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September 17, 2008

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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 # WLG2008.09-06

Reference: Letter from Brian C. Anderson (NRC) to Peter Hastings (Duke Energy)
*Request for Additional Information Letter No. 006 Related to SRP Section
10.04.06 for the William States Lee III Units 1 and 2 Combined License
Application, dated August 18, 2008.*

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

Responses to the NRC information requests described in the reference letter is addressed as 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

Document Control Desk
September 17, 2008
Page 2 of 4

Enclosures:

- 1) Duke Energy Response to Request for Additional Information Letter 006,
RAI 10.04.06-1
- 2) Duke Energy Response to Request for Additional Information Letter 006,
RAI 10.04.06-2
- 3) Duke Energy Response to Request for Additional Information Letter 006,
RAI 10.04.06-3

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.



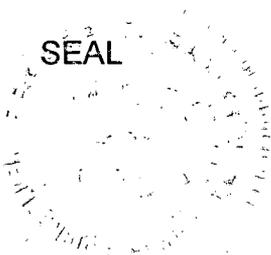
Bryan J. Dolan

Subscribed and sworn to me on September 17, 2008



Notary Public

My commission expires: June 26, 2011



Document Control Desk
September 17, 2008
Page 4 of 4

xc (w/o enclosures):

Michael Johnson, Director, Office of New Reactors
Gary Holahan, Deputy Director, Office of New Reactors
David Matthews, Director, Division of New Reactor Licensing
Scott Flanders, Director, Site and Environmental Reviews
Glenn Tracy, Director, Division of Construction Inspection and Operational Programs
Charles Ader, Director, Division of Safety Systems and Risk Assessment
Michael Mayfield, Director, Division of Engineering
Luis Reyes, Regional Administrator, Region II
Loren Plisco, Deputy Regional Administrator, Region II
Thomas Bergman, Deputy Division Director, DNRL
Stephanie Coffin, Branch Chief, DNRL

xc (w/enclosures):

Brian Hughes, Senior Project Manager, DNRL

Document Control Desk
September 17, 2008
Page 5 of 5

bxc (w/o enclosures):

Dhiala Jamil
Peter Hastings
Bob Morgan
Ted Bowling
Kate Nolan
Rita Sipe
Lisa Vaughn

bxc (w/ enclosures):

Chris Nolan
Shelley Kowkabany (Enercon)
Don Silverman
Kathryn Sutton
ELL 05P
File No. WLG 4000.25-04-02

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

RAI Letter No. 006

NRC Technical Review Branch: Component Integrity, Performance and Testing Branch 1

Reference NRC RAI Number(s): 10.04.06-001

NRC RAI:

In order to ensure compliance with GDC 14, SRP Section 10.4.6 refers to SRP Section 5.4.2.1, "Steam Generator Materials," for acceptance criteria for secondary water chemistry. SRP Section 5.4.2.1 refers to Branch Technical Position, BTP 5-1, "Monitoring of Secondary Side Water Chemistry in PWR Steam Generator," which states, in part, "The applicant should address how its program meets industry guidelines (e.g., EPRI's secondary water chemistry guidelines and Nuclear Energy Institute (NEI) 97-06)." BTP 5-1 also indicates that the secondary water chemistry program should control pH. Although consistency with industry guidelines was addressed in the AP1000 DCD, the COL applicant made the selection of the pH control and oxygen scavenger agents as discussed in COL Information Item 10.4.12.2. To address COL Information Item 10.4.12.2, the COL applicant identified the oxygen scavenger agents as hydrazine and carbohydrazide, and pH control agents as dimethylamine and methoxypropylamine in Lee FSAR Section 10.4.7.2.1.

The EPRI Secondary Water Chemistry Guidelines provide guidance on how pH is to be optimized in conjunction with the selected amine. The EPRI Secondary Water Chemistry Guidelines also recommend a site-specific materials compatibility review for plants implementing advanced amine treatment. The information provided by the applicant did not address these items. The staff therefore requests the following additional information:

How were the selected amines (dimethylamine and methoxypropylamine) qualified for secondary systems pH control?

Duke Energy Response:

The use of AVT (all-volatile treatment) amine agents for pH control to achieve an alkaline condition on the PWR secondary-side has been successfully utilized for many years. More recently, the use of advanced amine treatment agents including dimethylamine and methoxypropylamine has been implemented in the U.S. commercial nuclear industry. The use and optimization of dimethylamine and methoxypropylamine will be based on industry-wide PWR operating experience gained over the next several years. Duke Energy plans to use dimethylamine and methoxypropylamine separately and in combination to maintain the ammonia cycle on the secondary-side.

Amine chemical usage will be combined with the use of oxygen-scavenging agents such as hydrazine and carbohydrazine. In addition, water chemistry parameters will be closely monitored including but not limited to cation conductivity, dissolved oxygen, and electrochemical potential

(ECP). This will be performed in tandem with programs and processes designed to minimize the ingress of impurities, as is recommended in the EPRI Secondary Water Chemistry guidelines.

The EPRI Secondary Water Chemistry Guidelines are referenced within NEI 97-06, "Steam Generator Program Guidelines." Duke Energy has committed to the use of NEI 97-06 for the Lee Nuclear Station. As a result, Lee Nuclear Station is also committed to the use of the EPRI Secondary Water Chemistry Guidelines. Note that section 3.3.1 of Revision 6 of the EPRI Secondary Chemistry Guidelines discusses pH additive selection and optimization, including the use of alternate and advanced amines, while Section 4.4.7 of the EPRI Secondary Chemistry Guidelines discusses secondary system pH control techniques.

EPRI Secondary Water Chemistry Guidelines Chapter 4 provides a detailed method for performing plant-specific optimization, including development of a modified chemistry program. The choice of the optimum amine or mixture of amines is a strong function of plant design. EPRI PWR Advanced Amine Application Guidelines, TR-102952 will be used in these evaluations as indicated in EPRI Secondary Water Chemistry Guidelines.

Thus, dimethylamine and methoxypropylamine will be qualified for secondary systems pH control based on industry operating experience and the application of EPRI Secondary Water Chemistry Guidelines.

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

None.

Attachments:

None.

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

RAI Letter No. 006

NRC Technical Review Branch: Component Integrity, Performance and Testing Branch 1

Reference NRC RAI Number(s): 10.04.06-002

NRC RAI:

How will the secondary systems pH be optimized in conjunction with the selected amines?

Duke Energy Response:

The secondary-side pH will be controlled in conjunction with the selected amine. pH optimization will be achieved in conjunction with the optimized usage and performance of secondary-side water treatment systems including the Steam Generator Blowdown demineralizers and Condensate Polishers as well as the optimization of other plant chemistry parameters.

Plant secondary-side water chemistry optimization, including pH, will be achieved in accordance with the EPRI Secondary Water Chemistry Guideline for Pressurized Water Reactors. Note that Section 4 of the EPRI Secondary Chemistry Guidelines, Revision 6 addresses the "Methodology for Plant-Specific (Chemistry) Optimization."

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

None.

Attachments:

None.

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

RAI Letter No. 006

NRC Technical Review Branch: Component Integrity, Performance and Testing Branch 1

Reference NRC RAI Number(s): 10.04.06-003

NRC RAI:

Will the EPRI Secondary Water Chemistry Guidelines be used as guidance with respect to the qualification of the selected pH control agents and the optimization of the pH?

Duke Energy Response:

The EPRI Secondary Water Chemistry Guidelines for Pressurized Water Reactors will be utilized for the selection of pH control agents and pH optimization.

Attachment 1 provides a proposed change to the Final Safety Analysis Report (FSAR) to include a reference to the use of EPRI Secondary Water Chemistry Guidelines in accordance with NEI 97-06, "Steam Generator Program Guidelines," to Section 10.4.7.2.1 of the FSAR. Note that NEI 97-06 is currently referenced in FSAR Section 5.4.2.5.

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

COLA Part 2, FSAR, Chapter 10, Section 10.4.7.2.1 will be revised per Attachment 1.

This revision is a STANDARD supplement.

Attachments:

Attachment 1, COLA Part 2, FSAR, Chapter 10, Section 10.4 revisions.

ATTACHMENT 1

1. COLA Part 2, FSAR, Chapter 10, Section 10.4.7.2.1 will be revised to add the following paragraph after the first paragraph:

STD SUP 10.4-2 Oxygen scavenging and ammoniating agents are selected and utilized for plant secondary water chemistry optimization following the guidance of NEI-97-06, "Steam Generator Program Guidelines" (Ref 201). The EPRI Pressurized Water Reactor Secondary Water Chemistry Guidelines are followed as described in NEI 97-06.

2. COLA Part 2, FSAR, Chapter 10, Section 10.4 will be revised to add Subsection 10.4.13 as follows:

10.4.13 REFERENCES

201. Nuclear Energy Institute, "Steam Generator Program Guidelines," NEI 97-06, Revision 2, May 2005.