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July 17, 2009

Document Control Desk
U.S. Nuclear Regulatory Commission
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. 2679)
Ltr# WLG2009.07-04

Reference: Letter from Brian Hughes (NRC) to Peter Hastings (Duke Energy), Request for Additional Information Letter No. 072 Related to SRP Section 02.04.02 – Floods for the William States Lee III Units 1 and 2 Combined License Application, dated June 22, 2009

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 Peter S. Hastings, Nuclear Plant Development Licensing Manager, at 980-373-7820.

Bryan J. Dolan
Vice President
Nuclear Plant Development

D093
NRO

Enclosure:

1) Duke Energy Response to Request for Additional Information Letter 072, RAI 02.04.02-003

AFFIDAVIT OF BRYAN J. DOLAN

Bryan J. Dolan, being duly sworn, states that he is Vice President, Nuclear Plant Development, 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.

Bryan J. Dolan

Subscribed and sworn to me on July 17, 2009

Notary Public

My commission expires: June 26, 2011

SEAL

xc (w/o enclosure):

Loren Plisco, Deputy Regional Administrator, Region II
Stephanie Coffin, Branch Chief, DNRL

xc (w/ enclosure):

Brian Hughes, Senior Project Manager, DNRL

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

RAI Letter No. 072

NRC Technical Review Branch: Hydrologic Engineering Branch (RHEB)

Reference NRC RAI Number(s): RAI 02.04.02-003

NRC RAI:

In its independent review of the effects of local intense precipitation, the staff determined that the values of Manning's roughness coefficient range from 0.025 to 0.035 for short grass and from 0.030 to 0.050 for high grass (Chow, 1959). The staff also determined that the values of Manning's roughness coefficient range from 0.017 to 0.025 for lined or built-up channels with gravel bottom and formed concrete sides (Chow, 1959). The staff conservatively selected Manning's roughness coefficient values of 0.048, the average of maximums for short and high grass, and 0.025 for paved surfaces in its confirmatory analysis. The applicant had used Manning's roughness coefficient values of 0.035 for grass and 0.015 for paved surfaces. The staff determined during the confirmatory analysis that flow velocities modeled by HEC-RAS changed by up to 20 percent compared to applicant's estimates. Since change in flow velocities may affect the determination of the time of concentration, the applicant should re-evaluate the effects of local intense precipitation based on more appropriate values of Manning's roughness coefficient, or justify why the base values of Manning's roughness coefficient used in the FSAR analysis are conservative.

Duke Energy Response:

A re-evaluation of the effects of the local intense precipitation analysis has been performed. This re-evaluation was based on an increase to the Manning's roughness coefficients. A coefficient value of 0.050 was used for grass cover areas and a value of 0.025 was used for paved and gravel cover areas. The FSAR revisions associated with the increase in Manning's roughness coefficients are provided in FSAR Subsection 2.4.2.3 and FSAR Table 2.4.2-204. FSAR Subsection 2.4.2.3 also provides clarification that tailwater conditions were evaluated under the maximum water surface elevation determined for each water body.

The associated FSAR changes will be incorporated into a future revision of the FSAR.

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

FSAR Subsection 2.4.2.3

FSAR Table 2.4.2-204

Attachments:

1) Revision to FSAR Subsection 2.4.2.3
2) Revision to FSAR Table 2.4.2-204

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

Attachment 1 to RAI 02.04.02-003

Revision to FSAR 2.4.2.3

COLA Part 2, FSAR, Chapter 2, Subsection 2.4.2.3, Effects of Local Intense Precipitation, third paragraph, will be revised as follows:

To analyze the effects of local intense precipitation, the site was divided into four drainage areas (northwest, northeast, southwest, southeast) based on the contours of the grading and drainage plan. Each area was modeled using the U.S. Army Corps of Engineers HEC-RAS version 3.1.3 (Reference 273) (standard-step, backwater analysis) computer software. Cross sections for each of the four areas were determined based on the grading and drainage plan and flows were modeled under steady state conditions. Buildings were modeled to obstruct flow and were not assumed to provide any storage. Tailwater elevations for the Broad River, Make-Up Pond B, and Make-Up Pond A correspond with the higher of the peak PMF water surface elevation provided in Subsection 2.4.3 or the peak dam failure water surface elevation provided in Subsection 2.4.4. A Manning's roughness coefficient, n = ~~0.015~~0.025, was used for the paved or gravel surfaces. A Manning's roughness coefficient, n = ~~0.035~~0.050 was used for the grass surfaces.

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

Attachment 2 to RAI 02.04.02-003

Revision to FSAR Table 2.4.2-204

COLA Part 2, FSAR, Chapter 2, Section 2.4, Table 2.4.2-204, will be revised as follows:

Drainage Area	Area (ac.)	Time of Concentration (min.)	PMP Depth (in.)	Intensity (in/hr)	Flow Rate (cfs)	Water Surface Elevation[(a)] (ft.)
NW	50.26	54~~42~~	18.2~~16.5~~	20.2~~23.6~~	1015~~1186~~	589.08~~588.96~~
NE	38.49	122~~88~~	22.6~~20.8~~	11.1~~14.2~~	427~~547~~	588.88~~588.82~~
SW	50.90	420~~400~~	31.5~~31.3~~	4.5~~4.7~~	229~~239~~	589.57~~589.34~~
SE	33.50	554~~3~~	18.4~~16.8~~	20.1~~23.4~~	673~~784~~	588.81~~588.70~~

a) Resulting water surface elevation at safety-related structures using HEC-RAS steady state flow analyses.