BellefonteRAIsPEm Resource

From: Joseph Sebrosky
Sent: Friday, September 19, 2008 8:08 AM
To: BellefonteRAIsPEm Resource
Subject: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 125 RELATED TO SRP SECTION 2.5.2 FOR THE BELLEFONTE UNITS 3 and 4 COMBINED LICENSE APPLICATION
Attachments: BLN-RAI-LTR-125.doc

Hearing Identifier: Bellefonte_COL_RAI_Public
Email Number: 112

Mail Envelope Properties (C4A4C9A16294FB4CBA5A36312D05FFAC0ABBC6C895)

Subject: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 125 RELATED TO SRP SECTION 2.5.2 FOR THE BELLEFONTE UNITS 3 and 4 COMBINED LICENSE APPLICATION
Sent Date: 9/19/2008 8:07:52 AM
Received Date: 9/19/2008 8:07:52 AM
From: Joseph Sebrosky

Created By: Joseph.Sebrosky@nrc.gov

Recipients:
"BellefonteRAIsPEm Resource" <BellefonteRAIsPEm.Resource@nrc.gov>
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MESSAGE	3	9/19/2008 8:07:52 AM
BLN-RAI-LTR-125.doc	58362	

Options
Priority: Standard
Return Notification: No
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September 19, 2008

Ms. Andrea L. Sterdis
Manager, Nuclear Licensing & Industry Affairs
Nuclear Generation Development & Construction
Tennessee Valley Authority
1101 Market Street
Chattanooga, Tennessee 37402-2801

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 125 RELATED TO SRP SECTION 2.5.2 FOR THE BELLEFONTE UNITS 3 and 4 COMBINED LICENSE APPLICATION

Dear Ms. Sterdis:

By letter dated October 30, 2007, as supplemented by letters dated November 2, 2007, January 8, 2008 and January 14, 2008, Tennessee Valley Authority (TVA) 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 301-415-1132.

Sincerely,

/RA/

Joseph M. Sebrosky, Senior Project Manager
AP1000 Projects Branch 1
Division of New Reactor Licensing
Office of New Reactors

Docket Nos. 52-014
52-015

eRAI Tracking No. 783

Enclosure:
Request for Additional Information

CC: see next page

If you have any questions or comments concerning this matter, you may contact me at 301-415-1132.

Sincerely,

/RA/

Joseph M. Sebrosky, Senior Project Manager
AP1000 Projects Branch 1
Division of New Reactor Licensing
Office of New Reactors

Docket Nos. 52-014
52-015

eRAI Tracking No. 783

Enclosure:
Request for Additional Information

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DATE	9/4/08	9/5/08		9/8/08	9/19/08

*Approval captured electronically in the electronic RAI system.

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Request for Additional Information
Bellefonte Units 3 and 4
Tennessee Valley Authority
Docket No. 52-014 and 52-015
SRP Section: 02.05.02 - Vibratory Ground Motion
Application Section: 2.5.2

QUESTIONS from the Geosciences and Geotechnical Branch

02.05.02-2
FSAR Section 2.5.2.5 describes the site as a hard rock site and states that two thirds of the measured rock section exhibits shear wave velocity of 9,200 fps or greater. Please explain whether the existence of the layer C disqualifies the site as a "hard rock" site because the layer has a shear wave velocity of about 6000 fps (FSAR Figure 2.5.-299) and provide the basis for your decision not to do a site response analysis to evaluate the effect of the underlying lower shear wave velocity layer. In addition, please explain the potential impact of this material on the GMRS calculation.

02.05.02-3
FSAR Section 2.5.2.1.2, "Recent Earthquake and Historical Seismicity" describes basic parameters associated with the April 29, 2003, Fort Payne earthquake. Please explain the uncertainty in determining the focal depth of the earthquake in terms of the distance of the nearest seismography station, seismic network distribution, availability of aftershock network, velocity structures and direct evidence from seismograms. In addition, please provide an explanation on depth uncertainties for the events plotted in the FSAR Figure 2.5-294. Given the level of the uncertainty in determining the depth of an earthquake in the area, please explain how you determined these events related not to ruptures above the detachment (for example, on the Sequatchie fault) but rather to the mid crust structures beneath the detachment.

02.05.02-4
Please describe in detail any differences between the NMSZ source modeling used for the Bellefonte COLA and the Clinton ESP application.

02.05.02-5
FSAR Section 2.5.2.4.4.1.3 of the Bellefonte FSAR states that a time-dependent equivalent Poisson rate for large repeating earthquakes may be obtained given the "present time (t_0) measured from the date of the most recent event." The equivalent Poisson rate is computed from the time-dependent renewal probability according to Equation 2.5.2-9. The computation of t_0 requires an assumption about the present time.

What "present time" was used when estimating t_0 for the NMSZ mainshocks and should the "present time" really be time of first commercial power generation? Additionally, you assumed a power plant life-span of 50 years, but increasing this to 60 years might be reasonable. Please show the effect of a joint increase of t_0 and Δt on the NMSZ event rates and 10^{-4} probabilistic hazard at the Bellefonte Units 3 and 4 site.

Enclosure

02.05.02-6
FSAR 2.5.2.4.4.5 explains the deaggregation of hazard for the determination of controlling earthquakes. FSAR Figures 2.5-281 and 2.5 - 283 show the contribution from **M**5 to **M**5.5 earthquakes at distances of 0 to 20 km with deaggregated epsilon (ε) values. Please explain the relative variability of ε values for the M and R bins in these two figures and, specifically, if the low ε values in Figure 2.5 -281 imply that the probabilistic 1E-4 ground motion is primarily associated with ground motions that are smaller than the median motion for the M and R bin at 5-10 Hz, as well as the impact of the low ε values to the GMRS at frequencies greater than 5 Hz.

02.05.02-7
FSAR Section 2.5.2.4.4.4 states that CAV filter is used in seismic hazard calculation. Please provide in detail how you applied the CAV filter to the Bellefonte site-specific seismic hazard calculation.

02.05.02-8
FSAR Section 2.5.2.2.1 briefly covered the EPRI SOG's seismic source characterization related to the Bellefonte Units 3 and 4 site. The Dames and Moore team assigned lower probabilities of activity to Source Zones 41 and 53. Please justify how the Dames and Moore source model for these two zones adequately characterizes the seismic hazard for the Bellefonte site and the overall impact of the low probability of activity on the final hazard curves for the site.