



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

March 23, 2017

Mr. Ernest J. Kapopoulos, Jr.
Site Vice President
H. B. Robinson Steam Electric Plant
Duke Energy Progress, LLC
3581 West Entrance Road, RNPA01
Hartsville, SC 29550

SUBJECT: H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2 – ISSUANCE OF AMENDMENT REGARDING TECHNICAL SPECIFICATIONS TASK FORCE CHANGE TRAVELER TSTF-339, REVISION 2, “RELOCATE TS PARAMETERS TO THE COLR,” CONSISTENT WITH WCAP-14483-A (CAC NO. MF7615)

Dear Mr. Kapopoulos:

The U.S. Nuclear Regulatory Commission (NRC, the Commission) has issued the enclosed Amendment No. 250 to Renewed Facility Operating License No. DPR-23 for the H. B. Robinson Steam Electric Plant, Unit No. 2 (HBRSEP2). This amendment changes the HBRSEP2 Technical Specifications (TSs) in response to your application dated April 24, 2016, as supplemented by letters dated September 14, 2016, and March 8, 2017.

The amendment adopts Technical Specifications Task Force (TSTF) Change Traveler TSTF-339, Revision 2, “Relocate TS Parameters to COLR [Core Operation Limits Report],” consistent with NRC-approved Westinghouse topical report WCAP-14483-A, “Generic Methodology for Expanded Core Operating Limits Report,” and relocates reactor coolant system-related cycle-specific parameters and core safety limits from the TSs to the COLR.

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

Sincerely,

A handwritten signature in cursive script that reads "Dennis J. Galvin".

Dennis J. Galvin, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-261

Enclosures:

1. Amendment No. 250 to DPR-23
2. Safety Evaluation

cc: Listserv



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

DUKE ENERGY PROGRESS, LLC

DOCKET NO. 50-261

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 250
Renewed License No. DPR-23

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Duke Energy Progress, LLC (the licensee) (previously Duke Energy Progress, Inc.), dated April 24, 2016, as supplemented by letter dated September 14, 2016, and March 8, 2017, 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. Paragraph 3.B. of Renewed Facility Operating License No. DPR-23 is hereby amended to read as follows:

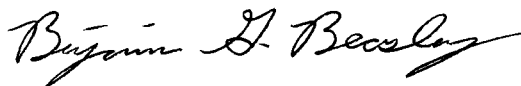
B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 250 are hereby incorporated in the license.

The licensee shall operate the facility in accordance with the Technical Specifications.

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

FOR THE NUCLEAR REGULATORY COMMISSION



Benjamin G. Beasley, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to Renewed Facility
Operating License No. DPR-23
and the Technical Specifications

Date of Issuance: March 23, 2017

ATTACHMENT TO LICENSE AMENDMENT NO. 250

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

RENEWED FACILITY OPERATING LICENSE NO. DPR-23

DOCKET NO. 50-261

Replace page 3 of Renewed Facility Operating License No. DPR-23 with the attached page 3.

Replace the following pages of 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.

Remove Pages

2.0-1
2.0-2
3.3-18
3.3-19
3.4-1
3.4-2
5.0-25

Insert Pages

2.0-1
2.0-2
3.3-18
3.3-19
3.4-1
3.4-2
5.0-25
5.0-25a

- D. Pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required any byproduct, source, or special nuclear material without restriction to chemical or physical form for sample analysis or instrument and equipment calibration or associated with radioactive apparatus or components;
 - E. Pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by operation of the facility.
3. This renewed license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations: 10 CFR Part 20, Section 30.34 of 10 CFR Part 30, Section 40.41 of 10 CFR Part 40, Section 50.54 and 50.59 of 10 CFR Part 50, and Section 70.32 of 10 CFR Part 70; and 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:
- A. Maximum Power Level

The licensee is authorized to operate the facility at a steady state reactor core power level not in excess of 2339 megawatts thermal.
 - B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 250 are hereby incorporated in the license.

The licensee shall operate the facility in accordance with the Technical Specifications.

 - (1) For Surveillance Requirements (SRs) that are new in Amendment 176 to Final Operating License DPR-23, the first performance is due at the end of the first surveillance interval that begins at implementation of Amendment 176. For SRs that existed prior to Amendment 176, including SRs with modified acceptance criteria and SRs whose frequency of performance is being extended, the first performance is due at the end of the first surveillance interval that begins on the date the Surveillance was last performed prior to implementation of Amendment 176.

2.0 SAFETY LIMITS (SLs)

2.1 SLs

2.1.1 Reactor Core SLs

In MODES 1 and 2, the combination of THERMAL POWER, Reactor Coolant System (RCS) highest cold leg temperature, and pressurizer pressure shall not exceed the limits specified in the COLR; and the following SLs shall not be exceeded:

2.1.1.1 The departure from nucleate boiling ratio (DNBR) shall be maintained ≥ 1.141 for the HTP correlation and ≥ 1.17 for the XNB correlation.

2.1.1.2 The peak fuel centerline temperature shall be maintained $< [(2790 - 17.9 \times P - 3.2 \times B) \times 1.8 + 32]$ °F where P is the maximum weight percent of Gadolinia (%) and B is the maximum pin burnup (GWD/MTU).

2.1.2 RCS Pressure SL

In MODES 1, 2, 3, 4, and 5, the RCS pressure shall be maintained ≤ 2735 psig.

2.2 SL Violations

2.2.1 If SL 2.1.1 is violated, restore compliance and be in MODE 3 within 1 hour.

2.2.2 If SL 2.1.2 is violated:

2.2.2.1 In MODE 1 or 2, restore compliance and be in MODE 3 within 1 hour.

2.2.2.2 In MODE 3, 4, or 5, restore compliance within 5 minutes.

DELETED
Figure 2.1.1-1



Table 3.3.1-1 (page 6 of 7)
Reactor Protection System Instrumentation

Note 1: Overtemperature ΔT

The Overtemperature ΔT Function Allowable Value shall not exceed the following Nominal Trip Setpoint by more than 2.96% of ΔT span.

$$\Delta T_{\text{setpoint}} \leq \Delta T_0 \{ K_1 - K_2 [(1 + \tau_1 S) / (1 + \tau_2 S)] (T - T') + K_3(P - P') - f(\Delta I) \}$$

Where: ΔT_0 is the indicated ΔT at RTP, °F.
 s is the Laplace transform operator, sec⁻¹.
 T is the measured RCS average temperature, °F.
 T' is the reference T_{avg} at RTP, $\leq [*]^\circ\text{F}$.

P is the measured pressurizer pressure, psig
 P' is the nominal RCS operating pressure, $\geq [*]$ psig

$$K_1 \leq [*] \quad K_2 = [*]/^\circ\text{F} \quad K_3 = [*]/\text{psig}$$

$$\tau_1 \geq [*] \text{ sec} \quad \tau_2 \leq [*] \text{ sec}$$

$$f(\Delta I) = \begin{cases} [*] \{ (q_b - q_t) - [*] \} & \text{when } q_t - q_b < - [*] \text{ RTP} \\ 0\% \text{ of RTP} & \text{when } - [*] \text{ RTP} \leq q_t - q_b \leq [*] \text{ RTP} \\ [*] \{ (q_t - q_b) - [*] \} & \text{when } q_t - q_b > [*] \text{ RTP} \end{cases}$$

Where q_t and q_b are percent RTP in the upper and lower halves of the core, respectively, and $q_t + q_b$ is the total THERMAL POWER in percent RTP.

The values denoted with [*] are specified in the COLR.

Table 3.3.1-1 (page 7 of 7)
Reactor Protection System Instrumentation

Note 2: Overpower ΔT

The Overpower ΔT Function Allowable Value shall not exceed the following Nominal Trip Setpoint by more than 3.17% of ΔT span.

$$\Delta T_{setpoint} \leq \Delta T_0 \{ K_4 - K_5 [\tau_3 S / (1 + \tau_3 S)] T - K_6 (T - T') - f(\Delta I) \}$$

Where: ΔT_0 is the indicated ΔT at RTP, °F.
 s is the Laplace transform operator, sec^{-1} .
 T is the measured RCS average temperature, °F.
 T' is the reference T_{avg} at RTP, $\leq [*]$ °F.

$$K_4 \leq [*] \quad K_5 \geq [*] / ^\circ\text{F} \text{ for increasing } T_{avg} \\ [*] / ^\circ\text{F} \text{ for decreasing } T_{avg} \quad K_6 \geq [*] / ^\circ\text{F} \text{ when } T > T' \\ [*] / ^\circ\text{F} \text{ when } T \leq T' \\ \tau_3 \geq [*] \text{ sec}$$

$$f(\Delta I) = \begin{matrix} [*] \{ (q_b - q_t) - [*] \} & \text{when } q_t - q_b < - [*] \text{ RTP} \\ 0\% \text{ of RTP} & \text{when } - [*] \text{ RTP} \leq q_t - q_b \leq [*] \text{ RTP} \\ [*] \{ (q_t - q_b) - [*] \} & \text{when } q_t - q_b > [*] \text{ RTP} \end{matrix}$$

Where q_t and q_b are percent RTP in the upper and lower halves of the core, respectively, and $q_t + q_b$ is the total THERMAL POWER in percent RTP.

The values denoted with [*] are specified in the COLR.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.1 RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits

LCO 3.4.1 RCS DNB parameters for pressurizer pressure, RCS average temperature, and RCS total flow rate shall be within the limits specified below:

- a. Pressurizer pressure is greater than or equal to the limit specified in the COLR;
- b. RCS average temperature is less than or equal to the limit specified in the COLR; and
- c. RCS total flow rate $\geq 97.3 \times 10^6$ lbm/hr and greater than or equal to the limit specified in the COLR.

APPLICABILITY: MODE 1.

-----NOTE-----

Pressurizer pressure limit does not apply during:

- a. THERMAL POWER ramp > 5% RTP per minute; or
 - b. THERMAL POWER step > 10% RTP.
-

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more RCS DNB parameters not within limits.	A.1 Restore RCS DNB parameter(s) to within limit.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 2.	6 hours

RCS Pressure, Temperature, and Flow DNB Limits
3.4.1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.1.1	Verify pressurizer pressure is greater than or equal to the limit specified in the COLR.	12 hours
SR 3.4.1.2	Verify RCS average temperature is less than or equal to the limit specified in the COLR.	12 hours
SR 3.4.1.3	Verify RCS total flow rate is $\geq 97.3 \times 10^6$ lbm/hr and greater than or equal to the limit specified in the COLR.	12 hours
SR 3.4.1.4	<p style="text-align: center;">-----NOTE-----</p> <p>Not required to be performed until 24 hours after $\geq 90\%$ RTP.</p> <p>-----</p> <p>Verify by precision heat balance that RCS total flow rate is $\geq 97.3 \times 10^6$ lbm/hr and greater than or equal to the limit specified in the COLR.</p>	18 months

5.6 Reporting Requirements (continued)

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

7. Axial Flux Difference (AFD) limits for Specification 3.2.3;
 8. Boron Concentration limit for Specification 3.9.1;
 9. Reactor Core Safety Limits Figure for Specification 2.1.1;
 10. Overtemperature ΔT and Overpower ΔT setpoint parameter values for Specification 3.3.1; and
 11. Reactor Coolant System pressure, temperature and flow Departure from Nucleate Boiling (DNB) limits for Specification 3.4.1.
- b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC. The approved version shall be identified in the COLR. These methods are those specifically described in the following documents:
1. Deleted
 2. XN-NF-84-73(P), "Exxon Nuclear Methodology for Pressurized Water Reactors: Analysis of Chapter 15 Events," approved version as specified in the COLR.
 3. XN-NF-82-21(A), "Application of Exxon Nuclear Company PWR Thermal Margin Methodology to Mixed Core Configurations," approved version as specified in the COLR.
 4. Deleted
 5. XN-75-32(A), "Computational Procedure for Evaluating Rod Bow," approved version as specified in the COLR.
 6. Deleted
 7. Deleted
 8. XN-NF-78-44(A), "Generic Control Rod Ejection Analysis," approved version as specified in the COLR.
 9. XN-NF-621(A), "XNB Critical Heat Flux Correlation," approved version as specified in the COLR.
 10. Deleted

(continued)

5.0 ADMINISTRATIVE CONTROLS

5.6 Reporting Requirements (continued)

11. XN-NF-82-06(A), "Qualification of Exxon Nuclear Fuel for Extended Burnup," approved version as specified in the COLR.
12. Deleted
13. Deleted

(continued)



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 250 TO

RENEWED FACILITY OPERATING LICENSE NO. DPR-23

DUKE ENERGY PROGRESS, LLC

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

DOCKET NO. 50-261

1.0 INTRODUCTION

By application dated April 24, 2016, as supplemented by letters dated September 14, 2016, and March 8, 2017,¹ Duke Energy Progress, LLC (DEP), the licensee (previously operating as Duke Energy Progress, Inc.) submitted a license amendment request (LAR) for H. B. Robinson Steam Electric Plant, Unit No. 2 (HBRSEP2). The LAR proposed to adopt Technical Specifications Task Force (TSTF) Change Traveler TSTF-339, Revision 2, "Relocate TS [Technical Specification] Parameters to COLR [Core Operating Limits Report]," dated May 26, 2000,² consistent with U.S. Nuclear Regulatory Commission (NRC)-approved Westinghouse topical report WCAP-14483-A, "Generic Methodology for Expanding Core Operating Limits Report," dated January 19, 1999.³ Based on TSTF-339, Revision 2, the LAR proposed to relocate reactor coolant system (RCS)-related cycle-specific parameters and core safety limits from the TSs to the COLR.

The supplemental letters dated September 14, 2016, and March 8, 2017, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the NRC staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on July 5, 2016 (81 FR 43651).

The NRC staff evaluated the application to determine whether the proposed changes are in accordance with TSTF-339, Revision 2, and WCAP-14483-A. WCAP-14483-A is the NRC-approved methodology describing how cycle-specific parameters may be relocated to the COLR, and the basis for the TSTF-339, Revision 2, approval.

¹ Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML16116A033, ML16258A292, and ML17068A167, respectively.

² ADAMS Accession No. ML003723269.

³ ADAMS Accession No. ML020430092.

2.0 REGULATORY EVALUATION

2.1 Background

Guidance on the relocation of cycle-specific TS parameters to the COLR is provided to all power reactor licensees and applicants in NRC Generic Letter (GL) 88-16, "Removal of Cycle-Specific Parameter Limits from Technical Specifications," dated October 4, 1988.⁴ In the GL, the NRC staff stated that license amendments are generally required every refueling outage to update the cycle-specific parameter limits in the TSs; however, there are methodologies developed for the licensee to determine these cycle-specific parameters that have been reviewed and approved by the staff. As a consequence, the NRC staff review of proposed changes to the TSs to update these parameter limits is primarily limited to the confirmation that the updated limits were calculated by the approved methodology and consistent with the appropriate plant-specific safety analysis. The COLR was created to place the NRC-approved methodologies in the TSs and allow licensees to update the cycle-specific parameters using the approved methodologies without requiring a change to the TSs.

The NRC staff has approved WCAP-14483-A as an acceptable method to relocate certain TS requirements to the COLR consistent with GL 88-16. WCAP-14483-A addresses the relocation of the (1) reactor core safety limits figure (with corresponding revision to the safety limits), (2) overtemperature ΔT (OTDT) and overpower ΔT (OPDT) setpoint parameter values, and (3) departure from nucleate boiling (DNB) parameter limits for reactor trip instrumentation in the TSs to the COLR. The NRC staff's safety evaluation for WCAP-14483-A (and incorporated into WCAP-14483-A) had no conditions specified on the use of WCAP-14483-A.

In TSTF-339, Revision 2, the NRC staff approved the incorporation of the TS changes identified in WCAP-14483-A into NUREG-1431. These changes were incorporated into NUREG-1431, Volume 1, Revision 2, "Standard Technical Specifications, Westinghouse Plants," June 2001.⁵ The HBRSEP2 TSs are improved Standard Technical Specifications (STS) based on NUREG-1431, Volume 1, Revision 1, April 1995.⁶

2.2 Proposed Changes

The LAR proposes to make the three changes to the TSs described in TSTF-339, Revision 2, and WCAP-14483-A.

1. Relocate TS Figure 2.1.1-1, "Reactor Core Safety Limits," to the COLR and replace it in TS 2.1.1, "Reactor Core SLs," with more specific requirements regarding the safety limits conforming to WCAP-14483-A.
2. Revise TS Table 3.3.1-1, "Reactor Protection System Instrumentation," by relocating numerical values pertaining to Overtemperature ΔT and Overpower ΔT , nominal RCS operating pressure, nominal average temperature (T_{avg}), time constants (τ), and constant (K) values to the COLR.
3. Revise the limiting condition for operation (LCO) and surveillance requirements (SRs) in TS 3.4.1, "RCS Pressure, Temperature, and Flow Departure from

⁴ ADAMS Accession No. ML031130447.

⁵ ADAMS Accession No. ML011840223.

⁶ ADAMS Accession No. ML13196A405.

Nucleate Boiling (DNB) Limits,” by relocating the pressurizer pressure, RCS average temperature, and RCS total flow rate values to the COLR.

In addition, the LAR proposes to modify TS 5.6.5, “Core Operating Limits Report (COLR),” item a, to reflect the proposed relocations discussed above to the COLR.

2.3 Applicable Regulatory Requirements

Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.36, “Technical specifications,” details the content and information that must be included in a station’s TSs. In accordance with 10 CFR 50.36, TSs are required to include (1) safety limits, limiting safety system settings, and limiting control settings; (2) LCOs; (3) SRs; (4) design features; and (5) administrative controls. As described in 10 CFR 50.36(c)(2), LCOs are the lowest functional capability or performance levels of equipment required for safe operation of the facility. When an LCO is not met, the licensee shall shut down the reactor or follow any remedial action permitted by TSs until the condition can be met. As described in 10 CFR 50.36(c)(3), 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.

HBRSEP2 received its construction permit in 1967 and was licensed for operation in July 1970. On July 11, 1967, the Atomic Energy Commission published for public comment in the *Federal Register* (32 FR 10213), a revised and expanded set of 70 draft GDC (hereinafter referred to as the “draft GDC”). On February 20, 1971, the Atomic Energy Commission published in the *Federal Register* (36 FR 3255) a final rule that added Appendix A to 10 CFR Part 50, “General Design Criteria for Nuclear Power Plants” (hereinafter referred to as the “final GDC”). Differences between the draft GDC and final GDC included a consolidation from 70 to 64 criteria. As discussed in the NRC Staff Requirements Memorandum for SECY-92-223, “Resolution of Deviations Identified during the Systematic Evaluation Program,” dated September 18, 1992,⁷ the Commission decided not to apply the final GDC to plants with construction permits issued prior to May 21, 1971. At the time of promulgation of Appendix A to 10 CFR Part 50, the Commission stressed that the final GDC were not new requirements and were promulgated to more clearly articulate the licensing requirements and practice in effect at that time. Each plant licensed before the final GDC were formally adopted was evaluated on a plant-specific basis, determined to be safe, and licensed by the Commission.

Based on a review of the HBRSEP2 Updated Final Safety Analysis Report (UFSAR), Section 3.1, “Conformance with General Design Criteria,” and the licensee’s application, the NRC staff identified the following draft GDC as being applicable to the proposed amendment:

The HBRSEP2 UFSAR Section 3.1.2.9, “Reactor Coolant Pressure Boundary,” states, in part, that:

The reactor coolant pressure boundary (RCPB) shall be designed, fabricated, and constructed so as to have an exceedingly low probability of gross rupture or significant uncontrolled leakage throughout its design lifetime. (GDC 9)

⁷ ADAMS Accession No. ML003763736.

The HBRSEP2 UFSAR Section 3.1.2.12, "Instrumentation and Control Systems," states, in part, that:

Instrumentation and controls shall be provided as required to monitor and maintain within prescribed operating ranges for the essential reactor facility operating variables. (GDC 12)

3.0 TECHNICAL EVALUATION

3.1 Summary of Technical Information Provided by Licensee

The licensee's requested changes are based upon the NRC-approved TSTF-339, Revision 2, and WCAP-14483-A. Previously approved RCS minimum total flow rates are retained in the TS to preclude the use of lower flow rates without prior NRC approval.

The LCO and surveillance values in TS 3.4.1 for RCS pressure and temperature do not currently account for instrument uncertainty and are thus non-conservative. The LCO and surveillance values for RCS flow, however, do account for instrument uncertainty. As a result, DEP has previously implemented administrative controls, in accordance with guidance set forth in NRC Administrative Letter 98-10, "Dispositioning of Technical Specifications That Are Insufficient to Assure Plant Safety," dated December 29, 1998,⁸ to utilize conservative limits for RCS pressure and temperature that adequately account for instrument uncertainty. DEP proposes to incorporate RCS pressure and temperature LCO and surveillance values that account for instrument uncertainty into the COLR as part of the implementation of the proposed amendment.

3.2 NRC Staff Evaluation

The NRC staff reviewed the requested changes in the proposed amendment in relation to NRC-approved TSTF-339, Revision 2, and WCAP-14483-A.

3.2.1 Revise TS 2.1.1 and Relocate TS Figure 2.1.1-1

The licensee proposed to relocate TS Figure 2.1.1-1, "Reactor Core Safety Limits," to the COLR and replace it in TS 2.1.1 with safety limits for the DNB limit and the fuel centerline melting limit consistent with TSTF-339, Revision 2, and WCAP-14483-A. TSTF-339, Revision 2, includes bracketed information for plant-specific correlations for the DNB limit and the fuel centerline melting limit. The NRC staff confirmed that the license included correlations applicable to HBRSEP2 in the revised safety limits. Therefore the NRC staff concludes that the relocation of TS Figure 2.1.1-1 to the COLR is acceptable.

3.2.2 Revise TS Table 3.3.1-1

The licensee proposed to revise TS Table 3.3.1-1, "Reactor Protection System Instrumentation," by relocating numerical values pertaining to OTDT and OPDT, nominal RCS operating pressure, nominal T_{avg} , time constants (τ), and constant (K) values to the COLR. In response to the NRC staff's request for additional information (RAI) dated August 11, 2016,⁹ the licensee submitted a supplement dated September 14, 2016. In RAI-3, the NRC staff noted that the

⁸ ADAMS Accession No. ML031110108.

⁹ ADAMS Accession No. ML16228A001.

HBRSEP2 TS OTDT and OPDT equations differ from those in TSTF-339, Revision 2, and WCAP-14483-A and thus have somewhat different OTDT and OPDT TS parameters. Thus the sample COLR revision in WCAP-14483-A, Appendix B is not fully applicable to the proposed HBRSEP2 TS change. In addition, the licensee did not specify how the changes would appear in the proposed COLR. Therefore, the NRC staff requested that the licensee provide pages of the proposed COLR showing changes resulting from the LAR.

In its RAI response, the licensee provided pages that would be added to the COLR, noting that the pages may be renumbered and reformatted when the final COLR is produced. The NRC staff confirmed the numerical values in TS Table 3.3.1-1 that the licensee is proposing to relocate are comparable to those in TSTF-339, Revision 2, and WCAP-14483-A. Therefore, the NRC staff concludes that the revision to TS Table 3.3.1-1 is acceptable.

3.2.3 Revise TS 3.4.1

The licensee proposed to revise TS 3.4.1, "RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits," by relocating the pressurizer pressure, RCS average temperature, and RCS total flow rate values to the COLR. The NRC staff reviewed the proposed changes to TS 3.4.1 and confirmed that the licensee followed the guidance set forth in TSTF-339, Revision 2, for relocating RCS-related cycle-specific parameters and core safety limits from the TS to the COLR.

The licensee's supplement dated September 14, 2016, regarding TS 3.4.1, addressed the new relocated values for pressurizer pressure, RCS average temperature, and RCS total flow rate and the implementation of administrative controls for plant surveillance SRs 3.4.1.1 and 3.4.1.2 related to instrument uncertainty.

In RAI-1, the NRC staff requested that the licensee provide a discussion of the uncertainty values and their magnitudes for RCS pressure and temperature limits in TS 3.4.1. In its response, the licensee stated that the uncertainty associated with the average pressurizer pressure and RCS T_{avg} is dependent on the indicator used, main control board meter or plant computer indication, and the number of operable channels used, two or three operable channels, in the average. These uncertainties include the consideration of the uncertainty of all of the components included in the instrument loop that provides the indication. The licensee further stated that the uncertainties on the average pressurizer pressure and average RCS T_{avg} reflect the uncertainties currently being used and may be revised in the future based on instrumentation replacements or calibration intervals. Any future changes in uncertainties will be appropriately factored into the pressurizer pressure and RCS T_{avg} limits in the COLR to ensure that the values used in the safety analyses remain bounding.

The NRC staff has determined that the uncertainties provided by the licensee related to average pressurizer pressure and average RCS T_{avg} ensures that conservatism is preserved. Additionally, the conservatism is preserved with the uncertainty of all components for the instrument loop being accounted for, and revisions based on future changes if necessary. Therefore, based on appropriate consideration of uncertainty for RCS pressure and temperature limits in the COLR, RAI-1 is resolved.

The licensee stated in the LAR that the LCO and SR values in TS 3.4.1 for RCS pressure and temperature do not currently account for instrument uncertainty and are therefore non-conservative. In accordance with the guidance in NRC Administrative Letter 98-10, the licensee implemented administrative limits for RCS pressure and temperature that account for

instrument uncertainty. The licensee further stated that it intends to incorporate RCS pressure and temperature LCO and SR values into the COLR that account for instrument uncertainty, as part of the implementation of the proposed amendment.

In RAI-2, the NRC staff requested that the licensee confirm if reanalysis of the UFSAR Chapter 15 safety analyses was performed or if the current analysis remains bounding to support the new values (that account for instrument uncertainty) for RCS pressure and temperature that are being relocated to the COLR. In its RAI response, the licensee stated that the Chapter 15 UFSAR analyses were rerun using the approved methods in TS 5.6.5 to support a lower RCS pressure that allows for additional operating margin and accounts for the instrumentation uncertainty. Additionally the licensee stated that the RCS temperature, currently supported by the Chapter 15 UFSAR analyses, which are based on the approved methods in TS 5.6.5, accounts for instrumentation uncertainty and no rerun for the RCS temperature was necessary. The licensee stated that the intent is to utilize the new analysis value for the RCS pressure and the current analysis value for RCS temperature in the COLR.

Based on its review, the NRC staff finds the use of the COLR to account for the instrument uncertainty in the RCS pressure and temperature LCO and surveillance values is consistent with the guidance in NUREG-1431, Revision 4, dated April 2012.¹⁰ In addition, the NRC staff finds that the licensee is determining these LCO and SR values appropriately by using an NRC approved methodology, listed in TS 5.6.5, which accounts for instrumentation uncertainty in the analysis. Since these COLR parameters were determined using TS 5.6.5 methodology and account for the instrumentation uncertainty, the new implemented COLR limits will meet 10 CFR 50.36(b) requirement that the TS will be derived from the analyses and evaluations included in the safety analysis report. Therefore, the RAI response is acceptable and RAI-2 is resolved. Based on the foregoing, the NRC staff concludes that the revision to TS 3.4.1 is acceptable.

3.2.4 Revise TS 5.6.5.a

The licensee proposed to revise TS 5.6.5, "Core Operating Limits Report (COLR)," item a, to add the following three core operating limits being added to the COLR.

9. Reactor Core Safety Limits Figure for Specification 2.1.1;
10. Overtemperature ΔT and Overpower ΔT setpoint parameter values for Specification 3.3.1; and
11. Reactor Coolant System pressure, temperature and flow Departure from Nuclear Boiling (DNB) limits for Specification 3.4.1.

The NRC staff confirmed that the proposed changes reflect the three core operating limits being added to the COLR and are consistent with the format of the HBRSEP2 TS. Therefore, the NRC staff concludes that the revision to TS 5.6.5.a is acceptable.

3.3 Summary and Conclusion

The NRC staff evaluated the licensee's proposed changes to relocate RCS-related cycle-specific parameters and core safety limits from the TS to the COLR. The NRC staff

¹⁰ Volume 1 ADAMS Accession No. ML12100A222, Volume 2 ADAMS Accession No. ML12100A228.

determined that the proposed changes are in accordance with TSTF-339, Revision 2, WCAP-14483-A, 10 CFR 50.36, and draft GDCs 9 and 12. Additionally, the licensee's supplemental letter dated September 14, 2016, adequately addressed the NRC staff's RAIs in order to complete its review. Based on the considerations discussed above, the NRC staff concludes that the proposed revisions to HBRSEP2 TS via relocation to the COLR are acceptable and the requirements of 10 CFR 50.36 will continue to be met.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the State of South Carolina official was notified of the proposed issuance of the amendment on March 9, 2017. 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 and changes SRs. 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 July 5, 2016 (81 FR 43651). 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.

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Date: March 23, 2017.

SUBJECT: H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2 – ISSUANCE OF AMENDMENT REGARDING TECHNICAL SPECIFICATIONS TASK FORCE CHANGE TRAVELER TSTF-339, REVISION 2, “RELOCATE TS PARAMETERS TO THE COLR,” CONSISTENT WITH WCAP-14483-A (CAC NO. MF7615) DATED MARCH 23, 2017.

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