LeeRAIsPEm Resource

From: Brian Hughes
Sent: Monday, March 23, 2009 8:39 AM
To: LeeRAIsPEm Resource
Subject: LEE-RAI-LTR-067 RELATED TO SRP 03.07.01 - SEISMIC DESIGN PARAMETERS FOR W. S. LEE UNITS 1 AND 2 COLA
Attachments: LEE-RAI-LTR-067.doc

Hearing Identifier: Lee_COL_RAI
Email Number: 80

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Subject: LEE-RAI-LTR-067 RELATED TO SRP 03.07.01 - SEISMIC DESIGN PARAMETERS FOR W. S. LEE UNITS 1 AND 2 COLA
Sent Date: 3/23/2009 8:39:05 AM
Received Date: 3/23/2009 8:39:05 AM
From: Brian Hughes

Created By: Brian.Hughes@nrc.gov

Recipients:
"LeeRAIsPEm Resource" <LeeRAIsPEm.Resource@nrc.gov>
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March 23, 2009

Mr. Peter S. Hastings, P.E.
Licensing Manager, Nuclear Plant Development
Duke Energy
526 South Church Street
Charlotte, NC 28201-1006

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 067 RELATED TO SRP 03.07.01 - SEISMIC DESIGN PARAMETERS FOR THE WILLIAM STATES LEE III UNITS 1 AND 2 COMBINED LICENSE APPLICATION

Dear Mr. Hastings:

By letter dated December 12, 2007, as supplemented by letters dated January 28, 2008, February 6, 2008 and February 8, 2008, Duke 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 301-415-6582.

Sincerely,

/**RA**/

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

Docket Nos. 52-018
52-019

Enclosure:
Request for Additional Information

CC: see next page

If you have any questions or comments concerning this matter, you may contact me at 301-415-6582.

Sincerely,

/**RA**/

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

Docket Nos. 52-018
52-019

eRAI Tracking No. 2350

Enclosure:
Request for Additional Information

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NAME	BTegeler*	BThomas*	MSpencer*	BHughes*
DATE	02/04/09	02/03/09	02/09/09	03/12/09

*Approval captured electronically in the electronic RAI system.

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Request for Additional Information No. 2350

3/20/2009

William States Lee III, Units 1 and 2
Duke Energy Carolinas, LLC
Docket No. 52-018 and 52-019
SRP Section: 03.07.01 - Seismic Design Parameters
Application Section: 3.7.2

QUESTIONS for Structural Engineering Branch 1 (AP1000/EPR Projects) (SEB1)

03.07.01-4

This RAI is follow-up RAI related to 3.07.01-002

RAI 3.07.01-002 (eRAI system RAI 1003, Q3500) addresses the seismic analysis of the Annex Building. The AP1000 DCD, Section 3.7.2.8, states that the Annex Building is a Seismic Category II building that is analyzed/designed to Seismic Category I design criteria for a range of soil conditions as given in DCD Section 3.7.1.4. The FSAR states that the Annex Building will not fail/collapse onto NI structures. The RAI questioned whether the range of analyses referenced in DCD Section 3.7.1.4 properly envelopes the soil conditions at Lee Station.

The applicant responded to RAI 3.07.01-002 in a letter dated December 17, 2008 [ML083570396]. The applicant stated that significant margin exists between the site-specific FIRS and the CSDRS except in the high frequency range, which the Applicant states is of little significance since high frequency seismic motion is of limited, or negligible, structural damage potential.

The staff believes that the applicant's response does not address the concern that the range of soil conditions analyzed for the DCD envelope the soil conditions at Lee Station.

The concern is that the Annex Building is largely, possibly entirely, founded on artificial fill based on the review of FSAR Figures 2.5.4-233 through -239. The soil depths (soil column heights) vary between approximately 30 and 50 ft., which is significantly less than the soil depths studied in DCD Section 3.7.1.4. These relatively shallow soil columns under the Annex Building can amplify the seismic motion since they are stiffer than the deeper depth soil columns studied in the DCD. The soil properties of the artificial fill are also not known or specified. The overall concern is that actual seismic motion experienced by the Annex Building may be greater than what was studied in DCD Section 3.7.1.4.

While margin does indeed exist between the CSDRS and the GMRS itself, the actual seismic demand for the Annex Building may be greater than the CSDRS for Lee Station given (1) that the GMRS is defined at the NI foundation elevation and (2) the shallow soil conditions and fill soil properties.

The staff requests the applicant to clarify that the backfill soil amplification below the annex building is bounded by the analyses considered in the DCD and provide appropriate analytical data to support this conclusion.