LeeRAIsPEm Resource

From: Brian Hughes
Sent: Friday, October 03, 2008 11:24 AM
To: LeeRAIsPEm Resource
Subject: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 026 RELATED TO SRP SECTION 2.5.3 FOR THE WILLIAM STATES LEE III UNITS 1 AND 2 COMBINED LICENSE APPLICATION
Attachments: LEE-RAI-LTR-026.doc

Brian Hughes
Project Manager
NRO/DNRL/NWE1
US NRC
301-415-6582

Hearing Identifier: Lee_COL_RAI
Email Number: 33

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Subject: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 026 RELATED TO SRP SECTION 2.5.3 FOR THE WILLIAM STATES LEE III UNITS 1 AND 2 COMBINED LICENSE APPLICATION
Sent Date: 10/3/2008 11:23:51 AM
Received Date: 10/3/2008 11:23:52 AM
From: Brian Hughes

Created By: Brian.Hughes@nrc.gov

Recipients:
"LeeRAIsPEm Resource" <LeeRAIsPEm.Resource@nrc.gov>
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Return Notification: No
Reply Requested: No
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October 2, 2008

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. 026 RELATED TO SRP SECTION 2.5.3 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

P.Hastings

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. 1053

Enclosure:
Request for Additional Information

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NAME	CMunson*	JStirewalt*	MSpencer*	BHughes*
DATE	8/18/08	9/18/08	08/29/08	10/02/08

*Approval captured electronically in the electronic RAI system.

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Request for Additional Information No. 1053 Revision 0
William States Lee III, Units 1 and 2
Duke Energy Carolinas, LLC
Docket No. 52-018 and 52-019
SRP Section: 02.05.03 - Surface Faulting
Application Section: 2.5.3

QUESTIONS for Geosciences and Geotechnical Engineering Branch 2 (RGS2)

02.05.03-1
FSAR Sections 2.5.3.1.1 and 2.5.3.1.2 (pages 2.5-142 and 2.5-143) indicate that the PSAR for the former Duke Cherokee site contains the most detailed, but unpublished, geologic maps of the Lee site. Information derived from these unpublished geologic maps is used to conclude that no evidence exists for active or geologically recent faulting within the site area, but this important map information is not summarized and presented in the FSAR.

Please summarize pertinent data from the geologic maps of the Cherokee site that are used to conclude that no evidence exists for active faulting in the site area. Please show these geologic data on the Lee site geologic map (existing Figure 2.5.1-220) and the surficial excavation geologic map (existing Figure 2.5.1-229) if they are not already included on those maps.

02.05.03-2
In FSAR Sections 2.5.3.1.1 (page 2.5-142) and 2.5.3.1.3 (page 2.5-144), the primary lithologic unit mapped in the Cherokee site excavation, a plutonic rock mass (Zto), is referred to as a granodiorite. However, the excavation geologic map (Figure 2.5.1-229) labels the unit as a meta-granodiorite. In addition, the figure cited in Section 2.5.3.1.3 as showing the western boundary of plutonic rock mass Zto, Figure 2.5.1-218a, is at a scale that barely permits definition of this boundary.

Please be consistent in nomenclature for the foundation rock unit mapped in the excavation in FSAR Sections 2.5.3.1.1 and 2.5.3.1.3 and throughout the FSAR. Please include color schemes shown in the map legend on the geologic map of Figure 2.5.1-229 to clearly indicate lithologic units which are exposed in the excavation. Please consider citing Figures 2.5.1-219a and 2.5.1-219b in Section 2.5.3.1.3 to better illustrate the mapped boundary of plutonic rock mass Zto.

02.05.03-3
Mafic intrusions referred to in FSAR Section 2.5.3.1.1 (page 2.5-142) are not distinguished on the excavation geologic map of Figure 2.5.1-229, although these lithologic units are used to provide a relative age for minor brittle shears in the excavation.

Please include the mafic intrusions on the geologic map of the excavation (existing Figure 2.5.1-229), and incorporate these intrusions into the map color legend.

02.05.03-4
FSAR Section 2.5.3.1.3 (page 2.5-144) indicates that “refinement” of previous geologic maps was undertaken during the Lee COL field investigations. However, FSAR Section 2.5.3.1.3 does not

indicate what refinements were done other than confirmatory testing, and the “refined” information is not summarized or presented on geologic maps in the FSAR.

Please summarize what refinements were made to previous geologic maps, and present this information on a geologic map if it has not already been included on geologic maps found in the FSAR.

02.05.03-5
FSAR Section 2.5.3.1.5 (page 2.5-145) states an interpretation by Talwani (2006) that two earthquakes, which occurred near Bennettsville, South Carolina, in September 2006 and exhibited body wave magnitudes (m_b) of 3.5 and 3.7, may have been spatially related to the Eastern Piedmont fault system (EPFS) as defined by Hatcher and others (1977). FSAR Section 2.5.3.1.5 concludes that the two earthquakes cannot be positively correlated with the EPFS. The EPFS is not labeled on any map in the FSAR, although Figure 2.5.1-209 is referred to as showing the location of this fault system; faults which comprise the EPFS are not specified; and age of the fault system is not stated. Consequently, any potential correlation of the September 2006 earthquakes with the EPFS fault system cannot be assessed.

FSAR Section 2.5.3.1.5 (page 2.5-145) also states an interpretation by Benson (1992) that these two earthquakes were spatially correlated with a small Mesozoic extensional basin lying beneath Coastal Plain deposits, but no discussion regarding this potential correlation is presented in this FSAR section.

Please locate the EPFS on the appropriate map, indicate which faults make up this fault system, and document the age of the EPFS with due consideration of information published in 2006 by Nystrom suggesting possible reactivation and post-Miocene displacement along the EPFS. Please discuss in more detail the suggested spatial correlation of the September 2006 earthquakes with the EPFS and the logic for concluding that there is no correlation between these earthquakes and the fault system. Please also discuss in more detail the suggested spatial correlation between the two earthquakes and the Mesozoic basin that lies beneath Coastal Plain sediments.

02.05.03-6
In FSAR Section 2.5.3.1.6 (page 2.5-146), a northeast-trending, linear topographic ridge that is 7.2 km (4.5 mi) long is described as resulting from erosion of resistant quartzite layers by London Creek based on information derived from aerial reconnaissance and field studies. This linear feature is located approximately 3.2 km (2 mi) northwest of the site and parallels the predominant northeastern trend of regional tectonic structures.

Please summarize the information gleaned from aerial reconnaissance and field investigations which led to the conclusion that this feature is non-tectonic in origin and the result of erosion although it parallels the northeastern trend of tectonic structures in the region.

02.05.03-7
In FSAR Section 2.5.3.1.6 (pages 2.5-145 and 2.5-146), two bullets state that 1:20,000-scale black and white and 1:40,000-scale color infrared aerial photographs (dated 1959 and 1994, respectively) cover the "majority" of the site area.

Please qualify what part, if any, of the site area was not covered by the aerial imagery to ensure that a careful assessment of potential geomorphic features indicative of tectonic deformation was undertaken.

02.05.03-8
FSAR Section 2.5.3.2 (pages 2.5-146 through 2.5-147) discusses five bedrock faults of proposed Paleozoic age which are mapped within the site vicinity. The Brindle Creek fault is not included, even though a segment of this structure appears to occur in the site vicinity (Figure 2.5.1-210). There is no concise summary of information in the FSAR from the references cited that documents a Paleozoic age for these structures in either FSAR Section 2.5.3.2 or FSAR Section 2.5.3.4 ("Ages of Most Recent Deformation"). Also, it is not obvious from the text or cited figures how these structures relate to regional boundaries of lithotectonic terranes, including the Charlotte terrane of the Carolina Zone in which the site lies.

Please provide a summary of published evidence for the proposed Paleozoic age of the faults discussed, including the Brindle Creek fault. Please prepare a figure to illustrate how these structures relate to regional boundaries of lithotectonic terranes, including the Charlotte terrane of the Carolina Zone in which the Lee site is located.

02.05.03-9
FSAR Section 2.5.3.6 (page 2.5-149) states that data are presented throughout Section 2.5.1 documenting that there is no evidence for capable tectonic sources within the Lee site vicinity. However, these important data are not adequately summarized in FSAR Section 2.5.3.6.

Please summarize the pertinent data from FSAR Section 2.5.1 which documents the conclusion that no capable tectonic sources exist in the site vicinity.