10 CFR 50.90

Progress Energy

Serial: RNP-RA/03-0149

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United States Nuclear Regulatory Commission
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H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23

REQUEST FOR OPERATING LICENSE CHANGE REGARDING
DELETION OF ADDITIONAL CONDITION RELATED TO CYCLE LENGTH

Ladies and Gentlemen:

In accordance with the provisions of the Code of Federal Regulations, Title 10, Part 50.90, Progress Energy Carolinas, Inc., is submitting a request for an amendment to the Operating License (OL) for H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2. The proposed amendment would modify Appendix B of the OL, Additional Conditions, by eliminating the 504 effective full-power day operating restriction that was added with License Amendment No. 196.

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

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

Attachment III provides a markup of the proposed OL page.

Attachment IV provides a retyped version of the proposed OL 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., requests approval of this license amendment request by March 26, 2004, with the amendment being implemented upon approval. The approval date was selected to ensure removal of the restriction prior to reaching 504 effective full-power days.

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

A001

If you have any questions concerning this matter, please contact Mr. C. T. Baucom.

Sincerely,

J. F. Lucas
Manager – Support Services – Nuclear

Attachments:

I. Affirmation
II. Request for Operating License Change Regarding Deletion of Additional Condition Related to Cycle Length
III. Markup of Operating License Page
IV. Retyped Operating License Page

RAC/rac

c: Mr. T. P. O'Kelley, Director, Bureau of Radiological Health (SC)
Mr. H. J. Porter, Director, Division of Radioactive Waste Management (SC)
Mr. L. A. Reyes, NRC, Region II
Mr. C. P. Patel, NRC, NRR
NRC Resident Inspector, HBRSEP
Attorney General (SC)

AFFIRMATION

The information contained in letter RNP-RA/03-0149 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 Progress Energy Carolinas, Inc. I declare under penalty of perjury that the foregoing is true and correct.

Executed On: 3 December 2003

J. W. Moyer
Vice President, HBRSEP, Unit No. 2

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

REQUEST FOR OPERATING LICENSE CHANGE REGARDING DELETION OF ADDITIONAL CONDITION RELATED TO CYCLE LENGTH

Description of Current Condition

Appendix B, Additional Conditions, to Operating License No. DPR-23, for H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2, contains the following condition as added with License Amendment No. 196:

"Operation of H. B. Robinson Steam Electric Plant, Unit No. 2, is limited to 504 effective full-power days. This additional condition shall remain in effect until approval of a license amendment that removes this limitation."

Description of the Proposed Change

The proposed change deletes the Appendix B, Additional Condition, described above.

Background

By letter dated May 16, 2002, Carolina Power and Light (CP&L) Company, now doing business as Progress Energy Carolinas, Inc., submitted a license amendment request for an increase in the authorized reactor power for HBRSEP, Unit No. 2. As originally submitted, the justification for the power uprate relied upon approval of another license amendment request related to full implementation of an Alternative Source Term (AST) for the analysis of the design basis accident radiological consequences. Based on a conference call with the NRC staff on June 13, 2002, it was determined that the review of the AST submittal could not be completed in time to support the desired approval date for the power uprate amendment.

A determination was made by HBRSEP, Unit No. 2, that use of provisions described in Section II of Regulatory Issue Summary (RIS) 2002-03, "Guidance on the Content of Measurement Uncertainty Recapture Power Uprate Applications," would allow timely NRC staff review of the proposed measurement uncertainty recapture power uprate license amendment request, without reliance on the AST license amendment. By letter dated August 12, 2002, CP&L provided the revised evaluation of radiological consequences for power uprate based on the RIS 2002-03 guidance. Supplemental information was also provided in a letter dated September 6, 2002 related to the radiological consequences of the Steam Generator Tube Rupture and Main Steam Line Break accidents.

In the revised radiological consequence analyses presented in the August 12, 2002 letter, it was concluded that operation at the uprated power of 2339 MWt would be bounded by the existing radiological analyses of record for up to 95% of the planned Cycle 22 burnup. This equated to 504 effective full-power days (EFPD). In a letter dated October 15, 2002, amended by a letter dated October 31, 2002, CP&L proposed a license amendment request to incorporate this 504 EFPD cycle length restriction into the Operating License, Appendix B, Additional Conditions.

By letter dated November 5, 2002, the NRC issued License Amendment No. 196 for the HBRSEP, Unit No. 2, power uprate. The revised license incorporated the 504 EFPD cycle length restriction into the Appendix B, Additional Conditions.

At the time of the above submittals and NRC issuance of the amendment, it was anticipated that the AST license amendment request would be approved within the 504 EFPD restriction for Cycle 22. This would allow for deletion of the 504 EFPD restriction before impacting plant operation. By letter dated March 12, 2003, Progress Energy Carolinas, Inc., submitted a supplement to the proposed AST license amendment that requested deletion of the subject Appendix B, Additional Condition, as part of the AST amendment approval.

During 2003, a number of comments and questions related to the AST radiological analyses have been identified. Based on these comments, additional analyses and NRC review are required, and the AST submittal may not be approved prior to reaching 504 EFPD for Cycle 22. Therefore, justification has been provided in the Technical Analysis below to support deletion of the 504 EFPD restriction based on the guidelines of RIS 2002-03 and independent of any reliance on AST analyses.

Technical Analysis

In the letter dated August 12, 2002, a matrix was provided for the radiological consequence accident analyses in accordance with the guidelines of RIS 2002-03. This matrix provided the determination that the current analyses of record remained valid and bounding compared with operation at the uprated power level of 2339 MWt. The six accident analyses addressed were the Loss of Coolant Accident (LOCA), Steam Generator Tube Rupture (SGTR), Main Steam Line Break (MSLB), Single Rod Control Cluster Assembly (RCCA) Withdrawal, Waste Gas System Failure, and Reactor Coolant Pump Shaft Seizure (Locked Rotor). (Note – the Fuel Handling Accident (FHA) would be an additional accident that would be impacted by power level and burnup. However, a separate license amendment for approval of an AST analysis for the FHA was submitted and approved prior to the 2002 refueling outage in License Amendment No. 195. Therefore, the FHA has already been analyzed for the uprated power level impact.)

For the SGTR, MSLB, and Waste Gas System Failure, the matrix specified that the radiological consequences for these accidents were independent of power level assumptions. (A supplemental letter, dated September 6, 2002, provided additional information related to power level impacts on the thermal/hydraulic inputs to the dose analyses for the SGTR and MSLB. That letter confirmed that the existing analyses of record remained bounding for those accidents.)

For the LOCA, RCCA Withdrawal, and Locked Rotor accidents, the matrix, along with the text in the August 12, 2002 letter, specified that the current analyses of record would remain bounding for approximately 95% of Cycle 22, or approximately 504 EFPD. These three accidents involve assumed fuel failure and hence the dose consequences are dependent on the radionuclide curie inventory calculated to be in the core. (Note that for the RCCA Withdrawal and Locked Rotor accidents, the current licensing basis does not include a quantitative assessment of dose consequences. Based on a comparison of these accidents with the LOCA in regard to the extent of fuel damage and other plant conditions, such as RCS integrity and containment pressure, it was qualitatively determined that the dose from these accidents would be bounded by the design basis

LOCA, which is already a small fraction of the 10 CFR 100 limits.)

The core curie inventory, as calculated for HBRSEP, Unit No. 2, by the ORIGEN computer code, is a function of burnup and the weight of fissile material. The 504 EFPD determination was made by the use of a simplistic and conservative ratio of expected cycle burnups and fissile material weight for Cycle 22 compared to the assumptions used for the analyses of record.

Progress Energy Carolinas, Inc., has recently completed a more detailed analysis of the impact of the uprated power and extended burnup on the radiological analyses for the LOCA, which is the bounding impacted accident. This analysis used the following method and assumptions:

1. The core inventory was recalculated in 1998 using the ORIGEN-S code. This calculation was performed to bound any future cycles. The calculation assumed a power level of 2346 MWt and fuel assembly burnups up to 60,000 MWD/MTU, which results in a cycle length of 567 EFPD.

2. The core inventory from this 1998 calculation was then compared to the core inventory used in the current analyses of record, which is the core inventory as presented in Updated Final Safety Analysis Report (UFSAR) Table 15.6.5-4. Since the current analysis of record is based on the analysis of whole body and thyroid dose, only the xenon, krypton and iodine nuclides are used in the dose analysis, and therefore, only these nuclides are compared.

3. This comparison indicated that the curie inventories of some nuclides were higher and some were lower in the updated analysis when compared to the analysis of record. Therefore, in order to determine the impact on the dose, a dose-equivalent weighted sum of the curie inventory was determined by summing the product of the core curie inventory for each nuclide times its appropriate dose conversion factor. Since the nuclide mix changes with time, this was performed for multiple time steps from Time = 0 to Time = 720 hours. Separate analyses were performed for the iodine nuclides using their thyroid dose conversion factors, the iodine nuclides using their whole body dose conversion factors, and the noble gas nuclides using their dose conversion factors.

4. The results of these comparisons indicated the following:
   - For the thyroid dose, the dose-equivalent curies were higher for all time steps for the UFSAR inventory. Therefore, use of the iodine inventory from the uprated power/extended burnup analysis would result in lower thyroid doses than the current analysis of record.
   - For the whole body dose due to iodines, the results were mixed. For time periods from 0 to 24 hours, the uprated power/extended burnup analysis gave a higher dose-equivalent inventory, and for time periods beyond 24 hours the current analysis of record gave a higher dose-equivalent inventory. The maximum percentage difference during the time period when the uprated power/extended burnup analysis was bounding was determined to be 3%.
   - For the whole body dose due to noble gases, the results were also mixed. For the first hour the current analysis of record gave a higher dose-equivalent inventory, and for the time period beyond one hour the uprated power/extended burnup analysis

gave a higher dose-equivalent inventory. The maximum percentage difference during the time period when the uprated power/extended burnup analysis was bounding was determined to be 11%.

5. Based on these results, it was conservatively assumed that the whole body doses from the LOCA analyses of record could increase by 15%. This maximum potential increase in the current licensing basis dose was then compared against the criteria specified in NEI 96-07, Revision 1, "Guidelines for 10 CFR 50.59 Implementation," November 2000, to determine if the change resulted in 'more than a minimal increase in the consequences of an accident' as specified by 10 CFR 50.59. The criteria specify that a change constitutes more than a minimal increase if the increase in dose is greater than 10% of the difference between the existing dose and the specified limit. In all cases (Exclusion Area Boundary, Low Population Zone, and Control Room), the increase was less than 10% of the difference between the existing dose of record and the regulatory limit. For example, for the Exclusion Area Boundary, the whole body dose from the existing analysis of record is 2.8 REM. A 15% increase in this dose would be an increase of 0.42 REM. The difference between the existing dose and the 10 CFR 100 limit of 25 REM is 22.2 REM, and 10% of this difference is 2.22 REM. Since 0.42 REM is less than 2.22 REM, the change does not result in more than a minimal increase.

Based on the preceding, it is concluded that operation at the uprated power, for cycles up to 567 EFPD, will not result in more than a minimal increase in the consequences of the current accident analyses. Based on the guidelines of RIS 2002-03, NRC review of revised dose analyses is not required. The 567 EFPD is based on an assumed burnup criterion that was chosen to bound the existing Cycle 22 and future cycles. A 10 CFR 50.59 evaluation has been completed to address the change as it impacts any restrictions on the current Cycle 22 reload analyses. Each future cycle reload analysis will have to evaluate cycle-specific information against the accident analyses assumptions to determine if the analyses remain bounding. These cycle-specific evaluations are performed in accordance with approved reload methodologies. It is therefore concluded that the EFPD Operating License condition can be removed in its entirety, without adversely impacting continued safe plant operation.

HBRSEP, Unit No. 2, still intends that the AST radiological analyses will replace the existing analyses of record once approved by the NRC. At that time, the UFSAR will be updated to provide the AST analyses assumptions and results, including the revised core inventories based on the uprated power/extended burnup analysis. Until that time, the evaluation provided above, along with the August 12, 2002 and September 6, 2002 submittals, demonstrate that HBRSEP, Unit No. 2, can continue to operate at the uprated power for cycle lengths of up to 567 EFPD, and that the radiological consequences of analyzed accidents will remain within acceptable limits.

No Significant Hazards Consideration Determination

Progress Energy Carolinas, Inc., is proposing a change to Appendix B, Additional Conditions, of Facility Operating License No. DPR-23, for the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2. This change will delete the cycle length restriction of 504 effective full-power days.

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 to Appendix B of the HBRSEP, Unit No. 2, Operating License deletes a restriction on effective full-power days (EFPD) that was incorporated to ensure the source term used for radiological dose analyses remains bounded by the analyses of record for operation at the approved, uprated power level. The restriction was imposed solely for the post-accident radiological analyses assumption. Since this restriction is only related to post-accident analytical assumptions, it is unrelated to the probability of an accident occurring. Therefore, the proposed Operating License change does not involve a significant increase in the probability of an accident previously evaluated.

   The proposed change can impact the consequences of previously evaluated accidents by impacting the core inventory of radionuclides for operating periods exceeding the existing 504 EFPD restriction. An evaluation of the potential impact of removing the EFPD restriction on the accident consequences has determined that any increase in consequences would be less than 10% of the difference between the existing dose analysis results and the acceptable dose limits. The proposed change therefore results in less than a minimal increase in accident consequences. Therefore, the proposed change does not involve a significant increase in the consequences of an accident previously evaluated.

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

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

   The proposed change to Appendix B of the HBRSEP, Unit No. 2, Operating License deletes a restriction on effective full-power days (EFPD) that was incorporated to ensure the source term used for radiological dose analyses remain bounded by the dose analyses of record for operation at the approved, uprated power level. The restriction was imposed solely for post-accident radiological analyses assumptions. Since this restriction is only related to post-accident analytical assumptions, it is unrelated to the possibility of an accident occurring. Therefore, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

   The applicable margin of safety is that related to the dose consequences of analyzed accidents. The proposed change results in potential increased consequences that are less than 10% of the difference between the existing dose analyses results and acceptable dose limits. This is less than a minimal increase in accident consequences, as defined by

NEI 96-07, Revision 1, which is endorsed by Regulatory Guide 1.187. Therefore, this change does not involve a significant reduction in a margin of safety.

Based on the above discussion, Progress Energy Carolinas, Inc., 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 for 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. Progress Energy Carolinas, Inc., has reviewed this request and determined that 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

Progress Energy Carolinas, Inc., is proposing a change to Appendix B, Additional Conditions, of Facility Operating License No. DPR-23, for the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2. This change will delete the cycle length restriction of 504 effective full-power days.

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. The proposed change deletes a restriction that was only applied to address analytical assumptions for post-accident analyses. The impact of plant operation for a full operating cycle at the uprated power on the types and amounts of effluents released offsite has been reviewed and approved as part of Amendment No. 196 to the Operating License and Technical Specifications. Therefore, the proposed change will 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 deletes a restriction that was only applied to address analytical assumptions for post-accident analyses. The impact of plant operation for a full operating cycle at the uprated power on individual or cumulative occupational radiation exposure has been reviewed and approved as part of Amendment No. 196 to the Operating License and Technical Specifications. Therefore, the proposed change will not result in a significant increase in individual or cumulative occupational radiation exposure.

United States Nuclear Regulatory Commission
Attachment III to Serial: RNP-RA/03-0149
2 Pages (including cover page)

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

REQUEST FOR OPERATING LICENSE CHANGE REGARDING DELETION OF ADDITIONAL CONDITION RELATED TO CYCLE LENGTH

MARKUP OF OPERATING LICENSE PAGE

APPENDIX B

ADDITIONAL CONDITIONS
FACILITY OPERATING LICENSE NO. DPR-23

Carolina Power & Light Company (the term licensee in Appendix B refers to Carolina Power & Light Company) shall comply with the following conditions on the schedules noted below:

Amendment Number	Additional Conditions	Implementation Date
176	The licensee is authorized to relocate certain requirements included in Appendix A and the former Appendix B to licensee-controlled documents. Implementation of this amendment shall include the relocation of these requirements to the appropriate documents, as described in the licensee's letters dated September 10, 1997, and October 13, 1997, evaluated in the NRC staff's Safety Evaluation enclosed with this amendment.	This amendment is effective immediately and shall be implemented within 90 days of the date of this amendment.
~~196~~	~~Operation of H. B. Robinson Steam Electric Plant, Unit No. 2, is limited to 504 effective full power days. This additional condition shall remain in effect until approval of a license amendment that removes this limitation.~~	~~This amendment is effective immediately and shall be implemented within 30 days of the date of this amendment.~~

United States Nuclear Regulatory Commission
Attachment IV to Serial: RNP-RA/03-0149
2 Pages (including cover page)

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

REQUEST FOR OPERATING LICENSE CHANGE REGARDING DELETION OF ADDITIONAL CONDITION RELATED TO CYCLE LENGTH

RETYPED OPERATING LICENSE PAGE

APPENDIX B

ADDITIONAL CONDITIONS
FACILITY OPERATING LICENSE NO. DPR-23

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