HarrisRAIsPEm Resource

From: Manny Comar
Sent: Monday, November 03, 2008 5:37 PM
To: HarrisRAIsPEm Resource
Subject: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 044 RELATED TO SRP SECTION 03.08.05 FOR THE SHEARON HARRIS UNITS 2 AND 3 COMBINED LICENSE APPLICATION
Attachments: HAR-RAI-LTR-044.doc

Hearing Identifier: HarrisCOL_eRAIs
Email Number: 44

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Subject: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 044 RELATED TO SRP SECTION 03.08.05 FOR THE SHEARON HARRIS UNITS 2 AND 3 COMBINED LICENSE APPLICATION
Sent Date: 11/3/2008 5:36:52 PM
Received Date: 11/3/2008 5:36:53 PM
From: Manny Comar

Created By: Manny.Comar@nrc.gov

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

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

November 3, 2008

James Scarola
Senior Vice President and
Chief Nuclear Officer
PO Box 1551
411 Fayetteville Street Mall
Raleigh NC 27602

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 044 RELATED TO SRP SECTION 03.08.05– FOUNDATIONS FOR THE SHEARON HARRIS UNITS 2 AND 3 COMBINED LICENSE APPLICATION

Dear Mr. Scarola:

By letter dated February 18, 2008, Progress 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 301-415-3863.

Sincerely,

/**RA**/

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

Docket Nos. 52-022
52-023

Enclosure:
Request for Additional Information

CC: see next page

If you have any questions or comments concerning this matter, you may contact me at 301-415-3863.

Sincerely,

/**RA**/

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

Docket Nos. 52-022
52-023
ERAI Tracking No. 1423

Enclosure:
Request for Additional Information

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DATE	10/06/08	10/9/08	10/17/08	11/03/08

*Approval captured electronically in the electronic RAI system.

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Request for Additional Information No. 1423

11/3/2008

Shearon Harris
Progress Energy Carolinas, Inc.
Docket No. 52-022 and 52-023
SRP Section: 03.08.05 - Foundations
Application Section: 3.8.5

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

The applicant is requested to provide the following information:

1. Provide the value of the coefficient of friction within the soil foundation media at the plant site, and describe how the value was obtained.
2. Provide the value of the coefficient of friction between the bottom of the mudmat and the soil if there is no waterproofing membrane between them, and state the basis for establishing this value and how the value would be verified at the plant site.
3. Provide the value of the coefficient of friction between the bottom of the mudmat and the soil if there is a waterproofing membrane between them, and state the basis for establishing this value and how the value would be verified at the plant site.
4. Provide the value of the coefficient of friction between the upper portion of the mudmat and the lower portion of the mudmat if there is a waterproofing membrane between them, and state the basis for establishing this value and how it would be verified at the plant site.
5. Provide the value of the coefficient of friction between the bottom of the concrete basemat and the top of the mudmat if there is no waterproofing membrane between them, and state the basis for establishing this value and how the value would be verified at the plant site.
6. Provide the value of the coefficient of friction between the bottom of the concrete basemat and the top of the mudmat if there is a waterproofing membrane between them, and state the basis for establishing this value and how the value would be verified at the plant site.
7. Identify the type of waterproofing membrane that is to be used at the plant site, and

(a) provide chemical and structural (mechanical) properties of the waterproofing membrane and its lifespan,

(b) state whether the waterproofing membrane has been used in structures in which the coefficient of friction between the waterproofing membrane and concrete, mudmat, and soils has been verified, and, if so, describe the structure and the value of the coefficient of friction, and

(c) if no data is available for the coefficient of friction between the waterproofing membrane and concrete, mudmat, and soils, provide the basis for assuring that the waterproofing membrane between two interface media would not cause sliding for one medium against the other during an SSE.

8. Describe the soil properties and compaction requirements for the backfill material against the embedded foundation walls and the vertical edge of the basemat at the plant site.
9. Provide the value of the subgrade modulus beneath the nuclear island structure, and describe how the value was obtained.
10. For sliding analysis, state whether the bottom of the basemat, or any medium, such as the mudmat or soils, is predicted to move horizontally relative to the vertical adjacent medium. If relative movement is predicted, state the maximum value of the horizontal movement during the SSE and the basis for accepting that amount of movement. If relative movement is not predicted, provide the maximum horizontal force for the nuclear island structure generated by the SSE, the total weight of the nuclear island structure and the horizontal frictional force between two media with the minimum

value of the coefficient of friction, as stated in items 1 thru. 7 above, and the passive soil force, based on the properties from item 8 above. Describe the shape and the magnitude of the passive soil pressure along the vertical face of the embedded walls and the side of the basemat and the location of the passive soil force resulted from the passive soil pressure diagram.

11. For overturning analysis, provide the value of the maximum overturning moment for the nuclear island structure generated by the SSE with respect to the pivotal end or point of the basemat for rotation, the value and the location of the active soil force, the value and the location of the passive soil force, and the value and the location of the resisting force from the subgrade modules.
12. Provide the groundwater level for the design of the plant site. Describe the potential effect of saturated soils from the groundwater on the seismic soil-structure interaction (SSI) analysis, the calculation of the subgrade modules, the bearing pressure (strength) for soils, the coefficient of friction, and the active and passive soil pressures, and the design of the concrete basemat and embedded walls.
13. Provide the value of bearing pressure (strength) for soils beneath the nuclear island structure at the plant site, and describe how the value was obtained.