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March 18, 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  
Ltr# WLG2009.03-08

References: Letter from J.M. Muir (NRC) to B.J. Dolan (Duke Energy), *Request for Additional Information Regarding the Environmental Review of the Combined License Application for William States Lee Nuclear Station Units 1 and 2*, dated August 21, 2008

Letter from B.J. Dolan (Duke Energy) to Document Control Desk (NRC) *AP1000 Combined License Application for the William States Lee III Nuclear Station Units 1 and 2 Response to Request for Additional Information*, Ltr# WLG2008.10-04

Letter from B.J. Dolan (Duke Energy) to Document Control Desk (NRC) *AP1000 Combined License Application for the William States Lee III Nuclear Station Units 1 and 2 Response to Request for Additional Information*, Ltr# WLG2008.10-13

This letter provides updates to the previously submitted responses for the Nuclear Regulatory Commission's (NRC) request for the following additional information (RAI) items listed in the reference letters:

RAI 13, Hydrology  
RAI 30, Socioeconomics  
RAI 34, Socioeconomics  
RAI 63, Aquatic Ecology

These updates to the responses to the NRC requests are addressed in the enclosures which also identify any associated changes that will be made in a future revision of the William States Lee III Nuclear Station application.

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If you have any questions or need any additional information, please contact Peter S. Hastings at 980-373-7820.

A handwritten signature in black ink, appearing to read "Bryan J. Dolan". The signature is fluid and cursive, with the first name being the most prominent.

Bryan J. Dolan  
Vice President  
Nuclear Plant Development

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Enclosures:

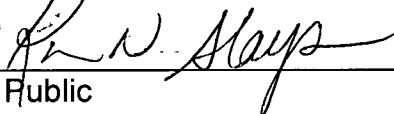
- 1) Response to RAI 13, Hydrology
- 2) Response to RAIs 30 and 34, Socioeconomics
- 3) Response to RAI 63, Aquatic Ecology

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 March 18, 2009

  
Notary Public

My commission expires: April 19, 2010



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xc (wo/enclosures):

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

xc (w/enclosures):

Linda Tello, Project Manager, DSER  
Brian Hughes, Senior Project Manager, DNRL

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

**RAI Letter Dated:** August 21, 2008

**Reference RAI Number:** ER RAI-13

**NRC RAI:**

Submit a quantification of the distribution of well depths in the region. If there is a trend to abandon wells and convert to municipal water supplies, provide a reference.

Quantify the distribution of well depths in the region. If there are any wells deeper than 150 ft deep, provide the number and whether any are within a mile of the plant boundary. If the modern trend is for people to abandon wells and convert over to municipal water from Draytonville and Gaffney (or elsewhere), provide a reference.

**Duke Energy Updated Response:**

The number of wells completed since 1985 greater than 150 ft. deep was erroneously reported as 21, and is changed to 19 in this response.

**Associated Revisions to the Lee Nuclear Station Combined License Application:**

None

**Associated Attachment:**

None

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

**RAI Letter Dated:** August 21, 2008

**Reference RAI Numbers:** ER RAI-30 and 34

**NRC RAIs:**

ER RAI-30: Provide a consistent explanation of taxes.

ER RAI-34: Provide a discussion of Duke's tax/fee in lieu payments to the county.

**Duke Energy Updated Response:**

The cost estimate for construction of the Lee Nuclear Station increased since the submission of the response to these two RAIs. Consequently the resulting taxes to be paid by Duke Energy are revised in this supplement to the original response. The revision to COLA Part 3, ER Chapter 5, Subsection 5.8.2.2.1 and COLA Part 3, ER Chapter 10, Subsection 10.4.1.1.1, Paragraph 2, are shown below.

**Associated Revisions to the Lee Nuclear Station Combined License Application:**

1. Revise COLA Part 3, ER Chapter 5, Subsection 5.8.2.2.1, as follows:

Regional taxes and the political structure within the Lee Nuclear Site region are discussed in Subsection 2.5.2. Cherokee County is the tax district that is expected to be most directly affected by the operation of the Lee Nuclear Station. During the initial 30 years of operation of the plant, Duke Energy is expected to make fee payments in lieu of taxes at a rate of 4 percent of the taxable property value in Cherokee County, South Carolina. Should the valuation of a project investment reach \$2 billion, the in-lieu assessment drops to 2 percent. It is anticipated that the valuation of Duke Energy's investment in construction of the Lee Nuclear Station reaches approximately \$11 billion, and their assessment falls within the 2 percent criterion. The expected Infrastructure Tax Credit Agreement between Duke Energy and Cherokee County is a 30-year agreement. The anticipated in-lieu payment to Cherokee County is expected to be \$11,800,268. The anticipated percentage of additional property taxes contributed to Cherokee County because of the Lee Nuclear Station is 21.3979 percent.

Several types of taxes are generated by operations activities and purchases, and by workforce expenditures within the vicinity. Employees of the Lee Nuclear Station pay taxes on their wages and salaries to South Carolina if they meet federal and/or state guidelines to file in that state.

South Carolina and particularly the counties surrounding the Lee Nuclear Site experiences an increase in the amount of sales and use taxes collected. Additional sales and use taxes are generated by retail expenditures of the operating workforce. Currently, it is difficult to assess which communities and counties are most impacted by sales and use taxes collected from the new workforce.

Duke Letter Dated: March 18, 2009

The ~~2005~~2007 ~~fee in lieu and joint industrial park assessed property value for~~ Cherokee County property tax total notices are ~~\$25,779,796~~43,346,496.42. With an ~~estimated 4 to 6~~ approximate 11 billion dollar investment in the project and a fee-in-lieu of taxes assessed ratio of ~~four~~two percent (~~the same as Cherokee County property tax assessment~~), and a fixed millage rate of ~~2450.3~~240.300 mils (~~the cumulative property tax rate in 2004 for Cherokee County~~), the impact in Cherokee County is expected to be LARGE beneficial. The impacts of station operations on tax revenue in the region is expected to be SMALL beneficial, based on increased collections over a number of political jurisdictions.

2. Revise COLA Part 3, ER Chapter 10, Subsection 10.4.1.1.1, Paragraph 2, as follows:

South Carolina has license taxes on utilities and electric cooperatives. ~~Corporations are charged \$1 for every \$1000 of assessed fair market value of property as determined for property tax purposes the preceding taxable year.~~ In South Carolina, the in-lieu agreement is based upon a standard 10.5 percent assessment that decreases in increments as the monetary investment in a construction project increases. It is anticipated that the valuation of Duke Energy's investment in construction of the Lee Nuclear Station reaches approximately \$11 billion, and their assessment falls within the 2 percent criterion. The anticipated in-lieu payment to Cherokee County is expected to be \$11,800,268 annually. They Utilities are also charged \$3 per \$1000 of gross receipts derived from services rendered during the preceding taxable year (Section 2.5). Customer cost for electricity in South Carolina in 2007, based on all sectors, is reported to be \$0.0695 per kilowatt hour (kWh) (Reference 12). At approximately ~~17,600,000~~18,200,000 megawatt hours (MWh) of electricity generated annually, the Lee Nuclear Station should contribute over \$3.5 million to the annual South Carolina state tax base over the operational life of the station.

**Associated Attachments:**

None



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

**RAI Letter Dated:** August 21, 2008

**Reference RAI Number:** ER RAI-63

**NRC RAI:**

Duke is requested to conduct further modeling of low flow events focusing on temperature increases during low flow periods and the predicted durations of these elevated temperature events to help ecologists determine the level of impacts to the small mouth bass population below the Ninety - Nine Islands dam. Modeling should include a re - evaluation of the CORMIX modeling results downstream of the dam, considering smallmouth bass thermal tolerances as an input.

**Duke Energy Updated Response:**

In the original response to ER RAI 63, Paragraph 4 of COLA Part 3, ER Chapter 5, Subsection 5.3.2.2 was deleted and replaced with a new paragraph. The deleted paragraph was to be re-inserted as a new Paragraph 6 in COLA Part 3, ER Chapter 5, Subsection 5.3.2.1 and a new reference added to COLA Part 3, ER Chapter 5, Subsection 5.3.5. This addition and new reference was inadvertently omitted in the original response. The correct changes to these subsections are provided below.

**Associated Revisions to the Lee Nuclear Station Combined License Application:**

1. Revise COLA Part 3, ER Chapter 5, Subsection 5.3.2.1, Paragraph 6, as follows:

Dilution and distribution of the discharge heat as well as other effluent constituents are affected by both the design of the discharge structure and the flow characteristics of the receiving water. Analyses were performed for conditions of low, mean and high river water temperatures at low, mean, and high flow conditions. Results given in Table 5.2-1 show the discharge parameters at the expected discharge rates. These simulations predict a small thermal plume that dissipates quickly. In addition, placing the discharge structure in the Ninety-Nine Islands Reservoir just in front of the dam should facilitate enhanced mixing. Results of the mass balance calculation indicate that the maximum temperature change downstream of the hydroelectric station is expected to be less than 1.4°F.

Given the location of the proposed blowdown diffuser, a thermal plume may build just upstream along the face of the Ninety-Nine Islands Dam during low-flow conditions when the hydroelectric station ceases operation for short periods of time. When the hydroelectric station resumes operation, this heated water will be mixed with river water as both pass through the turbines. This combined flow is then discharged through the tailrace of the Hydroelectric Station. Based on studies performed by the Strom Thurmond Institute (Reference 19), the temperature increase associated with the effluent outfall should be no more than 1.7°F. Therefore, impacts from the temperature of the Lee Nuclear Station's discharge are SMALL and do not warrant mitigation.

2. Revise COLA Part 3, ER Chapter 5, Subsection 5.3.2.2, Paragraph 4, as follows:

~~Given the location of the proposed blowdown diffuser, a thermal plume may build just upstream along the face of the Ninety Nine Islands Dam during low flow conditions when the Hydroelectric Station ceases operation for short periods of time. When the Hydroelectric Station resumes operation this heated water will be mixed with river water as both pass through the Hydroelectric Station turbines. This combined flow is then discharged through the tailrace of the Hydroelectric Station. Based on previous discussion Duke Energy assumes that the temperature differential of this combined flow will be no more than 1.7°F.~~

A smallmouth bass (*Micropterus dolomieu*) fishery does exist in the Broad River, but fish populations are not anticipated to be affected by discharges from the plant. Thermal ranges for smallmouth bass in reference documents are similar, although not identical. Data used in the Oroville (California) FERC relicensing documents (Reference 20) indicate optimum water temperatures for adult growth range from 77°F to 80.6°F; however, rapid growth is observed in water temperatures as high as 84.2°F. Reference 21 reports temperature responses for smallmouth bass as published by various authors. Preferred temperatures are reported between 86.5°F and 87.8°F, and various maximums for juveniles and adults range from 89.6°F to 95°F.

3. Revise COLA Part 3, ER Chapter 5, Subsection 5.3.5, References, as follows:

19. Hargett, D., A. Khan, and B. Sill, *Hydrodynamic Assessment of Discharge from Cooling Tower Blowdown to Broad River, Lee Nuclear Station, Cherokee County, South Carolina*, Final Report, The Strom Thurmond Institute, Clemson University, Clemson, S.C., 2007.
20. State of California, The Resources Agency, Department of Water Resources, *Matrix of Life History and Habitat Requirements of Feather River Fish Species*, Oroville Facilities Relicensing, FERC Project 2100, SP-F15 TASK 1, SP-F21 TASK 1, SP-F3.2 TASK 2, Appendix A (Smallmouth Bass), 2004.
21. Armour, C., *Evaluating Temperature Regimes for Protection of Smallmouth Bass*, U.S. Department of the Interior, Fish and Wildlife Service Resource Publication 191, 1993.

**Associated Attachments:**

None