



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

July 18, 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 – COOLING TOWER INTERACTIONS**

- Reference: 1) Letter from Tanya Simms (NRC) to Andrea L. Sterdis (TVA), Request for
Additional Information Letter No. 049 Related to SRP Section 09.02.01 for the
Bellefonte Units 3 and 4 Combined License Application, dated June 20, 2008.
- 2) Article, Steven R. Hanna, "Predicted Climatology of Cooling Tower Plumes
from Energy Centers," Journal of Applied Meteorology, Volume 16, September
1977.

This letter provides the Tennessee Valley Authority's (TVA) response to the Nuclear Regulatory Commission's (NRC) request for additional information (RAI) items included in the reference letter.

A response to the NRC request in the subject letter is addressed in the enclosure with associated changes that will be made in a future revision of the BLN application.

If you should have any questions, please contact Thomas 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 18th day of July, 2008.

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

Enclosure
cc: See Page 2

DOES
NRC

cc: (Enclosures)

E. Cummins, Westinghouse
S. P. Frantz, Morgan Lewis
M.W Gettler, FP&L
R. C. 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
T. Simms, NRC/HQ
G.A. Zinke, NuStart

cc: (w/o Enclosure)

B. 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. Register, DOE/PM
L. Reyes, NRC/RII
J. M. Sebrosky, NRC/HQ

Enclosure
July 18, 2008
Response to RAI

Responses to NRC Request for Additional Information letter No.049 dated June 20, 2008
(2 pages, including this list)

Subject: Cooling Tower Interaction in the Final Safety Analysis Report

<u>RAI Number</u>	<u>Date of Response</u>
09.02.01-01	This letter – see following pages

<u>Attachments / Enclosures</u>	<u>Pages Included</u>
None	

Enclosure
July 18, 2008
Response to RAI

NRC Letter Dated: June 20, 2008

NRC Review of Final Safety Analysis Report

NRC RAI NUMBER: 09.02.01-01

Interactions between two cooling towers may adversely affect the cooling capacity of the service water system (SWS). Adverse interactions can occur due to localized atmospheric influences caused by siting and relative proximity considerations. Because this is not a factor for single cooling towers, it is not addressed by the AP1000 DCD. Therefore, please address potential adverse interactions between the existing Bellefonte cooling towers and describe in the Bellefonte FSAR any additional design provisions that are necessary, as appropriate.

BLN RAI ID: 0592

BLN RESPONSE:

The existing natural draft cooling towers on the Bellefonte site are used as secondary heat sinks for units 3 and 4. The height of Bellefonte's natural draft cooling towers is approximately 475 feet, and during operation the expected plume rise will be greater than 1000 feet as predicted by a paper from the Journal of Applied Meteorology, "Predicted Climatology of Cooling Tower Plumes from Energy Centers," by Steven R. Hanna (Reference 2, available at <http://ams.allenpress.com>). This information, along with the information from the SACTI model for Bellefonte Units 3 and 4, shows that the plume from the cooling tower is well above the standard SWS cooling tower air intake height of 0 to 36 feet. Because of the height of the cooling tower plumes there is no likelihood of interference from the existing natural draft cooling towers on the SWS cooling tower.

This response is PLANT SPECIFIC.

ASSOCIATED BLN COL APPLICATION REVISIONS:

COLA Part 2, FSAR Chapter 10, subsection 10.4.5.2.2 second paragraph next to last sentence under Cooling Tower will be revised from:

"Because of the remote location and the height of the cooling towers the plumes will dissipate before they will affect any plant ventilation intake or plant switchyard."

To read:

"Because of the remote location, the cooling tower height, and the buoyant rise of the plumes, the plumes will dissipate before they interfere with the SWS cooling towers intake, any plant ventilation intake, or the plant switchyard."

ATTACHMENTS/ENCLOSURES:

None