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September 16, 2010

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. 4959 and 4960)
Ltr# WLG2010.09-02

Reference: Letter from Brian Hughes (NRC) to Peter Hastings (Duke Energy), Request for Additional Information Letter No. 090 Related to SRP 02.03.05 - Siting and Accident Consequences Branch (RSAC) for the William States Lee III Units 1 and 2 Combined License Application, dated August 12, 2010 (ML102240279)

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

The response to the NRC information request described in the referenced letter is addressed in separate enclosures, which also identify associated changes, when appropriate, that will be made in a future revision of the Final Safety Analysis Report for the Lee Nuclear Station.

If you have any questions or need any additional information, please contact Peter S. Hastings, Nuclear Plant Development Licensing Manager, at 980-373-7820.

Bryan J. Dolan
Vice President
Nuclear Plant Development

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NRO

Enclosures:

1) Duke Energy Response to Request for Additional Information Letter 090, RAI 02.03.02-012
2) Duke Energy Response to Request for Additional Information Letter 090, RAI 02.03.05-005

AFFIDAVIT OF BRYAN J. DOLAN

Bryan J. Dolan, being duly sworn, states that he is Vice President, Nuclear Plant Development, Duke Energy Carolinas, LLC, that he is authorized on the part of said Company to sign and file with the U. S. Nuclear Regulatory Commission this supplement to the combined license application for the William States Lee III Nuclear Station and that all the matter and facts set forth herein are true and correct to the best of his knowledge.

Bryan J. Dolan

Subscribed and sworn to me on September 16, 2010

Vickie M Prenatt
Notary Public

My commission expires: May 11, 2011

SEAL

VICKIE M PRENATT
NOTARY PUBLIC
Mecklenburg County
North Carolina
My Commission Expires May 11, 2011

xc (w/o enclosures):

Loren Plisco, Deputy Regional Administrator, Region II
Jeffrey Cruz, Branch Chief, DNRL

xc (w/ enclosures):

Brian Hughes, Senior Project Manager, DNRL

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

RAI Letter No. 090

NRC Technical Review Branch: Siting and Accident Consequences Branch (RSAC)

Reference NRC RAI Number(s): 02.03.02-012

NRC RAI:

The Staff considered the Applicant's response to RAI Question No. 02.03.02-11 for the William States Lee III Nuclear Station (WLS), Units 1&2 combined license (COL) Final Safety Analysis Report (FSAR) ("RAI Response"), submitted on March 23, 2010 (ML100850543). RAI No. 02.03.02-11 was issued as a follow-up to the Applicant's response to earlier RAI Question No. 02.03.02-4 (see ML083360557).

RAI Question No. 02.03.02-11 addressed issues relating to the selection of the higher of either the 100-year return period design-basis dry- and/or wet-bulb temperatures or the historic (i.e., 0 percent exceedance) value(s) as site characteristics for comparison to the corresponding maximum safety and minimum safety site parameter values in COL FSAR Table 2.0-201. The Staff considers this approach consistent with the intent of 10 CFR 52.79(a)(1)(iii) to provide sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated. The RAI question also requested the Applicant to reconsider its determination of the 100-year return period coincident wetbulb temperature, which was considerably lower than the Staff's value, or to provide a justification and explanation of their analysis.

In its RAI Response, the Applicant provided:

- a re-analysis of the 100-year return period and 0 percent exceedance dry- and/or wet-bulb temperatures based on a 45-year period of record (POR) from 1963 through 2007 as opposed to the original 31-year POR from 1977 through 2007;
- a revised methodology for determining the 100-year return period coincident wet-bulb temperature and the corresponding result; and
- revisions to related text in COL FSAR Sections 2.3.2.2 and 2.3.7, an updated tabular summary of design-basis temperatures in COL FSAR Table 2.3-293, and the corresponding updates to the site characteristic values in COL FSAR Table 2.0-201.

After reviewing this information, the Staff identified several discrepancies and omissions that require correction and/or clarification. Therefore, the Applicant should address the following technical issues to resolve the Staff's concerns regarding the revised material:

(a) The proposed revision to the last paragraph of COL FSAR Section 2.3.2.2 retains the third sentence from the original text, which states "[t]he controlling meteorological parameters required for the analysis of cooling tower performance are the wet bulb temperature and the coincident dry bulb temperature". Reconcile this statement with the WLS Ambient Design Temperatures for wet-bulb presented on Page 2 of 10 of Enclosure No. 1 to the RAI Response, with the corresponding site characteristic wet-bulb temperatures listed on revised COL FSAR Table 2.0-201 (Page 4 of 10 of Enclosure No. 1), and with the corresponding wet-bulb

temperature values listed on revised COL FSAR Table 2.3-293 (Page 8 of 10 of Enclosure No. 1).

No such site characteristics (i.e., wet-bulb and coincident dry-bulb temperatures) are provided in COL FSAR Section 2.3 nor do any such site parameters appear to be included in the Design Control Document.

- If the statement in the last paragraph of revised Section 2.3.2.2 is intended to refer to only the non-coincident wet-bulb temperature values referenced above, then: (1) confirm whether the non-coincident wet-bulb values can be accommodated at any dry-bulb temperature; and (2) revise the statement and text accordingly.
- On the other hand, if the statement in the last paragraph of revised Section 2.3.2.2 is correct, then: (1) specify the corresponding coincident dry-bulb temperatures; (2) update the site characteristic and/or site parameter values in COL FSAR Tables 2.0-201 and 2.3-293 accordingly; and (3) update Subsection 2.3.2.2 as necessary.

(b) The Staff recognizes that the ambient temperature and humidity statistics called for in NUREG-0800, Standard Review Plan (SRP) Section 2.3.1, Section I (Areas of Review), Item 6(e), and in Reg Guide 1.206, Part III, Section C.I.2.3.1.2, Paragraph 2 (Fifth Bulleted Item), have been addressed by the Applicant in COL FSAR Section 2.3.2.2. The Staff also recognizes that SRP Section 2.3.1 does not, at present, prescribe methodologies to be used in determining these temperature and humidity statistics, thus allowing applicant flexibility in analyzing the data.

Nevertheless, consistent with SRP Section 2.3.1, Section III (Review Procedures), Item 4(c), Paragraph 1, in regards to "ensuring that sufficient information is presented" in the application "to demonstrate that the characteristics of the site fall within the site parameters", update COL FSAR Section 2.3.2.2 (or other appropriate section(s) under COL FSAR Section 2.3) to explain the methodologies used to determine the 0 percent exceedance, 100-year return period, and 1 percent exceedance design-basis dry- and/or wet-bulb temperatures. The Staff notes that Pages 1, 2, and 3 of 12 of the Applicant's response to RAI Question No. 2.3.2-4 (see ML083360557), as supplemented by the revised approach for determining the 100-year return period coincident wet-bulb temperature and the updated POR in the RAI Response, provide a reasonably acceptable level of detail for the methodologies used.

(c) Confirm whether the 1 percent exceedance (or Maximum and Minimum Normal) dry- and/or wet-bulb temperatures listed on Pages 2, 4, and 8 of 10 of the RAI Response have been updated to reflect the 45-year meteorological data set (from 1963 through 2007) from the Greer, South Carolina, National Weather Service station, as opposed to still being based on the original 31-year POR. The Staff notes the change of the 1 percent exceedance Maximum Normal dry-bulb temperature from 92°f to 91°f in COL FSAR Tables 2.0-201 and 2.3-293 although the basis of this change is not clear (Paragraph 1 on Page 1 of 10 of the RAI Response does not suggest this to be the case).

Therefore, confirm whether different PORs are used to determine the various dry- and/or wet-bulb site characteristic temperatures. In either case, clarify COL FSAR Section 2.3.2.2, and/or COL FSAR Tables 2.0-201 and 2.3-293 to clearly and consistently indicate the POR(s) used in the design temperature data analyses.

Duke Energy Response:

(a) The third sentence in the last paragraph of FSAR Subsection 2.3.2.2 stating "[t]he controlling meteorological parameters required for the analysis of cooling tower performance are the wet bulb temperature and the coincident dry bulb temperature" is a generic reference to general cooling tower design. No specific values of wet bulb temperature and coincident dry bulb temperature are presented or required in this section. The wet bulb temperature and coincident dry bulb temperature are not listed as site parameters in DCD Table 2-1. Therefore, the above sentence will be removed from FSAR Subsection 2.3.2.2.

(b) FSAR Subsection 2.3.2.2 will also be revised to incorporate the methodologies used to determine the 0 percent exceedance, 100-year return period, and 1 percent exceedance design-basis dry- and/or wet-bulb temperatures.

(c) Duke Energy confirms that the 1 percent exceedance temperatures use the 45-year period of record as do the other site characteristic temperatures. FSAR Subsection 2.3.2.2 will be revised to indicate this period of record (1963-2007). Footnote 1 of FSAR Table 2.3-293 also states that the 45-year period of record was used.

The proposed changes to FSAR Subsection 2.3.2.2, discussed above, are provided in Attachment 1 of this enclosure. These proposed changes supersede those proposed for FSAR Subsection 2.3.2.2 provided earlier in Attachment 2 to Enclosure 1 of the Duke Energy response to NRC RAI Letter No. 082, RAI 02.03.02-11 (Reference 1). It is noted that while the response to RAI 02.03.02-11 deleted Reference 238 since it was no longer needed (i.e., Attachment 4 to Enclosure 1 of Reference 1), the changes provided in Attachment 1 require that reference and, therefore, it will not be deleted. Thus, the change in Attachment 2 to Enclosure 1 of this letter supersedes the previous change to the FSAR subsection 2.3.7 by restoring Reference 238 to FSAR Subsection 2.3.7.

Reference:

1. Letter from Bryan J. Dolan (Duke Energy) to Document Control Desk, U.S. Nuclear Regulatory Commission, Response to Request for Additional Information (RAI No. 3800), Ltr# WLG2010.03-08, dated March 23, 2010.

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

FSAR Subsection 2.3.2.2

FSAR Subsection 2.3.7

Attachments:

1) Mark-up of FSAR Subsection 2.3.2.2
2) Mark-up of FSAR Subsection 2.3.7

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

Attachment 1 to RAI 02.03.02-012

Mark-up of FSAR Subsection 2.3.2.2

COLA Part 2, FSAR Chapter 2, Subsection 2.3.2.2, last paragraph is revised as follows:

The maximum temperature at the Lee Nuclear Station site during the 2005-2006 data collection period was 96°F and the minimum was 20°F which is within the bounds of the historic record for Ninety-Nine Islands, South Carolina (see Figure 2.3-238). The temperature range at the Lee Nuclear Station site is consistent with the temperature ranges for Ninety-Nine Islands and the Greenville/Spartanburg areas. ~~The controlling meteorological parameters required for the analysis of cooling tower performance are the wet bulb temperature and the coincident dry bulb temperature. The maximum safety dry bulb temperature is determined as the highest dry bulb temperature that persists for at least two hours using a 31-year (1977–2007) data set of sequential hourly meteorological data from the NWS station at Greer Greenville/Spartanburg Airport, South Carolina. The maximum coincident wet bulb temperature is the highest wet bulb temperature that exists in that population of dry bulb temperatures. The maximum safety dry bulb temperature is 103°F, and the coincident wet bulb temperature is 78°F (Table 2.3-293). The maximum wet bulb temperature (noncoincident) that persists for at least two hours has been determined to be 81°F from the 31-year data set. The minimum dry bulb temperature (0% exceedance), as indicated in Table 2.3-293, determined from the same data set is -1°F. These values are compared to the AP1000 design parameters in Table 2.0-201.~~For the Lee Nuclear Station site, the 0% exceedance dry bulb temperature was determined in accordance with the definition provided by Westinghouse AP1000 DCD, Tier 2 Table 2-1 and FSAR Table 2.0-201. The maximum coincident dry bulb/wet bulb temperature limit is based on the maximum dry bulb temperature that has existed for 2 hours or more combined with the maximum wet bulb temperature that exists in that population of dry bulb temperatures. Consequently, the term "coincident wet bulb temperature" is not defined in the same way as used in ASHRAE "Climatic Design Information" (i.e., the Mean Coincident Wet Bulb, MCWB), Reference 238.

The DCD specifies that "[t]he Combined License applicant must provide information to demonstrate that the site parameters are within the limits specified for the standard design." Consistent with the Westinghouse methodology described above, the highest dry bulb temperature that persists for at least 2 hours has been determined to be 103°F from a 45-year (1963-2007) sequential hourly meteorological data set for the NWS station at Greer Greenville/Spartanburg Airport, South Carolina (see Table 2.3-293). The highest of the coincident wet bulb temperatures has been determined to be 78°F.

Similar to the approach described above for determining the maximum safety dry bulb temperature, the highest (non-coincident) wet bulb temperature that persists for at least 2 hours has been determined to be 81°F from the 45-year sequential hourly meteorological data set for the Greer Greenville/Spartanburg Airport NWS station. The minimum safety dry bulb temperature persisting for at least 2 hours was also determined, using the approach discussed above, to be -1°F.

1% Exceedance Dry Bulb and Wet Bulb Temperature

The maximum normal limits represent the maximum normal range of operation for power generation systems. The maximum coincident normal temperature limit is based on a 1% exceedance dry bulb temperature that persists for two hours or more in historical meteorological data. The complementary coincident wet bulb temperature is not selected based on a median or a maximum value from the 1% exceedance coincident data set. Since a slightly lower dry bulb temperature with its complementary coincident wet bulb temperature may be more limiting, the 1% exceedance wet bulb value, disregarding any hourly persistence limitation, was selected as the coincident wet bulb temperature. This methodology specified by Westinghouse is considered a conservative approach to the selection of the maximum normal coincident condition. Based on the 45-year sequential hourly meteorological data set for the Greer

Greenville/Spartanburg Airport NWS station, the 1% exceedance dry bulb temperature was 91°F and the coincident 1% exceedance wet bulb temperature was 76°F.

The maximum normal non-coincident wet bulb temperature limit is the 1% exceedance wet bulb temperature that has existed at the site for 2 hours or more based on historical meteorological data. From the 45-year sequential hourly meteorological data set for the Greer Greenville/Spartanburg Airport NWS station, the maximum normal non-coincident wet bulb temperature was determined to be 76°F.

100-Year Return Period Dry Bulb and Wet Bulb Temperature

Because reliable, sequential hourly meteorological data sets do not exist for durations of 100 years, the maximum 100-year return period dry bulb temperature value must be extrapolated. The maximum 100-year return period dry bulb temperature was calculated using the 45-year sequential hourly meteorological data set for the Greer Greenville/Spartanburg Airport NWS station, and was based on methodology provided in ASHRAE Fundamentals Handbook 2001, Chapter 27 – Climatic Design Information (Reference 238). See Equations 1 and 2 below:

$T_n = M + IFs$ Equation 1

where:

T_n = n-year return period value of extreme dry bulb temperature to be estimated, years

M = mean of the annual extreme maximum or minimum dry bulb temperatures, °F

s = standard deviation of the annual extreme maximum or minimum dry bulb temperatures, °F

I = 1, if maximum dry bulb temperatures are being considered

I = -1 if minimum dry bulb temperatures are being considered

$$F = -\frac{\sqrt{6}}{\pi}\left\{0.5772 + \ln\left[\ln\left(\frac{n}{n-1}\right)\right]\right\}$$ Equation 2

The resultant maximum 100-year return period dry bulb temperature was 107°F.

Since the maximum 100-year return period dry bulb temperature value was extrapolated, there are no occurrences of maximum dry bulb temperatures to pair with concurrent wet bulb temperature values to determine a coincident wet bulb temperature. In order to calculate a 100-year return period coincident wet bulb temperature, the 45-year sequential hourly meteorological data set for the Greer Greenville/Spartanburg Airport NWS station was used to develop a dry bulb to coincident wet bulb correlation curve. The 100-year return period coincident wet-bulb temperature methodology was determined using a dry-bulb to coincident wet-bulb correlation curve reflective of the entire meteorological data set. The resultant 100-year return period coincident wet bulb temperature was 84°F.

Similar to the approach described above for determining the maximum 100-year return period dry bulb temperature, the maximum 100-year return period wet bulb temperature (non-coincident) was calculated to be 85°F using the 45-year sequential hourly meteorological data set for the Greer Greenville/Spartanburg Airport NWS station. Likewise, the minimum 100-year return period dry bulb temperature was calculated to be -5°F.

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

Attachment 2 to RAI 02.03.02-012

Mark-up of FSAR Subsection 2.3.7

COLA Part 2, FSAR Chapter 2, Subsection 2.3.7, Reference 238 is retained. This supersedes Duke Energy's previous change described in the response to RAI 02.03.02-11 (i.e., Attachment 4 to Enclosure 1 of Reference 1).

2.3.7 REFERENCES

238. ASHRAE Fundamentals Handbook 2001, Chapter 27 - Climatic Design Information

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

RAI Letter No. 090

NRC Technical Review Branch: Siting and Accident Consequences Branch (RSAC)

Reference NRC RAI Number(s): RAI 02.03.05-005

NRC RAI:

The Staff considered the Applicant's response to RAI Question No. 02.03.05-4 for the William States Lee III Nuclear Station (WLS), Units 1&2 combined license (COL) Final Safety Analysis Report (FSAR) ("RAI Response"), submitted on April 6, 2010 (ML101060138). RAI Question No. 02.03.05-4 addressed issues relating to the routine release, offsite atmospheric dispersion modeling analysis in the initial COL FSAR application submittal having been based on only one year of onsite meteorological data. In its RAI Response, the Applicant provided:

- the requested input and output files for the XOQDOQ dispersion model runs using a two-year onsite meteorological data set; and
- revisions to related text in COL FSAR Sections 2.3.5.1 and 2.3.5.2, including correction of a discrepancy between the maximum site characteristic annual average dispersion factor (X/Q value) at the Exclusion Area Boundary (EAB) as reported in COL FSAR Table 2.0-201 and COL FSAR Table 2.3-289.

Unlike the design-basis accident dispersion modeling analyses updated to reflect the two-year onsite meteorological data set (see the Staff's evaluation of the RAI Response pertaining to RAI Question No. 02.03.04-4), the Applicant chose to retain the routine release dispersion modeling results based on only one year of onsite data. The rationale for that decision is presented in Appendix 2CC to COL FSAR Section 2.3.

The Staff agrees, in general, with the rationale but notes that among the many modeled receptor points the undepleted, undecayed annual average X/Q values (at least) based on the two-year meteorological data set are typically higher than those obtained using the original one-year data set. After reviewing this information, the Staff believes that several clarifications are necessary to resolve several inconsistencies in the documentation. The Applicant should address the following issues:

(a) The proposed revision to COL FSAR Section 2.3.5.1 (Paragraph 2) indicates that the basis for retaining the long-term modeling results already presented in that section, using the one-year onsite meteorological data set, is the similarity of those X/Q values to the annual average X/Qs presented in Appendix 2CC to COL FSAR Section 2.3 based on the two-year data set. However, Paragraph 4 in Section 2CC.4 of Appendix 2CC states: that direct comparison of the X/Q and D/Q values for normal releases is not meaningful; that the comparison, instead, made use of the maximum individual and population doses; and that although the doses increased when the two-year data set was used, the doses are still only a fraction of the 10 CFR Part 50, Appendix I limits.

Consequently, update Section 2.3.5.1 to clarify the actual basis for retaining the long-term (annual average) dispersion modeling results for routine releases using the original one-year onsite meteorological data set and to resolve the apparent inconsistency with the explanation given in revised Sentence 1.

(b) The proposed revision to COL FSAR Section 2.3.5.1 (Paragraph 2) replaced the first sentence only; the remainder of the original text in that paragraph was unchanged. The second sentence refers to the then "current (2006) Land Use Census" as the basis for the special receptor locations input to the dispersion modeling analysis using the one-year data set. On the other hand, Section 2CC.4 (Paragraph 4) in Appendix 2CC to COL FSAR Section 2.3 refers to a "more current receptor survey" (undated) as the basis for the special receptor locations modeled using the two-year onsite data set.

The Staff notes the following differences in receptors and receptor characteristics in the latter set of special receptor locations:

- House (Residence) – Nine new receptors (SSW, SW, WNW, and N through ESE sectors). Five revised distances (S, WSW, W, NW, NNW sectors) and very minor differences at two other receptors (i.e., only 3 meters closer and 2 meters farther in the SE and SSE sectors, respectively, which are the Highest and 2nd Highest X/Qs for this receptor type).
- Garden – One new receptor (S sector, which is the 2nd Highest X/Q for this receptor type). Four revised distances (SSW through W sectors).
- Milk Animal – Three new receptors (S, NNW, and NE sectors). Two revised distances (SW and N sectors).
- Meat Animal – One new receptor (S sector). Seven revised distances (SW, NW, NNW, N, NE, E, and SE sectors – SE sector still the Highest X/Q value for this receptor type).

Consequently, because of these differences, update COL FSAR Section 2.3.5.1 and Appendix 2CC, as appropriate, by citing the references that correspond to the respective land use and/or receptor surveys used to identify the modeled special receptor locations. Likewise, update the respective reference lists in COL FSAR Section 2.3.7 and Appendix 2CC, as necessary.

(c) The last sentence in Section 2CC.5 of Appendix 2CC to COL FSAR Section 2.3 states that "[n]o changes are needed to FSAR Sections 2.3.4 or 2.3.5 based on the collection of the second year of meteorological data". Given the Applicant's response to RAI Question No. 02.03.04-4 and the subsequent revisions made to related text and tables in COL FSAR Section 2.3.4 with design-basis accident modeling results using the two-year onsite meteorological data set (see the Staff's evaluation of the RAI Response pertaining to RAI Question No. 02.03.04-4), either: update the indicated statement in Section 2CC.5 and the comparable statement in Section 2CC.1 (last sentence) to reconcile the inconsistencies with the changes made and not made; or justify why those statements remain valid.

Duke Energy Response:

(a) FSAR Subsection 2.3.5.1, second paragraph, will be revised to address the use of the one-year data set based on the comparison of individual and population doses, consistent with the discussion in Appendix 2CC (Attachment 1).

(b) FSAR Chapter 2, Appendix 2CC, Subsection 2CC.4, fourth paragraph, will be revised (Attachment 2) to indicate the date of the revised 2008 land use information used in evaluating the two-year data set. The land use information utilized in FSAR Subsection 2.3.5.1 is based on the 2006 land use information and does not require revision; however, that section will be revised to eliminate referring to the 2006 information as "current" (Attachment 2). The land use

information is not cited explicitly in the reference lists in FSAR Subsection 2.3.7 and Appendix 2CC.

(c) FSAR Chapter 2, Appendix 2CC, Subsections 2CC.1, 2CC.4, and 2CC.5, will be revised to clarify the meteorological data sets used to develop the short-term and long-term atmospheric dispersion values (Attachment 3).

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

FSAR Subsection 2.3.5.1

FSAR Chapter 2, Appendix 2CC, Subsections 2CC.1, 2CC.4, and 2CC.5

Attachments:

1) Mark-up of FSAR Subsection 2.3.5.1
2) Mark-up of FSAR Chapter 2, Appendix 2CC, Subsection 2CC.4
3) Mark-up of FSAR Chapter 2, Appendix 2CC, Subsections 2CC.1 and 2CC.4, and 2CC.5

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

Attachment 1 to RAI 02.03.05-005

Mark-up of FSAR Subsection Subsection 2.3.5.1

COLA Part 2, FSAR Chapter 2, Subsection 2.3.5.1, second paragraph, is revised as follows:

~~The meteorological data analyzed in Appendix 2CC for the period from December 2005 through November 2007 produces long-term atmospheric diffusion (χ/Q) values similar to the one-year period from December 2005 through November 2006, thus the one-year period meteorological data was retained.~~ Appendix 2CC evaluates the use of two years of onsite meteorological data (December 2005 through November 2007) in determining the atmospheric dispersion of normal airborne effluent releases. As discussed in this appendix, direct comparison of the atmospheric dispersion and deposition values for the one-year and two-year data sets is not meaningful because of the large number of values and the various offsite receptor locations, some of which decrease while others increase. Instead, a comparison of the maximum individual and population doses using these two sets of data was performed. Comparison of the maximum individual and population doses showed that, although the doses increased slightly when the two-year data set was used, the doses are still only a fraction of the 10 CFR Part 50, Appendix I limits. Consequently, the X/Q and D/Q values for normal releases based on the one-year of site meteorological data are retained. In addition to the gridded receptor locations, receptor locations were determined from the locations obtained from the ~~current (2006)~~ ~~L~~land ~~U~~use ~~Census~~information. Hourly meteorological data was used in the development of joint frequency distributions, in hours, of wind direction and wind speed by atmospheric stability class. The wind speed categories used were consistent with the Lee Nuclear short-term (accident) diffusion χ/Q calculation discussed above. Calms (wind speeds below the anemometer starting speed of 1 mph) were distributed into the first wind speed class with the same proportion and direction as the direction frequency of the 2nd wind-speed class.

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

Attachment 2 to RAI 02.03.05-005

Mark-up of FSAR Chapter 2, Appendix 2CC, Subsection 2CC.4

COLA Part 2, FSAR Chapter 2, Appendix 2CC Subsection 2CC.4, fourth paragraph, is revised as follows:

The final category of X/Q and D/Q values to be compared are for normal releases. This category includes X/Q and D/Q values for the maximum individual and the 50 mi. population. The maximum individual and population X/Q and D/Q values were calculated using essentially the same data, assumptions, and parameters as used in the original calculations using one year of data. ~~There were some differences associated with a more current receptor survey.~~ However, the discrete receptor locations used in the maximum individual dose comparisons were updated using the 2008 land use information.

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

Attachment 3 to RAI 02.03.05-005

Mark-up of FSAR Chapter 2, Appendix 2CC, Subsections 2CC.1, 2CC.4, and 2CC.5

COLA Part 2, FSAR Chapter 2, Appendix 2CC, Subsection 2CC.1 is revised as follows:

2CC.1 Purpose

This Appendix provides an evaluation of the second year of Lee Nuclear Station meteorological data and a comparison with the first year of meteorological data. In addition, comparison of the site data with data covering a longer period of record from the nearest local National Weather Service station demonstrates how well the site data represents the long-term conditions at the Lee Nuclear Station site. ~~Because the one-year and two-year data sets are consistent and representative of the long-term conditions, there is no need to update the data and values currently provided in FSAR Section 2.3.~~

COLA Part 2, FSAR Chapter 2, Appendix 2CC, Subsection 2.CC.4, third paragraph, is revised by deleting the last sentence and adding a new paragraph as follows:

~~Based on this comparison it is concluded that the two-year data set is reasonably consistent with the first year data set.~~

The design-basis accident X/Q values generated from the two-year meteorological data are generally more conservative and bounding than the one-year X/Q values. Therefore, the meteorological dispersion parameters presented in FSAR Section 2.3.4 are based on the two-year data.

COLA Part 2, FSAR Chapter 2, Appendix 2CC, Subsection 2.CC.4, fifth paragraph, is revised by adding a sentence at the end of the original fifth paragraph as follows:

Therefore, the site-specific long-term X/Q and D/Q values provided in FSAR Section 2.3.5 are based on the first year of data only.

COLA Part 2, FSAR Chapter 2, Appendix 2CC, Subsection 2CC.5, is revised as follows:

2CC.5 Conclusion

Based on the information presented in Subsection 2CC.4, it is concluded that the atmospheric dispersion and deposition (X/Q and D/Q) values based on the two-year meteorological data set are consistent with the corresponding values based on the first year data set. The atmospheric dispersion (X/Q) values for the EAB, LPZ, and control room are consistent for the two data sets. The offsite doses due to normal gaseous effluent releases used to compare the normal atmospheric dispersion and deposition (X/Q and D/Q) values are also consistent for the two data sets. These comparisons demonstrate that the first year of data is consistent with the complete two-year Lee Nuclear Station data set and is representative of longer-term conditions at the site. No anomalous behavior was observed between the first year and second year of data. ~~No changes are needed to FSAR Sections 2.3.4 or 2.3.5 based on the collection of the second year of meteorological data.~~ The meteorological dispersion parameters presented in FSAR Section 2.3.4 are based on the two-year data. The site-specific long-term X/Q and D/Q values provided in FSAR Section 2.3.5 are based on the first year of data only.