



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

July 17, 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 – CONDENSATE FEEDWATER SYSTEM**

Reference: Letter from Brian C. Anderson (NRC) to Andrea L. Sterdis (TVA), Request
for Additional Information Letter No. 029 Related to SRP Section 10.04.7
for the Bellefonte Units 3 and 4 Combined License Application, dated
June 3, 2008.

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

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

If you should have any questions, please contact Phillip Ray at 1101 Market Street, LP5A,
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 17th day of July, 2008.

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

Enclosure

cc: See Page 2

D085
NRO

Document Control Desk

Page 2

July 17, 2008

cc: (Enclosure)

- B. C. Anderson, NRC/HQ
- J. P. Berger, EDF
- 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
- G. A. Zinke, NuStart

cc: (w/o Enclosure)

- M. M. Comar, NRC/HQ
- B. Hughes, NRC/HQ
- R. G. Joshi, NRC/HQ
- R. H. Kitchen, PGN
- A. M. Monroe, SCE&G
- C. R. Pierce, SNC
- R. Register, DOE/PM
- L. Reyes, NRC/RII
- T. Simms, NRC/HQ
- J. M. Sebrosky, NRC/HQ

Enclosure
TVA letter dated July 17, 2008
RAI Response

Response to NRC Request for Additional Information letter No. 029 dated June 3, 2008.
(3 Pages, including this list)

Subject: Use and development of operating and maintenance procedures to reduce the potential for
water hammer occurrences in the Final Safety Analysis Report

| <u>RAI Number</u> | <u>Date of TVA Response</u> |
|-------------------|-----------------------------------|
| 10.04.07-1 | This letter – see following pages |

| <u>Attachments / Enclosures</u> |
|---------------------------------|
| None |

| <u>Pages Included</u> |
|-----------------------|
|-----------------------|

Enclosure
TVA letter dated July 17, 2008
RAI Response

NRC Letter Dated: Jun 3, 2008

NRC Review of Final Safety Analysis Report

NRC RAI NUMBER: 10.04.07-1

In FSAR Section 10.4.7.2.1, the applicant incorporates by reference the corresponding AP1000, Revision 16, DCD section, and adds standard supplement STD-SUP 10.4-2, which adds supplemental information regarding the use of "operation and maintenance" procedures to help avoid the water hammer occurrences in the condensate and feedwater system. SRP Section 10.4.7, Acceptance Criterion 2, describes acceptable methods of compliance with the requirements in GDC 4, as it applies to fluid flow instabilities (e.g., water hammer). In particular, SRP Section 10.4.7, Acceptance Criterion 2B, "Meeting the guidance related to feedwater-control-induced water hammer," states that guidance for water hammer prevention and mitigation is found in NUREG-0927. The supplemental information added to the FSAR states that operations and maintenance procedures include appropriate precautions to avoid steam/water hammer occurrences, but it does not identify what type of precautions would be included with respect to water hammer prevention and mitigation. Please provide a more detailed statement concerning TVA's intended use of the operations and maintenance procedures, including information on what specific essential elements in the procedures will result in reduced potential for water hammer occurrences.

BLN RAI ID: 0568

BLN RESPONSE:

Good operating practice, operating experience including, but not limited to INPO SERs, SOERs, NRC Information Notices and NRC Bulletins as well as other industry operating experience information, are programmatically integrated into the AP1000 Operations Procedure development. Specific operating experience to preclude or mitigate water hammer is included in this population of operating experience. In addition, the AP1000 has been designed to prevent or minimize steam and water hammer. FSAR Subsection 10.4.7.2.1 will be revised to include additional precautions, when appropriate, to minimize the potential for steam and water hammer, as shown below.

This response is expected to be STANDARD for the S-COLAs.

ASSOCIATED BLN COL APPLICATION REVISIONS:

COLA Part 2, FSAR. Chapter 10, Subsection 10.4.7.2.1 will be revised from:

STD SUP 10.4-1 Operations and maintenance procedures include appropriate precautions to avoid steam/water hammer occurrences.

Enclosure
TVA letter dated July 17, 2008
RAI Response

To read:

- STD SUP 10.4-1 Operations and maintenance procedures include precautions, when appropriate, to minimize the potential for steam and water hammer, including:
- Prevention of rapid valve motion
 - Process for avoiding introduction of voids into water-filled lines and components
 - Proper filling and venting of water-filled lines and components
 - Process for avoiding introduction of steam or heated water that can flash into water-filled lines and components
 - Cautions for introduction of water into steam-filled lines or components
 - Proper warmup of steam-filled lines
 - Proper drainage of steam-filled lines
 - The effects of valve alignments on line conditions

ATTACHMENTS/ENCLOSURES:

None