

Serial: RNP-RA/12-0009

MAR 16 2012

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/RENEWED LICENSE NO. DPR-23

**REQUEST FOR TECHNICAL SPECIFICATIONS CHANGE REGARDING CORRECTIONS
TO TABLE 3.3.1-1 NOTE 1**

Pursuant to 10 CFR 50.90, Carolina Power and Light Company, now doing business as Progress Energy Carolinas, Inc., is submitting a request for an amendment to the Technical Specifications (TS) for H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2. The proposed amendment would make corrections in TS Table 3.3.1-1 for Overtemperature Delta Temperature (OTΔT). The corrections are consistent with NUREG-1431, Standard Technical Specification Westinghouse Plants, Revision 3.

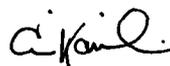
The Enclosure provides a technical and regulatory evaluation of the proposed change. Proposed TS page markups are included as attachments to the Enclosure. There are no commitments made in this submittal. Approval of the proposed license amendment is requested by March 15, 2013, with the amendment being implemented within 120 days of issuance.

In accordance with 10 CFR 50.91, a copy of this application is being provided to the State of South Carolina. If you should have any questions regarding this submittal, please contact Mr. R. Hightower at (843) 857-1329.

I declare under penalty of perjury that the foregoing is true and correct. Executed On:

3/16/12

Sincerely,



Christos Kamilaris
Manager - Support Services - Nuclear

CK/msc

Enclosure: Evaluation of the Proposed Change

cc: Ms. S. E. Jenkins, Manager, Infectious and Radioactive Waste Management Section (SC)
Mr. A. Gantt, Chief, Bureau of Radiological Health (SC)
Mr. V. M. McCree, NRC, Region II
Ms. A. T. Billoch-Colon, NRC Project Manager, NRR
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Mr. A. Wilson, Attorney General (SC)

ENCLOSURE

Evaluation of the Proposed Change

Subject: Request for Technical Specification Change Regarding Corrections to Table 3.3.1-1, Note 1

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2. DETAILED DESCRIPTION
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ATTACHMENTS:

1. Technical Specification Page Markups
2. Retyped Technical Specification Pages

1.0 SUMMARY DESCRIPTION

In accordance with the provisions of 10 CFR 50.90, Carolina Power and Light Company, now doing business as Progress Energy Carolinas, Inc., is submitting a request for an amendment to the Technical Specifications (TS) for H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2. The proposed amendment would make corrections in TS Table 3.3.1-1 for Overtemperature delta Temperature (OT Δ T). The corrections are consistent with NUREG-1431, Standard Technical Specification Westinghouse Plants, Revision 3.

2.0 DETAIL DESCRIPTION

The proposed change to TS Table 3.3.1-1 Note 1 corrects the inequality symbol associated with the nominal Reactor Coolant System (RCS) operating pressure (P'). The P' provided in Note 1 was incorrectly specified as less than or equal to (\leq) 2235 pounds per square inch gage (psig) and is being corrected to greater than or equal to (\geq) 2235 psig. In addition, the f(Δ I) penalty factor for axial power distribution values less than -17 percent Rated Thermal Power (RTP) or less than 12 percent RTP is currently specified as "2.4". This is being clarified to 2.4 %.

HBRSEP, Unit No. 2 implemented Improved Technical Specifications (ITS) per NUREG-1431, Standard Technical Specification Westinghouse Plants, Revision 1. This revision of NUREG-1431 included typographical errors in TS Table 3.3.1-1 Note 1 for Overtemperature Delta Temperature (OT Δ T). A generic correction to these typographical errors was proposed in Technical Specification Task Force Traveler (TSTF) -310 Revision 0, but was withdrawn based on the NRC comment that the OT Δ T equation, variables and variable values presented in NUREG-1431 were a generic model and the proposed change to the OT Δ T equation provided in the TSTF can be reviewed on a case-by-case basis for specific plant amendment requests. Subsequently the correction to the inequality symbol for P' from \leq to \geq was incorporated into NUREG-1431, Revision 3. This license amendment request corrects those errors consistent with the NUREG-1431 Revision 3.

3.0 TECHNICAL EVALUATION

Section 7.2.1.1 of the Updated Final Safety Analysis (UFSAR) describes the overall function of the OT Δ T reactor trip; however it does not provide a description of the requirement for P' or the penalty factor f(Δ I). The basis for TS 3.3.1 describes the application of the 2.4% penalty factor f(Δ I).

The change in the inequality symbol is justified as follows. The pressure basis for OT Δ T setpoint is a reference pressure of 2235 psig (i.e. the RCS pressure used in the safety analysis). The plant hardware setpoint must have a reference pressure equal to or greater than 2235 psig to ensure that the setpoint is conservative, that is, results in an earlier trip, compared to that assumed in the safety analysis. With a nominal RCS operating pressure of 2235 psig used in the safety analyses, if the hardware is aligned for a P' value greater than 2235 psig, such as 2250 psig, and the plant is then operated at 2235 psig, the OT Δ T setpoint will incur a penalty although no penalty would be required per the safety analysis. Therefore having P' set to a value greater than or equal to the safety analysis value is conservative.

Along with the change in the P' inequality, there were other changes recommended by TSTF-310 that were applicable to HBRSEP, Unit No. 2.

For the $f(\Delta I)$ penalty, TSTF-310 Revision 0 identified that:

"The order of magnitude and arithmetic signs incorrect. The purpose of the $f(\Delta I)$ penalty function is to reduce the Overtemperature ΔT set point to account for skewed axial power shape conditions. Since the K1, K2, and K3 gains of the Overtemperature ΔT setpoint are presented in fractions of full power units, the $f(\Delta I)$ penalty function should be in the same units,..."

As a result, for HBRSEP, Unit No. 2 the TSTF-310 approach would have expressed the 2.4 penalty factor as a fractional 0.024 value.

Prior to ITS the HBRSEP Unit No. 2 Custom TS expressed the $f(\Delta I)$ penalty as:

"For each percent that the magnitude of $(q_t - q_b)$ exceeds 12% in a positive direction, the ΔT trip setpoint shall be automatically reduced by 2.4% of the value of ΔT at rated power (2300 MWt)."

Similar verbiage was used for the $f(\Delta I)$ penalty when $(q_t - q_b)$ exceeds -17% in the negative direction. It appears that when the ITS was implemented, the (%) associated with the 2.4% was dropped since NUREG-1431 did not express the penalty factor as a percent. As written, with $(q_t - q_b)$ only 1% above +12% or below -17%, a penalty of 2.4 might be applied instead of the 0.024 fractional value or percentage intended.

TSTF-310 shows that in NUREG 1431, Revision 1, the $f(\Delta I)$ penalty factor for the region in which no penalty is incurred ($-17\% \text{ RTP} \leq (q_t - q_b) \leq +12\% \text{ RTP}$) was expressed as 0% of RTP (i.e. as a % not a fractional value). This aspect was not identified for change by TSFT-310.

Technically, either including the % symbol with the 2.4 (i.e. 2.4%) or expressing the penalty factor as a fractional value (i.e. 0.024) would be correct. However, for consistency with the 0% expressed for the no penalty region as well as consistency with the HBRSEP Unit No. 2 Custom Technical Specifications, the $f(\Delta I)$ penalty factor should be expressed as 2.4%.

The current Bases for TS 3.3.1 states: "For every % that $(q_b - q_t)$ exceeds 17%, the $OT\Delta T$ setpoint is reduced by 2.4% and for every % that $(q_t - q_b)$ exceeds 12%, the $OT\Delta T$ setpoint is reduced by 2.4%." As a result, the Bases, as written, support the proposed TS change and do not require any revisions.

As noted above, TSTF-310 indicated that the arithmetic signs associated with the $f(\Delta I)$ penalty factor were incorrect. However, this discrepancy was identified and corrected at HBRSEP Unit No. 2 during the ITS implementation and no further action is required.

TSTF-310 also identified that the direction of conservatism for the K3 constant was not identified and recommended replacing the equality (=) with an inequality (\geq). However, for both the K2 and K3 constants, the equality (=) currently provided and the lack of the direction of conservatism, supports the current HBRSEP Unit No. 2 licensing basis and no change is required.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

The proposed TS changes are corrections consistent with NUREG 1431, Revision 3 and do not adversely affect how any RTS instrumentation continues to meet the associated regulatory requirements.

4.2 No Significant Hazards Consideration Determination

Carolina Power and Light Company, now doing business as Progress Energy Carolinas, Inc. (PEC), is proposing a change to Appendix A, Technical Specifications, of Facility Operating Renewed License No. DPR-23, for the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2. The proposed change to TS Table 3.3.1-1 is a correction to the required values for the nominal Reactor Coolant System (RCS) operating pressure (P') and the axial power distribution penalty factor [$f(\Delta I)$] in the Overtemperature Delta Temperature (OT Δ T) setpoint calculation.

PEC has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed change is a correction to the equation for OT Δ T setpoint and the inputs for $f(\Delta I)$ shown in Table 3.3.1-1 Note 1. The OT Δ T equation and variables values serve as a model for trip setpoint calculation. The errors in Table 3.3.1-1 being addressed by this proposed change were contained in and introduced during the implementation of NUREG-1431, Improved Standard Technical Specifications, Revision 1. The proposed changes are consistent with NUREG-1431, Revision 3, which has corrected these errors. The OT Δ T parameter limits continue to be determined using the NRC methodologies and OT Δ T will continue to be within the limit assumed in the accident analysis. As a result, neither the probability nor the consequences of any accident previously evaluated will be affected.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

No new or different accidents result from the proposed changes. The changes do not involve a physical alteration of the plant (i.e., no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. In addition, the changes do not impose any new or different requirements or eliminate any existing requirements. The changes do not alter assumptions made in the safety analysis. The proposed changes are consistent with the safety analysis assumptions and current plant operating practice.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

This change will have no effect on the margin of safety. This proposed change is a correction to the OTAT setpoint calculation and the inputs for $f(\Delta I)$.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, PEC concludes that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

4.3 Conclusions

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.0 **Environmental Consideration**

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. The proposed amendment revises TS Table 3.3.1-1, Note 1 to correct NRC acknowledged errors that were included in NUREG-1431, Revision 1, and incorporated during the implementation of the Improved Technical Specifications at H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2.

The proposed amendment does not involve (i) a significant hazards consideration; (ii) a significant change in the types or significant increases in the amounts of any effluents that may be released offsite; or (iii) result in a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to

10 CFR 51.22(b), no environmental impact statement or environmental assessment needs to be prepared in connection with the issuance of the amendment.

6.0 References

1. TSTF-310, Revision 0, Changes to Table 3.3.1-1, Withdrawn
2. NUREG-1431, Revision 1, Standard Technical Specification Westinghouse Plants
3. NUREG-1431, Revision 3, Standard Technical Specification Westinghouse Plants, June 2004
4. HBRSEP Unit No. 2 TS Basis 3.3.1
5. UFSAR Section 7.2

Enclosure to Serial: RNP-RA/12-0009
2 Pages (including cover page)

ATTACHMENT 1

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

PROPOSED TECHNICAL SPECIFICATIONS CHANGES (MARK-UP)

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.

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

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, $\leq 575.9^\circ\text{F}$.

P is the measured pressurizer pressure, psig
 P' is the nominal RCS operating pressure, ≤ 2235 psig

$K_1 \leq 1.1265$ $K_2 = 0.01228/^\circ\text{F}$ $K_3 = 0.00089/\text{psig}$
 $\tau_1 \geq 20.08$ sec $\tau_2 \leq 3.08$ sec

$f(\Delta I) = \begin{cases} 2.4\% \{ (q_u - q_l) - 17 \} & \text{when } q_u - q_l < -17\% \text{ RTP} \\ 0\% \text{ of RTP} & \text{when } -17\% \text{ RTP} \leq q_u - q_l \leq 12\% \text{ RTP} \\ 2.4\% \{ (q_u - q_l) - 12 \} & \text{when } q_u - q_l > 12\% \text{ RTP} \end{cases}$

2.4%

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

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ATTACHMENT 2

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

REVISED AND RETYPED TECHNICAL SPECIFICATIONS PAGE

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, $\leq 575.9^\circ\text{F}$.

P is the measured pressurizer pressure, psig
 P' is the nominal RCS operating pressure, ≥ 2235 psig

$$K_1 \leq 1.1265 \quad K_2 = 0.01228/^\circ\text{F} \quad K_3 = 0.00089/\text{psig}$$

$$\tau_1 \geq 20.08 \text{ sec} \quad \tau_2 \leq 3.08 \text{ sec}$$

$$f(\Delta I) = \begin{array}{ll} 2.4\% \{ (q_b - q_t) - 17 \} & \text{when } q_t - q_b < -17\% \text{ RTP} \\ 0\% \text{ of RTP} & \text{when } -17\% \text{ RTP} \leq q_t - q_b \leq 12\% \text{ RTP} \\ 2.4\% \{ (q_t - q_b) - 12 \} & \text{when } q_t - q_b > 12\% \text{ RTP} \end{array}$$

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.