BRUCE H HAMILTON
Vice President
Oconee Nuclear Station

Duke Energy Corporation
ON01VP / 7800 Rochester Highway
Seneca, SC 29672

864 885 3487
864 885 4208 fax
bhhamilton@duke-energy.com

May 9, 2007

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555-0001

Subject: Duke Power Company LLC d/b/a Duke Energy Carolinas, LLC
Oconee Nuclear Site, Units 1, 2, and 3
Docket Numbers 50-269, 50-270, and 50-287
Duke response to NRC Request for Additional Information in regard to License Amendment Request (LAR) to Revise the Updated Final Safety Analysis Report (UFSAR) Related to Auxiliary Building Sprinkler Systems Seismic Evaluation
License Amendment Request No. 2006-010

Reference: Letter from Duke Power Company LLC d/b/a Duke Energy Carolinas, LLC to U. S. Nuclear Regulatory Commission, "Oconee Nuclear Docket Numbers 50-269, 50-270, and 50-287 – Proposed License Amendment Request to Revise the Updated Final Safety Analysis Report (UFSAR) Related to Auxiliary Building Sprinkler Systems Seismic Evaluation; License Amendment Request No. 2006-010," dated November 16, 2006

In accordance with 10 CFR 50.90, Duke Power Company LLC d/b/a Duke Energy Carolinas, LLC (Duke) submitted an amendment to Renewed Facility Operating Licenses Nos. DPR-38, DPR-47, and DPR-55 on November 16, 2006 proposed to revise its commitments for Auxiliary Building Water Level (Flood) and update the Updated Final Safety Analysis Report to describe the flood protection measures for the Auxiliary Building. The LAR requested NRC approval for the use of a realistic seismic analysis of the Auxiliary Building sprinkler piping systems (two sprinkler systems in unit 1 and one each in units 2 and 3) to demonstrate that these non-seismic self-actuating sprinkler systems will not fail during a Maximum Hypothetical Earthquake (MHE).

By email dated March 19, 2007, Mr. Leonard Olshan of the NRC communicated to Duke a Request for Additional Information (RAI). Responses to the RAI questions are

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presented in Enclosure 2 to this letter. There are no commitments contained in this letter. Inquiries on this amendment request should be directed to Bob Knight of the Oconee Regulatory Compliance Group at (864) 885-3282.

Sincerely,

Bruce Hamilton

B. H. Hamilton, Vice President
Oconee Nuclear Site

Enclosures:

1. Notarized Affidavit
2. Response to NRC Request for Additional Information

bc w/enclosures:

Mr. W. D. Travers, Regional Administrator
U. S. Nuclear Regulatory Commission - Region II
Atlanta Federal Center
61 Forsyth St., SW, Suite 23T85
Atlanta, Georgia 30303

Mr. L. N. Olshan, Project Manager
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Mail Stop O-14 H25
Washington, D. C. 20555

D. W. Rich
Senior Resident Inspector
Oconee Nuclear Site

Mr. Henry Porter, Director
Division of Radioactive Waste Management
Bureau of Land and Waste Management
Department of Health & Environmental Control
2600 Bull Street
Columbia, SC 29201

bcc w/enclosures:

D. A. Baxter
R. M. Glover
S. D. Capps
L. E. Nicholson
B. G. Davenport
R. V. Gambrell
N. T. Clarkson
G. K. McAninch
J. M. Richards
P. A. Wells
M. R. Knight
J. N. Robertson
C. J. Thomas - MNS
R. D. Hart – CNS
R. L. Gill – NRI&IA
NSRB, EC05N
ELL, ECO50
File - T.S. Working
ONS Document Management

AFFIDAVIT

B. H. Hamilton, being duly sworn, states that he is Vice President, Oconee Nuclear Site, Duke Energy Carolinas, LLC that he is authorized on the part of said Company to sign and file with the U. S. Nuclear Regulatory Commission this revision to the Renewed Facility Operating License Nos. DPR-38, DPR-47, and DPR-55; and that all statements and matters set forth herein are true and correct to the best of his knowledge.

Bruce Hamilton

B. H. Hamilton, Vice President
Oconee Nuclear Site

Subscribed and sworn to before me this 9th day of May, 2007

Sheila A Smith
Notary Public

My Commission Expires:

6-12-2013
Date

SEAL

Question 1 - Subsection 4.1, "Summary of the Evaluation"

The seismic verification review included a walkdown evaluation of the sprinkler systems. Discuss the system modifications that were implemented as a result of the seismic verification review, and indicate their type and extent.

Response to Question 1

The modifications to be implemented are as follows:

1. Non-seismically qualified masonry above and adjacent to sprinkler piping in the laundry room of the Unit 2 Auxiliary Building is being removed to reduce the potential for damage to the sprinkler piping during a seismic event.

2. Silicon foam is being added to four pipe penetrations in the Units 1, 2, and 3 Auxiliary Buildings to improve resistance to sprinkler pipe movement.

3. Vertical and lateral guide supports are being added in three piping locations to reduce vertical and lateral pipe movement.

The engineering for the modification package was outsourced for expediency and has been completed. Work on Item 1 is currently in the planning stage. The installation of Items 2 and 3 are on hold pending receipt of the amendment requested in LAR 2006-10 approving use of a realistic seismic analysis of the non-seismic sprinkler piping in the Auxiliary Buildings.

Question 2 - Subsection 4.2, "Realistic Seismic Analysis Details"

Question 2A

State whether the floor response spectra used in the piping seismic analysis are based on the Maximum Hypothetical Earthquake.

Response to Question 2A

The analysis used the Oconee Nuclear Station (ONS) licensing basis Maximum Hypothetical Earthquake floor response spectra.

Question 2B

Provide justification for using un-broadened spectra, which doesn't account for uncertainty of the structural and seismic inputs in the analysis.

Response to Question 2B

The spectra for the realistic analysis associated with this submittal are from the same source document as used for all Oconee Nuclear Station Licensing Basis piping analysis. The Oconee Licensing Basis analysis uses 0.5% damped spectra and the realistic analysis used 5% damped spectra.

Question 3 - Subsection 4.3, "Piping Analysis Criteria"

The staff is not aware of the existence or basis of an inelastic energy absorption factor associated with Equation (12) of ANSI B31.1, 2001, or any other edition of ANSI B31.1. Provide the basis for this factor.

Response to Question 3

The Oconee sprinkler system piping analysis is intended to be a more realistic analysis as opposed to a code qualification analysis. In more realistic analyses, B31.1 Equation (12), which does not contain an inelastic energy absorption factor, is often modified to account for energy dissipated by the inelastic behavior of ductile piping systems. Since the Oconee sprinkler system includes threaded and cast iron fittings, a ductility factor or inelastic energy absorption factor was not considered appropriate and was set equal to unity. Therefore, in this regard, the ONS analysis does not differ from ANSI B31.1 Equation (12).

Question 4 - Subsection 4.5, "Pipe Support Analysis Criteria"

Question 4A

Provide the basis for the increase of 1.7 for the allowable stresses for structural members designed in accordance with AISC Part 2.

Response to Question 4A

The increase of 1.7 was applied to the allowable stresses from AISC Part 1 in order to arrive at a load capacity approximately the same as that resulting from the use of AISC Part 2. This is reflected in Table 6-9, "Loading Combination and Acceptance Criteria for Supports and Miscellaneous Structural Members where AISC Stress Allowables are

Used," of EPRI NP-6041, A Methodology for Assessment of Nuclear Power Plant Seismic Margin (Revision 1).

Question 4B

Provide the basis for increase of 1.67 for the rated values of standard pipe support components loaded in tension, bending, or shear. Provide the margin-to-failure under this increase for the highest loaded standard pipe support component.

Response to Question 4B

The factor 1.67 is consistent with the value used in pipe support evaluations for alternate leakage path piping to support deletion of MSIV leakage control systems in BWR plants submittals following the methodology of GE Topical Report NEDC-31858 (e.g., see response to NRC comment 2 in Georgia Power to USNRC, "Response to Request for Additional Information," dated February 3, 1994). Vendor rated values for standard support components include a safety factor of 5 based on the tested failure load. Therefore, 1.67 times the rated value provides an equivalent factor of safety of 3 for these components. This is consistent with the nominal factor of safety for expansion anchor bolts in the (Seismic Qualification Utility Group) SQUG Generic Implementation Procedure (GIP)[1].

The highest loaded standard pipe support component, relative to its load rating, has a computed weight plus seismic load of 443 lbs., including the 1.25 factor of conservatism applied to be consistent with the ONS application of the SQUG GIP. 1.67 times the rated load of the component is 1002 lbs., resulting in a minimum margin-to-failure of 2.26.

[1] "Generic Implementation Procedure (GIP) for Seismic Verification of Nuclear Power Plant Equipment," Revision 2, Corrected 2/14/92, Seismic Qualification Utility Group, February 1992.