

January 27, 1998

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

SUBJECT: ISSUANCE OF AMENDMENT NO.177 TO FACILITY OPERATING LICENSE NO.
DPR-23 REGARDING REVISION TO SPENT FUEL HANDLING ACCIDENT
ANALYSIS, H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2 (TAC NO.
99822)

Dear Mr. Keenan:

The Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 177 to Facility Operating License No. DPR-23 for the H. B. Robinson, Unit No. 2. The amendment is in response to your application dated October 2, 1997, in which you requested NRC staff review and approval of a proposed change to the H. B. Robinson, Unit No.2, Updated Final Safety Analysis Report. Specifically, you proposed a change to the analysis of a spent fuel handling accident with regard to the decontamination factor provided by the actual minimum water level above the spent fuel at H. B. Robinson.

The staff has reviewed your proposed change. The staff's Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's bi-weekly Federal Register notice.

If you have any questions on this matter, please do not hesitate to call me at (301) 415-1428.

Sincerely,
Original signed by:
Joseph W. Shea, Project Manager
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

1/1
NY/01

Docket No. 50-261

Enclosures:

1. Amendment No.177 to DPR-23
2. Safety Evaluation

NRC FILE CENTER COPY

cc w/enclosures:

See next page

*Previous Concurrence

OFFICE	PDII-1/PM	PDII-1/LA	PERB/SC	OGC	PDII-1/PD
NAME	JShea	EDunnington	REmch *	AHodgdon *	WDean
DATE	1/27/98	1/27/98	1/12/98	1/16/98	1/27/98

OFFICIAL RECORD COPY

filename: G:\ ROBINSON \ROB99822.AMD

9802030092 980127
PDR ADOCK 05000261
PDR



PDR ADOCK

Mr. J. S. Keenan
Carolina Power & Light Company

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

cc:

Mr. William D. Johnson
Vice President and Senior Counsel
Carolina Power & Light Company
Post Office Box 1551
North Carolina 27602

Mr. Mel Fry, Acting Director
N.C. Department of Environment,
Health and Natural Resources
Division of Radiation Protection Raleigh,
3825 Barrett Dr.
Raleigh, North Carolina 27609-7721

Ms. Karen E. Long
Assistant Attorney General
State of North Carolina
Post Office Box 629
Raleigh, North Carolina 27602

Mr. Robert P. Gruber
Executive Director
Public Staff - NCUC
Post Office Box 29520
Raleigh, North Carolina 27626-0520

U.S. Nuclear Regulatory Commission
Resident Inspector's Office
H. B. Robinson Steam Electric Plant
2112 Old Camden Road
Hartsville, South Carolina 29550

Mr. Max Batavia, Chief
South Carolina Department of Health
Bureau of Radiological Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Regional Administrator, Region II
U.S. Nuclear Regulatory Commission
Atlanta Federal Center
61 Forsyth Street, SW, Suite 23T85
Atlanta, Georgia 30303

Ms. D. B. Alexander
Manager
Performance Evaluation and
Regulatory Affairs
Carolina Power & Light Company
412 S. Wilmington Street
Raleigh, North Carolina 27601

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

Mr. Milton Shymlock
U. S. Nuclear Regulatory Commission
Atlanta Federal Center
61 Forsyth St., SW, Suite 23T85
Atlanta, Georgia 30303

Public Service Commission
State of South Carolina
Post Office Drawer 11649
Columbia, South Carolina 29211

Mr. H. K. Chernoff
Supervisor, Licensing/Regulatory Programs
Carolina Power & Light Company
H. B. Robinson Steam Electric Plant,
Unit No. 2
3581 West Entrance Road
Hartsville, South Carolina 29550

Mr. T. M. Wilkerson
Manager - Regulatory Affairs
Carolina Power & Light Company
H. B. Robinson Steam Electric Plant,
Unit No. 2
3581 West Entrance Road
Hartsville, South Carolina 29550-0790

AMENDMENT NO. 177 TO FACILITY OPERATING LICENSE NO. DPR-23 - H. B. ROBINSON
STEAM ELECTRIC PLANT, UNIT NO. 2

DISTRIBUTION

Docket File

PUBLIC

PDII-1 Reading File

J. Zwolinski

OGC

G. Hill (2) T-5-C-3

W. Beckner

R. Emch

ACRS

E. Merschoff, RII

cc: Robinson Service List



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

CAROLINA POWER & LIGHT COMPANY

DOCKET NO. 50-261

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

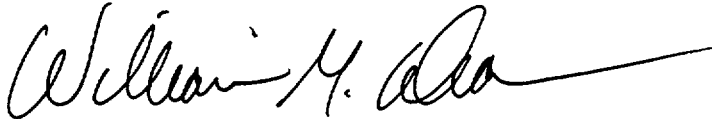
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 177
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 October 2, 1997, 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, changes to the Updated Final Safety Analysis Report to reflect the revised credit assumed for iodine decontamination by the spent fuel pool water as set forth in the application for amendment by Carolina Power and Light Company dated October 2, 1997 are authorized.

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

A handwritten signature in black ink, appearing to read 'William M. Dean', with a long horizontal flourish extending to the right.

William M. Dean, Director
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Date of Issuance: January 27, 1998



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 177 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 October 2, 1997, the licensee requested the staff to review and approve a proposed change to the H. B. Robinson Steam Electric Plant, Unit 2 (HBRSEP), Updated Final Safety Analysis Report (UFSAR). The proposed revision to the UFSAR is a change to the analysis of a fuel handling accident in the Fuel Storage Building as described in UFSAR Section 15.7.4, "Design Basis Fuel Handling Accident." The licensee had reviewed this proposed change in accordance with 10 CFR Part 50.59 and determined that an unreviewed safety question was involved. The licensee provided an analysis that concluded that a significant hazard would not be created by the change.

2.0 BACKGROUND

The licensee had previously identified, by letter dated June 13, 1997, that a discrepancy had been found in the current licensing basis regarding the use of Safety Guide 25, "Assumptions Used for Evaluating the Potential Radiological Consequence of A Fuel Handling Accident in the Fuel Handling and Storage Facility for Boiling and Pressurized Water Reactors" in the UFSAR analysis. The assumptions and methodology of the Safety Guide are predicated on certain conditions, including a minimum water level above the spent fuel of 23 feet. The minimum water level above the spent fuel at HBRSEP is 21 feet. The proposed change to the UFSAR analysis would adjust the iodine decontamination factor (DF) afforded by the spent fuel pool water for the difference in depth of water above the spent fuel.

3.0 EVALUATION

The staff reviewed the licensee's methodology for adjusting the pool DF for the difference in water level at HBRSEP and that assumed in the basis of Safety Guide 25. The Safety Guide does not provide the methodology used to derive the pool DF assumption, nor does it provide a reference to the bases for the stated values. The licensee based the proposed correction on experimental data presented in Westinghouse Topical Report WCAP-7828. The licensee performed a calculation using the WCAP-7828 data for a depth of water above the spent fuel of 23 feet and 21 feet. That depth primarily affects the bubble contact time parameter in the DF equation. The licensee linearly ratioed the value (i.e., 4.7 seconds for 23 feet) for this parameter. A review of the results obtained showed the Safety Guide DF to be more conservative than the DF developed in accordance with WCAP-7828, and that the DF for 21

feet was one half of that for 23 feet of water. Based on this, the licensee proposed to reduce the Safety Guide 25 elemental DF value of 133 to 67 based on the observed ratio. No adjustment was necessary for organic iodine forms or for noble gases since Safety Guide 25 allows no credit for these species.

The staff reviewed the basis of the guidance in the Safety Guide. The DF stated in the Safety Guide is based, in part, on an earlier Westinghouse Topical Report WCAP-7518. The basis of the Safety Guide utilized the experimental data and formulation of the WCAP report, in a manner intended to assure a conservative result appropriate for licensing purposes. The equation used by the staff at the time the Safety Guide was prepared is identical to that utilized by the licensee. However, there are differences in the parameter values used in the equation. The overall DF of 100 in the Safety Guide was arbitrarily selected as the most probable value from a parametric analysis that varied bubble size and iodine partitioning (i.e., the overall DF result of 100 cannot be directly traced to particular parameter values). The elemental DF of 133 was determined based on the iodine species breakdown of 99.75% elemental and 0.25% organic.

In both the Safety Guide basis and the licensee's proposed method, the DF is directly proportional to the bubble contact time, and inversely proportional to depth of water above the spent fuel. Thus, the staff finds that the licensee's method for adjusting the DF for the difference in that depth is appropriate. Although there are uncertainties in the ability of the formulation, and the parameters used in that formulation, to represent the mechanism of iodine scavenging by the pool water, the overall DF in the Safety Guide was selected to be conservative in order to compensate for these uncertainties. The staff finds that the licensee's proposed method of adjusting for the reduced depth does not significantly decrease the conservatism provided for in the Safety Guide.

The staff reviewed the licensee's description of the revised fuel handling accident analysis and the postulated dose results. The staff performed independent calculations to confirm the acceptability of the licensee's analysis methodology. Based on comparisons of results, the staff found the licensee's analysis to be appropriate.

The staff has concluded, based on the considerations above, that the proposed change to the UFSAR analysis for the fuel handling accident in the Fuel Storage Building is acceptable. The staff has determined that reasonable assurance exists, in the event of a postulated fuel handling accident with the pool level at 21 feet above the spent fuel, that the doses to persons at or beyond the exclusion area boundary would continue to be well within the 10 CFR Part 100 dose guidelines, and that the postulated control room operator doses would continue to be less than the criteria of 10 CFR Part 50 Appendix A, GDC 19, and NUREG-0800.

4.0 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.

5.0 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 (62 FR 61838). 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.

6.0 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.

Principal Contributor: S. LaVie

Date: January 27, 1998