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January 17, 2012

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

Subject: Duke Energy Carolinas, LLC
William States Lee III Nuclear Station - Docket Nos. 52-018 and 52-019
AP1000 Combined License Application for the
William States Lee III Nuclear Station Units 1 and 2
Response to Request for Additional Information
(RAI No. 6183)
Ltr# WLG2012.01-01

Reference: Letter from Brian Hughes (NRC) to James Thornton (Duke Energy), Request for Additional Information Letter No. 102 Related to SRP 3.8.5 - Structural Engineering for the William States Lee III Units 1 and 2 Combined License Application, dated December 19, 2011 (ML11355A063)

This letter provides the Duke Energy response to the Nuclear Regulatory Commission's request for additional information (RAI) included in the referenced letter.

The response to the NRC information request described in the referenced letter is addressed in a separate enclosure, which also identifies associated changes, when appropriate, that will be made in a future revision of the Final Safety Analysis Report for the Lee Nuclear Station.

If you have any questions or need any additional information, please contact James R. Thornton, Nuclear Plant Development Licensing Manager (Acting), at (704) 382-2612.

Sincerely,

John W. Pitesa

John W. Pitesa
Senior Vice President
Nuclear Operations

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NRO

Enclosure:

1) Lee Nuclear Station Response to Request for Additional Information (RAI) Letter No. 102, RAI 03.08.05-6

AFFIDAVIT OF JOHN W. PITESA

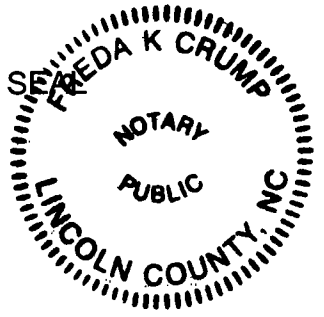
John W. Pitesa, being duly sworn, states that he is Senior Vice President, Nuclear Operations, Duke Energy Carolinas, LLC, that he is authorized on the part of said Company to sign and file with the U. S. Nuclear Regulatory Commission this supplement to the combined license application for the William States Lee III Nuclear Station, and that all the matter and facts set forth herein are true and correct to the best of his knowledge.

John W. Pitesa
John W. Pitesa, Senior Vice President
Nuclear Operations

Subscribed and sworn to me on January 17, 2012

Freda K. Crump
Notary Public

My commission expires: August 17, 2016



xc (w/o enclosure):

Charles Casto, Deputy Regional Administrator, Region II

xc (w/ enclosure):

Brian Hughes, Senior Project Manager, DNRL

Lee Nuclear Station Response to Request for Additional Information (RAI)

RAI Letter No. 102

NRC Technical Review Branch: **Structural Engineering Branch 1 (AP1000/EPR Projects) (SEB1)**

Reference NRC RAI Number(s): **RAI 03.08.05-6**

NRC RAI:

SRP Section 3.8.5 requires confirmation that the nuclear island remains stable under design basis demands. AP1000 DCD Section 3.4.1.1.1 states the waterproof membrane between the mudmats must provide adequate shear strength to transfer horizontal shear forces due to seismic loading, and that is function is seismic Category I. In this regard, DCD Section 3.4.1.1.1 provides a requirement for the COL applicant to identify a waterproofing system and to demonstrate a friction coefficient greater than or equal to 0.55 with all horizontal concrete surfaces. The staff review of WSL FSAR, Revision 4, finds that although there is a proposed ITAAC in Part 10 (Table 3.3-9) to address the friction coefficient, there is no description of the selected waterproofing membrane design. Staff notes that NRC regulations, 10 CFR Part 52.79, require the FSAR to contain information relative to materials of construction, arrangement, and dimensions, sufficient to provide reasonable assurance that the design will conform to the design bases with adequate margin for safety.

To address this issue, staff requests the applicant to describe, in an update to FSAR Section 3.8.5.1, the proposed waterproofing approach and demonstrate compliance with the AP1000 DCD and the required ITAAC in Part 10 (Table 3.3-9) when the selection is made.

Duke Energy Response:

The nuclear island mud mat waterproofing system for the Lee Nuclear Station has not yet been chosen. The system to be used is dependent upon, among other things, the selection of the type of Mechanically Stabilized Earth (MSE) wall used adjacent to the nuclear island construction, which is still being planned. The waterproofing system selected will be chosen from the acceptable alternatives described in DCD Subsection 3.4.1.1.1.1, and will be demonstrated to produce a friction coefficient of 0.55 or greater with the mud mat's horizontal concrete surfaces. Duke Energy will notify NRC within 60 days of selecting the waterproofing system to be used, including the qualification methods planned to demonstrate the required performance characteristics.

Associated Revision to the Lee Nuclear Station Final Safety Analysis Report:

Revised FSAR Subsection 3.4.1.1.1.1

Attachment:

1) Attachment 1 - Revised FSAR Subsection 3.4.1.1.1.1

Lee Nuclear Station Response to Request for Additional Information (RAI)

Attachment 1 to RAI 03.08.05-6

Revised FSAR Subsection 3.4.1.1.1.1

COLA Part 2, FSAR, Chapter 3, Subsection 3.4.1.1.1.1 is revised to add the following supplemental text:

3.4.1.1.1.1 Waterproofing

Add the following information to the end of DCD Subsection 3.4.1.1.1.1 as a new paragraph:

The Lee Nuclear Station site-specific waterproofing approach has not yet been selected. However, the waterproof membrane or waterproofing system for the Seismic Category 1 structures below grade will be selected from one of the acceptable approaches described above. Duke Energy will notify NRC within 60 days of selecting the waterproofing system to be used for the Lee Nuclear Station.