PMLevyCOLPEm Resource

From: Anderson, Brian
Sent: Thursday, May 19, 2011 12:27 PM
To: 'robert.kitchen@pgnmail.com'; Snead, Paul; 'david.waters@pgnmail.com'; 'tillie.wilkins@pgnmail.com'
Cc: PMLevyCOLPEm Resource
Subject: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 104 RELATED TO SRP SECTION 2.4.5 FOR THE LEVY COUNTY UNITS 1 AND 2 COMBINED LICENSE APPLICATION
Attachments: LNP RAI 104 - ML11139A156.pdf

Importance: High

Attached is RAI Letter No. 104 related to SRP Section 2.4.5 for the Levy County Units 1 and 2 combined license application. The ADAMS Accession number is ML11139A156.

Brian Anderson
301-415-9967
Senior Project Manager, AP1000 Projects Branch 1
Office of New Reactors
U.S. Nuclear Regulatory Commission

Hearing Identifier: Levy_County_COL_Public
Email Number: 819

Mail Envelope Properties (B46615B367D1144982B324704E3BCEED6AD1ADA2A0)

Subject: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 104 RELATED TO SRP SECTION 2.4.5 FOR THE LEVY COUNTY UNITS 1 AND 2 COMBINED LICENSE APPLICATION
Sent Date: 5/19/2011 12:27:29 PM
Received Date: 5/19/2011 12:27:31 PM
From: Anderson, Brian

Created By: Brian.Anderson@nrc.gov

Recipients:
"PMLevyCOLPEm Resource" <PMLevyCOLPEm.Resource@nrc.gov>
Tracking Status: None
"'robert.kitchen@pgnmail.com'" <robert.kitchen@pgnmail.com>
Tracking Status: None
"Snead, Paul" <paul.snead@pgnmail.com>
Tracking Status: None
"'david.waters@pgnmail.com'" <david.waters@pgnmail.com>
Tracking Status: None
"'tillie.wilkins@pgnmail.com'" <tillie.wilkins@pgnmail.com>
Tracking Status: None

Post Office: HQCLSTR01.nrc.gov

Files	**Size**	**Date & Time**
MESSAGE	328	5/19/2011 12:27:31 PM
LNP RAI 104 - ML11139A156.pdf	121217	

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

LevyCountyRAIsPEm Resource

From: Anderson, Brian
Sent: Thursday, May 19, 2011 10:25 AM
To: LevyCountyRAIsPEm Resource
Subject: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 104 RELATED TO SRP SECTION 2.4.5 FOR THE LEVY COUNTY UNITS 1 AND 2 COMBINED LICENSE APPLICATION
Attachments: LNP-RAI-LTR-104.doc

Importance: High

Hearing Identifier: Levy_County_COL_eRAIs
Email Number: 108

Mail Envelope Properties (B46615B367D1144982B324704E3BCEED6AD1ADA1DC)

Subject: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 104 RELATED TO SRP SECTION 2.4.5 FOR THE LEVY COUNTY UNITS 1 AND 2 COMBINED LICENSE APPLICATION
Sent Date: 5/19/2011 10:24:59 AM
Received Date: 5/19/2011 10:25:00 AM
From: Anderson, Brian

Created By: Brian.Anderson@nrc.gov

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

Post Office: HQCLSTR01.nrc.gov

Files	**Size**	**Date & Time**
MESSAGE	4	5/19/2011 10:25:00 AM
LNP-RAI-LTR-104.doc	62458	

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

May 19, 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. 104 RELATED TO SRP SECTION 2.4.5 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. 5725

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. 5725

Enclosure:
Request for Additional Information

Distribution:

Public	JCruz	TSimms	HJones
RidsNroDnrlNwe1	JSebrosky	SGoetz	NTiruneh
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RidsRgn2MailCenter	RJoshi	BAnderson	

NRO-002

OFFICE	RHEB/BC	NWE1/PM	NWE1/L-PM
NAME	RRaione *	BAnderson *	BAnderson*
DATE	04/19/11	04/19/11	05/19/11

*Approval captured electronically in the electronic RAI system.

OFFICIAL RECORD COPY

Levy County, Units 1 and 2
Progress Energy Florida, Inc.
Docket No. 52-029 and 52-030
SRP Section: 02.04.05 - Probable Maximum Surge and Seiche Flooding
Application Section: FSAR Section 2.4

QUESTIONS for Hydrologic Engineering Branch (RHEB)

02.04.05-11

In RAI 2.4.5-10, the staff requested the applicant to provide supplemental information; the staff stated that the applicant must (1) use a set of plausible probable maximum hurricane (PMH) scenarios consistent with National Oceanic and Atmospheric Administration (NOAA) National Weather Service (NWS) Report 23 (NWS 23) as input to a currently-accepted storm surge model (such as NWS Sea, Lake, and Overland Surges from Hurricanes [SLOSH]), (2) use initial open-water conditions that are consistent with current understanding of long-term sea-level rise and are valid for the life of the proposed plant, (3) provide estimates of coincident wind wave runup, (4) maps of highest probable maximum storm surge (PMSS) water surface elevation at and near the LNP site, and (5) provide updates to FSAR Section 2.4.5 including descriptions of data, methods, model setup, PHM scenarios and how they are consistent with NWS 23, treatment of uncertainty in the analysis, and available margins.

The applicant responded to RAI 2.4.5-10 on January 27, 2011. The staff's review of the applicant's response to RAI 2.4.5-10 has raised the following issues:

(1) Regulatory Guide (RG) 1.59 recommends that the following components of PMSS be estimated: (a) probable maximum surge (wind and pressure setups), (b) 10 percent exceedance tide, and (c) initial rise (forerunner or sea-level anomaly). The wind wave runup also needs to be added to obtain the PMSS. The applicant did not use an initial rise in its SLOSH simulations. RG 1.59 recommends an initial rise of 0.6 ft for Crystal River, FL. Because the value of initial water surface can have non-linear effects on SLOSH predictions, 10 percent exceedance tide, initial rise, and long-term sea level rise should be combined to specify the initial water surface in SLOSH for simulation of the PMH scenarios.

    In a subsequent teleconference, the applicant stated its interpretation of RG 1.59 recommendations. The applicant stated that RG 1.59 recommends use of initial rise as an additional component of the initial water level if the 10 percent exceedance tide is estimated from predicted tides. The applicant stated that use of initial rise is not necessary because its approach used observations of tidal water levels that already contain the effects of initial rise.

(2) The applicant has not used the US Army Corps of Engineers Coastal Engineering Manual (CEM) for estimation of coincident wind wave activity. The CEM approach is recommended in SRP 2.4.5 as the currently accepted practice. The applicant did not provide justification why it used another approach. In a subsequent teleconference, the applicant stated that they did in fact use the CEM approach to estimate wind wave activity although this fact was not clearly stated in the response to RAI 2.4.5-10.

(3) The applicant states that the chosen PMSS maximum water surface elevation value for the LNP site is 49.52 ft NAVD88, not the higher estimate of 49.78 ft NAVD88 obtained from the SLOSH PMSS simulations. The PMSS maximum water surface elevation of 49.52 ft NAVD88 reported in the FSAR was obtained using an approach that the staff disagreed with previously. Also, the applicant added long-term sea-level rise and initial rise estimates after estimating the PMSS; this approach would not account for the non-linear effects of initial water surface elevation on the PMSS.

The NRC staff requests the following additional information:

(1) The staff reviewed the applicant's approach to estimation of initial water level for a hydrodynamic storm surge model. The staff also reviewed RG 1.59, tidal data at the Cedar Key tide gauge, and NOAA's description of predicted tides. The staff determined that NOAA estimates harmonic constants at reference tide stations that are used to predict the harmonic component of tidal variations at the reference stations. Observed tide water levels also include the effects of wind wave activity and initial rise. Both of these additional effects manifest as random variations added to the harmonic component of the tidal variations. Because these random variations are independent of the harmonic forcings (mainly gravitational forces of the sun and the moon) and therefore can occur at any time, there is no assurance that "high" random variations of tides would be in phase with the highs of the predicted tides. Therefore, estimating the 10 percent exceedance tide from raw tide water level observations can result in underestimation of the initial water level (represented by 10 percent exceedance of predicted tides plus initial rise). RG 1.59 does not describe how initial rise reported for various locations in Appendix C of RG 1.59 was estimated.

The staff needs the following information to complete its review of the PMSS at the LNP site:

a. A detailed description of the applicant's approach used to estimate the initial water level for use in the SLOSH model runs, an analysis of how this approach is consistent with the recommendations of RG 1.59, a statement of the difference in the numerical values of the initial water level obtained by the applicant's approach and that recommended by RG 1.59, and a detailed justification of why the difference between the two numerical values would result in an insignificant difference in the PMSS maximum water surface elevation at the LNP site, or

b. An updated PMSS maximum water surface elevation at the LNP site that is a combination of (i) maximum stillwater elevation from a SLOSH simulation carried out with an initial water surface elevation estimated following the guidelines of RG 1.59 and using more recent tide data and (ii) wind wave effects using the CEM approach (see (2) below).

(2) Provide an update to FSAR text that clearly describes how the CEM approach was used to estimate wind wave activity coincident with PMSS maximum water surface elevation at the LNP site.

(3) Provide updates to FSAR that describe appropriately selected PMSS characteristics at the LNP site. Provide a discussion of available margins between the DCD Maximum Flood Level site parameter (the design grade elevation or the DCD plant elevation of 100 ft) and the highest PMSS water surface elevation accounting for coincident wind-wave activity.