



Serial: NPD-NRC-2010-001
January 11, 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. 076 RELATED TO
WIND LOADING**

Reference: Letter from Terri L. Spicher (NRC) to Garry Miller (PEF), dated December 3, 2009,
"Request for Additional Information Letter No. 076 Related to SRP Section 3.3.1 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.

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 January 11, 2010.

Sincerely,

A handwritten signature in black ink, appearing to read "John Elnitsky".

John Elnitsky
Vice President
Nuclear Plant Development

Enclosure

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

**Levy Nuclear Plant Units 1 and 2
Response to NRC Request for Additional Information Letter No. 076 Related to
SRP Section 03.03.01 for the Combined License Application, dated December 3, 2009**

<u>NRC RAI #</u>	<u>Progress Energy RAI #</u>	<u>Progress Energy Response</u>
03.03.01-2	L-0677	Response enclosed – see following pages

NRC Letter No.: LNP-RAI-LTR-076

NRC Letter Date: December 3, 2009

NRC Review of Final Safety Analysis Report

NRC RAI #: 03.03.01-2

Text of NRC RAI:

This is a follow-up to RAI 2775 (NRC RAI number: 03.03.01-1)

10 CFR 50 Appendix A GDC2 clearly states the design bases for these structures, systems, and components shall reflect appropriate consideration of the most severe of the natural phenomena that have been historically reported for the site and surrounding area, with sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated.

After reviewing PGN Response to RAI 03.03.01-1, the staff requests the following information:

1. In its response, the applicant mentioned two wind speeds: (1) 100 year wind speed of 128 mph and (2) a historically reported wind speed of 144 mph. State which wind speed will be used for Levy County: 128 mph or 144 mph, and provide a technical basis for the chosen wind speed.
2. Provide the technical basis for the change to the first response to RAI 02.03.01-8, in which the applicant stated that the 3-second gust wind speed was going to be 185mph, and now it is 128mph (or 144 mph).
3. Explain how the wind speed (either 128 mph or 144 mph) satisfies the GDC2 requirement as noted above.

This information is important to verify compliance with 10 CFR 50, Appendix A, GDC2.

PGN RAI ID #: L-0677

PGN Response to NRC RAI:

1. Progress Energy's response to RAI 03.03.01-1 referred to our response to RAI 02.03.01-8 (as revised and resubmitted to NRC on August 19, 2009), which specifies the "Wind Speed: Operating Basis" for the LNP site as:
 - 120 mph (3-second gust, 50-year recurrence) (importance factor 1.0 [non-safety]; exposure C; topographic factor 1.0)
 - 128 mph (3-second gust, 100-year recurrence) (importance factor 1.15 [safety]; exposure C; topographic factor 1.0)

The response to RAI 03.03.01-1 also states that the most severe wind that has been historically reported for the site and surrounding area is 144 mph.

Based on the guidance provided in SRP Section 3.3.1 and 10 CFR 50, Appendix A, Progress Energy has identified the 144 mph wind speed as the maximum historically occurring wind speed for the LNP site. The highest reported wind speed associated with any individual storm event was associated with Hurricane Charley in 2004. The maximum wind speed for this storm was reported as 144 mph, recorded at its Gulf Coast landfall. Progress Energy acknowledges that this value exceeds the design basis wind speeds for the 50- and

100-year recurrence intervals as determined in accordance with the acceptance criteria provided in SRP Section 2.3.1 and 2.3.2. However, the 120 (non-safety) and 128 (safety) mph wind speeds were selected as the operating basis wind speeds for the LNP site based on the site characteristic "basic" wind speed as defined in Rev 17 of the AP1000 DCD and as provided in ASCE 7-98, "Minimum Design Loads for Building and Other Structures." The use of the ASCE 7-98 guidance is consistent with the basis and intent of the DCD and provides site-specific estimates of the 3-second gust wind speeds for the 50- and 100-year recurrence intervals.

Progress Energy believes that these wind speeds (120 and 128 mph) are the most representative of the site, consistent with the methods that have been established for identifying site-specific design basis conditions as well as the requirements of the DCD. Therefore, 120 (non-safety) and 128 (safety) mph will be used as the design basis wind speeds for the LNP site.

2. In the original response to RAI 02.03.01-8 (April 1, 2009), Progress Energy used an approach that was described in NRC RAI 02.03.01-8 for estimating an inland gust wind speed using an observed sustained wind speed at landfall from an individual storm. This methodology, which was used in our original response to RAI 02.03.01-8, resulted in a projected peak gust wind speed of 185 mph that was based on an individual storm event (Hurricane Charley). However, upon reviewing this peak gust estimate, Progress Energy subsequently concluded that this method of determining the operating basis wind speed was not consistent with the statistical methodology described in the AP1000 DCD, or representative of long-term site conditions. Given that the DCD statistical methodology (which is based on the guidance provided in ASCE 7-98), provides site-specific wind speed gust information that is based on long-term historical hurricane data, this methodology was determined to be the most appropriate for use in determining the design basis wind speeds (50- and 100-year recurrence) for the LNP site. The statistical analysis used in preparing the ASCE guidance uses a 150-year database. Given its long-term basis, and the fact that it is consistent with the DCD design basis methodology, Progress Energy believes that it reflects "appropriate consideration of the most severe of the natural phenomena that have been historically reported for the site and surrounding area, with sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated," as stated in the requirements of GDC2. Our response to RAI 02.03.01-8 was subsequently revised and resubmitted to NRC by letter dated August 19, 2009. It is also noted, however, that the wind speeds associated with the individual storm events (including Hurricane Charley) were considered in our analysis (as described in our response to RAI 03.03.01-1) to ensure that those individual storm event wind speeds were also bounded by the criteria established in the DCD.
3. 10 CFR 50 Appendix A GDC2 states that the design basis for structures, systems, and components shall reflect "appropriate consideration of the most severe of the natural phenomena that have been historically reported for the site and surrounding area, with sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated." Progress Energy believes that the requirements of GDC2 are satisfied based on the following:
 - a. The design basis wind speeds provided in our response to RAI 02.03.01-8 (August 19, 2009) were based on established ASCE guidance which is intended to be representative of the most severe of the natural phenomena that have been historically reported for the site and surrounding area, based on more than 150 years of climatological records that include hurricane tracks and maximum reported wind speeds. The use of the

methodology provided in the ASCE guidance resulted in the design basis wind speeds provided in our response to RAI 02.03.01-8 for the 50- and 100-year recurrence intervals. Progress Energy believes that this reflects a "sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated," which is consistent with the requirements of GDC2 of 10 CFR 50 Appendix A.

- b. In addition to the design basis wind speeds obtained using the ASCE guidance, Progress Energy evaluated individual event storms that could have impacted the LNP site and surrounding area. The highest reported wind speed associated with any individual storm event was associated with Hurricane Charley in 2004. The maximum wind speed for this storm was reported as 144 mph, recorded at its Gulf Coast landfall. While this value is bounded by the DCD design parameter of 145 mph, it is noted that the maximum wind speed at the LNP site, which is approximately 6 miles inland, would likely have been less than 144 mph due to a decrease in storm intensity as it moved inland. The maximum wind speed at landfall can be expected to decrease as a storm moves inland due to an increase in surface frictional effects and a loss in surface heating from the warmer Gulf waters.

Associated LNP COL Application Revisions:

None.

Attachments/Enclosures:

None.