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June 11, 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  
Supplemental Response to Request for Additional Information  
(eRAI No. 6419)  
Ltr# WLG2012.06-02

References: Letter from Brian Hughes (NRC) to Christopher M. Fallon (Duke Energy),  
Request for Additional Information Letter No. 105 Concerning Implementation of  
Fukushima Near-Term Task Force Recommendations for the William States Lee  
III Units 1 and 2 Combined License Application, dated April 25, 2012  
(ML12116A336)

Letter from Christopher M. Fallon (Duke Energy) to the Document Control Desk,  
Response to Request for Additional Information (RAI No. 6419) Ltr#  
WLG2012.05-04, dated May 24, 2012 (ML12151A110)

This letter provides the completion of Duke Energy's response to the Nuclear Regulatory Commission's request for additional information (RAI) included in the referenced NRC letter. The responses to RAI Nos. 01.05-2, 3, and 4 are addressed in separate enclosures, which also identify associated changes to the Combined License Application for the Lee Nuclear Station. A response for the remaining RAI No. 01.05-1 was provided by the referenced Duke Energy letter.

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,

Christopher M. Fallon  
Vice President  
Nuclear Development (Acting)

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Enclosures:

- 1) Lee Nuclear Station Response to Request for Additional Information (RAI) Letter No. 105, RAI 01.05-2
- 2) Lee Nuclear Station Response to Request for Additional Information (RAI) Letter No. 105, RAI 01.05-3
- 3) Lee Nuclear Station Response to Request for Additional Information (RAI) Letter No. 105, RAI 01.05-4
- 4) Lee COLA Part 10 Proposed License Conditions (Including ITAAC) - Updated Pages

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xc (w/out enclosures):

Frederick Brown, Deputy Regional Administrator, Region II

xc (w/ enclosures):

Brian Hughes, Senior Project Manager, DNRL

AFFIDAVIT OF CHRISTOPHER M. FALLON

Christopher M. Fallon, being duly sworn, states that he is Vice President, Nuclear Development (Acting), 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.

Christopher M. Fallon

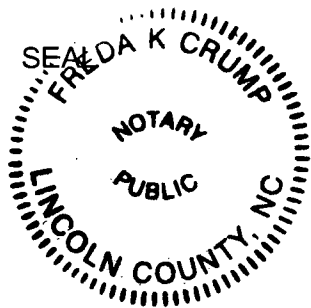
Christopher M. Fallon, Vice President  
Nuclear Development (Acting)

Subscribed and sworn to me on June 11, 2012

Freda K. Crump

Notary Public

My commission expires: August 17, 2016



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

**RAI Letter No. 105**

**NRC Technical Review Branch: Licensing Branch 4**

**Reference NRC RAI Number(s): RAI 01.05-2**

**NRC RAI:**

Develop mitigation strategies for beyond-design-basis external events as described in Attachment 3 to Order EA-12-049, (ML12054A735).

**Duke Energy Response:**

Attachment 3 to Order EA-12-049, (ML12054A735) is identified as applicable to Vogtle Units 3 and 4 in SECY-12-0025, Enclosure 4. The basis for different requirements for Vogtle Units 3 and 4 from the requirements for other plants was based on the passive design and other features characteristic to the AP1000 design. These AP1000 features are standard, and thus, are also applicable to the William States Lee (WLS) design. Therefore, a license condition is proposed for WLS with similar content as was required for Vogtle Units 3 and 4 in Attachment 3 of SECY-12-0025, Enclosure 4. Performing these actions prior to initial fuel load is included as the required time of implementation. This would ensure the mitigation strategies for beyond-design-basis external events are in place prior to irradiation of fuel when the strategies could potentially be necessary.

The Proposed WLS License Condition reads as follows:

**MITIGATION STRATEGIES**

Prior to initial fuel load, the licensee shall fully implement the following actions associated with mitigation strategies including procedures, guidance, training, and acquisition, staging, or installing of equipment needed for the strategies:

1. Develop, implement, and maintain guidance and strategies to maintain or restore core cooling, containment and spent fuel pool (SFP) cooling capabilities following a beyond-design-basis external event. These strategies must:
  - Be capable of mitigating a simultaneous loss of all ac power and loss of normal access to the normal heat sink and,
  - Have adequate capacity to address challenges to core cooling, containment, and SFP cooling capabilities at all units on the Lee site and,
  - Have the capability to be implemented in all modes.
2. Provide reasonable protection for the associated equipment from external events. Such protection must demonstrate that there is adequate capacity to address challenges to core cooling, containment, and SFP cooling capabilities at all units on the Lee site.

3. The licensee shall within one (1) year after issuance of the Lee COL, submit to the NRC an overall integrated plan, including a description of how compliance with the requirements described in this license condition will be achieved.
4. The licensee shall provide to the NRC an initial status report sixty (60) days following issuance of the Lee COL and updates at six (6) month intervals following submittal of the overall integrated plan described above which delineates progress made in implementing the requirements of this license condition.

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

COLA Part 10, Proposed License Conditions (Including ITAAC)

**Attachment:**

Refer to Enclosure 4 to this letter for updates to COLA Part 10 Proposed License Conditions (Including ITAAC).

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

**RAI Letter No. 105**

**NRC Technical Review Branch: Licensing Branch 4**

**Reference NRC RAI Number(s): RAI 01.05-3**

**NRC RAI:**

Provide sufficient reliable instrumentation, able to withstand design-basis natural phenomena, to monitor spent fuel pool water level, as described in Attachment 3 to Order EA-12-051 (ML12054A679).

**Duke Energy Response:**

The Duke Energy response to this item is based on Attachment 3 of Order EA-12-051 (ML12054A679). This attachment is identified as applicable to Vogtle Units 3 and 4 in SECY-12-0025, Enclosure 6. The basis for different requirements for Vogtle Units 3 and 4 from the requirements for other plants was based on the design features of the AP1000. These AP1000 features are standard, and thus, are also applicable to the WLS design. Therefore, a license condition is proposed for WLS with similar content as was required for Vogtle Units 3 and 4 in Attachment 3 of SECY-12-0025, Enclosure 6. Performing these actions prior to initial fuel load is included as the required time of implementation. This would ensure reliable spent fuel pool level (SFP) instrumentation is in place prior to irradiation of fuel when the instrumentation could potentially be necessary.

The proposed license condition reads as follows:

**RELIABLE SPENT FUEL POOL LEVEL INSTRUMENTATION**

Prior to initial fuel load, the licensee shall fully implement the following requirements for SFP level indication:

1. The SFP level instrumentation shall include the following design features:
  - Arrangement: The SFP level instrument channels shall be arranged in a manner that provides reasonable protection of the level indication function against missiles that may result from damage to the structure over the spent fuel pool. This protection may be provided by locating the safety-related instruments to maintain instrument channel separation within the spent fuel pool area, and to utilize inherent shielding from missiles provided by existing recesses and corners in the spent fuel pool structure.
  - Qualification: The level instrument channels shall be reliable at temperature, humidity, and radiation levels consistent with the SFP water at saturation conditions for an extended period.
  - Power supplies: Power for instrumentation channels shall be supplied from sources independent of the plant alternating current (ac) and direct current (dc) power

distribution systems, such as portable generators or replaceable batteries. Power supply designs should provide for quick and accessible connection of sources independent of the plant ac and dc power distribution systems. Onsite generators used as an alternate power source and replaceable batteries used for instrument channel power shall have sufficient capacity to maintain the level indication function until offsite resource availability is reasonably assured.

- Accuracy: The instrumentation shall maintain its designed accuracy following a power interruption or change in power source without recalibration.
  - Display: The display shall provide on-demand or continuous indication of spent fuel pool water level.
2. The SFP level instrumentation shall be maintained available and reliable through appropriate development and implementation of a training program. Personnel shall be trained in the use and the provision of alternate power to the safety-related level instrument channels.
  3. The licensee shall within one (1) year after issuance of the Lee COL, submit to the NRC an overall integrated plan, including a description of how compliance with the requirements described in this license condition will be achieved.
  4. The licensee shall provide to the NRC an initial status report sixty (60) days following issuance of the Lee COL and updates at six (6) month intervals following submittal of the overall integrated plan described above which delineates progress made in implementing the requirements of this license condition.

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

COLA Part 10, Proposed License Conditions (Including ITAAC)

**Attachment:**

Refer to Enclosure 4 to this letter for updates to COLA Part 10, Proposed License Conditions (Including ITAAC).



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

**RAI Letter No. 105**

**NRC Technical Review Branch: Licensing Branch 4**

**Reference NRC RAI Number(s): RAI 01.05-4**

**NRC RAI:**

The NRC staff requests that you address provisions for enhancing emergency preparedness as it relates to staffing and communications associated with Recommendation 9.3 outlined in Enclosure 5 of the March 12, 2012 letter "Request for information pursuant to Title 10 of the Code of Federal Regulations 50.54(f) regarding Recommendations 2.1, 2.3, and 9.3, of the near-term task force review of insights from the Fukushima Dai-Ichi accident."  
(ML12053A340)

**Duke Energy Response:**

Duke Energy proposes the license condition summarized below to address provisions that shall be taken to enhance emergency preparedness related to staffing and communications per Recommendation 9.3 provided in the March 12, 2012 letter (ML12053A340) to licensees and construction permit holders. The current regulatory environment is one best described as "in transition." A new emergency planning rule is currently being implemented by the industry with some aspects of the new rule not required to be fully implemented for several years. Industry-developed staffing assessment guidance (NEI 10-05 and NEI 12-01) are awaiting full NRC endorsement. Advance Notice of Proposed Rulemaking (based on the Fukushima Task Force Report) published in April 2012 described additional considerations for rulemaking that may significantly affect emergency response facility requirements. Current licensees are implementing the orders issued as a result of Fukushima and will acquire empirical data, generate lessons learned, and identify efficiencies beneficial to subsequent emergency response facility implementation.

Duke Energy's proposed license condition is written to allow for a more efficient assessment and implementation of corrective actions identified as a result of the Fukushima events. By committing to perform assessments after regulatory guidance has been established and after lessons learned, allows for a more efficient, regulatory compliant result. In addition, this approach allows for consideration of improvements in technology as part of the assessment of communications capabilities.

The proposed WLS license condition requires Duke Energy to perform an assessment of onsite and augmented staffing capability that satisfies regulatory requirements for response to a multi-unit event at least two years prior to scheduled initial fuel load. The 2-year timeframe is sufficient to address additional staffing needs and/or organizational changes that may be identified in the assessment (e.g., hiring and training of new employees, changes to the emergency response organization, etc.) prior to the full participation exercise and subsequent initial fuel loading.

The proposed WLS license condition requires Duke Energy to perform an assessment of the on-site and off-site communications systems at least two years prior to scheduled initial fuel load, but allows for the performance and implementation as soon as the regulatory environment stabilizes. The communications assessment will likely be accomplished at an earlier date (pending rule making and regulatory guidance development) to support equipment procurement and installation, development and training of the emergency response organization, and performance of the full participation exercise. Corrective actions from the assessment shall be identified and implemented at least 180 days prior to scheduled initial fuel load. The timeframe of 180 days prior to scheduled initial fuel load for completion of the corrective actions is also consistent with the completion milestones for program implementation described in Chapter 13 of the Final Safety Analysis Report.

The proposed license condition reads as follows:

### **EMERGENCY PLANNING ACTIONS**

1. Staffing – At least two (2) years prior to scheduled initial fuel load, the licensee shall have performed an assessment of the onsite and augmented staffing capability to satisfy the regulatory requirements for response to a multi-unit event. The staffing assessment will be performed in accordance with NEI 12-01, “Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities”, or other NRC endorsed guidance in effect six months prior to commencement of the assessment.

At least two (2) years prior to scheduled initial fuel load, the licensee shall revise the Lee Emergency Plan to include the following:

- Incorporation of corrective actions identified in the staffing assessment described above.
  - Identification of how the augmented staff will be notified given degraded communications capabilities.
2. Communications - At least two (2) years prior to scheduled initial fuel load, the licensee shall have performed an assessment of on-site and off-site communications systems and equipment required during an emergency event to ensure communications capabilities can be maintained during prolonged station blackout conditions. The communications capability assessment will be performed in accordance with NEI 12-01, “Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities,” or other NRC approved guidance in effect six months prior to commencement of the assessment.

At least one hundred eighty (180) days prior to scheduled initial fuel load, the licensee shall complete implementation of corrective actions identified in the communications capability assessment described above, including any related emergency plan and implementing procedure changes and associated training.

Enclosure 3  
Duke Letter Dated: June 11, 2012

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

COLA Part 10, Proposed License Conditions (Including ITAAC)

**Attachment:**

Refer to Enclosure 4 to this letter for updates to COLA Part 10 Proposed License Conditions (Including ITAAC).

**Lee Nuclear Station**  
**Enclosure 4**  
**Lee COLA Part 10**  
**Proposed License Conditions**  
**(Including ITAAC)**  
**Updated Pages**

COLA Part 10, Lee Nuclear Station Proposed License Conditions, is revised to add the following License Condition related to Fukushima actions:

**12. FUKUSHIMA ACTIONS:**

**A. MITIGATION STRATEGIES**

**PROPOSED LICENSE CONDITION:**

Prior to initial fuel load, the licensee shall fully implement the following actions associated with mitigation strategies including procedures, guidance, training, and acquisition, staging, or installing of equipment needed for the strategies:

1. Develop, implement, and maintain guidance and strategies to maintain or restore core cooling, containment and spent fuel pool (SFP) cooling capabilities following a beyond-design-basis external event. These strategies must:
  - Be capable of mitigating a simultaneous loss of all ac power and loss of normal access to the normal heat sink and,
  - Have adequate capacity to address challenges to core cooling, containment, and SFP cooling capabilities at all units on the Lee site and,
  - Have the capability to be implemented in all modes.
2. Provide reasonable protection for the associated equipment from external events. Such protection must demonstrate that there is adequate capacity to address challenges to core cooling, containment, and SFP cooling capabilities at all units on the Lee site.
3. The licensee shall within one (1) year after issuance of the Lee COL, submit to the NRC an overall integrated plan, including a description of how compliance with the requirements described in this license condition will be achieved.
4. The licensee shall provide to the NRC an initial status report sixty (60) days following issuance of the Lee COL and updates at six (6) month intervals following submittal of the overall integrated plan described above which delineates progress made in implementing the requirements of this license condition.

**B. RELIABLE SPENT FUEL POOL LEVEL INSTRUMENTATION**

**PROPOSED LICENSE CONDITION:**

Prior to initial fuel load, the licensee shall fully implement the following requirements for SFP level indication:

1. The SFP level instrumentation shall include the following design features:
  - Arrangement: The SFP level instrument channels shall be arranged in a manner that provides reasonable protection of the level indication function against missiles that may result from damage to the structure over the spent fuel pool. This protection may be provided by locating the safety-related instruments to maintain instrument channel separation within the spent fuel pool area, and to utilize inherent shielding from missiles provided by existing recesses and corners in the spent fuel pool structure.

- Qualification: The level instrument channels shall be reliable at temperature, humidity, and radiation levels consistent with the SFP water at saturation conditions for an extended period.
  - Power supplies: Power for instrumentation channels shall be supplied from sources independent of the plant alternating current (ac) and direct current (dc) power distribution systems, such as portable generators or replaceable batteries. Power supply designs should provide for quick and accessible connection of sources independent of the plant ac and dc power distribution systems. Onsite generators used as an alternate power source and replaceable batteries used for instrument channel power shall have sufficient capacity to maintain the level indication function until offsite resource availability is reasonably assured.
  - Accuracy: The instrumentation shall maintain its designed accuracy following a power interruption or change in power source without recalibration.
  - Display: The display shall provide on-demand or continuous indication of spent fuel pool water level.
2. The SFP level instrumentation shall be maintained available and reliable through appropriate development and implementation of a training program. Personnel shall be trained in the use and the provision of alternate power to the safety-related level instrument channels.
  3. The licensee shall within one (1) year after issuance of the Lee COL, submit to the NRC an overall integrated plan, including a description of how compliance with the requirements described in this license condition will be achieved.
  4. The licensee shall provide to the NRC an initial status report sixty (60) days following issuance of the Lee COL and updates at six (6) month intervals following submittal of the overall integrated plan described above which delineates progress made in implementing the requirements of this license condition.

### **C. EMERGENCY PLANNING ACTIONS**

#### **PROPOSED LICENSE CONDITION:**

1. Staffing – At least two (2) years prior to scheduled initial fuel load, the licensee shall have performed an assessment of the onsite and augmented staffing capability to satisfy the regulatory requirements for response to a multi-unit event. The staffing assessment will be performed in accordance with NEI 12-01, “Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities”, or other NRC endorsed guidance in effect six months prior to commencement of the assessment.

At least two (2) years prior to scheduled initial fuel load, the licensee shall revise the Lee Emergency Plan to include the following:

- Incorporation of corrective actions identified in the staffing assessment described above.
- Identification of how the augmented staff will be notified given degraded communications capabilities.

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2. Communications - At least two (2) years prior to scheduled initial fuel load, the licensee shall have performed an assessment of on-site and off-site communications systems and equipment required during an emergency event to ensure communications capabilities can be maintained during prolonged station blackout conditions. The communications capability assessment will be performed in accordance with NEI 12-01, "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities," or other NRC approved guidance in effect six months prior to commencement of the assessment.

At least one hundred eighty (180) days prior to scheduled initial fuel load, the licensee shall complete implementation of corrective actions identified in the communications capability assessment described above, including any related emergency plan and implementing procedure changes and associated training.