LevyCountyRAIsPEm Resource

From: Brian Anderson
Sent: Friday, May 08, 2009 11:51 AM
To: LevyCountyRAIsPEm Resource
Subject: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 032 RELATED TO SRP SECTION 2.5.2 FOR THE LEVY COUNTY UNITS 1 AND 2 COMBINED LICENSE APPLICATION
Attachments: LNP-RAI-LTR-032.doc

Importance: High

Hearing Identifier: Levy_County_COL_eRAIs
Email Number: 33

Mail Envelope Properties (CB87FC66F95637428C5E0D066E756B6FBFFFFD14AC)

Subject: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 032 RELATED TO SRP SECTION 2.5.2 FOR THE LEVY COUNTY UNITS 1 AND 2 COMBINED LICENSE APPLICATION
Sent Date: 5/8/2009 11:50:51 AM
Received Date: 5/8/2009 11:50:53 AM
From: Brian Anderson

Created By: Brian.Anderson@nrc.gov

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

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Files	**Size**	**Date & Time**
MESSAGE	3	5/8/2009 11:50:53 AM
LNP-RAI-LTR-032.doc	64506	

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

May 8, 2009

Mr. Garry Miller
General Manager, Nuclear Plant Development
Progress Energy Florida, Inc.
PO Box 1551
411 Fayetteville Street Mall
Raleigh, NC 27602

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 032 RELATED TO SRP SECTION 2.5.2 FOR THE LEVY COUNTY NUCLEAR PLANT, UNITS 1 and 2 COMBINED LICENSE APPLICATION

Dear Mr. Miller:

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

Docket Nos. 52-029
52-030

eRAI Tracking No. 2474

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

Docket Nos. 52-029
52-030

eRAI Tracking No. 2474

Enclosure:
Request for Additional Information

Distribution:

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NRO-002

OFFICE	RGS1/BC	NWE1/PM	OGC	NWE1/L-PM
NAME	CMunson *	BAnderson *	JMartin*	BAnderson*
DATE	03/31/09	03/31/09	04/24/09	05/08/09

*Approval captured electronically in the electronic RAI system.

OFFICIAL RECORD COPY

Request for Additional Information
Levy County, Units 1 and 2
Progress Energy Florida, Inc.
Docket No. 52-029 and 52-030
SRP Section: 02.05.02 - Vibratory Ground Motion
Application Section: 2.5.2

QUESTIONS for Geosciences and Geotechnical Engineering Branch 2 (RGS2)

02.05.02-16

Section 2.5.2.2.1 (p. 2.5-98 to 2.5-106) of the FSAR describes the EPRI-SOG source evaluations and the source zones that contribute to 99% of the seismic hazard at the site. Subsequent sections go on to describe how more recent seismicity was used to update these sources, specifically the maximum magnitude. Please address how recent seismicity in the Gulf of Mexico is accounted for in ESTs (earth science teams) that didn't have a source region in the Gulf (for example, Dames and Moore, Law Engineering, and Woodward-Clyde).

Please address whether or not the areas of the source regions and maximum magnitudes used by these teams should be updated.

02.05.02-17

Section 2.5.2.2.1.4 (p. 2.5-103) describes the Rondout Associates Team source zones. The Southern New York–Alabama Lineament (source 13) appears to be missing from Figure 2.5.2-207 (the figure that shows their source zones).

Please address why the source was omitted from the figure and whether the omission indicates that the Rondout Associates Team's Source 13 was or was not used in the calculation of the LNP PSHA.

02.05.02-18

Section 2.5.2.2 (beginning on p. 2.5-98) evaluates seismic sources that contribute to the seismic hazard of the LNP site. The New Madrid Seismic Zone (NMSZ) is considered a major seismic zone in the Southern U.S., however, the FSAR provides no calculation of the contribution of the NMSZ to the hazard at the LNP site. However, the Dec. 1811 New Madrid Earthquake is included in the Appendix 2AA Earthquake Catalog on page 2AA-2.

Please discuss the significance of the NMSZ to the LNP site and provide justification for not including this source zone in the seismic hazard analysis.

02.05.02-19

In Section 2.5.2.4.2.3 (p. 2.5-120 to 2.5-121), the FSAR presents three relations used to convert body wave magnitude to moment magnitude. This conversion is important to the PSHA because the magnitudes in the earthquake catalogs are high-frequency body wave magnitudes whereas the ground motion prediction equations use moment magnitude. However, the body wave magnitude scale

saturates at m_b=7, but the conversion relations do not show the same behavior. For example, when magnitude is set equal to 8, then the Atkinson/Boore, Johnston, and EPRI relations give m_b=7.6, 7.4, and 7.4, respectively.

Please show plots of the three conversion relations and clarify how you are dealing with the issue of body wave magnitude saturation in the PSHA.

02.05.02-20

Section 2.5.2.5.1.3 (p. 2.5-135) discusses rock density beneath the LNP site and how it varies with depth.

Please provide a reference for a functional relationship between limestone velocity and density and then, based on this information, please provide justification for the density of 150 pcf chosen for depths below -305 msl (mean sea level).

02.05.02-21

Table 2.5.2-220 (p. 2.5-167, referenced on p. 2.5-127) gives Uniform Hazard Response Spectra for generic hard rock conditions. P. 2.5-128 describes application of Approach 2B for site response analyses to compute the effects of the LNP site sediments on the generic hard rock motions. Experience indicates that site response in karst terrains is highly variable and is difficult to predict on the basis of borehole information.

Have any site response studies been made using empirical surface-recorded seismic data? Microseisms, for example, can be used for this purpose. Please clarify if any empirical site response measurements were performed to support use of the analytical methods.

Please clarify how variability in karst terrain was accounted for in the site response analysis. Please justify the use of only one shear-wave velocity base model instead of multiple base models.