



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

July 03, 2008

10 CFR 52.79

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

In the Matter of)
015
Tennessee Valley Authority)

Docket No. 52-014 and 52-

**BELLEFONTE COMBINED LICENSE APPLICATION – RESPONSE TO REQUEST
FOR ADDITIONAL INFORMATION – PRESERVICE INSPECTION**

Reference: Letter from Joseph M. Sebrosky (NRC) to Andrea L. Sterdis (TVA),
Request for Additional Information Letter No. 023 Related to SRP
Section 05.02.04 for the Bellefonte Units 3 and 4 Combined License
Application, dated May 21, 2008

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 each NRC request in the subject letter is addressed in the enclosure
which does not identify any associated changes to 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 3rd day of July, 2008.


Jack A. Bailey
Vice President, Nuclear Generation Development

Enclosure
cc: See Page 2

0085
NRC

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cc: (w/Enclosure)

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
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N. T. Simms, Duke Energy
G. A. Zinke, NuStart

cc: (w/o Enclosure)

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

Enclosure
TVA letter dated July 03, 2008
RAI Responses

Responses to NRC Request for Additional Information letter No. 023 dated
May 21, 2008
(6 pages, including this list)

Subject: Preservice Inspection

<u>RAI Number</u>	<u>Date of TVA Response</u>
05.02.04-01	This letter – see following pages
05.02.04-02	This letter – see following pages
05.02.04-03	This letter – see following pages
05.02.04-04	This letter – see following pages

Attachments / Enclosures

Pages Included

None

Enclosure
TVA letter dated July 03, 2008
RAI Responses

NRC Letter Dated: May 21, 2008

NRC Review of Final Safety Analysis Report

NRC RAI NUMBER: 05.02.04-01

The AP1000 DCD, Section 5.2.6.2, assigned a COL Information Item, providing a commitment that the COL applicant's preservice inspection program will include specific preservice examinations of the reactor vessel closure head equivalent to those outlined in AP 1000 DCD Tier 2, Section 5.3.4.7. The Bellefonte FSAR adds supplemental information to the end of Subsection 5.2.4.3.1 describing the design of the RPV as it pertains to meeting the preservice inspection requirements for the RPV. Pursuant to Section 5.2.6.2 of the DCD, please discuss TVA's plans with respect to preservice inspection of the RPV closure head consistent with the examinations outlined in Section 5.3.4.7 of the DCD.

BLN RAI ID: 0386

BLN RESPONSE:

The preservice inspection related to the reactor vessel head and penetrations as discussed in DCD Subsection 5.3.4.7 includes the regions identified in the NRC First Revised Order EA-03-009 dated February 20, 2004, related to the inspection of reactor vessel head penetrations. These inspections use methods consistent with those to be applied for inservice inspection discussed in FSAR Subsection 5.2.4.3.1. The design specification includes a requirement for preservice inspections consistent with the NRC First Revised Order. As part of the reactor vessel and integrated head package design finalization, the reactor vessel head design and the design of components connected to, and in the region of, the reactor vessel head have been reviewed. TVA has determined that required preservice and inservice inspections can be performed as required by ASME Section III and Section XI. DCD Subsection 5.3.4.7 is incorporated into the FSAR by reference as indicated in FSAR Section 5.3; no exceptions or departures are taken in the COLA with regard to the description of the preservice inspections for the reactor vessel head in DCD Subsection 5.3.4.7; therefore, conduct of the inspections will be consistent with, and as described in, DCD Subsection 5.3.4.7.

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

Enclosure
TVA letter dated July 03, 2008
RAI Responses

NRC Letter Dated: May 21, 2008

NRC Review of Final Safety Analysis Report

NRC RAI NUMBER: 05.02.04-02

The AP1000 DCD, Section 5.2.4 and 10 CFR 50.55a(g)(4) require that components be designed to enable the performance of ASME Code-required preservice and inservice examinations. Bellefonte FSAR Section 5.2.4.8 states, "[t]he specific areas where the applicable ASME Code requirements cannot be met are identified after the initial examinations are performed." In addition, Section 5.2.4.3.1 (page 5.2-4) states that a relief request will be submitted for NRC approval if accessibility is limited for nozzle-to-shell welds. Because it is the staff's understanding that the previously learned lessons are incorporated into the design and will enable the performance of inservice examinations required by the ASME Code, please explain why there would be areas on the reactor vessel nozzle-to-shell welds where inservice examinations would be impractical and necessitate relief. In this discussion, please address whether any RV nozzle-to-shell weld access issues are present at this time when using the latest edition and addenda of the ASME Code, Section XI that is incorporated by reference in 10 CFR 50.55a (i.e., the 2001 Edition up to and including the 2003 Addenda). If so, address whether TVA considers access from inside the pressure vessel to be an option.

BLN RAI ID: 0387

BLN RESPONSE:

As part of the design-for-inspectability process, the capability of examining the reactor vessel welds was assessed. The result of that assessment is that with ISI tooling design and the AP1000 reactor vessel design, examinations from the inside of the AP1000 pressure vessel can be completed without a need for relief requests. Specifically, the AP1000 reactor vessel design includes a location of the outlet nozzle-to-shell weld farther away from the nozzle boss than for some previous designs. The weld centerline has a larger radius from the nozzle centerline than previous designs, thus putting the weld farther away from the outlet nozzle protrusion/boss. This addresses a scan limitation in some previous designs. This change did not change the outline or interface dimensions of the reactor vessel. The AP1000 design has effectively removed the only known accessibility limitation in the nozzle-to-shell welds when using the edition and addenda of the ASME Code Section XI referenced in 10 CFR 50.55a (i.e., the 2001 Edition with Addenda through 2003). Plans are to examine these nozzle-to-shell welds from the inside surface of the vessel utilizing an underwater ultrasonic inspection tool, which is the accepted industry standard.

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

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NRC Letter Dated: May 21, 2008

NRC Review of Final Safety Analysis Report

NRC RAI NUMBER: 05.02.04-03

Discuss the details of TVA's program regarding preservice and inservice inspection (ISI) of Class 1 austenitic and dissimilar-metal welds, including with respect to monitoring for primary water stress-corrosion cracking. Specifically address the method and type of nondestructive examination, number and type of welds projected and two-sided access provisions. If two-sided access cannot be obtained to perform the same type of nondestructive examination method during inservice examination as performed during preservice examination, discuss how NRC regulations and the ASME Code ISI requirements will be met. Note that the Staff assumes that any relief from ISI of these susceptible welds on the basis of design, geometry, or materials of construction will not be necessary, since these factors can be rectified at the design stage before the plant is constructed.

BLN RAI ID: 0388

BLN RESPONSE:

As part of the design-for-inspectability process, the ASME Class 1 portion of the reactor coolant system is designed for two-sided access for austenitic stainless steel piping welds wherever possible. This is consistent with currently-qualified ultrasonic inspection procedures which comply with ASME Section XI. In some locations, such as at branch connections, two-sided access for examination for circumferential degradation is not possible. In these cases, the weld crowns are required to be flush such that one-sided ultrasonic examination techniques similar to that applied to dissimilar-metal welds can be applied. For dissimilar-metal welds, the welds are designed for one-sided access as a minimum. This is consistent with currently-qualified ultrasonic inspection procedures which comply with ASME Section XI. The exact number of welds is still under development at this time, but for each type of weld, the accessibility requirements of ASME Code Section XI are being applied to the design of these welds. At this time, the same NDE methods and techniques that are utilized for the preservice inspection are also planned for subsequent inservice inspections. Therefore, accessibility, geometry, and material of construction during inservice inspection should not be a concern, and no relief from inservice inspection requirements is expected at this time. Since the AP1000 reactor vessel design, fabrication, and installation does not include the use of nickel-chromium-iron Alloy 600, the examination methods and procedures do not need to address examination of Alloy 600.

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

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NRC Letter Dated: May 21, 2008

NRC Review of Final Safety Analysis Report

NRC RAI NUMBER: 05.02.04-04

Regulatory Guide 1.206, Section C.III.1, Chapter 5, Section C.I.5.2.4.2 defines the Preservice Inspection (PSI) Program as an operational program, as described in SECY-05-0197, such that the program and its implementation milestones should be fully described in terms of the scope and level of detail to allow for a reasonable assurance finding of acceptability. Bellefonte FSAR Section 5.2.4.9 states that preservice examinations required by design and documentation are in accordance with ASME Section III, NB-5281, and that volumetric and surface examinations are performed as specified in ASME Section III, NB-5282. It also states that components described in ASME Section III, NB-5283 are exempt from preservice examination. Please provide a more detailed description, including the scope of TVA's Preservice Inspection Program for ASME Code Class 1 components.

BLN RAI ID: 0389

BLN RESPONSE:

The design specifications for ASME Section III components include requirements for preservice inspection requirements as part of the design specification checklist. The preservice inspection requirements in the design specifications include compliance with ASME Code Section XI requirements, as a minimum. The final design specification will include a listing of Class 1 welds subject to preservice inspection.

FSAR Subsection 5.2.4.1 provides a discussion of the scope of the preservice and inservice inspection programs, by system; FSAR Subsection 5.2.4.3.1 describes the methods for examination for both preservice and inservice inspections; FSAR Subsection 5.2.4.3.1 describes the qualification requirements of personnel performing ultrasonic examinations (for both preservice and inservice examinations programs); FSAR Subsection 5.2.4.5 provides that Class 1 components preservice inspection requirements are provided in the design specifications, and provides further discussion of the scope of the preservice examinations (exempt components); FSAR Subsection 5.2.4.9 again discusses the requirements for ASME Class 1 component preservice inspection as required by ASME Section III; DCD Subsection 6.6.5, incorporated by reference in the COLA FSAR, indicates that preservice examinations are done in accordance with IWC-2200 (Class 2) and IWD-2100 (Class 3); and FSAR Section 13.4 provides the milestones for implementation of the preservice inspection program.

In addition, DCD Subsection 5.2.4.5, incorporated by reference in the COLA FSAR, indicates preservice inspections of Class 1 components will meet the requirements of IWB-2200, and as indicated in the response to NRC RAI No. 05.02.04-01, reactor vessel head preservice examinations are described in DCD Subsection 5.3.4.7, also incorporated by reference in the COLA FSAR. These FSAR sections, combined with the DCD sections, provide a full description of the preservice inspection program as required by SECY-05-0197.

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

Enclosure
TVA letter dated July 03, 2008
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ASSOCIATED BLN COL APPLICATION REVISIONS:

No COLA revisions have been identified associated with this response.

ATTACHMENTS/ENCLOSURES:

None