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June 12, 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  
Supplemental Response to Request for Additional Information  
(RAI No. 1826)  
Ltr# WLG2009.06-03

- References:
1. Letter from Brian Hughes (NRC) to Peter Hastings (Duke Energy), *Request for Additional Information Letter No. 062 Related To SRP 13.03 Emergency Planning for the William States Lee III Units 1 And 2 Combined License Application*, dated January 12, 2009.
  2. Letter from Alan P. Nelson (NEI) to Christopher G. Miller (NRC), *U.S. Nuclear Regulatory Commission Review of Emergency Action Levels for New Reactor Applications*, dated January 29, 2009.
  3. Letter from Bryan J. Dolan (Duke Energy) to Document Control Desk (NRC), *Response to Request for Additional Information (RAI No. 1826)*, Ltr# WLG2009.02-03, dated February 16, 2009.

This letter provides the Duke Energy supplemental response to the Nuclear Regulatory Commission's (NRC) request for additional information (RAI) included in the referenced letter (Reference 1).

The supplemental information to the NRC information request is addressed in a separate enclosure which also identifies associated changes, when appropriate, that will be made in a future revision of the applicable part of the combined license application.

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

DO93  
NRO

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Enclosure:

- 1) Duke Energy Supplemental Response to Request for Additional Information Letter 062, RAI 13.03-75 (SITE-22).

AFFIDAVIT OF BRYAN J. DOLAN

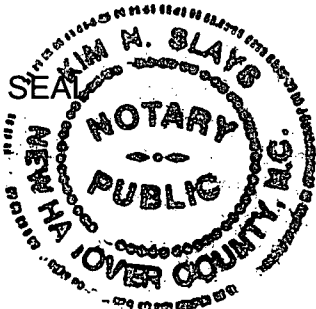
Bryan J. Dolan, being duly sworn, states that he is Vice President, Nuclear Plant Development, Duke Energy Carolinas, LLC, that he is authorized on the part of said Company to sign and file with the U. S. Nuclear Regulatory Commission this supplement to the combined license application for the William 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*  
Bryan J. Dolan

Subscribed and sworn to me on *June 12, 2009*

*K. M. Slays*  
Notary Public

My commission expires: *April 19, 2010*



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June 12, 2009  
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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  
Brian Anderson, Project Manager, DNRL

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

**RAI Letter No. 062**

**NRC Technical Review Branch: AP1000 Projects Branch 1**

**Reference NRC RAI Number(s): 13.03-075**

**NRC RAI:**

**SITE-22**

Basis: 10 CFR 52.79(a)(21), 10 CFR 50.47(b)(4), Section IV.B of Appendix E to 10 CFR Part 50

EALs are discussed in Section D, "Emergency Classification System," of COL application Part 5, "Emergency Plan.

The initial EALs, which are required by 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50, must be approved by the NRC. The W.S. Lee combined license (COL) application does not fully address certain aspects of the required EAL scheme. This is because various equipment set points and other information cannot be determined until the as-built information is available; e.g., head corrections, radiation shine, final technical specifications, and equipment calculations and tolerances. The NRC has been evaluating possible options to ensure applicants address the regulations and provides the following:

Option 1 – Submit an entire EAL scheme, which contains all site-specific information, including set points. Until this information is finalized, EALs would remain an open item.

Option 2 – Submit emergency plan Section D, "Emergency Classification System," which addresses the four critical elements of an EAL scheme (listed below). The NRC will determine the acceptability of the EAL scheme.

- Critical Element 1 – Applicant proposes an overview of its emergency action level scheme including defining the four emergency classification levels, (i.e., Notification of Unusual Event, Alert, Site Area Emergency, and General Emergency), as stated in NEI 99-01, Revision 5, with a general list of licensee actions at each emergency classification level.
- Critical Element 2 – Applicant proposes to develop the remainder of its EAL scheme by using a specified NRC endorsed guidance document. In the development of its EALs, the proposed EALs should be developed with few or no deviations or differences, other than those attributable to the specific reactor design. NEI 07-01, if endorsed, will be applicable to the AP1000 and ESBWR (passive) reactor designs, and NEI 99-01 is applicable to all (non-passive) reactor designs. If applicable, EALs related to digital instrumentation and control must be included. The NRC must find in the Safety Evaluation Report that this approach is acceptable for each site.
- Critical Element 3 – Applicant proposes a License Condition (LC) that the applicant will create a fully developed set of EALs in accordance with the specified guidance document. These fully developed EALs must be submitted to the NRC for confirmation at least 180 days prior to fuel load.

- Critical Element 4 – The EALs must be kept in a document controlled by 10 CFR 50.54(q), such as the emergency plan; or a lower tier document, such as the Emergency Plan Implementing Procedures.

Please review the two options provided above, identify which option will be chosen, and provide the detailed EAL information in support of the chosen option.

NOTE: This RAI will replace 13.03-57(A), (B), and (C) (Site-4)

**Duke Energy Response (Supplemental):**

Duke Energy (“Duke”) responded to RAI 13.03-075 in its letter to the NRC dated February 16, 2009. At the time of that response, it was understood that NEI would develop a standard response template and, after the template was endorsed by NRC, Duke would provide an amended response using this template. Duke now understands that this template will not be developed. In light of this development, the following supplemental information is provided in response to the subject RAI.

Duke will follow Option 2 for the Lee Emergency Plan.

Section II.D of the Lee Emergency Plan discusses the EAL scheme based on NUREG-0654 and draft NEI 07-01 guidance. Appendix 1 of the Plan provides detailed initiating conditions (ICs) and EALs based on the draft NEI 07-01. Section II.D acknowledges the need to revise Appendix 1 when NEI 07-01 is endorsed by the NRC.

The Duke approach to each of the Critical Elements discussed in NRC’s Request for Additional Information is described below and assumes NRC endorsement of NEI 07-01:

Critical Element 1 – Emergency Plan Subsection II.D.1 provides an overview defining the four emergency classification levels: Notification of Unusual Event, Alert, Site Area Emergency, and General Emergency as defined in draft NEI 07-01.

In summary, emergency classification level definitions and associated licensee actions at each level are:

*Notification of Unusual Event*

Events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring off-site response or monitoring are expected unless further degradation of safety systems occurs.

Duke actions undertaken at the Notification of Unusual Event include promptly informing State and local authorities of the event, augmenting on-shift resources as needed, assessment and response, and escalation to a more severe class, if appropriate. If the emergency class is not escalated to a more severe class, then State and local authorities will be notified of event termination in accordance with implementing procedures. The NRC is notified of event classification and termination in accordance with federal regulatory requirements.

*Alert*

Events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life

Duke Letter Dated: June 12, 2009

threatening risk to site personnel or damage to site equipment because of hostile action. Any releases are expected to be limited to small fractions of the U.S. Environmental Protection Agency (EPA) Protective Action Guideline (PAG) exposure levels.

Duke actions undertaken at the Alert emergency class include those described for the Notification of Unusual Event and activation of the Technical Support Center and Operational Support Center. In addition, Emergency Operations Facility and other key emergency response personnel are alerted, on-site monitoring teams are dispatched, periodic plant status updates and meteorological assessments are provided to offsite authorities, as are dose estimates, if any event-related releases are occurring.

#### *Site Area Emergency*

Events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or hostile actions that result in intentional damage or malicious acts; 1) toward site personnel or equipment that could lead to the likely failure of or; 2) that prevent effective access to, equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA PAG exposure levels beyond the site boundary.

Duke actions undertaken at the Site Area Emergency class include those described for the Alert emergency class and activation of the Emergency Operations Facility. In addition, an individual is dedicated to provide plant status updates to offsite authorities and periodic media briefings (jointly with offsite authorities when practicable), senior technical and management staff are made available for consultation with NRC and the State on a periodic basis, and release and dose projections based on available plant condition information and foreseeable contingencies are provided.

#### *General Emergency*

Events are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or hostile action that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA PAG exposure levels off-site for more than the immediate site area.

Duke actions undertaken at the General Emergency class are identical to those described for the Site Area Emergency class except that PARs will be issued at General Emergency.

Section II.D of the Lee Emergency Plan will be revised to reflect minor changes to the classification level definitions and to add the licensee actions in a future revision of the Emergency Plan, as described in the Application Revisions section. In addition, a minor change to the definition of "hostile action" and the addition of the defined term, "imminent," are made for consistency with the above definitions and Licensee actions.

Critical Element 2 – The remainder of the site-specific EAL scheme will be developed using the NRC-endorsed version of NEI 07-01 with no deviations. The fully developed site-specific EAL scheme will be included in the Emergency Plan. Accordingly, the current EAL scheme will be removed from Appendix 1 in a future revision of the Emergency Plan. In addition, several other changes will be made throughout the Emergency Plan to refer to the NRC-endorsed version of NEI 07-01, as the basis for the EAL scheme and methodology used in the Lee Emergency Plan.

References to the NRC-endorsed version of NEI 07-01, will be provided in the Emergency Plan subsections II.I and III.A following endorsement by NRC.

Critical Element 3 – The following License Condition related to the creation of a fully developed set of site-specific EALs is proposed in accordance with the guidance document discussed above:

**PROPOSED LICENSE CONDITION:**

The licensee shall submit a fully developed set of site-specific Emergency Action Levels (EALs) to the NRC in accordance with the NRC-endorsed version of NEI 07-01. These fully developed EALs shall be submitted to the NRC for confirmation at least 180 days prior to initial fuel load.

This License Condition will be added in a future revision to Part 10 of the COL Application, as described in the Application Revisions section.

Critical Element 4 – As discussed in Critical Element 2, the fully developed site-specific EAL scheme will be incorporated into a future revision to the Emergency Plan. Accordingly, future changes to the EAL scheme will require an evaluation under 10 CFR 50.54(q) to determine if the change will reduce the effectiveness of the Emergency Plan.

The markups of Part 5 and Part 10 of the Combined License Application provided in Attachments 1 through 9 will be incorporated into a future revision of the Combined License Application.

**Associated Revision to the Lee Nuclear Station Final Safety Analysis Report or Emergency Plan:**

- Revise Definitions Section of the Emergency Plan, Revision 1
- Revise Section II.D of the Emergency Plan, Revision 1
- Revise Section II.H of the Emergency Plan, Revision 1
- Revise Section II.I of the Emergency Plan, Revision 1
- Revise Section III.A of the Emergency Plan, Revision 1
- Revise Appendix 1 of the Emergency Plan, Revision 1

**Associated Revision to Lee Nuclear Station Combined License Application, Part 10:**

- Revise Proposed License Conditions
- Revise Table 3.8-1, ITAAC 1.1
- Revise Table 3.8-1, ITAAC 6.1

**Attachments:**

- 1) Markup of affected portions of the Definitions Section of the Emergency Plan, Revision 1
- 2) Markup of affected portions of Section II.D of the Emergency Plan, Revision 1
- 3) Markup of affected portions of Section II.H of the Emergency Plan, Revision 1



- 4) Markup of affected portions of Section II.I of the Emergency Plan, Revision 1
- 5) Markup of affected portions of Section III.A of the Emergency Plan, Revision 1
- 6) Markup of Appendix 1 of the Emergency Plan
- 7) Markup of Proposed License Conditions
- 8) Markup of Table 3.8-1, ITAAC 1.1
- 9) Markup of Table 3.8-1, ITAAC 6.1

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

**Attachment 1 to RAI 13.03-075**

**Markup of Affected Portions of the Definitions Section of the Emergency Plan  
Revision 1**

COLA Part 5, Emergency Plan, Definitions Section, will be revised as follows:

### **Definitions**

**Annually** – For periodic emergency planning requirements, annually is defined as twelve months with a maximum interval of 456 days.

**Biennial** – For periodic emergency planning requirements, biennial is defined as at least once every two years, with a maximum interval of 912 days. (Note that this does not apply to the scheduling of biennial exercises. An exercise can occur at any time during the second calendar year after the previous exercise.)

**Committed Dose Equivalent (CDE)** – As defined by 10 CFR 20.1003.

**Derived Air Concentration (DAC)** – As defined by 10 CFR 20.1003.

**Drill** – A supervised instruction period aimed at testing, developing and maintaining skills.

**Effective Date** – Date of change; implementation date assigned by approval authority; date from which 30-day NRC submittals are required in accordance with 10 CFR 50, Appendix E.V.

**Emergency** – Any situation that may result in undue risk to the health and safety of the public and/or Lee Nuclear Station personnel, or significant damage to property or equipment.

**Emergency Action Levels (EALs)** – A pre-determined, site-specific, observable threshold for a plant initiating condition that places the plant in a given emergency class. An EAL can be: an instrument reading; an equipment status indicator; a measurable parameter (on-site or off-site); a discrete observable event; results of analyses; entry into specific emergency operating procedures; or another phenomenon which, if it occurs, indicates entry into a particular emergency class. (Source: NEI 07-01, Section 3.1)

**Emergency Coordinator** – Designated on-site individual having the responsibility and authority for implementing the Lee Nuclear Station Emergency Plan.

**Emergency Notification System** – A dedicated telecommunications system that provides voice communications between the Nuclear Regulatory Commission and specified nuclear facility emergency response facilities.

**Emergency Plan Implementing Procedures (EPIPs)** – Emergency response procedures that implement the Emergency Plan.

**Emergency Planning Zones (EPZ)** – A generic area defined about a nuclear facility to facilitate off-site emergency planning and develop a significant response base. It is defined for the plume and ingestion exposure pathways. During an emergency response, best efforts are made making use of plan action criteria without regard to whether particular areas are inside or outside EPZs. (Source: NUREG-0654, Rev. 1, Glossary)

**Ingestion Exposure Pathway EPZ** – An area delineated by an approximate fifty-mile radius circle around the station. The principal exposure for this pathway would be from ingestion of contaminated water or foods such as milk or fresh vegetables. The duration of exposure could range in length from hours to months. (Source: NUREG-0654, Rev. 1, Glossary)

Plume Exposure Pathway EPZ – An area delineated by an approximate ten-mile radius circle around the station. The principal exposure sources from this pathway are: (a) whole body external exposure to gamma radiation from the plume and from deposited materials and (b) inhalation exposure from the passing radioactive plume. The duration of principal potential exposures could range in length from hours to days. (Source: NUREG-0654, Rev. 1, Glossary)

Exclusion Area – As defined in 10 CFR 50.2.

Exercise – A test of the adequacy of timing and content of implementing procedures and methods; emergency equipment and communications networks; and the public notification system. An exercise permits the evaluation of training and response to ensure that emergency response organization personnel are familiar with their duties. (Source: 10 CFR 50 Appendix E.IV.F.2)

Hostile Action – An act toward a nuclear power plant or its personnel that includes the use of violent force to destroy equipment, take hostages, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, projectiles, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent ~~may be~~ are included. Hostile Action ~~should not be construed to~~ does not include acts of civil disobedience or felonious acts that are not part of a concerted attack on the nuclear power plant. Non-terrorism based EALs ~~should be~~ are used to address such activities, (e.g. violent acts between individuals in the owner controlled area).

Hostile Force – One or more individuals who are engaged in a determined assault, overtly or by stealth and deception, equipped with suitable weapons capable of killing, maiming, or causing destruction.

Imminent – Mitigation actions have been ineffective, additional actions are not expected to be successful, and trended information indicates that the event or condition will occur.

Interim – A temporary or provisional emergency response position or facility which is augmented or transferred as resources become available.

Local Counties – This term shall be used to denote the counties in the Plume Exposure Pathway (~10 mile) Emergency Planning Zone.

Monthly - For periodic emergency planning requirements, monthly is defined as once each month, with a maximum interval of 38 days.

Off-site – Beyond the Owner Controlled Area.

On-site – Within the Owner Controlled Area.

Operations Support Center (OSC) – An on-site assembly area separate from the Control Room and TSC where licensee operations support personnel report in an emergency.

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

**Attachment 2 to RAI 13.03-075**

**Markup of Affected Portions of Section II.D of the Emergency Plan**

**Revision 1**

COLA Part 5, Emergency Plan, Section II.D will be revised as follows:

#### **D. EMERGENCY CLASSIFICATION SYSTEM**

Duke Energy ~~implements~~ uses a standard emergency classification scheme, based on system and effluent parameters, ~~on~~ which allows affected State and local response organizations ~~may rely for determining~~ to determine initial off-site response measures. For Lee Nuclear Station, the initiating conditions ~~include the conditions~~ are those provided in the NRC-endorsed version of NEI 07-01, "Methodology for Development of Emergency Action Levels, Advanced Passive Light Water Reactors" (Reference III.A.6) as it applies to AP1000 facilities and postulated accidents identified in the FSAR.

The spectrum of emergencies peculiar to nuclear power stations range from accidents with minor implications on health and safety to the postulation of major occurrences resulting in the release of significant quantities of radioactive material. Examples of minor accidents include unplanned or uncontrolled releases of small amounts of radioactive material in excess of allowable limits as well as equipment malfunctions.

Major occurrences, though not expected to take place, have been postulated for planning and design purposes because their consequences could include the potential for release of significant amounts of radioactive material. The range of conditions in NEI 07-01 and the Lee Nuclear Station FSAR have been considered in the classification system of this Plan.

The classification system is not intended to include minor deviations during normal operation. Furthermore, it may be discovered that an event or condition, which met the classification criteria, had existed, but that the basis for the emergency class no longer exists at the time of discovery. For example, the event may have rapidly concluded or been discovered during a post-event review. As discussed in NUREG-1022, "Event Reporting Guidelines: 10 CFR 50.72 and 50.73" (Revision 2) (Reference III.A.7), actual declaration of an emergency class is not necessary in these circumstances, although notification to the NRC and affected State and local agencies is warranted.

##### ***1. Classification System***

Appendix E of 10 CFR 50 identifies four distinct classes of emergencies. The definitions of these emergency classes, ~~more fully discussed in NEI 07-01,~~ are as follows:

- Notification of Unusual Event (NOUE) – Events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring off-site response or monitoring are expected unless further degradation of safety systems occurs.

Duke actions undertaken at the Notification of Unusual Event include promptly informing State and local authorities of the event, augmenting on-shift resources as needed, assessment and response, and escalation to a more severe class, if appropriate. If the emergency class is not escalated to a more severe class, then State and local authorities will be notified of event termination in accordance with implementing procedures.

- Alert – Events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to Lee Nuclear Station site personnel or damage to Lee Nuclear Station site equipment because of hostile action. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline (PAG) exposure levels.

Duke actions undertaken at the Alert emergency class include those described for the Notification of Unusual Event and activation of the TSC and OSC. In addition, EOF and other key emergency response personnel are alerted, on-site monitoring teams are dispatched, periodic plant status updates and meteorological assessments are provided to offsite authorities, as are dose estimates, if any event-related releases are occurring.

- Site Area Emergency – Events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or hostile actions that result in intentional damage or malicious acts: 1) toward site personnel or equipment that could lead to the likely failure of or; 2) that prevent effective access to, equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA PAG exposure levels beyond the site boundary.

Duke actions undertaken at the Site Area Emergency class include those described for the Alert emergency class and activation of the EOF. In addition, an individual is dedicated to provide plant status updates to offsite authorities and periodic media briefings (jointly with offsite authorities when practicable), senior technical and management staff are made available for consultation with NRC and the State on a periodic basis, and release and dose projections based on available plant condition information and foreseeable contingencies are provided.

- General Emergency – Events are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or hostile action that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA PAG exposure levels off-site for more than the immediate site area.

Duke actions undertaken at the General Emergency class are identical to those described for the Site Area Emergency class except that PARs will be issued at General Emergency.

Appendix 1 of this Plan provides recognition categories, the associated initiating condition matrices, and the emergency action levels, based on the NRC-endorsed version of NEI 07-01. [Appendix 1 is "reserved" until after the NRC-endorsed version of NEI 07-01 is available.]

The Emergency Coordinator, EOF Director, or Emergency Planning Manager/designee will close out the emergency class by providing a verbal summary to the affected off-site authorities, followed by a Licensee Event Report or written summary.

## **2. *Emergency Action Levels***

Duke Energy adopts the methodology provided in the NRC-endorsed version of NEI 07-01. ~~Because this document has not yet been endorsed by the NRC, EALs contained in this Plan are subject to further review and modification based on the version of NEI 07-01 ultimately endorsed in a future revision to NRC Regulatory Guide 1.101, or other accepted guidance, modified consistent with the improvements to facility design and operation as reflected in the AP1000 Design Control Document (DCD) (Reference III.A.8).~~ Appendix 1 provides the parameter values and equipment status that are indicative of each emergency class. [Appendix 1 is "reserved" until after the NRC-endorsed version of NEI 07-01 is available.]

## **3. *State/Local Emergency Action Level Scheme***

This NUREG-0654 criterion does not apply to the licensee, but to State and local plans. Appendix 8 of this Plan provides a cross-reference to these provisions in State and Local Plans, as applicable.

## **4. *State/Local Emergency Action Procedures***

This NUREG-0654 criterion does not apply to the licensee, but to State and local plans. Appendix 8 of this Plan provides a cross-reference to these provisions in State and Local Plans, as applicable.



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

**Attachment 3 to RAI 13.03-075**

**Markup of Affected Portions of Section II.H of the Emergency Plan  
Revision 1**

COLA Part 5, Emergency Plan, Section II.H.5 will be revised as follows:

**5. *On-site Monitoring Systems***

Duke Energy maintains and operates on-site monitoring systems needed to provide data that is essential for initiating emergency measures and performing accident assessment. This includes monitoring systems for geophysical phenomena, radiological conditions, plant processes, and fire hazards.

- a. Subsection 3.7.4 of the AP1000 DCD and the corresponding subsection of the FSAR provide a description of the seismic monitoring system.
- b. Sections 11.5 and 12.3 of the AP1000 DCD and the corresponding subsections of the FSAR provide a description of the installed radiological monitoring systems. In addition to the installed systems, Duke Energy maintains an adequate supply of portable radiation monitoring and sampling equipment, including dedicated emergency response equipment, consistent with Section II.H and Appendix 6 of this Plan.
- c. Section 11.5 of the AP1000 DCD and the corresponding section of the FSAR provide a description of the plant process monitoring systems.
- d. Subsection 9.5.1 of the AP1000 DCD and the corresponding subsection of the FSAR provide a description of the plant fire monitoring system.

Appendix 1 of this plan describes the bases for the selection of the designated instruments as indicators of emergency conditions. [Appendix 1 is "reserved" until after the NRC-endorsed version of NEI 07-01 is available.]

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

**Attachment 4 to RAI 13.03-075**

**Markup of Affected Portions of Section II.I of the Emergency Plan**

**Revision 1**

COLA Part 5, Emergency Plan, Section II.I will be revised as follows:

**I. ACCIDENT ASSESSMENT**

**1. *Parameters Indicative of Emergency Conditions***

Duke Energy identifies plant system and effluent parameter values that are indicative of off-normal conditions. Appendix 1 of this plan includes the various indications that correspond to the emergency initiating conditions based on the methodology provided in the NRC-endorsed version of NEI 07-01. Appendix 1 also specifies the instruments used to indicate emergency conditions. [Appendix 1 is "reserved" until after the NRC-endorsed version of NEI 07-01 is available.]

**2. *Plant Monitoring Systems***

Initial values and continuing assessment of plant conditions through the course of an emergency may rely on reactor coolant sample results, radiation and effluent monitors, in-plant iodine instrumentation, and containment radiation monitoring. Subsection 9.3.3 of the AP1000 DCD and the corresponding subsection of the Lee Nuclear Station FSAR describe provisions for obtaining samples under accident conditions.

Section 11.5 of the AP1000 DCD and the corresponding section of the Lee Nuclear Station FSAR describe the Lee Nuclear Station radiation monitoring systems.

**3. *Determination of Source Term and Radiological Conditions***

- a. Appendix 2 of this plan describes the means for relating various measured parameters, including containment radiation monitor reading, to the source term available for release within plant systems.
- b. Appendix 2 of this plan describes the means for relating various measured parameters, including effluent monitor readings, to the magnitude of the release of radioactive materials.

**4. *Relationship Between Effluent Monitor Reading and Exposure and Contamination Levels***

Dose assessment procedures include the relationship between effluent monitor readings and on-site and off-site exposures and contamination for various meteorological conditions. Appendix 2 provides a description of the emergency dose assessment program used at Lee Nuclear Station. Information includes dose and dose rate determinations based on plant effluent monitors, and contamination estimates based on deposition assumptions and meteorological conditions.

**5. *Meteorological Information***

Section II.H.8 and Appendix 2 of this plan provide a description of the meteorological monitoring systems that are used to provide initial values and continuing assessment of meteorological conditions under emergency conditions.

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

**Attachment 5 to RAI 13.03-075**

**Markup of Affected Portions of Section III.A of the Emergency Plan  
Revision 1**

COLA Part 5, Emergency Plan, Section III.A will be revised as follows:

### **III. REFERENCES AND APPENDICES**

#### **A. CITED REFERENCES**

1. U.S. Nuclear Regulatory Commission, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," NUREG-0654/FEMA-REP-1, Rev. 1, October 1980.
2. U.S. Nuclear Regulatory Commission, Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors," Revision 3, August 1992.
3. U. S. Department of Energy, "Federal Radiological Monitoring and Assessment Center Operations Plan," DOE/NV 11718-080, December 2005.
4. U.S. Nuclear Regulatory Commission, "NRC Incident Response Plan," NUREG-0728, Rev. 4, April 2005.
5. U.S. Department of Homeland Security, "National Response Plan," December 2004.
6. ~~Nuclear Energy Institute, "Methodology for Development of Emergency Action Levels, Advanced Passive Light Water Reactors," NEI 07-01, Rev. 0, January 2007. [Reserved]~~
7. U.S. Nuclear Regulatory Commission, "Event Reporting Guidelines: 10 CFR 50.72 and 50.73," NUREG-1022, Rev. 2, October 2000.
8. Westinghouse Electric Company, LLC, "AP1000 Design Control Document," APP-GW-GL-700, Revision 16, May 26, 2007.
9. U.S. Nuclear Regulatory Commission, "Functional Criteria for Emergency Response Facilities," NUREG-0696, February 1981.
10. U.S. Nuclear Regulatory Commission, "Clarification of TMI Action Plan Requirements," NUREG-0737, Supplement 1, January 1983.
11. U.S. Nuclear Regulatory Commission, "Environmental Monitoring for Direct Radiation," Generic Letter 79-65, November 1979.
12. U.S. Environmental Protection Agency, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents," EPA-400-R-92-001, October 1991.
13. KLD Associates, Inc., "William States Lee III Nuclear Station Development of Evacuation Time Estimates," September, 2007.
14. U.S. Nuclear Regulatory Commission, "Development of Evacuation Time Estimate Studies for Nuclear Power Plants," NUREG/CR-6863, January 2005.

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

**Attachment 6 to RAI 13.03-075**

**Markup of Appendix 1 of the Emergency Plan, Revision 1**

COLA Part 5, Emergency Plan, Appendix 1 will be revised as follows:

**Appendix 1 - Emergency Action Levels**

**[Reserved]**

**[Pages A1-2 through A1-95 are deleted from the Emergency Plan as a result of this change.]**



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

**Attachment 7 to RAI 13.03-075**

**Markup of Proposed License Conditions**

COLA Part 10, Proposed License Conditions, will be revised to add the following:

**11. EMERGENCY PLANNING ACTIONS:**

The COL Application does not fully address certain aspects of the EAL scheme because various equipment set points and other required information cannot be determined until the as-built information is available. Thus, COL applicants using EAL schemes in accordance with NEI 07-01 are proposing the following license condition.

**PROPOSED LICENSE CONDITION:**

The licensee shall submit a fully developed set of site-specific Emergency Action Levels (EALs) to the NRC in accordance with the NRC-endorsed version of NEI 07-01. These fully developed EALs shall be submitted to the NRC for confirmation at least 180 days prior to initial fuel load.

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

**Attachment 8 to RAI 13.03-075**

**Markup of Table 3.8-1, ITAAC 1.1**

TABLE 3.8-1 INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA (SHEET 1 of 10)

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>1.0 Emergency Classification System</b>			
<p>10 CFR 50.47(b)(4) – A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.</p>	<p>1.1 A standard emergency classification and emergency action level (EAL) scheme exists, and identifies facility system and effluent parameters constituting the bases for the classification scheme. [D.1**]</p> <p>[**D.1 corresponds to NUREG-0654 /FEMA-REP-1 evaluation criteria.]</p>	<p>1.1 An inspection of the control room, technical support center (TSC), and emergency operations facility (EOF) will be performed to verify that they have displays for retrieving facility system and effluent parameters that constitute the bases for the classification scheme in specific Emergency Action Levels (EALs) identified in the following list of EALs in Appendix 1, Section 5, of the Emergency Plan [Appendix 1 is "Reserved" until after the NRC-endorsed version of NEI 07-01 is available.]:</p> <p style="text-align: center;"><b>EALs in Emergency Plan Appendix 1, Section 5</b></p> <p>Abnormal Rad Levels/Radiological Effluents: AU1 (EALs 1, 2), AU2, AA1 (EALs 1, 2), AA2, AA3, AS1 (EAL 1), AG1 (EAL 1)</p> <p>Cold Shutdown/Refueling System Malfunction: CU2, CU3, CU4, CU7, CU8, CA1, CA4, CS1, CG2</p> <p>Fission Product Barrier Thresholds:</p> <p><u>Fuel Clad Barrier Threshold Values:</u></p> <p>2- Primary Coolant Activity Level          3- Core Exit Thermocouple Readings          4- Reactor Vessel Water Level          6- Containment Radiation Monitoring</p> <p><u>RCS Barrier Threshold Values:</u></p> <p>2- RCS Leak Rate          4- SG Tube Rupture          6- Containment Radiation Monitoring</p> <p><u>Containment Barrier Threshold Values:</u></p> <p>2- Containment Pressure          3- Core Exit Thermocouple Reading          4- SG Secondary Side Release with P-to-S Leakage          5- CNMT Isolation Failure or Bypass          6- Significant Radioactive Inventory in Containment</p> <p>Hazards or Other Conditions Affecting Plant Safety: HU1 (EAL 2), HA1 (EALs 1, 2)</p> <p>System Malfunction: SU1, SU4 (EAL 1), SU8, SA1, SA2, SA4, SS1, SS2, SS3, SS6, SG1, SG2</p>	<p>1.1.1 The specific parameters identified in the <b>EALs in Emergency Plan Appendix 1, Section 5</b> have been retrieved and displayed in the control room, TSC, and EOF. [Appendix 1 is "Reserved" until after the NRC-endorsed version of NEI 07-01 is available.]</p> <p>1.1.2 The ranges available in the control room, TSC, and EOF encompassed the values for the specific parameters identified in the <b>EALs in Emergency Plan Appendix 1, Section 5</b>. [Appendix 1 is "Reserved" until after the NRC-endorsed version of NEI 07-01 is available.]</p>

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

**Attachment 9 to RAI 13.03-075**

**Markup of Table 3.8-1, ITAAC 6.1**

TABLE 3.8-1 INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA (SHEET 6 of 10)

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>6.0 Accident Assessment</b>			
10 CFR 50.47(b)(9) – Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.	6.1 The means exist to provide initial and continuing radiological assessment throughout the course of an accident. [1.2]	6.1 A test of the emergency plan will be conducted by performing an exercise or drill to verify the capability to perform accident assessment.	6.1 A report exists that confirms an exercise or drill has been accomplished including use of selected monitoring parameters identified in the <b>EALs in Emergency Plan Appendix 1, Section 5</b> , to assess simulated degraded plant and initiate protective actions in accordance with the following criteria [Appendix 1 is "Reserved" until after the NRC-endorsed version of NEI 07-01 is available.]: A. Accident Assessment and Classification 1. Initiating conditions identified, EALs parameters determined, and the emergency correctly classified throughout the drill. B. Radiological Assessment and Control 1. Onsite radiological surveys performed and samples collected. 2. Radiation exposure to emergency workers monitored and controlled. 3. Field monitoring teams assembled and deployed. 4. Field team data collected and disseminated. 5. Dose projections developed. 6. The decision whether to issue radioprotective drugs to Duke emergency workers made. 7. Protective action recommendations developed and communicated to appropriate authorities.