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

October 14, 2011

Mr. William Jefferson, Jr.
Vice President
Carolina Power & Light Company
Shearon Harris Nuclear Plant
P.O. Box 165, Mail Zone 1
New Hill, NC 27562-0165

SUBJECT: SHEARON HARRIS NUCLEAR PLAN, UNIT 1 – REQUEST FOR ADDITIONAL INFORMATION REGARDING MEASUREMENT UNCERTAINTY RECAPTURE POWER UPRATE (TAC NO. ME6169)

Dear Mr. Jefferson:

By letter dated April 28, 2011 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML11124A180), as supplemented on June 23, 2011 (ADAMS Accession No. ML11179A052), Carolina Power & Light Company requested approval from the U.S. Nuclear Regulatory Commission (NRC) to increase the core thermal power level of Shearon Harris Nuclear Power Plant, Unit 1 from 2,900 megawatts thermal (MWt) to 2,948 MWt, an increase of approximately 1.66 percent over the present licensed power level and to change the power plant technical specifications accordingly.

The NRC staff has reviewed your letter dated August 31, 2011, which was in response to the NRC staff's August 4, 2011, request for additional information (RAI), and has determined that clarification of the additional information is needed. The specific questions are found in the enclosed RAI. It is requested that your response be provided by October 21, 2011, as discussed with your staff on September 28, 2011, via e-mail. If more time is needed to respond to the enclosed RAI, your request for additional time should include a basis for the need for an extension.

Please feel free to contact me at 301-415-2020 or by e-mail at Brenda.Mozafari@nrc.gov if you have any questions on this issue or require additional time to submit your response.

Sincerely,

for

Brenda Mozafari, Senior Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-400

Enclosure: RAI

cc w/encl: Distribution via Listserv

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT NO. 1

REQUEST FOR ADDITIONAL INFORMATION (RAI) REGARDING

MEASUREMENT UNCERTAINTY RECAPTURE (MUR) POWER UPRATE

TAC NO. ME6169

The Nuclear Regulatory Commission (NRC) staff has reviewed the additional information provided by the licensee in letter dated August 31, 2011 (Agencywide Documents Access and Management System Accession No. ML11255A132). Based on the NRC staff's review of the licensee's response, the staff requests the following additional information:

1. In response to the staff's RAI number 9, the licensee stated in the last paragraph that the existing isophase bus will require increased cooling to accommodate the increase in Megawatt Electric (MWe). The licensee further stated that the plant will implement a modification to the isophase bus duct cooling during the planned spring 2012 refueling.

   Provide the proposed isophase bus duct ampere rating at the increased cooling, and demonstrate that the rating is adequate for the increased MWe and Mega Volt Ampere Reactive at MUR power uprate conditions (corresponding to 1136.5 Mega Volt Ampere at 0.9547 power factor as provided in response the staff's RAI number 4).

2. In response to the staff's RAI number 2, the licensee stated that a software error was found that could result in an increase in the containment pressure and temperature for the loss-of-coolant accident (LOCA), and that the environmental qualification (EQ) evaluations have been performed to show that the EQ program's existing test limits provide sufficient margin to address the increases that result from correcting mass and energy releases for the LOCA conditions.

   Provide containment pressure and temperature profiles for the LOCA conditions before and after incorporation of the corrections necessary due the software error. Also, superimpose the bounding equipment EQ profiles to demonstrate adequate margin continues to exist.

3. In response to the staff's RAI Number 2, under the discussion of Radiation Environments to support Equipment Qualification, Accident and Normal Conditions, the licensee stated that the normal operation doses inside the containment reflect the increase in specific activity of Nitrogen-16 (N-16) and are based on a core power level of 2900 megawatts thermal, averaged over the 60-year plant life.

   Describe the relationship between the rise in core power level and the rise in N-16 concentration. Also, describe the relationship between N-16 concentration and the normal operation radiation level considered for the qualification of electrical equipment inside containment.

Enclosure

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/RA by JPaige for/

Brenda Mozafari, Senior Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-400

Enclosure: RAI

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