



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

January 20, 2009

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 NRC OBSERVATIONS


Reference: Teleconference between NRC and TVA, December 3, 2008, discussion regarding follow-up to geology site visit

This letter provides the Tennessee Valley Authority's (TVA) response to the Nuclear Regulatory Commission's (NRC) observations conveyed during the teleconference conducted on December 3, 2008.

The responses to the NRC observations also identify any associated changes that will be made in a future revision of the BLN application.

If you should have any questions, please contact Tom Spink at 1101 Market Street, LP5A, Chattanooga, Tennessee 37402-2801, by telephone at (423) 751-7062, or via email at tespink@tva.gov.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on this 20th day of Jan, 2009.


Andrea L. Sterdis
Manager, New Nuclear Licensing
Nuclear Generation Development

Enclosure
cc: See Page 2

D083
NRD

Document Control Desk
Page 2
January 20, 2009

cc: (w/ Enclosures)

J. P. Berger, EDF
J. M. Sebrosky, NRC/HQ
E. Cummins, Westinghouse
S. P. Frantz, Morgan Lewis
M. W. Gettler, FP&L
R. Grumbir, NuStart
P. S. Hastings, NuStart
P. Hinnenkamp, Entergy
M. C. Kray, NuStart
D. Lindgren, Westinghouse
G. D. Miller, PG&N
M. C. Nolan, Duke Energy
N. T. Simms, Duke Energy
K. N. Slays, NuStart
G. A. Zinke, NuStart

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B. C. Anderson, NRC/HQ
M. M. Comar, NRC/HQ
B. Hughes/NRC/HQ
R. G. Joshi, NRC/HQ
R. H. Kitchen, PGN
M. C. Kray, NuStart
A. M. Monroe, SCE&G
C. R. Pierce, SNC
R. Reister, DOE/PM
L. Reyes, NRC/RII
T. Simms, NRC/H

Enclosure
TVA letter dated January 20, 2009
Observations Responses

Responses to NRC observations identified during the teleconference conducted December 3, 2008.
(4 pages, including this list)

Subject: NRC observations regarding Final Safety Analysis Report

Responses are included on the following pages of this enclosure.

Associated Additional Attachments / Enclosures

Pages Included

None

Enclosure
TVA letter dated January 20, 2009
Observations Responses

NRC Review of Final Safety Analysis Report

During a teleconference between the NRC and TVA on December 3, 2008, the NRC reviewers noted a possible typographical error on page 2.5-82 in an equation calculating time between earthquake events. The two input equations are identical.

BLN RESPONSE:

Our review of this possible typographical error in the two equations found that the second equation had a typographical error of a minus sign in place of a plus sign, and the FSAR text should be revised. In addition, the review indicates that the equations were used correctly (i.e., with the appropriate respective signs) when determining the equations results.

This response is PLANT-SPECIFIC.

ASSOCIATED BLN COL APPLICATION REVISIONS:

COLA Part 2, FSAR Chapter 2, Section 2.5.2.4.4.1.3, equation 2.5.2-11 for $u_2(t)$ will be revised from:

$$u_2(t) = (\sqrt{t/\mu} - \sqrt{\mu/t}) / \alpha$$

To read:

$$u_2(t) = (\sqrt{t/\mu} + \sqrt{\mu/t}) / \alpha$$

ASSOCIATED ATTACHMENTS/ENCLOSURES:

None

Enclosure
TVA letter dated January 20, 2009
Observations Responses

NRC Review of Final Safety Analysis Report

During a teleconference between the NRC and TVA on December 3, 2008, the NRC reviewers noted a possible reference error for the sequence in which the references 356 and 294 appear. TVA took an action to determine if the sequence of the references which appear in the middle paragraph on page 2.5-83 is correct and determine appropriate action, e.g., revise the sequence of the references if necessary.

BLN RESPONSE:

FSAR Subsection 2.5.2.4.4.1.3 (page 2.5-83) states "Recent discussions with Dr. Tuttle (Reference 386) indicate that she considers that the difference between the size of the 1811-1812 earthquakes and those of the 900 and 1450 sequences are likely to be smaller than what was portrayed in Figure 6 of Tuttle et al. (Reference 374). As a result, Exelon (Reference 356) revised the model of Exelon (Reference 294) for New Madrid sequences to consist of two alternative models of rupture or earthquake sequences. In Model A, all ruptures are similar in size to the 1811-1812 earthquakes."

References 294, 356, 374, and 386 are:

- 294. Exelon Generation Company, LLC, Site Safety Analysis Report, Clinton Early Site Permit Application, Revision 4, Docket No 05200007, April 14, 2006.
- 356. Exelon Generation Company, LLC, Response to Request for Additional Information Letter No 7, Early Site Application for Clinton Site, October 11, 2004.
- 374. Tuttle, M. P., E. S. Schweig, J. D. Sims, R. H. Lafferty, L. W. Wolf, and M. C. Haynes, "The Earthquake Potential of the New Madrid Seismic Zone." Bulletin of the Seismological Society of America. Vol. 92. No. 6. pp. 2080-2089, 2002.
- 386. Tuttle, M. P., M. Tuttle & Associates, personal communication, August 24, 2004.

Our review of the reference has identified that the NRC is correct that one citation references the incorrect version of the document. Furthermore, our review determined the wording as stated is confusing and should be clarified.

Based on the August 2004 discussions with Dr. Tuttle (Reference 386), Exelon submitted its October 11, 2004 RAI response (Reference 356) to revise the model described in the then current Site Safety Analysis Report (SSAR) Revision 0 dated 2003. However, in our efforts to reference the latest version of documents, our reference is to the Exelon SSAR Revision 4 (Reference 294). Technically, it would have been more correct to have referenced the 2003 Exelon SSAR Revision 0 which was the document that was revised. Regardless, the point of the FSAR discussion is that the Exelon application was revised based on the Dr. Tuttle information, and this revised model is shown in final SSAR Revision 4 (Reference 294).

The Bellefonte FSAR will be revised for clarity as shown in the Application Revisions section below.

This response is PLANT-SPECIFIC.

Enclosure
TVA letter dated January 20, 2009
Observations Responses

ASSOCIATED BLN COL APPLICATION REVISIONS:

COLA Part 2, FSAR Chapter 2, Subsection 2.5.2.4.1.3, will be revised from:

Recent discussions with Dr. Tuttle (Reference 386) indicate that she considers that the difference between the size of the 1811-1812 earthquakes and those of the 900 and 1450 sequences are likely to be smaller than what was portrayed in Figure 6 of Tuttle et al. (Reference 374). As a result, Exelon (Reference 356) revised the model of Exelon (Reference 294) for New Madrid sequences to consist of two alternative models of rupture or earthquake sequences. In Model A, all ruptures are similar in size to the 1811-1812 earthquakes.

To read:

Recent discussions with Dr. Tuttle (Reference 386) indicate that she considers that the difference between the size of the 1811-1812 earthquakes and those of the 900 and 1450 sequences is likely to be smaller than what was portrayed in Figure 6 of Tuttle et al. (Reference 374). As a result, Exelon provided a revised model (Reference 356, as shown in the final revision of the Exelon application, Reference 294) for New Madrid sequences to consist of two alternative models of rupture or earthquake sequences. In Model A, all ruptures are similar in size to the 1811-1812 earthquakes.

ASSOCIATED ATTACHMENTS/ENCLOSURES:

None