

June 21, 2005

Mr. James Scarola, 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: SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1 - ISSUANCE OF
AMENDMENT TO EXTEND THE INSPECTION INTERVAL FOR REACTOR
COOLANT PUMP FLYWHEELS (TAC NO. MC4794)

Dear Mr. Scarola:

The Nuclear Regulatory Commission has issued Amendment No. 119 to Facility Operating License No. NPF-63 for the Shearon Harris Nuclear Power Plant, Unit 1. This amendment changes the Technical Specifications (TS) in response to your application dated October 15, 2004.

The amendment revises TS 3/4.4.10, "Structural Integrity," to increase the inspection interval for the reactor coolant pump flywheels to 20 years. A notice of availability for this TS improvement using the Consolidated Line Item Improvement Process was published in the *Federal Register* on October 22, 2003 (68 FR 60422).

A copy of the related Safety Evaluation is enclosed. Notice of Issuance will be included in the Commission's regular biweekly *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. 50-400

Enclosures:

1. Amendment No. 119 to NPF-63
2. Safety Evaluation

cc w/enclosures: See next page

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Package No.: ML051610444

TS: ML051740114

ADAMS Accession No.: ML051610409

NRR-058

OFFICE	CLIIP LPM	PM:PDII/S2	LA:PDII/S2	SC/PDII-2
NAME	WReckley	CPatel	EDunnington	MMarshall
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CAROLINA POWER & LIGHT COMPANY, et al.

DOCKET NO. 50-400

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 119
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 October 15, 2004, 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 2.C.(2) of Facility Operating License No. NPF-63 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, as revised through Amendment No. 119, are hereby incorporated into this license. Carolina Power & Light Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance and shall be implemented within 90 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Michael L. Marshall, Jr., 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: June 21, 2005

ATTACHMENT TO LICENSE AMENDMENT NO. 119

FACILITY OPERATING LICENSE NO. NPF-63

DOCKET NO. 50-400

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

3/4 4-43

Insert Page

3/4 4-43

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 119 TO FACILITY OPERATING LICENSE NO. NPF-63

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

DOCKET NO. 50-400

1.0 INTRODUCTION

By letter dated October 15, 2004 (ADAMS Accession No. ML042950619), the Carolina Power & Light Company (the licensee) submitted a request for changes to the Shearon Harris Nuclear Power Plant, Unit 1, Technical Specifications (TS). The requested changes would revise the surveillance requirements associated with TS 3/4.4.10, "Structural Integrity," by extending the allowable inspection interval for the reactor coolant pump (RCP) flywheels to 20 years. These changes are based on Technical Specification Task Force (TSTF) change traveler TSTF-421 (Revision 0) that has been approved generically for the Westinghouse Standard Technical Specifications (STS), NUREG-1431. A notice announcing the availability of this proposed TS change using the consolidated line item improvement process (CLIP) was published in the *Federal Register* on October 22, 2003 (68 FR 60422).

2.0 REGULATORY EVALUATION

The function of the RCP in the reactor coolant system (RCS) of a pressurized-water reactor plant is to maintain an adequate cooling flow rate by circulating a large volume of primary coolant water at high temperature and pressure through the RCS. Following an assumed loss of power to the RCP motor, the flywheel, in conjunction with the impeller and motor assembly, provides sufficient rotational inertia to assure adequate primary coolant flow during RCP coastdown, thus resulting in adequate core cooling. A concern regarding the overspeed of the RCP and its potential for failure led to the issuance of Regulatory Guide (RG) 1.14, "Reactor Coolant Pump Flywheel Integrity," Revision 1, dated August 1975. RG 1.14 describes a method acceptable to the NRC staff of addressing concerns related to RCP vibration and the possible effects of missiles that might result from the failure of the RCP flywheel. The need to protect components important to safety from such missiles are included in General Design Criterion 4, "Environmental and Dynamic Effects Design Basis," of Appendix A, "General Design Criteria for Nuclear Power Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Licensing of Production and Utilization Facilities," which is applicable to plants that obtained their construction permits after May 21, 1971.

Specific requirements to have an RCP Flywheel Inspection Program consistent with RG 1.14 or previously issued relaxations from the RG are included in the Administrative Controls Section of the TS. The purpose of the testing and inspection programs defined in the TS is to ensure that the probability of a flywheel failure is sufficiently small such that additional safety

features are not needed to protect against a flywheel failure. The RG provides criteria in terms of critical speeds that could result in the failure of an RCP flywheel during normal or accident conditions. In addition to the guidance in RG 1.14, the NRC has more recently issued RG 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," which provides guidance and criteria for evaluating proposed changes that use risk-informed justifications.

A proposed justification for extending the RCP flywheel inspections from a 10-year inspection interval to an interval not to exceed 20 years was provided by the Westinghouse Owners Group (WOG) in topical report WCAP-15666, "Extension of Reactor Coolant Pump Motor Flywheel Examination," transmitted by letter dated August 24, 2001. The topical report addressed the proposed extension for all domestic WOG plants. The NRC accepted the topical report for referencing in license applications in a letter and safety evaluation (SE) dated May 5, 2003 (ADAMS Accession No. ML031250595). The licensee had not adopted a previously approved generic change to this TS that provided an alternate inspection of the flywheel and extended the inspection interval to 10 years. The licensee proposes in this amendment to adopt the inspection methods and increase the inspection interval to 20 years.

3.0 TECHNICAL EVALUATION

The licensee is proposing to adopt previously accepted changes to the RCP flywheel inspection methods that define an allowable alternative to the inspections described in RG 1.14. The inspections are defined as in-place ultrasonic examination over the volume from the inner bore of the flywheel to the circle of one-half the outer radius or an alternative surface examination (magnetic particle testing [MT] and/or liquid penetrant testing [PT]) of exposed surfaces of the removed flywheels). In a previous revision of the STS and numerous plant-specific amendments, the NRC staff accepted an allowable interval for these inspections of "approximately 10 year intervals coinciding with the Inservice Inspection schedule as required by ASME [American Society of Mechanical Engineers, Boiler and Pressure Vessel Code], Section XI." The change proposed in this amendment application would revise the allowable inspection interval to "20 year intervals."

The justification for the proposed change was provided in WCAP-15666, which the NRC staff accepted for referencing in license applications by a letter and SE dated May 5, 2003. The topical report addresses the three critical speeds defined in RG 1.14: (a) the critical speed for ductile failure, (b) the critical speed for non-ductile failure, and (c) the critical speed for excessive deformation of the flywheel. The NRC staff found that the topical report adequately addressed these issues and demonstrated that acceptance criteria, for normal and accident conditions defined in RG 1.14, would continue to be met for all domestic WOG plants following an extension of the inspection interval. The topical report also provided a risk assessment for extending the RCP flywheel inspection interval. The NRC staff's review, documented in the SE for the topical report, determined that the analysis methods and risk estimates are acceptable when compared to the guidance in RG 1.174.

Previously accepted generic changes (alternate inspections to RG 1.14 and inspection intervals of 10 years) had not been adopted for Shearon Harris. The technical basis of the change, as described in the NRC-approved topical report WCAP-15666, remains valid for the licensee's proposal to incorporate those changes with this amendment and also adopt the 20-year inspection interval. The licensee has, in effect, skipped an intermediate step in the

evolution of this particular TS and is adopting the requirements as described in the CLIIP notices.

In conclusion, the NRC staff finds that the regulatory positions in RG 1.14 concerning the three critical speeds are satisfied, and that the evaluation indicating that critical crack sizes are not expected to be attained during a 20-year inspection interval is reasonable and acceptable. The potential for failure of the RCP flywheel is, and will continue to be, negligible during normal and accident conditions. The change is therefore acceptable.

4.0 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.

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 and changes the surveillance requirements. 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 (70 FR 9988). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22©(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: W. Reckley

Date: June 21, 2005

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Carolina Power & Light Company

Shearon Harris Nuclear Power Plant
Unit 1

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