York, SC 29745

SUBJECT: CATAWBA NUCLEAR STATION, UNITS 1 AND 2 – ISSUANCE OF
AMENDMENT NOS. 319 AND 315 TO TECHNICAL SPECIFICATION 3.7.11,
“CONTROL ROOM AREA CHILL WATER SYSTEM (CRACWS)”
(EPID L-2023-LLA-0093)

Dear Nicole Flippin:

The U.S. Nuclear Regulatory Commission has issued the following enclosed Amendment No. 319 to Renewed Facility Operating License No. NPF-35 and Amendment No. 315 to Renewed Facility Operating License No. NPF-52 for the Catawba Nuclear Station, Units 1 and 2, respectively. The amendments are in response to your application dated June 19, 2023, as supplemented by letter dated October 26, 2023.

The amendments revise technical specification (TS) 3.7.11, “Control Room Area Chilled Water System (CRACWS),” to allow a completion time of 24 hours to restore one of the two CRACWS trains to operable status, provided mitigating actions ensure the control room temperature is controlled, rather than require immediate entry into TS limiting condition for operation (LCO) 3.0.3 and commencing a plant shutdown within 1 hour.

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

N. Flippin

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If you have any questions, please contact me at 301-415-1009 or via email at Shawn.Williams@nrc.gov.

Sincerely,

/RA/

Shawn A. Williams, Senior Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-413 and 50-414

Enclosures:

1. Amendment No. 319 to NPF-35
2. Amendment No. 315 to NPF-52
3. Safety Evaluation

cc: Listserv



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

DUKE ENERGY CAROLINAS, LLC
NORTH CAROLINA ELECTRIC MEMBERSHIP CORPORATION
DOCKET NO. 50-413
CATAWBA NUCLEAR STATION, UNIT 1
AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 319
Renewed License No. NPF-35

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment to the Catawba Nuclear Station, Unit 1 (the facility) Renewed Facility Operating License No. NPF-35 filed by the Duke Energy Carolinas, LLC (licensee), dated June 19, 2023, as supplemented by letter dated October 26, 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 as 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 set forth in 10 CFR Chapter I;
 - 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. NPF-35 is hereby amended to read as follows:

- (2) Technical Specifications

- The Technical Specifications contained in Appendix A, as revised through Amendment No. 319, which are attached hereto, are hereby incorporated into this renewed operating license. Duke Energy Carolinas, LLC shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 120 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Michael T. Markley, Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to Renewed Facility
Operating License No. NPF-35
and Technical Specifications

Date of Issuance: March 8, 2024



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

DUKE ENERGY CAROLINAS, LLC
NORTH CAROLINA MUNICIPAL POWER AGENCY NO. 1
PIEDMONT MUNICIPAL POWER AGENCY
DOCKET NO. 50-414
CATAWBA NUCLEAR STATION, UNIT 2
AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 315
Renewed License No. NPF-52

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment to the Catawba Nuclear Station, Unit 2 (the facility) Renewed Facility Operating License No. NPF-52 filed by the Duke Energy Carolinas, LLC (licensee), dated June 19, 2023, as supplemented by letter dated October 26, 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 as 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 set forth in 10 CFR Chapter I;
 - 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. NPF-52 is hereby amended to read as follows:

- (2) Technical Specifications

- The Technical Specifications contained in Appendix A, as revised through Amendment No. 315, which are attached hereto, are hereby incorporated into this renewed operating license. Duke Energy Carolinas, LLC shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 120 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Michael T. Markley, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to Renewed Facility
Operating License No. NPF-52
and the Technical Specifications

Date of Issuance: March 8, 2024

ATTACHMENT

AMENDMENT NO. 319 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-35

AMENDMENT NO. 315 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-52

CATAWBA NUCLEAR STATION, UNITS 1 AND 2

DOCKET NOS. 50-413 AND 50-414

Renewed Facility Operating License Nos. NPF-35 and NPF-52

Replace the following pages of the Renewed Facility Operating Licenses with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove

NPF-35, page 4

NPF-52, page 4

Insert

NPF-35, page 4

NPF-52, page 4

Appendix A to Renewed Facility Operating License Nos. NPF-35 and NPF-52

Replace the following pages of the Appendix A Technical Specifications (TSs) with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove

TS 3.7.11-2

Insert

TS 3.7.11-2

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 319, which are attached hereto, are hereby incorporated into this renewed operating license. Duke Energy Carolinas, LLC shall operate the facility in accordance with the Technical Specifications.

(3) Updated Final Safety Analysis Report

The Updated Final Safety Analysis Report supplement submitted pursuant to 10 CFR 54.21(d), as revised on December 16, 2002, describes certain future activities to be completed before the period of extended operation. Duke shall complete these activities no later than December 6, 2024, and shall notify the NRC in writing when implementation of these activities is complete and can be verified by NRC inspection.

The Updated Final Safety Analysis Report supplement as revised on December 16, 2002, described above, shall be included in the next scheduled update to the Updated Final Safety Analysis Report required by 10 CFR 50.71 (e)(4), following issuance of this renewed operating license. Until that update is complete, Duke may make changes to the programs described in such supplement without prior Commission approval, provided that Duke evaluates each such change pursuant to the criteria set forth in 10 CFR 50.59 and otherwise complies with the requirements in that section.

(4) Antitrust Conditions

Duke Energy Carolinas, LLC shall comply with the antitrust conditions delineated in Appendix C to this renewed operating license.

(5) Fire Protection Program

Duke Energy Carolinas, LLC shall implement and maintain in effect all provisions of the approved fire protection program that complies with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the licensee amendment request dated September 25, 2013; as supplemented by letters dated January 13, 2015; January 28, 2015; February 27, 2015; March 30, 2015; April 28, 2015; July 15, 2015; August 14, 2015; September 3, 2015; December 11, 2015; January 7, 2016; March 23, 2016; June 15, 2016; August 2, 2016; September 7, 2016; and, January 26, 2017, as approved in the SE dated February 8, 2017. 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 those changes satisfy the provisions set forth in 10 CFR 50.48(a) and 10 CFR 50.48(c), the change does not require a change to a technical specification or a license condition, and the criteria listed below are satisfied.

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 315, which are attached hereto, are hereby incorporated into this renewed operating license. Duke Energy Carolinas, LLC shall operate the facility in accordance with the Technical Specifications.

(3) Updated Final Safety Analysis Report

The Updated Final Safety Analysis Report supplement submitted pursuant to 10 CFR 54.21(d), as revised on December 16, 2002, describes certain future activities to be completed before the period of extended operation. Duke shall complete these activities no later than December 6, 2024, and shall notify the NRC in writing when implementation of these activities is complete and can be verified by NRC inspection.

The Updated Final Safety Analysis Report supplement as revised on December 16, 2002, described above, shall be included in the next scheduled update to the Updated Final Safety Analysis Report required by 10 CFR 50.71 (e)(4), following issuance of this renewed operating license. Until that update is complete, Duke may make changes to the programs described in such supplement without prior Commission approval, provided that Duke evaluates each such change pursuant to the criteria set forth in 10 CFR 50.59 and otherwise complies with the requirements in that section.

(4) Antitrust Conditions

Duke Energy Carolinas, LLC shall comply with the antitrust conditions delineated in Appendix C to this renewed operating license.

(5) Fire Protection Program

Duke Energy Carolinas, LLC shall implement and maintain in effect all provisions of the approved fire protection program that complies with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the licensee amendment request dated September 25, 2013; as supplemented by letters dated January 13, 2015; January 28, 2015; February 27, 2015; March 30, 2015; April 28, 2015; July 15, 2015; August 14, 2015; September 3, 2015; December 11, 2015; January 7, 2016; March 23, 2016; June 15, 2016; August 2, 2016; September 7, 2016; and, January 26, 2017, as approved in the SE dated February 8, 2017. 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 those changes satisfy the provisions set forth in 10 CFR 50.48(a) and 10 CFR 50.48(c), the change does not require a change to a technical specification or a license condition, and the criteria listed below are satisfied.

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|--|---|--|
| <p>D. Two CRACWS trains inoperable.</p> | <p>D.1 Implement mitigating actions.</p> <p><u>AND</u></p> <p>D.2 Verify control room temperature $\leq 80^{\circ}\text{F}$.</p> <p><u>AND</u></p> <p>D.3 Restore one CRACWS train to OPERABLE status.</p> | <p>Immediately</p> <p>Immediately and once per hour thereafter</p> <p>24 hours</p> |
| <p>E. Required Action and associated Completion Time of Condition D not met in MODE 1, 2, 3, or 4.</p> | <p>E.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>E.2 Be in MODE 5.</p> | <p>6 hours</p> <p>36 hours</p> |
| <p>F. Required Action and associated Completion Time of Condition D not met in MODE 5 or 6, or during movement of recently irradiated fuel assemblies.</p> | <p>F.1 Suspend movement of recently irradiated fuel assemblies.</p> | <p>Immediately</p> |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | FREQUENCY |
|---|--|
| <p>SR 3.7.11.1 Verify the control room temperature is $\leq 90^{\circ}\text{F}$.</p> | <p>In accordance with the Surveillance Frequency Control Program</p> |



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

AMENDMENT NO. 319 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-35

AND

AMENDMENT NO. 315 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-52

DUKE ENERGY CAROLINAS, LLC

CATAWBA NUCLEAR STATION, UNITS 1 AND 2

DOCKET NOS. 50-413 AND 50-414

1.0 INTRODUCTION

By application dated June 19, 2023 (Agencywide Documents Access and Management System Accession No. ML23170A015), as supplemented by letter dated October 26, 2023 (ML23299A041), Duke Energy Carolinas, LLC (Duke Energy or the licensee) requested changes to the Technical Specifications (TSs) for Catawba Nuclear Station, Units 1 and 2 (Catawba, Units 1 and 2). The proposed changes would revise (TS) limiting condition for operation (LCO) 3.7.11, "Control Room Area Chilled Water System (CRACWS)," to allow a completion time (CT) of 24 hours to restore one of the two CRACWS trains to operable status, provided mitigating actions ensure the control room temperature is controlled, rather than require immediate entry into TS LCO 3.0.3 and commencing a plant shutdown within 1 hour. Instead of the TS LCO 3.0.3 requirement to commence shutdown of the operating units within 1 hour and placing the units in Cold Shutdown (Mode 5) within 37 hours, a period of 24 hours would be allowed to restore one of the two inoperable control room chilled water system trains to an operable status.

The supplement dated October 26, 2023, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the Nuclear Regulatory Commission (NRC or the Commission) staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on August 8, 2023 (88 FR 53537).

2.0 REGULATORY EVALUATION

2.1 System Description

Catawba, Units 1 and 2, are Westinghouse design 4-loop pressurized water reactors within ice condenser primary containments. Both units share a common control room with a common ventilation system, which consists of five subsystems including CRACWS. CRACWS consists of two 100 percent capacity water chillers, pumps, piping, and control systems.

In Section 2.1. "*Control Room Area Chilled Water System Design and Operation*," of its letter dated June 19, 2023, the licensee provided the following description:

The CRACWS provides air temperature control for the Control Room, Control Room Area (CRA), and Switchgear Rooms. The CRA consists predominately of the Vital Battery and Equipment Rooms, Motor Control Center (MCC) rooms, and Cable Rooms. The Switchgear Rooms contain the essential switchgear. The design basis of the CRACWS is to maintain the Control Room temperature for 30 days of continuous occupancy. Temperature maintenance in the CRA and Switchgear Room is not required for operability of the CRACWS trains and is not governed by the CRACWS TS.

The CRACWS consists of two independent and redundant trains. Each train consists of a chiller package, chilled water pump, air handling units with cooling coils, instrumentation, and controls.

The CRACWS is an emergency system, which also operates during normal unit operations. A single train will provide the required temperature control to maintain the Control Room at 74°F during normal operation.

The CRACWS components are arranged in redundant, safety-related trains. During emergency operation, the CRACWS maintains the Control Room temperature between 72°F and 85°F. A single active failure of a component of the CRACWS, with a loss of offsite power, does not impair the ability of the system to perform its design function. Redundant detectors and controls are provided for Control Room temperature control. The CRACWS is designed in accordance with Seismic Category I requirements. The CRACWS is capable of removing sensible and latent heat loads from the Control Room, which include consideration of equipment heat loads and personnel occupancy requirements, to ensure equipment operability. The CRACWS is shared between the two units. The system must be operable for each unit when that unit is in the Mode of Applicability.

The Catawba CRACWS is described in Catawba UFSAR [Updated Final Safety Analysis Report], Section 9.4 (Package No. ML23114A245)].

2.2 Licensee's Proposed Changes

The proposed changes to TS 3.7.11 would alter the CT for the required action (RA) if both CRACWS trains are inoperable. Instead of immediately entering TS LCO 3.0.3 action of commencing shutdown of the operating units within 1 hour and placing the units in Cold Shutdown within 37 hours, the licensee would have 24 hours to restore operability of one of the

CRACWS trains before having to commence a Mode transition in accordance with LCO 3.0.3. In its submittal, the licensee would immediately begin monitoring control room temperature at least once per hour to verify temperature $\leq 80^{\circ}\text{F}$ and initiating mitigating actions. TS Surveillance Requirement (SR) 3.7.11.1 requires verification of control room temperature $\leq 90^{\circ}\text{F}$; thus, additional margin to the operability threshold would be maintained. With the proposed TS change, if control room temperature exceeds 80°F prior to the 24 hours expiring, the operating units are required to be in MODE 3 in 6 hours and MODE 5 in 36 hours.

Current TS 3.7.11 Conditions D and E state:

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|--|--|-----------------|
| D. Two CRACWS trains inoperable in MODE 5 or 6, or during movement of recently irradiated fuel assemblies. | D.1 Suspend movement of recently irradiated fuel assemblies. | Immediately |
| E. Two CRACWS trains inoperable in MODE 1, 2, 3, or 4. | E.1 Enter LCO 3.0.3. | Immediately |

Revised TS 3.7.11 Conditions D and E and new Condition F would state:

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|--|
| D. Two CRACWS trains inoperable. | D.1 Implement mitigating actions. | Immediately |
| | <u>AND</u> | |
| | D.2 Verify control room temperature $\leq 80^{\circ}\text{F}$. | Immediately and once per hour thereafter |
| | <u>AND</u> | |
| | D.3 Restore one CRACWS train to OPERABLE status. | 24 hours |
| E. Required Action and associated Completion Time of Condition D not met in MODE 1, 2, 3, or 4. | E.1. Be in MODE 3. | 6 hours |
| | <u>AND</u> | |
| | E.2 Be in MODE 5. | 36 hours |

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|--|-----------------|
| F. Required Action and associated Completion Time of Condition D not met in MODE 5 or 6, or during movement of recently irradiated fuel assemblies. | F.1 Suspend movement of recently irradiated fuel assemblies. | Immediately |

2.3 Regulatory Requirements

Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.36, "Technical specifications" states that the TSs must include items in specific categories. These categories include: (1) safety limits and limiting safety system settings; (2) LCOs; (3) surveillance requirements (SRs); (4) design features; and (5) administrative controls. Section 50.36 states, in part, that when an LCO 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. Section 50.36 does not specify what actions are required or how quickly they must be completed.

Appendix A to 10 CFR 50 provides the General Design Criteria (GDC) for nuclear power plants. The following Criterion is related to this LAR.

Criterion 19 – Control room. A control room shall be provided from which actions can be taken to operate the nuclear power unit safely under normal conditions and to maintain it in a safe condition under accident conditions, including loss-of-coolant accidents. Adequate radiation protection shall be provided to permit access and occupancy of the control room under accident conditions without personnel receiving radiation exposures in excess of 5 rem whole body, or its equivalent to any part of the body, for the duration of the accident. Equipment at appropriate locations outside the control room shall be provided (1) with a design capability for prompt hot shutdown of the reactor, including necessary instrumentation and controls to maintain the unit in a safe condition during hot shutdown, and (2) with a potential capability for subsequent cold shutdown of the reactor through the use of suitable procedures.

3.0 TECHNICAL EVALUATION

3.1 Licensee's Evaluation

The licensee stated the reason for the request is "[t]he current TS require an immediate disruption of plant operations in the event both CRACWS trains become inoperable. Allowing for 24 hours to restore an inoperable CRACWS train to operable status minimizes the potential safety consequences and operational risks associated with the disruption of plant operations." The licensee referenced three industry events from the last 14 years where both trains of control room cooling were inoperable, including an event at Catawba that resulted in a Notice of Enforcement Discretion (NOED) granted by the NRC (ML113560359). The licensee stated that the justification for granting this NOED allowing 24 hours for restoration of one train of control room cooling was based on a qualitative risk assessment and implementing compensatory measures.

The licensee proposed three new Required Actions (D1, D2, and D3) for a new Condition D “Two CRACWS trains inoperable.”

The new proposed Required Action D.1 states, “Implement mitigating actions” with a Completion Time of “Immediately.” The licensee provided proposed TS Bases include a listing of mitigating actions to ensure the control room area temperature is being maintained low enough that equipment in the control room is not adversely affected and habitability is maintained. The licensee included the following examples of mitigating actions in the proposed TS Bases, “... use of the Computer Room Chilled Water (YJ) system tie-in to the Control Room Air Handling Units, opening cabinet doors, use of fans, use of ice vests, use of alternate (i.e., non-safety-related) ventilation systems, or opening control room doors or ventilation paths.”

Regarding the mitigating actions, the licensee further stated, in part, that:

As part of the design change process, any mitigating actions used to satisfy this Required Action will be evaluated and proceduralized prior to use. Design analyses will show that the mitigating actions have sufficient capability to maintain control room temperature.

The intended mitigating action is use of a non-safety chilled water source to supply chilled water to the CRACWS cooling coils. A plant modification has been initiated to supply chilled water from the Computer Room Chilled Water System (YJ) and will follow applicable processes and procedures, including a 50.59 review to evaluate any need for NRC review related to the plant modification and establishing appropriate procedures and training. As part of the plant modification, an evaluation will be done to ensure the capability of the YJ system.

The new proposed Required Action D.2 states, “Verify control room temperature $\leq 80^{\circ}\text{F}$ ” with a Completion Time, “Immediately and once per hour thereafter.”

The licensee stated:

The purpose of the Required Action is to ensure the control room temperature is being controlled. If it cannot be verified that the control room temperature is less than or equal to 80°F , subsequent actions are required based upon the mode of operation. The specified temperature limit of 80°F is slightly above the normal operating temperature range of the control room (74°F), providing operational flexibility when implementing the mitigating actions. This temperature does not impact the operability of equipment or habitability of the control room. The limit of 80°F maintains margin below the TS limit for the control room of 90°F , specified in Surveillance Requirement 3.7.11.1. The “Control Room High Temperature” Abnormal Procedure directs operators to immediately shut down the affected unit if Control Room temperature exceeds 90°F . Additionally, the Bases for TS 3.7.11 state that, during emergency operation, the CRACWS maintains the temperature between 72 and 85°F . The specified temperature limit for the proposed change of 80 degrees when both CRACWS trains are inoperable is adequate given that it is below both the 85°F specified for emergency operation and the 90 degrees for which operators are directed to enact unit shutdown during Control Room High Temperature events. Thus, adequate margin to operational limits for control room equipment is maintained.

Subsequent to immediate control room temperature verification, the 1 hour frequency is adequate given the indications available in the control room and evaluation to be completed prior to use of the mitigating actions to maintain temperature. Control room temperature data is measured and displayed in the control room, and operators will have awareness of temperature trending relative to the 80°F limit. When Catawba is in this TS Action statement, operations personnel will place heightened attention on restoring a train of CRACWS to operable status and satisfying the other associated Required Actions to prevent a dual-unit shutdown.

The new proposed Required Action D.3 states, "Restore one CRACWS train to OPERABLE status," with CT of "24 hours."

The licensee stated:

A new Required Action D.3 states, "Restore one CRACWS train to OPERABLE status," with a Completion Time of 24 hours. The 24 hour Completion Time is considered adequate given the mitigating actions and the low probability of an accident that would require the CRACWS, provides a reasonable time to diagnose, plan, repair, and test most problems with the CRACWS, while minimizing the period of time that control room occupants might have to respond to an event while utilizing the mitigating actions. From the cited examples in section 2.4 above, 24 hours is sufficient time in most circumstances to restore at least one CRACWS train to operable status while minimizing the length of time in which the CRACWS is inoperable and potentially avoiding unnecessary impact to plant operations.

The licensee further justified the 24-hr CT proposal by comparing it to the Standard Technical Specifications for other plant designs. The licensee provided:

- NUREG-1432, "*Standard Technical Specifications Combustion Engineering Plants*" (ADAMS Accession No. ML21258A421), TS 3.7.12 provides 24 hours for restoration of one of two inoperable control room cooling trains. This allowance was approved and incorporated into the standard technical specifications for combustion engineering plants by the NRC on May 30, 2013, as TSTF-426, Revision 5, "*Revise or Add Actions to Preclude Entry into LCO 3.0.3 - RITSTF [Risk Informed Technical Specification Task Force] Initiatives 6b & 6c*" (78 FR 32476; ML113260461).
- NUREG-1433, "*Standard Technical Specifications General Electric BWR/4 Plants*," Revision 4 (ML21272A357), TS 3.7.5 provides 72 hours for restoration of one of two inoperable control room cooling subsystems.
- NUREG-1434, "*Standard Technical Specifications General Electric BWR/6 Plants*," Revision 4 (ML21271A582), TS 3.7.4 provides 7 days for restoration of one of two inoperable control room cooling subsystems.

In addition, the licensee referenced a precedent (ML18054B436) where the NRC approved a similar amendment that allowed 24 hours to return one train to operable, while requiring mitigating actions to keep the control room temperature less than or equal to 80 °F.

The new proposed Condition E states, "Required Action and associated Completion Time of Condition D not met in MODE 1, 2, 3, or 4."

The licensee stated:

Should the mitigating actions not be implemented, control room temperature not be maintained less than or equal to 80°F, or if one CRACWS train is not restored to operable status within 24 hours while in Modes 1, 2, 3, or 4, the unit must be in Mode 3 in 6 hours and Mode 5 in 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems. Currently LCO 3.0.3 must be entered immediately per current TS 3.7.11 Condition E. LCO 3.0.3 requires entry to MODE 3 within 7 hours and MODE 5 in 37 hours. The proposed Completion Times of 6 hours and 36 hours are within the current TS limits.

The new proposed Condition F states, "Required Action and associated Completion Time of Condition E not met in Mode 5 or 6, or during movement of recently irradiated fuel assemblies."

The licensee stated:

Should the mitigating actions not be implemented, control room temperature not be maintained less than or equal to 80°F, or if one CRACWS train is not restored to operable status within 24 hours while in Modes 5 or 6, or during movement of recently irradiated fuel assemblies, movement of recently irradiated fuel assemblies must be suspended immediately. The Required Action minimizes the potential for a radioactive release which might require control room isolation and subsequent cooling.

Regarding GDC 19 applicability, the licensee stated:

The proposed change has no effect on the design of the control room or on operator radiation dose, as that protection is provided by other systems required by the Technical Specifications. The proposed change also has no effect on alternate control locations outside of the control room. Therefore, the only aspect of GDC 19 applicable to the proposed change is the criterion to design the control room from which actions can be taken to operate the nuclear power unit safely under normal conditions and to maintain it in a safe condition under accident conditions, including loss-of-coolant accidents. The proposed change has no effect on the design of the control room and the proposed actions will ensure that the control room temperature is maintained such that the plant may be operated safely from the control room.

3.2 NRC Staff Evaluation

The NRC staff evaluated the information provided in the LAR and supplement to ensure the control room habitability is maintained per 10 CFR Part 50, Criterion 19, and in accordance 10 CFR Section 50.36, "*Technical specifications.*"

NRC Staff Evaluation of New Condition D

New Condition D. contains required actions for two CRACWS trains inoperable. New Required Action D.1 requires initiation of action to implement mitigating actions, Immediately. New Required Action D.2 requires verifying control room temperature is $\leq 80^{\circ}\text{F}$ Immediately and once per hour thereafter. New Required Action D.3 requires restoring one CRACWS train to operable status within 24 hours.

The licensee proposed a Required Action and Completion Time (D.1) to immediately implement mitigating actions. The NRC staff finds that implementing mitigating actions is reasonable to minimize control room temperatures and ensure control room temperatures do not exceed the 80°F control requirement. NRC staff acknowledges the licensee maintains the TS Bases under the licensee's TS Bases Control Program (TS 5.5.14). The NRC did not rely on the TS Bases in its review of the proposed change to TS 3.7.11 nor does the NRC approve TS Bases changes.

The licensee proposed a Required Action and Completion Time (D.2) to perform an immediate and hourly verification that control room temperature $\leq 80^{\circ}\text{F}$. UFSAR Section 9.4.1 defines the control room envelope and other support areas as designed to maintain approximately 74°F temperature. The specified temperature limit of 80°F is slightly above the normal operating temperature range of the control room (74°F). A temperature of 80°F does not impact the operability of equipment or habitability of the control room. The NRC staff finds that the proposed Required Action and Completion Time will ensure that control room temperature is maintained within the 90°F limit for proper equipment operation and habitability for control room personnel for the duration of the proposed new 24-hour CT. Therefore, NRC staff finds the required action and completion time D.2 acceptable.

The licensee proposed required action and completion time (D.3) to restore one CRACWS train to OPERABLE status within 24 hours. The NRC staff finds that the proposed 24-hour CT is consistent with precedent and industry experience that has shown a 24-hour CT provides a reasonable time to restore operability to at least one CRACWS train. The licensee compares the proposed 24-hour CT to the Completion Times approved in the Improved Standard Technical Specifications (STS) for other reactor designs. Although the referenced STS are not directly applicable to Catawba, the NRC finds the justification for approval in the STS would also apply to the Catawba proposed change because the control room cooling function is largely independent of the reactor designs.

The regulation 10 CFR 50.36 does not specify what actions are required or how quickly they must be completed. The NRC determined that the 24-hour CT of the proposed new Required Action D.3 is reasonable based on the determination that the mitigating actions of Required Action D.1 and the 80°F temperature limit of required action D.2 will ensure that control room temperature is maintained within the temperature limit for proper equipment operation and habitability for control room personnel while limiting the probability that control room temperatures would adversely affect the equipment or occupants' ability to control the reactor and maintain it in a safe shutdown condition, in the event of a design basis accident during the proposed 24-hour CT. The proposed 24-hour CT will also provide a reasonable time to restore at least one temperature control system train to operability. Based on the above, the NRC staff finds that the proposed changes would continue to meet 10 CFR 50.36.

Based on the above, the NRC staff finds the Required Action and Completion Time in D.3 are acceptable.

NRC Staff Evaluation of New Condition E

New Condition E contains the timeframes for plant shutdown (i.e., MODE 3 within 6 hours and MODE 5 within 36 hours) if proposed Condition D is not met. These completion times are consistent with the current shutdown requirements in TS 3.0.3 when an LCO is not met, and are, therefore, acceptable.

NRC Staff Evaluation of New Condition F

New Condition F requires the licensee to immediately suspend the movement of recently irradiated fuel assemblies if the Required Action and associated Completion Time for New Condition D are not met in Modes 5 and 6 or during movement of recently irradiated fuel assemblies. New Condition D allows up to 24 hours to restore one CRACWS train to operable status and requires that control room area temperature be maintained at or below 80°F and that mitigating actions be implemented. New Condition F is acceptable because of the low probability of an event occurring that would require control room isolation during the 24-hour Completion Time, along with mitigating actions which will be taken to maintain control room temperature at or below 80°F.

NRC Staff Evaluation of GDC 19

The control room and control room area ventilation system are designed to provide operators with a safe environment for monitoring and controlling plant systems either during normal plant operations or following any design basis accident. One of the design functions of the control room and CRAVS is to limit radiation doses of the control room operators following design basis accidents with postulated releases of radioactivity. The design of the control room and CRAVS conform to the requirements of GDC 19. The proposed change has no effect on the design of the control room.

The licensee stated that “The only accident previously evaluated in Modes 5 or 6 is a fuel handling accident.” The current Condition E in TS 3.7.10, “Control Room Area Ventilation system (CRAVS)” requires, in part, suspension of irradiated fuel assemblies “immediately” upon two CRAVS trains inoperable in MODE 5 or 6, or during movement of irradiated fuel assemblies. The LAR did not propose any changes to TS 3.7.10. Therefore, the current TS 3.7.10 continues to provide reasonable assurance that adequate radiation protection shall be provided to permit access and occupancy of the control room under accident conditions without personnel receiving radiation exposures in excess of 5 rem whole body, or its equivalent to any part of the body, for the duration of the accident,” will continue to be met.

Based on the above, the NRC staff finds because the proposed change has no effect on the design of the control room and the proposed actions will ensure that the control room temperature is maintained such that the plant may be operated safely from the control room. The NRC concludes that GDC 19 will continue to be met and the proposed change is, therefore, acceptable.

3.3 NRC Staff Conclusion

The NRC staff finds the proposed changes continue to meet 10 CFR 50.36 and Appendix A to 10 CFR Part 50, Criterion 19, “*Control room*,” regarding maintaining control room conditions so actions can be taken to operate the nuclear power unit safely under normal conditions and to maintain it in a safe condition under accident conditions.

The NRC staff concludes the proposed required actions and completion times provide reasonable assurance that control room habitability and proper equipment operation will be adequately maintained during the proposed 24-hour CT. Based on the above, the NRC staff concludes the proposed changes are acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the South Carolina State official was notified of the proposed issuance of the amendment on January 3, 2024. On January 9, 2024, the State official confirmed that the State of South Carolina had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change the requirements with respect to the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve 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 amendments involve no significant hazards consideration published in the *Federal Register* on August 8, 2023 (88 FR 53537), and there has been no public comment on such finding. Accordingly, the amendments meet 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 amendments.

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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

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Date: March 8, 2024

SUBJECT: CATAWBA NUCLEAR STATION, UNITS 1 AND 2 – ISSUANCE OF AMENDMENT NOS. 319 AND 315 TO TECHNICAL SPECIFICATION 3.7.11, “CONTROL ROOM AREA CHILL WATER SYSTEM (CRACWS)” (EPID L-2023-LLA-0093) DATED MARCH 8, 2024

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