



Progress Energy

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December 3, 2010

10CFR52.79

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

**LEVY NUCLEAR PLANT, UNITS 1 AND 2
DOCKET NOS. 52-029 AND 52-030
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 096 RELATED TO
REGIONAL CLIMATOLOGY**

Reference: Letter from Brian C. Anderson (NRC) to John Elnitsky (PEF), dated November 9, 2010, "Request for Additional Information Letter No. 096 Related to SRP Section 2.3.1 for the Levy County Nuclear Plant, Units 1 and 2 Combined License Application"

Ladies and Gentlemen:

Progress Energy Florida, Inc. (PEF) hereby submits our response to the Nuclear Regulatory Commission's (NRC) request for additional information provided in the referenced letter.

A response to the NRC request is addressed in the enclosure. The enclosure also identifies changes that will be made in a future revision of the Levy Nuclear Plant Units 1 and 2 application.

If you have any further questions, or need additional information, please contact Bob Kitchen at (919) 546-6992, or me at (727) 820-4481.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on December 3, 2010.

Sincerely,

John Elnitsky
Vice President
New Generation Programs & Projects

Enclosure

cc : U.S. NRC Region II, Regional Administrator
Mr. Brian C. Anderson, U.S. NRC Project Manager

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**Levy Nuclear Plant Units 1 and 2
Response to NRC Request for Additional Information Letter No. 096 Related to
SRP Section 2.3.1 for the Combined License Application, dated November 9, 2010**

<u>NRC RAI #</u>	<u>Progress Energy RAI #</u>	<u>Progress Energy Response</u>
02.03.01-17	L-0871	Response enclosed – see following pages
02.03.01-18	L-0872	Response enclosed – see following pages

NRC Letter No.: LNP-RAI-LTR-096

NRC Letter Date: November 9, 2010

NRC Review of Final Safety Analysis Report

NRC RAI NUMBER: 02.03.01-17

Text of NRC RAI:

The staff has identified apparent inconsistencies in FSAR Section 2.3.1.2.2, "Tornadoes and Severe Winds." Please clarify the following and make any necessary changes to the FSAR.

- The third to last paragraph in FSAR Section 2.3.1.2.2, Revision 2, states that "[a]n importance factor of 1.15 is applied to this wind speed in the design of safety related functions." The staff finds two errors with this statement:
 1. The design (operating basis) wind speed for the AP1000 standard plant is 145 mph, as indicated in the AP1000 DCD Tier 2, Section 3.3.1.1, not the site characteristic wind speeds listed in FSAR Section 2.3.1.2.2.
 2. The importance factor of 1.15 is applied to the velocity pressure, not the wind speed. An importance factor of 1.15 correlates to a wind speed conversion factor of 1.07.
- The following sentence in the paragraph states, "Therefore, the maximum observed wind speeds for the design-basis tornado would be 119 km/h (74 mph), 143 km/h (89 mph), 195 km/h (121 mph), 153 km/h (95 mph), and 113 km/h (70 mph) for Gainesville, Jacksonville, Orlando, Tallahassee, and Tampa, respectively." The staff finds two errors with this statement:
 1. The term "observed wind speeds" is ambiguous and should be clarified as to the time scale that was used.
 2. These wind speeds are not design-basis tornado wind speeds. The design-basis tornado wind speed for the AP1000 standard plant is 300 mph as indicated in AP1000 DCD Tier 2, Section 3.3.2.1.

PGN RAI ID #: L-0871

PGN Response to NRC RAI:

Progress Energy's response to NRCs comments is provided as follows:

First Bullet

1. Progress Energy agrees that the design (operating basis) wind speed of 145 mph for the AP1000 standard plant is not the same as the site characteristic wind speeds listed in FSAR Section 2.3.1.2.2. The design-operating basis wind speed is described in the last paragraph of FSAR Subsection 2.3.1.2.2 and is compared to the site characteristic wind speed. Progress Energy concludes that the site characteristic wind speed is bounded by the design wind speed. The first sentence of this paragraph will be revised to provide additional clarification.

2. In FSAR Subsection 2.3.1.2.2, Revision 2, the “importance factor of 1.15” was used inappropriately to apply an importance factor to convert the maximum observed wind speeds in the region to a 100-year recurrent value. The third to last paragraph in FSAR Subsection 2.3.1.2.2 will be revised to remove the reference to the importance factor and the wind speeds will be provided as the observed speeds from FSAR Table 2.3.1-202.

Second Bullet

1. The observed peak gust wind speeds in Table 2.3.1-202 were merely being reported as the higher of the peak gust, 3-second gust or 5-second gust for each station in the region and therefore do not need to be converted to a 100-year recurrent value. This distinction is noted in “footnote a” of Table 2.3.1-202. The observed peak gust wind speeds in the region are provided in the FSAR only to provide perspective on regional wind speeds, and not necessarily to be representative of site-specific conditions.
2. In the third to last paragraph of FSAR Subsection 2.3.1.2.2, Revision 2, the reference to “design-basis tornado wind speeds” was used inappropriately in context with the information provided in paragraph. The paragraph will be revised to remove reference to the “design-basis tornado wind speeds”.

The clarifications provided above will be incorporated into a future revision of the FSAR.

Associated LNP COL Application Revisions:

The following changes will be made to the LNP FSAR in a future revision:

1. The text in the third to the last paragraph of FSAR Subsection 2.3.1.2.2, “Tornadoes and Severe Winds,” will be changed from:

Peak observed wind speeds at the Gainesville, Jacksonville, Orlando, Tallahassee, and Tampa stations were previously identified in Table 2.3.1-202. As indicated in the table, the peak observed wind speeds at the stations were 103 km/h (64 mph), 124 km/h (77 mph), 169 km/h (105 mph), 134 km/h (83 mph), and 98 km/h (61 mph), respectively. An importance factor of 1.15 is applied to this wind speed in the design of safety-related structures (Reference 2.3-216). Therefore, the maximum observed wind speeds for the design-basis tornado would be 119 km/h (74 mph), 143 km/h (89 mph), 195 km/h (121 mph), 153 km/h (95 mph), and 113 km/h (70 mph) for Gainesville, Jacksonville, Orlando, Tallahassee, and Tampa, respectively.

to:

Observed peak gust wind speeds at the Gainesville, Jacksonville, Orlando, Tallahassee, and Tampa stations were previously identified in Table 2.3.1-202. The observed peak gust wind speeds were reported, without distinction, as the higher of the peak gust, 3-second gust or 5-second gust for each station. As indicated in the table, the observed peak gust wind speeds at these stations were 103 km/h (64 mph), 124 km/h (77 mph), 169 km/h (105 mph), 134 km/h (83 mph), and 98 km/h (61 mph), respectively.

2. The text in the last paragraph of FSAR Subsection 2.3.1.2.2 will be changed from:
The DCD defines the site characteristic “basic” wind speed as a basic wind speed of 145 mph based on the most severe location identified in ASCE 7-98, “Minimum Design Loads for Buildings and Other Structures.” This wind speed is the 3-second gust speed

at 33 feet above the ground in open terrain (ASCE 7-98, Exposure C). The ASCE "basic" wind speed is estimated from a plot of basic wind speeds provided as Figure 6-1B of the ASCE 7-05 document (i.e., a more recent version of ASCE 7-98). By following the procedure described in the DCD (i.e., using Figure 6-1B of the ASCE 7-05 reference document) the LNP site characteristic basic wind speed is 120 mph. The ASCE 50-year recurrent wind speed of 120 mph is bounded by the DCD design value of 145 mph. A 1.07 scaling factor was also used to factor this number to a 100-year recurrence value (probability of occurrence of 0.01) of 128 mph, which is also bounded by the DCD design value.

to:

The DCD specifies the design operating-basis wind as the "basic" wind. This is defined as the "basic" wind speed of 145 mph based on the most severe location identified in ASCE 7-98, "Minimum Design Loads for Buildings and Other Structures." This wind speed is the 3-second gust speed at 33 feet above the ground in open terrain (ASCE 7-98, Exposure C). The ASCE "basic" wind speed is estimated from a plot of basic wind speeds provided as Figure 6-1B of the ASCE 7-05 document (i.e., a more recent version of ASCE 7-98). By following the procedure described in the DCD (i.e., using Figure 6-1B of the ASCE 7-05 reference document) the LNP site characteristic basic wind speed is 120 mph. This value is bounded by the DCD design value of 145 mph. A 1.07 scaling factor was also used to factor this number to a 100-year recurrence value (probability of occurrence of 0.01) of 128 mph, which is also bounded by the DCD design value.

Attachments/Enclosures:

None.

NRC Letter No.: LNP-RAI-LTR-096

NRC Letter Date: November 9, 2010

NRC Review of Final Safety Analysis Report

NRC RAI NUMBER: 02.03.01-18

Text of NRC RAI:

FSAR Revision 2 provided updated information on operating basis wind speeds. There appears to be some inconsistencies within the context of FSAR Section 2.3.1.2.2, "Tornadoes and Severe Winds." Please clarify the following:

- The first sentence in the second to last paragraph in FSAR Section 2.3.1.2.2 states that "a site characteristic 3-second gust wind speed that represents a 100-year return period for the LNP site has been established at 224 km/h (139 mph)." This sentence conflicts with the next paragraph that states that the (3-second gust 100-year) wind speed site characteristic value in FSAR Table 2.0-201 is 128 mph.
- The second to last paragraph in FSAR Section 2.3.1.2.2 states that, "the maximum published 3-second gust wind speed based on tornado events and severe winds for these stations is 209 km/h (130 mph) (Orlando and Tampa) and is represented as the 50-year return 3-second gust at 10 m (33 ft) above the ground."
 1. The maximum published 3-second gust wind speed is not based on tornado wind speeds.
 2. The identification of the 50-year return 3-second gust wind speed site characteristic as 130 mph appears to conflict with following paragraph, and FSAR Table 2.0-201, that states that the 50-year return period wind speed is 120 mph.

PGN RAI ID #: L-0872

PGN Response to NRC RAI:

Progress Energy's response to NRCs comments is provided as follows:

First Bullet

The second to last paragraph of FSAR Subsection 2.3.1.2.2 provides a description of the 100-year recurrent 3-second gust wind speed for the "region," as opposed to the proposed site. This paragraph will be revised to provide additional clarification and to provide a basis and explanation for the regional 3-second gust wind speed estimate.

Second Bullet

1. Progress Energy agrees that the gust wind speeds are not based on tornado events. The maximum projected 3-second gust wind speed is based on severe winds observed at the meteorological stations and reported in the Engineering Weather Data (EWD) CDs. The paragraph will be revised to remove reference to "tornado events".

2. FSAR Subsection 2.3.1.2.2 will be revised to provide clarification and a transition paragraph will be inserted between the regional 3-second gust wind speed discussion and the site characteristic "basic" wind speed discussion.

Associated LNP COL Application Revisions:

The following changes will be made to the LNP FSAR in a future revision:

1. The text in the second to the last paragraph of FSAR Subsection 2.3.1.2.2, "Tornadoes and Severe Winds," will be changed from:

In addition to the maximum observed wind speeds in the region, a site characteristic 3-second gust wind speed that represents a 100-year return period for the LNP site has been established at 224 km/h (139 mph). The 3-second gust wind speed is also based on the American Society of Civil Engineers/Structural Engineering Institute (ASCE/SEI) 7-05, "Minimum Design Loads for Buildings and Other Structures" (Reference 2.3-216). The 3-second gust wind speed was obtained from the Engineering Weather Data (EWD) compact disc (CD) published by NOAA for the Gainesville, Jacksonville, Orlando, Tallahassee, and Tampa weather stations (Reference 2.3-217). The maximum published 3-second gust wind speed based on tornado events and severe winds for these stations is 209 km/h (130 mph) (Orlando and Tampa) and is represented as the 50-year return 3-second gust at 10 m (33 ft.) above the ground. A conversion factor to estimate the 100-year return period for this value is provided in Table C6-7 of the reference document, "Conversion Factors for Other Mean Recurrence Intervals." The conversion factor for a 100-year return period is 1.07, resulting in a 3-second gust wind speed of 224 km/h (139 mph).

to:

In addition to the observed peak gust wind speeds in the region that are presented in Table 2.3.1-202, a 3-second gust wind speed that represents a 100-year return period for the region has been established at 224 km/h (139 mph). The 3-second gust wind speed is based on the American Society of Civil Engineers/Structural Engineering Institute (ASCE/SEI) 7-05, "Minimum Design Loads for Buildings and Other Structures" (Reference 2.3-216). The 3-second gust wind speed was obtained from the Engineering Weather Data (EWD) compact disc (CD) published by NOAA for the Gainesville, Jacksonville, Orlando, Tallahassee, and Tampa weather stations (Reference 2.3-217). The maximum published 3-second gust wind speed based on severe winds for these stations is 209 km/h (130 mph) (Orlando and Tampa) and is represented as the 50-year return 3-second gust at 10 m (33 ft.) above the ground. A conversion factor to estimate the 100-year return period for this value is provided in Table C6-7 of the reference document, "Conversion Factors for Other Mean Recurrence Intervals." The conversion factor for a 100-year return period is 1.07, resulting in a 3-second gust wind speed in the region of 224 km/h (139 mph).

2. The following paragraph will be inserted before the last paragraph of FSAR Section 2.3.1.2.2:

The 100-year return period 3-second gust wind speed for the region is based on observed values that were reported at the Gainesville, Jacksonville, Orlando, Tallahassee, and Tampa weather stations. The DCD site characteristic "basic" wind speed is a theoretical value extrapolated from basic wind speed plots provided in the ASCE guidance. The following paragraph provides a discussion of the site characteristic "basic" wind speed for the LNP site. For consistency with the methodology provided in

the DCD, the theoretical wind speed values determined by this methodology are reported as the site characteristic operating basis (3-second gust, 50-year and 100-year recurrence) wind speed values in FSAR Table 2.0-201

Attachments/Enclosures:

None.