

LeeRAIsPEm Resource

From: Hughes, Brian
Sent: Thursday, June 18, 2009 7:53 AM
To: LeeRAIsPEm Resource
Subject: FW: LEE-RAI-LTR-070 RELATED TO SRP SECTION: 02.04.12 - GROUNDWATER FOR THE W.S. LEE COLA
Attachments: LEE-RAI-LTR-070.doc

From: Hughes, Brian
Sent: Wednesday, June 17, 2009 10:36 AM
To: LeeRAIsPE Resource
Subject: LEE-RAI-LTR-070 RELATED TO SRP SECTION: 02.04.12 - GROUNDWATER FOR THE W.S. LEE COLA

Hearing Identifier: Lee_COL_RAI
Email Number: 83

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Subject: FW: LEE-RAI-LTR-070 RELATED TO SRP SECTION: 02.04.12 -
GROUNDWATER FOR THE W.S. LEE COLA
Sent Date: 6/18/2009 7:53:20 AM
Received Date: 6/18/2009 7:53:21 AM
From: Hughes, Brian

Created By: Brian.Hughes@nrc.gov

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

Post Office: HQCLSTR01.nrc.gov

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

P.Hastings

June 17, 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. 070 RELATED TO
SRP SECTION: 02.04.12 - GROUNDWATER FOR THE WILLIAM STATES LEE III UNITS
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.

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

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. 2685

Enclosure:
Request for Additional Information

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DATE	04/23/09	04/24/09	06/01/09	06/02/09

*Approval captured electronically in the electronic RAI system.

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Request for Additional Information No. 2685 Revision 0

William States Lee III, Units 1 and 2
Duke Energy Carolinas, LLC
Docket No. 52-018 and 52-019
SRP Section: 02.04.12 - Groundwater
Application Section: FSAR Section 2.4.12

QUESTIONS for Hydrologic Engineering Branch (RHEB)

02.04.12-15

In its independent review of the geologic information, the staff determined that there was uncertainty in the geologic materials that are present along each plausible groundwater pathway. The staff also determined that the major materials – the soil, saprolite, and PWR – were all exposed in the existing excavation and that a postulated leak could enter any of these materials. Because the exact geologic structure of the Lee Nuclear site is uncertain, the applicant should assume the presence of the PWR material (the most highly conductive of the three materials) for all pathways, or justify why the materials assumed present along each pathway in the FSAR analysis are conservative.

02.04.12-16

In its independent review of the hydraulic conductivity data, the staff determined that the unconsolidated material had the highest measured hydraulic conductivity, but this material did not show up in the three cross-sections provided in the applicant's FSAR. Because the value was higher than the conductivity for PWR and could, if used, yield a shorter and more conservative groundwater travel time, the applicant should identify the lateral and vertical extent of the unconsolidated material and re-evaluate the pathway analysis, or justify why the unconsolidated material is not relevant to any of the plausible groundwater pathways.

02.04.12-17

In its review of FSAR Section 2.4.12, the staff determined that the applicant used the adjective "preferential" to describe groundwater pathway no. 2 in a manner inconsistent with normal usage. The applicant appears to mean that this pathway is believed to be the most likely pathway for contaminant migration. The normal usage of "preferential", however, when describing subsurface features, is to indicate features that have a much larger hydraulic conductivity than the surrounding material. Preferential flow paths might, for example, result from features such as bedding material beneath buried pipes left behind during the Cherokee construction activities. Such features could, where they exist, "short-circuit" the expected groundwater movement. Because the term "preferential" has this specific meaning, the applicant should consider removing the term, or justify why it is appropriate for describing pathway no. 2.

02.04.12-18

In its independent review of the precipitation and groundwater data, the staff determined that precipitation was below normal during the monitoring period such that groundwater responses were potentially smaller than would be expected during wetter years. In addition, currently ongoing excavation dewatering keeps groundwater levels artificially lower than normal such that seasonal variations are muted. Therefore, the range of groundwater variation to be expected could be greater and the estimate of the highest water table level could be higher. The staff also determined that there was insufficient information to determine a) how groundwater levels would respond spatially once groundwater conditions were restored after the cessation of construction dewatering and b) how post-dewatering groundwater conditions would alter the identification of plausible groundwater pathways. Because the groundwater data collected during the monitoring period are insufficient to describe groundwater conditions after the construction dewatering ceases, the applicant should conduct a groundwater flow analysis to provide sufficient support for determining the plausible post-construction groundwater elevations in the vicinity of the nuclear island and for determining the post-construction groundwater pathways for the radionuclide transport analysis in Section 2.4.13 of the FSAR. The analysis should include estimates of post-construction recharge conditions across the Lee Nuclear Site, normal and wetter-than-normal precipitation conditions (to yield maximum water table rise), and plausible pathway properties.