



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

September 30, 2010

Mr. Christopher L. Burton, Vice President
Shearon Harris Nuclear Power Plant
Carolina Power & Light Company
Post Office Box 165, Mail Zone 1
New Hill, North Carolina 27562-0165

SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT, UNIT NO. 1 — WITHDRAWAL
OF AN AMENDMENT REQUEST TO REMOVE CREDIT FOR BORAFLEX IN
THE BWR SPENT FUEL POOL STORAGE RACKS (TAC NO. ME0012)

Dear Mr. Burton:

By letter dated September 29, 2008, as supplemented by letters dated January 16, 2009, August 12, 2009, January 18, 2010, and August 16, 2010, Carolina Power & Light Company (the licensee), now doing business as Progress Energy Carolinas, Inc. (PEC), applied for a license amendment to the Shearon Harris Nuclear Power Plant, Unit 1, Renewed Facility Operating License No. NPF-63.

The proposed amendment would have modified Technical Specification (TS) Sections 5.6.1.3.a and 5.6.1.3.b to incorporate the results of a new criticality analysis. Specifically the TSs would be revised to add new requirements for the Boiling-Water Reactor (BWR) spent fuel storage racks containing Boraflex in Spent Fuel Pools A and B. The requirements for the BWR spent fuel racks currently contained in TS 5.6.1.3 would be revised to specify applicability to the spent fuel storage racks containing Boral in Spent Fuel Pool B.

Subsequently, by letter dated September 28, 2010, the licensee withdrew the amendment request. The purpose of this withdrawal was to allow the licensee to address several outstanding technical issues with regard to the criticality analyses used to support this amendment. Specifically, the issues identified by the Nuclear Regulatory Commission staff include, but are not limited to:

Axial Burnup Profile

Based on the information provided by the licensee, the bounding axial burnup profile was determined by averaging 4 profiles selected from among 16 that were provided to the vendor. The initial 16 profiles were from assemblies that had initial enrichments around 4 weight-percent Uranium-235 and had accumulated burnup values between 30- and 46-gigawatt days per metric ton of uranium (GWd/MTU). The information provided in the associated technical report is not adequate to support a conclusion that the axial burnup profile conservatively bounds the axial burnup profiles for the fuel to be stored in the spent fuel storage racks.

Accordingly, the licensee needs to provide justification for using the limited set of 16 profiles. This justification should address coverage of the ranges in fuel designs (i.e., GE3 through GE13), variations of assembly features with the designs (i.e., Gadolinium rod usage, enrichments, blankets, axial dimensions, etc.), variations in relevant fuel depletion history (i.e., power, temperature, void distribution, control rod usage, etc.), and the range of the final assembly burnup values credited by the burnup credit analysis (i.e., 1.4 to 54.2 GWd/MTU).

The licensee should also justify the further down-selection to four axial burnup profiles. The justification should address why the four selected profiles are bounding compared to the 16 provided to the vendor. Finally, the licensee should describe how an average profile can be bounding when compared to the four profiles used to generate the average profile.

Selection of Design Basis Assembly

The licensee provided information supporting the selection of the design basis assembly. The licensee determined that the GE13 assembly design is the limiting fuel design. However, no details were provided to support this assertion or to show how the calculations were performed.

To support a technical review, additional information on the codes utilized, fuel geometry, axial burnup distributions used, variations within each assembly design considered, fuel channels, and gadolinium modeling should be provided. Note that simple 2D comparisons of these assembly designs with varying 3D features may not be appropriate.

The licensee should also address any potential issues related to fuel assembly model simplifications. For example, the licensee should address the use of a single axial burnup distribution for modeling fuel assemblies with different axial features.

Manufacturing Tolerances

A limited set of uncertainties due to manufacturing tolerances was provided. To support a technical review, additional uncertainty components associated with the following manufacturing tolerances should be evaluated: wrapper thickness, wrapper width, Boraflex gap thickness, Boraflex gap width, fuel pin pitch, pellet outer diameter (OD), clad OD and thickness, channel inner diameter and thickness, water tube OD and thickness, initial Gadolinium content, Gadolinium pellet density, and the length and location of each axial zone.

This letter is to advise you that the above cited application is being treated as withdrawn. The Commission has filed the enclosed Notice of Withdrawal of Application for Amendment to Facility Operating License with the Office of the Federal Register for publication. Please contact me at (301) 415-3178 if you have questions regarding this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Marlayna Vaaler for". The signature is written in a cursive, flowing style.

Marlayna Vaaler, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-400

Enclosure: Notice of Withdrawal

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NUCLEAR REGULATORY COMMISSION

Carolina Power & Light Company

Docket No. 50-400

Notice of Withdrawal of Application for
Amendment to Renewed Facility Operating License
[NRC-2010-0286]

The U.S. Nuclear Regulatory Commission (NRC, the Commission) has granted the request of the Carolina Power & Light Company (the licensee) to withdraw its application dated September 29, 2008, as supplemented by letters dated January 16, 2009, August 12, 2009, January 18, 2010, and August 16, 2010, for a proposed amendment to Renewed Facility Operating License No. NPF-63 for the Shearon Harris Nuclear Power Plant, Unit 1, located in Wake County, North Carolina.

The proposed amendment would have modified Technical Specification (TS) Sections 5.6.1.3.a and 5.6.1.3.b to incorporate the results of a new criticality analysis. Specifically the TSs would be revised to add new requirements for the Boiling-Water Reactor (BWR) spent fuel storage racks containing Boraflex in Spent Fuel Pools A and B. The requirements for the BWR spent fuel racks currently contained in TS 5.6.1.3 would be revised to specify applicability to the spent fuel storage racks containing Boral in Spent Fuel Pool B.

The Commission had previously issued a Notice of Consideration of Issuance of Amendment published in the FEDERAL REGISTER on February 24, 2009 (74 FR 8283). However, by letter dated September 28, 2010, the licensee withdrew the proposed change.

For further details with respect to this action, see the application for amendment dated September 29, 2008 (Agencywide Documents Access and Management System (ADAMS)

Accession No. ML082800410), as supplemented by letters dated January 16, 2009, (ADAMS Accession No. ML090230373), August 12, 2009 (ADAMS Accession No. ML092310549), January 18, 2010 (ADAMS Accession No. ML100250850), and August 16, 2010 (ADAMS Accession No. ML102370768), and the licensee's letter dated September 28, 2010, which withdrew the application for license amendment.

Documents may be examined, and/or copied for a fee, at the NRC's Public Document Room (PDR), located at One White Flint North, Public File Area O1 F21, 11555 Rockville Pike (first floor), Rockville, Maryland. Publicly available records will be accessible electronically from the ADAMS Public Electronic Reading Room on the internet at the NRC Web site, <http://www.nrc.gov/reading-rm/adams.html>. Persons who do not have access to ADAMS or who encounter problems in accessing the documents located in ADAMS should contact the NRC PDR Reference staff by telephone at 1-800-397-4209, or 301-415-4737 or by email to pdr.resource@nrc.gov.

Dated at Rockville, Maryland, this day of September 2010.

FOR THE NUCLEAR REGULATORY COMMISSION



Douglas A. Broaddus, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

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Sincerely,

/RA by TOrf for/

Marlayna Vaaler, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-400
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