10 CFR 50.90

Progress Energy

Serial: RNP-RA/07-0139

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United States Nuclear Regulatory Commission
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Washington, DC 20555

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

SUPPLEMENT TO REQUEST FOR TECHNICAL SPECIFICATIONS
CHANGE RELATED TO SECTION 3.1.7 ROD POSITION INDICATION

Ladies and Gentlemen:

In accordance with the provisions of the Code of Federal Regulations, Title 10, Part 50.90, Carolina Power and Light Company, also known as Progress Energy Carolinas, Inc. (PEC), submitted a request for an amendment to the Technical Specifications (TS) contained in Appendix A of the Operating License for H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2, by letter dated November 15, 2007.

The proposed amendment affects TS Section 3.1.7, "Rod Position Indication." The proposed change revises the requirements related to rod position indication. The requirements for one inoperable bank demand position indicator are proposed to be modified to allow two demand position indicators inoperable per bank for one or more banks on a temporary basis for the current operating cycle. This supplement to the proposed TS change modifies the proposed change such that the allowance for two demand position indicators to be inoperable in one or more banks will be allowed as a temporary change to the TS, rather than a permanent change as originally proposed.

Attachment I provides an Affirmation as required by 10 CFR 50.30(b).

Attachment II provides a description of the current condition, a description and justification of the proposed changes, a No Significant Hazards Consideration Determination, and an Environmental Impact Consideration.

Attachment III provides a markup of the affected TS page. Attachment IV provides the retyped TS page.

In accordance with 10 CFR 50.91(b), Progress Energy Carolinas, Inc., is providing the State of South Carolina with a copy of this license amendment request.

Progress Energy Carolinas, Inc.
Robinson Nuclear Plant
3581 West Entrance Road
Hartsville, SC 29550

A001
NRR

Nuclear Regulatory Commission approval of the proposed license amendment is requested as rapidly as possible to provide an appropriate condition for two inoperable demand position indicators per bank for one or more banks.

If you have any questions concerning this matter, please contact me at (843) 857-1253.

Sincerely,

C. T. Baucom
Manager – Support Services – Nuclear

Attachments:

I. Affirmation
II. Supplement to Request for Technical Specifications Change Related to Rod Position Indication
III. Markup of Technical Specifications Page
IV. Retyped Technical Specifications Page

CTB/cac

c: S. E. Jenkins, Manager, Infectious and Radioactive Waste Management Section (SC)
A. Gantt, Chief, Bureau of Radiological Health (SC)
V. M. McCree, NRC, Region II
M. G. Vaaler, NRC Project Manager, NRR
NRC Resident Inspector, HBRSEP
Attorney General (SC)

AFFIRMATION

The information contained in letter RNP-RA/07-0139 is true and correct to the best of my information, knowledge, and belief; and the sources of my information are officers, employees, contractors, and agents of Carolina Power and Light Company, also known as Progress Energy Carolinas, Inc. I declare under penalty of perjury that the foregoing is true and correct.

Executed On: 12/21/07

C. T. Baucom
Manager – Support Services – Nuclear
HBRSEP, Unit No. 2

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

SUPPLEMENT TO REQUEST FOR TECHNICAL SPECIFICATIONS CHANGE RELATED TO ROD POSITION INDICATION

Description of Current Condition

Technical Specifications (TS) Limiting Condition for Operation (LCO) Section 3.1.7, "Rod Position Indication," provides the operability requirements, allowed conditions, required actions, completion times and surveillance requirements associated with the Rod Position Indication system. TS LCO Section 3.1.7, Condition C, provides the required actions and completion times for one demand position indicator per bank inoperable for one or more banks. There is no condition provided for two demand position indicators per bank inoperable for one or more banks.

Description and Justification of the Proposed Changes

The proposed change will allow two demand position indicators in one or more banks to be inoperable for 4 hours. This change is proposed as a temporary change to the TS for the current operating cycle and is provided as a footnote to the current TS LCO Section 3.1.7, Condition C. The proposed footnote states, "During Cycle 25, the condition of two demand position indicators per bank inoperable for one or more banks is allowed with a required action to restore one demand position indicator per bank and a completion time of 4 hours."

A description of the Rod Position Indication system is provided in the Bases for LCO 3.1.7. A summary of the Rod Position Indication system, as described in the Bases for LCO 3.1.7, is provided as follows:

> "The axial position of shutdown rods and control rods are determined by two separate and independent systems: the Bank Demand Position Indication System (commonly called group step counters) and the Analog Rod Position Indication (ARPI) System.
>
> The Bank Demand Position Indication System counts the pulses from the Rod Control System that move the rods. There is one step counter for each group of rods. Individual rods in a group all receive the same signal to move and should, therefore, all be at the same position indicated by the group step counter for that group. The Bank Demand Position Indication System is considered highly precise (± 1 step or ± 5/8 inch). If a rod does not move one step for each demand pulse, the step counter will still count the pulse and incorrectly reflect the position of the rod.
>
> The ARPI System provides a highly accurate indication of actual control rod position, but at a lower precision than the step counters. This system is based on inductive analog signals from a series of coils spaced along a hollow tube with a center to center distance of 3.75 inches, which is 6 steps. Therefore, the normal indication accuracy of the ARPI System is ± 6 steps (± 3.75 inches), and the maximum uncertainty is ± 12 steps (± 7.5 inches). With an indicated

> deviation of 12 steps between the group step counter and ARPI, the maximum deviation between actual rod position and the demand position could be 24 steps, or 15 inches."

As previously stated, the current TS does not include a condition for the inoperability of two demand position indicators. Therefore, based on the current TS, entry into LCO 3.0.3 is required for this condition. The current requirements are considered overly restrictive because the inoperability of two demand position indicators in a bank only affects the ability to determine the control system demand position for the bank. The actual rod position indications remain available through the use of the ARPIs, as required by Required Action C.1.1, which requires that all ARPIs for the affected banks are verified to be operable by administrative means once per 8 hours.

A completion time limit of 4 hours for the proposed condition provides a time limit that is more restrictive than the required actions associated with Condition C of LCO 3.1.7. Therefore, the completion time limit for the proposed temporary allowed condition and associated required action to restore one demand position indicator per bank will allow completion of the Condition C required actions after restoration of one demand position indicator per bank. If the required action to restore one indicator per affected bank is not completed within 4 hours, then Condition D would be entered and Required Action D.1 to be in MODE 3 within 6 hours would be applicable.

The current completion time for Required Action C.1.3 is "once per 8 hours." If a second demand position indicator becomes inoperable in any of the banks with one demand position indicator already inoperable, there could be less than 4 hours left to complete the required action. In this case, if Required Action C.1.3 is not completed when the applicable completion time expires, Required Action D.1 to be in MODE 3 within 6 hours would be applicable until power has been reduced to $\leq$50%, at which time Required Action C.2 would be met.

The inoperability of two demand position indicators in one or more banks does not directly affect any accident analysis or design basis limits or cause any limits not to be met. The inoperability of these indicators does prevent the comparison of the ARPIs to the demand position indication for verification of rod insertion and rod group alignment limits, which are required limits for maintaining the reactor within analyzed conditions. The use of a 4 hour completion time limit provides a restriction that limits the time that reactor operation can continue during this loss of indication. This time limit is consistent with the TS requirements for this type of loss of indication. For example, the loss of the rod insertion limit monitor requires verification that each control bank is within the limits specified in the core operating limits report (COLR) within 4 hours, in accordance with TS Surveillance Requirement (SR) 3.1.6.2.

The current TS requirements that utilize demand position indicators include the following:

- LCO 3.1.4 states that for bank demand positions $\geq$ 200 steps, each rod shall be within 15 inches of its bank demand position, and for bank demand positions < 200 steps, each rod shall be within 7.5 inches of the average of the individual rod positions in the bank. Additionally, SR 3.1.4.1 requires verification of individual rod positions within alignment limits at a frequency of 12 hours. As previously stated, the frequency of SR 3.1.4.1 changes to once every 4 hours if the rod position deviation monitor is inoperable.

- LCO 3.1.5 states that each shutdown bank shall be within insertion limits specified in the COLR. SR 3.1.5.1 requires verification that each shutdown bank is within the limits specified in the COLR at a frequency of 12 hours.
- LCO 3.1.6 states that control banks shall be within the insertion, sequence, and overlap limits specified in the COLR. SR 3.1.6.2 requires verification each control bank insertion is within the limits specified in the COLR at a frequency of 12 hours. The frequency of SR 3.1.6.2 changes to once every 4 hours if the rod position deviation monitor is inoperable.
- LCO 3.1.7 states that the ARPI system and the demand position indicator system shall be operable. As previously stated, Required Action C.1.3 requires verification of the position of each rod in the affected bank(s) (i.e., bank with one inoperable demand position indicator) to be within 15 inches of the bank demand position. Additionally, SR 3.1.7.3 requires that each ARPI is within 15 inches of the associated bank demand position after moving each full length rod cluster control assembly (RCCA) bank $\geq$ 19 steps and returning the banks to their original positions at a frequency of 31 days.

During the time that two demand position indicators are inoperable in a bank, these requirements cannot be verified. Therefore, the completion time limit for restoring at least one demand position indicator in the affected bank has been chosen to be 4 hours. This time limit is consistent with the most limiting completion time and surveillances associated with the use of the demand position indicators. Additionally, the requirements for the use of ARPIs and applicable conditions for inoperable ARPIs are unaffected by the proposed change. For example, LCO 3.1.7 Required Action B.1 requires that the position of the rods with inoperable position indicators be verified by using the movable incore detectors within 4 hours of moving the affected rods in excess of 24 steps in one direction.

The loss of both demand indicators in one or more banks does not prevent or inhibit operation of the control rods. The reactor protection functions remain operable and able to mitigate design basis events and transient conditions. Additionally, the applicable core power distribution limits (i.e., LCO 3.2.1 Heat Flux Hot Channel Factor, LCO 3.2.2 Nuclear Enthalpy Rise Hot Channel Factor, LCO 3.2.3 Axial Flux Difference, and LCO 3.2.4 Quadrant Power Tilt Ratio) remain in effect in accordance with the applicability requirements for these TS. This further ensures the reactor will be maintained within required limits.

The preceding justifications provide the basis for the proposed change. This TS change is being proposed at this time due to an inoperability of three demand position indicators (Shutdown Bank A Group 2, Control Bank A Group 2, and Control Bank C Group 2) and the determination that both demand position indicators for the three control rod banks (Shutdown Bank A and Control Banks A and C) would be made inoperable for a brief period in order to correct the malfunction. Therefore, this proposed TS change would establish a condition for inoperability of two demand position indicators for one or more banks. This proposed change is requested as rapidly as possible to allow appropriate TS requirements for repair of the rod position indication system.

No Significant Hazards Consideration Determination

Carolina Power and Light Company, also known as Progress Energy Carolinas, Inc. (PEC), is proposing a change to Appendix A, Technical Specifications, of Facility Operating License

No. DPR-23, for the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2. The proposed change revises the requirements related to Limiting Condition for Operation (LCO) Section 3.1.7, "Rod Position Indication." The requirements for one inoperable bank demand position indicator are proposed to be modified by a note that will allow two demand position indicators inoperable per bank for one or more banks, with a required action to restore one bank demand position indicator per bank and a completion time of 4 hours.

An evaluation of the proposed change has been performed in accordance with 10 CFR 50.91(a)(1) regarding no significant hazards considerations, using the standards in 10 CFR 50.92(c). A discussion of these standards as they relate to this amendment request follows:

1. The Proposed Change Does Not Involve a Significant Increase in the Probability or Consequences of an Accident Previously Evaluated.

   The proposed change provides new requirements for two demand position indicators inoperable in one or more banks. The inoperability of two demand position indicators in one or more banks does not directly affect any accident analysis or design basis limits or cause any limits not to be met, because the demand position indicators only provide an operational indication of the bank position as determined by the rod control system. The actual position of the control rods is determined by use of the analog rod position indicator (ARPI) for each control rod, or the movable incore detector system when ARPIs are inoperable.

   The inoperability of the demand position indicators does prevent the comparison of the analog rod position indicators to the demand position indication for verification of rod insertion and rod group alignment limits, which is conducted as periodic surveillance to maintain the reactor within analyzed conditions. The use of a 4 hour completion time limit provides a restriction that limits the time that reactor operation can continue during this loss of the demand position indication. The loss of the demand position indication does not cause the rods to change position, hence the actual control rod positions are expected to remain within required limits.

   The proposed change to allow two demand position indicators to be inoperable in one or more banks does not affect the automatic or manual shutdown capability of the reactor protection system and no accident analyses are impacted by the proposed change. The operability of the control rods is not affected by the inoperability of the demand position indicators.

   Therefore, operation of the facility in accordance with the proposed amendment would not involve a significant increase in the probability or consequences of an accident previously evaluated, because this change does not result in the increased likelihood of any accident initiator or precursor, and the existing accident analyses are unaffected by the proposed change.

2. The Proposed Change Does Not Create the Possibility of a New or Different Kind of Accident From Any Previously Evaluated.

The proposed change provides new requirements for two demand position indicators inoperable in one or more banks. No new accident initiators are introduced by the proposed requirements because the allowed condition for inoperability of the demand position indicators does not cause any new failure modes to be created that can cause an accident. The proposed change does not affect the reactor protection system or the reactor control system. The control rods are expected to remain within the required limits because the failure of the demand position indicators does not cause the rods to change position and the ARPIs remain available in the affected banks to verify the position of the control rods. Hence, no new failure modes or accident sequences are created that would cause a new or different kind of accident from any accident previously evaluated.

Therefore, operation of the facility in accordance with the proposed amendment would not create the possibility of a new or different kind of accident from any previously evaluated.

3. The Proposed Change Does Not Involve a Significant Reduction in the Margin of Safety.

The operability of the rod position indicators is required to determine control rod positions and thereby ensure compliance with the control rod alignment and insertion limits. The proposed change does not alter the requirement to determine rod position, but provides a new allowed condition for two demand position indicators inoperable in one or more banks. The inoperability of two demand position indicators for one or more banks results in the loss of the ability to periodically verify that ARPIs are operable and within expected limits. If this condition continued indefinitely, without compensating for the loss of demand position indicators, this condition could result in a reduced ability to accurately verify the position of the control rods. Hence, the proposed change provides an appropriately limiting time for this condition of 4 hours, which is substantially less than the surveillance frequency of 12 hours associated with the channel check performed for verification of operability of the ARPIs. This ensures the condition is corrected or reactor shutdown in accordance with the applicable Technical Specifications action statements. This maintains the operation of the reactor within the applicable margins of safety because the inoperability will be corrected or the unit will be shutdown prior to any significant reduction in the ability to verify control rod position by the use ARPIs.

Therefore, operation of the facility in accordance with the proposed amendment would not involve a significant reduction in the margin of safety.

Based on the above discussion, Carolina Power and Light Company has determined that the requested change does not involve a significant hazards consideration.

Environmental Impact Consideration

10 CFR 51.22(c)(9) provides criteria for identification of licensing and regulatory actions for categorical exclusion from performing an environmental assessment. A proposed change for an operating license for a facility requires no environmental assessment if operation of the facility in accordance with the proposed change would not (1) involve a significant hazards consideration; (2)

result in a significant change in the types or significant increases in the amounts of any effluents that may be released offsite; (3) result in a significant increase in individual or cumulative occupational radiation exposure. Carolina Power and Light Company, also known as Progress Energy Carolinas, Inc., has reviewed this request and determined the proposed change 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 needs to be prepared in connection with the issuance of the amendment. The basis for this determination follows.

Proposed Change

Carolina Power and Light Company, also known as Progress Energy Carolinas, Inc. (PEC), is proposing a change to Appendix A, Technical Specifications (TS), of Facility Operating License No. DPR-23, for the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2. The proposed change revises the requirements related to rod position indication. The requirements for one inoperable bank demand position indicator are proposed to be modified by a note that will allow two demand position indicators inoperable per bank for one or more banks, with a required action to restore one bank demand position indicator per bank and a completion time of 4 hours.

Basis

The proposed change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) for the following reasons:

1. As demonstrated in the No Significant Hazards Consideration Determination, the proposed change does not involve a significant hazards consideration.

2. As demonstrated in the No Significant Hazards Consideration Determination, the proposed change does not result in a significant increase in the consequences of an accident previously evaluated and does not result in the possibility of a new or different kind of accident. Therefore, the proposed change does not result in a significant change in the types or significant increases in the amounts of any effluents that may be released offsite.

3. The proposed change does not alter any parameters from which the individual and cumulative radiation exposure for HBRSEP, Unit No. 2, results. Therefore, the proposed change does not result in a significant increase in individual or cumulative occupational radiation exposures.

United States Nuclear Regulatory Commission
Attachment III to Serial: RNP-RA/07-0139
2 Pages (including cover page)

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

SUPPLEMENT TO REQUEST FOR TECHNICAL SPECIFICATIONS
CHANGE RELATED TO ROD POSITION INDICATION

MARKUP OF TECHNICAL SPECIFICATIONS PAGE

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Reduce THERMAL POWER to ≤ 50% RTP.	8 hours
C. One demand position indicator per bank inoperable for one or more banks.*	C.1.1 Verify by administrative means all ARPIs for the affected banks are OPERABLE. AND	Once per 8 hours
	C.1.2 .....NOTE..... Only required to be met for bank positions < 200 steps. ..... Verify the position of each rod in the affected bank(s) is within 7.5 inches of the average of the individual rod positions in the affected bank(s). AND	Once per 8 hours (continued)

*During Cycle 25, the condition of two demand position indicators per bank inoperable for one or more banks is allowed with a required action to restore one demand position indicator per bank and a completion time of 4 hours.

United States Nuclear Regulatory Commission
Attachment IV to Serial: RNP-RA/07-0139
2 Pages (including cover page)

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

SUPPLEMENT TO REQUEST FOR TECHNICAL SPECIFICATIONS CHANGE RELATED TO ROD POSITION INDICATION

RETYPED TECHNICAL SPECIFICATIONS PAGE

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Reduce THERMAL POWER to ≤ 50% RTP.	8 hours
C. One demand position indicator per bank inoperable for one or more banks.*	C.1.1 Verify by administrative means all ARPIs for the affected banks are OPERABLE. AND	Once per 8 hours
	C.1.2 --------NOTE--------- Only required to be met for bank positions < 200 steps. ---------- Verify the position of each rod in the affected bank(s) is within 7.5 inches of the average of the individual rod positions in the affected bank(s). AND	Once per 8 hours (continued)

*During Cycle 25, the condition of two demand position indicators per bank inoperable for one or more banks is allowed with a required action to restore one demand position indicator per bank and a completion time of 4 hours.