February 13, 2003

Mr. J. W. Moyer, Vice President
Carolina Power & Light Company
H. B. Robinson Steam Electric Plant
Unit No. 2
3581 West Entrance Road
Hartsville, South Carolina 29550

SUBJECT: H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2 - ISSUANCE OF AN AMENDMENT RE: INOPERABLE ANALOG POSITION INDICATION FOR CONTROL ROD H-10 (TAC NO. MB7265)

Dear Mr. Moyer:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 197 to 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 (TS) in response to your request dated January 16, 2003, as supplemented on January 31, 2003.

The amendment modifies TS 3.1.7 to permit the use of an alternate method of determining rod position for Control Rod H-10 until the end of Cycle 22 or until the next shutdown of sufficient duration, whichever occurs first

A copy of the related Safety Evaluation is enclosed. Notice of Issuance will be included in the Commission's bi-weekly Federal Register notice.

Sincerely,

/RA/

Chandu P. Patel, Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-261

Enclosures:
1. Amendment No. 197 to DPR-23
2. Safety Evaluation

cc w/enclosures:
See next page

AMENDMENT NO. 197 TO FACILITY OPERATING LICENSE NO. DPR-23 - H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

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CAROLINA POWER & LIGHT COMPANY

DOCKET NO. 50-261

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

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 197
License No. DPR-23

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Carolina Power & Light Company (the licensee), dated January 16, 2003, as supplemented on January 31, 2003, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications, as indicated in the attachment to this license amendment; and paragraph 3.B. of 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. 197, are hereby incorporated in the license. Carolina Power & Light Company 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 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Allen G. Howe, Chief, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: February 13, 2003

ATTACHMENT TO LICENSE AMENDMENT NO. 197

FACILITY OPERATING LICENSE NO. DPR-23

DOCKET NO. 50-261

Replace the following page of the Appendix A Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

Remove Page	Insert Page
3.1-15	3.1-15

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 197 TO FACILITY OPERATING LICENSE NO. DPR-23

CAROLINA POWER & LIGHT COMPANY

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

DOCKET NO. 50-261

1.0 INTRODUCTION

By letter dated January 16, 2003 (Ref. 1), as supplemented January 31, 2003 (Ref. 2), the Carolina Power & Light Company (CP&L, the licensee) requested exigent approval of a change to the H. B. Robinson Steam Electric Plant, Unit No. 2 (HBRSEP2), Technical Specifications (TS). The licensee requested this change due to an inoperable analog rod position indicator (ARPI) associated with Control Rod H-10 in Shutdown Bank B. The proposed change would modify TS 3.1.7 to permit the use of an alternate method of determining rod position for Control Rod H-10 until the end of Cycle 22 or until the next shutdown of sufficient duration, whichever occurs first.

The January 31, 2003, letter provided clarifying information and did not change the initial proposed no significant hazards consideration determination or expand the scope of the initial application.

The licensee's alternate method would monitor the stationary gripper coil of the H-10 control rod drive mechanism (CRDM). The licensee stated that the change will provide adequate controls to ensure that the rod position is known and any control rod incident is detectable. This change would reduce the frequency of flux mapping necessary to determine the position of Control Rod H-10 while its ARPI is inoperable.

HBRSEP2 TS 3.1.7, "Rod Position Indication," required action A.1 requires that with one ARPI inoperable, either (1) the position of the non-indicating rod be determined indirectly by the movable incore detectors once per 8 hours, or (2) thermal power be reduced to less than 50 percent within 8 hours. Currently, the licensee is using Option (1).

The proposed TS change would allow the licensee to determine the position of Control Rod H-10 by verifying that the gripper coils have not changed state. The licensee proposed that this is an acceptable alternative since Control Rod H-10 is a shutdown rod that is normally fully withdrawn from the core and is infrequently moved during power operations.

2.0 REGULATORY EVALUATION

Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50 Appendix A, "General Design Criteria (GDC) for Nuclear Power Plants," (Ref. 3) provides a list of the minimum design requirements for nuclear power plants. According to GDC 13, the licensee must provide

instrumentation to monitor the variables and systems over their operating ranges during normal operation, anticipated operational occurrences, and accident conditions. TS 3.1.7 requires operability of the ARPI to determine control rod positions and thereby ensures compliance with the rod alignment and insertion limits. The operability, including position indication, of the shutdown and control rods is an initial assumption in all safety analyses that assume rod insertion upon reactor trip.

3.0 TECHNICAL EVALUATION

The ARPI system functions to ensure control rod alignment and insertion limits are maintained, acceptable power distributions as well as minimum shutdown margins are met, and that the potential effects of a rod misalignment on associated accidents are limited.

Control Rod H-10 is located in Shutdown Bank B and is therefore required to be fully withdrawn when the reactor is critical. In order to evaluate the proposed TS change, the license considered the following conditions:

1) Rod drop or rod misalignment during power operation
2) Rod drop or rod misalignment during reactor startup
3) Reactor trip

These are the only conditions that need to be considered since Control Rod H-10 will be fully withdrawn at all other times that the TS is applicable.

The licensee can detect a full rod drop of Control Rod H-10 during power operation with indications other than the ARPI. A rod drop event would cause a noticeable change in the core parameters such as reactor power, as read by the excore nuclear detectors, and reactor coolant temperature. Thus, the operators would be directed to take the appropriate actions by indications other than the ARPI. Similarly, a rod misalignment event would also be detected by the excore nuclear detectors. The licensee stated that any indication of rod movement, as shown by a change in the state of the gripper coils on the alternate monitoring equipment, will be presumed to exceed 24 steps. Upon such an indication, the licensee will perform the required action step B.1 of TS 3.1.7, which requires the incore movable detectors be used to verify the position of the rod. Therefore, the NRC staff considers the likelihood of an undetected rod drop or misalignment negligible.

Since the alternate monitoring equipment does not provide a means to verify full rod insertion following a reactor trip or shutdown, the licensee has revised its procedures for calculating shutdown margin (SDM). The licensee stated that Fuel Management Procedure (FMP)-012, “Manual Determination of Shutdown Margin Boron Concentration,” is used to calculate SDM and provide instructions to compensate for one or more control rods declared inoperable. The licensee has revised FMP-012 to compensate for the worth of Control Rod H-10 when its associated ARPI is inoperable. The licensee will determine the SDM when the ARPI for Control Rod H-10 is inoperable, as follows:

- When calculating SDM in MODES 1 and 2, Control Rod H-10 will be considered fully withdrawn and not capable of providing a negative reactivity insertion following a reactor trip.

- When calculating SDM (and required boron concentrations) for MODES 3, 4, and 5, Control Rod H-10 will be assumed to be fully withdrawn following a reactor trip.

The licensee's revision to FMP-012 is consistent with changes described in a letter dated August 14, 2002 (Ref. 4) on Docket No. 50-251 for Turkey Point Unit 4. The NRC staff finds the revisions to the SDM calculations acceptable.

CP&L has determined that the objectives stated above can be met with an inoperable ARPI in a shutdown bank without subjecting the movable incore detectors to unnecessary additional wear. The licensee's alternate monitoring system will track the Rod Control Stationary Gripper Coil current. The licensee stated that they installed a chart recorder that will continuously print out the voltage level across a 0.0625 ohm resistor in the circuit. A voltage signal change will indicate a change in the state of the gripper coil. Every 8 hours, CP&L will verify that the gripper coil has not changed state. This 8-hour surveillance period is consistent with the current operational requirements for control rod H-10 position determination.

Operations qualified personnel will be responsible for monitoring the chart recorder. The licensee has developed the following training activities to prepare plant personnel for the changes required by the inoperable ARPI and the alternate monitoring system.

- The licensee will issue a "Night Order" to the operators that will provide information pertaining to this license amendment and the associated alternate monitoring instrumentation.

- The licensee will provide "Real-Time Training" (RTT) detailing the changes to the TS and the associated monitoring instrumentation which will be issued and reviewed by the operations shift crew members. The RTT will include the information pertaining to the procedures that are affected and the changes to the SDM calculation methods.

- The licensee will provide additional training on changes to the status of the ARPI for Control Rod H-10 and the associated alternate monitoring instrumentation on an "as needed" basis.

In the January 31, 2003 supplement, the licensee identified the required plant conditions necessary to perform the repairs to the ARPI for Control Rod H-10. The cause of the failure will dictate the required plant conditions and the time required for repairs to be completed. The licensee has identified the most likely causes of the failure and has predicted the required plant conditions necessary to complete the repairs without undue risk to the repair personnel. The NRC staff finds that the licensee has developed an acceptable plan to repair the inoperable ARPI, without undue risk to repair personnel, during a planned or unplanned shutdown prior to the end of Cycle 22.

The NRC staff has reviewed all the material submitted and performed an assessment of the proposed changes. We agree that the personnel safety and ALARA concerns prevent safe completion of the repairs with the reactor at power and that continued frequent incore detector use is not advisable. The proposed TS change provides adequate controls to ensure that the

rod position is known and to ensure that rod misalignment is detectable. Since the increase in the likelihood of an undetected rod drop or misalignment is determined to be negligible, the integrity of the accident analysis is maintained. The NRC staff concurs with the licensee's analysis and conclusions regarding the use of an alternate method to monitor the position of Control Rod H-10 for the remainder of Cycle 22 or the next outage of sufficient duration, whichever comes first.

Based on the evaluation provided above, the NRC staff concludes that the proposed TS change is acceptable for providing an alternative means of monitoring the position of Control Rod H-10 for the remainder of Cycle 22 or until the next outage of sufficient duration, whichever comes first.

4.0 STATEMENT OF EXIGENT CIRCUMSTANCES

The Commission's regulation, as stated in 10 CFR 50.91, provides special exceptions for the issuance of an amendment when the usual 30-day public notice cannot be met. One type of special exception is an exigency. An exigency exists when the NRC staff and the licensee need to act quickly and time does not permit the staff to publish a *Federal Register* notice allowing 30 days for prior public comment, and the NRC staff also determines that the amendment involves no significant hazards consideration. In accordance with 10 CFR 50.91(a)(6)(i)(A), the NRC staff issued a *Federal Register* notice providing an opportunity for hearing and allowing at least 2 weeks from the date of the notice for prior public comment on January 24, 2003 (68 FR 3556). No comments were received.

In its submittal, the licensee discussed the need for an exigent review of the proposed license amendment. This request was submitted on an exigent basis as a result of the unanticipated failure of the rod position indication for Control Rod H-10. The current TS requires exercising the movable incore detectors every 8 hours (approximately 90 times per month), which also may cause excessive wear and increase the potential for a malfunction or failure of the incore detection system. The repair efforts would require either a significant radiation dose if the ARPI was repaired during power operation, or would require a unit shutdown. Therefore, the licensee requested NRC review and approval of this amendment on an exigent basis.

On the basis of the above discussion, the NRC staff has determined that exigent circumstances exist and that the licensee used its best efforts to make a timely application and did not cause the exigent situation.

5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the State of South Carolina official was notified of the proposed issuance of the amendment. The State official had no comments.

6.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Commission's regulations in 10 CFR 50.92 state that the Commission may make a final determination that a license amendment involves no significant hazards consideration if operation of the facility, in accordance with the amendment, would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated, or (2) create

the possibility of a new or different kind of accident from any accident previously evaluated, or (3) involve a significant reduction in a margin of safety. As required by 10 CFR 50.91(a), the licensee has provided its analysis of the issue. The NRC staff's analysis is set forth below.

The proposed amendment would modify the TS to allow the use of an alternate method of determining rod position for the Control Rod H-10 until the end of Cycle 22 or until repairs can be conducted on the ARPI for Control Rod H-10 during an outage of sufficient duration.

(1) This change does not significantly increase the probability of an accident previously evaluated because the proposed change does not require any change to plant systems, structures, or components. The change does not increase the consequences of an accident because the change only provides an alternative method of monitoring shutdown rod position and does not change the assumption or results of any previously evaluated accident.

(2) The change provides only an alternative method of determining the position of one shutdown rod. No new accident initiators are introduced by the proposed alternative method of performing rod position verification. The proposed change does not affect the reactor protection system nor the reactor control system; therefore, no new failure modes are created that would cause a new or different kind of accident from any accident previously evaluated.

(3) The proposed change provides only an alternative method of determining the position of one shutdown rod. No new accident initiators are introduced by the proposed alternative manner of performing rod position verification. The proposed change does not affect the reactor protection system or the reactor control system. Hence, no new failure modes are created that would cause a new or different kind of accident from any accident previously evaluated. Thus, margin of safety is not affected by this change. Therefore, the change does not involve a significant reduction in a margin of safety.

Based on the above considerations, the NRC staff concludes that the amendment meets the three criteria of 10 CFR 50.92. Therefore, the NRC staff has made a final determination that the proposed amendment does not involve a significant hazards consideration.

7.0 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. 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 (68 FR 3566). 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.

8.0 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) 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.

9.0 REFERENCES

1. Letter from B.L. Fletcher III (CP&L) to U.S. Nuclear Regulatory Commission, “Request for Technical Specifications Change Regarding Inoperable Analog Rod Position Indication for Control Rod H-10,” dated January 16, 2003, ADAMS Accession No. ML030220217.

2. Letter from B.L. Fletcher III (CP&L) to U.S. Nuclear Regulatory Commission, “Response to Request for Additional Information on Technical Specifications Change Regarding Inoperable Analog Rod Position Indication for Control Rod H-10 (TAC No. MB7265),” dated January 31, 2003.

3. Title 10 of the *Code of Federal Regulations*, Part 50, Appendix A, General Design Criterion 13.

4. Letter from Brown, Eva A. (USNRC) to Stall, J.A. (FPL), “Turkey Point Unit 4 - Issuance of Exigent Technical Specification Amendment Concerning Control Rod Position Indication System (TAC No. MB7503),” dated August 20, 2002, ADAMS Accession No. ML022320685.

Principal Contributor: R. Taylor

Date: February 13, 2003

Mr. J. W. Moyer, Vice President
Carolina Power & Light Company
H. B. Robinson Steam Electric Plant
Unit No. 2
3581 West Entrance Road
Hartsville, South Carolina 29550

SUBJECT: H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2 - ISSUANCE OF AN AMENDMENT RE: INOPERABLE ANALOG POSITION INDICATION FOR CONTROL ROD H-10 (TAC NO. MB7265)

Dear Mr. Moyer:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 197 to 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 (TS) in response to your request dated January 16, 2003, as supplemented on January 31, 2003.

The amendment modifies TS 3.1.7 to permit the use of an alternate method of determining rod position for Control Rod H-10 until the end of Cycle 22 or until the next shutdown of sufficient duration, whichever occurs first

A copy of the related Safety Evaluation is enclosed. Notice of Issuance will be included in the Commission's bi-weekly Federal Register notice.

Sincerely,
/RA/

Chandu P. Patel, Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-261

Enclosures:
1. Amendment No. 197 to DPR-23
2. Safety Evaluation

cc w/enclosures:
See next page
ADAMS ACCESSION NUMBER ML030440663
*No major changes to SE.

OFFICE	PM:PDII/S2	LA:PDII/S2	SRXB:DSSA*	OGC	SC:PDII/S2
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DATE	02/05/03	02/05/03	2/3/03	02/11/03	02/12/03
COPY	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

OFFICIAL RECORD COPY

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Carolina Power & Light Company

H. B. Robinson Steam Electric Plant,
Unit No. 2

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