



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

August 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 – LEAK BEFORE BREAK EVALUATIONS

- References:
1. Letter from Ravindra G. Joshi (NRC) to Andrea L. Sterdis (TVA), Request for Additional Information Letter No. 001 Related to SRP Sections 03.06.03, 05.02.03 and 06.01.02 for the Bellefonte Units 3 and 4 Combined License Application, dated April 10, 2008.
  2. Letter from Andrea L. Sterdis (TVA) to Document Control Desk (NRC) Response to Request for Additional Information Letter No. 001, Leak Before Break Evaluations, Reactor Coolant Pressure Boundary Materials, And Organic Materials, dated May 23, 2008.

This letter provides the Tennessee Valley Authority's (TVA) revised response to the Nuclear Regulatory Commission's (NRC) request for additional information (RAI) items included in the reference letter. This revised response is submitted as requested by NRC following verbal clarifications of the requested information regarding the leak before break evaluations.

A response to each NRC request is addressed in the enclosure which does not identify 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 18<sup>th</sup> day of Aug, 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

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cc: (w/Enclosure)

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  
R. G. Joshi, NRC/HQ  
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)

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

Enclosure  
TVA letter dated August 18, 2008  
RAI Responses

Responses to NRC Request for Additional Information letter No. 001 dated April 10, 2008  
(4 pages, including this list)

Subject: Leak before break evaluations in the Final Safety Analysis Report

<u>RAI Number</u>	<u>Date of TVA Response</u>
03.06.03-01	Revised response in this letter - see following pages
03.06.03-02	Revised response in this letter - see following pages
03.06.03-03	Revised response in this letter - see following pages
05.02.03-01	May 23, 2008
06.01.02-01	May 23, 2008

Associated Additional Attachments / Enclosures

Pages Included

None

Enclosure  
TVA letter dated August 18, 2008  
RAI Responses

**NRC Letter Dated: April 10, 2008**

**NRC Review of Final Safety Analysis Report**

**NRC RAI NUMBER: 03.06.03-01**

It is not clear why Alloy 690 is not used in leak-before-break piping applications. If Alloy 690 base material and alloy 52/152 weld material is not being used, please identify what material is being used for the leak-before-break piping.

**BLN RAI ID: 0798**

**BLN RESPONSE:**

The material for the AP1000 leak-before-break piping was addressed in the AP1000 certified design. See DCD Appendix 3B and Table 3B-1 for the specific materials. As identified in the DCD, the material used for leak-before-break piping is primarily austenitic stainless steel. Alloys 690 and 600 are not used as base material for leak-before-break piping. There is some limited use of alloy 690 base material as safe ends in components connected to leak-before-break piping, and there is some limited use of alloy 52/152 weld material in welds associated with these safe ends, but (as indicated in DCD Table 3B-1) the base material for most of the LBB piping is 316LN. Additional information on welding materials can be found in DCD Subsection 5.2.3 and Table 5.2-1.

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

**ASSOCIATED BLN COL APPLICATION REVISIONS:**

No COLA revisions have been identified associated with this response.

**ASSOCIATED ATTACHMENTS/ENCLOSURES:**

None

Enclosure  
TVA letter dated August 18, 2008  
RAI Responses

**NRC Letter Dated: April 10, 2008**

**NRC Review of Final Safety Analysis Report**

**NRC RAI NUMBER: 03.06.03-02**

If a different base material is planned to be used (other than Alloy 690/52/152), please state the justification for using this material in leak-before-break piping applications based upon operating experience, and provide justification why no augmented inspection plans and evaluation criteria is considered necessary. Additionally, please provide a discussion that supports the use of an alternative material and explains why concerns for potential PWSCC should not be considered a factor.

**BLN RAI ID: 0799**

**BLN RESPONSE:**

The material for the AP1000 leak-before-break piping (LBB) was addressed in the AP1000 certified design. See DCD Appendix 3B and Table 3B-1 for the specific materials. As identified in the DCD, the material used in AP1000 LBB piping is primarily austenitic stainless steel and is the same Material used for LBB piping in operating nuclear power plants. The ferritic steel material of the steam line piping was selected to support application of LBB and the selection included consideration of the potential for PWSCC. Alloys 690 and 600 are not used as base material for LBB piping in the AP1000 and are not commonly used in the LBB piping in currently operating nuclear power plants.

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

**ASSOCIATED BLN COL APPLICATION REVISIONS:**

No COLA revisions have been identified associated with this response.

**ASSOCIATED ATTACHMENTS/ENCLOSURES:**

None

Enclosure  
TVA letter dated August 18, 2008  
RAI Responses

**NRC Letter Dated: April 10, 2008**

**NRC Review of Final Safety Analysis Report**

**NRC RAI NUMBER: 03.06.03-03**

For leak-before-break piping requiring dissimilar-metal welds, if Alloy 52/152 is not being used for the weld material, please identify the weld material and provide justification for its use. Provide a discussion that supports the use of an alternative weld material and explains why concerns regarding the potential for PWSCC should not be considered a factor. Please note that there are currently ASME Code cases being developed for dissimilar-metal welds due to PWSCC concerns.

**BLN RAI ID: 0800**

**BLN RESPONSE:**

The weld materials and processes for the AP1000 leak-before-break (LBB) piping, including information on dissimilar metal welds, were addressed in the AP1000 certified design. See DCD Appendix 3B and DCD Subsection 5.2.3 and Table 5.2-1. Alloy 600 base material and alloy 52/152 weld material is not used in LBB or any other piping application for the AP1000 design. There is some limited use of alloy 690 base material as safe ends in components connected to LBB piping. There is some limited use of alloy 52/152 weld material in welds associated with these safe ends, but the base material for most of the LBB piping is 316LN. The materials used in the LBB piping for the AP1000 design do not presently require an augmented in-service inspection program. If ASME Code Cases are developed and approved to address PWSCC concerns for dissimilar metal welds used in the AP1000 DCD, they will be evaluated and implemented.

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

**ASSOCIATED BLN COL APPLICATION REVISIONS:**

No COLA revisions have been identified associated with this response.

**ASSOCIATED ATTACHMENTS/ENCLOSURES:**

None