



Serial: NPD-NRC-2009-063
April 6, 2009

10CFR52.79

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

**LEVY NUCLEAR POWER PLANT, UNITS 1 AND 2
DOCKET NOS. 52-029 AND 52-030
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 019 RELATED TO
LONG TERM ATMOSPHERIC DISPERSION ESTIMATES FOR ROUTINE RELEASES**

Reference: Letter from Brian C. Anderson (NRC) to Garry Miller (PEF), dated March 6, 2009,
"Request for Additional Information Letter No. 019 Related to SRP Section 2.3.5 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 Power 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 (919) 546-6107.

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

Executed on April 6, 2009.

Sincerely,

Garry D. Miller
General Manager
Nuclear Plant Development

Enclosure

cc : U.S. NRC Director, Office of New Reactors/NRLPO
U.S. NRC Office of Nuclear Reactor Regulation/NRLPO
U.S. NRC Region II, Regional Administrator
Mr. Brian C. Anderson, U.S. NRC Project Manager

bc : Robert Kitchen, Manager-Nuclear Plant Licensing
Tillie Wilkins, NPD-Licensing
Shawn Hughes (Shaw Power Group)
John O'Neill, Jr. (Pillsbury Winthrop Shaw Pittman, LLP)
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Lorin Young (CH2M HILL)
John Archer (WorleyParsons)
NPD Document Control Inbox (Records: Correspondence)
File: NGG-NPD (Dawn Bisson)

**Levy Nuclear Power Plant Units 1 and 2
Response to NRC Request for Additional Information Letter No. 019 Related to
SRP Section 2.3.5 for the Combined License Application, dated March 6, 2009**

<u>NRC RAI #</u>	<u>Progress Energy RAI #</u>	<u>Progress Energy Response</u>
02.03.05-1	L-0038	Response enclosed – see following pages
02.03.05-2	L-0039	Response enclosed – see following pages
02.03.05-3	L-0040	Response enclosed – see following pages
02.03.05-4	L-0041	Response enclosed – see following pages
02.03.05-5	L-0042	Response enclosed – see following pages

NRC Letter No.: LNP-RAI-LTR-019

NRC Letter Date: March 06, 2009

NRC Review of Final Safety Analysis Report

NRC RAI #: 02.03.05-1

Text of NRC RAI:

FSAR Section 2.3.5.2 states that "1 year of hourly, on-site meteorological data" was used for the XOQDOQ calculations. However, the second bullet in the same FSAR Section states, "Period of Record – February 1, 2007, to September 14, 2007."

Please explain this apparent discrepancy and explain, if necessary, why only 7½ months of data (February 1 – September 14) was used when 1 year of data was available (i.e., data used in FSAR Sections 2.3.2, 2.3.3, and 2.3.4).

PGN RAI ID #: L-0038

PGN Response to NRC RAI:

The reference to a partial year of data in the second bullet of FSAR Section 2.3.5.2 is incorrect. This bullet should read: "Period of Record - February 1, 2007, to January 31, 2008." It was also noted that the results of the analysis that are presented in FSAR Table 2.3.5-201 contains the correct period of record in a footnote to the table. This change will be made in a future revision to the FSAR.

Associated LNP COL Application Revisions:

The following change will be made to the LNP COLA in a future revision:

The second bullet in the first paragraph of FSAR Subsection 2.3.5.2 will be revised in a future amendment from:

- Period of Record – February 1, 2007, to September 14, 2007.

to:

- Period of Record – February 1, 2007, to January 31, 2008.

Attachments/Enclosures:

None.

NRC Letter No.: LNP-RAI-LTR-019

NRC Letter Date: March 06, 2009

NRC Review of Final Safety Analysis Report

NRC RAI #: 02.03.05-2

Text of NRC RAI:

Please provide a copy of the XOQDOQ input files, as well as any assumptions that were made, so that the staff may conduct a confirmatory analysis.

PGN RAI ID #: L-0039

PGN Response to NRC RAI:

A copy of the XOQDOQ input and output files were previously provided to NRC in response to a request for information during NRC's Environmental Audit that took place December 2-5, 2008. The information was submitted in a letter dated December 19, 2008 (Serial No. NPD-NRC-2008-94).

Associated LNP COL Application Revisions:

No COLA revisions have been identified associated with this response.

Attachments/Enclosures:

None.

NRC Letter No.: LNP-RAI-LTR-019

NRC Letter Date: March 06, 2009

NRC Review of Final Safety Analysis Report

NRC RAI #: 02.03.05-3

Text of NRC RAI:

Discuss the influence of the Gulf of Mexico and the resulting land and seabreezes on the routine release atmospheric dispersion estimates presented in FSAR Section 2.3.5.

PGN RAI ID #: L-0040

PGN Response to NRC RAI:

The LNP site is located approximately 12.8 km (7.9 mi.) east of the Gulf of Mexico. Although the proximity of the site to the Gulf of Mexico is expected to have an influence on the meteorology of the site and the surrounding environment, that influence is expected to be limited primarily to wind direction and wind speed. Since the site is located almost 8 miles from the Gulf of Mexico, the influence of the Gulf on other parameters such as temperature and vertical temperature difference are not expected to be discernible under most meteorological conditions in the boundary layer monitored by the 60-meter tower. As discussed in FSAR Subsection 2.3.2.1.1 "Wind Summaries," the wind rose prepared using 1 year of onsite data (FSAR Figure 2.3.2-201) illustrates that there is a strong east-west wind direction component, with approximately 15 percent of wind directions from the W, WSW, and SW sectors and approximately 33 percent of wind directions from the NE, ENE, and E sectors. A review of the data in more detail indicated that the nearly 50 percent occurrence of winds in these direction sectors occurs diurnally on most days and on a regular basis. This appears to be a thermally driven influence of the Gulf of Mexico, which is typical of a classic "sea breeze" effect. The daily interchanges of onshore and offshore flow directions also appears to be contributing to a relatively low average wind speed for the site as the wind cycles through twice daily reversals in wind directions, with interim periods of very low wind speed as the wind alternates direction. The relatively high frequency of occurrence of very low wind speeds for the site is discussed in FSAR Subsection 2.3.4 "Short-Term Diffusion Estimates." In general, the influence of the Gulf of Mexico on the short- and long-term dispersion estimates in FSAR Subsections 2.3.4 and 2.3.5 can be expected to result in higher predictions of relative concentration (X/Q) and relative deposition (D/Q), due either to lower wind speeds (since concentrations are inversely proportional to wind speed) or to an increase in the frequency of wind directions in specific sectors.

Associated LNP COL Application Revisions:

No COLA revisions have been identified associated with this response.

Attachments/Enclosures:

None.

NRC Letter No.: LNP-RAI-LTR-019

NRC Letter Date: March 6, 2009

NRC Review of Final Safety Analysis Report

NRC RAI #: 02.03.05-4

Text of NRC RAI:

Please provide a reference to the AP1000 DCD for the building cross-sectional area and containment height used as input to the XOQDOQ model in FSAR Section 2.3.5. The staff notes that DCD Section 3.8.1, Rev. 16, states that the containment vessel has a height of 215 feet, 4 inches. Please confirm if this is the height used, or provide the actual height.

PGN RAI ID #: L-0041

PGN Response to NRC RAI:

The building cross-sectional area was conservatively estimated as the above-grade, cross-sectional area of the reactor containment vessel. As indicated in the DCD, the containment vessel has an overall vertical height of 215 feet (ft.) 4 inches (in.); however, 33.5 ft. of the vessel will be below grade. The height calculation accounts only for the above-grade cylindrical portion of the vessel (i.e., excluding the spherical domed uppermost portion because of its more aerodynamic shape). Therefore the above-grade height is calculated to be 144 ft., which is the building height specified in the XOQDOQ model. The diameter of the vessel is 130 ft. The cross-sectional area of the vessel (calculated as the upwind surface area of the vessel excluding the domed upper portion) was calculated using these dimensions, with a resulting cross-sectional area of 2730 square meters (m²). It is noted that the predicted X/Q results are relatively insensitive to building cross-sectional dimension. This is illustrated in FSAR Table 2.3.4-204, which shows the LPZ 30-day PAVAN results with and without building wake effects to be very similar. A reference to the DCD for these dimensions will be made in FSAR Subsection 2.3.5 in a future revision to the document.

Associated LNP COL Application Revisions:

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

1. Revise the following text in FSAR Subsection 2.3.4.2 from:

Minimum Building Cross-Section: 2730 square meters (m²) (29,385 square feet [ft²])

Containment Height: 43.9 m (144 ft.)

to:

Minimum Building Cross-Section: 2730 square meters (m²) (29,385 square feet [ft²])
(DCD Figure 3.8.2-1)

Containment Height: 43.9 m (144 ft.)
(DCD Figure 3.8.2-1)

2. Revise the following text in FSAR Subsection 2.3.5.2 from:

- Building Wake Effects – Included

to:

- Building Wake Effects – Included (see Subsection 2.3.4.2)

The same revisions as described above will be made to ER Subsections 2.7.6.2 and 2.7.7.2.

Attachments/Enclosures:

None.

NRC Letter No.: LNP-RAI-LTR-019

NRC Letter Date: March 06, 2009

NRC Review of Final Safety Analysis Report

NRC RAI #: 02.03.05-5

Text of NRC RAI:

Please specify whether the distances provided to the receptors of interest (i.e., milk cow, milk goat, garden, meat animal, resident) are from the center point of the proposed units or from the shortest distance from either proposed unit. In addition, please include a reference in FSAR Section 2.3.5 for the receptor distances provided.

PGN RAI ID #: L-0042

PGN Response to NRC RAI:

The distances provided in FSAR Subsection 2.3.5 (i.e., distances to the nearest milk cow, milk goat, garden, meat animal, and resident) were measured from the midpoint between LNP 1 and LNP 2.

A field survey was conducted to locate the nearest receptors to LNP 1 and LNP 2. The results of the survey were documented in a Technical Memorandum entitled "Land Use Survey Air Pathway Receptors, Proposed Levy Nuclear Plant" (Technical Memorandum No. 338884-TMEM-053), a copy of which is being provided in the Progress Energy-provided reading rooms for NRC's review. A statement clarifying the point of reference for the receptor distances will be added to FSAR Subsection 2.3.5 in a future revision to the document.

It is noted that the distances to the nearest receptor in the N and NW sectors will be revised in addition to the atmospheric dispersion and deposition factors that are being updated to reflect the recently completed collection of the second year of meteorological data. Please see the response to NRC RAI 02.03.03-4 for additional information (PEF Letter NPD-NRC-2009-058).

Associated LNP COL Application Revisions:

The following change will be made to the LNP COLA in a future revision:

The following text will be inserted in FSAR Subsection 2.3.5.1 following the bulleted list:

The distances listed above (i.e., distances to the nearest milk cow, milk goat, garden, meat animal, and resident) were measured from the midpoint between LNP 1 and LNP 2.

Attachments/Enclosures:

None.