



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

June 24, 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 – QUALITY ASSURANCE**

Reference: Letter from Brian C. Anderson (NRC) to Andrea L. Sterdis (TVA), Request for  
Additional Information Letter No. 016 Related to SRP Section 17.5 for the  
Belleville Units 3 and 4 Combined License Application, dated May 12, 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 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  
prray@tva.gov.

I declare under penalty of perjury that the foregoing is true and correct.  
Executed on this 24<sup>th</sup> day of June, 2008

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

Enclosure  
cc: See Page 2

DOB5  
NRO

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cc: (Enclosure)

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J. P. Berger, EDF  
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P. S Hastings, NuStart  
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D. Lindgren, Westinghouse  
G. D. Miller, PG&N  
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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  
M.C Kray, NuStart  
A.M Monroe, SCE&G  
C. R Pierce, SNC  
R. Register, DOE/PM  
L. Reyes, NRC/RII  
T. Simms, NRC/HQ  
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Enclosure  
TVA letter dated June 24, 2008  
RAI Responses

Responses to NRC Request for Additional Information letter No. 016 dated May 12, 2008  
(12 Pages, including this list)

Subject: Quality Assurance

<u>RAI Number</u>	<u>Date of TVA Response</u>
17.05-13	This letter – see following pages
17.05-14	This letter – see following pages
17.05-15	This letter – see following pages
17.05-16	This letter – see following pages
17.05-17	This letter – see following pages
17.05-18	This letter – see following pages

Attachments / Enclosures

Pages Included

None

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**NRC Letter Dated: May 12, 2008**

**NRC Review of Final Safety Analysis Report**

**NRC RAI NUMBER: 17.05-13**

The Bellefonte QAPD, Part II, Section 7.2, NQA-1-1994 Commitment, describes an NRC-approved exception to NQA-1-1994, Supplement 7S-1, for commercial-grade calibration services from a calibration laboratory. Specifically, the QAPD states, in part, that a documented review of the supplier's accreditation shall be performed and shall include a verification that the calibration laboratory holds a domestic accreditation by NVLAP or A2LA as recognized by NVLAP through the ILAC mutual recognition arrangement. However, SRP Section 17.5, Section II.L.8.c, describes the relevant accreditation as A2LA as recognized by ILAC signatories, not as recognized by NVLAP through ILAC. Please justify the discrepancy between the QAPD and the SRP Section 17.5 approach, or revise the QAPD exception accordingly.

**BLN RAI ID: 352**

**BLN RESPONSE:**

This section of the QAPD is standard text from NEI 06-14A. In reviewing the condition identified by this RAI, it was confirmed that the Standard Review Plan, Section 17.5, Section II.L.8, identifies the Safety Evaluation (Accession Number ML052710224) by the Office of Nuclear Reactor Regulation, "Proposed Change to the Quality Assurance Program Commercial-Grade Calibration Services, Arizona Public Service Company, et al. Palo Verde Nuclear Generating Station, Units 1, 2, and 3," as the source of the approval for this option. The final paragraph of Section 3.3 of the referenced Safety Evaluation states "Based on the similarity of the A2LA and NVLAP accreditation processes, the meeting with the A2LA staff, review of publically available and internal administrative procedures, the openness and completeness of A2LA responses to NRC's questions, and the open invitation to participate in future A2LA accreditation assessments, and ILAC assessments of the A2LA program; the NRC staff found the A2LA process to be an acceptable alternative to the methods currently used by licensees to qualify suppliers. Continued acceptability of the A2LA alternative is contingent on NVLAP recognition through the ILAC MRA." With emphasis added on the final sentence.

The NEI template language, which states "The calibration laboratory holds a domestic accreditation by the National Voluntary Laboratory Accreditation Program (NVLAP) or by the American Association for Laboratory Accreditation (A2LA) as recognized by NVLAP through the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA)," reflects the wording from the NRC SRP-referenced Safety Evaluation. In reviewing this section of NEI 06-14A, the NRC SER clearly identified this wording to be acceptable.

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.

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**ATTACHMENTS/ENCLOSURES:**

None

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**NRC Letter Dated: May 12, 2008**

**NRC Review of Final Safety Analysis Report**

**NRC RAI NUMBER: 17.05-14**

The Bellefonte QAPD, Part II, Section 7.2, describes an exception to NQA-1-1994, Supplement 7S-1, Section 10, Commercial Grade Item, which states that TVA will also use other appropriate approved regulatory means and controls to support TVA commercial grade dedication activities. The QAPD states that NRC Regulatory Information Summary (RIS) 2002-22, "Use Of EPRI/NEI Joint Task Force Report, 'Guideline On Licensing Digital Upgrades: EPRI TR-102348, Revision 1, NEI 01-01: A Revision Of EPRI TR-102348 To Reflect Changes To The 10 CFR 50.59 Rule,'" is one example of other appropriate approved regulatory means. Attachment 1 of RIS 2002-22 provides the NRC staff's safety evaluation of the EPRI/NEI joint task force report. The NRC safety evaluation specifically states that the regulatory framework for this evaluation consists of (1) the requirements outlined in SRP Chapter 7 for the licensing process for digital I&C components in nuclear power plants and (2) the requirements for implementing digital replacements under the 10 CFR 50.59 rule. However, neither SRP Chapter 7 nor 10 CFR 50.59 provides guidance on commercial grade dedication activities. Provide an explanation as to how RIS 2002-22 represents an exception applicable to TVA's QAPD, or revise the QAPD accordingly.

**BLN RAI ID: 353**

**BLN RESPONSE:**

This section of the QAPD is standard text from NEI 06-14A. RIS 2002-22 does not represent an exception for the QAPD, it instead provides an example of a "control to support the commercial grade dedication activity" as explained below.

In reviewing the condition identified by this RAI, NEI confirmed that during the 2006 meetings between the NRC staff and the NEI New Plant QA Task Force, the issue of commercial grade dedication was discussed. The NRC staff pointed out that the industry should consider approved regulatory means and controls to support commercial grade dedication activities. The NRC specifically made mention of the fact that the "basis for engineering judgment and logic used in the determination" should be retained for commercial grade dedications because "such judgments may be difficult to duplicate and understand at a later time." The NRC went on to say that this staff position was documented in RIS 2002-22. In crafting NEI 06-14, the NEI QA Task Force desired to assure the NRC staff position was understood and thereby referenced RIS 2002-22 in the QAPD template as an example of a "control to support the commercial grade dedication activity." It was not another "approved regulatory means."

The complete quote from page six of RIS 2002-22 is: "Because such judgments may be difficult to duplicate and understand at a later time, it is the staff's position that the basis for the engineering judgment and logic used in the determination should be documented to the extent practicable. This type of documentation is of particular importance in areas where no established consensus methods are available, such as software reliability, dependability of digital systems, and the use of commercial-grade hardware and software that lacks full documentation of the design process."

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

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**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 12, 2008**

**NRC Review of Final Safety Analysis Report**

**NRC RAI NUMBER: 17.05-15**

Part IV, Regulatory Commitments, of the Bellefonte QAPD, identifies the NRC Regulatory Guides and other quality assurance standards that have been selected to supplement and support the TVA QAPD. SRP 17.5, Section II.U.1.c, provides for a commitment to RG 1.37, Revision 1. However, RG 1.37 is not listed in the QAPD as an RG to which TVA commits. Revise the TVA QAPD Part IV to commit to RG 1.37, Revision 1, or justify its exclusion.

**BLN RAI ID: 354**

**BLN RESPONSE:**

This section of the QAPD is standard text from NEI 06-14A. Consistent with the Regulatory Position of Regulatory Guide 1.37, Revision 1, NEI-06-14A, Revision 4, identifies a commitment to ASME NQA-1-1994 Part II, Subpart 2.1. This commitment is included in the QAPD in Part II, Section 13.2, but the QAPD does not address a commitment for Regulatory Guide 1.37, Revision 1.

NEI has revised the text in NEI 06-14A and resubmitted that document by letter dated May 7, 2008. This update includes a commitment to Regulatory Guide 1.37, Revision 1. In reviewing this Regulatory Guide, NEI also identified revisions addressing Regulatory Guides 1.26 and 1.29. The revised standard text is provided in the Application Revisions section below.

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

**ASSOCIATED BLN COL APPLICATION REVISIONS:**

COLA Part 2, FSAR, Chapter 1, Appendix 1AA, will be revised such that the information for Regulatory Guide 1.37 conformance reads as follows:

**Reg. Guide 1.37, Rev. 1, 3/07 – Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water Cooled Nuclear Power Plants**

Conformance with Revision 0 of the Regulatory Guide is documented in the DCD. Conformance of the design aspects is as stated in the DCD. Conformance with Revision 1 of this Regulatory Guide for programmatic and/or operational aspects is documented below.

Conforms

COLA Part 11, QAPD, Part II, Section 13.2, will be revised to read as shown in the following redline/strikeout markup:

In establishing provisions for handling, storage and shipping, TVA commits to compliance with NQA-1-1994, Basic Requirement 13 and Supplement 13S-1. TVA also commits, during the construction and pre-operational phase of the plant, to compliance with the requirements of NQA-



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1-1994, Subpart 2.1, ~~and~~ Subpart 2.2, and Subpart 3.2, Appendix 2.1, with the clarifications and exceptions shown below:

NQA-1-1994, Subpart 2.2

- Subpart 2.2, section 6.6, "Storage Records:" This section requires written records be prepared containing information on personnel access. As an alternative to this requirement, TVA documents establish controls for storage areas that describe those authorized to access areas and the requirements for recording access of personnel. However, these records of access are not considered quality records and will be retained in accordance with the administrative controls of the applicable plant.
- Subpart 2.2, section 7.1 refers to Subpart 2.15 for requirements related to handling of items. The scope of Subpart 2.15 includes hoisting, rigging and transporting of items for nuclear power plants during construction.

NQA-1-1994, Subpart 3.2

- Subpart 3.2, Appendix 2.1: Only section 3 precautions, which address the use of alkaline cleaning compounds and chelating agents that will be used in conjunction with the cleaning activities under Subpart 2.1, sections 8.2.2 and 8.2.3, are committed to in accordance with RG 1.37.

COLA Part 11, QAPD, Part IV, will be revised to address Regulatory Guides 1.26, 1.29, and 1.37 as shown in the following redline/strikeout markup:

**Regulatory Guide 1.26**, Revision 4, March 2007-3, ~~February 1976~~ - Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants

Regulatory Guide 1.26 defines classification of systems and components.

TVA commits to the applicable regulatory position guidance provided in this regulatory guide for NGDC with the exception of Criteria C.1, C.1.a, C.1.b, and C.3. Refer to the Westinghouse AP1000 Design Control Document, Appendix 1A, for a detailed discussion of these exceptions.

**Regulatory Guide 1.29**, Revision 4, March 2007-3, ~~September 1978~~ - Seismic Design Classification

Regulatory Guide 1.29 defines systems required to withstand a safe shutdown earthquake (SSE).

TVA commits to the applicable regulatory position guidance provided in this regulatory guide for NGDC with the exception of Criteria C.1.d, C.1.g, and C.1.n. Refer to the Westinghouse AP1000 Design Control Document, Appendix 1A, for a detailed discussion of these exceptions.

**Regulatory Guide 1.37**, Revision 1, March 2007 - Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants

Regulatory Guide 1.37 provides guidance on specifying water quality and precautions related to the use of alkaline cleaning solutions and chelating agents.

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TVA commits to the applicable regulatory position guidance provided in this regulatory guide for NGDC.

**ATTACHMENTS/ENCLOSURES:**

None

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**NRC Letter Dated: May 12, 2008**

**NRC Review of Final Safety Analysis Report**

**NRC RAI NUMBER: 17.05-16**

Appendix 1AA of the Bellefonte FSAR lists Bellefonte's conformance with NRC Regulatory Guides (RGs) and provides any exceptions to conformance with those RGs. For those RGs that describe quality assurance-related requirements, Appendix 1AA appears to address the conformance of the QAPD provided in Part 11 of the COL application. However, since TVA is relying on its existing quality assurance program for activities prior to COL issuance, please explain how Appendix 1AA also addresses the existing TVA quality assurance program's conformance to the applicable RGs.

**BLN RAI ID: 355**

**BLN RESPONSE:**

As discussed in FSAR Section 17.1, TVA is responsible for the establishment and execution of quality assurance program requirements during the design and construction phases of Bellefonte Nuclear Plant Units 3 and 4 and controls those activities prior to the issuance of the COL under the "Tennessee Valley Authority Nuclear Quality Assurance Plan," (TVA-NQA-PLN89-A). TVA-NQA-PLN89-A addresses the Conformance Status of applicable Regulatory Guides in Appendix B of that document.

TVA also identifies in FSAR Section 17.1, "The "Quality Assurance Program Description" (QAPD) discussed in Section 17.5 will become effective at COL issuance. The QAPD discussed in Section 17.5 is the QAPD provided in Part 11 of the Bellefonte application.

TVA does not plan to perform or have performed any construction activities or safety-related design activities prior to receipt of the COL, with the exception of those activities related to support of the COLA Review by NRC, such as preparing responses to RAIs that may require additional analysis.

Site Characterization activities have been conducted in accordance with applicable Regulatory Guides as discussed in FSAR Chapter 2 and FSAR Appendix 1AA.

This response is PLANT-SPECIFIC.

**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 12, 2008**

**NRC Review of Final Safety Analysis Report**

**NRC RAI NUMBER: 17.05-17**

For all RGs that describe quality assurance-related requirements, Appendix 1AA proposes to use the exception that quality assurance be in accordance with the QAPD. For the following RGs, explain how the QAPD provides an acceptable exception to the RGs. a. RG 1.28, Revision 3 b. RG 1.30, Revision 0 c. RG 1.33, Revision 2 d. RG 1.37, Revision 1 e. RG 1.38, Revision 2 f. RG 1.39, Revision 2 g. RG 1.94, Revision 1 h. RG 1.116, Revision 0 i. RG 1.139, Revision 0.

**BLN RAI ID: 356**

**BLN RESPONSE:**

The QAPD provided in COLA Part 11 incorporates standard text from NEI 06-14A, Revision 4, which was approved by the NRC via SER dated April 25, 2007. This QAPD follows the SRP Section 17.5 and the NRC concluded in the SER that "On the basis of its review, the staff concludes that the QAPD template provides adequate guidance for establishing a quality assurance program that complies with Appendix B to 10 CFR Part 50 by using ASME NQA standard NQA-1-1994, as supplemented by additional regulatory guidance and industry guidance. Accordingly, the staff concludes that the QAPD template can be used by an applicant or holder for ESP, COL, construction, preoperation and/or operation activities, as applicable." SRP Section 17.5 and the SER (Accession Number ML070510300) issued for NEI 06-14A provide the basis for the following evaluations of the Regulatory Guides identified in this RAI.

a. Regulatory Guide 1.28, Revision 3 – The FSAR Appendix 1AA exception states "Quality assurance is in accordance with the quality assurance program document (QAPD)." As indicated above, the QAPD is written in accordance with ASME NQA-1-1994 rather than the ANSI/ASME NQA-1-1983 and NQA-1a-1983 standards referenced by this Regulatory Guide. As indicated above, the use of ASME NQA-1-1994 has been approved as an acceptable alternative.

b. Regulatory Guide 1.30, Revision 0 – The FSAR Appendix 1AA exception states "Quality assurance is in accordance with the quality assurance program document (QAPD)." As indicated above, the QAPD is written in accordance with ASME NQA-1-1994 rather than the ANSI N45.2.4-1972 standard referenced by this Regulatory Guide. As indicated above, the use of ASME NQA-1-1994 has been approved as an acceptable alternative.

c. Regulatory Guide 1.33, Revision 2 – The FSAR Appendix 1AA exception states "Quality assurance is in accordance with the quality assurance program document (QAPD)." As indicated above, the QAPD is written in accordance with ASME NQA-1-1994 rather than the ANSI N18.7-1976 (ANS 3.2) standards referenced by this Regulatory Guide. As indicated above, the use of ASME NQA-1-1994 has been approved as an acceptable alternative.

d. Regulatory Guide 1.37, Revision 1 – Conformance with this Regulatory Guide is addressed in response to question 17.05-15 above.

e. Regulatory Guide 1.38, Revision 2 – The FSAR Appendix 1AA exception states "Quality assurance is in accordance with the quality assurance program document (QAPD)." As indicated above, the QAPD is written in accordance with ASME NQA-1-1994 rather than the ANSI N18.7-1976 (ANS 3.2) standards referenced by this Regulatory Guide. As indicated above, the use of ASME NQA-1-1994 has been approved as an acceptable alternative.



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**NRC Letter Dated: May 12, 2008**

**NRC Review of Final Safety Analysis Report**

**NRC RAI NUMBER: 17.05-18**

Revision 16 to the AP1000 DCD has proposed changes to Table 1.9-1, Regulatory Guide/DCD Section Cross-References. Specifically, Revision 16 of the AP1000 DCD is referencing RG 1.33 second proposed Rev. 3, dated 11/80. Please explain how these proposed changes are consistent with Appendix 1AA of the Bellefonte FSAR or modify the Appendix accordingly.

**BLN RAI ID: 357**

**BLN RESPONSE:**

Westinghouse is currently considering processing a change to the DCD that may revise this Table 1.9-1 reference to be consistent with the Regulatory Guide 1.33 reference in DCD Appendix 1A and the COLA FSAR Appendix 1AA, both of which reference Revision 2 of the Regulatory Guide. If approved, this change to the DCD would be expected to be included in WEC TR134, Revision 5, which is under development. If the DCD Table 1.9-1 is not revised to address Regulatory Guide 1.33, Revision 2, in the next revision to TR134 as expected, a revised response to this RAI will be provided within 30 days of the submittal of the TR134 revision.

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