

## LevyCountyRAIsPEm Resource

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**From:** Anderson, Brian  
**Sent:** Wednesday, January 26, 2011 8:48 AM  
**To:** LevyCountyRAIsPEm Resource  
**Subject:** REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 098 RELATED TO SRP SECTION 2.3.4 FOR THE LEVY COUNTY UNITS 1 AND 2 COMBINED LICENSE APPLICATION  
**Attachments:** LNP-RAI-LTR-098.doc  
**Importance:** High

**Hearing Identifier:** Levy\_County\_COL\_eRAIs  
**Email Number:** 98

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**Subject:** REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 098 RELATED TO SRP SECTION 2.3.4 FOR THE LEVY COUNTY UNITS 1 AND 2 COMBINED LICENSE APPLICATION  
**Sent Date:** 1/26/2011 8:47:39 AM  
**Received Date:** 1/26/2011 8:47:40 AM  
**From:** Anderson, Brian

**Created By:** Brian.Anderson@nrc.gov

**Recipients:**  
"LevyCountyRAIsPEm Resource" <LevyCountyRAIsPEm.Resource@nrc.gov>  
Tracking Status: None

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**Options**  
**Priority:** High  
**Return Notification:** No  
**Reply Requested:** No  
**Sensitivity:** Normal  
**Expiration Date:**  
**Recipients Received:**

January 26, 2011

Mr. John Elnitsky  
Vice President, Nuclear Plant Development  
Progress Energy Florida, Inc.  
P.O. Box 14042  
Saint Petersburg, FL 33733

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 098 RELATED TO  
SRP SECTION 2.3.4 FOR THE LEVY COUNTY NUCLEAR PLANT, UNITS 1  
and 2 COMBINED LICENSE APPLICATION

Dear Mr. Elnitsky:

By letter dated July 28, 2008, as supplemented by a letter dated September 12, 2008, Progress Energy Florida, Inc. submitted its application to the U. S. Nuclear Regulatory Commission (NRC) for a combined license (COL) for two AP1000 advanced 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 301-415-9967.

Sincerely,

**/RA/**

Brian C. Anderson, Senior Project Manager  
AP1000 Projects Branch 1  
Division of New Reactor Licensing  
Office of New Reactors

Docket Nos. 52-029  
52-030

eRAI Tracking No. 5380

Enclosure:  
Request for Additional Information

If you have any questions or comments concerning this matter, you may contact me at 301-415-9967.

Sincerely,

**/RA/**

Brian C. Anderson, Senior Project Manager  
AP1000 Projects Branch 1  
Division of New Reactor Licensing  
Office of New Reactors

Docket Nos. 52-029  
52-030

eRAI Tracking No. 5380

Enclosure:  
Request for Additional Information

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DATE	1/10/11	1/12/11	1/26/11

\*Approval captured electronically in the electronic RAI system.

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**Request for Additional Information  
Levy County, Units 1 and 2  
Progress Energy Florida, Inc.  
Docket No. 52-029 and 52-030**

**SRP Section: 02.03.04 - Short Term Atmospheric Dispersion Estimates for Accident Releases  
Application Section: Short Term Atmospheric Dispersion Estimates for Accident Releases**

**QUESTIONS for Siting and Accident Conseq Branch (RSAC)**

02.03.04-4

NUREG-0800, Section 2.3.4 and Regulatory Guide 1.145, Revision 1, provide guidance on the methodology that is acceptable to determine the 0.5% maximum sector  $\chi/Q$  and the 5% direction independent  $\chi/Q$  values. These values are discussed in FSAR Section 2.3.4 and are presented in FSAR Table 2.3.4-201. FSAR Table 2.3.4-205 also presents the 50% EAB and LPZ  $\chi/Q$  values.

The staff recognizes that the 50%  $\chi/Q$  values presented in FSAR Table 2.3.4-205 are also included as part of the Environmental Report in ER Table 2.7-57. The 50%  $\chi/Q$  values appear to be included in the FSAR for informational purposes only. They are not used for comparison against any AP1000 site parameter values and they are not used in any dose analyses presented in the FSAR. The staff therefore requests that the discussion of the 50%  $\chi/Q$  values in FSAR Section 2.3.4 and FSAR Table 2.3.1-205 be removed in the next revision of the FSAR, or justify why this information should remain.

02.03.04-5

The staff requests that the applicant update the  $\chi/Q$  analysis in FSAR Section 2.3.4 to follow the guidance provided in RG 1.145, Revision 1, as discussed below, or provide justification as to why this is not necessary.

10 CFR 52.79(a)(1)(vi) requires that offsite radiological consequences of design-basis accidental releases be evaluated in a COL application at the EAB and LPZ. NUREG-0800, Section 2.3.4 and Regulatory Guide 1.145, Revision 1, provide guidance on the methodology that is acceptable for determining the 0.5% maximum sector  $\chi/Q$  and the 5% direction independent  $\chi/Q$  values that are used in the EAB and LPZ design-basis accident dose analyses.

The method used by the applicant to determine the EAB and LPZ 0-2 hour maximum sector  $\chi/Q$  values is in accordance with the guidance provided in Section C.2.1.1 of RG 1.145. That is, the applicant used the PAVAN computer code to (1) plot  $\chi/Q$  values versus probability of being exceeded in each downwind sector, (2) draw a smooth curve to form an upper bound of the computed points, and (3) select a  $\chi/Q$  value that is exceeded 0.5 percent of the total number of hours in the data set. However, the minimum wind speed used in the applicant's analysis (1.0 m/s) does not follow the guidance provided in Section C.1.1.1 of RG 1.145, which states that if the meteorological instrumentation conforms to RG 1.23 (i.e., if the wind sensors have a starting threshold less than 0.45 m/s) then calms should be assigned a windspeed equal to the vane or anemometer starting speed, whichever is higher. The applicant's wind instrumentation conforms to this RG 1.23 criterion because FSAR Table 2.3.3-202 shows that the starting threshold for the wind speed and direction sensors less than 0.45 m/s.

The applicant states in its responses to RAIs 02.03.02-1 and 02.03.03-5 that the high frequency of light winds (18.8% calm conditions) recorded at the lower (10-meter) level during the period February 1, 2007 through January 31, 2008 is considered to be valid and representative of the conditions at the project site. RG 1.23 defines starting threshold as the minimum wind speed above which the measuring instrument is performing within its minimum specification. FSAR Table 2.3.3-202 shows that the wind speed instrument accuracy at low wind speeds is  $\pm 0.2$  m/s. This means the actual wind speed recorded as "calm" conditions by the applicant's wind instrumentation is 0.65 m/s or less. Therefore the staff does not understand the applicant's assumption in generating the EAB and LPZ 0-2 hour  $\chi/Q$  values that all calm wind observations are assigned a value of 1.0 m/s instead of 0.45 m/s as suggested by RG 1.145.

The staff notes that Regulatory Position C.2.1.1 of RG 1.145, which describes a general method for calculating maximum sector 0.5%  $X/Q$  values for the EAB, states that "a smooth curve should be drawn to form an upper bound of the computed points." The staff observes that PAVAN, in its implementation of this guidance, will sometimes generate a smooth curve which, in fact, bounds all computed points, but which also results in a calculation of a 0.5% value which is greater than the  $X/Q$  value which would be calculated for the lowest windspeed (e.g., an instrument starting speed of 0.45 m/s) and most stable stability class (i.e., class G). Since this is not realistic, for each sector, it is an acceptable approach to select the smaller of the 0.5% value calculated by PAVAN, or the value which would be calculated for the starting windspeed and G-class stability.