

June 26, 1997

Mr. W. R. Robinson, Vice President
Shearon Harris Nuclear Power Plant
Carolina Power & Light Company
Post Office Box 165, Mail Code: Zone 1
New Hill, North Carolina 27562-0165

SUBJECT: ISSUANCE OF AMENDMENT NO. 73 TO FACILITY OPERATING LICENSE NO. NPF-63 REGARDING SPENT FUEL CASK DROP ANALYSIS - SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1 (TAC NO. M98207)

Dear Mr. Robinson:

The Nuclear Regulatory Commission has issued Amendment No. 73 to Facility Operating License No. NPF-63 for the Shearon Harris Nuclear Power Plant, Unit No. 1 (SHNPP). This amendment approves your analysis of the radiological consequences of dropping a fuel cask at SHNPP as per your request dated March 14, 1997, as supplemented May 16, and June 17, 1997. The amendment also approves associated changes to the Final Safety Analysis Report.

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

Sincerely,

Original signed by:
Ngoc B. Le, Project Manager
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-400

Enclosures:

1. Amendment No. 73 to NPF-63
2. Safety Evaluation

cc w/enclosures:

See next page

(*See SE memo from REMch to NLE

(*Previous concurred)

dated 6/11/97)

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OFFICE	PM:PDII-1	LA:PDII-1	D:PDII-1	OGC	BC:PERB*
NAME	NLe <i>le</i>	Dunnington	MRechart	<i>APH</i>	CMiller
DATE	6/18/97	6/18/97	6/26/97	6/24/97	06/13/97
COPY	(Yes/No)	Yes/No	Yes/No	Yes/No	Yes/No

OFFICIAL RECORD

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Mr. W. R. Robinson
Carolina Power & Light Company

cc:

Mr. William D. Johnson
Vice President and Senior Counsel
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Post Office Box 1551
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Margaret Bryant Pollard, Chairman
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

CAROLINA POWER & LIGHT COMPANY, et al.

DOCKET NO. 50-400

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

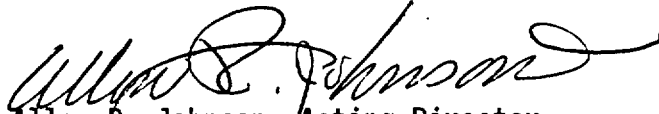
Amendment No. 73
License No. NPF-63

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Carolina Power & Light Company, (the licensee), dated March 14, 1997, as supplemented May 16, and June 17, 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, the license is hereby amended to authorize changes to the Final Safety Analysis Report to reflect new analysis of the radiological consequences of dropping a fuel cask as set forth in the application for amendment by the Carolina Power & Light Company dated March 14, 1997, as supplemented May 16, and June 17, 1997.

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3. This license amendment is effective as of the date of its issuance and shall be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Allen R. Johnson, Acting Director
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Date of Issuance: June 26, 1997



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

DOCKET NO. 50-400

1.0 INTRODUCTION

By letter dated March 14, 1997, as supplemented by letters dated May 16, and June 17, 1997, Carolina Power and Light Company (the licensee) requested NRC approval for a revision to the Shearon Harris Nuclear Power Plant (HNP) Final Safety Analysis Report (FSAR) that changes the design basis for fuel cask handling operations. The proposed revision would add a discussion in the FSAR for the handling of an IF-300 fuel cask with less than the full designed cask integrity.

Spent fuel in an IF-300 shipping cask is routinely received at HNP from other nuclear plants in the licensee's system for storage in the HNP spent fuel pool. When used within the limitations listed in its Certificate of Compliance (CoC,) the IF-300 shipping cask is designed to withstand being dropped from 30 feet onto an unyielding surface. In concert with Review Criteria in section 15.7.5 of the NRC's NUREG-0800, Standard Review Plan (SRP), the consequences of a cask drop accident was not analyzed for HNP since the potential drop of a spent fuel cask is limited to less than an equivalent 30-foot drop onto a flat, essentially unyielding, horizontal surface. However, recently the licensee has identified that some cask lifts involved in moving the spent fuel into the pool are performed with only 4 of the 32 head closure bolts in place and/or the exterior valve protective boxes removed. Although these movements do not represent a potential drop of more than 30 feet, the licensee realized that such drops with less than the full cask integrity are outside the analyzed cask design and constitute an unreviewed safety question.

The licensee has analyzed the consequences of a cask drop accident with the cask configured as used at HNP. This analysis indicates that, even without full cask integrity, dropping an IF-300 cask loaded with the most limiting fuel from one of the other plants in the system results in off-site doses that are well within the acceptance criteria in the SRP.

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2.0 EVALUATION

The staff's evaluation of the proposed change to the HNP licensing basis consisted of reviewing the assumptions and methods in the licensee's radiological consequence analysis to ensure they are conservative, bounding, and consistent with the other HNP design basis analysis. In addition, the staff performed independent calculations with those assumptions to provide reasonable assurance that the licensee's calculational methodology was technically sound.

The licensee's consequence analysis assumed the bounding condition that the IF-300 cask was loaded with PWR fuel bundles with maximum burn-up (45,000 MWd/MTU). In concert with item 10 of the IF-300 cask CoC (Certificate number 9001 Rev. 31), a minimum decay time of 5 years was assumed. The fuel pin gap activity and chemical composition assumptions were consistent with the guidance in Regulatory Guide (RG) 1.25. In addition, the maximum reactor power level (with a radial peaking factor of 1.65) consistent with the RG 1.25 guidance was assumed for each bundle. The licensee's analysis used the bounding assumption that 100% of the fuel pin gap activity in the fully loaded cask was released to the environment with no filtration. The worse case, short-term, ground-level atmospheric dispersion values for the Exclusion Area Boundary and the Low Population Zone, listed in table 2.3.4-5 of the HNP FSAR, were also applied.

Based on the above evaluation, the staff concludes that the licensee has demonstrated with reasonable assurance that the maximum radiological consequences of dropping an IF-300 cask at the HNP are radiation doses to members of the public that are a small fraction of the numerical criteria in 10 CFR Part 100 and are well within the acceptance criteria in the SRP, and, therefore, they are acceptable.

3.0 STATE CONSULTATION

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

4.0 ENVIRONMENTAL CONSIDERATION

The amendment (which adds a discussion in the FSAR for the handling of an IF-300 fuel cask with less than the full designed cask integrity) 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

17226). 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.

5.0 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: Roger L. Pedersen

Date: June 26, 1997

AMENDMENT NO. 73 TO FACILITY OPERATING LICENSE NO. NPF-63 - HARRIS, UNIT 1

~~Docket File~~

PUBLIC

PDII-1 Reading

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M. Reinhart (13H15)

R. Pedersen

ACRS

J. Johnson RII

cc: Harris Service List