HarrisRAIsPEm Resource

From: Manny Comar
Sent: Monday, August 18, 2008 3:10 PM
To: HarrisRAIsPEm Resource
Subject: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 005 RELATED TO SRP SECTION 02.03.01 FOR THE HARRIS UNITS 2 AND 3 COMBINED LICENSE APPLICATION
Attachments: HAR-RAI-LTR-005.doc

Hearing Identifier: HarrisCOL_eRAIs
Email Number: 5

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Subject: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 005 RELATED TO SRP SECTION 02.03.01 FOR THE HARRIS UNITS 2 AND 3 COMBINED LICENSE APPLICATION
Sent Date: 8/18/2008 3:10:08 PM
Received Date: 8/18/2008 3:10:10 PM
From: Manny Comar

Created By: Manny.Comar@nrc.gov

Recipients:
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August 18, 2008

James Scarola
Senior Vice President and
Chief Nuclear Officer
PO Box 1551
411 Fayetteville Street Mall
Raleigh NC 27602

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 005 RELATED TO SRP SECTION 02.03.01 FOR THE HARRIS UNITS 2 AND 3 COMBINED LICENSE APPLICATION

Dear Mr. Scarola:

By letter dated February 18, 2008, Progress Energy submitted its application to the U. S. Nuclear Regulatory Commission (NRC) for a combined license (COL) for two AP1000 advance passive pressurized water reactors pursuant to 10 CFR Part 52. The NRC staff is performing a detailed review of this application to enable the staff to reach a conclusion on the safety of the proposed application.

The NRC staff has identified that additional information is needed to continue portions of the review. The staff's request for additional information (RAI) is contained in the enclosure to this letter.

To support the review schedule, you are requested to respond within 30 days of the date of this letter. If changes are needed to the final safety analysis report, the staff requests that the RAI response include the proposed wording changes.

If you have any questions or comments concerning this matter, you may contact me at 301-415-3863.

Sincerely,

/**RA**/

Manny Comar, Lead Project Manager
AP1000 Projects Branch 1
Division of New Reactor Licensing
Office of New Reactors

Docket Nos. 52-022
52-023

Enclosure:
Request for Additional Information

CC: see next page

If you have any questions or comments concerning this matter, you may contact me at 301-415-3863.

Sincerely,

/**RA**/

Manny Comar, Lead Project Manager
AP1000 Projects Branch 1
Division of New Reactor Licensing
Office of New Reactors

Docket Nos. 52-022
52-023
ERAI Tracking No. 491

Enclosure:
Request for Additional Information

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NAME	CCox*	MComar*	SBrock*	MComar*
DATE	6/17/08	7/07/08	7/08/08	8/14/08

*Approval captured electronically in the electronic RAI system.

OFFICIAL RECORD COPY

Shearon Harris
Progress Energy Carolinas, Inc.
Docket No. 52-022 and 52-023
SRP Section: 02.03.01 - Regional Climatology
Application Section: 2.3.1

QUESTIONS from Siting and Accident Consequence Branch (RSAC)

02.03.01-1

Consistent with NUREG-0800, Section 2.3.1, please identify the National Climatic Data Center (NCDC) state climatic division for the proposed site.

02.03.01-2
This request for additional information relates to FSAR Table 2.3.1-202.

a) The extreme wind speeds are labeled as both fastest mile and peak gust. Please clarify this apparent discrepancy.

b) The staff compared the extreme wind speeds against data from the National Institute of Standards and Technology (NIST) and Texas Tech. A database of peak gust wind speeds is available at http://www.itl.nist.gov/div898/winds/nistttu.htm. The staff found similar values for all of the stations except Greensboro, NC. FSAR table 2.3.1-202 lists an extreme wind gust of 60 mph, which occurred during October, 1985, while the NIST database reports an extreme wind gust of 97 mph, which occurred during July, 1976. Please justify the 60 mph wind speed presented in Table 2.3.1-202.

c) The maximum annual precipitation period of record listed appears to be incorrect for all four meteorological stations. For example, although the data from Charlotte, NC may have a 127 year period of record, the precipitation amounts reported in the NCDC annual data summaries only provide the most recent 30 year period. Please revise the table as appropriate.

02.03.01-3
In FSAR Section 2.3.1.2.2, the design-basis tornado maximum wind speed site characteristic for the proposed COL site is given as 230 miles per hour (mi/h); however, in FSAR Table 2.0-201, the same site characteristic is listed as 300 mi/h. Please correct this apparent discrepancy. Also, please include a site characteristic for the maximum pressure differential in FSAR Table 2.0-201.

02.03.01-4
The following request for additional information relates to the site characteristic 3-second gust wind speed that represents a 100-year return period for the Harris site, as discussed in FSAR Section 2.3.1.2.2. Using the Structural Engineering Institute/American Society of Civil Engineers (SEI/ASCE) 7-05, “Minimum Design Loads for Buildings and Other Structures,” an estimate of 96 miles per hour (mi/h) was proposed.

a) General Design Criteria (GDC) 2 to Appendix A to 10 CFR Part 50 states that structures, systems, and components (SSCs) important to safety shall be designed to withstand the effects of natural phenomena such as extreme winds without loss of capability to perform their safety functions. GDC 2 further states that the design bases for these SSCs 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. Similarly, 10 CFR 52.79(a)(iii) states that the COL FSAR must identifying the most severe of the natural phenomena that have been historically reported for the site and surrounding area.

Along with the SEI/ASCE 7-05 design standard, the staff also considered historical wind data from the National Institute of Standards and Technology (NIST) and Texas Tech. These data are available at http://www.itl.nist.gov/div898/winds/nistttu.htm. A database of peak gust wind speeds is available for certain cities, including Charlotte, Greensboro, and Raleigh-Durham. In July, 1976 a peak 3-second wind gust of 97 mi/h was recorded at Greensboro, NC.

Please justify why the peak 3-second wind gust site characteristic value for safety-related SSCs is not based on the most severe wind gust that has historically been reported in the vicinity of the Harris site.

02.03.01-5

Please clarify the following statement from FSAR Section 2.3.1.2.3:

"*Mean annual probabilities of occurrence of measurable winter weather precipitation in Raleigh-Durham are 1.27 cm (0.5 in.), 3.30 cm (1.3 in.), and 1.78 cm (0.7 in.) for freezing rain, sleet, and snowfall, respectively. These probabilities correspond to an expected annual occurrence of measurable precipitation in Raleigh-Durham of approximately 100 percent, 77 percent, and 100 percent for freezing rain, sleet, and snowfall, respectively.*"

This statement is confusing because 1.27 cm, 3.30 cm, and 1.78 cm are not probabilities.

02.03.01-6
FSAR Section 2.3.1.2.4 states that sustained hurricane force winds have not been recorded at the Raleigh-Durham weather station and wind and precipitation from hurricanes can be expected to be no greater than those produced by severe thunderstorms.

~~a)~~a) Please justify this statement considering that there have been 27 hurricanes that have passed within 100 nautical miles of Wake County, NC, as shown in the attachment 1.

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b) Consistent with NUREG-0800, Section 2.3.1, please provide the annual frequency of hurricanes that have occurred in the vicinity of the Harris site in FSAR Section 2.3.1.2.4.

02.03.01-7
Please clarify in FSAR Sections 2.3.1 through 2.3.5 whether one or two natural draft cooling towers are proposed. FSAR Sections 2.3.1.2.5, 2.3.2.2, 2.3.2.2.2, and 2.3.2.2.3 stated that only one tower is being proposed, while FSAR Section 2.3.3.1 and FSAR Figure 2.3.3-201 indicated that two cooling towers are proposed.

02.03.01-8
The staff noted several design-basis temperatures listed as "not available" in FSAR Table 2.3.1-206. Please clarify further why these temperatures can not be derived or at least estimated, or subsequently please specify why these temperatures are not necessary.

02.03.01-9
In accordance with NUREG-0800, Section 2.3.1, please identify the site's Air Quality Control Region (AQCR). Also, please describe any potential impact on plant operation due the nonattainment status for 8-hour ozone in Wake County, NC.

02.03.01-10
Currently, FSAR Table 2.0-201 lists the maximum safety noncoincident wet bulb temperature as 82.8 ºF based on a zero percent exceedance from the data available. To adequately account for cyclical extremes, please base this site characteristic on an estimated 100-year period of record. An acceptable technique, which uses a Gumbel Distribution, is presented in Chapter 27 of the 2001 ASHRAE Handbook ("Fundamentals").

02.03.01-11
The staff cautions against the use of the NCDC Storm Events Database because many severe weather reports are often incomplete or missing as the period of record considered increases. The following graph shows the annual number of hail events that have occurred in Wake County, NC. Note the increase in the number of reported events in attachment 1. Please revise FSAR Section 2.3.1.2.3 to account for this data, or justify another alternative.