



Tennessee Valley Authority, 1101 Market Street, LP 5A, Chattanooga, Tennessee 37402-2801

May 30, 2008

10 CFR 52.79

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

In the Matter of)
Tennessee Valley Authority)

Docket No. 52-014 and 52-015

BELLEFONTE COMBINED LICENSE APPLICATION – RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION – SUPPLEMENTAL SEISMOLOGY INFORMATION

- Reference Letter:
1. Letter from Joseph M. Sebrosky (NRC) to Ashok S. Bhatnagar (TVA), Request for Additional Information, Tennessee Valley Authority Combined License Application for Bellefonte Units 3 and 4, dated February 15, 2008.
 2. Letter from Jack A Bailey (TVA) to Document Control Desk (NRC), Bellefonte Nuclear Plant (BLN) Combined License (COL) Application – Response to Request for Additional Information (RAI) Seismology, dated March 19, 2008.
 3. Letter from Adrian P. Heymer (NEI) to US Nuclear Regulatory Commission, Submittal of Seismic Reports, dated May 14, 2008.

This letter provides supplemental information to complete the response to the request for information in Reference 1. A partial response was provided in Reference 2. The partial response indicated that a generic response to the NRC concerns was being developed and a report would be submitted by the industry. This report has been provided by NEI in Reference 3. The report provided by Reference 3 is herein referenced in the response to items 2.5.2-01(a) and (c) of Reference 1.

If you should have any questions, please contact Phillip Ray at 1101 Market Street, LP 5A, Chattanooga, Tennessee 37402-2801, by telephone at (423)751-7030, or via email at pmray@tva.gov.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on this 30th day of MAY, 2008.

Andrea L. Sterdis
Manager, New Nuclear Licensing and Industry Affairs
Nuclear Generation Development & Construction

DOES
NRC

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Enclosure

cc: (w/enclosure)
J. M. Sebrosky, NRC/HQ
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R. B. Clary, SCE&G
E. Cummins, Westinghouse
S. P. Frantz, Morgan Lewis
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P. S. Hastings, NuStart
P. Hinnenkamp, Entergy
R. H. Kitchen, PGN
M. C. Kray, NuStart
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G. D. Miller, PG&N
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(w/o enclosure)
cc:
R. H. Kitchen, PGN
M. C. Kray, NuStart
A. M. Monroe, SCE&G
C. R. Pierce, SNC
R. Register, DOE/PM
L. Reyes, NRC/RII

Responses to NRC Request for Additional Information from NRC letter dated
February 15, 2008
(4 pages, including this list)

Subject: Seismology in the Final Safety Analysis Report

<u>RAI Number</u>	<u>Date of TVA Response</u>
2.5.2-01(a)	This letter – see following pages
2.5.2-01(b)	March 19, 2008
2.5.2-01(c)	This letter – see following pages
2.5.2-01(d)	March 19, 2008
2.5.2-01(e)	March 19, 2008
2.5.2-01(f)	March 19, 2008

Enclosure
TVA letter dated May 30, 2008
RAI Responses

NRC Letter Dated: February 15, 2008

NRC Review of Final Safety Analysis Report

NRC RAI NUMBER: 2.5.2-01(a)

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.

Enclosure
TVA letter dated May 30, 2008
RAI Responses

BLN RAI ID: 0008

BLN RESPONSE:

The industry has addressed this concern in a generic manner as provided by the NEI on May 14, 2008 (Reference 3 of the cover letter). The industry report addressing the Eastern Tennessee Seismic Zone (ETSZ) utilizing a representative site concludes that potential changes resulting from the new information are not significant. Therefore, no further site specific assessment is necessary for the Bellefonte site.

This response is expected to be PLANT SPECIFIC.

ASSOCIATED BLN COL APPLICATION REVISIONS:

No COLA Part 2, FSAR Chapter 2, revisions have been identified at this time.

ATTACHMENTS/ENCLOSURES:

None

Enclosure
TVA letter dated May 30, 2008
RAI Responses

NRC Letter Dated: February 15, 2008

NRC Review of Final Safety Analysis Report

NRC RAI NUMBER: 2.5.2-01(c)

The following additional information is requested:

- 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.

BLN RAI ID: 0010

BLN RESPONSE:

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None