

February 15, 2008

Mr. Ashok S. Bhatnagar, Senior Vice President
Nuclear Generation Development and Construction
Tennessee Valley Authority
1101 Market Street
Chattanooga, Tennessee 37402-2801

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION – TENNESSEE VALLEY
AUTHORITY COMBINED LICENSE APPLICATION FOR BELLEFONTE
UNITS 3 AND 4

Dear Mr. Bhatnagar:

By letter dated October 30, 2007, as supplemented by letters dated November 2, 2007, January 8, 2008, and January 14, 2008, the Tennessee Valley Authority (TVA) submitted its application to the U.S. Nuclear Regulatory Commission (NRC) for a combined license (COL) for two AP1000 advanced passive pressurized water reactors in accordance with the requirements contained in 10 CFR 52, "Licenses, Certifications and Approvals for Nuclear Power Plants."

The NRC staff is performing a detailed review of your COL application and has determined that it needs additional information to continue portions of the safety review. The topics covered in the enclosed request for additional information (RAI) are related to Chapter 2 of your application.

Receipt of the requested information by March 20, 2008, will support the NRC's efficient and timely review of the Bellefonte COL application. Please note that failure to respond in a timely fashion may delay the completion of the staff's safety evaluation report. The staff notes that generic aspects of this RAI were discussed at a February 13, 2008, public meeting. The staff understands that TVA may decide to address this issue consistent with the generic response. Irrespective of your decision in this regard, the schedule issued to you on February 15, 2008, assumes a full and complete response addressing all technical issues by March 20, 2008. Failure to meet this date may result in adjustments to your February 15, 2008 review schedule.

Should you have any questions or comments concerning this matter, you may contact me at (301) 415-1132 or jms3@nrc.gov.

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
cc w/encl: See next page

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NAME	RCarmon*	JSebrosky	RKaras	BTharakan	AHodgdon	SCoffin
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**Requests for Additional Information Regarding the
Tennessee Valley Authority Bellefonte Units 3 and 4 Combined License Application**

RAI 2.5.2-1

Regulatory Guide 1.208, "A Performance-Based Approach to Define the Site-Specific Earthquake Ground Motion," states that "while the most recent characterization of any seismic source accepted by the U.S. Nuclear Regulatory Commission (NRC) staff can be used as a starting point for analysis of a new facility, any new information related to a seismic source that impacts the hazard calculations must be evaluated and incorporated into the probabilistic seismic hazard analysis (PSHA) as appropriate based on the technical information available." The Bellefonte combined license (COL) site is near the Eastern Tennessee Seismic Zone, which is considered to be one of the most active seismic areas east of the Rocky Mountains. Recent studies have indicated that this seismic zone may have the potential to produce large magnitude earthquakes. In the Bellefonte COL application, the applicant has not updated the Eastern Tennessee Seismic Zone source models from the 1986 Electric Power Research Institute Seismicity Owners Group (EPRI/SOG) report, although new information on the seismic hazard for the area exists. The staff is concerned that the EPRI/SOG seismic source models for the region may not adequately characterize the potential for larger earthquakes. This concern is due to the low weights for larger earthquakes and low probabilities of activity for the seismic sources assigned by some of the EPRI/SOG expert teams in the mid-1980s.

Section 2.5.2.4.1.3 of the Bellefonte COL application discusses the adequacy of the EPRI-SOG source models based only on the maximum magnitude parameter. Figure 2.5-250 in the application clearly shows that more recent studies place a significantly higher probability on larger maximum magnitude earthquakes. In addition to maximum magnitude, there are several other variables, such as probability of activity, source location, and recurrence that contribute to the overall seismic hazard for the site. The application does not adequately address the effect of the other parameters from these newer studies on the Bellefonte PSHA.

There are more recent seismic hazard studies, such as the Geomatrix TVA Dam safety study and the Lawrence Livermore National Laboratory Trial Implementation Project (TIP) study, which provide new information on the seismic hazard of the area. Regulatory Guide 1.208 provides guidance that new information should be considered when evaluating the applicability of the EPRI-SOG hazard curves for a site. If the effect on the hazard is significant, the Bellefonte PSHA should be updated to include these newer studies. The application does not currently include detailed numerical comparisons of the EPRI-SOG hazard and the newer studies.

The following additional information is requested:

- a) Provide PSHA mean hazard curves for the Bellefonte COL site using the Geomatrix Dam study and TIP study seismic source models, together with the EPRI 2004 ground motion models and compare these with the six EPRI-SOG PSHA hazard curves for the COL site.
- b) Provide separate mean hazard curves for the Charleston, SC, and New Madrid seismic source zones so that the staff can directly assess their impact relative to the newer studies and the EPRI-SOG source models.

- c) Provide a discussion and basis for including or not including the newer source models in the overall final PSHA. If the determination is that the newer source models need to be included in the overall final PSHA, include that final PSHA in the response.
- d) Provide a copy of the Geomatrix Dam study.
- e) Provide the mean 1 Hz and 10 Hz hazard curves for each EPRI team for each of their sources.
- f) Provide the latitudes and longitudes for each of the EPRI sources.

COL Bellefonte Mailing List

(Revised 2/11/08)

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