



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

July 10, 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

BELLEVILLE COMBINED LICENSE APPLICATION – RESPONSE TO REQUEST FOR
ADDITIONAL INFORMATION – REACTOR VESSEL MATERIALS SURVEILLANCE
SUPPLEMENTAL INFORMATION

- References:
- 1) Letter from Ravindra G. Joshi (NRC) to Andrea L. Sterdis (TVA), Request for Additional Information Letter No. 002 Related to SRP Section 05.03.01 for the Bellefonte Units 3 and 4 Combined License Application, dated April 17, 2008
 - 2) Letter from Andrea L. Sterdis (TVA) to Document Control Desk (NRC), Bellefonte Combined License Application – Response to Request for Additional Information – Reactor Vessel Materials Surveillance, dated May 30, 2008

This letter provides supplemental information for the Tennessee Valley Authority’s (TVA) response (Reference 2) to the Nuclear Regulatory Commission’s (NRC) request for additional information (RAI) items included in Reference 1. The supplemental information is based on verbal discussions with the NRC staff.

A revised response to each 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 10th day of July, 2008.

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

Enclosure
cc: See Page 2

DO85
MRO

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cc: (Enclosures)

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Enclosure
TVA letter dated July 10, 2008
RAI Responses

Responses to NRC Request for Additional Information letter No. 002 dated April 17, 2008
(4 pages, including this list)

Subject: Reactor Vessel Materials Surveillance in the Final Safety Analysis Report

<u>RAI Number</u>	<u>Date of TVA Response</u>
05.03.01-01(a)	May 30, 2008, revised by this letter – see following pages
05.03.01-01(b)	May 30, 2008, revised by this letter – see following pages

Attachments / Enclosures

None

Pages Included

Enclosure
TVA letter dated July 10, 2008
RAI Responses

NRC Letter Dated: April 17, 2008

NRC Review of Final Safety Analysis Report

NRC RAI NUMBER: 05.03.01-01(a)

a. Program Description:

The purpose of the reactor vessel (RV) surveillance capsule program, as described in ASTM E 185, is to monitor radiation effects on RV materials under operating conditions. Section C.III.1, Chapter 5, C.I.5.3.1.6 of Regulatory Guide (RG) 1.206 states, "because the material surveillance program is an operational program, as discussed in SECY-05-0197, the applicant must describe the program and its implementation in sufficient scope and level of detail for the staff to make a reasonable assurance finding on its acceptability." The NRC staff recognizes that certain information about the program, such as actual material properties of the RV, is not currently known, but in order to complete its review of the adequacy of the RV surveillance capsule program, the staff needs the following information at this time:

Describe the process for preparing the capsule specimens. This description will confirm that the materials selected for the capsules are samples of those materials most likely to limit the operation of the RV.

BLN RAI ID: 0022

BLN RESPONSE:

While "the material surveillance program is an operational program," the selection of materials for the capsules is a design function, and as such, it is addressed in the AP1000 design control document (DCD). The reactor vessel material surveillance program specimens will be taken directly from the vessel materials during vessel manufacturing and, as stated in the DCD, the program conforms to ASTM E-185. The location of the capsules is shown in DCD Figure 5.3-4 which is referenced from the second paragraph of DCD Subsection 5.3.2.6. The first four paragraphs of DCD Subsection 5.3.2.6 describe the contents of the surveillance capsules including reactor vessel weld metal, base metal, and heat-affected zone metal specimens, and the basis for the selection of the specimens included. The figure and DCD Subsection are incorporated by reference into the FSAR. Additional details for conformance with ASTM E-185 have not yet been developed but are expected to be reflected in an appropriate specification that will be available for NRC review during August 2008. Following review of this specification, appropriate program details to "describe the process for preparing the capsule specimens" can be agreed upon and another supplement to this response will be provided to identify the necessary FSAR changes.

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

ASSOCIATED BLN COL APPLICATION REVISIONS:

COLA Part 2, FSAR, Chapter 5, Subsection 5.3.2.6, will be revised from:

Add the following information between the first and second paragraphs of DCD Subsection 5.3.2.6.

Reactor materials do not begin to be affected by neutron fluence until the reactor begins critical operation. Table 13.4-201 provides milestones for reactor vessel material surveillance program implementation.

Enclosure
TVA letter dated July 10, 2008
RAI Responses

To read:

Add the following information between the first and second paragraphs of DCD Subsection 5.3.2.6.

[New paragraph(s) to provide description of "the process for preparing the capsule specimens" by a COLA revision to be developed and provided following NRC review of Westinghouse specification that will document conformance with ASTM E-185.]

Reactor materials do not begin to be affected by neutron fluence until the reactor begins critical operation. Table 13.4-201 provides milestones for reactor vessel material surveillance program implementation.

The reactor vessel material surveillance program specimens are taken directly from the vessel materials during vessel manufacturing.

ATTACHMENTS/ENCLOSURES:

None

Enclosure
TVA letter dated July 10, 2008
RAI Responses

NRC Letter Dated: April 17, 2008

NRC Review of Final Safety Analysis Report

NRC RAI NUMBER: 05.03.01-01(b)

b. RV Surveillance Capsule Program:

In order for the NRC staff to complete its review of the RV surveillance capsule program for Bellefonte Units 3 and 4, the COL applicant must fully describe its RV surveillance capsule program in accordance with ASTM E 185 and other requirements listed in 10 CFR Part 50, Appendix H. Specifically, the NRC staff still needs detailed information on the RV surveillance capsule program associated with the AP1000 design, including, but not limited to, the capsule environment and the material types of the capsule specimens. This information will need to be included in the RV surveillance capsule program in order to support planning and conduct of NRC inspections. Discuss whether this information will be provided before the NRC's determination on issuance of the COL, or, if this information will not be available until after the RV is procured, explain whether a license condition requiring that this information be provided by the COL holder (i.e., included in Bellefonte COLA Part 10, Section 2, "COL Holder Items.") would be necessary and sufficient for COL issuance.

BLN RAI ID: 0023

BLN RESPONSE:

While "the material surveillance program is an operational program," the requested details including "the capsule environment and the material types of the capsule specimens" are determined by the design, and as such, much of the material surveillance program information is addressed in the AP1000 design control document (DCD). The first four paragraphs of DCD Subsection 5.3.2.6 describe the contents of the surveillance capsules including reactor vessel weld metal, base metal, and heat-affected zone metal specimens. The orientation of base metal specimens relative to the principal rolling direction is defined. The basis for the selection of the specimens is included, and conformance to ASTM E-185 and 10 CFR 50 Appendix H is noted in the DCD write-up. As noted in the DCD write-up, the complete capsule is helium leak tested. The DCD subsection is incorporated by reference in the FSAR.

Additional program description information will be included in the FSAR as described in the response to part (a) of this request. Further, the final reactor vessel material surveillance program will include the necessary details to conduct the program including the capsule environment and the material types of the capsule specimens. However, this program document is not expected to be available prior to issuance of the COL, no later than 12 months after issuance of the COL to support "planning for and conduct of NRC inspections of operational programs" listed in FSAR Table 13.4-201.

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.

ATTACHMENTS/ENCLOSURES:

None