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April 2, 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
(RAI Nos. 538)
Ltr # WLG2009.03-18

References: Letter from Tanya Simms (NRC) to Peter Hastings (Duke Energy), *Request for Additional Information Letter No. 004 Related to SRP Section 07.05 for the William States Lee III Units 1 and 2 Combined License Application*, dated August 14, 2008.

Dolan to NRC Document Control Desk, Response to Request for Additional Information, Ltr # WLG2008.09-03, dated September 11, 2008.

This letter provides the Duke Energy revised response to the Nuclear Regulatory Commission's request for additional information (RAI) included in the referenced letter. This response and the attached FSAR markups replace the original response to RAI 07.05-001 transmitted as an enclosure to the Duke Energy letter referenced above.

The response to the NRC information request described in the referenced letter is addressed in 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.

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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

Enclosure:

1) Duke Energy Revised Response to Request for Additional Information Letter 004, RAI 07.05-001

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 April 2, 2009

Notary Public

My commission expires: April 19, 2010

SEAL

KIM N. SLAYS
NOTARY PUBLIC
NEW HAMPSHIRE
GRAFTON COUNTY

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
Tanya Simms, Project Manager, DNRL

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

RAI Letter No. 004

NRC Technical Review Branch: Instrumentation, Controls and Electrical Engineering

Reference NRC RAI Number(s): 07.05-001

NRC RAI:

Tables 7.5-1 and 7.5-8 of the AP1000 Design Control Document (DCD), Revision 16, Post-Accident Monitoring System, contain variables to monitor the meteorological parameters and environs radiation and radioactivity. These variables are defined as site specific. Define these variables in compliance with Regulatory Guide 1.97, Revision 3, as committed to in the combined license application, or justify an alternative approach.

Table 7.5-1 (Sheet 12 of 12) of the AP1000 DCD, Revision 16, identifies meteorological parameters as site specific. Additionally, Table 7.5-8 of the AP1000 DCD identifies "meteorology" and "boundary environs radiation and radioactivity" as site specific variables. However, the staff has not found where the combined license application addresses the parameters/variables. Explain where these variables are found.

Duke Energy Response:

The Lee Nuclear Station meteorological and environs radiation and radioactivity monitoring conforms to Regulatory Guide 1.97, Revision 4 per FSAR Appendix 1AA.

The meteorological parameters monitored are identified in FSAR Table 2.3-281. Meteorological variables are defined consistent with Regulatory Guide 1.97, Revision 3.

Environs radiation and radioactivity monitoring is addressed in FSAR Subsections 11.5.3 and 12.3.4. Off-site radiological monitoring capability is also addressed in Section II.7 of the William States Lee III Nuclear Station Emergency Plan. Environs radiation and radioactivity variables are defined consistent with Regulatory Guide 1.97, Revision 3 in FSAR Table 7.5-201.

The attached Revision 1 FSAR markups will be incorporated into a future revision of the FSAR.

Note that this response and the attached FSAR markups replace the original response to RAI 07.05-001 transmitted as an enclosure to Ltr# WLG2008.09-03 dated September 11, 2008 (ML082590055).

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

FSAR Table 1.9-201

FSAR Appendix 1AA

FSAR Table 2.3-281

FSAR Section 7.5

FSAR Table 7.5-201

FSAR Table 7.5-202

Attachments:

1) FSAR Table 1.9-201 Revisions.
2) Revised FSAR Appendix 1AA.
3) Revised FSAR Table 2.3-281.
4) Revised FSAR Section 7.5.
5) Revised FSAR Table 7.5-201.
6) Deleted FSAR Table 7.5-202.

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

Attachment 1 to RAI 07.05-001

FSAR Table 1.9-201 Revisions

WLS COL 1.9-1

TABLE 1.9-201 (Sheet 2 of 16)

REGULATORY GUIDE/FSAR SECTION CROSS-REFERENCES

Regulatory Guides		FSAR Chapter, Section, or Subsection[(a)]
1.23	Meteorological Monitoring Program for Nuclear Power Plants (Rev. 1, March 2007)	2.3.2.1.2 2.3.3.1 2.3.3.2 2.3.3.3 2.3.4.2 2.3.4.3 Table 2.3-281 Table 7.5-201
1.26	Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants (Rev. 4, March 2007)	5.2.4.1 17.5 (QAPD IV)
1.27	Ultimate Heat Sink for Nuclear Power Plants (Rev. 2, January 1976)	DCD discussion only; see DCD Table 1.9-1
1.28	Quality Assurance Program Requirements (Design and Construction) (Rev. 3, August 1985)	Not referenced; see Appendix 1AA
1.29	Seismic Design Classification (Rev. 4, March 2007)	17.5 (QAPD IV)
1.30	Quality Assurance Requirements for the Installation, Inspection, and Testing of Instrumentation and Electric Equipment (Rev. 0, August 1972)	Not referenced; see Appendix 1AA
1.31	Control of Ferrite Content in Stainless Steel Weld Metal (Rev. 3, April 1978)	6.1.1.2
1.32	Criteria for Power Systems for Nuclear Power Plants (Rev. 3, March 2004)	16 (TS Bases 3.8.1)
1.33	Quality Assurance Program Requirements (Operation) (Rev. 2, February 1978)	13.1.2.1 16 (TS 5.4.1)

TABLE 1.9-201 (Sheet 5 of 16)

WLS COL 1.9-1 REGULATORY GUIDE/FSAR SECTION CROSS-REFERENCES

Regulatory Guides		FSAR Chapter, Section, or Subsection[(a)]
1.83	Inservice Inspection of Pressurized Water Reactor Steam Generator Tubes (Rev. 1, July 1975)	DCD discussion only; see DCD Table 1.9-1
1.84	Design, Fabrication, and Materials Code Case Acceptability, ASME Section III (Rev. 33, August 2005)	DCD discussion only; see DCD Table 1.9-1
1.86	Termination of Operating Licenses for Nuclear Reactors (Rev. 0, June 1974)	Not referenced; see Appendix 1AA
1.91	Evaluations of Explosions Postulated To Occur on Transportation Routes Near Nuclear Power Plants (Rev. 1, February 1978)	2.2.3.1.1 2.2.3.1.2 3.5.1.5
1.92	Combining Modal Responses and Spatial Components in Seismic Response Analysis (Rev. 2, July 2006)	DCD discussion only; see DCD Table 1.9-1
1.93	Availability of Electric Power Sources (Rev. 0, December 1974)	16 (TS Bases 3.8.1) 16 (TS Bases 3.8.5)
1.94	Quality Assurance Requirements for Installation, Inspection and Testing of Structural Concrete and Structural Steel During the Construction Phase of Nuclear Power Plants (Rev. 1, April 1976)	Not referenced; see Appendix 1AA
1.97	Criteria For Accident Monitoring Instrumentation For Nuclear Power Plants (Rev. 4, June 2006)	Table 7.5-201 Appendix 12AA (NEI 07-03) 16 (TS Bases 3.3.3)
1.99	Radiation Embrittlement of Reactor Vessel Materials (Rev. 2, May 1988)	16 (TS Bases 3.4.3)
1.101	Emergency Response Planning and Preparedness for Nuclear Power Reactors (Rev. 5, June 2005)	9.5.1.8.2.2 Table 9.5-201 13.3 (Emergency Plan I.C.1)

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

Attachment 2 to RAI 07.05-001

FSAR Appendix 1AA Revisions

STD COL 1.9-1	Criteria Section	Referenced Criteria	FSAR Position	Clarification/ Summary Description of Exceptions

Regulatory Guide 1.91, Rev. 1, 2/78 – Evaluations of Explosions Postulated to Occur on Transportation Routes Near Nuclear Power Plants

Conformance of the design aspects is as stated in the DCD. Conformance with Revision 1 of this Regulatory Guide for programmatic and/or operational aspects is documented below.

General	Conforms	

Regulatory Guide 1.92, Rev. 2, 7/06 – Combining Modal Responses and Spatial Components in Seismic Response Analysis

Conformance with Revision 1 of the Regulatory Guide is as stated in the DCD. This guidance is completely within the scope of the DCD.

Regulatory Guide 1.94, Rev. 1, 4/76 – Quality Assurance Requirements for Installation, Inspection and Testing of Structural Concrete and Structural Steel During the Construction Phase of Nuclear Power Plants

Conformance for DCD scope of work is as stated in the DCD. Conformance for remaining scope is documented below.

General	Exception	Quality assurance requirements utilize the more recently NRC endorsed NQA-1 in lieu of the identified outdated standards.

Regulatory Guide 1.97, Rev. 4, 6/06 – Criteria ~~F~~for Accident Monitoring Instrumentation ~~F~~for Nuclear Power Plants

Conformance with Revision 3 of the Regulatory Guide for the DCD scope of work is as stated in the DCD. ~~This guidance is completely within the scope of the DCD.~~ Conformance for remaining scope is documented below.

General	Conforms	

Regulatory Guide 1.101, Rev. 5, 6/05 – Emergency Response Planning and Preparedness for Nuclear Power Reactors

General	N/A	

Regulatory Guide 1.109, Rev. 1, 10/77 – Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I

Conformance of the design aspects is as stated in the DCD. Conformance with Revision 1 of this Regulatory Guide for programmatic and/or operational aspects is documented below.

General	Conforms	

Regulatory Guide 1.110, Rev. 0, 3/76 – Cost-Benefit Analysis for Radwaste Systems for Light-Water-Cooled Nuclear Power Reactors

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

Attachment 3 to RAI 07.05-001

Revised FSAR Table 2.3-281

WLS COL 2.3-3

TABLE 2.3-281 (Sheet 1 of 2)

METEOROLOGICAL TOWER INSTRUMENTATION

Tower 2[a]

Meteorological Variable	Range	Units	Accuracy	Resolution	Basis
Wind Speed (10 & 60m)	0 to 60	mph	± 0.5 or 5% of observed wind speed; starting threshold < 1 mph	0.1	NRC Regulatory Guide 1.23
Wind Direction (10 & 60m)	0 to 360	(degrees from True North)	± 5	1	NRC Regulatory Guide 1.23
Temperature[b] (10 & 60m)	-20 to +40	Celsius	± 0. 5	0.1	NRC Regulatory Guide 1.23
Delta-T[b] (60m - 10m)	---	Celsius	± 0.1	0.01	NRC Regulatory Guide 1.23
Surface Temperature[d] (2m)	-20 to +40	Celsius	± 0.5	0. 1	NRC Regulatory Guide 1.23
Delta-T[d] (10m - 2m)	---	Celsius	± 0.1	0.01	NRC Regulatory Guide 1.23
Dewpoint Temperature (10m)	-50 to +50	Celsius	± 1.5	0. 1	NRC Regulatory Guide 1.23
Precipitation	---	Inches	± 10%	0.01	NRC Regulatory Guide 1.23
Station Pressure[c][d]	880 to 1085	millibars	± 3 or 0.25%	0.1	ANSI/ANS 3.11-2005
Incoming Solar Radiation[c][d]	0 to 1400	watts/m^2	± 10 or 5%	---	ANSI/ANS 3.11-2005

WLS COL 2.3-3

TABLE 2.3-281 (Sheet 2 of 2)

METEOROLOGICAL TOWER INSTRUMENTATION

Meteorological Variable	Range	Units	Accuracy	Resolution	Basis
Outgoing Longwave Radiation (upwelling from ground)[c][d]	0 to 700	watts/m^2	± 10 or 5%	---	ANSI/ANS 3.11-2005
Time[e]	0000 to 2359	minutes	± 5	1	NRC Regulatory Guide 1.23
Datalogger Sampling Rate	---	---	At least 5 seconds	---	NRC Regulatory Guide 1.23

NOTES:

a) Tower 2 data has been used for air dispersion modeling and site characterization in the ER and FSAR, as most representative of the site. Equipment operational on December 1, 2005.
b) Delta temperature between to 60m and 10m levels is used in stability class determination.
c) There are no accuracies specified in Regulatory Guide 1.23 for these parameters. ANS/ANSI 3.11-2005 accuracy guidance adopted as state-of-the-art specification.
d) Optional measurement variable only.
e) The 1-minute readings are averaged into 1-hour averages on Tower 2 during the pre-construction/pre-operational phase. During the operational phase, the 1-minute readings will also be compiled into 15-minute averages and 1-hour averages for real-time display in emergency response facilities. Hourly averaged data is verified and archived.

~~TABLE 2.3-281 (Sheet 1 of 2)~~

~~METEOROLOGICAL TOWER INSTRUMENTATION~~

~~Tower 2 Meteorological Variable~~	~~Instrument Height~~	~~Units~~	~~Accuracy~~	~~Precision~~
~~Upper Wind Speed~~	~~60 meters~~	~~mph~~	~~± 0.5~~	~~0.1~~
~~Upper Wind Direction~~	~~60 meters~~	~~(degrees from True North)~~	~~± 5~~	~~1~~
~~Upper Sigma-theta (standard deviation of Upper Level Wind Direction)~~		~~degrees~~	~~(Calculated)~~	
~~Lower Wind Speed~~	~~10 meters~~	~~mph~~	~~± 0.5~~	~~0.1~~
~~Lower Wind Direction~~	~~10 meters~~	~~(degrees from True North)~~	~~± 5~~	~~1~~
~~Lower Sigma-theta (standard deviation of Lower Level Wind Direction)~~		~~degrees~~	~~(Calculated)~~	
~~Upper Temperature~~	~~60 meters~~	~~Celsius~~	~~± 0.1~~	~~0.01~~
~~Lower Temperature~~	~~10 meters~~	~~Celsius~~	~~± 0.1~~	~~0.01~~
~~Upper Delta-T (between 60m and 10m Temperatures)~~			~~(Calculated)~~	
~~Surface Temperature~~	~~2 meters~~	~~Celsius~~	~~± 0.1~~	~~0.01~~
~~Lower Delta-T (between 10m and 2m Temperatures)~~			~~(Calculated)~~	

~~TABLE 2.3-281 (Sheet 2 of 2)~~
~~METEOROLOGICAL TOWER INSTRUMENTATION~~

~~Tower 2~~

~~Meteorological Variable~~	~~Instrument Height~~	~~Units~~	~~Accuracy~~	~~Precision~~
~~Dewpoint Temperature~~	~~10 meters~~	~~Celsius~~	~~± 1.5~~	~~0.01~~
~~Precipitation~~	~~1 meter~~	~~inches~~	~~± 10%~~	~~0.01~~
~~Station Pressure~~	~~2 meters~~	~~millibars (mb)~~	~~±0.025% of Reading~~	~~0.1~~
~~Incoming Solar Radiation~~	~~1 meter~~	~~(watts/m^2)~~	~~± 10 or ±5% of Reading~~	~~0.1~~
~~Outgoing Longwave Radiation (upwelling from ground)~~	~~1 meter~~	~~(watts/m^2)~~	~~± 10 or ±5% of Reading~~	~~0.1~~

~~NOTES:~~
~~1. Upper delta temperature used in stability class determination.~~

~~2. Tower 2 data has been used for air dispersion modeling and site characterization in the ER and FSAR, as most representative of the site.~~

~~3. Equipment operational on December 1, 2005.~~

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

Attachment 4 to RAI 07.05-001

Revised FSAR Section 7.5

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

WLS SUP 7.5-1

FSAR Table 7.5-201 supplements the site specific information noted in "Remarks" column of DCD Table 7.5-1 and in the "Variable" column of DCD Table 7.5-8.

~~FSAR Table 7.5-201 supplements DCD Table 7.5-1 and provides variable data shown in DCD Table 7.5-1 as "site specific."~~

~~FSAR Table 7.5-202 supplements DCD Table 7.5-8 and provides variable data shown in DCD Table 7.5-8 as "site specific."~~

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

Attachment 5 to RAI 07.05-001

Revised FSAR Table 7.5-201

WLS SUP 7.5-1

Table 7.5-201

POST-ACCIDENT MONITORING SYSTEMS[a]

Variable	Range/ Status	Number of Instruments Required	Remarks
Boundary environs radiation • Airborne Radiohalogens and Particulates (portable sampling with onsite analysis capability)	10^{-9} to 10^{-3} µCi/cc	NA	Conforms to RG 1.97[b]
• Radiation (portable instrumentation)	10^{-3} to 10^{4} R/hr, photons 10^{-3} to 10^{4} rads/hr, beta radiations and low energy photons		
• Radioactivity (portable instrumentation)	Isotopic Analysis		
Meteorological parameters • Wind Speed • Wind Direction • Differential Temperature	See Remarks	NA	Conforms to RG 1.97[b] and RG 1.23; see FSAR Subsection 2.3.3 and Table 2.3-281

a) This table supplements DCD Table 7.5-1 and 7.5-8 and provides the site specific information noted in "Remarks" column of DCD Table 7.5-1 and in the "Variable" column of DCD Table 7.5-8.

b) Conformance to Regulatory Guide 1.97 is described in Appendix 1AA. Variables and ranges are defined consistent with Regulatory Guide 1.97, Revision 3.

Variable Remarks	Range/ Status	Type/ Category	Qualification		Number of Instruments Required	Power Supply	QDPS Indication (Note 2)	Remarks
			Environ mental	Seismic				
Boundary environs radiation	See Remarks	C3, E3	None	None	See Remarks	Non-1E	No	Conforms to RG 1.97
Meteorological parameters	See Remarks	E3	None	None	See Remarks	Non-1E	No	See FSAR Subsection 2.3.3 and Table 2.3-281. Conforms to RG 1.97

a) This Table supplements DCD Table 7.5-1 and provides the site specific information noted in the remarks column of DCD Table 7.5-1.

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

Attachment 6 to RAI 07.05-001

Deleted FSAR Table 7.5-202

Table 7.5-202

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