SummerRAIsPEm Resource

From: Ravindra Joshi
Sent: Thursday, February 12, 2009 12:46 PM
To: SummerRAIsPEm Resource
Subject: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 034 RELATED TO SRP SECTION 02.05.03 FOR THE VIRGIL C. SUMMER NUCLEAR STATION UNITS 2 AND 3 COMBINED LICENSE APPLICATION
Attachments: SUM-RAI-LTR-034.doc

Hearing Identifier: Summer_COL_eRAIs
Email Number: 35

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Subject: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 034 RELATED TO SRP SECTION 02.05.03 FOR THE VIRGIL C. SUMMER NUCLEAR STATION UNITS 2 AND 3 COMBINED LICENSE APPLICATION
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From: Ravindra Joshi

Created By: Ravindra.Joshi@nrc.gov

Recipients:
"SummerRAIsPEm Resource" <SummerRAIsPEm.Resource@nrc.gov>
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Reply Requested: No
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Expiration Date:
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February 12, 2009

Mr. Alfred M. Paglia
Manager, Nuclear Licensing
MC P40
South Carolina Electric & Gas Company
PO Box 88
Jenkinsville, SC 29065

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 034 RELATED TO SRP SECTION 02.05.03 FOR THE VIRGIL C. SUMMER NUCLEAR STATION UNITS 2 AND 3 COMBINED LICENSE APPLICATION

Dear Mr. Paglia:

By letter dated March 27, 2008, South Carolina Electric & Gas Company 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 301-415-6191or Ravindra.Joshi@nrc.gov.

Sincerely,

/**RA**/

Ravindra G. Joshi, Lead Project Manager
AP1000 Projects Branch 1
Division of New Reactor Licensing
Office of New Reactors

Docket Nos. 52-027
52-028

Enclosure:
Request for Additional Information

CC: see next page

If you have any questions or comments concerning this matter, you may contact me at 301-415-6191or Ravindra.Joshi@nrc.gov.

Sincerely,

/**RA**/

Ravindra G. Joshi, Lead Project Manager
AP1000 Projects Branch 1
Division of New Reactor Licensing
Office of New Reactors

Docket Nos. 52-027
52-028

eRAI Tracking No. 1829

Enclosure:
Request for Additional Information

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NRO-002

OFFICE	RGS2/BC	NWE1/PM	OGC	NWE1/L-PM
NAME	CMunson*	RJoshi*	CMunson*	RJoshi*
DATE	1/7/09	1/8/09	1/29/09	1/29/09

*Approval captured electronically in the electronic RAI system.

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Request for Additional Information
Virgil C. Summer Nuclear Station Units 2 and 3
South Carolina Electric & Gas Company
Docket No. 52-027 and 52-028
SRP Section: 02.05.03- Surface Faulting

Application Section: FSAR Section 2.5.3

QUESTIONS from Geosciences and Geotechnical Engineering Branch 1 (RGS2)

02.05.03-1
FSAR Section 2.5.3.2 (pgs 2.5.3-5 through 2.5.3-9) discusses 12 bedrock faults which occur within the site vicinity and range in age from Paleozoic to Cenozoic. These faults are summarized in Table 2.5.3-201 and also discussed in FSAR Section 2.5.1.1.2.4 and Section 2.5.3.4. There is no single figure that shows all 12 faults in the site vicinity relative to lithotectonic units (e.g., the tectonic features map of FSAR Figure 2.5.1-212 labels most, but not all, of these faults and does not include color patterns shown on the map, except that for Mesozoic basins, in the figure legend), and logic for the assigned ages is not summarized in Table 2.5.3-201 or in FSAR Section 2.5.3.4.

In order for the staff to understand the tectonic setting of the site vicinity in relation to these 12 bedrock faults, please accomplish the following:

(a) Locate all 12 structures on a single lithotectonic map of the site vicinity and include a legend which distinguishes both fault ages and lithotectonic units.

(b) Summarize the logic presented in FSAR Section 2.5.1.1.2.4 which is used to qualify ages of these 12 faults, possibly in a modified Table 2.5.3-201.

(c) Include in Section 2.5.3 the information provided in response to RAIs for Section 2.5.1 which is related to these 12 faults, as appropriate.

02.05.03-2
FSAR Section 2.5.3.2 (pg 2.5.3-7) states that the Modoc shear zone separates the Carolina Terrane (including the Slate and Charlotte Belts) from the Kiokee belt. The terminology used in Section 2.5.3.2, however, is not consistent with other sections of the FSAR, which correctly refer to the “Carolina Zone,” rather than the “Carolina Terrane,” and the “Charlotte Terrane,” rather than the “Charlotte Belt.” In addition, the Kiokee belt is not defined or described anywhere in the FSAR, so its importance in the regional geologic setting of the Summer site is not clear.

In order for the staff to clearly understand the geologic setting of the Summer site in relation to regional geology and lithotectonic elements, please correctly distinguish the area which contains the infrastructural Charlotte Terrane. Please also locate the Kiokee Belt on the appropriate regional map and discuss its relationship to the Summer site.

02.05.03-3
FSAR Section 2.5.3.3 (pg 2.5.3-10) states that no faults or geomorphic features within 80 km (50 mi) of the site can be correlated with earthquakes. This FSAR section also states that only three historical earthquakes of m_b greater than or equal to 3 occur within 40 km (25 mi) of the site (i.e., within the site vicinity). However, FSAR Figure 2.5.1-212 shows that two of these three earthquakes appear to have epicenters which lie along the trend of the Modoc shear zone.

In order for the staff to assess the seismotectonic setting of the Summer site, please discuss the significance of the two earthquake epicenters that appear to lie along the trace of the Modoc shear zone within the site vicinity.

02.05.03-4
FSAR Section 2.5.3.4 (pg 2.5.3-10) discusses the ages of the 12 faults identified in the site vicinity and states that two of these structures (i.e., Fault #67 of Prowell and the unnamed fault near Parr, if it exists) are likely non-tectonic in origin. The basis for this conclusion is not summarized for either feature. Furthermore, the unnamed fault near Parr is described in FSAR Section 2.5.3.2 (pg 2.5.3-9) as containing “shear fabrics” that could be indicative of a tectonic origin for this feature.

In order for the staff to assess whether or not these two features are non-tectonic in origin, please summarize the logic used for making this conclusion, including the significance of the “shear fabrics” observed where the unnamed fault was initially identified.

02.05.03-5
FSAR Section 2.5.3.5 (pgs 2.5.3-10 and 2.5.3-11) suggests that a relationship exists between certain of the 12 faults defined in the site vicinity and regional tectonic structures, and specifically mentions the Beaver Creek and Modoc shear zones and the Cross Anchor fault. Information which bears out such a relationship for these three tectonic structures is not summarized in the FSAR, and no single figure illustrates this suggested relationship of structures in the site vicinity to regional tectonic elements. In addition, other structures in the site vicinity (e.g., the Chappells shear zone and the Gold Hill fault) parallel the northeast-trending regional structural grain of this part of the Appalachian orogen.

In order for the staff to assess the possible relationship of tectonic features occurring within the site vicinity to regional tectonic structures, please accomplish the following:

(a) Provide a figure which illustrates the suggested relationship of structures in the site vicinity to regional tectonic elements.

(b) Summarize the information used to conclude that the Beaver Creek and Modoc shear zones and the Cross Anchor fault do show a relationship with regional tectonic structures.

(c) Discuss whether or not the Chappells shear zone and the Gold Hill fault may be related to regional tectonic structures and, if they are, address the potential implications for the Summer site.

02.05.03-6
FSAR Section 2.5.3.6 (pg 2.5.3-11) concludes that no capable tectonic sources are identified within 40 km (25 mi) of the Summer site based on review of updated geologic, seismic, and geophysical data. However, this important data (derived from published literature, interviews with experts, and field investigations) is not summarized in FSAR Section 2.5.3.6 although it bears directly on the conclusion

presented in FSAR Section 2.5.3 8 that the potential for surface tectonic deformation at the site is negligible.

In order for the staff to assess the information used to conclude that no capable tectonic sources exist within 40 km (25 mi) of the Summer site and that the potential for surface tectonic deformation at the site is negligible, please summarize the pertinent data used to document these important conclusions.

02.05.03-7
FSAR Section 2.5.3.7 (pg 2.5.3-11) concludes that there is no evidence of Quaternary deformation within the site area based on review of updated geologic, seismic, and geophysical data. However, this important data (derived from published literature, interviews with experts, and field investigations) is not summarized in FSAR Section 2.5.3.7 although it bears directly on the conclusion presented in FSAR Section 2.5.3.8 that the potential for surface tectonic deformation at the site is negligible.

In order for the staff to assess the information used to conclude that no Quaternary deformation exists within the site area and that the potential for surface tectonic deformation at the site is negligible, please summarize the pertinent data used to document these important conclusions.