



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 71 TO FACILITY LICENSE NO. DPR-71

CAROLINA POWER & LIGHT COMPANY

BRUNSWICK STEAM ELECTRIC PLANT, UNIT 1

DOCKET NO. 50-325

1.0 Introduction

By letter dated January 31, 1984, as supplemented February 29, 1984, the Carolina Power & Light Company (the licensee) requested an amendment to Facility Operating License No. DPR-71 for the Brunswick Steam Electric Plant (BSEP), Unit 1. The amendment would correct the fuel enrichment number in the description of the fuel assemblies in the Design Features section of the Technical Specifications.

The fuel enrichment specified in the current Design Features section is incorrect because operation of the reactor with higher enrichment fuel was authorized by License Amendment No. 56. The current Technical Specification in section 5.3.1 limits the maximum enrichment to 2.85 weight percent U-235 whereas Amendment No. 56 authorized operation with fuel containing 2.99 weight percent U-235. However, Technical Specification section 5.3.1 was overlooked when Amendment No. 56 was issued.

This amendment is therefore a purely administrative change to the Technical Specifications to correct the error in the fuel enrichment number. Also, in correcting this error, the text was changed to correspond to that of the Standard Technical Specifications.

2.0 Evaluation

The Brunswick Unit 1 Technical Specifications section 5.3.1 currently states the following:

"5.3.1 The reactor core shall contain 500 fuel assemblies, with each fuel assembly containing 63 fuel rods clad with Zircaloy 2. Each fuel rod shall have a nominal active fuel length of 146 inches for 8 X 8 fuel and 150 inches for 8 X 8R fuel and contain a maximum total weight of 3,355 grams of UO_2 . The initial core loading shall have a maximum enrichment of 2.35 weight percent U-235. Reload fuel shall be similar in physical design to the initial core loading and shall have a maximum enrichment of 2.85 weight percent U-235."

The licensee has proposed that section 5.3.1 be replaced by the following:

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"5.3.1 The reactor core shall contain 560 fuel assemblies, with each 8 X 8 fuel assembly containing 63 fuel rods and each 8 X 8R fuel assembly containing 62 fuel rods. All fuel rods shall be clad with Zircaloy 2. Each fuel rod shall have a nominal active fuel length of 146 inches for 8 X 8 fuel and 150 inches for 8 X 8R fuel. The initial loading shall have a maximum average enrichment of 2.35 weight percent U-235. Reload fuel shall be similar in physical design to the initial core loading and shall have a maximum average enrichment of 2.99 weight percent U-235."

The substantive change involved in this amendment is the increase in fuel enrichment from 2.85 to 2.99 weight percent U-235. This change was reviewed and evaluated in our Safety Evaluation accompanying License Amendment No. 56 which was issued June 28, 1983 and authorized the resumption of operation after the third refueling. In that Safety Evaluation, we included the evaluation of plant operation with Fuel Type P8DRB299 (2.99 weight percent U-235). We considered the Fuel System Design, Nuclear Design, Thermal Hydraulic Design, Minimum Critical Power Ratios, Thermal Hydraulic Stability and Analyses of Transients and Accidents. We found the refueled reactor to be suitable for the resumption of operation of Brunswick Unit 1.

3.0 Summary of Evaluation

Based on our previous findings as presented in Amendment No. 56 to Facility Operating License No. DPR-71 for Brunswick Unit 1, we have concluded that Technical Specification section 5.3.1 should be changed to limit the average enrichment to 2.99 weight percent U-235.

We have also reviewed the text of proposed Technical Specification section 5.3.1 and have found that it is consistent with that of the Standard Technical Specifications and is acceptable to the staff.

4.0 Environmental Considerations

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and pursuant to 10 CFR 51.5(d)(4), that an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

5.0 Conclusions

We have 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, and (2) such

activities will be conducted in compliance with the Commission's regulations and the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: S. MacKay

Dated: June 5, 1984