



RONALD A. JONES  
Sr Vice President  
Nuclear Development

Duke Energy  
EC09D/ 526 South Church Street  
Charlotte, NC 28201-1006

Mailing Address:  
P.O. Box 1006 – EC09D  
Charlotte, NC 28201-1006

704-382-8149  
704-607-8683 cell  
Ron.Jones@duke-energy.com

December 5, 2011

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

Subject: Duke Energy Carolinas, LLC (Duke Energy)  
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  
Voluntary Revision to Final Safety Analysis Report Chapter 8  
Ltr # WLG2011.12-02

- References: (1) Letter from R.A. Jones (Duke Energy) to NRC Document Control Desk,  
Summary Identification of Concurrence with Standard Content RAIs  
and Safety Evaluation Report Open Items, dated April 25, 2011  
(ML11116A162)
- (2) Letter from C.R. Pierce (Southern Nuclear Operating Co.) to NRC  
Document Control Desk, Voluntary Revision to Final Safety Analysis  
Report Chapter 8, dated October 15, 2010 (ML102920393)

This letter provides supplemental information to Duke Energy's submittal identified as reference 1 above. Duke Energy did not provide a final endorsement of Southern Nuclear's standard response to RAI No. 08.03.02-01 documented in reference 2. Duke Energy's modified response is addressed in Enclosure No. 1, which also identifies associated changes, when appropriate, that will be made in a future revision of the COLA for the Lee Nuclear Station.

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

Sincerely,

Ronald A. Jones  
Senior Vice President  
Nuclear Development

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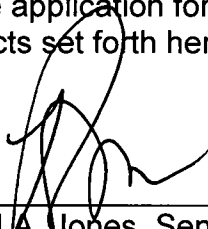
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Enclosure:

- 1) Duke Energy Voluntary Revision to Final Safety Analysis Report Chapter 8

AFFIDAVIT OF RONALD A. JONES

Ronald A. Jones, being duly sworn, states that he is Senior Vice President, Nuclear 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 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.



\_\_\_\_\_  
Ronald A. Jones, Senior Vice President  
Nuclear Development

Subscribed and sworn to me on December 5, 2011

Teresa D. Neely  
\_\_\_\_\_  
Notary Public

My commission expires: 9/02/2015

SEAL



xc (w/out enclosure):  
Charles Casto, Deputy Regional Administrator, Region II

xc (w/ enclosure):  
Brian Hughes, Senior Project Manager, DNRL

## **Lee Nuclear Station Voluntary Revision to Final Safety Analysis Report Chapter 8**

Westinghouse provided a response to OI-SRP8.3.2-EEB-09 Rev. 3 (Westinghouse letter No. DCP\_NRC\_002920, dated June 18, 2010, Reference 1) related to the periodic testing of battery chargers and voltage regulating transformers. The response to the Design Control Document (DCD) Open Item included a revision to the COL information item identified in DCD Subsection 8.3.3 for items requiring plant procedures. Per the Westinghouse letter, this section of the DCD is revised to include the following line item:

The Combined License applicant will establish plant procedures as required for:

Combined License applicants referencing the AP1000 certified design will ensure that periodic testing is performed on the battery chargers and voltage regulating transformers.

FSAR Subsection 13.5.2 addresses the establishment of plant procedures. As stated in DCD Section 8.3.2.2, the Class 1E battery chargers and Class 1E voltage regulating transformers are designed to limit the input (ac) current to an acceptable value under faulted conditions on the output side. They have built-in circuit breakers at the input and output sides for protection and isolation.

The battery chargers and regulating transformers are tested periodically per manufacturer recommendations. However, Westinghouse has indicated that the voltage regulating transformers do not have active components to limit current; therefore, the maximum current is determined by the impedance of the transformer. The voltage regulating transformer in combination with fuses and/or breakers will interrupt the input or output (ac) current under faulted conditions on the output side. COL Application Part 7 will be revised to include a Departure from DCD Section 8.3.2.2 clarifying the current limiting feature of voltage regulating transformers. Westinghouse provided and justified the new Departure paragraph in Supplier Deficiency Report (SDR) "W11-04-01." The information in the similar Departure for Vogtle is slightly different due to the SDR not being available at the time of Vogtle's submittal (Reference 2). Therefore, the Lee Departure is site-specific.

The circuit breakers that are credited with an isolation function are selected for proper coordination. These circuit breakers will be tested through the use of breaker test equipment to verify conformance to their specifications. Fuses and fuse holders will be inspected periodically. These verifications will confirm the ability of the circuits to perform the designed coordination and corresponding isolation function between Class 1E and non-Class 1E components.

Appropriate changes will be included in FSAR Subsections 8.3.2.1.4, 8.3.2.2, and 1.8 and COL Application Part 7 to reflect this information as shown in Attachments 1 through 4.

**References:**

- 1.) Westinghouse letter No. DCP\_NRC\_002920, dated June 18, 2010 (ML101740230)
- 2.) Southern Nuclear's letter No. ND-10-2005, dated October 15, 2010 (ML102920393)

**Associated Revisions to the Lee Nuclear Station COLA:**

- 1) FSAR Subsection 8.3.2.1.4, Maintenance and Testing
- 2) FSAR Subsection 8.3.2.2, Analysis
- 3) FSAR Subsection 1.8, Table 1.8-201, Summary of FSAR Departures from the DCD
- 4) COLA Part 7, Section A, STD and WLS Departures

**Attachments:**

- 1) Revision to FSAR Subsection 8.3.2.1.4
- 2) Revision to FSAR Subsection 8.3.2.2
- 3) Revision to FSAR Subsection 1.8, Table 1.8-201
- 4) Revision to COLA Part 7

## **Lee Nuclear Station Voluntary Revision to FSAR Chapter 8**

### **Attachment 1**

#### **Revision to FSAR Subsection 8.3.2.1.4**

COLA Part 2, FSAR Chapter 8, Subsection 8.3.2.1.4, Maintenance and Testing, will be revised to add the following as the last paragraph with LMA STD COL 8.3-2:

Procedures are established for periodic testing of the Class 1E battery chargers and Class 1E voltage regulating transformers in accordance with the manufacturer recommendations.

- Circuit breakers in the Class 1E battery chargers and Class 1E voltage regulating transformers that are credited for an isolation function are tested through the use of breaker test equipment. This verification confirms the ability of the circuit to perform the designed coordination and corresponding isolation function between Class 1E and non-Class 1E components. Circuit breaker testing is done as part of the Maintenance Rule program and testing frequency is determined by that program.
- Fuses / fuse holders that are included in the isolation circuit are visually inspected.
- Class 1E battery chargers are tested to verify current limiting characteristic utilizing manufacturer recommendation and industry practices. Testing frequency is in accordance with that of the associated battery.



## **Lee Nuclear Station Voluntary Revision to FSAR Chapter 8**

### **Attachment 2**

#### **Revision to FSAR Subsection 8.3.2.2**

COLA Part 2, FSAR Chapter 8, will be revised to add new Subsection 8.3.2.2 with WLS DEP 8.3-1 as follow:

8.3.2.2 Analysis

Replace the third paragraph of DCD Subsection 8.3.2.2 with the following information:

The Class 1E battery chargers are designed to limit the input (ac) current to an acceptable value under faulted conditions on the output side. Fault current in the Class 1E voltage regulating transformers is limited by the impedance of the transformer. The Class 1E battery chargers and Class 1E voltage regulating transformers have built-in circuit breakers at the input and output sides for protection and isolation. The circuit breakers are coordinated and periodically tested as part of the Maintenance Rule program. The Class 1E battery chargers and Class 1E voltage regulating transformers are qualified as isolation devices between Class 1E and non-Class 1E circuits in accordance with IEEE 384 and Regulatory Guide 1.75.

## **Lee Nuclear Station Voluntary Revision to FSAR Chapter 8**

### **Attachment 3**

#### **Revision to FSAR Subsection 1.8, Table 1.8-201**

COLA Part 2, FSAR Subsection 1.8, Table 1.8-201, Summary of FSAR Departures from the DCD, will be revised to add the following:

| <u>Departure<br/>Number</u> | <u>Departure Description Summary</u>  | <u>FSAR Section or<br/>Subsection</u> |
|-----------------------------|---|---------------------------------------|
| <u>WLS DEP 8.3-1</u>        | <u>The Class 1E voltage regulating<br/>transformers do not have active<br/>components to limit current.</u> | <u>8.3.2.2</u>                        |

## **Lee Nuclear Station Voluntary Revision to FSAR Chapter 8**

### **Attachment 4**

### **Revision to COLA Part 7, Section A**

COLA Part 7, Section A, STD and WLS Departures, will be revised to add the following departure:

| <u>Departure Number</u> | <u>Description</u>   |
|-------------------------|--|
| <u>WLS DEP 8.3-1</u>    | <u>Class 1E voltage regulating transformer current limiting features</u> |

COLA Part 7, Section A.1, Departures that Can Be Implemented Without Prior NRC Approval, will be revised to add the following departure:

| <u>Departure Number</u> | <u>Description</u>   |
|-------------------------|--|
| <u>WLS DEP 8.3-1</u>    | <u>Class 1E voltage regulating transformer current limiting features</u> |

Departure Number: WLS DEP 8.3-1

Affected DCD/FSAR Sections: 8.3.2.2

Summary of Departure:

The DCD states that the Class 1E battery chargers and Class 1E voltage regulating transformers are designed to limit the input (ac) current to an acceptable value under faulted conditions on the output side. However, the AP1000 voltage regulating transformers do not have active components to limit current.

Scope/Extent of Departure:

This departure is identified in FSAR Subsection 8.3.2.2.

Departure Justification:

DCD section 8.3.2.2 states that the Class 1E voltage regulating transformers have built-in circuit breakers at the input and output sides for protection and isolation. The circuit breakers are coordinated and periodically tested to verify their designed coordination and isolation function. They are qualified as isolation devices between Class 1E and non-Class 1E circuits in accordance with IEEE 384 and Regulatory Guide 1.75. Since the isolation and protection function is provided by the breakers, there is no need for the voltage regulating transformers to have current limiting capability. This departure does not adversely affect any safety-related system, nor does it conflict with applicable regulatory guidance.

Departure Evaluation:

This Tier 2 departure is associated with isolation between Class 1E loads and the non-Class 1E ac power source. The departure results in a change to the DCD that does not impact the required design function (i.e., isolation). Accordingly, it does not:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the plant-specific DCD;
2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety and previously evaluated in the plant-specific DCD;
3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific DCD;
4. Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the plant-specific DCD;
5. Create a possibility for an accident of a different type than any evaluated previously in the plant-specific DCD;
6. Create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the plant-specific DCD;
7. Result in a design basis limit for a fission product barrier as described in the plant-specific DCD being exceeded or altered; or
8. Result in a departure from a method of evaluation described in the plant-specific DCD used in establishing the design bases or in the safety analyses.

This Tier 2 departure does not affect resolution of an ex-vessel severe accident design feature identified in the plant-specific DCD.

Therefore, this departure has no safety significance.

NRC Approval Requirement:

This departure does not require NRC approval pursuant to 10 CFR Part 52, Appendix D, Section VIII.B.5.

ASSOCIATED ATTACHMENTS/ENCLOSURE:

None